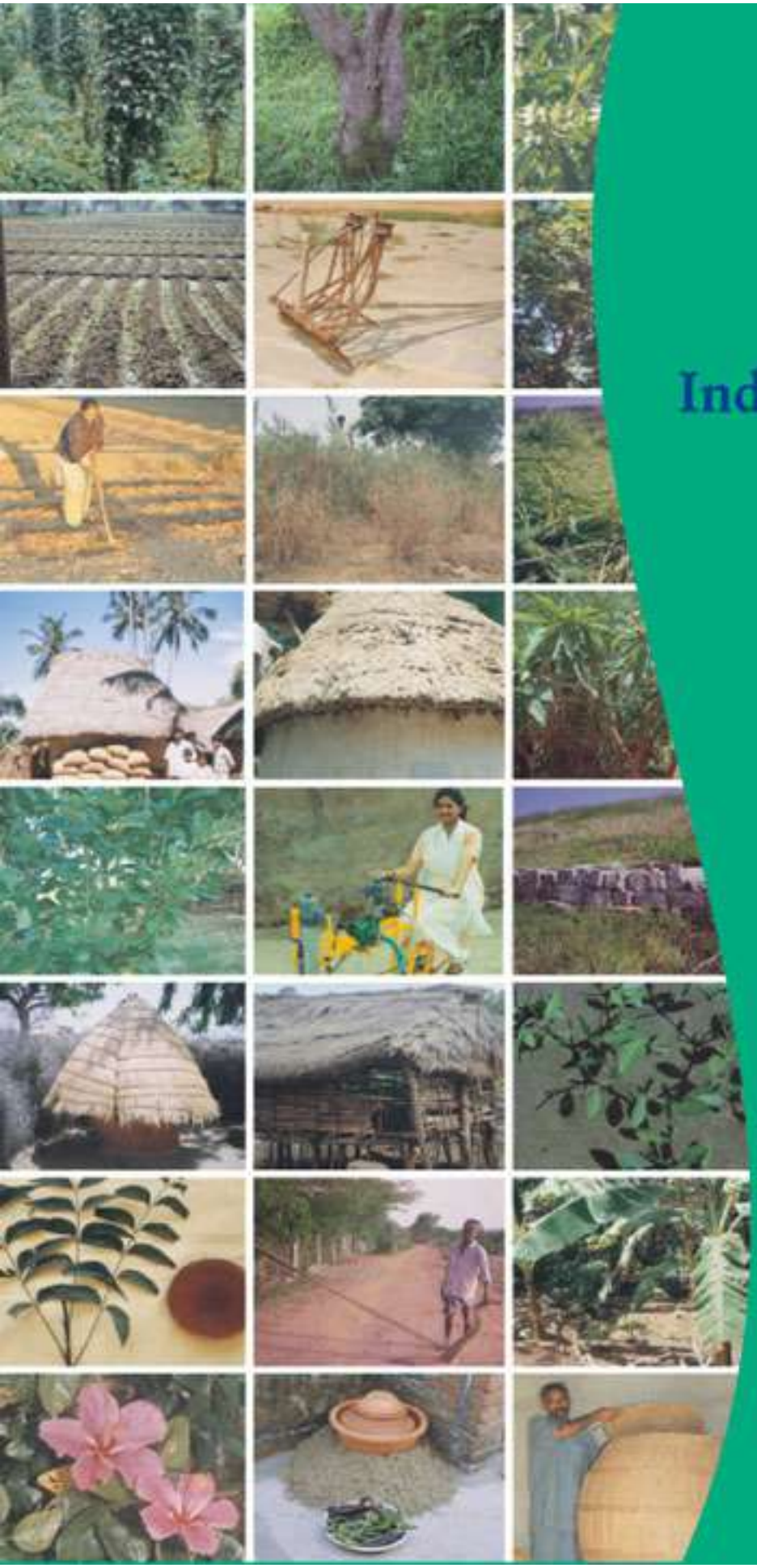

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2
(Supplement 1)

Mission Unit
Division of Agricultural Extension
Indian Council for Agricultural Research
New Delhi 110 012

Inventory of Indigenous Technical Knowledge in Agriculture

**Mission Mode Project on Collection,
Documentation and Validation ofIndigenous Technical Knowledge**

**Document 2
(Supplement 1)**

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Inventory of Indigenous Technical Knowledge in Agriculture

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Preface

Information on Indigenous Technical Knowledge (ITK), collected from primary sources through voluntary disclosures, were compiled and published in March 2003 entitled as Inventory of Indigenous Technical Knowledge in Agriculture—Document 2. Earlier, efforts were also made to provide easy accessibility of such information available in literature, books, journals, thesis etc., in the form of Inventory of Indigenous Technical Knowledge in Agriculture—Document I. In a continuous process of documentation, the indigenous knowledge-based practices have further been collected from primary sources and those communicated by the disclosures, have now been embodied in this publication entitled as Inventory of Indigenous Technical Knowledge in Agriculture—Document 2 (Supplement 1).

The supplement contains 562 practices which have been described in 21 chapters, viz., rain water management (2), soil and water conservation (3), tillage practices (7), crops and cropping systems (57), pest and disease management (81), soil fertility management (14), farm implements (6), post-harvest technology (1), grain/seed storage (43), horticultural crops (42), veterinary and animal husbandry (187), fishery (5), ethno-botany and agro-biodiversity (57), weather forecasting (9), thermal efficiency (1), waste water management (2), garbage disposal and management (2), food product development (11), natural yarns, dyes and weaves (9), low-cost housing materials (1), ethnic food (14) and one chapter as unclassified (8).

We are grateful to Dr. Mangala Rai, Secretary (DARE) and Director General (ICAR) for his constant encouragement in documenting the ITKs. The support received from NATP, particularly of Dr. S. L. Mehta, National Director and Dr. K. P. Agrawal, National Coordinator (MM) is highly acknowledged. The tireless efforts made by the project personnel which have made it possible to publish this document in shortest possible time are highly appreciated.

New Delhi
June 6, 2003

(P. Das)
Mission Leader

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Contents

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Chapter 1
Rain water management

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2322	Conservation of rain water in small ponds	The rain water is conserved by digging a small pond of 1/8th (0.05 ha) acre, size. The water is used for irrigating the garden plants after the rainy season, i.e. from January to March. The farmers of Haripur village of Puri district in Orissa are using small ponds for irrigation since 10 years. **Keywords:** small ponds, conserving water	Ms Bishnu Priya Mishra, Training Associate (Extension Education), KVK Ganjam, Bhanjanagar (Orissa) 761 126
2321	Use of surface-bed irrigation system to supplement rainfall	In the hilly regions, the annual rainfall is fairly heavy and well distributed. The rainfall is supplemented by irrigation to tide over the dry periods. This is done by surface-bed irrigation in whole of the Himachal Pradesh. The bed-irrigation method involves proper levelling of the field, after which the water is directed into beds of convenient sizes through small channels. The water is allowed to soak in the first pair of beds and then turned to the next pair; it continuous to flow until all the beds are irrigated. **Keywords:** surface bed irrigation, dry periods, small channel	Dr T. R. Nandal Vegetable Scientist RARC Dhaulakuan Sirmour (Himachal Pradesh) 171 005

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Chapter 2
Soil and Water Conservation

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2324	Control of soil erosion due to wind	To control erosion of soil by wind, tree plantation, wall construction and cane planting are done. Trees used for this purpose are palas, canes, sindwar, datepalm etc. Farmers of Barmasa village are following this practice since time immemorial. **Keywords**: soil erosion, wind, plantation	Shri Barooplal Singh Barmasa, Sahra Dumka (Jharkhand)
2323	Checking of soil erosion by growing trees along the fields	Growing of trees along the field is a very old traditions in the village. By introducing trees like grewia, kachnar etc and timely intercultural operation lead to soil and moisture conservation. Undulating topography and poor percolation of water due to poor vegetative cover contribute to soil erosion. In this practice, the trees are grown along the field, which reduce the wind velocity and intensity of sunlight, and thus help in reducing moisture evaporation. People of Baldhar village of Kangra district in Himachal Pradesh have been using this practice, for a long time. **Keywords**: soil erosion, grewia, kachnar, soil and moisture conservation	Shri Rajeev Kumar Room no 32 D NBH II Hostel Himachal Pradesh University Summer hill Shimla (Himachal Pradesh) 171 005
2325	Soil and water conservation by plantation	For soil and water conservation, the farmers of Barmasa village of Dumka district in Jharkhand plant shrubs, grasses and trees near the river, pond etc. to reduce run-off and soil loss. Plants like neem (Azadirachta indica), eucalyptus (Eucalyptus sp) and palas (Butea monosperma) are planted on the bank of the river and pond, which act as barriers to wind. **Keywords**: soil and water conservation, plantation, river, pond	Shri Baroop Lal Singh Barmasa, Sahra Dumka (Jharkahand)

Inventory of Indigenous Technical Knowledge in Agriculture

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Chapter 3
Tillage Practices

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2329	Land preparation for paddy cultivation	Six ploughings are done in the main field before transplanting of paddy seedlings. Initially the land is ploughed thrice, levelled and irrigated. After the fourth day of irrigation, the land is ploughed three times and again irrigated, and green manuring is done. A wooden levelling board is used to level the main field after ploughing just before transplanting to avoid small stagnant pools. Farmers of Pokkapalayam village are using this technique since the last 20 years. **Keywords**: paddy cultivation, frequent ploughing, green manuring	Shri K. Perisamy Kuttathootam, Pokkampalyam, Kumarmanglam, Namakkal (Tamil Nadu) 637 205
2327	Traditional field preparation forpaddy cultivation	During the main field preparation the bunds are trimmed well and plastered to avoid weed growth. In the main field, the bund is plastered twice i.e. one week before transplanting and on the day of transplanting. This is in practice for 35 years. **Keywords:** field preparation, paddy, plastering the bund, weed control	Shri M. Periasamy Kuttathotam, Pokkapalayam, Kumarmangalam, Namakkal (Tamil Nadu) 637 205
2328	Weed control in paddy by application of kochila leaves	The villagers of Anadpur in Keonjhar district of Orissa have been using this practice since time immemorial. The leaves and small twigs of kochila (Struchnos nuxvomica) are applied before land preparation, and are subsequently incorporated into the soil to control weeds. Secretion of kochila twigs suppresses the weeds inside the soil. About 50-60 % weed control is achieved by this method. **Keywords:** weed control, kochila leaves, soil incorporation	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit 8 Bhubaneswar (Orissa) 751 003
2326	Weed control in vegetable crops by using common salt	About 1 kg common salt (NaCl) is dissolved in 10 litres water and sprayed over the vegetable field to control weeds. Salt helps in destroying the roots of weeds along with the whole plant. Thus	Ms Mamata Mohapatra L-294, Baramunda, Housing Board Colony, Bhubaneswar (Orissa) 751 003

		weed control is done successfully. **Keywords:** weed control, vegetable crops, common salt	
2330	Weed management through interculture	This practice is being used for more than 20 years. In clay soils where summer ploughing is not possible, the field is wetted and the weed seeds are allowed to germinate. Then the field is ploughed and the weeds are incorporated into the soil. This is done before sowing or transplanting of rice crop to control weeds. **Keywords:** ploughing, weed management	Shri M. Periasamy Kuttathotan, Pokkanpalayan, Kumarmangalam, Namakkal (Tamil Nadu) 637 205
2303	Use of wahate for in-situ moisture conservation	Farmers of drought-prone areas of Ahmednagar district follow some preparatory tillage operations, i.e. ploughing or harrowing in a specific manner, called wahate (C-shaped), across the slope. Due to this operation the ridges and furrows are formed and rain water is conserved partially or totally. **Keywords:** wahate, rain-water conservation, tillage operation	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth Rahuri, Ahmednagar (Maharashtra) 413 722
2331	Crushing of clods of soil with wooden hammer (bharrotta)	When a fine-grained soil is cultivated in wet condition, the structure of the soil is disturbed. On drying, this soil turns into hard clods, due to cohesion of dispersed particles in the puddled soil. Paddy lands where the soil must be worked in standing water to make a puddle bed for transplanting the paddy seedlings, generally suffer from this problem. The breaking of clod is a laborious task, involving considerable amount of time. Wooden hammers are used to break the clods. The clods must be broken down before commencing the sowing operations. The clods break into fragments with first few cultivations done with the flow. The harder clods are crushed under a levelling board, sohaga. This is being practised throughout the hilly area of Himachal Pradesh since time immemorial. **Keywords:** hammer (bharrotta), sohaga, clods	Shri Bivinder Chand Katoch, Research Fellow, Department of Biosciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005

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Chapter 4
Crops and cropping systems

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2349	Germination test for paddy seeds	A handful of seeds are tied in a white cloth and soaked in water for 12 hours. It is kept in a dark place for 24 hours to test germination. In another method sand is filled in a coconut shell. In this shell 10-20 seeds are put for testing germination. Farmers of Reddypallayam village in Tamil Nadu have been using these practices since 10 years. **Keywords:** germination, paddy seeds, coconut shell, sand	Shri J. Mariayyah Vengasamy Nagar, Reddy Palayam, Thanjavur (Tamil Nadu) 613 004
2351	Germination test of paddy seeds	Paddy straw is tied together and made in the form of a mat. Paddy seeds are kept in the centre of the mat, and it is rolled and tied. It is dipped in water for a minute and the seeds are transferred in a bottle, which is made air-tight. After 24 hr, it is taken and counted for germination. In another practice, wet gunny bag is folded once and paddy seeds are kept between the two layers. It is kept in dark place for 1 day. Germination is checked on the next day. **Keywords:** germination test, paddy straw, gunny bag	Shri J. Mariayyah Vengasamy Nagar, Reddypalayan, Thanjavur (Tamil Nadu) 613 004
2337	Use of goat-dung to increase germination percentage of fresh paddy seeds	French paddy seeds (30 days old), are soaked in goat-dung solution for 1 day for better germination. It is believed that this practice strengthens the seeds and break the dormancy. This practice is being used by the farmers of Sundaram Nagar in Tamil Nadu since 10 years. **Keywords:** goat-dung solution, fresh rice seeds, germination	Shri Arun Kumar No-3, Seventh Street, Sundaram Nagar, Thanjavur (Tamil Nadu) 613 004
2336	Use of burnt rice husk to increase germination	Dry seeds of rice are sown in raised beds and irrigated. The seed bed is covered with burnt rice husk, which conserves moisture, prevents evaporation	Shri P. Boominathan No 20, 20th Street, Annanagar Burmadong, Thanjavaur (Tamil Nadu) 613 006

		loss, protects seeds from direct sunlight and creates anaerobic condition, thereby increasing the germination. The practice has been in use for 10 years. **Keywords:** burnt rice husk, moisture conservation, anaereobic condition, germination	
2339	Uniformity in germination and sprouting of paddy seedlings	Mats of paddy straw are placed one by one in a container (bamboo or tin), 30-45 cm in diameter and 2 feet in height. The seeds are placed over each mat and the other mat is kept over it. These mats are tied tightly in a criss-cross manner. This whole unit is called kottam. It is left in the corner of the house in shade for nearly 24 hr. Next day the kottam is carried to the field for sowing. By this method there is uniform germination and sprouting. Farmers are using kottam since 5 years. **Keywords:** paddy seeds, kottam, paddy-straw mat	Shri R. Subramaniam 1/124 Rangamapet, Pappireddipatti, Dharmapuri (Tamil Nadu) 636 905
2346	Use of bhang leaves for germination of paddy seed	Treating paddy seed with bhang is effective in paddy seed germination and this treatment is common in temperate areas of Jammu and Kashmir where Etemperature during nursery raising is low. Green leaves of bhang (Cannabis sativa) are ground and the sap is extracted. Paddy seed is put in a container containing water and the extracted sap is mixed in the container. About 250 ml sap is effective for the purpose, probably because of rise in temperature owing to bhang sap in water. Bhang is a local growing herb and Eits sap extraction is a very simple process. The technique is neither intricate nor involves much costs. **Keywords:** paddy seed germination, bhang sap	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-Etemperature Kashmir University of Agricultural Sciences and Technology, Jammu Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province J&K State) Documenta tion and Validation of ITK, 2002. Sher-Eits Kashmir University of Agricultural Sciences & Technology, Jammu
2353	Use of proper sowing time to increase yield of paddy	Farmers of Annanagar village of Tamil Nadu transplant paddy on the 15th day of Tamil month on aavani (31 August) since 15 years. It ensures good harvest of the crop. Transplanting during October-November is not advisable, as the yield is reduced. Transplanting in rows along the wind direction is done for better performance.	Shri M. Selvendrum 282 Annanagar, Kulithalai, Tiruchirapalli (Tamil Nadu) 639 104

		Keywords: paddy cultivation, sowing time, avian, wind direction	
2354	Mixing of paddy seeds with cow dung before sowing	Mixing paddy seeds with cow dung is a common cultural practice of Jammu region of Jammu and Kashmir. In this practice, seed is properly mixed with Ecow dung before sowing. The mixing of the seed with cow dung becomes doubly advantageous. First, it protects the seed from birds whenever the nursery is dry, and secondly it acts as manure for the seed. **Keywords:** paddy seeds, cow dung, manure	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-Ecow Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2341	Use of semi-dry condition to raise pest and disease - free paddy nursery	Farmers of Kottaikadu village in Tamil Nadu are using this practice since 20 years. Nursery is raised under semi-dry condition so that the crop can withstand pest and disease attacks as well as drought condition. For cultivating 1 acre, a nursery is raised in 5 cents area. **Keywords:** semi-dry condition, pest and disease attack, drought, paddy nursery	Shri S. Marimutthu, Kottaikadu Kalagam, Peravurani, Thanjavur (Tamil Nadu) 614 804
2355	Use of ash to protect paddy nursery against adverse weather	This is practised in the surrounding areas of Gooty of Anantapur district in Andhra Pradesh. In late kharif season, if there is any likelihood of heavy rain and there are pre-germinated paddy seeds, ash is sprayed in nursery beds. Ash acts as a cementing layer and prevents toppling of seedlings and also accumulation of seedlings on one side. **Keywords:** paddy nursery, cyclone, heavy rain, ash, cementing agent	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515 701
2362	Use of brankar leaves in raising paddy nursery	This practice is widely adopted in Mogla area of Rajouri district in Jammu & Kashmir. In this practice brankar (Adatoda vesica) leaves are mixed with Esoil at the time of field preparation for nursery raising of paddy. The leaves of Adatoda increase soil fertility, act as insecticide and make the uprooting of seedling easier. **Keywords:** brankar leaves,	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-Esoil Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection,

		paddy nursery, soil fertility	Documentation and Validation of ITK, 2002. Sher-EKashmir University of Agricultural Sciences & Technology, Jammu
2335	Use of over-aged rice seedlings with topping and more number of seedlings per hill	When seedlings become over-aged due to some reasons, the farmers use topped seedlings (1/3 from top) @ 4-5 seedlings per hill. This is to compensate growth loss and to induce vigour. For kar (June-Sep) rice close spacing and for pisanam (October - December) rice wider spacing is practised. The farmers are using over-aged seedlings efficiently since 8 years. **Keywords:** over-aged rice seedlings, topping, more seedlings per hill, kar rice, pisanam rice	Shri P. Boominathan No 20 Annanagar, Burmoadong, Thanjavur (Tamil Nadu) 613 006
2338	Increasing frequency of irrigation to avoid heat-induced effect in rice	While growing summer rice, the water in the field is heated due to high solar radiation . This condition, especially during the tillering phase, adversely affects tiller formation and also the health of the plants. To avoid such a condition, the farmers increase the frequency of irrigation, so that hot water is drained out and cool water either from the channel or from the well is impounded in the field. This practice is followed until the interspaces are covered by foliage. This is being practiced since 10 years. **Keywords:** irrigation frequency, heat losses, solar radiation	Shri R. Subramaniam 1/124 Rangamapet, Pappireddipatti, Dharmapuri (Tamil Nadu) 636 905
2342	Control of weeds in paddy crop by management techniques	For controlling weeds in paddy, many farmers of Bulandshahar and Aligarh districts of Uttar Pradesh dip the seeds of paddy in salted water before sowing. The floating seeds are discarded along with the seeds of weeds. The water is drained out and the healthy seeds are kept in gunny bags for 24 hours for germination. The germinated seeds are broadcast in the field, where 2-3 inches (5-7.5 cm) standing water is maintained. Weed seeds fail to germinate under this condition. By using this practice, 70-80% weeds are reduced in the paddy crop. This practice is in use for the last 70-80 years.	Shri Suraj Pal Singh Nayabas Kutabpur, Dibai, Bulandshahar (Uttar Pradesh) 202 393

		Keywords: weed control, paddy crop, management techniques, broadcast, weed seed	
2344	Use of deodar branches to control paddy weeds	This practice is followed in hilly areas of Jammu and Kashmir, where paddy is cultivated. Deodar (Cidar deodara) branches along with matured leaves are Eevenly spread over the field. When the weeds come in contact with the branches and leaves, the oil present in deodar branches and leaves work as a weedicide and eliminate the weeds in paddy field. **Keywords:** deodar branches, weedicide, weeds	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-Eevenly Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Obtaining good tillering in nagali and paddy by detopping	In the tribal area of Akole tehsil of Ahmednagar, farmers leave the animals free for grazing in nagali (Eleusine coracana) and paddy crops. Grazing leads to detopping, which results in profuse tillering, ultimately boosting the yield of the crops. **Keywords:** nagali, paddy, animal grazing, detopping, tillering	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of parasani operation in minor millet (Eleusine coracana) for detopping of crop	In the tribal area of Akole tehsil of Ahmednagar district, farmers do parasani operation in standing crop of Eleusine coracana. This operation is done 1 to 1 ½ months after sowing the crop by the use of long iron blade harrow with light load wooden plank (bullock drawn). By this implement only shallow rooted weeds are removed but not the main crop (because the crop has deep and profused root system). The tip portion of the crop plants is removed by the blade to serve the purpose of detopping. This results in good yield of the crop. **Keywords:** parasani, minor millet, detopping	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Sowing of wheat at freezing stage of coconut oil	Wheat sowing is recommended during the period when cool temperature prevails. To obtain profuse tillering, wheat sowing is done when minimum temperature is 12-14 degree celcius. Farmers themselves have foundout	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		solution for adjusting the time of sowing. It is the time when coconut oil starts freezing. Accordingly, wheat is sown in many districts of Maharashtra. Wheat sown during this time produces profuse tillering, thereby fetching good yields. **Keywords:** freezing of coconut oil, sowing of wheat, profuse tillering, good yield	
2303	Sowing of tidaki, a local variety of maize to obtain good yield	In spite of the availability of hybrids, the tribal farmers of Dhule and Nandurbar districts of Maharashtra grow local variety of maize, viz., tidaki. It is sweeter as compared to other varieties. Its bhakri is tasty and it remains soft for long time. It is early maturing (75-80 days). It gives good yield even under drought conditions and requires less fertilizer. It is also resistant to pests and diseases and gives average grain yield of 25 q/ha. The quality of fodder is also good. **Keywords:** tidaki, maize, bhakri, sweet, drought resistant	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of modified planting technique of maize to minimise cost of production	Farmers of Malshiras tehsil of Solapur district raise maize by dibbling on one side of ridges. This poses difficulty in carrying out intercultural operation. Farmers dibble maize seeds on flat beds, and after germination they carry out one hoeing operation as interculturing. Then the ridger is drawn between two lines of maize crop, so a furrow is opened. It helps in earthing up the crop and support the plants. This practice increases the forage/grain yield up to 10-12% with no need of later interculturing operations. **Keywords:** maize dibbling, ridger, hoeing operation, furrow, modified planting technique	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2361	Growing of maize as grain and fodder crop	Usually this practice is common in maize growing areas of Jammu region (Jammu and Kashmir). Instead of sowing seeds @ 2kg/kanal, the seed is sown at a much higher rate @ 5-6 kg/kanal. Thinning in maize is done one month after sowing to pick-up the undesired plants. The desired population is raised for grain purpose. This practice is advantageous as damages	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collec

		/mortalities of plants due to infestation of insect-pest is taken care of due to use of higher seed rate. The plants obtained after thinning is used as fodder for the animals. **Keywords:** maize, high seed rate, fodder crop, thinning	tion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2348	Tin beating for protecting maize crop from wild animals	In Kandi areas of Jammu region, monkey and neel cows are very common. When the maize cobs are at milky stage, monkeys and neel cows (antilop) Eattack the crop and destroy it. In order to check the attack, farmers of Jammu and Kathua districts in Jammu and Kashmir beat tin peepa at night. Though this practice creates drudgery to the farmers, as they have to remain awake during night but is quite effective in saving the crop from animals. **Keywords:** tin beating, peepa, neel cow, maize cob, monkey	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-Eattack Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Use of proper sowing time for better germination of sorghum	Farmers of Barsi tehsil of Solapur district and rabi predominant area of Ahmednagar district sow sorghum crop (both irrigated and rainfed) during 15-30 September. During this period good germination of sorghum is observed. **Keywords:** proper sowing time, better germination, sorghum crop, 15-30 September	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Sowing of rabi sorghum during Gokul Ashtami festival	Farmers of Ahmednagar district and Malshiras and Mangalsvedha tehsils of Solapur district adopt this practice of sowing during Gokul Ashtami festival. If the rain occurs during Swati nakshatra (during middle of November), it helps in better growth of crop at flag-leaf stage. This practice is very much remunerative to the farmers. **Keywords:** rabi sorghum, Gokul Ashtami, Swati nakshatra, flag-leaf stage	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of cow urine on sorghum crop	Farmers of Pandharpur tehsil of Solapur district do not follow recommended dose of fertilizers. This results in yellowing of leaves of sorghum at flag-leaf stage, thereby reducing the photosynthetic activity and leading to low harvest of grain yield. To overcome this problem,	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		farmers spray cow urine in sorghum crop. **Keywords:** cow urine, sorghum, photosynthetic activity, flag leaf stage, fertilizers	
2303	Judging yield of rabi sorghum with tamarind flowering	There is assumption among the farmers of Solapur and Ahmednagar districts that when there is good flush of flowers of tamarind then the rabi sorghum yield is expected to be very good. **Keywords:** rabi sorghum, tamarind	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Sowing of pigeonpea in March for green pods	Farmers of Dhule district in Maharashtra sow pigeonpea in March and the green pods are harvested for selling in Surat market from June onwards which fetches very high price. There is a great demand for green pods of pigeonpea which is utilized for table purpose. By considering the market demand, farmers have started sowing of pigeonpea in March as an off-season crop. **Keywords:** pigeonpea, green pods, table purpose, off-season	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Sowing of soaked groundnut pods	This practice is followed in some parts of Dhule tehsil of Dhule district of Maharashtra. Groundnut pods are soaked in water for 2 hours and then bagged over night. Next day it is sown in the furrows opened by wooden plough. This gives good yield of groundnut. **Keywords:** groundnut, overnight soaking, wooden plough, good yield	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of bamboo stick for harvesting of groundnut pods	Harvesting of groundnut is needed to be completed within a certain time period. This is a tedious job, especially during kharif because of labour problem. So to complete this operation within time, farmers of Malshiras and Karmala tehsil of Solapur district use bamboo sticks for harvesting groundnut pod. **Keywords:** groundnut harvesting, bamboo sticks	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2345	Mulching of mustard field with cowdung	Mustard field is mulched by spreading with a thin layer cowdung during December, just before the snow fall, taking proper care that cowdung is evenly and properly spread throughout field. The mulching helps to moderate temperature	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E- Kashmir University of Agricultural Sciences and Technology,

		and protect the plants. Thus the plant is survived during the flowering period from adverse effects of snowfall and frost. It helps to conserve moisture, reduce evaporation and improve physical conditions of the soil by increasing its organic matter content. This is practiced in hilly areas of Jammu and Kashmir. **Keywords:** mulching, layer of cowdung, Etemperature	Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documenta tion and Validation of ITK, 2002. Sher-Etemperature Kashmir University of Agricultural Sciences & Technology, Jammu
2332	Mixing of mustard seed with friable soil for uniform broadcast of seed in the field	The mustard seed, being very small in size, is difficult for the farmers to broadcast uniformly in the field. So the seed is mixed with soil and then broadcast. The practice is advantageous in maintaining uniformity in the broadcast of seed. This also helps in sowing seeds uniformly in the field, which in turn results in uniform plant population. This technique involves no cost at all and is skill-oriented. **Keywords:** friable soil, uniform broadcast	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Use of cowdung and mud slurry for seed treatment of desi cotton	Due to fuzzyness, it is difficult to sow cotton seed as such. To cope up with the problem, farmers of Dhule, Nandurbar, Jalgaon and Ahmednagar districts of Maharashtra, treat the cotton seed with cowdung and mud slurry. It facilitates easy sowing of cotton seeds. According to seed quantity, cowdung is mixed with soil in proper proportion to prepare a slurry to spread over the seed. The seeds are rubbed to apply slurry uniformly. It is then dried under shade. After drying, the seeds are sown. This treatment is given a day before sowing. It also helps in good germination, thereby giving 10% more yield. **Keywords:** cowdung and mud slurry, cotton, fuzzy seed	Director of Extension Education Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Summer pearl millet after cotton, a new cropping system	Since last 4-5 years, some farmers of Dhule, Nandurbar, Jalgaon and Ahmednagar district of Maharashtra have started cultivation of pearlmillet in summer after kharif cotton. The area under kharif cotton is	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		increasing day by day, thereby reducing the area under food crops. The farmers themselves have felt the shortage of food grains for their family and fodder for their cattle. To overcome this problem, farmers have started taking summer pearlmillet after kharif cotton and they are getting good-quality grains and fodder as compared to the kharif crop. Moreover, yields are also more. Sowing is done in January by using double the seed rate than used in kharif. All other packages of practices are the same as that for kharif. Only 5-6 irrigations are required. No pests and diseases have been noticed so far. **Keywords:** summer pearlmillet, kharif cotton	
2303	Dry sowing of cotton, pigeonpea and rice	For getting advantage of early seeding in kharif season, farmers resort to dry seeding of cotton (local variety), pigeonpea and rice. Seeing is generally done 10-12 days before the anticipated date of onset of monsoon. In this practice, dry seeded crops give the advantage of 8-10 days earlier sowing than normal. When sufficient rains are received, the dry seeded grains start germinating. In dry seeding, however, there is a risk of re-sowing in the event of receipt of inadequate rainfall. Otherwise it gives 10% more yield. Dry seeding of cotton and pigeonpea is in practice in Dhule, Nandurbar and Jalgaon districts of Maharashtra. Dry seeded rice is taken in Taloda and Akkalkuwa tehsils of Nandurbar district in Maharashtra. **Keywords:** dry sowing, cotton, pigeonpea, rice, monsoon	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Ratooning of kharif cotton	In Nandurbar, Dhule and Jalgaon districts of Maharashtra, farmers are taking ratoon crop of cotton. The farmers who are having irrigation facilities are following this practice. Ratooning is done after 3-4 pickings of cotton and the crop is supplemented with chemical fertilizers and 2-3 irrigations till February-March. The farmers get additional yield of about 10-15 q/ha, in addition to previous harvest.	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		Keywords: ratooning, kharif cotton	
2303	Ratooning of rainfed cotton raised on deep black soil	In Shevgaon and Pathardi tehsils of Ahmednagar district, farmers take cotton during monsoon/ rainy season, which is harvested upto end of November/ December. But during the last 5-6 years it has been observed that rains are received during November/ December. During this time new growth of leaves, branch, bolls etc. is observed from stubbles of cotton plants. In this crop only weeding operation is done. The flush of flowers get matured within 2 months and farmers obtain 4-6 q/ha of cotton yield. **Keywords:** ratooning of cotton	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of high concentration of urea for the control of noxious weeds in sugarcane	To control the monocotyledonous weeds in sugarcane crop, farmers of Pandharpur tehsil of Solapur district use solution of urea (15 % concentration). High concentration of urea affects stomatal activity and scorching is seen over the leafy portion of the weeds and growth of plants is hindered. **Keywords:** high concentration of urea, noxious weeds, sugarcane, stomatal activity	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Yield increase of sugarcane by irrigating the crop during navaratra	Farmers of Malshiras tehsil of Solapur and middle part of Ahmednagar district irrigate sugarcane crop during navaratra period. By this practice yield increases by 2 t/ha. **Keywords:** sugarcane, irrigation, navaratra	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2302	Use of low-cost technologies for agro-economic production	Farmers of Agra division are following these practices: Crop based ITK (a) Oilseeds: (i) Advance sowing of mustard (up to September end) on rain-conserved moisture in place of October sowing (at 27 degree centigrade optimum temperature, with pre-sowing irrigation) gives higher yield and also saves the crop from aphids. It has widely been accepted by the farmers of Agra region. (ii) By raising toria in September-October, control of weeds is possible, and it saves at least 3 ploughings @ Rs 200/ha, compared to fallow in maize-wheat rotation as against	Dr O. P. Rajput Cropping Systems Research Project (ICAR), Department of Agronomy, R.B.S. College, Bichpuri Agra (Uttar Pradesh) 283 105

maize-toria-wheat sequence.
(iii) Thinning at 15-18 days after sowing in mustard is done to maintain 15 cm plant-to-plant distance or to achieve nearly 1.5 lakh plants per ha which increases yield by 5-10 percent.
(iv) Topping of main stem of mustard (15 cm from top) at 35-40 days or before flowering increases yield by 15-20 percent.
(v) Early sowing of sesame increases phyllody disease; hence early sowing is avoided.
(vi) In sorghum (fodder)-mustard sequence use of gypsum @ 8q/ha provides more profit.
(vii) In fallow-mustard-sunflower sequence, the mustard yield decreases but increases in green manure/ greengram/ summer maize-mustard sequence,
(viii) In soybean+popular agro-forestry based system soil health may be recovered by addition of organic matter, without shading or adverse effect on soybean/ berseem based system.

(b) In other crops:
(i) FYM/compost/green manure/waste residues are useful, but presently their use is low because of intensive cropping. This requires repromotion.
(ii) Timely sowing has its own importance. Mustard is sown when the farmers can-not sleep without a bedsheet.
(iii) Wilt disease does not occur if seed treatment in pulses like chickpea and pigeonpea is done through curd, butter milk and of linseed and mustard (for 24-48 hr). Use of fresh cowdung as seed treatment in cotton helps in early germination and protects from pests and diseases besides facilitating sowing operation.
(iv) Use of coconut dust and wood ash in vegetable seeds, particularly in cucurbits, tomato and brinjal helps to save seeds from pest/disease damage in storage.
(v) Use of besharam (Ipomoea carnea) is beneficial in controlling rats/pests in rice fields.
(vi) Intercropping of chickpea/lentil + linseed (4:1 row ratio) and pigeonpea+sorghum

		(1:3 row ratio) helps in controlling wilt disease. (c) For grain storage: (i) Pulses (split dal) for house-hold use may be kept safe without loss for a longer period by coating it with mustard oil. (ii) For house-hold use, rice is stored with common salt (small pieces); pulses with asafoetida (heeng) and camphor (kapoor); and wheat with garlic bulblets. The practice help control damage by storage pests. (iii) Use of dry neem leaves is useful in storage of grains. (iv) Seeds of cucurbitaceous vegetables, tomato and brinjal can be stored safely by mixing with wood-ash. (d) General: (i) For controlling termites in sugarcane or in any crop, use of cowdung in pots (pitchers) and placing it in field is an effective method. The smell of dung attracts termite which are trapped in the pitcher. (ii) Cow urine + neem leaves (4:1 ratio by weight) + copper piece/plate are mixed in pitcher and put in soil for about a month or two. Then it is boiled and the quantity is reduced to half, filtered and stored in bottle. The product acts as a good insecticide for all crops. (e) Amendments: Lucerne meal and barley straw are amendments for cotton root rot disease. Green manure of soybean is amendment for potato common scab. Wheat straw, corn stover and lucerne hay are amendment for potato black scrub. Oat straw, corn stover and lucerne hay are amendments for bean root-rot	
2350	Mixed cropping of groundnut, sorghum, pearlmillet, pigeonpea and castor	It is an age-old practice in Penugonda mandal of Anantapur district of Andhra Pradesh. Mixed cropping with groundnut reduces the risk of failure of crop under rainfed condition. Castor serves as a trap crop for spodoptera. Sorghum or pearlmillet serves as a guard crop. Since pigeonpea is a slow-growing crop in the early stages, it offers	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515 701

		less competition to groundnut. Even if groundnut fails, some returns will be obtained from pigeonpea. **Keywords:** mixed cropping, risk distribution	
2356	Mixed cropping of maize with soybean	Mixed cropping of maize with soybean is a useful cropping system. Soybean is a leguminous crop, which helps in nitrogen fixation in the soil and increases soil fertility. Mixed cropping of maize and soybean is commonly adopted by the farmers of Mashal village in Kangra district of Himachal Pradesh. In this system, first ploughing is done to remove the residues of previous crop and the field is ploughed again after receipt of rain. Maize and soybean seeds are broadcast uniformly. Sowing of maize and soybean is done in the first week of June and both the crops are harvested during September-October. Mixed cropping is beneficial to farmers, as it minimises insect-pest attack and more than one crop is grown in a particular field. **Keywords:** nitrogen fixation, residues, mixed cropping, leguminous crops	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer hill, Shimla (Himachal Pradesh) 171 005
2303	Use of mixed cropping to cover risk of failure	Tribal farmers of Nandurbar, Dhule and Ahmednagar districts of Maharashtra generally take mixed crops to cover the risk of crop failure of sole crop. They take nagali with maize, sorghum and pigeonpea. Pigeonpea is mixed with groundnut or vice-versa. Pulses like blackgram and chickpea are also mixed with sorghum/ maize. **Keywords:** mixed cropping, risk of failure, nagali, pigeonpea, maize, sorghum, groundnut, blackgram, chickpea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2347	Mixed cropping of wheat, mustard and pea	The practice of sowing wheat mixed with mustard and pea is prevalent in wheat and mustard growing belt of Jammu region (Jammu and Kashmir). These crops are different with respect to their adaptability and potential to cope stress Agriculfollowing outbreak of diseases, attack of pest or even adverse climatic conditions. Thus the intergeneric differences of the crops would ensure that in the eventuality of	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection,

		any such occurrence, one or the another crop may suffer but still others will sustain. **Keywords:** mixed crop, intergeneric differences, risk avoidance	Documentation and Validation of ITK, 2002. Sher-EKashmir University of Agricultural Sciences & Technology, Jammu
2340	Mixed cropping in kharif	Different crop mixtures are sown by people of hilly area of Himachal Pradesh with several advantages like food diversification, maximum utilization of soil nutrients, crop productivity enhancement and prevention of insect attacks. Leguminous and non-leguminous crops may grow well when sown in mixture. A combination of shallow and deep rooted crops also show good performance. Ladies finger (Hibiscus esculentus), cucumber (Cucumis sativus) and gourds are grown as mixture with maize as kharif crops. Maize is also sown with sunflower (Helianthus annus), karela (Mimordica charantia), kangeri (Cucunbita spp) and ghiya (Luffa acutangula) as mixed crops. **Keywords:** mixed cropping, kharif , maize, cucumber, gourds, ladies finger, sunflower	People of Himachal Pradesh at large Communicated by: Prof L. R. Verma Department of Bio-Sciences Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2360	Mixed cropping in rabi	In rabi, wheat (Triticum vulgare), sarson (Brassica campestris), gram (Cicer arietinum), loki (Luffa cyllindrica) and pea (Pisum sativum) are sown in the same area as mixed crops. This is beneficial to practice on small farm unit for the cultivators to obtain food diversification and useful to maintain soil fertility by sowing the leguminous crops with non -leguminous crops. It is practiced in whole of the hilly area of Himachal Pradesh since time immemorial. **Keywords:** mixed cropping, rabi , wheat, sarson, gram, loki, pea	People of Himachal at large Communicated by: Prof L. R. Verma Department of Bio-Sciences Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2333	Intercropping of wheat and maize along with mustard and sesame	Intercropping is a very useful and important method to enhance the crop yield and overcome the problem of insect-pest attack. This practice is used by the farmers of Baldhar village of Kangra district in Himachal Pradesh. By intercropping more than one crop is grown in the same field and farmers get both cereals as well as oilseeds or	Shri Rajeev Kumar Room no 32 D, NBH II Hostel Himachal Pradesh University, Summer hill, Shimla (Himachal Pradesh) 171 005

		pulses. Mustard (Brassica campestris) is taken along with wheat, and sesame (Sesamum inidcum) with maize (Zea mays) as intercrops. In this practice, first ploughing is done in fallow field to remove the previous crop residue and to conserve the moisture of the field. When field receive sufficient rain, the second ploughing is done and wheat is sown. Mustard seeds are broadcast in wheat field, as it protects the wheat crop from insect pest attack. Similarly sesame is sown along with maize. By this practice farmers get two crops in the same field and in the same season. **Keywords:** intercropping, pest control, higher yield	
2303	Intercropping of chilli with summer groundnut as strip crop for higher monetary returns	Chilli seeds are sown along with summer groundnut in 1:4 row ratio in January. Thinning is done in chilli after 30 days of sowing. After havest of summer groundnut in May, the hoeing and weeding are done to promote growth of chilli and it is continued up to July/August. The farmers fetch remunerative market price, as there is a demand for chilli during June to August. This practice is being followed since 10 years is some parts of Dhule and Ahmednagar districts of Maharashtra. **Keywords:** chilli, summer groundnut, intercropping	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2343	Intercropping of corn and chillies for increased production	This intercropping is followed in some parts of Theog tehsil of Shimla district in Himachal Pradesh. Corn is planted at a row spacing of 100 cm x 15 cm with a plant density of 4,500 plant rows per 0.15 ha. Two rows of chilli are planted between corn in 30 cm x 30 cm spacing. The density of chili is @ 4,500 rows per 0.15 ha. After land preparation, organic manure is applied with phosphorus and nitrogen(1:2/3). There are some advantages from this intercropping: no cost is involved, less time consuming, increased soil fertility, two crops at the same time and extra income from the crop of chilli. **Keywords:** chilli, corn, phosphorus, nitrogen	Shri Deep Ram Verma, Ghaghri, Theog Shimla (Himachal Pradesh) 171 201
2358	Use of different crops in	Farmers of Himachal Pradesh	People of Himachal

	rotations	grow different types of vegetables, pulses and cereals under this technique. They exchange their vegetables/ pulses or other products on the basis of their family requirements and needs. It provides opportunity for proper utilization of soil nutrients and enhances soil fertility and income of the farmers. There are two main seasons of growing crops. The kharif season correspond to late summer months and harvested in autumn. The rabi season correspond to the winter months and harvested in the spring. In between these two main seasons, additional crops are raised where conditions permit. These are known as zaid kharif or zaid rabi crops. **Keywords:** kharif, rabi, zaid, crop rotation, cropping season	Pradesh at large Communicated by: Prof L. R. Verma Department of Bio-Sciences, Himachal Pradesh University Shimla (Himachal Pradesh) 171 005
2352	Growing of indigenous tree oei (Albizzia chinensis) along with tea crops	Growing of tea crops is a common practice in the Kangra valley. Crops are grown along with Albizzia chinensis (oei) which is an indigenous tree. It is planted along the marginal land and sloppy area.In this practice oei (Albizzia chinensis) is grown with tea crops. Oei trees are grown in equal spacing to provide shade to newly grown tender plants and leaves of the crop as the newly grown tender plants and leaves show optimum growth at a temperature of 23-26 ^{o}C. This ITK is used throughout tree growing area in Kangra valley of Himachal Pradesh. **Keywords:** Albizzia chinensis, tea	Shri Bovinder Chand Katoch Research Fellow, Department of Biosciences, Himachal Pradesh University Shimla (Himachal Pradesh)
2357	Use of edible oil for seed treatment	Some indigenous practices of seed treatment have proved very fruitful to the farmers since long. Among such practices, one popularly prevalent method in use is the treatment of seeds with edible oil. Under this practice, seed is soaked with edible oil before sowing. Oil acts as a barrier and prevents attack from lower organism such as fungi and bacteria, as it cannot be easily weathered and degraded by such organisms. The practice of treating seed with edible oil is being popularly adopted by the farmers in Jammu division of Jammu and	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documenta tion and Validation of ITK, 2002. Sher-E Kashmir University of Agricultural Sciences &

		Kashmir. **Keywords:** edible oil, seed treatment, fungi and bacteria	Technology, Jammu
2359	Seed treatment with ash and cow dung	Crops suffer a greater amount of loss due to seed borne diseases and infestation of insect pest. Treating the seeds before it is sown with a mixture of ash and cow dung effectively prevents the attack by pests and diseases. Ash acts as a mechanical barrier to pests and pathogens. This also helps to reduce the moisture present in seed by absorbing it. The technique is extensively prevalent in whole of the Jammu and around the Jammu region of Jammu and Kashmir. **Keywords:** seed treatment, seed borne disease, ash and cow dung mixture, mechnical barrier	Communicated by: Dr M. D. Gupta Director Extension Education, Sher-E Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004
2303	Control of flower shedding in chilli and pigeonpea by using whey solution	Farmers of Taloda and Akkalduwa tehsils of Nandurbar district use a mixture of 10 litres whey, 10 litres water and 1 kg urea to control sheding of flowers in chickpea and pigeonpea. The solution is stirred well and sprayed at an interval of 20 days, 2-3 times which, prevents flower shedding. **Keywords:** flower shedding, chilli, pigeonpea, whey, urea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Control of doob grass (Cynodon dactylon) by growing rajgira (a minor millet) in infested field	For control of doob grass (Cynodon dactylon) farmers of Miraj, Tasgaon tehsils of Sangli district and middle portion of Ahmednagar district use deep ploughing. After deep ploughing the residues of weeds are collected and burnt. Then broadcasting of rajgira seed or sowing of rajgira as sole crop is done in the heavily infested area. It is thought that the exudation from roots of rajgira checks its growth. **Keywords:** doob, deep ploughing, rajgira	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2334	Control of congress grass weed by application of kerosene oil	At flowering stage of congress weed, farmers of Udhampur district of Jammu Kashmir spray kerosene oil on it. As a result, it is completely dried. However, this practice is to be supplemented/ integrated with other weed control measures for complete measure. **Keywords:** congress grass weed, kerosene oil	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of

			ITK, 2002. Sher-EKashmir University of Agricultural Sciences & Technology, Jammu
2363	Management of bio-physical resources	This method of natural farming is followed in the high hills (above 2500m) of Arunachal Pradesh where the Buddist Manpas practise settled subsistence hoe farming without constructing any terrace for agricultural crops. Instead, the entire natural slopes of the hills are used for taking up both kharif and rabi crops. Sheep dropping and oak (Alnus nepalensis) leaves serve as manure in kharif season, while human waste and litter are sprayed in barely field during rabi season. The system of crop production of maize and finger millet are practiced to maintain soil health and to prevent the soil from the nutrient loss. Minimum tillage is done with hoe only and inter and mixed cropping of vegetables, beans, pulses, roots and tubers are followed at a regular basis to maintain soil fertility for sustainable farming. **Keywords:** natural farming, Buddist Manpas, hoe farming, sheep dropping, oak, human, waste, litter, maize, finger millet, minimum tillage, beans, pulses, roots, tubers	Dr N. Prakash, Dr P. P. Pal, Dr P. Sundrambal, Dr R. Kumar and Dr B. Bihari, Agricultural Extension Division, ICAR Research Complex for NEH Barapani (Meghalaya)-793 103 **Ref:** Indigenous technological knowledge followed by the tribal farmers of North eastern hill in agriculture. Indian J. Hill Farmg 12 (1&2): 134-135(1999)
2303	Determination of appropriate harvesting time of cereal crops	For determining the time of harvest, farmers of north Solapur region of Solapur district bite randomly selected grains from a field for judging the proper harvesting time of cereal crops. Harvest at proper stage of crop has prime importance for achieving good quality and optimum yields. Some grains of the cereal crops are selected randomly and bitten to assess the hardening of the grains. If the grains attain proper hardening, they are ready for harvest. **Keywords:** biting of grains, time of harvest, cereal crops	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 5
Pest and Disease Management

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2389	Use of vasambu powder and cow urine for seed selection and seed treatment of rice	Enough water is boiled and is cooled overnight. In the morning vasambu (Acorus calamus) powder and cow urine are mixed in the water. Seeds are put in it. The floating seeds are removed. The remaining seeds are used for sowing. This serves the dual purpose of seed selection and seed treatment, to reject the non-viable seeds. Farmers of Kizhmathur village in Tamil Nadu have been using this practice since 10 years. **Keywords:** vasambu, cow urine, seed selection, seed treatment	Shri R. Nagrajan Kizhimathur, Kunnam, Perambulai (Tamil Nadu) 621 719
2417	Use of Calotropis gigantea to prevent attack of thrips in paddy nursery	Farmers are using Calotropis gigantea as green manure to prevent thrip attack in paddy nursery since 12 years. The nursery is irrigated to submerge the whole plant and after some time the water is drained out to carry away the insects. **Keywords:** Calotropis gigantea, thrips, paddy nursery	Shri K. Kumaran S/o Shri Kailasam, Kamrajnagar, Nidamangalam, Thiruvarur (Tamil Nadu) 614 404
2376	Burning of waste material in the field to raise nursery	This is commonly practised in Venkatapuram, Reddipali and Sanjeevpuram villages in Anantapur district of Andhra Pradesh.The farmers collect the fallen leaves and stubbles and apply in the nursery uniformly. The materials are burnt in summer and ploughing is done to incorporate the ash. This practice sterilizes the soil and controls damping off in nursery. **Keywords:** burning, waste material, nursery, damping off	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhra Pradesh) 515 701
2403	Use of deodar oil for control of insect-pest in paddy nursery	This practice is useful, specially to check caterpillar in paddy. This is a skill-based technique and being used in paddy growing areas of Jammu region. In this practice, deodar oil is taken in a container. A stick is taken and one end of the stick is soaked in oil and the same is applied on the foliage of nursery plants. Before its application, the water level in	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report

		the nursery is raised. This causes the insects to crawl the foliage and the insect on coming in contact with the treated foliage is killed. After the application, the water is allowed to stand in the nursery for 1-2 hrs. **Keywords:** paddy nursery, deodar oil	from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2399	Use of ash for controlling insect-pests in paddy nursery	This practice is being used in paddy growing areas of Jammu region (Jammu and Kashmir). In this, the wood is burnt into ash. The ash, thus obtained, is applied in paddy nursery. The ash has insecticidal properties and controls the insect-pests of paddy nursery effectively. Besides, it also enriches soil and improve its fertility. **Keywords:** wood ash, insecticidal property, paddy nursery	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2412	Trimming of field bunds, wetting and drying, and dung application to prevent pest and disease attack in paddy	During summer, bunds of paddy fields are trimmed to destroy alternate hosts of insects. Alternate wetting and drying helps reduce the pest incidence. The pest and disease incidence is lowered if sheep/goat/pig dungs are applied under irrigated conditions. This is being practised since 19 years. **Keywords:** weeding, dung, alternate wetting and drying, pest incidence	Shri Boopathy 56-C, Kamarajpuram (West), Sengundhapuram, Karur (Tamil Nadu) 693 002
1767	Summer ploughing of rice fields to kill pathogens	During summer months, farmers do ploughing following rains, which is called summer ploughing (akras jutai). Summer ploughing kills the resting stage of rice pathogens as well as that of insects, and this practice also reduces the weed population. Farmers of Chhattisgarh region are following this practice. **Keywords**: summer ploughing, pathogen, insect, weed	Director of Extension Services, Indira Gandhi Agricultural University, Krishak Nagar, Raipur (Chhattisgarh) 492 012
2414	Use of neem cake to control stem borer, bacterial leaf blight and gall fly	Sacks filled with 8 kg neem cake are immersed in irrigation channels to control stem borer, bacterial leaf blight and gall fly in paddy. The neem cake is used 18-20 days after planting and sacks are replaced after every 25 days. Farmers of Pudupatti village in Madurai	Shri R. Sathiyaraman, S Gopalapuram, T Pudupatti, Thirumangalam, Madurai (Tamil Nadu)

		district of Tamil Nadu are using this practice since last 7 years. **Keywords:** paddy, neem cake, stem borer, bacterial leaf blight, gall fly, irrigation water	
2396	Use of neem leaves to control pest incidence in rice fields	If neem leaves with small stems are applied as green manure in the field, there is no attack of pests and diseases in the rice field. Farmers are using this practice since 14 years. **Keywords:** neem leaves, pest and disease attack	Shri C. Ramesh S/o Shri Chinnaiyan, Alagapuri, Thoraiyur Tiruchirapalli (Tamil Nadu) 621 210
2385	Use of neem oil, soil and fresh cow dung to control stem borer and leaf roller in rice	To control stem borer and leaf roller in rice, 500 ml neem oil is mixed with 4 kg soil and some fresh cow dung. It is dried in shade for 2 days. Thereafter it is dissolved in 50 litres water. About 200 g soap is dissolved and it is sprayed on the crop. Farmers of Kalakamangalam village in Tamil Nadu are using this practice since 15 years. **Keywords:** neem oil, soil, fresh cow dung, soap	Shri Kalimuthu Kalalka Mangalam (West), Athersi, Aranthongi, Pudukottai (Tamil Nadu)
2409	Use of neem cake or punnai cake or mixture of cumbu flour and butter milk to control leaf roller in rice	Neem (Azadirachta indica) cake or punnai (Celophyllum apetalum) cake is dusted at the rate of 1 kg/acre at 30 days after transplanting of rice to control leaf roller. Spraying of cumbu flour mixed with butter milk is also used to control leaf roller. Farmers of Krishnan Kavil village in Tamil Nadu are using this practice since 12 years. **Keywords:** neem cake, punnai cake, cumbu flour, butter milk, rice leaf roller	Shri G. Narasiyan 3/5 Krishnankavil, Ammayappan, (Tamil Nadu) 613 701
2398	Use of leaves and branches of neem, sinduar, bhelwa and palas to cure diseases in crops	Branches and leaves of neem, palas, sinduar and bhelwa are incorporated into the soil on Saturday or Sunday when a disease is visible on crop plants. In 5 litres water about 200 g leaves of neem are boiled in a pan. The resulting solution is also sprayed on the affected plants. Farmers of Barmasa village are using these practices since time immemorial. **Keywords:** neem, palas, sinduar, bhelwa, disease in crops	Shri Baroop Lal Singh Barmasa, Sahra, Dumka (Jharkhand)
2406	Use of Strychnos noxvomica to control insect in rice fields	The farmers of Lingathur village of Tamil Nadu use green branches of Strychnos nuxvomica to control insects from paddy fields since 10 years. The green branches of Strychnos nuxvomica are placed at a 10 feet interval in the paddy field. Insects that suck water of	Shri L. R. Shanmuga Sundaram Lingathur, Uppida mangalam, Karur (Tamil Nadu) 639 114

		the treated field are killed. Ducks are allowed inside the field after the harvest. This also helps reduce pest incidence in the next crop. **Keywords:** Strychnos nuxvomica, insect, ducks	
2367	Use of vasambu (Acorus calamus) to prevent pest attack in rice	Farmers of Naduvikadu village of Tamil Nadu are using vasambu to prevent pest attack in rice for last 12 years. Vasambu is powdered and dissolved in water and kept overnight. The next morning the clear solution is mixed with 200 ml neem oil and it is sprayed on the crop to prevent pest attack. **Keywords:** vasambu, pest attack, neem oil	Shri Samithurai, Naduvikadu, Adiramapatinam, Pattukotai, Thanjavlur (Tamil Nadu) 614 701
2390	Use of pivandai (Cissus quadrangularis) to control pests of paddy fields	Neem leaves are mixed with equal quantity of pivandai (Cissus quadrangularis) leaves. The mixture is ground well and soaked in cow urine for 1 week and afterwards it is filtered. The filtrate is mixed with water at 1:9 ratio and it is sprayed twice at 15 days interval to control all the pests of paddy. Farmers are using this practice since 12 years. **Keywords:** pivandai, neem leaves, cow urine, paddy field	Shri P. S. Senthil Kumar 158/4 Railway Station Road, Pattukottaai, Thanjavur (Tamil Nadu) 614 602
2391	Use of fruits of sausage (Kigelia pinnata) tree to reduce pest incidence in rice	The fruits of sausage tree (Kigelia pinnata) are cut into pieces and buried in the soil of nursery area and main field, which considerably reduces the pest incidence in rice. The farmers are using this practice to control pests since 15 years. **Keywords:** rice, pest, sausage	Shri N. Rathinasamy 33-D Jottipuram, Jayankondam, Perambur (Tamil Nadu)
2388	Use of sanampoo flowers to drive away earhead bug in rice	Sanampoo flower is cut into pieces, tied in a wet cloth and is covered by paddy straw. This whole unit is tied over a small stick and the sticks are inserted in vertical position in the rice field. The flower has a foul odour, which lasts quite long. The earhead bugs are repelled by its bad odour. The farmers of Kannanur village of Tamil Nadu are using this practice since 10 years. **Keywords:** sanampoo, stick, foul odour, rice earhead bug	Shri R. Mutahlagu Kannanur, Pudukottai (Tamil Nadu) 622 409
2387	Use of kerosene oil to control stem borer and earhead bug in rice	Farmers are using kerosene oil to control stem borer and earhead bug in rice since 6 years. To control the pests, 5 kg rice bran is mixed with 1 litre kerosene oil and it is dusted on the rice field. **Keywords:** kerorsene, rice bran,	Shri S. Tamilzhenian 1, Madavilaga Nannilam, Thiruvaroor (Tamil Nadu) 610 105

		stem borer, earhead bug	
2386	Use of mixture of garlic, chilli and kerosene to control earhead bug in rice	For controlling earhead bug in rice, garlic (Allium sativum) and chilli (Capsicum spp) are mixed and a solution is prepared to spray on rice crop. During flowering stage, kerosene oil is mixed with water and sprayed on the rice crop to control rice earhead bug. The farmers are using it since 9 years. **Keywords:** garlic, chilli, kerosene, earhead bug, rice	Shri M Murugan Kunnanur, Pudukottai (Tamil Nadu) 622 409
2410	Use of kerosene oil in the field to kill pests in rice	Farmers are using ropes of paddy straw and kerosene to control pests of paddy fields since 8 years. Farmers drag the rope across the rice fields by disturbing the plants. The insects that harbour on the plants fall down due to shock by ropes. The field is filled with water and 1 to 2 litres of kerosene oil is poured in the water. The insects falling down in the kerosenized water cannot float and drowned. To control leaf roller, neem branches are put in some places in the paddy field. **Keywords:** kerosene, rope, leaf roller, neem branch	Shri K. Raja Kalkamangalam (West), P.O Athersi, Taluka Aranthangi, Pudukottai (Tamil Nadu)
2408	Use of Achyranthus aspera and Acacia lavcophilla to control leaf spot, leaf roller and earhead bug in rice	The roots of Achyranthus aspera and bark of Acacia lavcophilla are dried well and powdered. It is mixed in water and sprayed to control leaf spot, leaf roller and earhead bug in rice. Farmers are following this practice since 9 years. **Keywords:** Achyranthus aspera, Acacia lavcophilla, leaf spot, leaf roller, earhead bug	Shri M. Selvendran 282 Annanagar, Kulithalai, Tiruchirapalli (Tamil Nadu) 639 104
2377	Control of rice hispa by using wild ber sticks	For controlling rice hispa in paddy field, brooms are prepared out of dried stem of wild ber. The broom is stuck on the crop, affected with rice hispa. As a result the grubs of hispa fall down on the standing water. The grubs are removed from the field by draining the water. This is 60-70% effective and is an eco-friendly practice and 50-60% farmers of Kesinga block of Sambalpur district of Orissa are using this practice since time immemorial. **Keywords:** rice hispa, wild ber, broom	Ms Bhanumati Behra Plot no. 64, Surya Nagar, Unit -7 Bhubaneswar (Orissa) 751 003
2370	Insect pest and disease management in paddy and vegetables	A highly effective traditional practice is observed in NEH region for the management of	Dr N. Prakash, Dr P.P.Pal, Dr P. Sundrambal,

		insect pests and disease in paddy and vegetables. The farmers dig a pit of required size in the barren field itself to mix cow dung, cow urine, chilli and garlic in sufficient water. These are kept in the pit for at least 10-15 days for proper decomposition. Then the decomposed mixture is sprayed in paddy and vegetables at 15 days interval. Generally 2-3 sprayings are sufficient for the entire crop season to keep it disease and insect-pest free. **Keywords:** pit, cow dung, cow urine, chilli, garlic, sprayings	Dr R. Kumar and Dr B. Bihari Agricultural Extension Division, ICAR Research Complex for NEH Region, Barapani (Meghalaya)-793 103 Ref: Indigenous technological knowledge followed by the tribal farmers of North eastern hill in agriculture. Indian J. Hill Farmg 12 (1&2): 134-135 (1999)
2384	Use of pine leaves for insect-pest control in paddy	A method of insect control in paddy is found in the rice growing states of NEH region where pine leaves are used to protect the crop from the attack of gundhi bug (Leptocorisa acuta). This is followed mainly under assured irrigation conditions where channels are prepared for watering the paddy field. The leaves alongwith the branches are tied together and are allowed to dip into the running water of the channel. Three or four different places are selected for this purpose. It is practiced with belief that the smell of pine leaves carried by the running water protects paddy from gundhi bug attack. **Keywords:** pine leaf, irrigation channel, running water, smell of pine leaf	Dr N. Prakash, Dr P.P.Pal, Dr P. Sundrambal, Dr R. Kumar and Dr B. Bihari, Agricultural Extension Division, ICAR Research Complex for NEH Region, Barapani (Meghalaya)-793 103 Ref: Indigenous technological knowledge followed by the tribal farmers of North eastern hill in agriculture. Indian J. Hill Farmg 12 (1&2): 134-135 (1999)
2364	Control of brown plant hopper by changing the micro-climate of the root zone	In Tanjore delta, the farmers are controlling brown plant hopper by changing the micro-climate of the root zone since 12 years. Early rice is sown in June-July, which matures in September-October. If cloudy weather is prevalent during this period, the root zone will be conducive for multiplication of brown plant hopper. Therefore, the farmers change the microclimate by draining the water and drying the field. The plant foliage is set aside length-wise so as to allow the sunlight/ air to reach the ground. **Keywords:** brown plant hopper, microclimate, rice, root zone	Shri M. P. Rajaram Pillai, Pandrimala, Perumparai, Kodaikanal, Dindigul (Tamil Nadu)
2394	Use of Calotropics gigantea to control brown plant hopper in nursery as well as in field	To control brown plant hopper in the affected field, leaves of Calotropics gigantea are pressed and incorporated into the soil in the interspaces available. It	Shri R. Sathiyaraman S. Gopalapuram, T Pudupatti, Thirumangalam, Madurai (Tamil Nadu)

		controls brown plant hopper in nursery as well as in field. Farmers of Pudupattim, Tamil Nadu are using Calotropics gigantea since 8 years. **Keywords:** Calotropics gigantea, brown plant hopper	
2378	Control of brown plant hopper in rice by a mixture of kerosene and rice husk	Villagers of Khurda district of Orissa are using this practice since time immemorial for controlling brown plant hopper in rice. About 10 kg rice husk is mixed with 2 liters kerosene and is kept overnight in rice field. The seasoned mixture is applied. **Keywords:** brown plant hopper, kerosene, rice husk	Ms Sarbani Das 1068/32 Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2303	Use of extract of neem leaves and parthenium to check infestation of Helicoverpa sp.	In Shirpur and Sindhkheda tehsils of Dhule district in Maharashtra, farmers use extract of neem leaves and Parthemiun sp. to control Helicoverpa sp. Parthenium and neem leaves are taken in equal quantity and dipped in water for 24 hours, after crushing them. The extracted solution @ 20 ml is sprayed in dilution with water in 10 litres water. **Keywords:** neem leaves, Parthenium, Helicoverpa sp.	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2416	Control of brown plant hopper in paddy	Farmers of Balasore district in Orissa control brown plant hopper in paddy by applying a mixture of rice husk (10kg) and kerosene (2litre) in the paddy field. **Keywords:** brown plant hopper, rice husk, kerosene	Shri Raghunath Biswal Rambvilla, Balasore (Orissa)
2383	Use of poultry manure and neem cake to control root rot and tiller rot	For controlling root rot and tiller rot, the field is drained out 20-25 days after sowing. Forty kg poultry manure and 25 kg neem cake/acre are applied and the field is irrigated after 3 days. Kerosene is sprayed to control blast. **Keywords:** root rot, tiller rot, drainage, poultry manure, neem cake	Shri R. Sathiyaraman, S. Gopalapuram, T Pudupatti, Thirumangalam, Madurai (Tamil Nadu)
2375	Control of blast in rice by application of tulsi extract	About 1 kg tulsi leaves are boiled in 2 litres water thoroughly. The solution @ 2 ml per litre of water is stained and sprayed on the affected rice crop twice at 15 days interval. Leaves of wild tulsi plants can be used for controlling the disease. This practice is economic and eco-friendly, and by it 40-50% infestation can be controlled. **Keywords:** rice, blast, tulsi leaves	Ms Mamata Mohapatra L-294, Baramunda Housing Board Colony, Bhubaneswar (Orissa) 751 003

2374	Control of blast in rice by application of bael	About 1 kg bael leaf is crushed and immersed in 10 litres lukewarm water for 2 hrs. Then the leaves are taken out and the solution is sprayed over the rice crop once daily. This is an economic and eco- friendly way of controlling blast in rice. **Keywords:** rice, blast, bael, lukewarm water	Ms Bhanumati Bahera Plot No. 64, Surya Nagar, Unit-7 Bhubaneswar (Orissa) 751 003
2373	Control of blast in rice by application of karada (Xylia xylocarpus) and cowdung slurry	The villagers of Nimapada of Puri district in Orissa are using this practice since time immemorial to control blast in paddy. Cowdung slurry is prepared by mixing 1 kg cowdung with 10 litre water. The slurry is mixed with crushed karada leaves. The solution is sprayed at weekly interval. **Keywords:** blast, rice, karada, cowdung slurry	Ms Sarbani Das 1068/32 Shatabdi Nagar, Bhubnaneswar (Orissa) 751 003
2402	Control of blast of paddy	About 1kg bael (Aegle marmelose) leaves are crushed and mixed with 10 litres of lukewarm water. The mixture is kept for 2-3 hours. Then it is stained and the extract is sprayed over the paddy crop to control blast. This practice is followed in Balasore district of Orissa. **Keywords:** blast, bael leaves	Shri Rabindra Rana Simulia, Balasore (Orissa)
2407	Reduction in intensity of blast in paddy	Farmers of Bain village of Chenani area of Udhampur district of Jammu and Kashmir reduce infestation of blast in paddy by delaying application of basal dose of urea (25-30 days of transplanting). By using this practice infestation of the disease is reduced to a great extent. **Keywords:** paddy blast, delayed application of basal dose of urea	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu, Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2365	Method of saving maize seed from insects	When the maize seeds are sown in field and if it does not rain after sowing, the insects eat the maize seed and crop production is reduced. To save the seeds from insects, the maize seeds are dipped in cow urine for sowing in the field for 10-12 hr. If it does not rain after sowing up to 20-25 days, the seeds remain unaffected. It is followed in Kasoli area of	Shri Pawan Kumar Parihar Himchal Pradesh Government Press, Shimla (Himachal Pradesh) 171 005

		Solan district of Himachal Pradesh since time immemorial. **Keywords:** maize, cow urine	
2413	Use of wood ash for controlling cutworm attack in maize	Cutworm attack is very common in maize and it causes heavy damage in maize crop. Farmers in hilly areas use dust of wood ash in maize to protect the crop against cutworm. This practice is fully effective and is used by the farmers of Mogla area of Rajouri district in Jammu & Kashmir. **Keywords:** wood ash, cutworm, maize	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2372	Indigenous methods of preventing blister beetle infestation in maize	This technique is reported to be prevalent in maize crop. The maize growers of the intermediate zones in Jammu and Kashmir collect blister beetles and after killing it is set on fire. The blisters are also exposed to the smoke emanating from fire. As a result it gets destroyed and thus the menance of the insect is averted. This smokes also act as repellent for other insect pests, including blister beetles. **Keywords:** blister beetle, maize crop, smoke	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documenta tion and Validation of ITK, 2002. Sher-EKashmir University of Agricultural Sciences & Technology, Jammu
2400	Treatment of maize seed with deodar oil	Cutworm is the major insect-pest of maize crop. When maize is taken after mustard, the infestation may go as high as 75%. Therefore, the farmers of maize-growing areas of Jammu region of Jammu and Kashmir treat maize seeds with deodar oil. For the purpose, maize seed is soaked with deodar oil which is somewhat diluted with water. In this process, the seed becomes coated with the oil. The coating of seed with oil helps to keep insect-pest away. This is nominal cost practice. **Keywords:** seed treatment, deodar oil, insect-pest	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Provine (J&K State) on Collec-tion, Documentation and ITK, 2002. Sher-EKashmir University of Agricultural Sciences & Technology, Jammu
2401	Use of goat and sheep manure in maize field	The application of sheep and goat droppings and urine in the maize field helps in keeping it free from insect and pest attack. This is	Communicated by: Dr M. P. Gupta Director Extension Education,

		highly effective in case no chemical fertilizer is applied in the field. Traditionally farmers rear sheep and goats on their farms and their dropping and urine are used as manure. As a result, there is least problem of insect-pests in the crops. This practice is consistent with farming system approach where different enterprises are taken together at the same time in the filed and they complement and supplement each other. This practice is prevalent among the farmers of Doda and Udhampur districts of Jammu and Kashmir. **Keywords:** goat sheep manure, insect-pest attack	Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricul-tural Sciences & Technology, Jammu
2411	Uses of rock salt in treatment of maize seed	Rock salt treatment works against the insect pest of maize. The cutworm, which is more common, is effectively checked by this practice. Rock salt is mixed with the seed soaked in water. For treatment of 4-5 kg seed, ½ kg salt is required. It has been found effective to the extent of 25% against the infestation of insect-pests in the crop. This treatment is common in maize growing areas of Jammu region (Jammu and Kashmir). **Keywords:** rock salt treatment	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collec-tion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Raising of sorghum as mixed crop in cotton as bird percher	In Jalgaon, Nadurbar, Dhule and Ahmednagar districts of Maharashtra, the farmers raise sorghum as a mixed crop scattered in cotton fileds. The grain of sorghum attracts the birds and served as a perch for the birds to reach the insects of cotton plants. **Keywords:** sorghum, cotton, bird percher	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Control of blister beetle on pearlmillet by using leaves of gidhan	Farmers in tribal area of Nandurbar and Dhule districts and Akole of Ahmednagar district of Maharashtra use a bad-odour plant to control the blister beetle in pearlmillet. A man moves around the pearlmillet field and rubs the leaves of gidhan on the affected pearlmillet plants. The beetles flee away due to bad odour. **Keywords:** blister beetle, pearlmillet, gidhan, foul odour	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2415	Termite control in chickpea	Many farmers of Bhatelie village	Shri Manohar Dan

		in Jodhpur district of Rajasthan are using this practice to control the termnite attack in chickpea crop since a long time. Before sowing, the chickpea seeds are treated with hing (Fernulla northex). For 1q seed, 80-100 g hing is taken. It is mixed in 2-3 litres water and the prepared solution is spread evenly on the seed and that is being mixed, while pressing with the help of foot and spade. The treated seeds after drying becomes brown in colour. These are sown in the field. This treatment repels the termite at least for 45 days of sowing. Since gram is a tap-root crop, treated seeds should be sown deeply, as no damage is caused even after 45 days of sowing. **Keywords:** termite control, gram, hing	Bhatelie, Aagolie, Jodhpur (Rajasthan)
2303	Use of curd for seed treatment of chickpea for wilt control	In tribal areas of Nandurbar and Ahmednagar districts of Maharashtra, chickpea seeds are treated with curd before sowing. The curd is spread over the seeds just to smear it on the seed coat. It is dried under shade and then sowing is done. This practice reduces incidence of wilt in crop and 5-8% more yield is obtained. **Keywords:** curd, chickpea, wilt	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of fermented pearlmillet flour in water to control Helicoverpa	Tribal farmers of Nandurabar district of Maharashtra use fermented pearlmillet flour to control Helicoverpa in cotton. About 10 kg pearlmillet flour is mixed with 200 litres water in plastic drum and it is kept for fermentation under the heap of compost for 8 days. After 8 days the solution is sprayed on cotton to check infestation of Helicoverpa. **Keywords:** fermented pearlmillet, Helicoverpa, cotton	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Dusting of pearlmillet flour to control pod borer in pigeonpea	Pearlmillet flour is kept in plastic bag and the bag is kept in compost pit for 2 days. Then the flour is dusted on pigeonpea for control of pod borer. The tribal farmers of Dhule and Nandurbar districts of Maharashtra are using this technique. **Keywords:** pearlmillet flour, pod borer, pigeonpea, dusting	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2379	Use of inverted harrow at flowering stage to control pod borer	In north Solapur region of Solapur district pod borer (Heliothis armigera) is a major	Director of Extension Education, Mahatma Phule Krishi

		pest. To overcome this problem inverted harrowing is done at flowering to pod formation stage. The larvae that fall on the ground are smothered by load and killed. **Keywords:** inverted harrow, pod borer, smother	Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of jaggery solution to control pod borer in pigeonpea	Farmers of Malshiras tehsils and north region of Solapur district spray jaggery on pigeonpea to control pod borer (Heliothis armigera). One kg jaggery is dissolved in 100 litres water, which is sprayed. Jaggery attracts ants, which feed on the larvae of pod borer. **Keywords:** jaggery, pod borer, pigeonpea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of cooked rice for control of pod borer in pigeonpea	To control pod borer in pigeonpea, the farmers of Malshiras tehsil of Solapur district and rural area of Jamkhed tehsil of Ahmednagar keep cooked rice on a circular dish (the base of dish is attached to a peg like structure, which is inserted in the soil) to attract the birds. After eating the rice, birds watch the larvae and eat them. **Keywords:** cooked rice, pigeonpea, circular dish	Director of Extension Education Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2368	Control of wild pigs in cereal and pulse fields	Farmers of Kistagiri village of Mahaboobnagar district in Andhra Pradesh are using these practices to protect their crops against wild pig damage. Four corners of the cropped fields are collectively tied with red and white coloured cloths to repel the pigs. Tying of a pair of buffalo with bells around the neck during dusk time produce noise to scare the pigs. Bon fire during night hours create dark red flame which also repels the pigs. **Keywords:** wild pig, bon fire, bell sound, tying of coloured cloths	Ms V Nagamma W/o Shri V Kendanna, Upeeri Kistagiri Tanda, Wanaparthy Mandal, Mahaboobnagar (Andhra Pradesh)
2303	Use of lime juice-smeared earthen pot for preventing wild animals in fields	Farmers of Ahmednagar district of Maharashtra use the practice of smearing lime juice on the outer base of the earthen pot (pitcher) and this pot is put in inverted position with the help of a stick. Due to reflection of light, the wild animals do not enter the field and the damages are minimized. About 10-12 pots are used for 1 acre. **Keywords:** earthen pot, lime juice, stick, light reflection	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of a mixture of garlic	Farmers of Sindhkheda and	Director of Extension

	extract and monocrotophos to control bollworm in cotton	Shirpur tehsils of Dhule district and Kopargaon tehsil in Ahmednagar district are using this practice. Garlic bulbs are crushed and soaked in water to draw extract. This extract is added to monocrotophos and it is sprayed on cotton to control cotton bollworm. **Keywords:** garlic extract, monocrotophos, cotton, bollworm	Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Control of cotton pests by using jaggery	In cotton, small farmers of Pachora and Bhadgaon tehsils of Jalgaon district and Shevgaon and Newasa telsils of Ahmednagar district in Maharashtra use jaggery to control pests. Small jaggery particles are put at the bottom of a cotton plant. It helps increase the population of ants, which eat aphids, bollworms etc. Normally a numbers of sprayings are required to control cotton pests by using insecticides. Due to use of jaggery particles, the pests are controlled, which requires no technical skill and the cost involved is also quite little. **Keywords:** cotton, pest, jaggery particles, ant	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of tobacco decoction to control cotton bollworm	Tobacco is soaked in water overnight. The extracted decoction is used for spraying to control bollworm in cotton. This practice is being followed in Dhule and Ahmednagar districts of Maharashtra. **Keywords:** tobacco, decoction, cotton bollworm	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of garlic and chilli extract to control pests in cotton	An extract is prepared using 500 g garlic and red chillies. The extract is added to 100 litres water, mixed with 200 g soap and sprayed on cotton to control sucking as well as other pests. This practice is in vogue in Dhule and Ahmednagar districts of Maharashtra. **Keywords:** cotton, pests, garlic-chilli extract	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of neem seed powder to control bollworm and sucking pests of cotton, chilli and onion	About 5 kg neem seed is well dried in sun, ground to powder form and soaked in 10 litres warer for overnight. It is then added in 90 litres water and 500 g soap is added as sticker. This solution is sprayed on cotton, chilli and onion to control pests. Farmers of Nandurbar, Dhule, Jalgaon and Ahmednagar districts of Maharashtra are using	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		this practice. **Keywords:** neem seed, cotton bollworm, chilli, onion	
2371	Use of crude extract of custard apple leaves in castor and pigeonpea to control pests	An extract is prepared by soaking 2 kg dark green leaves of custard apple (Annona squamosa) in 10 litres water for overnight. The leaves are crushed and filtered to get the extract. This extract is used for 2 acres. While spraying, farmers add 1 teaspoon of detergent powder. This practice is being used in Wanpanthy mandal of Mahaboobnagar district in Andhra Pradesh. **Keywords:** custard apple, leaves, castor, pigeon pea, detergent powder	Ms R. Padamma W/o Shri R. Linga Reddy, Raghavender Nagar, Mentapalli, Wannaparthy Mandal, Mahaboobnagar (Andhra Pradesh)
2303	Use of marigold plants to control leaf-curl virus in tomato	Farmers of Akkalkot tehsil of Solapur district grow marigold plants around the field of tomato plants to control leaf curl virus. **Keywords:** marigold, tomato, leaf curl virus	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2369	Control of wilt in tomato	To control wilt in tomato, a mixture is prepared by mixing 1g hing and 10 g turmeric powder in 10 litres water. The seedlings of tomato are kept in the solution for 30 minutes before transplanting. By using this method wilt is controlled to a great extent. **Keywords:** wilt, hing, turmeric powder	Shri Narendra Pradhan Balakati, Pipili, Puri (Orissa)
2303	Dusting of ash, spraying of cow urine and kerosene +soap mixture for control of aphids, jassids and white fly on vegetable crops and cotton	The tribal farmers of Nandurbar and Ahmednagar districts of Maharashtra treat the seeds of vegetable crops by dusting ash and spraying of cow urine. It is very rarely applied on chilli, brinjal and cucumber to control aphids and jassids. Some farmers spray cow urine in cotton for control of aphids and jassids. In tribal areas some farmers also spray kerosene+soap on cotton crop to control whitefly attack. This is an economic practice and the cost involved is much less as compared to chemical insecticides. **Keywords:** ash, cow urine, kerosene+soap mixture	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2381	Trap crop of marigold with pigeonpea and groundnut	This practice of taking marigold as trap crop is in vogue in Rotarypuram and Venkatampalli in Anantapur district of Andhra Pradesh since time immemorial. In this practice, 45 days old seedlings of marigold are planted	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhra Pradesh) 515 701

		in pigeonpea or groundnut as intercrop. Marigold acts as a trap crop for Helicoverpa armigera. Adults lay eggs in the flowers of marigold, which are controlled by spraying on marigold. Marigold flowers also serve as a source of additional income. **Keywords:** intercropping, marigold, trap crop	
2042	Intercropping of cucumber with castor and sorghum for trapping red hairy caterpillar	About 30-40% small and marginal farmers of Devarippula, Jangaon and Shadnagar mandals of Nalgonda, Warangal and Mahaboobnagar districts of Andhra Pradesh are using this practice since 75 years to control red hairy caterpillar in castor and sorghum. In this practice, about 100 g cucumber seed is sown with castor and sorghum for trapping red hairy caterpillar (Amsacta albistrga) as alternate host. The caterpillar prefers cucumber plants to castor or sorghum for feeding. While they are engaged on cucumber, castor and sorghum grow up sufficiently to withstand the subsequent attack by the caterpillar. Consumption of pesticide is reduced by this practice. Cucumber is a popular vegetable crop. Additional cost on cucumber seed is only Rs 2.0 per acre but ample benefit and income is assured from harvest of the fruits. **Keywords:** red hairy caterpillar, alternate host, cucumber, sorghum, castor	Shri R Lingaiah Secretary (Crops), 4-5-15 Venkanna Kunta, Jangaon, Warangal (Andhra Pradesh) 506 167
2311	Setting of biological traps to control red hairy caterpillar in castor	The practices enumerated by Dr. S. Subba Reddy and Singh are mentioned below (a) Control of red hairy caterpiller: Some farmers of Medak and Nalgonda districts of Andhra Pradesh spread twigs of aak (Calotropis procera) and Jatropha sp on field boundaries to control red hairy caterpillar. While feeding on the traps, the larvae of the pest are collected and destroyed with kerosene. The alkaloid present in Calotropis and Jatropha acts as a repellent **Keyword:** biological trap, red hairy caterpillar, castor (b) Control of castor semilooper by cooked rice: Semilooper (Achaea janata) causes severe	Dr G. Subba Reddy and Dr H. P. Singh, Central Research Institute for dryland Agriculture, Santosh Nagar, Hyderabad (Andhra Pradesh) 500 059

damage to castor during monsoon. The farmers of castor growing areas of Andhra Pradesh sprinkle cooked rice and other food grains in the field in July to attract birds/ predators to control semilooper. Further, castor is isolated with sorghum to minimize the incidence of root wilt in castor.
Keywords: castor, semilooper, cooked rice, predator

(c) Contral of Spodoptera litura in groundnut through trap crop: Spodoptera in groundnut is controlled by the farmers of Warangal district of Andhra Pradesh by growing castor as a trap crop in groundnut. Castor attracts Spodoptera litura and thereby reduces damage to groundnut. Bird perchers are also used to create resting place for birds to control natural pests.
Keywords: Spodoptera litura, natural pest, trap crop, castor

(d) Control of Helicoverpa in sunflower: This ITK is traditionally practised in Rayalaseema and Telangana regions of Andhra Pradesh. Thorns are used to pick up the caterpillar manually to reduce the yield loss. Thorny bushes are run on canopy of groundnut to reduce the incidence of leaf miner in groundnut and also control of Helicoverpa in sunflower.
Keywords: Helicoverpa, thorny bushes, leaf miner

(e) Use of organic pesticides to control pod borer in pigeonpea: Farmers of Mahaboobnagar and Kurnool districts of Andhra Pradesh are using this practice. Spraying of neem, chilli, garlic and bougainvillia extracts is done to control pod borer in pigeonpea.
Keywords: organic pesticides

(f) Control of aphids in pulses and black smut disease in sorghum: This practice is adopted in many parts of the country. Application of tobacco

decoction mixed with soap emulsion is done to control aphids.
Keywords: tobacco decoction, soap emulsion

The functional aspects of some of the ingredients used in the practice are as follows:
1. Pulp of baobab (Adansonia digitata) tree is used as a fumigant to repel biting insects from domestic cattle. It contains citric acid (0.85%) toxic principle.
2. Insecticidal use of oilcake, as it contains saponins.
3. Seeds and leaflets of Albizia chinensis possess toxicity.
4. Seeds, leaflets, petioles and pods of siris (Abizia lebbeck) tree are insecticidal. Its leaves contain caffeine acid, alkaloids, kaempferol and quercetin, along with tannins in bark.
5. Leaves of Allophylus cobbe are used as fumigants against honey bees to stupefy them. It contains phenyl, acetamide and traces of alkaloids.
6. Cashew nut (Anacardium occidentale) possesses pesticidal properties. Its' oil contains phenolic compounds.
7. Agawood or eaglewood (Aquilaria malaccensis) powder is used against fleas and lice. It contains essential oil.
8. Nagdona (Artemisia vulgaris) plants yield 0.2%, oil which possess pesticidal properties.
9. Seed, kernel, oilcake and leaves of neem (Azadirachta indica) possess pesticidal properties.

10. Seed, kernel and bark of Barringtonia racemosa are toxic and its kernels contain saponin (3%).
11. Leaves of Sultana champa (Calophyllum inophyllum) possess pesticidal peroperties.
12. Stem resin of white dhup (Canarium euphyllum) is used as insect repellent.
13. Amaltas (Cassia fistula) possesses insecticidal properties.
14. Leaves and fruits of common emetic nut (Catunaregram spinose) possess insecticidal properties, which is used against stored grain pests and its'

fruits contain toxic saponins.
15. Camphor tree (Cinnamomum camphora) possesses insecticidal properties and it contains essential oil.
16. Seeds of Croton oblongifolius possess pesticidal properties and it contains toxic diterpenoids.
17. Flowers of gulmohar (Delonix regia) possess insecticidal properties.
18. Seeds of dadap (Erythrina indica) contain insecticidal properties
19. Oil from leaves of lipstic tree (Eucalyptus sp.) possesses insecticidal properties and contains toxic terpenes.
20. Young shoots of Gardenia gummifera is used to kill maggots in wounds of animals and it contains cumbigum.
21. Seeds of Gynocardia odorata contain toxic glycoside gynocardin, and it possesss pesticidal properties.
22. Leaves of Lyonia avalifolia possess insecticidal properties and it contains andromedotoxin.
23. Oil and seeds derivative of Madhuca indica possess toxity due to toxic saponins.
24. Leaves, fruit and bark of Persian lilac (Melia azedirach) have insecticidal properties and it contains toxicity terpenoids 25. Leaves, seed, bark and root of karanj (Pongamia pinnata) possess pesticidal properties due to the presence furanoflavanoid derivatives
26. Leaves of vilayati babul (Prosopis julifora) have toxic properties
27. Bark of Paranus javanica contains toxic principles used against stored rice pests.
28. Wood of Indian kino tree (Pterocarpus marsupium) possesses pesticidal properties, as it contains toxic ptyersotillbene.
29. Fruits and roots of common emetic nut (Randia spinosa) contain toxic saponins and is used against stored seed pests.
30. Leaves and seeds of Salvadora persica possess insecticidal properties.
31. Seeds of soapnut tree (Sapindus mukorossi) possesss insecticidal properties, in which toxic saponins are present.

32. Leaves of nuxvomica (Strychnos nuxvomica) is applied to maggot infested ulcers, as it contains bioactive alkaloids.
33. Leaves and seeds of castor (Ricinus communis) possess pesticidal properties
34. Seed-extract of mahagoni tree (Swietenia mahagoni) possess insecticidal properties which contains a bitter ubstance, mahagonin.
35. Seeds of sal (Shorea robusta) contain pesticidal properties.
36. Seeds of lac tree (Schleichera trijuga) oil contain pesticidal properties.
37. Seeds of Terminnalia paniculata and T. bellerica possess pesticidal properties.
38. Wood contains saponins possessing termiticidal properties (Ternstroemia gymnanthera)
39. Seeds of Indian copal tree (Veteria indica) have pestical properties.
40. Leaves of vasaka (Adhatoda vasica), which are used against white ants and red spider of tea, have toxic alkaloid vasicine.
41. Fresh and young shoots of spiny or thorny bamboo (Bambusa arundinacea) possess insecticidal properties, containing benzoic acid and acyanogenic acid.
42. Whole plant of Butea parviflora posseses insecticidal properties, as it contains rotenone.
43. Latex of aak (Calotropis procera) plant has insecticidal properties and contains toxic catrdiac glycosides.
44. Roots of christ's thorn (Carissa carandas) possess insecticidal properties, as it contains alkaloid.
45. Leaves of christmas bush (Chromolaena odorata) possess pestcidal properties, as it contains essential oil.
46. Seeds of wild senna (Cassia tora) possess insecticidal properties against Dysdercus koenigii, which contains chrysophanic 9-abthrone.
47. Seeds of black oil plant (Celastrus paniculatus) posseses

insecticidal properties and is used as mosquito repellent. It contains terpenoids and alkaloids.
48. Leaves of bharangi chingari lanjal (Clerodendron siphonanthus) contain toxic properties.
49. Root of bharangi chingari lanjal possess insecticidal properties. It contains rotenone.
50. Datura (Datura suaveolens) possess insecticidal properties.
51. Leaves of besharum (Ipomoea cornea) possess pesticidal properties. It contains a polysaccharide ipomose, an anthracene glucocide and saponins.
52. Seed oil and juice of rattan jyoti or physic nut (Jatropha gossypifolia) possesss insecticidal properties.
53. Bheranda (Jatropha gossypifolia) possess insecticidal activity . It contains toxic alkaloid jattrophane.
54. Leaves of lantana (Lantana camara) possess pesticidal properties. It contains two toxic principles - lantadene A (angeloyloxy-oleanonic and C35, H52, O6) and B (dimethylacryloyloxyoleanonic acid (and C35, H52, O5).
55. Wild plant of Plectranthus rugosus shows insecticidal activities and possess essential oils.
56. White tephrosia (Tephrosia candida) shows insecticidal activities. It contains rotenoids.
57. Leaves of sambhalu shivari (Vitex negundo) possess insecticidal properties.
58. Powdered leaves, stem and roots of antamul (Tylophora asthmatica) have pesticidal activity . It contains toxic alkaloid of tylophorine and tylophorinine.
59. Leaves of Vitex trifolia possess insecticidal properties. It contains flavone glycoside, diiosametin and steroids.
60. Root and stem of (Zanthoxylum nitidum) possess insecticidal properties. It contains flavone glycoside, diiosmetin and steroids.
61. Seeds of muskemellow (Abelmoschus moschatus) possess insect-repellent properties. It

contains
gossypetine hibiscine and a quercitine.
62. Roots of aconite (Aconitum ferox) are used as insecticide. It contains aconite alkaloids.
63. Rhizomes of sweet flag (Acorus calamus) possess pesticidal properties. It contains oil and asrone derivatives.
64. Flowers and leaves of dog fennel (Anthemis cotula) possess insecticidal properties against fleas, bedbugs, flies, etc. Its toxicity is due to the presence of essential oil and alkaloids.
65. Kirayat (Andrographis paninculata) plant extract possesses toxic properties. Its leaves contain a bitter andrographolid compound.
66. Seeds of bharband (Argemone mexicana) yield 22-36% of a bitter non-edible oil, which possesses insecticidal properties.
67. Juice of the leaves of Blumea densiflora possess insecticidal properties, particularly against mosquito.
68. Oil of citronell grass or ganjani or winter grass (Cymbopogon nardus) known as citronell oil is used to wardoff mosquito.
69. Leaves of Delphinium brunonianum possess insecticidal properties
70. Seeds of Delphinium elatum show insecticidal properties. It contains alkaloids.
71. Apple of Peru (Nicandra physaolides) is used as fly poison. It kills head lice. It contains toxic glycoside nicandrin and an alkaloid.
72. Leaf extract of congress weed or gajar ghas (Parthenium hysterophorus) possesses pesticidal properties. It contains parthenin.
73. Plectranthus mollis is used as mosquito repellent. It contains proteamemonia.
74. Roots of kuth or costus (Sausurea lappa) contain alkaloid saussurine and is used for protection of woollen clothes from insect.
75. Sphaeranthus indicus contains pesticidal properties. It contains toxic oils.
76. Strinking roger is toxic and

		effective as larvicide and for killing maggots in wounds and is repellent to blofly as it contains an essential oil, tagetes oil. 77. White tephrosia (Tephrosia candied) shows insecticidal properties due to the presence of rotenoids.	
2303	Use of mustard in wheat as a trap crop	Farmers of all tehsils of Solapur, Ahmednagar and Nasik districts sow mustard as a trap crop in wheat crop. Mustard is having too much foliage, hence the sucking pests are diverted towards mustard crop and wheat is saved from these pests. **Keywords:** mustard, wheat, foliage, sucking pest	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of neem oil+Nirma mixture to control pests and diseases of grapes	Farmers of Pandharpur tehsil of Solapur district spray Bordeaux mixture after pruning the grapevines in October. After this, 3-4 sprayings of mixture of neem oil+Nirma soap is done to control pests and diseases of grapes. **Keywords:** neem oil, nirma, bordeaux mixture	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of hing kada (asafoetida) to control microbes	There is a belief among the farmers of Solapur district that microbes of the field can be controlled by keeping hing kada (asafoetida) in the irrigation channel. **Keywords:** microbes, irrigation channel, hing	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Growing zendu plant alongwith chilli, brinjal and tomato to control nematodes	In some parts of Dhule tehsil of Dhule district of Maharashtra, farmers sow zendu plant alongwith chilli, brinjal and tomato crops in the field simultaneously. Due to zendu plants there is no incidence of nematode. **Keywords:** zendu, chilli, brinjal, tomato, nematode	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2366	Control of nematode in crops	To control nematode in soil, farmers use to apply karanja oil cake @100 kg per acre at the time of ploughing. It helps in controlling the nematode to a great extent. **Keywords:** nematode, karanja oil cake	Shri Nabakishrore Baral Kalapathar, Kantilo, Nayagarh (Orissa)
2303	Control of whitefly by using leaves of Lantana camara	Tribal farmers of Nandurbar district of Maharashtra use Lantana camara to control whitefly. About 3 kg leaves of Lantana camara are boiled in 20 litres water till the boiled material is reduced to 5 litres. After cooling, 15 ml of this	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		extract is added in 15 litres water and sprayed on whitefly-affected crop at an interval of 15 days, 3-4 times. **Keywords:** whitefly, Lantana camara, leaf extract	
2418	Drum beating for control of grass hopper	Grass hopper is an insect which attacks the crops and causes heavy losses. Farmers of Kalakot area of Rajouri district in Jammu & Kashmir, generally use their traditional practice of drum beating which drives away the grasshopper. This practice is fully effective in controlling the attack of grass hopper. **Keywords:** drum beating, grass hopper	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Use of flake for repelling birds from fields	In cereal-crop growing areas of Ahmednagar district, farmers use flake by which small stone is thrown away to a particular distance. By hearing the noise of stones the birds causing damage to grains of the crops are scared and flee away from the fields. One man/woman can cover and watch an area of 0.4-0.6 ha. **Keywords:** bird watching, stone, noise	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of bunch of hair to control rats in field	After combing, a bunch of hair is obtained by housewives. The tribal farmers of Nandurbar, Dhule and Ahmednagar districts use the hair to close the rat holes tightly. They are rabbed with the hair bunches and can not move. The rats are trapped in the hole and die due to starvation. **Keywords:** hair bunch, rat hole, starvation death	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Rat control in wheat by using flowers/ inflorescence of Glyricidia plant	During rabi season there is much damage in wheat crop by rats. The tribal farmers of Dhule and Nandurbar districts of Maharashtra use flowers/ inflorescence of Glyridicia plant for control of the rats in wheat fields. The rat holes are searched and the holes are covered with flowers/inflorescence of Glyricidia. Due to covering of rat holes, the rat trouble is reduced considerably. It is believed that due to coverage of rat holes by flowers/inflorescence of Glyricidia	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		the rats migrate from wheat fields to somewhere else. **Keywords:** rat control, flower/ inflorescence, Glyricidia, rat hole, migration	
2303	Use of waste light bars for repelling rats in berseem	Rat is a damaging pest prevalent in berseem fields. Rats make large holes in the field, which cause 20-30% loss of berseem fodder. To overcome this problem, farmers of Ahmednagar district install waste light bars in the fields. **Keywords:** waste light bar, berseem, rat	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of traps to control rats	Farmers of Newasa tehsil of Ahmednagar district use PVC pipe for control of rats. PVC pipe is kept in vertical position and one stick is put parallel to the PVC pipe. Another bamboo is kept at 90 degree angle to the pipe. Rats can come freely to the mouth of PVC pipe, inside which baits/groundnut pods/maize cobs are kept. After eating, the rats cannot climb the pipe because it is very smooth. Next morning the trapped rats are killed. **Keywords:** rat trap, PVC pipe, bamboo	Director of Extension, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2395	Control of sorghum smut disease by treatment of seed with cow urine	Farmers of north Solapur region of Solapur district are using cow urine to control smut of sorghum. Before sowing, sorghum seed (10 kg) is treated with cow urine (1 litre), by which the incidence of disease is reduced. **Keywords:** sorghum smut, cow urine	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2404	Use of cow dung ash for termite control	Cow dung ash is effective in controlling termite attack in the fields. Therefore, at the time of field preparation, cow dung ash is broadcast in the field. This traditional practice is widely used in the Kalakot area of Rajouri district in Jammu and Kashmir. **Keywords:** termite, cow dung ash, broadcast	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir, University of Agricultural Sciences & Technology, Jammu
2382	Control of rhinocerous beetle in coconut by castor seed extract	Farmers of Puri district of Orissa follow the practice of trapping the rhinocerous beetle by using castor	Shri Bhagban Naik Jeypore, Sakhigopal, Puri (Orissa)

		seed. Castor seeds are ground and boiled in water for ½ an hour in earthen pot. The pot is cooled and kept in coconut orchards. The beetles are attracted by the odour and trapped in the oily extract. **Keywords:** rhinocerous beetle, castor seed extract	
2405	Use of Eupatorium rugosum as pest repellent in rice field	The farmers of Medziphema area use Eupatorium rugorum plant as pest repellent in their paddy fields. Whenever there is an attack of pest in their fields, fresh branches of this plant are erected in the field keeping a distance of about 5-6 feet. The plant has a strong odour. This odour is believed to act as a repellent to the pests. **Keywords:** Eupatorium rugosum, pest repellent, strong odour	Shri Khrolie Angami NU SASRD, Medziphema (Nagaland) 797 106
2393	Use of bhang as pesticide	Bhang (Cannabis sativa) plants are used for controlling thread worms in paddy nursery by the farmers of Solki area of Rajouri district of Jammu &Kashmir. Bhang plant is uprooted and kept in standing water of paddy nursery to control the thread worm. If problem of thread worm is severe then crushed leaves are put in standing water to kill the worm. **Keywords:** bhang, thread worm, paddy nursery	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 6
Soil Fertility Management

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2423	Use of green-leaf manure for maintaining fertility of paddy nursery	Muthumanickam and erukku (Calotropis gigantea) are specially applied as green leaf manure at the rate of 400 kg/8 cent in the nursery area. Farmers are using it since 20 years. Kolingi (Tephrosia purpurea) and tiger bean (Delonix data) are also applied as green leaf manure. Calotropis is the most preferred green-leaf manure among the farmers. **Keywords:** green-leaf manure, muthumanickam, erukka, kolingi, tiger bean	Shri S. Marimuthu Kottaikadu, Kalagam, Peravururani, Thanjavur (Tamil Nadu) 614 804
2424	Use of green leaf manure in paddy nursery and fields	Application of kolingi as green leaf manure in the nursery reduces weed population. Cassia auriculata is applied only in the field, as its application in nursery makes the seedlings yellow. It is in practice since 20 years. **Keywords:** green leaf manure, nursery, rice field, kolingi, Cassia auriculata	Shri S. Marimuthu Kottaikadu, Kalagam, Peravururani, Thanjavur (Tamil Nadu) 614 804
2428	Green manuring of soil	Green manuring is done by sowing a leguminous crop and turning it into the soil. The practice of green-manuring is a means for improving the fertility and water-holding capacity of light soil. The farmers of all hilly areas of Himachal Pradesh are following this practice. The crops commonly used for greenmanuring are greengram (Phaseolus mungo), blackgram (Phaseolus aureus), horsegram and soybean (Glycine max) These may be grown according to their suitability for a particular area. In the rich heavy soil when the system of crop rotation provides a reasonable gap between the harvesting of one crop (kharif) and the sowing of another (rabi) crop, green-manuring is done, which supplies nitrogen in the form of nitrates. The nitrates are consumed by the green-manure crop and are returned to the soil	Dr Sukhdev Regional Research Centre, H P K V Dhaulakau, Sirmour (Himachal Pradesh)

		for use by the next crop. If a green-manure crop is not raised, the soil nitrates would be lost. **Keywords:** green manuring, leguminous crop, greengram, blackgram, horsegram, soybean	
2419	Sheep penning, FYM and tank silt application to increase fertility of paddy nursery	In nursery area sheep penning is practised. Also about 600 kg tank silt and 600 kg FYM are applied every year. This is being practised since 10 years. **Keywords:** sheep penning, FYM, tank silt, paddy nursery	Shri Arun Kumar No 3 Seventh Street, Sundaram Nagar, Thanjavur (Tamil Nadu) 613 004
2427	Use of sheep penning for increasing soil fertility	Sheep penning is practised in the hill region quite extensively. It improves and enriches the soil. During the movement of sheep and goats from one place to another the shepherd must find a suitable resting place for the flock at night. Some cultivators even pay cash to persuade the shepherds to rest their flock on their land for a few days. Sheep manure contains both nitrogen and phosphorus. It is quick acting and it is preferred for application to cash and fruit crops. Sheep manure is dry and convenient to handle during farming in the hills. Farming can be made more remunerative by proper conservation of all sheep and goat manure and its extensive use. Sometimes the excreta of sheep and goats are collected, dried and ground to powder form and then applied to the growing crops. The manure is mixed into the soil by giving cultivation soon after the flock has moved away. The sheep manure should be applied when adequate moisture is available in the soil. **Keywords:** sheep penning, shepherd, flock,	Dr Sukhdev Regional Research Centre, H P K V Dhaulakau, Sirmour (Himachal Pradesh)
2425	Enhancing soil fertility by using cattle bones	Animals bones are collected and buried in the basin of the plants, which improves soil fertility by adding phosphorus. **Keywords:** bones, basin, phosphorus	Shri A.K. Agnihotri Joint Director (Planning) and Sr. Scientist, Directorate of Research, Dr. YSPUHF Naini, Solan (Himachal Pradesh)
2426	Sheep-goat penning during fallow season	Since ages, a practice is followed in most of parts of Anantapur district in Andhra Pradesh. In this practice, sheep and goats are allowed to enter into the fallow fields for grazing. Sheep penning is very useful, as urine and excreta serve as manure, and the soil is enriched with nutrients.	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515 701

		Weeds are also reduced. **Keywords:** sheep-goat, penning, grazing, soil fertility, weed control	
2421	Soil sterilization in nursery areas for raising of onion seedlings	This practice is being adopted by the farmers of onion-growing villagers of Pantthal, Sundrani, Chchandwa, Sool, Kalta, Padango, Jib, Kun and Kunyol in Udhampur district of Jammu and Kashmir since long. They first give a single ploughing to open the soils selected for nursery and then put dry leaves/ grass on the opened soil and burn it. After this, land is prepared for sowing of onion. Due to heat generated by burning of dry leaves/ grasses etc, the soil insects, and harmful pathogens of soil-born diseases are killed before sowing of seed. Ash obtained from burning of dry leaves/ grasses also improves the soil texture and fertility. It also avoids heath hazards as no insecticide/ fungicide is used. This practice involves no cost, as dry leaves/ grasses are waste materials. **Keywords:** soil sterilization, burning of dry grass, onion seedlings soil-born diseases, soil texture and fertility	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2430	Application of tank silt to fields	This is an age-old practice in Reddipalli and Chidella villages of Anantapur district in Andhra Pradesh. After drying, tank silt is collected and transported, and spread in the fields in summer. Tank silt improves soil properties and supplies nutrients to increase yield of crops. **Keywords:** tank silt, soil nutrient, yield increase	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515 701
2429	Use of pond sediments as fertilizer for crops	It is observed that when the pond water is depleted, the farmers of Shimla district use the pond sediment as fertilizer by throwing it on the nearby farmland. This increases the soil fertility and improves the production. **Keywords:** pond sediment, fertilizer	Shri Chandu Lal Sharma Khamala, Kotkhai, Shimla (Himachal Pradesh) 171 201
2303	Increment in NPK content due to thundering	It is a general assumption among the farmers of Pandharpur tehsil of Solapur district that before start of monsoon when there is thundering, there is increase in NPK content of soil. **Keywords:** NPK content,	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		thundering, monsoon	
2303	Use of amritpani to harvest bumper yields	Amritpani is being used by the farmers of Bhadgaon, Pachora and Jamner tehsils of Jalgaon district, and Kopargaon tehsil of Ahmednagar district of Maharashtra. It increases microbial activities in the soil. Amritpani that is required for 1 acre is prepared by taking ½ kg ghee of desi cow, 10 kg cowdung and 1/2 kg honey in 200 litres water. At first ghee and cowdung are thoroughly mixed. Then ½ kg honey is added to this mixture and it is mixed well. This mixture is added in 200 litres water. It is stirred well and the ultimate product is called amritpani. The amritpani is spread over the soil before sowing of crop with the help of kuncha (very small bunch of neem tree). It is repeated at 15 days interval 3-4 times. It can be used for all crops and in all types of soils. In addition, FYM or compost is used once a year. **Keywords:** amritpani, ghee, cowdung honey, soil microbial activity	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2420	Soil reclamation through frequent irrigation	Saline soil is rarely found in the hilly regions. This soil has pH value more than 8. The plants growing on such soils suffer from lack of moisture and oxygen, as the soil is compact and does not allow percolation of water and a free movement of air. The toxicity of the salts has further adverse effects.The reclamation of alkaline soils can be done by providing frequent heavy irrigations. This would wash down the salts present on the surface and below to the depth till they meet the permanent water level. If the land remains fallow after the movement of salts to a depth of only 3-4 feet (about 1 m) from the surface and no irrigation is applied, the salts would start moving upwards and accumulate on the surface of the soil. **Keywords:** reclamation, frequent irrigations, pH more than 8	Shri Chaman Lal Rao Research Fellow, Himachal Pradesh University Shimla (Himachal Pradesh)
2422	Use of fallen leaves as mulch material for orchard crop	This is in practice in Narpala, Garladinne and Bukkarayasamudram mandals of Anantapur district of Andhra Pradesh. In this practice fallen	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515 701

		leaves are collected and added into the basin of the plant. It reduces evaporation, creates conducive micro-climate and after decomposition it acts as good manure. This technology is being used in irrigated red soils. **Keywords:** fallen leaves, mulch, basin, evaporation, decomposition, manure	

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Chapter 7
Farm Implements

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2431	Use of two coulter seed drill for efficient sowing	Generally farmers use three coulter seed drill for sowing but two coulter seed drill requires less power (bullocks). In case of three coulter seed drill fine tilth is required whereas for two coulter seed drill slightly cloddy field may do. Farmers of north Solapur region of Solapur district are using it. **Keywords:** two coulter seed drill, three coulter seed drill, fine tilth, cloddy field	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2434	Use of Eenati gorru-as sowing implement	Eenati gorru is used in entire Anantapur district of Andhra Pradesh since long back. This implement is used for sowing operation in kharif and rabi seasons. Weight of this implement is 60 kg and cost is Rs 1000. **Keywords:** eenati gorru, sowing operation	K.V.S Rami Reddy Krishi Vigyan Kendra, Reddipalli, Anantapur (Andhara Pradesh) 515 701
2303	Seed bowl for sowing small and big seeded grains	Generally two separate seed bowls are used by the farmers to sow small- and big- seeded grains. A dual-purpose seed bowl is in use for sowing both small and big sized grains. In this system, the bowl is prepared as usual and one additional cylindrical part having three holes that fits inside the bowl makes the original hole small for sowing of small seeded grain. If this cylindrical part temporarily fitted inside the bowl is removed, big seeded grains can be sown. The implement is made of iron and it is durable, costing about Rs 500 per piece. The implement is in use in Katwan area of Sakri tehsil in Dhule district of Maharashtra. **Keywords:** seed bowl, dual-purpose, small and big grains	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2432	Use of nagali- country plough in agricultural operations	A country plough, locally called nagali, is being used in entire Anantapur district of Andhra Pradesh. This is the only	K.V.S. Rami Reddy Krishi Vigyan Kendra, Reddipalli, Anantapur (Andhara

		implement used by the farmers for primary tillage operations in kharif and rabi seasons. Weight of this implement is 50 kg and cost Rs 500. **Keywords:** implement, primary tillage operation	Pradesh) 515 701
1853	Farm implements in crop husbandry	Farmers of Dapora village in Madhya Pradesh are using the following equimpments since 45 years: plough, harrow, kudal (digger), spade, thick rope, tifan, dufan, leveller, sickles, trolley and bullock cart. All these implements are used for land development and other crop related activities. Sugarcane, cotton, wheat, banana, sorghum, soybean, maize and chickpea are the major crops grown. **Keywords:** plough, harrow, kudal, spade, thick rope, tifan, dufan, leveller, sickle, trolley, bullock cart	Shri Thakur Randhir Singh Bais Shahpur, Burhanpur, East Nimar (Madhya Pradesh)
2433	Use of karka (small axe) to cut small plants	A majority of the farmers, particularly women, of Seemonasasa Nasati village in Khurda district of Orissa use karka to cut small plants and also for cutting small branches of mango or other trees for fuel purpose in all seasons. Karka is made of iron with wooden handle. It is a very useful and low-cost implement. **Keywords:** karka, small axe, wooden handle	Ms Bishnupriya Mishra Training Associate (Agril. Extension), KVK Ganjam, Bhajnagar, Ganjam (Orissa) 761 126

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Chapter 8
Post-Harvest Technology

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2435	Winnowing of paddy	This unique system is practiced in Meghalaya for winnowing of paddy in the field itself. Three long bamboo poles (20-25 feet each) are erected to from the shape of a big triangle in this system. A platform is made by connecting these three poles with the help of small bamboo pieces, also used as ladder to carry the grains to the top. A person stands in the connection points of three poles to drop the paddy grains in the ground .The person in the top is continuously supplied with uncleaned rice grains in a bamboo basket through relay process. The wind direction, velocity and the height are effectively utilized in this system. This system is cost effective and huge quantity of uncleaned grains are cleaned within short time involving minimum number of labours. **Keywords:** bamboo poles, triangle, bamboo basket, relay process, wind direction, wind velocity	Dr N. Prakash, Dr P.P.Pal, Dr P. Sundrambal, Dr R. Kumar and Dr B. Bihari. Agricultural Extension Division, ICAR Research Complex for NEH Region, Barapani (Meghalaya)- 793 103 Ref: Indigenous technological knowledge followed by the tribal farmers of North eastern hill in agriculture. Indian J. Hill Farmg 12 (1&2): 134-135(1999)

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Chapter 9
Grain/Seed Storage

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2445	Storing of rice seeds by drying and plastering the container with cowdung paste	The rice seeds, harvested during September-October, are dried and stored in gunny bags. These stored seeds absorb moisture which is prevalent during the wet period of north-east monsoon. Therefore, the seeds are again dried in sunshine during January-February to reduce moisture content so as to prevent insect damage. Afterwards the seeds are stored in a tight container and it is plastered with cowdung paste and dried. This practice is called kottai. With this practice the seeds can be stored till the next sowing season. The cowdung plastering prevent the seeds from insect attack but do not hinder the biological activity of the seeds. **Keywords:** seed storage, rice, kottai, cowdung plaster, sun drying	Shri R. Subramaniam 124 Rangamapet, Papireddipetti, Dharmapuri (Tamil Nadu) 636 905
2441	Technique to store rice seeds	The farmers spread the seeds on the threshing floor during Tamil month thai (January) and the seeds are kept there up to 7 days. During night the seeds absorb moisture from dew and the moisture is dried up in the daytime. This practice improves the seed quality and grain yield. Farmers of Rajagopalapuram taluk in Tamil Nadu are following this practice since 9 years. **Keywords:** rice seed, storage, thai, moisture absorption, drying	Shri R. Kamaraj Plot no 1084, Housing Unit Rajagopalapuram, Pudukottai (Tamil Nadu) 622 003
2440	Use of thombai to store rice grains	Seeds of rice are kept in wooden thombai. The bottom of thombai is filled with paddy or varagu straw. After filling the grain in the container, straw is spread over the top and it is sealed with mud. The farmers of Alangudi village are following this practice since 15 years. **Keywords:** thombai, rice, paddy straw, varagu straw	Shri S. Anbarasan Alangudi Karambakuddy, Pudukottai (Tamil Nadu) 622 302

2463	Pre-fumigation of paddy storage room with sambrani	This technology is in practice in Gooty in Ananatapur district of Andhra Pradesh. The storage room is fumigated with sambrani before storing the paddy grains. Sambrani is a source of benzoic acid and it is a fumigant that controls diseases and pathogens. It is an eco-friendly and a low cost practice. **Keywords:** store room, fumigation, paddy, sambrani, benzoic acid	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhra Pradesh) 515 701
2451	Srorage of paddy seeds by using ash and neem leaves	Construction of ramda: The silt from the base of tank is taken. The silt is dried, ground finely and a paste is prepared by mixing approximate quantity of water. In 10 kg paste about 1 kg wheat straw (fine) is kneaded. First, four legs are prepared. The dimension of each leg is 4"x 8"x 6" (thickness x length x height). The number of legs may be four or six. The paste is used to make ramda, which is cylindrical in shape with 3' diameter and 5' height and the thickness of the wall is 4". The structure while making is simultaneously sun dried. It is kept away from hot sunlight to avoid cracks. A lid of 3' diameter is constructed separately with a projected structure for lifting. The ramda and the lid are dried separately. Afterwards the inner wall of the ramda and the lid are white-washed and dried. Four quintals grain can be stored in ramda. An outlet is constructed near the bottom of the ramda to take out grains. **Method of storage:** The ash of fireplace (chulha) is taken and pebbles of burnt coal are separated. Neem leaves are dried well after plucking. For 1 quintal rice grain, ½ kg ash and ½ kg dried leaves of neem are required. Rice grains are dried well in sunlight and then ash and neem leaves are mixed. This mixture is filled in ramda. If ramda is filled upto full capacity, it is good for storage purpose. After filling, about ½ kg ash and ½ kg dried neem leaves are again spread on the top. Over it, a thick cloth is spread. The lid is then kept on the ramda and the space between ramda and lid	Dr Tungveer Singh D-37, Medical College Campus, Meerut (Uttar Pradesh) 250 004

		is filled by plastering with mud paste and it is made airtight. The stored grain may be preserved upto 1 year. Neem leaves have insectidal, anti-feedant and repellent properties and ash has crystalline property. Other grains may also be preserved in ramda. **Keywords:** ash, neem leaves, ramda, insecticidal, anti-feedant, repellent, crystalline	
2462	Storage of paddy seeds by using mahua	Seed coat of mahua (Madhuca latifolia) is used for storage of paddy seeds. Seed coat of mahua @ 10-15 per kg of paddy seed is mixed thoroughly before it is stored for seed purpose. **Keywords:** mahua seed coat, paddy seed storage	Ms Anant Rout Ekchalia, Pipili, Puri (Orissa)
2467	Use of rock salt for controlling storage pest of paddy grain	This practice is quite common among farmers of paddy growing areas of Jammu region (Jammu and Kashmir). Small pieces of rock salt are put in the storage structure containing paddy grains. It is effective in checking Agriculinfestation of storage insect-pests in paddy grain to an extent of 40%. Rock salt is a cheap product, hence it is a very economical practice. **Keywords:** rock salt, paddy grains, storage insect-pests	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2442	Hastening germination of paddy seeds	Mixing of dung with paddy seed and covering it with wet gunny bags and then sowing in the nursery after 1-2 days hastens the germination of the seeds. This practice is being used in Garhi block and adjoining areas of Udhampur district of Jammu and Kashmir. **Keywords:** dung, wet gunny bag	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul-tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2436	Storing of maize cobs in kitchen	This practice is commonly found in every state of North Eastern	Dr N. Prakash, Dr P.P.Pal,

		Hill Region. Through this system, cobs are tied together (20-25 cobs) with the help of a small rope and kept as suspended animation from the roof of the kitchen. The smoke of the kitchen is allowed to pass through the cobs. This smoke drives away the insects as well as prolongs the storage period by preventing them from fungal attack. **Keywords:** maize cobs, rope, roof, smoke, insects, fungal attack	Dr P. Sundrambal, Dr R. Kumar and Dr B. Bihari Agricultural Extension Division, ICAR Research Complex for NEH Region Barapani (Meghalaya)-793 103 Ref: Indigenous technological knowledge followed by the tribal farmers of North eastern hill in agriculture. Indian J. Hill Farmg 12 (1&2): 134-135(1999)
2452	Hanging unhusked maize cobs from the roof for seed storage	The storage of food grains begins immediately after the harvesting of the crop. Mostly unhusked maize cobs are hung in a bunch form from the roof. This exercise is done to retain seed for planting the crop in the following season. The main aim is to put dry, clean, uninfested produce in a sound, clean and safe storage. Unhusked maize cobs are hung in bundles on the vertical bamboo support from the roof of the house or in kitchen etc. This bamboo stick is tied with the rope (prepared from Grewia optiva) bayul twigs. This method is adopted during rainy season and the cobs may remain on the pole until they are used.This method of storage is being followed in hilly area of Himachal Pradesh. **Keywords**: unhusked maize cob, Grewia optiva, bayul twigs	Mr Bovinder Chand Katoch Research Fellow, Department of Biosciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2458	Use of ash for storage of maize seed	For storing maize seeds, the farmers of Kalakot block of Rajouri district (Jammu and Kashmir), mix ash with maize seeds and keep it in storage bins. This is an effective practice and keeps the maize grains free from insect- pests for atleast 6 months. **Keywords:** ash, storage of maize seed, storage bins	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Drying of sorghum ears after	Farmers of north Solapur region	Director of Extension

	harvest for storage of grains	of Solapur district leave the ears of sorghum after harvest for drying purpose. By this procedure, the moisture percentage of grains is reduced to a certain extent (9-10%) and there is no need of drying the grains after threshing. These grains can be stored after threshing. Keywords: ear drying, moisture percentage	Education, Mahatma Phule Krishi Vidyapeeth, Rahuri Ahmednagar (Maharashtra) 413 722
2446	Exposing wheat grains to sunlight before storage	It is usually found that during prolonged storage wheat grains are damaged due to attack of insect, pest and other microbial organisms. Therefore, to prevent attack of insect-pest, farmers of all zones in Jammu region of Jammu and Kashmir, expose wheat grain to sunlight prior to storing it. For the purpose, wheat grains are spread evenly in the hot sun during the months of June and July. On exposing the grains to the hot sun in summer before storage, the moisture content of the grains is reduced. **Keywords:** wheat grain, hot sun, moisture	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2456	Use of chilli and lemon to store seeds of millets	Farmers of Mullar Road in Tamil Nadu use dry chillies, lemon and ash to store millet seeds for last 10 years. Dried chillies are crushed and mixed with cut pieces of lemon and ash. This mixture is mixed with millet seeds and it is kept for storage. Pungent smell of chillies and the acidity of lemon resist the attack of the storage pest. Keywords: chilli, lemon, ash, millets	Shri M. Chinnaiyan Anna Colony, Mallur Road, Ariyalur (Tamil Nadu) 621 704
2303	Effective storage of pulses	Farmers of Mohal and Madha tehsil of Solapur district store the pulse seeds like matki (kidneybean), pigeonpea, greengram and blackgram in iron pot (ghagar). The mouth of that pot is then closed with mud and it is kept on the roof of house in sunlight. **Keywords:** matki, pigeonpea, greengram, blackgram, ghagar	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2443	Safe storage of pulse pea	Pulse pea coated with desi oil keeps the seed safe for long storage. **Keywords:** coating with oil	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of

			Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2437	Use of leaves of naytholasi (Ocimum canum) to prevent attack of borers in stored pigeonpea	Pigeonpea seeds are dried well and stored tightly in gunny bags. To prevent borer attack, dried leaves of naytholasi (Ocimum canum) are placed inside the bag. This method is being followed since 10 years. **Keywords:** naytholasi, borer attack, pigeonpea	Shri S. Paulraj 36/A-2 Tiruchirapalli Road, Puttamettupatti, Manaparai, Tiruchirapalli (Tamil Nadu) 621 306
2465	Coating of soaked pigeonpea with red earth	This practice is used by most of the pigeonpea-growing farmers in Anantapur district of Andhra Pradesh since time immemorial. After harvest, pigeonpea seeds are soaked in water for 12-24 hr. Wet red earth is coated over these overnight-soaked seeds and dried. Wetting and drying process loosen the husk from kernel and red earth acts as physical barrier to storage insects. This facilitates easy manual stone milling as well. **Keywords:** coating, red earth, milling, wetting and drying	Krishi Vigyan Kendra Reddipalli Anantapur (Andhra Pradesh) 515 701
2303	Storage of pigeonpea mixed with ash for seed purpose	Pigeonpea seeds are dried well in sun and then mixed with ash (prepared from cowdung) in 2:1 proportion before sowing. This mixture is stored in earthen pot and the mouth of the pot is tied with cloth. It is removed from earthen pot 1 day before sowing, cleaned and sown. This practice is followed in tribal areas of Nandurbar and Ahmednagar districts of Maharashtra. **Keywords:** pigeonpea, cowdung ash, earthen pot	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra)
2303	Storing of chickpea seed by using its husk in earthen bins	The tribal farmers of Nandurbar, Dhule and Ahmednagar districts store seeds of chickpea by using chickpea husk in earthen pots. The husk is spread at the bottom of the pot and over that a layer of seed is spread. In this manner alternate layers of husk	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		and seed are laid in the pot. The mouth of the bin is covered with earthen lid which is made airtight by plastering with dung and mud. **Keywords:** chickpea seed, husk, earthen pot	
2466	Use of sand to store greengarm	The harvested greengram is mixed with sand and stored. The sand particles absorb the moisture from greengram seeds and thus increase their storage life. The cuticle (upper skin) of the insect is damaged by friction with sand particles and the pest population is reduced in greengarm. Farmers of Gudalur village in Tamil Nadu are following this practice since 10 years. **Keywords:** greengram, sand particles	Shri P. Devandran Nallasamy Therar, W-4 Guddalur (Tamil Nadu) 625 518
2303	Storage of beans in ash	In pulse crops there is much infestation of stored grain pests. Therefore, good preservation of beans is a skill because the seed has to be stored for the next season sowing. The bean seeds are mixed with ash and stored in tin boxes. This results in good storability of grains **Keywords:** beans, tin box, ash	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2438	Storage of grains by mixing dried neem leaves or ash	Farmers of north Solapur and Ahmednagar districts are using dried neem leaves or ash to store grains safely. It prevents the attack of store grain pests. **Keywords:** neem leaves, ash	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2461	Use of neem leaves in controlling stored grain pest	Farmers of Venkatapuram, Reddipalli and Ratarypuram in Anantapur district of Andhra Pradesh use dry neem leaves along with paddy and store it in gunny bags. Neem leaves act as insect repellent. It is an eco-friendly and a low cost technology used to control storage pests. **Keywords:** neem leaves, stored grain pests, gunny bag, insect repellent	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhra Pradesh) 515 701
2464	Use of walnut, mentha, neem and eucalyptus leaves in storing grains	To avoid the attack of insect pests in stored grains, the farmers make use of leaves of walnut, mentha, neem and eucalyptus in grain storage. Farmers store their grain in a container called peru. During storage time about 5-6 leaves each of these plants are kept at various depths of peru. These leaves act as repellent to the insect pests. This practice is followed	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer hill, Shimla (Himachal Pradesh) 171 005

		widely in the village Samloti in Kangra district of Himachal Pradesh since time immemorial. Farmers are fully satisfied with the practice and can store the grain for longer period without any damage to the grain. **Keywords:** walnut, mentha, neem, eucalyptus, grain storage, peru, insect pests	
2439	Use of jungle pudina (Mentha arvensis) for grain storage	Farmers collect jungle pudina (Mentha arvensis) from fields generally near village springs/ grath/ in forest having humus soils. Collected pudina leaves are dried, ground and then used for grain storage. Storage bins are locally made of bamboo. Seed is kept in gunny bags. Pudina powder is used in the ratio of 1:1000 i.e 1 g in 1 kg of dry seed. This practice is adopted in such areas where pudina is available easily and farmers don't have either purchasing capacity or pesticides are not available for the farmers. **Keywords:** jungle pudina, grain storage	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2449	Use of draink leaves against storage grain pests	Draink (Melia azadirach) is a widely growing plant and is found in the vicinity of other herbs. Draink plants are known to have insecticidal properties. The leaves and fruits of the plants are used by the people of whole sub tropical region of Jammu and Kashmir which are put inside the grain storage structure to check the menace of insect-pest. **Keywords:** draink leaves, storage grain pest, insecticidal property	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2459	Use of copper sulphate in lime for internal white wash of earthen kuthia or bukhari for safe storage of grains	For safe storage of food grains, earthen kuthia or bukhari is made with a small outlet. This earthen bin is plastered with cement from inside and white-washed with lime mixed with copper sulphate. It is dried well. The dried grain is mixed with dry neem leaves. The grain is filled in the bin and the outlet of the bin is covered with dried earthen lid very tightly. The grain is now safe for storage.	Shri Amar Singh Nayabas Kutabpur, Dibai, Bulandshahr (Uttar Pradesh) 202 393

		About 50-70 % villagers of Bulandshahr, Aligarh and Etah districts of Uttar Pradesh are using this practice for more than 100 years. **Keywords:** copper sulphate, earthen kuthia, bukhari, lime, neem leaves	
2303	Storage of food grains in bins made of bamboo and cotton sticks	Marginal farmers of Nanduabar, Dhule, Ahmednagar and Jalgaon districts of Maharashtra store food grains in bins for a long time in good condition without any incidence of storage pests. After sun drying of the grains, it is stored in bins made of bamboo and cotton sticks and covered with mud and cowdung slurry so as to make the bin airtight. In some areas neem leaves are also mixed with the grains while storing. **Keywords:** storage bin, bamboo and cotton sticks	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2460	Grain storage in khochar	Farmers of Barmasa in Dumka district of Jharkhand store grains of maize, paddy, wheat etc. in a special structure called khochar. It is made of puwal, bamboo and soil. The structures are placed on the ground and filled with clean and dried grains, layered with dried neem leaves. It protects the grain against insect, pests and rodents. About 3-4 quintals grain can be stored for 9-12 months. **Keywords:** khochar, paddy, maize, wheat	Shri Baroop Lal Singh Barmasa, Sahra, Dumka (Jharkhand)
2453	Grain storage in earthenware jar	Food grain is stored in large or small quantity in earthenware jars. These jars are made of mud, usually derived from termitaria (mounds of termites or white ants). These containers provide safe, clean storage of the grains of any kind i.e. maize, wheat etc. These containers have the capacity of 10-20 kg. After filling the container upto full capacity, the top is covered with flat stone or any other lid which should be tight in all respects.This kind of storge is followed by all the people in hilly area of Himachal Pradesh. **Keywords:** earthenware jar, termitaria, termite (white ants)	Mr Bovinder Chand Research Fellow Department of Biosciences Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2454	Storage of paddy grains in container made up of deodar	Among other storage structures, bin made up of deodar (Cidar deodara) wood are very useful for storing paddy grains for a considerable period of time as it	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir

		effectively prevents infestation of insect pest. This is owing to the wood oil, which acts as a strong repellent for the insect-pests. For the purpose of storing a quintal of grain, a bin of 4'x4'x4' dimension would be required. Deodar is a locally available resource, profusely growing wild tree. As per rough estimate, a bin may cost around Rs. 3000/-. The practice is locally popular among the farmers of Bhaderwah tehsil of Doda district (Jammu & Kashmir). **Keywords:** deodar wood, paddy grain storage, wood oil, repellent	University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2455	Storage of paddy grain in underground pit	For storage of paddy grains, an underground pit of suitable size is dug out within the house. The size varies depending on the quantity of grain to be stored. Conveniently, for storing one quintal of grain, a pit (10'x10') is dug beneath the ground. The base and sides of the pit are lined with barks of bhuj tree to avoid spoilage from moisture and insect pest. The bhuj tree bark is used because it is thick and sheet of the bark is wide which helps in properly covering the walls of the pit. The pit opening is covered from above with mud. This practice helps in storage of grains upto 2 years and is practiced in Thathri area of Bhaderwah tehsil in Doda district of Jammu Kashmir. **Keywords:** underground pit, bhuj tree bark	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2457	Storage of maize grain in structure made of deodar wood	The farmers of Jammu region (Jammu and Kashmir) store maize grain in structure made of deodar wood. In addition they put small sticks of deodar wood containing oil, called dhini, inside the stored grain in boxes. Deodar wood boxes along with sticks are suited to store grain and, thus, prevent and check infestation of insect- pest in stored condition. The oil present in sticks works as repellent for the insect-pests. **Keywords:** deodar storage structure, dhini, repellent, deodar stick box	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2450	Use of methi leaves to store	Storage of grains for a long period	Shri Chaman Lal

	the grains	is the main problem for the farmers. Mostly grain is stored in the bin made of bamboo. The bamboo sticks are woven very gently and then plastered with mud from inside as well as from outside. The bamboo bin, locally called peru or peri, may be of varying sizes and dimensions. The container is filled with grains and 5-10 dried methi (Trigonella foenum-graecum) leaves are kept at various layers of the grains during storage or filling. The top is covered with the lid made of same raw material. It should be tight. **Keywords:** methi, peru, peri	Shri Santosh Kumar Research Fellow Z.S.I Solan (Himachal Pradesh) 171 005
2448	Use of traditional earthen bins for grain storage	For storage of grains of wheat, maize and rice, kohals (earthen bins) are used by the people of Jammu and Kathua districts of Jammu and Kashmir. Storing the grains in earthen kohals is a traditional practice. The size of the Agriculkohals depends upon the produce with the farmers. White clay is coated on both sides of the kohal and made to air tight after storing the grain. Insects rarely attack the grains in the earthen kohals and storage can be prolonged. **Keywords:** kohals (traditional earthen bins), air tight	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2444	Use of mud bins for grain storage	Bins made of mud and coated inside with cowdung are being used in certain areas of Jammu province of Jammu and Kashmir. For inside coating, cow dung is mixed with a certain amount of paddy straw which helps in binding the coated layer and remains intact for long. Being muddy, bin has special advantages in that, it helps in regulating the temperature and keeps the micro environment inside the bin naturalized to a large extent. The layer of cowdung coat inside the wall of the bin helps to check attack of insect pests, working as a mechanical barrier. The coating also pacifies the plant pathogenic organisms. **Keywords:** mud bins, cowdung coating, naturalized micro environment, mechanical barrier	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu

224	Use of kalanjium and ragi kuzhi as storage structure	Two storage structures as indicated below are used for storing grains. Kalanjium: This is made up of bamboo stick and this could be placed below the ground level. Ragi kuzhi: This is made up of stones. It is constructed by making a dig in the soil and it is covered with stone or wooden slab. The storage material is treated with cow urine and castor paste before storage to avoid storage pest. **Keywords:** kalanjium, rage kuzhi, cow urine, castor paste	Shri M. Periyasamy Galigattum, Denkanikottai, Dharmapuri (Tamil Nadu) 636 801
2303	Use of ash to store seeds of cucumber, water melon and musk melon	Farmers of Mohal and Madha tehsil of Solapur district store the seeds of cucumber, water melon and musk melon by mixing in the ash. The extra moisture of the seeds is absorbed in the ash. **Keywords:** cucumber, water melon, musk melon, seed, ash	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2447	Storage of sweet potato	Farmers of Keonjhar district of Orissa store tubers of sweet potato in dry sand beds of 8-10 cm thickness. The tubers thus can be stored for over a year. **Keywords:** sweet potato tuber, dry sand bed	Shri Kashinath Sahu Anandpur Keonjhar (Orissa)
2303	Hanging of onion and garlic bulbs along with leaves, and maize cobs with covered leaves for seed storage	Small and marginal farmers of Dhule, Ahmednagar, Nandurbar and Jalgaon districts of Maharashtra preserve onion, garlic and maize for seed purpose by hanging on bamboo sticks covered with leaves. It is hanged from roof of the house. At the time of sowing the hanged material is taken and then the leaves are removed and used as seed for sowing. **Keywords:** onion and garlic bulbs, maize cobs, hanging, roof	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of tuar katha (pigeonpea stalk) for storage of onion bulbs	Farmers of Barshi tehsil of Solapur district and Parner, Rahuri tehsils of Ahmednagar district use the stalk of pigeonpea to keep in the pile of the onion. Due to sufficient space left for ventilation, the storage quality of onion bulb increases, upto 4-5 months. **Keywords:** pigeonpea, onion, ventilation	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Preservation of wood of baheda and harra in appropriate manner	Tribals of Akole tehsil of Ahmednagar district have specific technology for preserving the wood of baheda (Terminalia belerica) and harra (Terminalia chebula) without	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		splittings, and maintaining the quality. **Keywords:** wood preservation, baheda, harra, wood splitting	

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 10
Horticultural Crops

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2479	Increasing germination percentage of solanaceous vegetable seeds by using 3 day old butter milk	Farmers of Pavas village of Sivagangai district in Tamil Nadu have been using this practice to increase germination percentage of solanaceous vegetable seeds since decades. The seeds of brinjal, chilli and tomato are soaked in 3-day old butter milk for 6 hours before seeding. This results in 80% germination of the seeds. **Keywords:** butter milk, germination, brinjal, chilli, tomato	Dr S. Sendur Kumaram, Assistant Professor (Horticulture), Krishi Vigyan Kendra, Kundrakudi, Sivagangai (Tamil Nadu) 630 206
2303	Use of castor around the chilli crop	Chilli is grown by the farmers of each tehsil of Ahmednagar district. The flower drop during hot season is a great problem which results in less harvest of chilli. To overcome this problem, farmers grow castor around and in between chilli crop fordevelping cool microclimate. Due to this, flower drop is checked to some extent and optimum yield of chilli can be taken. **Keywords:** castor, chilli, flower drop, cool microclimate	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of a mixture of urine and water on chilli crop to control curling of leaves	After transplantation of chilli crop usually there is leaf curling problem. The farmers of Solapur region and adjoining part of Ahmednagar use a mixture of cow urine+ water in 1:1 ratio with a little quantity of detergent. This mixture is sprayed on chilli plants to control the problem easily. **Keywords:** leaf curling problem, cow urine, detergent	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of hing (asafoetida) solution for the control of leaf curling in chilli	Newly transplanted chilli plants get infested with leaf-curl disease very quickly due to abrupt change in temperature and humidity. Farmers of Pandharpur and Solapur region spray hing (asafoetida) solution prepared in water (10 g hing in 100 litres water). About 2-3 sprayings with 15 days interval	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		help to control leaf-curl disease of chilli. **Keywords:** hing(asafoetida), leaf curling of chilli	
2470	Control of wilt in tomato	Hing and turmeric help in preventing the attack of virus that causes wilting. A solution is prepared by mixing 1 g hing and 10 g turmeric in 10 litres water. Roots of tomato and chillies are dipped in the solution for 30 minutes before planting. About 30-40% villagers of Balipatna of Khurda district in Orissa are using this practice since time immemorial. **Keywords:** wilt, tomato, hing, turmeric, root dipping	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2481	Intercropping of marigold in tomato	Marigold is raised on bunds of tomato crop in mid hills of Chenani area. It is believed that the attack of insect-pests and disease is lessened in tomato crop when marigold is raised on bunds as inter crop of tomato. Keywords: intercropping, marigold, tomato, insect-pests attack	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul-tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2473	Planting marigold in brinjal field to control nematodes	Marigold plants are planted in 1:4 ratio with brinjal in the field to save the crop from root-knot nematodes. Planting marigold in brinjal acts as an alternate host for the nematode. This practice is used in Balipatna village of Jatni block of Orissa since time immemorial. **Keywords:** marigold, brinjal, root knot nematode, alternate host	Ms Mamata Mohapatra L-294, Baramunda Housing Board Colony, Bhubaneswar (Orissa) 751 003
2475	Control of nematodes in vegetable fields by application of karanja oilcake	At the time of last ploughing, karanja oil cake @250 kg/ha is incorporated in the soil. The pesticidal effect of karanja controls 30-40% nematodes which causes wilt and also provides nutrient to the crops. **Keywords:** nematode, vegetable, karanja oilcake, nutrient	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2476	Control of insect pests in cabbage and cauliflower by	About 1 kg tomato stem and leaves are kept immersed in 10	Ms Mamata Mohapatra L-294, Baramunda

	using tomato plant parts	litres warm water for 4 hours and a solution is prepared. The solution is stained thoroughly and spread over the affected cabbage and cauliflower. The pungent smell of the solution drives away the insects eg. cabbage semilooper, diamond back moth etc. **Keywords:** tomato plant, pungent smell, cabbage semilooper, diamond back moth	Housing Board Colony, Bhubaneswar (Orissa) 751 003
2303	Use of trap crop to minimize pest damage in cabbage	To attract pests like sucking insects, bollworm and moths, plants like bhindi and mesta are used in cabbage crop, thereby the attack on main crop is reduced. These trap crops are grown either in strips or in mixed form.This practice is being followed in major vegetable- and cotton- growing areas of Ahmednagar distsrict. **Keywords:** trap crop, bhindi, mesta, insect attracting	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2468	Control of powdery mildew in cucurbitaceous crops	To control powdery mildew in cucurbitaceous crops, cattle bones are burnt in the centre of the field. The fumes control powdery mildew by about 30-40 %. **Keywords:** powdery mildew, cucurbitaceous crop, cattle bone, burning	Ms. Bhanumati Behera Plot no 64, Surya Nagar, Unit 7, Bhubaneswar (Orissa) 751 003
2471	Application of fish-washed water to cucurbitaceous crop for increasing yield	Fishes are washed thoroughly and the water is applied at the base of the cucurbitaceous plants. Fish-washed water provides nutrient for vine development and induces flowering. Thus 20% increase in yield is obtained. **Keywords:** fish-washed water,	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2474	Application of raw cowdung for storage of pumpkin	To increase the keeping quality of pumpkin , raw cowdung is applied on the peduncle of a harvested pumpkin, which preserves it for a longer period. Bacteriophase present in the cowdung kills other insects that attack pumpkin and cause damage. About 60-70% damage is controlled by this method. About 70% villagers of Chiplima block of Sambalpur district in Orissa use this practice since 40-50 years. **Keywords:** raw cowdung, storage of pumpkin, bacteriophase	Ms Sarbani Das 1068/32 , Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2486	Spraying of gold -dipped water	Gold- dipped water is sprayed on	Communicated by:

	in cucurbits	cucurbit plants when there is a problem of fruit setting. Some farmers in Jammu region of Jammu and Kashmir believe that fruit setting takes place in normal manner by spraying of gold- dipped water in cucurbits. **Keywords:** gold-dipped water, fruit setting	Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2380	Dusting of ash in cucurbits to check insect pest	Cucurbit plants have major problem of insect-pest infestation, causing great damage to the plant. The practice of dusting cucurbits with ash is prevailing in and around all parts of Jammu region of Jammu and Kashmir. Under this measure, cucurbit plants are dusted with the ash. The ash after coming in contact with the plant surface forms an outer layering. It prevent the insects from eating the plant by making it unpalatable to them. **Keywords:** ash, cucurbit plant, unpalatable	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Preservation of garlic bulbs for home consumption in earthen pot	For home consumption, the garlic bulbs are preserved to retain their aroma, pungency and freshness in earthen pots. The bulb are stored in earthen pot and the mouth of the pot is tied with cloth. The garlic bulbs remain fresh for 1 year at very low cost.People of rural areas of Jalgaon and Ahmednagar districts of Maharashtra are using this preservation technique. **Keywords:** garlic bulb, earthen pot, preservation, freshness	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2480	Enhancing productivity of onion	Farmers of Sundakadu village of Sivagangai district of Tami Nadu are using this practice for enhancing productivity of onion for more than 10 years. Instead of inorganic fertilizers, the farmers use decomposed Cassia	Dr S. Gopal Training Associate, Krishi Vigyan Kendra, Kendrakudi, Sivagangai (Tamil Nadu) 630 206

		leaves (75 kg) with cowdung slurry (@ 125 kg) for improving the colour, number and size of onion bulb. There is 25-30 % increase in yield with this practice. **Keywords:** Casssia leaves, cowdung slurry, onion bulb, increase in yield	
2303	Storage of onion bulbs for long duration	After harvesting of onion, the bulbs are stored in a locally prepared structure made of wooden sticks or bamboo. By this the bulbs can be stored easily for 6-7 months. **Keywords:** onion bulb, wooden or bamboo structure	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2487	Control of semilooper in onion	For controlling semi looper in onion farmers spray kerosene oil and ash on the crop. Kerosene and ash act as sticking material which minimize movement of the pest, resulting in reduction in crop loss. Cultivation of ajwain in the periphery of onion field also attracts the semilooper. **Keywords:** onion, kerosene, ash, ajwain	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Moving of gunny bag on the standing onion crop in foggy climate	Onion is the major vegetable crop of some pockets of Solapur and Ahmednagar districts both during kharif and rabi seasons. If the weather becomes foggy, there may be chances of blight disease in onion, which may cause heavy loss in crop yield. To avoid such losses, farmers move an empty gunny bag on leafy part of onion plants early in the morning or irrigate the crop early in the morning. **Keywords:** onion crop, gunny bag, foggy climate, blight	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2488	Protection of vegetable nurseries against various insect-pest	This practice is common in the remote hilly areas of Ram Nagar, Budu, Gool etc. of Jammu and Kashmir district, where farmers usually smoke hukka. The smoking process is such that when a person starts smoking, the smoke comes after passing through water,	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir)

		leaving there by, some tobacco constituents in the water, which acts as repellent/ insecticide. Drenching of hukka water, once in a week keeps various insect-pests away from the nursery. Hukka water is sprayed on transplanted seedlings also. **Keywords:** vegetable nursery, hukka, drenching, repellent/ insecticide	180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2492	Cultivation of vegetables in sandy river bank	Trenches are prepared with the help of spade in the river bank. The length of trench varies from 120 to 240 feet according to length of banks. Distance between two trenches is kept 15-20 feet so that the vines may spread easily. Depth of trenches depend on water table. For assessing the water table, one pit is dug. The depth ranges from 1 to 2 feet in October, and as the water level goes down the depth is increased up to 3 feet. Vegetables such as pumpkin, bottle gourd, cucumber, khira, water melon, tomato, brinjal and capsicum are grown in this system. (a) Seeding method and seed management: For fast germination the seeds are soaked in water for 6-12 hours, tied in wet cloth and are kept in the husk, straw or farmyard manure. After germination, 3-4 seeds are seeded at a point, so that at least 2 vines may grow from there. At initial stage, water given through water cans. For tomato and capsicum, nursery is prepared in December and the seedlings are transplanted in January. (b) Use of farmyard manure and fertilizers: Generally urea is used as fertilizer. In a 120 feet long trench, 8-10 quintals FYM and 10-20 kg urea are used. After digging the trenches, a mixture of FYM, urea and sand is filled in it and it is levelled up to the surface. (c) Insertion of grass thatches: Thatches are used to secure the vines from cold air in winter and from hot sand in summer. A shallow trench is also dug parallel to the main trench. In this, shallow trench thatches are	Krishi Vigyan Kendra Choudhary Sarankul, Himachal Pradesh Agricultural University Una (Himachal Pradesh)

		inserted at an angle of 45-60 degrees so that it may cover the small plants, and help the plants to escape from cold winds from north. At flowering stage, the thatch is spread over the space between two main trenches to protect the fruits and flowers from hot sand. For 125-150 feet long trench, 7-8 bundles of thatches (each bundle having weight of 18-20 kg) are required. (d) Pest and disease management: There is quite heavy infestation of pest and diseases, because of use of imbalanced fertilizer and raw farmyard manure. Generally there is quite high use of chemicals. These practices are being followed by Rai families since the seventies. They are minor in community and non resident to this place (Swa river). They come to this place and do cultivation from October to June, when vegetables come to the market. It gives handsome price. **Keywords:** Swa river, trenches, vegetable production, FYM, grass thatches	
2485	Application of hukka water for control of caterpillar in kitchen/vegetable garden	This is an indigenously evolved technique of Bhaderwah tehsil in Doda district of Jammu and Kashmir and is used to control the insect-pest in kitchen garden. Smoking of hukka (hubble bubble) is quite common among the villagers. Water that is left as waste after smoking(use of hukka) is a potent material for controlling caterpillar. It is sprinkled on the vegetables grown in the kitchen garden. Hukka water contains nicotine sulphate which possibly act as controlling substance for insect-pests of kitchen garden,. The technique is effective to the extent of 80-90%. It is also used against various skin infections such as eczema. **Keywords:** hukka water, caterpillar, kitchen garden, nicotine sulphate, eczema	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricul-tural Sciences & Technology, Jammu
2478	Spray of vinegar to increase yield of vegetables	In Kotkhaki area of Shimla district the farmers spray a diluted vinegar solution (0.5 litre vinegar in 50 litres water) before blossoming to increase the vegetable production by 15 % in cucumber	Shri Chandu Lal Sharma Khamala, Kotkhai, Shimla (Himachal Pradesh) 171 201

		and capsicum. There are some additional advantages: less cost is involved, it is less time consuming, vinegar is easily available, it is very effective, it increases soil fertility and ultimately increases the fruit production. **Keywords:** vinegar, cucumber, capsicum	
2469	Preservation of vegetables for off-season use	An array of vegetables such as potato, radish, turnip and green vegetables grown in the area, are stored in small pits, dug in the ground. The pit is then covered from above with the help of some suitable covering material made of local herbs. The size of the pit vary depending on the quantity of the vegetables to be stored. The technique is helpful in preserving the vegetables. It keeps vegetable fresh from extreme cold climate during winter and enables continued supply of vegetables during off-season. The vegetables stored by this technique remain fresh, devoid of pest and disease infestation and do not dry. Earthen pots may also be used to serve the purpose. Vegetables contained in earthen pots may be put inside pits and in this way vegetables may be preserved for long. This indigenous method of vegetable preservation is quite popular among the farmers of Bhaderwah and Doda districts of Jammu and Kashmir. **Keywords:** vegetable preservation, small pit, earthen pot	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2477	Augmenting shelf life of apple	This is the method adopted by some farmers in Bhaderwah tehsil of Doda district in Jammu and Kashmir for increasing the shelf life of apple. The fruit growers, during harvesting of apple, detach the fruit from the tree along with small branch including the spur. By adopting this technique, it has been observed that the keeping quality of apple is enhanced substantially. **Keywords:** apple, self-life, fruit along with branch and spur	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences &

			Technology, Jammu
2303	Control of downy mildew of grapes by proportionate planting of marigold	The grape growers of Tasgaon tehsil of Sangli district grow some marigold plants around the periphery of grape garden. The alpha terginin chemical from rootlets of marigold flower plant exudates which helps to control the disease. **Keywords:** downy mildew, grape garden, alpha terginin	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of doob grass in grape garden for diluting the salty water used for irrigation	Farmers of Sangli, Pandharpur and Tasgaon tehsils of Solapur and Sangli districts use salty water for growing the grape plants in presence of doob grass. The doob grass has the capacity to dilute the saltiness of water and helps better growth of grape plants. The salts are needed for the growth of doob grass. **Keywords:** doob grass, grape garden, dilute the salty water	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2472	Control of mango malformation by application of neem leaves	Paste of neem leaves is mixed with small amount of soap in water and sprayed on the flowers to control mango malformation. The solution is sprayed once a week. About 1 kg leaf is used in 10 litres water to which 25 g soap powder is added. Neem leaves and soap help in killing the insects, which eat away the flowers or cause damage to the flowers. About 30-40% damage is controlled by this practice. **Keywords:** mango malformation, neem, soap powder	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2483	Care of mango trees to obtain higher production	Alternate bearing of mangoes is common due to nutritional deficiency. To have regular bearing, 1 feet (30 cm) deep trench is dug around a tree in summer season. At the beginning of rainy season, 4-5 kg small fish is spread in the trench evenly and the trench is covered with soil. Small fish is found in abundance in the river adjoining the village. With this treatment the mango plant bears fruits regularly.The farmers of Naya Talab (Hathai) village of Dungarpur district in Rajasthan are using this technique for rejuvenation of mango trees for regular fruiting since 30 years. **Keywords:** mango, alternate bearing, nutritional deficiency, trench, small fish	Shri Manji Nanoma S/o Shri Harji Nanoma Naya Talab, Hathai, Dungarpur (Rajasthan) 314 034

2303	Judging correlation of mango and neem fruit yield	Farmers of Solapur and Ahmednagar district assume that if the neem plants are having good flush of fruits, the mango plants will also have a similar production of fruits. It is a good indicator for bearing of mango fruits. **Keywords:** mango, neem, flush of fruits	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2491	Use of semi-baked bricks for control of flower drop and induction of flowering in mango	Flower drop in mango tree is very common and sometimes, especially local varieties, do not bear flowering continuously for many years. In such conditions farmers of Nagri area of Kathua district of Jammu and Kashmir, dig a pit of about 5 feet deep at the base of the stem of the tree and fill half of the pit with small pieces of semi-baked bricks and the rest is filled with soil. The practice has favorable effect in inducing flowering and checking flower drop in mango. **Keywords:** semi-baked brick, flower drop, induction of flowering	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2482	Use of limewater for controlling aphids in mango	During March-April, aphids attack the base of the mango stem. For controlling the aphids in mango, people of Kathua and Jammu districts of Jammu and Kashmir use limewater. In this practice lime is mixed with water in a container Agriculand the lime solution is coated on the stem of the aphid-infested tree. It acts as repellent and aphid is controlled. It protects the plant from scorching sun also. **Keywords:** aphid , limewater, scorching sun	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2490	Use of raised platform around mango trees	People of lower parts of Himachal Pradesh use to prepare raised platform of 60-90 cm in height and 4-5 feet in radius around the mango trees to protect the trunk from damages caused by stray animals. Such trees have survived for more than hundred of years and provide fruits to the villagers on sharing basis. Most of the trees are raised from seedlings and known as sucking type mangoes. Such trees are heritage and serve to bring prosperity	Shri A.K. Agnihotri Joint Director (Planning) and Sr. Scientist, Directorate of Research, Dr. YSPUHF Naini, Solan (Himachal Pradesh)

		in the rainfed and dry areas. **Keywords:** trunk, platform, mango, heritage	
2303	Preservation of papaya seed in ash	Rural and tribal farmers of Maharashtra store papaya seeds for seed purpose in earthen pots. The seeds are mixed with ample quantity of ash and the mouth of the earthen pot is covered with cloth. By using this practice the farmers preserve their own seed at no cost and it gives good germination also. **Keywords:** papaya seed, earthen pot, cloth	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Drenching of cowdung and cow urine for improving quality of pomegranate fruits	In Malshiras tehsil of Solapur district of Maharashtra the farmers use a mixture of 10 kg cowdung and 1 litre cow urine in 150 litres water. Farmers apply only 4-5 litres of this mixture as basal dose and the rest of the amount at flowering time. The quality of fruits of pomegranate improves. **Keywords:** cowdung, cow urine, pomegranate	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of cow urine to pomegranate crop for quality improvement of fruits	In Malshiras tehsil of Solapur district, pomegranate growers use a spray mixture of cow urine +water in 1:5 proportion. It is sprayed twice or thrice in a season to achieve good-quality fruits and to improve resistance to pest and disease attack. **Keywords:** cow urine, pomegranate, quality fruits, resistance to pest and disease attack	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Spraying of warding solution for control of pomegranate wilt	Pomegranate is a major dryland fruit crop most popular in certain areas of Solapur and Ahmednagar districts. Wilting is a major problem in this region. To control wilting, farmers spray the warding solution on pomegranate plants. **Keywords:** warding solution, pomegranate, wilting	
2484	Detection and control of butterfly infestation in pomegranate	When the pomegranate fruit attains a size of walnut fruit, it is observed critically for its possible infestation by butterfly. If its microscopic black spot detected on the outer surface of the fruit, this indicates attack of the butterfly. Subsequently, the spot on the fruit is scratched slightly with the help of a knife. If the spot is superficial and not deep-seated, the fruit will remain healthy. Such fruits are bagged with the help of cloth. Otherwise,	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and

		if the spot is found deep-seated, the fruit is likely to be infested with butterfly and bagging with the cloth will not save the fruit. This practice is very simple requiring little skill on the part of the farmers but immensely helpful in detecting and checking infestation of butterfly in pomegranate fruit. This practice is common in Dauda village of Uderana panchayat of Bhaderwah tehsil of district Doda in Jammu and Kashmir. **Keywords:** black spot, scratching by knife, bagging by cloth	Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2489	Use of bamboo drip irrigation for plantation crops	It is mainly used for watering the plantation crops in Khasi hill of Meghalaya. It is particularly suitable to the conditions of water scarcity and in the soil with poor water holding capacity. The idea of diverting water from upper reaches of hill top to the lower reaches through gravity flow. Gravity flow is fully utilized in this drip irrigation system. This diverted water is conveyed through bamboo channel sections to the lower reaches of hill side. Such channel sections convey water efficiently at the rate of 18-20 litres/minute or even more, over a distance of several hundred meters. Elevation difference between the water source and the point of water application may be as high as 100 meters. Water is carried to the plot site and distributed into branches which are made and laid-out with the use of different forms of bamboo pipes/ channels. Depending on requirement of points where water is to be applied (plant positions), the water is diverted through network of bamboo channels in orchard. Reduced channel sections and diversion units are used at last stage of water application. The last channel section enables in dropping water, drop by drop at the plant site. Once laid out, the system works round the clock. The cost involved in the system is minimum. **Keywords:** bamboo, drip irrigation, water scarcity, lower	Dr N. Prakash, Dr P.P.Pal, Dr P. Sundrambal, Dr R. Kumar and Dr B. Bihari Agricultural Extension Division ICAR Research Complex for NEH Barapani Meghalaya)-793 103 Ref: Indigenous technological knowledge followed by the tribal farmers of North eastern hill in agriculture. Indian J. Hill Farmg 12 (1 & 2): 134-135 (1999)

		reaches, gravity flow, elevation difference, orchard	
2290	Coping with heat and water shortages for plantation crops in Andaman and Nicobar islands	Agro-climatic conditions on the Andaman and Nicobar Islands are favourable for growing spices, coconut and other cash crops. But the rather extreme seasons pose a serious challenge to the islands's growers. A prolonged rainy season (May to November) is followed by a period of intense summer (December-April). Annual rainfall averages 3000 mm and sometimes exceeds 4200 mm, but since there is no permanent source of water for irrigation on the islands, the absence of rain in the summer creates an acute crisis. To cope up with the problem, they adopt the following practices: The farmers of this region adopt to plant coconut and arecanut seedlings close to banana plants. Banana plants grow well, manage to withstand the extreme summer and mature quickly. Once established, they create shade and also keep the surrounding area moist and cool since they store much water in their roots and stems. When coconut and arecanut plants are planted among banana plants, their roots are protected during the hot and dry season. The first one or two years are critical for coconut and arecanut plants. If they can survive these years, the plants can manage on their own. In the hills of the Andaman and Nicobar Islands, where water level drop most severely in summer, it is difficult to raise the especially vulnerable arecanut seedlings. Farmers therefore place the seedlings near well-established coconut trees, which offer them shade. Some farmers make particularly clever use of the fibrous husks that are left after arecanuts are extracted from their pods. Instead of throwing away or burning the fibers, they place them in a circular ditch which they have dug around the base of the arecanut plant. This protects the stem from direct sunlight and keeps the area cool by reducing the evaporation from the soil. And as the fiber slowly decompose, they become	Dr. A.K. Bandyapadhyay, Central Agricultural Research Institute, P.O. Box 181 Portblair (Andaman and and Nicobar Islands) 744101 Dr. G.S. Saha Central Institute of Freshwater Aquaculture (CIFA) Dhauli Bhubaneshwar (Orissa) 751 003 Ref: Indigenous Knowledge and Deve lopment Monitor, Vol. 7: 26-27

		organic manure that adds fertility to the soil. The farmers find this very effective and the practice is rapidly becoming popular among them. Some farmers cover the base of coconut plant with leaves from the same plant. This also prevents direct sun from drying out the stem and it keeps the base cool. The leaves when they ecompose, turn into organic manure. Another problem for farmers on the islands is salt water. Low-lying areas are flooded with sea water during high tide. Coconut plantation suffers when roots are in frequent contact with salt water. To protect coconut plants from this direct contact, farmers collect clay soil and pile it up around the base of the plants. This practice is particularly useful for newly planted coconut seedlings, which are particularly vulnerable to salt water. In order to protect arecanut seedlings from the adverse effects of salt water beneath the soils, farmers plant the seedlings shallowly. **Keywords:** water shortage, heat, coconut, arecanut, banana, shade, fibrous husk, salt water	
2303	Use of zero-energy chambers for cut flowers	In Parner tehsil (Ahmednagar district) some parts are famous for growing different types of flowers. But marginal farmers cannot afford to avail the facility of cold storage after cutting the flowers. To cope up with this situation, a brick chamber (of appropriate size) is prepared. The floor is filled with sand upto a certain height. It is watered frequently and thus the desired microclimate is developed in chambers and flowers can be preserved for 24-48 hr. **Keywords:** cut flower, cold storage, zero-energy chamber, brick chamber	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 11
Veterinary and Animal Husbandry

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2499	Use of powder of tutia for treatment of broken internal part of animals' horn called singhada	Sometimes in a herd the animals quarrel with each other and as a result they break their horns, and the internal part of the horn is severely damaged. For its cure, first the broken horn is washed with lukewarm water and then powder of tutia is dropped on the affected part and tied with a cotton cloth. This practice is repeated after 2 days and continued after every two days upto 15 days for complete recovery. This is in use since last 10 years in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** tutia, broken horn	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2508	Use of dried stems of vasumbu (Acorus calamus) for dehorning in cattle	Farmers of Manbadi village of Tamil Nadu are using vasumbu stems for dehorning in cattle since 20 years. Vasambu (Acorus calamus) is a medicinal herb. Well grown stems of vasambu are collected, cleaned in water and dried in sunlight. Stems are cut into pieces of 5-6 cm length. The stem pieces are kept on fire flames to make them red hot and the pieces are then rubbed over the horn buds till the blood is shed. It destroys the horn cells and thereby growth of horn is arrested. Some drops of neem oil are applied over the area to avoid any infection. Dehorning is done to avoid injuries due to conflicts among cattle and to maintain uniformty of the herd. **Keywords:** vasumbu, dehorning in cattle, neem oil, uniformity of herd	Shri S. Vadival S/o Shri K. Sivalingam, Mumbadi, Veppampati Hosur, Dharmapuri (Tamil Nadu) 636 903
2567	Use of extract of snake-gourd (Trichosanthus cucumerina) with amalgam to cure white spot in eye of animals	When an animal (cattle and buffalo) suffers from the problem of white spot in the eye, the farmer uses a mixture made from extract of snake-gourd with powder of amalgam to overcome the problem . The pungency contained in snake-gourd leaves	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		has a good efficacy to replace the whitish layer in the eye. About 5-8 g green leaves of snake-gourd vegetable are collected and its extract is separated. Then 4-5 g amalgam powder is mixed. This solution is dropped in the affected eye with the help of cotton cloth 4-5 times a day and it is continued over a week to get the desired results. About 50-60% problem can be controlled by this practice. This practice is age-old and is used in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** snake-gourd, white spot in eye, white layer in eye, amalgam powder	
2541	Use of juice of elie sullukuthalai for treatment of wounds and cataract	Extract (juice) of green leaves of elie sullukuthalai is fed orally to the animals for curing wounds and cataract in animals. Farmers of Kuzhuman in Tamil Nadu are using this method for a long period. **Keywords:** elie sullukuthalai leaves, wounds, cataract	Shri Periyaswamy Mela kuzhumani, P.O. Kuzhuman, Tiruchirapalli (Tamil Nadu) 639 103
2303	Use of tobacco or Calotropis leaf juice to flow out foreign material from eye of animal	Sometimes animals suffer from foreign material in eyes. Due to this the animal's eyesight gets weaken and animals keep their eyes close for sometime or permanently. It may also result in losing of eyesight. The juice of leaves of tobacco or Calotropis is dropped into eyes of animal. Due to pungency of juice of Calotropis animal passes too much water from eyes and with this water foreign material comes out. Farmers of Solapur and Ahmednagar are using it this practice. **Keywords:** tobacco, Calotropis, leaf juice, foreign material in eye	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of leaf juice of Calotropis to cure eye diseases in animals	If the animal suffers from any disease of eyes, the farmers of north Solapur region of Solapur district use the juice of Calotropis for the eyes of animals. **Keywords:** Calotropis leaf juice, eye disease	Director of Extension education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2646	Use of small fishes to cure foot and mouth disease in animals	When an animal suffers from foot-and-mouth disease, farmers put 50-60 g small fishes in bread (chapati) and feed to the animal twice a day. The practice is continued up to 4-5 days to get complete relief from the disease. It is in practice in Suhagi village of	Shri Ranjay Kumar Singh C/o Dr C. B. Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004

		Jabalpur district in Madhya Pradesh. It is an age-old practice. **Keywords:** foot and mouth disease (FMD), small fishes, chapati	
2520	Use of local liquor, jaggery and salt solution to control foot and mouth disease in animals	The farmers of Bharathinagar village in Tamil Nadu are using the following practices to control foot and mouth disease (FMD) in animals since 9 years: (a) local liquor or wine is given to animals; (b) rubbing of jaggery in the mouth to force the animal to open its mouth; and (c) spraying of salt solution with the help of cotton cloth inside the mouth and between the hooves of animal suffering from foot and mouth disease. **Keywords:** local liquor, jaggery, salt	Shri K. Selvakumar 7/2 Bharathi Nagar, Perambalur (Tamil Nadu) 621 212
2507	Treatment of foot and mouth disease	Gingelly oil (1/4 litre), banana (4) and pig fat (5 to 10 drops) are mixed well and given orally to the animal, suffering from foot and mouth disease. This treatment is given twice a day for 3 days. Ulceration in the mouth is healed very quickly. For control of lesion in leg, Glorioasa superba (250 g) and neem oil (1/4 litre) are mixed, boiled for half an hour and filtered after cooling. This extract is applied over the wound in the leg. This treatment is continued twice a day for 3 days. The healing of wound is very quick.The farmers of Aandi Arrani village of Sivagangai district, Tamil Nadu are using this practice since last 5 years. **Keywords:** gingelly oil, banana, pig fat, Glarioasa superba, neem oil, foot and mouth disease	Dr M. Subramaniyam Assistant Professor, Krishi Vigyan Kendra, Kendrakudi, Sivagangai (Tamil Nadu) 630 206
2506	Use of Leucas aspera leaves to cure lesions of foot and mouth disease	Farmers of Kuzhumani village of Tamil Nadu feed green leaves of Leucas aspera to the cattle to cure foot and mouth disease. This practice is in use for last 10 years. **Keywords:** Leucas aspera, foot and mouth disease	Shri M. Kumar S/o Shri Marimuthu, 72/2 Mela Kuzhumani, Kuzhumani, Tiruchirapalli (Tamil Nadu) 639 013
2514	Use of pig fat and green banana to treat foot and mouth disease	Pig fat (250 g) and 10 green bananas are given orally to the affected animal for 3 days to reduce over saliva formation during foot and mouth disease. Farmers of Ayilapettai village are following this practice since 25 years.	Shri N. Anbazhagan Anna Nagar, Ayilapetti, Koppa, Trichirapalli (Tamil Nadu)

		Keywords: pig fat, green banana, foot and mouth disease	
2543	Use of neem seed kernel and cinnamon for treatment of lesions of foot and mouth disease	When animals suffer from foot-and-mouth disease, a mixture of neem seed kernel and cinnamon is given to cure the lesions,. This is in vogue since last 10 years **Keywords:** neem seed kernel, cinnamon, foot and mouth disease	Shri P. Kanniyan S/o Shri Periyasamy, Sukkankuli Kuzhumani, Tiruchirapalli (Tamil Nadu)
2503	Control of foot-and-mouth disease by using Acacia bark	Foot and mouth disease (FMD) is a common bovine disease prevalent mostly during the monsoon. The stem bark of babool (Acacia) is used for treatment of FMD. About ½ kg Acacia stem bark is ground properly and boiled with 10 litres water. This lukewarm extract is applied over the affected hooves of the animals. This practice is followed twice a day for 4-5 days. This treatment is commonly practised in Afajalpur village of Buland Shahr district of Uttar Pradesh. **Keywords:** foot and mouth disease, Acacia bark	Dr (Ms) Kiran Singh C/o Dr Tungveer Singh, D-37, Medical College, Meerut (Uttar Pradesh) 250 004
2303	Treatment of foot and mouth disease of cattle by keeping fish on tongue and adding fish water in drinking water	It is a common and local practice in all the districts in the jurisdiction of Mahatma Phule Krishi Vidyapeeth, Rahuri in Maharashtra. An animal suffering from foot and mouth disease is generally treated by keeping one fish on the tongue of animal and fish water is also added in the drinking water. The affected hoofs and digital space are washed with fish water. The disease is cured within a week. **Keywords:** fish water, fish on tongue, foot and mouth disease	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Curing foot and mouth disease in animals	To cure foot and mouth disease of animals, farmers of North Solapur of Solapur district and Ahmednagar district allow the animal to sit in the muddy water for some days. By this practice the excess body heat of animals gets subsided. **Keywords:** foot and mouth disease, muddy water, excess body heat	Director of Extension education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2602	Control of foot disease in animals	The treatment is quite helpful in curing foot and mouth disease in animals. A decoction of copper sulphate (Neela thotha) is prepared for the purpose and it is applied on the feet of affected	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural

		animals. After application, the animals are allowed to take rest for some time. In some cases, kerosene oil is also used for the same purpose. For this, it is heated in a small vessel and wrapped in a thick cloth and then applied to the feet of the animals twice in a day, continuing the practice upto 5-7 days. This practice is under use among the farmers of Bhaderwah tehsil of Doda district in Jammu and Kashmir. **Keywords:** foot disease, kerosene oil, Agriculcopper sulphate	Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2644	Use of leziuwen weed to cure FMD lesion in catlle	Leziuwen, belonging to composite family, is a weed which is generally found in abundance in many places. This weed bears small yellow flower. The leaves and stems are crushed and rubbed over the FMD lesions, which is repeated 2-3 times daily. This helps in fast healing of FMD lesions. **Keywords:** leziuwen weed, FMD lesion, fast healing	Shri Rakesh Chaurasia NRC on Mithun, Jharnapani, Medziphema (Nagaland) 797 106
2500	Treatment of minkedi disease (swelling of larynx)	Minkedi i.e. swelling of larynx, is very common among the cattle. The animal suffering from this problem shows the following symptoms: (i) it does not take fodder, (ii) swelling of tongue occurs, and (iii) swelling of larynx. Weakness is observed in the cattle if proper treatment is not provided. Locally available methods for treatment of cattle suffering from minkedi are as follows: A few gram root of coriander (wild species) is ground properly. The paste is mixed with 500-1000 g flour. To this a few ml water is added and a thick suspension is made, which is given to the cattle for 2-4 days orally. Frog is also given to the cattle in their fodder to get relief from this disease. These practices are used in Baldhar village in Kangra district of Himachal Pradesh since time immemorial. **Keywords:** minkedi, swelling of larynx, tongue, cariander, frog	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2594	Use of chirpine oil for curing spinal cord problem and itching in animals	Sometimes the animals suffer from spinal cord injury and skin aberration problem. Farmers of Mogla and Triath of Rajouri district of Jammu and Kashmir use chirpine oil for curing itching	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul

		and spinal cord problem. As pine is a wild tree available in the forest area of Rajouri district, so little cost is involved for collection of oil. **Keywords:** chirpine oil, spinal cord and itching	tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2577	Use of khand for spinal cord diseases and bronchitis in animals	Damage of skin on spinal cord generally takes place in case of draft animals. The khand (Acorus calanus) is a herb, the rhizomes of which are used for treatment of skin damage over spinal cord. This rhizome is fed as such to the animals. The khand is also effective in bronchitis of the animals. This treatment is common in Dharal area of Rajouri district in Jammu and Kashmir. **Keywords:** khand, rhizome, spinal cord	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2591	Use of nagphani (Cuscuta reflexa) stem pulp, garlic, turmeric, Cuscuta loranthus stem, and roots of talmakhana to cure the langri disease of animals	Generally in winter season old as well as new generation animals suffer from dewlock and arthritis pain. In this condition farmers use a mixture made of nagphani stem pulp, garlic, turmeric, Cuscuta loranthus stem and roots of talmakhana. About 50 g nagphani stem pulp 25 g garlic, 40 g turmeric, 50 g bark of Cuscuta loranthus stem and 50 g roots of talmakhana are taken and crushed, and slightly fried in mustard oil.It is pasted on affected legs and then tied over with cotton cloth. This treatment is continued thrice a month after an interval of 7 days. This practice is age-old in Sonapur village of Azamgarh district of Uttar Pradesh. **Keywords:** nagphani (Cuscuta reflexa), garlic, turmeric, Cuscuta laranthus, talmakhana, langri disease	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2597	Use of talmakhana, bark of Ficus religiosa, amarbel, acidic soil, leaves of bamboo and tonta for curing langri disease of animals	In winter season,old as well as new generation animals (cattle, cow and buffalo) suffer from dewlop pain (arthritis pain). Under such conditions, farmers	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta,

		use a mixture made from 1 kg each of talmakhana root, bark of Ficus religiosa, amarbel stem, acidic soil (which is available in the foundation of old mud houses) and 500 g green leaves each of bamboo and tonta. Leaves are cut into small pieces. All these materials are put in 7 litres fresh water and boiled till the solution remains 3 litres. This solution is smeared on the affected part as well in the whole body twice a day for 15 days to get the desired results. About 65-70% problem can be cured. This is used in village Sonapur of Azamgarh district in Uttar Pradesh. **Keywords:** talmakhana, Ficus religiosa, amarbel, acidic soil, leaf of bamboo, leaf of tonta, langri disease	Azamgarh (Uttar Pradesh) 276 128
2635	Use of decoction made from mehandi, roots of talmakhana, bark of palm tree and stem of amerbel (Cassytha filiformis) to cure the dewlop pain	Due to problem in the veins of dewlop, animals feel much pain and even they lift their legs in the air. Farmers call it as langri ahanawar.To cure the ailment, a decoction is made by using 250 g root of talmakhana, 250 g bark of palm tree and 250 g stem of amarbel (Cassytha filiformis) in 2 litres water. Every time about 200 ml decoction is used for washing dewlop thrice a day and it is continued up to 15 days for complete recovery. In addition, leaves of mehandi fried in ghee are tied over dewlop with the help of cotton cloth. It is followed in Sonapur village of Azamgarh district in Uttar Pradesh since ages. **Keywords:** dewlop pain, talmakhana, palm tree bark, amarbel, mehandi leaves	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2575	Use of ashwagandha with dry chilli to cure jaharbad disease in animals	For controlling jaharbad disease (swelling of a part of the body with fever) of animals, farmers use a mixture of ashwagandha bark and dry chilli. About 250 g bark of ashwagandha and 21 dry chillis (red) are crushed together. After this, it is smeared with 500 ml lukewarm water. This material is fed to the animals through bamboo sticks, 4 times a day, and it is continued over a week to get the desired results. About 70-80% problem is controlled by this practice. **Keywords:** ashwagandha, dry	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		chilli, jaharbad disease	
2640	Use of the khutia chara leaves and fruits to cure jaharbad disease in animals	Some times it is observed that muscles of animals grows big in size (swelling) causing fever to the animal. Farmers call it jaharbad. Due to this, animal do not take food materials. To overcome this problem, about 100 g leaves and 50 g fruits of khutia chara are collected from the wild areas and after crushing, it is fried with mustard oil to make a paste. The paste is smeared on the backbone of the animal thrice a day. The practice is continued till one week to get complete relief. It is in vogue in Suhagi village of Jabalpur district of Madhya Pradesh. It is an age-old practice. **Keywords:** khutia chara, jaharbad	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2645	Use of a mixture made from castor oil, geru soil, and black salt to cure langari disease in animals	In winter season animals suffer from dewlop and thigh pain. Farmers call it langri disease. For cure, farmers take about 50 ml castor oil, 15 g geru soil, and 10 g black salt. Castor oil is heated and all the ingredients are mixed to it. When it is lukewarm, it is smeared over the legs at least 4-5 times a day. The practice is continued over 15 days to get complete relief. It is an age-old practice and is followed in Suhagi village of Jabalpur district in Madhya Pradesh. **Keywords:** castor oil, geru soil, black salt, langri disease	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2540	Use of pandri, sembal, thandu, kilangu for treatment of black quarter in animals	The tubers of pandri, sembal, thandu, kilangu are boiled, and neem oil is mixed to it and fed orally to the affected animal. It is given at the initial stage of blackquarter. This practice is in use since 40 years by the farmers of Kuzhuman of Tiruchirapalli district in Tamil Nadu. **Keywords:** pandri, sembal, thandu, kilangu, blackquarter	Shri Periyaswamy Mela kuzhumani, P.O. Kuzhuman, Tiruchirapalli (Tamil Nadu) 639 103
2496	Use of Albizzia lebbeck buds for treatment of foot finger rot in cattle	Foot finger rot is a dangerous disease among cattle during rainy season. This disease is treated by making use of Albizzia lebbeck buds. In this treatment, the buds of Albizzia lebbeck are ground and mixed with small amount of water . This suspension is applied between the foot fingers to get relief. A majority of the villagers of Samloti of Kangra district in Himachal Pradesh are using	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005

		this treatment since time immemorial. **Keywords:** foot finger rot, Albizzia lebbeck bud, suspension	
2648	Use of tortoise bone and butter to cure swelling and cut in the udder of cows and buffaloes	Sometimes the udder of cows and buffaloes gets cut by nail due to mishandling, and the animals feel pain. For it, about 100 g bone of tortoise is powdered and mixed with 50 g butter to make a paste. This paste is smeared over the affected udder on the swelling and cutting part after each milking. It is continued up to 4-5 days to get complete recovery. It is practised in village Sonapur of Azamgarh district in Uttar Pradesh since ages. **Keywords:** tortoise bones, butter, milking	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2512	Use of chenthil (Tinospora cardifolia) leaves for treatment of mastitis	Leaves of chenthil are made into paste and it is applied externally on the affected (swollen) udder. Farmers have been using these leaves since last 40 years. The paste is applied twice daily until full recovery. **Keywords:** chenthil leaves, mastitis	Shri Paneer Selvan East off Street, Nagercoil (Tamil Nadu)
2501	Treatment of cattle suffering from basher disease by using Allium sp	Basher disease is very common among the cattle. The animal suffering from this disease shows following symptoms: (i) swelling of earlobes (ii) swelling of the teats, and (iii) the cattle do not take fodder. There are different methods used for treatment of cattle for this disease as indicated below: (a) About 1-2 g Allium sp. (wild one) and black pepper are ground properly and mixed in 500-1000 g flour, which is fed to the cattle for 2-3 days. (b) Few grams of hing (Asafoetida) are mixed with appropriate amount of flour and fed to the cattle for 2-3 days. (c) The cattle is treated by feeding with hive comb of wasp. These practices are being used in Samloti village in Kangra district of Himachal Pradesh since time immemorial. **Keywords:** basher, swelling of earlobes, Allium sp., black pepper, hing, comb of wasp	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2631	Use of soybean meal to reduce mastitis in dairy cattle	Shri Aru Khate is a successful dairy farmer in Dimapur town of Nagaland . Through his practical experiences he has established a small dairy farm in Nagarjan area	Shri Aru Khate Nagarjan 'B', Dimapur (Nagaland)

		of Dimapur town. According to him, mastitis in his farm has been greatly reduced when he replaced maize by soybean meal in the ration. Over the past one year he has not encountered a single case of mastitis in his farm. **Keywords:** soybean meal, mastitis in dairy cattle	
2521	Use of pure ghee, honey and iron rod to treat the dislocated or fractured organs in animals	Mixture of honey and pure ghee (1:1) is uniformly spread over a cloth. Iron rod is heated on fire till it becomes red and this rod is branded on the skin of dislocated fractured organ of the animal. The cloth with honey and ghee is bandaged over it. The farmers of Elandaikundam village are following this practice since 10 years. **Keywords:** pure ghee, honey, iron rod, fractured organ	Shri T. Ramesh Elandaikundam, Thirumalapadi via Ariyalur, Perambulur (Tamil Nadu) 621 851
2539	Use of mayurchulia (Etephantopus scaber) in treatment of bone fracture in animals	Fresh root of mayurchulia (Etephantopus scaber) is made into a fine paste, fried in castor oil and is applied and bandaged locally for bone fracture in animals. The root extract and castor oil helps in activating the nerves and setting of bones. This is an age-old practice being used in Chandaka village of Khurda district in Orissa. **Keywords:** mayurchulia, castor oil, bone fracture	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2535	Treatment for fracture of animal bone by mithi seed (Trigonella focnumgraecum)	While grazing in open, sometimes bones of animals get fractured. Mithi seeds are crushed and a paste is prepared with water. This paste is applied on the fractured bone and it is tied with bamboo sticks for 15-20 days. This is practiced in Mandi district of Himachal Pradesh since time immemorial. **Keywords:** mithi, bone fracture	People of Mandi district of Himachal Pradesh at large Communicated by: Prof L. R. Verma Department of Bio-Sciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2570	Use of hot mustard oil to cure dropping switch of tail of animal	Due to some infection, the hairs of the switch of animals drop continuously, sometimes leading to even total hair loss. For this, the affected part of the tail switch is rubbed by iron rod and then the switch is put in hot mustard oil. This practice is done only once. About 70-80% problem is controlled by this practices. It is in vogue for the last 10 years in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** dropping tail switch, mustard oil, iron rod	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

2495	Use of whey, wood ash and black pepper for treatment of hair loss in cattle	Hair loss is very common problem in cattle throughout the year. For its treatment, about 1-2 litres whey is mixed with a few grams of wood ash and a little amount of black pepper. This content is properly mixed and given orally to the animal for a few days in small doses to cure hair loss problem among cattle. This treatment is used in Balot village of Kangra district in Himachal Pradesh since time immemorial. **Keywords:** hair loss, cattle, whey, wood ash, black pepper	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2622	Use of mustard oil to treat the loss of hair from cattle tail	Sometime hair loss from tail of animals starts and spread to whole body. In some cases bleeding starts from tail and it causes the death of animal. For treatment of this disease, a sharp cut is made with blade on the lower portion of the tail and then it is dipped into hot mustard oil. Then this portion is tied with thread. Mustard oil is smeared twice a day on the tail and whole of the body for 3-4 days. This technology is being followed in whole Theong tehsil of Shimla district in Himachal Pradesh. **Keywords:** hair loss, sharp cut in tail, mustard oil	Shri Deep Ram Verma Jagheri, Theog, Shimla (Himachal Pradesh) 171 201
2586	Use of aak to control worm infestation on the tail of animals	Sometimes a kind of parasite attacks the tail end of animals due to which the tail gets necrosed necessitating amputation of the tail. The nomads rearing the animals have observed that if treatment is done with milk of aak (Calotrpis procera), the parasite is expelled from the tail. This practice is being used by the farmers in Sunderbani area of Rajouri district of Jammu and Kashmir. **Keywords:** aak , parasite	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul-tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2636	Use of aak leaves to control the afra disease in animals	About 5-6 leaves of aak (Calotropis gigantia) are collected and fed to affected animal thrice a day by putting in bread (chapati). The practice is continued for 4-5 days to get complete relief. It is in vogue in Suhagi village of Jabalpur district of Madhya Pradesh.	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004

		Keywords: aak leaves, afra, bread	
2533	Use of jaggery, garlic and ginger mixed with water for treatment of bloat	Farmers of Ilaiyathangudi village of TamilNadu use a mixture of jaggery, garlic and ginger since 10 years to control bloat in animals. About 100 g jaggery, 50 g garlic and 50 g ginger are mixed. The mixture is ground by domestic grinder and dried in the sun. Afterwards 500 ml water is mixed to it and fed orally to the animals suffering from bloat. **Keywords:** jaggery, garlic, ginger, bloat	Shri K. Ramaraj Ilaiyathangudi, Tiruppathur, Sivagangai (Tamil Nadu)
2545	Cure for aafara by using mustard oil	When animals suffer from aafara (flatulence/ tympany), it causes constipation, improper rumination, stop feeding and results in low milk production in cows and buffalos. For cure of aafara, farmers of Rampur-Bajheda village in Bulandshahr district of Uttar Pradesh use mustard oil. About 250 g raw mustard oil is given to the animal with the help of bamboo pipe. This will result in loose motion. This treatment improves aafara and increases milk production. **Keywords:** aafara, constipation, loose motion, milk yield	Dr Tungveer Singh D-37, Medical College Campus, Meerut (Uttar Pradesh) 250 004
2603	Use of wheat soup for curing bloat (afara) in animals	Bloat occurs in animals because of accumulation of gases in the stomach. Farmers of Badala area of Kathua district of Jammu and Kashmir, usually boil the wheat grains in a utensil and when one fourth water remains it is given to the ailing animals as asoup for curing bloat. Boiled wheat grains (kungnian) are also fed to animals and this results in enhancement of milk production. **Keywords:** bloat, wheat soup, milk production	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2556	Use of draink (Melia azedirach) leaves for curing bloat in animals	Bloat is common in animals and it occurs because of excessive accumulation of gases in the stomach. Draink leaves, which is popularly available in the entire sub-tropical area of Jammu region is used for curing bloat in animals. Draink leaves, mixed with jaggery and flour, are fed to the animals once a day for two days continuously. This practice is	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report

		common in the Jarafpain area of Kathua district (Jammu and Kashmir). **Keywords:** draink leaves, bloat, excessive accumulation of gases	from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2580	Feeding of wild mint against gas problem in animals	The practice of feeding wild mint to animal for curing gas problem is traditionally known to the farmers and it is in use for long time all over Jammu region. Wild mint is fed to the animals suffering from stomach and gas problems. This helps in easing the problem of animals by providing quick relief through the release of the gases. **Keywords:** wild mint, gas	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2653	Cure of bloat in cattle by using asasogho / gakhro	Leaves of a vegetable called asasogho/ gakhro (Hipiscus sasparisa) are used by the local farmers for the treatment of bloat in cattle. The dried leaves of this plant are soaked in hot water for some time and little quantity of salt is added. When it gets cool, it is strained and the filtrate is fed to the sick animal. The practice has been found to be effective in curing the sickness at Chumukedima of Dimapur district in Nagaland. **Keyword:** asasogho, gakhro, bloat, salt	Shri Khamo Semy Chumukedima, Dimapur (Nagaland)
2532	Use of thalaisuzhi elai for treatment of indigestion in cattle	Farmers of Thiruppathur village are using thalaisuzhi elai leaves for treatment of indigestion in cattle since 5 years. The paste of leaves of thalaisuzhi elai (250 g) is made. This paste is mixed with sufficient quantity of water and it is administered orally. It is given twice daily in morning and evening. **Keywords:** thalaisuzhi elai, indigestion in cattle	Shri A. Balamurugan S/o Shri V. Alagu S.V. Manglalam, Thiruppathur, Sivagangai (Tamil Nadu)
2498	Treatment of stomach problem in cattle	Stomach problem in cattle occurs due to eating of moist grass. The main symptoms of the problem are swelling of stomach, animals do not take fodder and salivation persists. A majority of the farmers of Mumta village of Kangra	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh)

		district in Himachal Pradesh treat the animals with stomach problem by feeding a mixture prepared from 20 g nutmeg, and 50 g each of onion, garlic and tobacco (Nicotiana tabacum) and thymol (Carum copticum). The ingredients are ground properly and mixed with 300 ml water. This treatment is given orally to the cattle with bamboo sticks. **Keywords:** stomach problem, moist grass, nutmeg, onion, garlic, tobacco, thymol	171 005
2600	Curing animals from gastric problem	This practice of curing animals suffering from gastric problem is prevalent in Dandi village of Doda district in Jammu and Kashmir. The animals suffering from gastric problem are characterized by distinct symptoms, i.e. distention of stomach, dull and indigestion and anocedic. The affected animals are treated for 2-3 days with hot tea containing sonth, azwain, edible soda and jaggery is given twice a day. The prescription dose involves little cost. All the ingredients are domestically consumed and may cost about Rs 4/- per dose. **Keywords:** gastric problem, sonth, azwain, edible soda, hot tea, jaggery	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2550	Curing of animals for stomach ailment with bhandrali	Bhandrali is the local name given to small cocoon-type structures which are made by red ants with the help of clay to inhabit. These are quite common in house holds. The cocoon like structures, containing red ants, are picked up from the house walls and crushed to feed the animals. This practice is common in some of the villages of the Baderwah tehsil in Doda district of Jammu and Kashmir. **Keywords:** bhandrali, stomach ailment, cocoon-type structure, red ant	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2606	Use of whey with mustard oil for curing stomach pain in animals	Farmers of Kathua district in Jammu and Kashmir use mixture of whey (lassi) and mustard oil for curing stomach pain in animals. Mixture of half litre lassi and 200 g mustard oil is prepared and fed to the animals once a day continuously for three days for curing stomach pain in animals.	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir)

		This practice also helps in treatment of worms in the stomach of animals. **Keywords:** whey, mustard oil, stomach pain	180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2565	Use of churai for curing stomach problem in animals	Milch animals suffer from various stomach ailments. Churai, which is abundantly available as a herb, is effective in curing stomach related problems in the milch animals. Roots of the churai are dried and ground. The powder is mixed with flour and administered to the diseased animals. Two to three doses are enough to cure the animals. Besides this, if there is intrusion of snake in the house, the roots of the herb may be burnt into smoke which drives the snake away. The practice of using herb is quite prevalent in the Bhaderwah tehsil of Doda district in Jammu and Kashmir. **Keywords:** churai, stomach problem, snake- repellent	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2555	Feeding of mango pickle for relieving animals from stomach pain	Stomach pain commonly occurs in animals and for controlling this pain, mango pickle (250 g) is fed to the animals once a day for two days. According to experience of farmers of Akhnoor, Samba, Purmandal areas of Jammu district of Jammu and Kashmir, mango pickle is fully effective for relieving the stomach pain in animals. **Keywords:** mango pickle, stomach pain	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2497	Use of garlic and thymol for treatment of egestion problem in cattle	Egestion is a most common problem in cattle during winter season, for which the cattle are treated with garlic and thymol soup. For preparation of the soup, 200-500 g garlic and 250 g thymol are ground properly with the help of a muller on a flat stone and mixed with 500 ml water. The mixture is given orally to the affected animals, about 200 ml at a time for 2-3 days. This	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005

		treatment is very useful to overcome egestion problem in catlle. A majority of the farmers of Samloti village of Kangra district in Himachal Pradesh are using this treatment since time immemorial. **Keywords:** egestion, garlic, thymol, soup	
2522	Use of decoction made from raw turmeric, wild tulsi leaves, bhatkataiya and arusha leaves (Adhatola vasica) to create hunger in animals during winter season	Due to various reasons sometimes there is loss of hunger in animals. To overcome this, raw turmeric, wild tulsi leaves, bhatkataiya and arusha (Adhatola vasica) leaves 1 kg each are boiled in 4-5 litres water till the decoction remains about 2-5 litres. This decoction (about 300-400 ml) is given to the animal by a bamboo stick once a day up to 3-4 days for complete result. This is practiced in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** turmeric, tulsi (Ocimum spp.), bhatkataiya (Solanum surattense), arusha (Adhatola vasica), hunger problem	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2634	Use of solution of palas seeds for deworming in calving animals	When a calving animal suffers from worm related problem in the intestine, farmers use a solution made from palas (Butea monosperma) seed, common salt and water.Three to four seeds of palas are crushed into powder form and mixed with whey or water for feeding the calving animals with salt. The practice is continued over 2-3 days for complete deworming. It is an age-old practice. It is followed in Sonapur village of Azamgarh district of Uttar Pradesh. **Keywords:** palas, worm	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2583	Use of solution of amaltas seeds and jaggery for deworming in calf	When a calf suffers from worms, this solution is used. About 25 g seeds of amaltas (Cassia fistula) are collected and mixed with 50 g jaggery. This is fed to animal with bread/ chapatti once a day. It is continued up to 2-3 days for complete deworming. It is an age old practice. It is used in Suhagi village of Jabalpur district, Madhya Pradesh. **Keywords:** amaltas, jaggery, worms problem	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2547	Control of worm infestation in cattle	To control worm, farmers of coastal area feed the cattle with a mixture made of ground seeds of papaya (Carica papaya) (500g) with water(500ml). The mixture	Shri Narharu Bhoj Ada, Balasore (Orissa)

		is fed to the affected animal once a day for 3-4 days. **Keywords:** worm infestation, papaya seed	
2650	Use of peach for treating worm infestation in pig	About 4-5 small variety peach are fed to the pig, infested with worms (round worm). This is effective in human being also. Some mothers in the village use this for treating worm infestation in their children. **Keywords:** peach, worm infestation in pig	Shri Asao Seb Nsunyu,Tseminyu, Kohima (Nagaland) 797 109
2649	Use of anyankesawa for treating worm infestation in pig	A herb called anyankesawa (Polygonam sasarifa) is fed to the pigs for expulsion of worms. The herb is richly available during rainy season. Some farmers also use this plant to reduce the attack of poultry mites. For this, fresh leaves and stems are kept in the poultry shed or in their nest. This plant has some poultry mites repellent property. **Keywords:** anyankesawa, explusion of worms, poultry mites	Shri Asao Seb Nsunyu,Tseminyu, Kohima (Nagaland) 797 109
2633	Use of tatari leaf for treating worm infestation in cattle	Sufficient quantity of tatari (elephant hook) leaves are fed to the animals, infested with worms. It is reported that this can even expel lung worms. This practice is followed by many cattle farmers of Medziphema area in Dhimapur district of Nagaland. Farmers feed their cattle with this plant for 4-5 times a year. **Keywords:** tatari leaf, worm infestation	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2642	Treatment of worm infestation in cattle by using timor leaves	Timor (Letreae ciprata) is a small sized tree, which bears small fruits. The leaves are used for treating cattle, infested with worms, particularly Paramphistomum sp. For treatment, sufficient quantity (about 10 kg) of fresh leaves of timor is fed to the animal. The practice is followed by many farmers in Dimapur district of Nagaland. **Keywords:** worm infestation, timor leaves	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2546	Use of banana flower to heal intestinal ulcer	Banana flowers are fed to heal intestinal ulcer in animals. This treatment is useful in summer season. This practice is being followed since 7 years. **Keywords:** banana flower, intestinal ulcer	Shri A. Chellamal 2/1 Main Road, Tiruchirapalli (Tamil Nadu)
2599	Use of dode for treatment of ulceration in cattle	The bark of dode (Sapindus emarginatus) is pounded and a few grams are soaked in water for	Shri Yash Paul Gobalpur, Sarkaghat, Mandi (Himachal

		2-3 hours. The decoction is given twice or thrice to relieve the cattle suffering from ulceration. If cattle get ulcers infected with worms at the time of delivery, the bark decoction is given and the bark is also hung on the animal's back. This practice is being followed in hilly area of Mandi district of Himachal Pradesh since time immemorial. **Keywords:** dode, ulceration in cattle, bark	Pradesh) 171 005
2604	Use of lentil for curing tilli disease in animals	Tilli is a common disease in animals. Farmers of Ghagwal area of Kathua district (Jammu and Kashmir) boil 250 g lentil in about one liter water. Boiled seeds are then mixed with mustard oil and fed to animals. **Keywords:** tilli disease, lentil , mustard oil	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul-tural Sciences and Technology, Jammu (Jammu and Kashmir)180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2527	Use of asafoetida and betel leaf for treatment of acidosis	Farmers of Nerai village of Kanchipuram district in Tamil Nadu are using betel leaves and asafoetida to treat acidosis since a long time. It is given orally to the animals twice a day in the morning and evening. **Keywords:** asafoetida, betel leaf, acidosis	Shri P. Kannipillai S/o Parasuraman Pillai, 32 No 164 Nelvai, Eganawasam, Kancheepuram (Tamil Nadu)
2538	Use of neem oil, camphor, black betel leaf and jaggery to control maggot wound and acidosis in animals	For wounds, camphor is crushed in neem oil and applied on the affected part of maggot wounds. While for acidosis, jaggery is rolled in black betel leaf and fed orally to the animals. Farmers are using this practice since 15 years. It is given 4 times a day. **Keywords:** neem oil, camphor, black betel leaf, jaggery, maggot wound, acidosis	Ms V. Moghana W/o Shri Velarasu, 18/1 Bhavapetti, Back Street Kancheepuram (Tamil Nadu)
2588	Use of salt keeping pottery to control bleeding in the urine of animal	When an animal suffers from bleeding in urine, the farmer use crushed powder with water to make solution and it is given to the affected animal. About 250 g moist salt keeping pottery is taken, powdered and mixed with 500 ml fresh cool water and fed orally to the needy animal thrice a day upto 4-5 days to get	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		satisfactory results. This practice is used in village Sonapur of Azamgarh district in Uttar Pradesh. This is an age-old practice. **Keywords:** bleeding in urine, salt solution	
2526	Use of leaves of Abrus precatorium, cumin seeds and coconut inflorescence to treat blood in urine of cattle	Farmers of Devendrapuram village in Tamil Nadu have been using this practice since last 20 years. About 10 g leaves of Abrus precatorius, 20 g cumin seeds and 200 g young twigs (i.e. inflorescence) of coconut tree are taken. The materials are mixed and ground. The juice is taken and fed to cattle orally, twice a day. **Keywords:** Abrus prercatorius, cumin seeds, coconut inflorescence, blood in urine of cattle	Shri A. Pitchai S/o Shri Arunmugan, Devendrapuram, Mannargudi, Tiruvarur (Tamil Nadu) 614 014
2620	Use of kashmal to cure the blood in urine of cattle	During grazing in open, sometimes animals feel the problem of blood in urine. It is felt due to eating of some poisonous grass. Cattle stop feeding, show restlessness, become lethargic and salivation persists. For the treatment of this problem, 4 kg roots of kashmal (Bocberris sp) are boiled with 2 kg water till the mixture is left 3 kg. This boiled mixture is then filled in a bottle after adding 100 ml mustard oil to it. One glass of this mixture is given to infected cattle twice a day for 15 days.This is followed in Theog tehsil of Shimla district in Himachal Pradesh. **Keywords:** kashmal, blood in urine, Bocberris sp, poison	Shri Deep Ram Verma Jagheri, Theog, Shimla (Himachal Pradesh) 171 201
2613	Use of maize cob hairs (tassel) to treat animals with urinary tract problem	The hairs of maize cob are used for treatment of animals suffering from urinary tract problem. The hairs are collected from the cobs and boiled in water and given to the affected animals, which can cure the urinary tract problems. This treatment is common in Mogla area of Rajouri district in Jammu & Kashmir. **Keywords:** maize cob hair, boiling in water	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2564	Curing animals for ailment of blood oozing in urine	This practice is quite effective in curing the animals suffering from	Communicated by: Dr M. P. Gupta

		the problem of blood oozing in urine and is common in all districts of Jammu region. In this ITK, about one kg milk is boiled and 100 g chirpine resin is mixed with it. This mixture is given to the animal during morning hours when animal has empty stomach. The prescription is more effective at the start of the disease. **Keywords:** blood oozing in urine, milk, chirpine resin	Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2624	Use of bhang (Cannabis sp.) to cure shivering problem in cattle	Sometimes cattle start shivering; especially the milching cattle. Main symptoms are feeding stoppage, salivation persistence and lethargic. Waste material of bhang (Cannabis sp.), approximately 1 kg is boiled with 1 kg water and then sieved material is given to the infected animal with bamboo feeder (pipe) twice a day for 5-6 days. This is followed in Theong tehsil of Shimla district of Himachal Pradesh since time immemorial **Keywords:** bhang (Cannabis sp.), shivering problem, feeding stoppage, salivation	Shri Deep Ram Verma Jagheri, Theog, Shimla (Himachal Pradesh) 171 201
2573	Utilization of neem (Azadirachta indica) leaves with mustard oil to cure cold and fever	When an animal (cattle, cow and buffalo) suffers from cold and fever, farmers use a solution made from neem leaves and mustard oil. Neem leaves have ability to cure from fever and cold. About 60-70 % problem can be controlled by this practice. About 100 g green leaves of neem are collected and a paste is made. The paste is mixed with 150 ml mustard oil and boiled for 5 minutes. The lukewarm paste is then smeared on the backbone of the suffering animal. To get complete relief, the practice is followed thrice a day up to 3-4 days continuously. This practice is an age-old one, which is followed in Sonapur village of Azamgarh district of Uttar Pradesh. **Keywords:** cold, fever, neem leaves, mustard oil	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2590	Use of extract of bakaine (Melia azadirach) with lobnan and mustard oil to treat cold and severe fever in animals	When an animal (cattle, cow and buffalo) suffers from cold and severe fever, farmers use lukewarm mixture made from leaves of bakaine with lobnan, to	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta,

		which 100 ml mustard oil is mixed with 1 litre water and boiled till the mixture remains about 500 ml. Then this mixture is fed with the help of bamboo piece (stick) as well as smeared on the backbone of the affected animal thrice a day for a week to get satisfactory results. This practice is age-old in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** bakaine, lobnan, mustard oil, colds and severe fever	Azamgarh (Uttar Pradesh) 276 128
2612	Use of a mixture made from ajwain (Trachyspermum roxburghianum), dry ginger, black salt and goat milk to cure old fever in animals	When animals (cattle, cow and buffalo) suffer from old fever, farmers use a mixture made from ajwain, dry ginger, black salt and goat milk. About 75 g ajwain, 75 g dry ginger and 75 g black salt are powdered. This mixture is again mixed and boiled with 300-400 ml goat milk. The dose is fed orally by stick twice a day for 15 days to get complete relief from the old fever. The practice is age-old in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** ajwain, dry ginger, black salt, goat milk, old fever	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2523	Use of pig oil to cure cough in animals	In winter season cough and fever are common diseases in animals. Generally the scheduled cast and scheduled tribe people make oil from fats of pig body part. After killing the pig and separation of the meat, generally the fat is taken out and its extra water content is reduced by burning. This is stored in the bottle. In one dose, about 250 g oil, twice a day is given and kept for 10 days. It is an age-old practice and is followed in Sonapur village in Azamgarh district of Uttar Pradesh. **Keywords:** pig oil, cough	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2638	Use of fenugreek, turmeric, linseed and kohandouwary to cure cough in animal	In winter, generally the animals suffer from cough. The following mixture is used for it. About 50 g fenugreek, 5 pieces of turmeric, 50 g linseed, 5 pieces of red chilli and 10 pieces of kohandouwary (it is a kind of ethnic dry food which is made of blackgram seeds and some spices) are cooked with 1 litre water, and 50-60 g of it is given to the animal, twice a day. This practice is continued for a week to get complete recovery. This is in use in village Sonapur of	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		Azamgarh district in Uttar Pradesh. It is an age-old practice. **Keywords:** cough, fenugreek, turmeric, linseed, kohandouwary	
2629	Use of mixture made from garlic, turmeric and jaggery for control of fever in animals	Some times an animal suffers from fever and raises its hairs as someone approaches to or try to touch it. About 50 g garlic (Allium sativum), 50 g ajwain (Trychyspermum roxburghiamum), 50 g turmeric (Curcuma domestica) and 250 g jaggery are mixed well and boiled in water (100 ml). This is given as 1 dose and 3 doses are given in a day. The practice is continued at least for 1 week to get complete relief. It is used in Suhagi village of Jabalpur district in Madhya Pradesh. It is an age-old practice. **Keywords:** garlic, ajwain, turmeric, fever	Shri Ranjay Kumar Singh C/o Dr C B Singh Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2548	Use of flowers and roots of thalai suruli for treatment of fever in cattle	The flowers of thalai suruli, which are small and white in colour, are fed to the animals suffering from fever. This practice is in use for last 20 years. **Keywords:** thalai suruli, fever	Shri P. Kandan S/o Shri Palaniryandi, Nadutheru, Koppu, Trichinapalli (Tamil Nadu)
2494	Use of onion, garlic, thymol and aniseed for treatment of fever in cattle	A majority of the villagers of Baldhar in Kangra district of Himachal Pradesh are using this age-old treatment for cattle since time immemorial. When cattle suffer from fever, the following symptoms appear: (1) the animals do not take fodder (2) salivation occurs, and (3) weakness in the animals is observed. For treatment of fever, cattle is treated with onion and garlic soup. Onion (Allium cepa), garlic (Allium sativum), thymol and aniseed (Foeniculus vulgaris) are properly ground and mixed with 300 ml water. Juice extracted from lakkervir, a herb, is added to the soup and given orally to the cattle. **Keywords:** salivation, lakkervir, fever	Shri Rajeev Kumar Room no 32 D, NBH II Hostel Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2561	Use of ash in curing illness in animals	For curing illness in animals, the farmers of Doda and Udhampur districts of Jammu and Kashmir are using mixture of chulha ash, black pepper and jaggery. Small quantity of chulha ash is taken and mixed with black pepper and jaggery. The mixture, thus prepared is added with flour and fed to the animals. Feeding practice of ash helps in curing	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report

		various kinds of ailments of animals. The major component of the mixture is ash. Pepper and jaggery are added in small quantities. **Keywords:** chulha ash, illness in animals, black pepper, jaggery, flour	from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2568	Use of wild tobacco (Nicotiana sp.) for curing cough in animals	Cough (respiratory disease) is a common occurrence in animals. Wild tobacco is effective in controlling cough in animals. Wild tobacco is chaffed and mixed with jaggery and fed to the diseased animals once a day for three days continuously. Wild tobacco plant is easily available in forest areas of Jammu region while jaggery is the domestic consumption item and involves very low cost. This practice is widely used by farmers of Magari area of Kathua district (Jammu and Kashmir). **Keywords:** wild tobacco, cough, jaggery	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2619	Treatment of cold and cough in animals	For the treatment of cold and cough in animals, about 50 g fresh rhizome is ground properly to extract the juice. Then 50 g jaggery is added. The mixture is drenched once daily for 2-3 days. **Keywords:** cold and cough, rhizome	Shri Pitamber Behera Mahulapadar, Boden, Nawapoda (Orissa)
2579	Use of simlu to cure fever in animals	The leaves of simlu (Birbiries asiatics) are used by the people of Dharal area of Rajouri district in Jammu and Kashmir to reduce/ cure temperature of animals. The leaves are collected and fed as such to the animals. **Keywords:** simlu, fever in animal	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2560	Use of branker (Adatoda vesica) to cure fever in animal	Leaves of branker (Adatoda vesica) are used by the people of Dharal of Rajouri district in Jammu and Kashmir to bring sweat from the animals in case of fever. **Keywords:** branker, fever in animal, sweat	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and

			Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2584	Use of bana (Vitex negundo) leaves for curing animal fever	Sometimes animals fall ill because of fever and avoid consuming fodder also. For curing the illness, the farmers of Balakot area of Poonch district in Jammu and Kashmir feed the affected animals with leaves of bana. Bana is a Agriculcommonly grown shrub. **Keywords:** bana leaf, fever	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2544	Use of betel leaves and pepper against acute infection	On acute infection, farmers are using betelvine leaves and pepper since 7 years. This is given orally to the animals in the initial stage of infection. **Keywords:** betelvine leaves, pepper, acute infection	Shri M. Ariyan 2/1 Main Road, Kuzhumani, Tiruchirapalli (Tamil Nadu)
2596	Use of redgram, kohndwari and turmeric to cure fever with diarrhoea in animals	In winter season, generally old animals suffer from diarrhoea with fever. This ailment is treated by using a mixture prepared from about 1 kg redgram, 30-40 g kohndwari and turmeric.This mixture is mixed with water and boiled. The lukewarm material is given to the affected animal for getting relief. It is given twice a day for 5-6 days. About 70-80% problem can be controlled by this practice. This practice is age-old and is followed in the village Sonapur, Azamgarh district of Uttar Pradesh **Keywords:** redgram, kohndwari, turmeric, fever, diarrhoea	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2519	Control of diarrhoea in animals	The leaf extract of hupai (Bassia longifolia) is administered to the animals suffering from diarrhoea. Feeding of 3 kg steamed varagu grains also controls diarrhoea. Farmers of Elandaikundam village in Tamil Nadu are using	Shri T. Ramesh Elandaikundam, Thirumalapadi via Ariyalur, Perambalur (Tamil Nadu) 621 851

		these practices since 12 years. **Keywords:** hupai, diarrhoea, varagu	
2536	Use of cumin seeds and young leaves of guava for treatment of diarrhoea	Fifty gram cumin and 250 g guava leaves are mixed and ground together. A paste is made by adding sufficient quantity of water. It is fed orally to the affected animals. This practice is being used since 10 years by villagers of Tiruppathur in Tamil Nadu. **Keywords:** cumin, guava, diarrhoea	Shri V. Azhagu S/o Shri Vellaiyan, S. V Mangalam, Tiruppathur, Sivagangai (Tamil Nadu)
2528	Curing dysentery of goats by using bamboo leaves	This is an age-old practice of Boden block of Nawapada district in Orissa. When goats suffer from dysentery, bamboo leaves are crushed and mixed with puffed rice and fed to the affected goat daily. **Keywords:** bamboo leaves, puffed rice, dysentery	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2303	Control of diarrhoea in goats	During rainy season diarrhoea is a major problem among goats. Farmers of Ahmednagar district in Maharashtra tie a strip of cloth smeared with dung tightly on the tail of the goats. Due to tying of the strip it is believed that blood circulation becomes normal and diahorrea is prevented. **Keywords:** diarrhoea, goat, cloth, blood circulation	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of Cassia tora flower extract to control diarrhoea in goats	During the onset of monsoon diarrhoea is very comon among goats. Many a times goats may die or lose their sturdiness. Farmers of north Solapur of Solapur district extract the flower juice of Cassia tora and feed it to goat. It is observed that diarrhoea can be kept under control. **Keywords:** Cassia tora, flower extract, diarrhoea in goats, sturdiness	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of bamboo leaf juice to control diarrhoea of animals	Due to diarrhoea disease the appetite of small kids get reduced and they become weak very shortly. Farmers of North Solapur region of Solapur district when observe that kids of animals are suffering from diarrhoea then they start to give bamboo leaf juice. This juice controls the diarrhoea problem. **Keywords:** bamboo leaf juice, diarrhoea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of gulwel juice to control diarrhoea in animals	Farmers of north Solapur region of Solapur district give small dose of gulwel juice when the kids of	Director of Extension Education, Mahatma Phule Krishi

		animals suffer from diarrhoea. **Keywords:** gulwel, diarrhoea	Vidyapeeth, Rahuri, Ahmednagar Maharashtra) 413 722
2303	Use of wood apple fruit to control diarrhoea in animals	Farmers of north Solapur region of Solapur district use the epicarp of wood apple to feed the animal suffering from diarrhoea. **Keywords:** wood apple fruit, diarrhoea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of tamarind fruit juice for the control of diarrhoea in animals	When animal suffers from diarrhoea, the farmers of North Solapur region of Solapur district give fruit juice of tamarind with water to animals. Diarrhoea is controlled with this treatment. **Keywords:** tamarind, diarrhoea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri,. Ahmednagar (Maharashtra) 413 722
2303	Use of a mixture of chalk powder, kattha and ginger for controlling diarrhoea in animals	If an animal is suffering from diarrhoea then farmers of north Solapur region of Solapur district prepare a mixture of chalk powder, kattha and ginger. This mixture is fed to the animal orally. By this treatment diarrhoea can be kept under control totally or atleast partially. **Keywords:** chalk powder, kattha, ginger, diarrhoea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Feeding edible oil with camphor to animal for curing diarrhoea	Diarrhoea in animals can be cured easily by supplying them edible oil with camphor at the time of diarrhoea. **Keywords:** edible oil, camphor, diarrhoea	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2552	Control of diarrhoea in animals by using mixture of jamun, bhang and ajwain	Diarrhoea is common in animals and some times, if not controlled or cured in time, animals die also. Farmers of Badala area of Kathua district in Jammu and Kashmir prepare a mixture using bark of jamun (Syzygium cuminii) tree, Agriculbhang (Cannabis sativa) and ajwain. This mixture is fed to the animals twice a day, suffering from diarrhoea. **Keywords:** diarrhoea, jamun, bhang, ajwain	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2627	Use of aonla fruits and black salt to control blood dysentery of animals	Farmers use a mixture made from aonla fruits and black salt to control blood dysentery in animals. About 70-80 % problem can be controlled by this practice. About 1 kg fruit of aonla is taken and pulp is separated and mixed with 35-40 g black salt. Mixture is added in fresh water and fed to the animal by bamboo stick. This is an age old practice with the	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		farmers of Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** aonla, black salt, blood dysentery	
2553	Use of it-sit weed plant for curing tilli (jaundice) in animals	Tilli (jaundice) is a harmful disease in animals. Stems of it-sit (Boerhavia diffusa) plant, about 2 to 3 inches long along with its leaves is chaffed and fed to the animals with flour till the animal is cured. It-sit is a wild plant usually available in the wastelands in the kharif season. This traditional practice is popularly used by the farmers in Jarafpain area of Kathua district in Jammu and Kashmir. **Keywords:** it-sit weed, tilli	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2639	Use of decoction made from arjun bark and roots of amaltas for treatment of pneumonia in animals	When an animal suffers from pneumonia, the following mixture is used for its cure. About 100 g bark of arjun (Terminela arjuna) and 100 g fruits of amaltas (Casia fistula L.) are boiled with 1litre water until it remains 500 ml. This decoction is given orally to the animal by bamboo stick, thrice a day. The practice is continued for 3-4 days for complete recovery. It is practised in Suhagi village of Jabalpur district of Madhya Pradesh. It is an age-old practice. **Keywords:** arjun, amaltas, pneumonia	Shri Ranjay Kumar Singh C/o Dr C B Singh Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2616	Use of hot sickle to get rid of pneumonia	Sometimes cattles are affected by the attack of pneumonia and become restlesss and lethargic. The farmers of Shimla district of Himachal Pradesh treat the infected animals with hot sickle (drati). Hot drati is touched to the chest of the infected animal. When there is slight movement, it shows that animal is responding, and the animal recovers very soon. **Keywords:** drati, pneumonia	Shri Deep Ram Verma Ghaghri, Theog, Shimla (Himachal Pradesh) 171 201
2589	Treatment of cattle for pneumonia	Cattle suffering from pneumonia is diagnosed on the basis of some characteristic symptoms. Such animals have a common problem of loss of appetite, erection of body hair, running nose and labored breathing. Once the disease is diagnosed the animal is given a prescription of hot tea,	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir)

		containing azawain, sonth and jaggery. This prescription is very effective in curing cattle suffering from pneumonia which is prevalent among the farmers of Dandi village of Doda district in Jammu and Kashmir. **Keywords:** pneumonia, hot tea, sonth, azawain, jaggery	180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2647	Use of dhai tuber to cure galghontoo disease in animals	In rainy season the disease, locally called galghontoo, is very common in calf animals. About 100 g dhai tuber is collected from the wild areas and after making the paste it is mixed with 250 ml lukewarm water. This solution is given orally by bamboo stick to the animal thrice a day to overcome the disease. It is used in Suhagi village of Jabalpur district in Madhya Pradesh. It is an age-old practice. **Keywords:** dhai tuber, galghontoo disease	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture JNKVV Adhartal Jabalpur (Madhya Pradesh) 482 004
2493	Treatment of cattle suffering from kharyali or laloo	Kharyali problem is very common mainly in bullocks. The bullocks suffering from this disease show the following systems: (i) occurrence of wounds in the hoofs of the cattle, and (ii) saliva comes out from the mouth of the cattle. Kharyali, if not treated immediately, leads to death of cattle. It occurs as a result of continous fever among the cattle. The cattle are treated with roots of tarni herb and bhedsingi which are properly ground and mixed with flour and fed to the affected cattle for 2-3 days to get rid off kharyali. A majority of the farmers of village Baldhar in Kangra district of Himachal Pradesh use this practice since time immemorial. **Keywords:** kharyali, laloo, bullock, tarni, bhedsingi	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2515	Use of moringa (Moringa oleifera) leaves for treatment of tympany in cattle	Farmers of Devendrapuram village in Tamil Nadu are using moringa leaves for treating tympany in cattle since last 15 years. Farmers take 50 g moringa leaves, 20 g common salt, 50 ml buttermilk, 50 g garlic and 50 g sodium bicarbonate. All these ingredients are mixed well and made into small balls. It is fed orally to the cattle. **Keywords:** tympany, moringa,	Shri Thangarasu S/o Shri Verramuthu, Devendrapuram, P.O Pamani, Taluka Mannargudi, Tiruvarur (Tamil Nadu) 614 014

		salt, butter milk, garlic, soda	
2303	Use of edible oil to cure tympany in animals	Farmers of north Solapur of Solapur district drench edible oil to cure tympany in animals. Sometimes when animals are allowed free grazing, they voraciously feed too much of green forage, toxic weeds or unwanted materials. After eating they feel uneasy and may die due to bloating of stomach. To cure this, farmers use feeding of 250 ml edible oil to animals. **Keywords:** tympany, free grazing, toxic weeds	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2554	Treatment for jake fever	In Jammu region jake fever is common in animals and for controlling this, about 2 kg radish (Raphanus sativus) is mixed with 150 g ajwain and 200 g jaggery and fed to the ailing animals once a day, continuously for three days. This treatment is followed by the farmers of Nagri area of Kathua district (Jammu and Kashmir). **Keywords:** jake fever, radish, ajwain	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2694	Use of copper coin for curing tympany (afara) in animals.	Afara is a general problem in animals, which occurs with the accumulation of excessive gas in the stomach. For treatment of afara, people of Salki area of Rajouri district (Jammu and Kashmir) dip copper coin in normal water and then boil. The copper treated water is then mixed with wheat flour and fed to the animals. This practice cures the animal totally. **Keywords:** copper coin, afara/tympany, wheat flour	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2576	Use of a mixture of hathiyachigar with aphim (poppy), mustard oil and belladonna leaves to cure bath disease of animals	Sometimes a part of animal's body gets swollen with fever and the animal feels uneasy and does not take fodder. Farmers call it bath disease. About 1 kg leaf of hathiyachighar is crushed to take out extract, and it is boiled in a pot with 10 g aphim (poppy) and	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		about 500 ml mustard oil until the resultant mixture is about 500 g. After this, extract of belladonna leaves (250 g) is taken and it is mixed with the above mixture and heated until the mixture remains 250 g. All this material is smeared on the affected body part of the animal, thrice a day, and this is continued for a week to get satisfactory results. About 70-80 % problem can be controlled by this practice. This practice is age-old in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** hathiyachighar, aphim, mustard oil, belladonna, bath	
2504	Use of camphor and neem oil for treatment of wounds in animals	Farmers of Thruppathur village in Tamil Nadu are using mixture of camphor and neem oil for healing wounds since last 10 years. About 50 ml neem oil and 50 g camphor are mixed well and made into paste. It is applied externally on the wounds. **Keywords:** camphor, neem oil, wounds	Shri V. Azhagu S/o Shri Vellaiyan S. V. Mangalam, Tiruppathur T. K., Sivagangai (Tamil Nadu)
2530	Cure of injuries in animals by Acacia bark	Acacia bark is crushed and a little amount of water is added. The paste is applied on wounds, twice daily for 3-4 days. **Keywords:** Acacia bark, wounds, injury	Ms Sarbani Das Plot no 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2581	Treatment of wound worms in animals	Peach (Prunus persica) is a famous and tasty temperate fruit of North India. Peach leaves are used by the villagers of Rampur-Bajheda of Bulandshar district in Uttar Pradesh for treatment of wound worms in animals. About 100 g fresh peach leaves are ground properly and a paste is prepared. Cleaning and washing of wounds by lukewarm water is done and worms are removed by hand. The animal is allowed to lay down on the ground and water from 1 foot height is dropped in the form of flow on the wound, resulting in the removal of maximum number of worms from the wound. Leaf paste is applied on washed wounds and bandaged by sterilized cloth. The cloth used is not bandaged tightly. This treatment is followed twice a day by using fresh leaf paste. The animal is cured within 4-5 days. **Keywords:** wound, worm, peach	Dr (Ms) Kiran Singh C/o Dr Tungveer Singh, D-37, Medical College, Meerut (Uttar Pradesh) 250 004

		leaves	
2303	Use of bittergourd juice to heal wound in cattle	If the juice, extracted from the leaves of bittergourd, is applied on the wounds, caused by organisms in the cattle, the wound is healed after some days. Tribals of Nandurbar and Dhule districts are following this practice. **Keywords:** bittergourd, wound healing	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of ridge gourd leaf juice for curing wounds of affected animals	Yok gall and other wounds are very common in draught animals. At the time of field operations animals get wounded. Farmers of north Solapur region of Solapur district and western part of Ahmednagar district smear the leaf juice of ridge gourd on wounds of animals, which helps healing of the wounds. **Keywords:** leaf juice, ridge gourd, yok gall, wounds	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar Maharashtra) 413 722
2621	Use of onion and butter for treating the wounds in the neck of bull	While ploughing, neck of bull is wounded. Farmers of Theong tehsil of Shimla district of Himachal Pradesh take 200 g onion and fry it on the fire by adding 10 g butter into it. Its' paste is applied on the wound of the bull for two to three times in a day. **Keywords:** onion, butter, wound of neck	Shri Deep Ram Verma Jagheri, Theog, Shimla (Himachal Pradesh) 171 201
2617	Use of mouth exudation of grasshopper for wound healing in cattle	The exudation i.e. oozing out product from the mouth of short horn grass hopper (Ocdiopoida himalayana, Spindonotus spp., Bryodoma spp.) is collected after irritation. This oozed product is used as a healing agent of wounded area in cattle as well as in human. This ITK is practiced in the hilly area of Solan district of Himachal Pradesh. **Keywords:** wounds, short horn grasshopper	Shri Santosh Kumar Junior Research Fellow, Z.S.I Solan (Himachal Pradesh)
2601	Use of turmeric for curing injury in animals	Animal may suffer from various kinds of injuries. Some severe injuries, if not properly attended, may prove fatal. Turmeric is very effective as external application and helps in healing the animals and curing of injuries, inflicted in any part of animal body e.g. horn, foot etc. For treatment of injury, turmeric is ground in powder form and then mixed with mustard oil. The paste is applied on the wounds. This treatment is	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collec- tion, Documentation and

		prevalent in Dandi village of Udrana panchayat in Doda district of Jammu and Kashmir. **Keywords:** curing injury, healing the wounds, turmeric, mustard oil	Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2563	Healing of wounds in animals with churi	The roots of churi, a wild growing herb, are dried and powdered. The powder is applied to the wounds of the animals. This traditional measure is reported to be quite effective in healing the wounds of animals and is being adopted in and around various villages of Bhaderwah tehsil in Doda district of Jammu and Kashmir. **Keywords:** churi root powder, wound	Communicated by: Dr M. D. Gupta Director Extension Education, Sher-E-Kashmir University of Agricul-tural Sciences and Technology, Jammu (Jammu and Kashmir) Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2582	Animal urine for cure of local injuries	In this practice, animal urine is sprinkled on local injuries of the animals and it helps in bringing about speedy recovery of the injuries. Such injuries, if not taken proper care may aggravate into wounds and prove fatal to the animals. Animal urine is believed to have antiseptic properties. This practice has been passed from generation to generation and is popularly in practice all over the Jammu region. **Keywords:** animal urine, injuries, speedy recovery	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2655	Use of Eupatorium rugosum to control bleeding	To control bleeding from fresh cut wounds, leaves of Eupatorium rugosum are crushed between the palms and squeezed to extract the juice which is applied to the wounds. Bleeding is controlled in very less time. This is largely practiced in Nagaland and is considered as a perfect astringent. **Keywords:** Eupatorium rugosum, bleeding, astringent	Shri Ravi Zhunyu NRC on Mithun, Jharnapani, Medziphena, (Nagaland) 797 106
2654	Treatment of wounds and parasitic infestation in domestic animal with peach leaves	Small variety peach leaves are collected and boiled. Decoction of this is used for wound treatment in domestic animals. The decoction is applied over the body of pets infested with ecto-parasites like lice and fleas and has been found to be a good acaricide. The practice is followed by the farmers in	Shri Yala Seb Chumukedima Town, Dimapur (Nagaland)

		Dimapur district of Nagaland. **Keywords:** wound treatment, parasitic infestation, peach leaves, decoction, ecto-parasites	
2651	Treatment of maggoted wound by using peach leaves	Few pieces of peach leaves are crushed between the palms and applied to the maggoted wounds. Maggots either get killed or are forced to come out of the wound on application. This is a popular practice among cattle farmers of Medziphena area in Dimapur district of Nagaland. **Keywords:** maggoted wound, peach leaf	Shri Niselhu Zhunyu Medziphena, Dimapur (Nagaland)
2630	Use of malato bark for healing of wound in animals	The bark of malato tree is used for rapid healing of wounds having wide gap between edges. A paste is made from the bark and applied . This medication speeds up healing process and is practiced by many Nepali farmers in Medziphema area of Dimapur district of Nagalnd. The preparation is also used in human beings. **Keywords:** malato bark, wound treatment, rapid healing	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2397	Treatment of wound infestation in animals	To control wound in animal, a mixture of camphor and coconut oil is applied on the infected part, so that the bacteria in the wound is killed. Neem oil is applied for quicker relief. **Keywords:** wound infection, camphor, coconut oil, neem oil	Shri Kanhei Pradhan Naranagarh, Khurda (Orissa)
2574	Use of vermilion (sindoor), lime (chuna) and aak milk to break blain (phoda)	Sometimes the body parts of animals get infected with blains or sores, which generally do not blast and create too much pain. Animals do not take fodder. Farmers call it phoda. About 5 g vermilion , 5 g lime and 10 g aak milk are mixed thoroughly. The mixture is applied over the blain (phoda). After breaking the blain it is washed by a decoction of neem leaves and fried tender leaves of neem are tied over the blain with the help of cotton cloth. The washing and tying the fried leaves is continued for a week to get complete recovery. **Keywords:** vermilion, lime, aak milk, blain	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2569	Use of oil of gehuan snake to cure handsaine	When dry blain (locally called handsaine) is developed in deeper part of some muscle of animals, farmers use oil of poisonous snake (gehuan) for its cure. The snakes are colected,	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar

		killed and boiled in mustard oil to take out their extract. This oil is kept in a bottle and dropped on the handsaine. It is smeared thrice a day, and the practice is continued till the complete recovery of the animal. It is an age-old practice in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** gehuan snake, handsaine, mustard oil	Pradesh) 276 128
2525	Use of ash of burnt cotton cloth and kerosene oil to kill worms in blain of animals	Due to carelessness, the wounds or blains of animals get infected with worms which causes severe trouble to the animals. For it, farmers burn cotton cloth and 5-10 g ash is mixed with 8-10 ml kerosene oil. The mixture is administered by neem stick in the blain. The practice is done once a day and is continued for a week. It is an age-old practice. It is being used in Sonapur village of Azamgarh district in Uttar Pradesh. **Keywords:** cotton, ash, kerosene oil, worms in blain	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2518	Use of edible oil and powdered coal to treat ulcer on the neck of bullock	Edible oil is boiled and applied over the neck. Powdered coal is pasted on the ulcer to minimize the pain and help in recovery. The farmers of Elandaikundam village in Tamil Nadu are following this practice since 8 years. **Keywords:** edible oil, oral, ulcer	Shri T. Ramesh Elandaikundam, Thirumalapadi via Ariyalur, Perambalur (Tamil Nadu) 621 851
1966	Use of bhangariya to treat blain of animal	The farmers of Sonapur village in Azamgarh district of Uttar Pradesh are using bhangariya leaf paste, fried in mustard oil to cure blain of animals. About 200-250 g bhangariya leaves are collected, washed and crushed properly. The crushed paste is fried in 50-60 ml mustard oil. This paste is divided into three parts and used daily after changing the old doses. **Keywords:** bhangariya, blain	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, Sewta, Azamgarh (Uttar Pradesh) 276 128
2513	Use of castor or coconut oil to eradicate tick infestation	Castor or coconut oil is applied liberally on the skin of body of the animal where the tick infestation is severe. The cattle is allowed to stand in the sunlight for 30 minutes. Farmers are using castor or coconut oil since last 40 years. **Keywords:** tick infestation, castor, coconut, oil	Shri T. Murugesan S/o Shri Thangarasu, Devendrapuram, Mannargudi, Tiruvarur (Tamil Nadu) 614 014
2511	Use of palm fruit paste for treatment of tick infestation	Palm fruit paste is applied on the body part affected by ticks, and it	Shri P. Abdul Jabbar 23 A Patariyar Kovil,

		is allowed to dry. Farmers are following this practice since last 75 years. **Keywords:** palm fruit, tick infestation	Theru Elonkadai, Kottar Nagercoil (Tamil Nadu)
2610	Control of ticks in animal	To control ticks in animals, tobacco (Nicotiana tabaccum) leaves are ground to a paste with little amount of water. The paste is applied to the body of the animal twice daily for 2-3 days. **Keywords:** ticks in animals, tobacco leaves	Shri Alekha Parida Sanghaleaisasan, Pipili, Puri (Orissa)
2587	Use of deodar oil for cure of animals infested with ticks	Deodar oil is effective against fungus, insect-pests and worms of various kinds. The oil is extracted from deodar wood by indigenous method and commonly used to get rid of the ticks from the infested animals. For this purpose, deodar oil is diluted with water and little hukka water is mixed with it. The prepared solution is externally applied to the skin of infested animals. This helps in removal of ticks. The treatment is very effective as practiced by the farmers of Dandi village in Doda district of Jammu and Kashmir. **Keywords:** deodar oil, ticks infestation, hukka water	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2551	Use of onion for controlling ticks in animals	Tick sticks to the body of animals and suck and feed on the blood. Animals infested with ticks are given onion. About 1 kg onion is chaffed and fed to the animals at least once in a month. This practice is very common in controlling the ticks in animals, being practiced in Kathua (Badala area) and even in the Akhnoor block of Jammu district of Jammu and Kashmir. **Keywords:** onion, tick infestation	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2618	Use of kahnour flour to cure leach problem in cattle	When cattle drink water in the open pond, talabs etc. leaches enter into their noses. Due to this, cattle become weak day by day, salivation persists and they show weakness. Flour of kahnour (Aeuilus indica) is blown in the nose of cattle with the help of a pipe. Leaches come out automatically. This method is	Shri Chandu Lal Sharma Khamala, Kotkhai, Shimla (Himachal Pradesh) 171 201

		practised in Kotkhai area in Theong tehsil of Shimla district. **Keywords:** kahnour, leach talab, open pond	
2623	Use of potash to cure leaches problem in cattle	When cattle drink water from the open pond, talabs etc. leaches enter into their nostrils. Cattle become weak day by day and salivation persist. For taking out leaches from the nostrils of animals, small quantity of potash is taken and blown in the nose. Leach dies and comes out. This method is followed in Theong tehsil of Shimla district of Himachal Pradesh. **Keywords:** leaches problem, open pond, nostril, potash	Shri Deep Ram Verma Jagheri, Theog, Shimla (Himachal Pradesh) 171 201
2572	Use of germinated wheat seeds to bring cows and buffaloes to heat	Due to little disorders some cows and buffaloes do no come to natural heat period. To overcome this, farmers feed the germinated seeds of wheat to bring the animal to heat. About 2-3 kg seeds of wheat are taken and moistened for 3-4 days to initiate germination. The germinated seeds are given to the needy animals. This is practised for 2-3 days to bring the animals in heat period. This is an age-old practice. It is used in Sonapur village of Azamgarh district of Uttar Pradesh. About 80-90 % of the problem can be controlled. **Keywords:** germinated wheat seeds, heat period	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2509	Use of brinjal (Solanum melongena) for induction of heat in heifers	The farmers of Kaliyankadu village are using brinjals to bring heifers in heat for more than 40 years. About 1 kg brinjal is fed to heifers for 7 days for induction of heat. **Keywords:** brinjal, heifers, heat induction	Shri P. Prasath Aswathi Sun Street, Kaliyankadu, P.O Chungankaddi Kanniyakumari (Tamil Nadu)
2542	Use of aanai nerunchi (Pedalium murex) leaves to bring animals to heat	Farmers of Kuzhuman in Tamil Nadu have been using leaves of aanai nerunchi to bring animals to heat since 40 years. It is given thrice a day for 3 days in handful quantity. **Keywords:** aanai nerunchi, animal in heat	Shri Periyaswamy Mela kuzhumani, P.O. Kuzhuman, Tiruchirapalli (Tamil Nadu) 639 103
2608	Induction of heat in animal by feeding dried dates	Feeding dried dates for inducing heat in animals is prevalent for quite a long time among the farmers of Akhrootbagh village of Chakkachinot panchayat in Doda district of Jammu and Kashmir. For this purpose, dried dates are ground and then fed to the cattle. The desired result is	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir)

		obtained by feeding cattle with small doses of dates, 3-4 times within 2 days. It helps in bringing them in heat for conception. The expenditure on dried date for a course of feeding animal (i.e. 3-4 times) will come around Rs. 15/-. **Keywords:** dried dates, inducing heat in animals	180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2585	Use of aloe vera plant for bringing female animal in heat and for enhancing the draft power	Sometimes female animals don't come in heat. The farmers of Sunderbani area of Rajouri district in Jammu and Kashmir chaff the aloe vera plant. Then ajwain, sonf and salt are mixed. The mixture is heated for few minutes and fed to the female animals. The same prescription is also effective for strengthening the draught power in animals. **Keywords:** aloe vera, heat, enhancing draft power	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2571	Use of lime fruit juice and clay soil for successful pregnancy of cows and buffaloes	Sometimes cows and buffaloes fail to conceive even after 2-3 times of mating. Farmers take help of veterinary doctors for injecting 15-20 ml juice of lime fruits. After this the farmers apply mud (clay) on the backbone. The mud is pasted thrice a day, and it is continued upto 3-4 days. These are precautionary measures to make healthy environment of the ovaries for development of embryo. This practice has been followed since the last 10 years. This is used in Sonapur village of Azamgarh district of Uttar Pradesh. **Keywords:** lime fruit juice, clay, pregnancy	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128
2505	Use of sottru katahlai (Aloe vera) for conception in dairy cows	The thorns of Aloe vera are removed and are fed orally to the cows for conception. It is given thrice a day for 3 days, and farmers are using this practice since last 20 years. **Keywords:** sottru kathalai, thorn, conception	Shri T. Ramalingam 2/27 Annanagar Street, Koppu, Kuzhumani, Tiruchirapalli (Tamil Nadu)
2517	Use of vellai kundumani seeds with boiled pearl millet to drop retained placenta after delivery	Sometimes the placenta of animal is not dropped naturally after calving. To solve this problem, farmers give 2-3 seeds of vellai kundumani with boiled	Shri M. Lawarance 808, Housing unit, Rajagopalapuram, Pudukottai (Tamil Nadu) 622 003

		pearlmillet to the animal. Farmers of Rajagopalapuram village in Tamil Nadu are using this practice since 15 years. Keywords: vellai kundumani, boiled pearlmillet, retained placenta	
2537	Use of leaves of bhindi (Abelmoscus esculentus) for removing retained placenta	Farmers of Thachakudi village are using since long time the feeding of green leaves of bhindi (Abelmoscus esculentus) to the animal for removing retained placenta during delivery. **Keywords:** bhindi, green leaf, retained placenta	Shri M. Kamraj S/o V. Manikam, Thachakudi, Kuzhumani (Tamil Nadu) 639 103
2592	Treatment for expulsion of placenta	After calving, usually the placenta drops naturally. In some cases placenta is retained in the body of the animal, which may cause poisoning as it is injurious to health. Villagers practise some of the treatments for easily dropping of placenta. The following treatments are most effective for this problem. a) Combination of hingota (Balanites roxburghii), bamboo stick (Dandrocalamus strictus) and chirmi (Abrus prekatirius): hingota (3 fruits for buffalo and cow and 1 fruit for goat), bamboo stick(50 g for buffalo, cow and goat) and chirmi (1 piece for buffalo and cow, and ½ piece for goat) are taken. Hingota fruit should be dried and its skin (rind) should be removed. Bamboo should be 4-5 years old, exposed to all types of weather conditions. It is cut into small pieces and crushed. Chirmi is crushed to powder form. About ½ litre of water is taken and all the materials are added into it according to the dose specified for each type of animal. It is boiled. The decoction is cooled and fed to animal. Placenta will automatically be expelled within 4-5 hours. b) Combination of hingota and bamboo sticks: Hingota (5 fruits for buffalo and cow and 1 fruit for goat) and bamboo stick (50 g each for buffalo, cow and goat) are taken. Decoction of hingota fruit and bamboo sticks is prepared in ½	Shri Raju Ram S/o Shri Harji Ram, Gangana, Borananda Jodhpur (Rajasthan) 342 003

		litre water and it is fed to the animal. Placenta will automatically be expelled within 4-5 hours. c) Hingota: 12 fruits for buffalo, 10 fruits for cow and 1-2 fruits for goat are taken. Decoction of hingota fruit is prepared in water as stated above and fed to the animal. Placenta will automatically drop within 4-5 hours. d) Bamboo sticks: 300 g for buffalo, 250 g for cow and 100 g for goat are taken. Decoction is prepared in water as stated above and fed to the animal. Placenta will drop automatically within 4-5 hr. This ITK is being used by Shri Raju Ram of Gangana village of Jodhpur district of Rajasthan since 20 years. **Keywords:** hingota, bamboo stick, chirmi, placenta drop	
2593	Expulsion of placenta in rural area	Different methods for dropping placenta early are being followed since 20 years by people of Gambhira village of Sawai Madhopur district of Rajasthan after consulting Shri Bajarang Lal. These are as follows: (a) About 2-2.5 kg barley seed is fed to the animal just after calving. (b) Gular (Ficus glomerata) fruit with bark and leaves are taken (250 g). About 250 g of bamboo (Dandrocalamus strictus) leaves are mixed with gular fruit, bark and leaves. The whole collected material is boiled in 1 litre water. This is fed to the animal after cooling. If placenta does not drop, the dose is repeated. (c) About 2-2.5 kg sugarcane (Saccharum officinarum) leaves are fed to the animal. Placenta will drop automatically. **Keywords:** gular, bamboo, sugarcane, placenta drop	Shri Raju Ram S/o Shri Harji Ram, Gangana, Boranda, Jodhpur (Rajsthan)
2502	Method for easy expulsion of placenta in cow	Just after parturition, cows are allowed to feed 25-30 number of jackfruit (Artocarpus heterophyllus) leaves with mustard oil for expulsion of placenta. Then the cow is given warm water for a week. **Keywords:** jackfruit leaves,	Shri Sarbaswar Sahu Biragovindapur, Sakhigopal Puri (Orissa)

		warm water	
2611	Use of kiari leaves for removal of placenta and leach	If placenta remain inside the female animal after delivery and does not come out in a natural way, then leaves of kiari are fed to the animal. The placenta is expelled immediately. These kiari leaves are also used to bring out leach from the nose of the animal. The problem of leach in the nose of animals is very common in the areas. Sometimes when an animal takes water from the ponds or the paddy fields where the leaches are there, these leaches enter in the nose of animal. The farmers extract the juice of leaves of kiari and put it in the nostrils of the animals that bring out the leach. This a local treatment for retained placenta and leach in Dhral area of Rajori district of Jammu and Kashmir. **Keywords:** kiari leaves, removal of placenta, leach	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2578	Easy expulsion of placenta in animals by using feed mixture	Many a times, it becomes problematic for animals to expel the placenta after delivery of calf. In such cases the animals are administered with a feed mixture of dalia, dahe, desi ghee and gur at the culmination of pregnancy and just after the birth of new born calf. It helps in immediate expulsion of the placenta. **Keywords:** expulsion of placenta, dalia, dahe, desi ghee, gur	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2643	Fresh sugarcane shoot for expulsion of retained placenta in cow	For treatment of retained placenta, farmers of Medziphema area of Dimapur district in Nagaland are using sugarcane shoot. About 10 -15 kg fresh sugarcane shoot are taken and fed to the cow. This helps in expulsion of the retained placenta. **Keywords:** fresh sugarcane shoot, expulsion of retained placenta	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2625	Use of sheera as anti-abortive agent in cattle	Sheera is prepared from wheat grains. It has certain coolant property and it is fed to animal as anti-abortive agent. About 5-10 kg grains are first soaked in water for 3-4 days in a large	Shri Yash Paul Gopalpur, Sarkaghat, Mandi (Himachal Pradesh) 171 005

		container. The grains are then crushed between two rotating stones locally called chakki. The extract is then sun dried and about ½ kg is fed to the cattle at a time for 2-3 days after conception to prevent abortion. It is practised in the Mandi district of Himachal Pradesh since time immemorial. **Keywords:** sheera, wheat grain, anti-abortive, chakki	
2626	Use of siblingi as anti-abortive agent in cattle	The climber siblingi (Bryonia lacimiossa) of family Cucurbitaceae is fed to cattle to check the abortion in conceived cattle. This treatment is highly effective and has no adverse effect on cattle. About 5-10 g vines of siblingi are collected, which are crushed with a muller. This is mixed with cattle feed and is fed to the pregnant cattle early in the morning. This practice is used in Mandi district of Himachal Pradesh since time immemorial. **Keywords:** siblingi (Bryonia lacimiossa), conceived cattle, climber	Shri Shakker Das Ropad, Sarkaghat, Mandi (Himachal Pradesh) 171 005
2605	Use of pigeon dropping to cure anoestrus problem	Generally it is found that female animals (like cow) suffers from anoestrus problem i.e. normally do not come in heat. To overcome this problem and to induce heat for mating, farmers of Nagri area of Kathua district in Jammu and Kashmir are using this practice. In this practice pigeon dropping is mixed with wheat flour. It is fed to the female animals for consecutive four days. **Keywords:** pigeon dropping, anoestrus problem	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2524	Use of shatawar (Asparagus recimosus) with milk to increase milk yield of sick animals	Due to sickness, caused by any disease, milk yield and lactation period of the animals are reduced. For this, about 500 g shatawar (Asparagus recimosus) stem is taken and made to a paste in which about 500 ml milk is added. Then this milk is fed to the animal with bamboo stick. The practice is continued till the desired result is achieved. It is an age-old practice of Sonapur village of Azamgarh district in Uttar Pradesh.	Shri Ranjay Kumar Singh S/o Shri Haribansh Singh, Sonapur, P.O. Sewta, Azamgarh (Uttar Pradesh) 276 128

		Keywords: shatwar, milk yield	
2637	Use of chickpea, black salt and ajwain to increase milk yield of sick animals	When an animal suffers from any type of sickness, its milking efficiency goes down.To increase milk yield, farmers feed the animal a mixture made from chickpea and jaggery. About 500 g chickpea seeds are soaked in water overnight. In the morning it is boiled and 250 g jaggery and 50 g black salt is added to it and mixed well. The mixture is given twice a day to the suffering animal. The practice is continued up to 10 days. It is in vogue in village Suhagi of Jabalpur district of Madhya Pradesh. **Keywords:** chickpea, black salt, ajwain, milk yield	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2652	Use of doodhiya kanjh to increase milk yield of sick animals	About 100 ml milk of the doodhiya kanjh is taken out and mixed with 250 g wheat dough. The mixture is given to the needy animal twice a day. The practice is continued for 10-15 days for complete results. It is an age-old practice to increase milk yield of sick animals. It is practiced in Suhagi village of Jabalpur district of Madhya Pradesh. **Keywords:** doodhiya kanjh, wheat dough, milk yield	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2534	Preparation of dummy calf by filling bhusa in skin of dead calf of buffalo	Mortality percentage in buffalo calf is higher as compared to that in cows, as well as the birth rate is also lower. After death, it becomes quite difficult to milk the buffalo without the calf. Hence, farmers fill bhusa in detached skin of calf by giving shape of original calf. During milking, this dummy calf is kept before the buffalo for sniffing and licking. By this procedure milking becomes easier. This is practised in each district of Maharashtra where buffaloes have been domesticated. **Keywords:** dummy calf, bhusa filling, calf mortality	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Feeding of locally prepared concentrates to get more milk	Farmers of Nandurbar, Ahmednagar and Dhule districts are using this technique. About 50 g urea, 50 g common salt, 10 g baking powder and 100 g jaggery are mixed well and this mixture is fed to the milking cattle once a day for higher milk yield. **Keywords:** milking animal, urea, common salt, baking powder,	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

		jaggery	
2595	Increasing milk production in cow by feeding of oat seeds with rice starch	The practice of feeding rice starch mixed with oat seeds helps in increasing the milk production in animals. Rice starch acts as molasses, which is obtained as a by-product while cooking rice. It is mixed when it is hot enough with the seeds of oat and kept overnight. The following day, it is fed to the animals after salting. This is practiced in Bhaderwah tehsil of Doda district in Jammu and Kashmir. **Keywords:** oat seed, rice starch, milk production	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2566	Feeding of colostrums mixed with supplements to increase milk production in cow	The milk obtained from cow in the beginning of lactation (6-7 days) is usually known as colostrums. The colostrums has rich nutritional value containing high content of proteins, vitamins etc. Generally, it is not in practice to take colostrums for consumption in the form of pure milk or curd. This colostrum is fed to the newly born calf and the excess amount is used to feed the mother cow mixed with desi ghee, basmati rice, pulses and jaggery. The practice of colostrums feeding is continued for 5-6 days. After that the cow is fed with a mixture of wheat, maize and barley. Colostrums is also rich source of antibodies and protects the newly born calf from various infections and diseases. It is also a very suitable feed for the calf for the initial stages especially when it cannot be kept on supplementary feed. This practice is prevalent among the farmers of Bhaderwah tehsil of Doda district in Jammu and Kashmir. **Keywords:** colostrums, calf-feed, enriched colostrums for mother cow	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2562	Increasing milk production in animals with salan mishri	Roots of salan mishri (Polygonatum multiflorum), a local growing herb, are dried and powdered. This powder is fed to the animals. It helps in increasing milk production in animals. Besides, it also prolongs milking period. The practice has been reported to be very popular among the people of	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004

		Baderwah tehsil of Doda district in Jammu and Kashmir. **Keywords:** milk production, salan mishri, root powder, milking period	Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2641	Use of bankhori leaves for increasing fat in milk	Farmers of Balakot and Mandi area of Poonch district in Jammu and Kashmir chaff the bankhori (Aesculus indica) leaves and feed the milking animals continuously for one week. It increases the fat percentage in milk. Bankhori tree is commonly grown/ found on hilly tracts. **Keywords:** bankhori leaves, fat in milk	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2392	Use of kachli leaves for increasing milk production	Farmers in the uphill area of Rajouri district of Jammu & Kashmir are nomadic and are practicing the animal husbandry occupation. Whenever drop in milk production is noticed, they collect the leaves of kachli and feed it to the animals. This not only improves milk production of the animals but also increases fat content of the milk. **Keywords:** kachli leaves, increasing milk production, fat	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2303	Putting dung-smeared cloth strip over the teats to prevent lambs from milk sucking	Free grazing of goats is a common practice in some pockets of Ahmednagar disrict. While grazing, lambs suck milk from teats and the milk yield is reduced. To overcome this problem, farmers tighten the cloth (smeared with dung) over the teats. Due to bad smell of dung, lambs do not suck milk. **Keywords:** cloth strip, dung, milk sucking	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722

2510	Use of betel leaves and black pepper for treating anorexia in cattle	About 5 betel leaves and 10 g black pepper are fed to the cattle orally for treatment of anorexia. This is being used for more than last 100 years. **Keywords:** betel leaves, black pepper, anorexia	Shri Kibson David Kana Heppapuram, P.O Anjagraman, Kanniyakumari (Tamil Nadu)
2558	Use of tangul powder as an antiseptic medicine	Traditionally the people of Anni block in Kullu district of Himachal Pradesh have been using tangul powder as an antiseptic powder to heal the wounds of human being and cattle. The tangul shrub grows at an altitude of above 10,000 feet. The green leaves of this shrub are ground into thin powder by crushing with stone, on a stone floor. The thin powder is mixed with mustard oil and the paste is applied externally on the wound of human being and cattle. It stops the bacterial growth and make the wound healing very quick. **Keywords:** tangul powder, shrub, healing wound, antiseptic	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2628	Use of maloda to lessen the effect of poison in cats and dogs	Sometimes cats or dogs eat some poisonous materials which causes swelling, restlessness and lethargic etc. even sometime it can cause death. Farmers of Simla district of Himachal Pradesh feed some leaves of maloda (Rumix estatus) to the affected cats and dogs. After eating, vomiting occurs and animal is cured. **Keywords:** maloda, cat, dog	Shri Chandu Lal Sharma Khamala, Kotkhai, Shimla (Himachal Pradesh) 171 201
2609	Use of edible soda, hing and sugar to lessen the effect of poison in animals	At the time of grazing in open, sometimes animals feed poisonous grass, which causes swelling, restlessness and lethargy. Hence for the treatment of poison, farmers of Theong tehsil of Shimla district mix 2 spoonfuls of edible soda (sodium bicarbonate), 10 g hing (asafoetida) and 2 spoonfuls of sugar thoroughly and feed to the infected cattle with fodder twice a day. Cattle are cured in 1 or 2 days. **Keywords:** edible soda, hing, sugar, poison, fodder	Shri Deep Ram Verma Jagheri, Theog, Shimla (Himachal Pradesh) 171 201
2557	Use of mud of pond for curing cyanide poisoning in animals	Barium grass generally grows as a weed in kharif season and leads to cyanide poisoning in animals. To control this ailment, farmers of Parole area of Kathua district in Jammu and Kashmir make use of pond mud that is mixed lwith	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology;

		wheat flour and fed to the animals. Mud is also coated on the body of animals and washed after one hour. This provides smoothing effect. **Keywords:** cyanide poisoning, mud, soothing effect	Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2559	Use of deodar oil to check various ailments/ diseases in animals	The deodar oil is an effective repellent of insect-pests. It is used to massage animals' skin externally. It helps in curing skin diseases such as scabies. It also disinfects the animals and checks various insects. The oil is also Agriculprescribed as internal dose, as it checks ecto-parasites in alimentary canal. **Keywords:** deodar oil, insect-pest repellent, massage, scabies, ecto-parasites	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2278	Different indigenous method of animal rearing in arid Rajasthan	Various traditional methods of rearing livestock are in vogue in the Rajathan desert since ages. These methods or techniques have been evolved by the traditionally skilled livestock rearing communities. These have been practised and passed on from generation to generation for the benefit of the people. Livestock rearing, being predominant occupation of the arid people, contributes to the economy of the region, by providing milch cattle, drought cattle, milk, ghee, wool, mutton, bones etc. To preserve and strengthen the livestock economy, people have developed drought adjustment mechanisms, migratory system of livestock rearing, breeding strategies and various other practices of animal husbandry in the region. Widely practised methods or techniques of animal husbandry based on the experiences of generations and expertise of the stock breeders are indicated below: 1. Livestock migration and pastoralism: this is a drought	Dr L. P. Bharara Retired Principal Scientist of CAZRI, Jodhpur (Rajasthan)

adjustment stragey
2. Traditionally skilled livestock breeders: people of specific castes rear specific animals.
3. Symbiotic relationship between the setteled, non-pastoralist and nomadic pastoralists.
4. Herding a mixture of animal types: This is a risk reduction strategy of animal product or produce.
5. Nada bandhna: It is a traditional practice of controlled breeding by tying a knot on the penis of male sheep to avoid breeding during migration and acute summer and winter periods.
6. Amar bakra: This is a religious practice of maintaining he-goat for breeding but avoiding its sale and slaughter.
7. Khoda system: It is a religious practice of maintaining a village bull on a cooperative basis for cattle breeding in the village.
8. Foster-parental care: This is a system or practice concerning the survival of livestock during scarcity or famine periods. Goats often act as "foster mother" to lambs and cow-calves(newly born).
9. Toba system of water harvesting: This is used as water utilization system by the pastoralists.
10. Gols' system of grazing, which is still prevalent among pastoral communities.
11. Sansis and sattia nomads: Traditionally skilled artisans are practicing castration of male calves.
12. Rituals and beliefs towards animal life, traditional attitudes, faith in god or goddess, evil eye and ghosts spirits-pertaining to livestock diseases and mortality.
13. Grazing strategies are followed for:
(a) distribution of herbs for grazing for judicious use of available vegetation,
(b) division of man power/ family member/ labour for different types of livestock grazing,
(c) collaborative way of livestock migration, (d) migration routes according to the type of livestock.
Keywords: livestock migration, pastoralism, livestock breeder,

		symbiotic, nada bandha, amar bakra, khoda, foster parental care, toba, gol's system	
2632	Use of wild jharberi leaves to provide strength to animals	Leaves of jharberi (Zizyphus sp) are collected from wild areas and fed to the animals for strength. It is practised in Suhagi village of Jabalpur district in Madhya Pradesh. It is an age-old practice. **Keywords:** jharberi, strength	Shri Ranjay Kumar Singh C/o Dr C B Singh, Dean, College of Agriculture, JNKVV, Adhartal, Jabalpur (Madhya Pradesh) 482 004
2531	Feeding cattle with mahua (Madhuca latifolia) for providing strength and nutrient to milch animals	If the cattle is very weak and unable to walk, mahua (Madhuca latifolia) is given along with raw eggs. The fruits of mahua are crushed in little quantity of water and the solution is given once daily for 10 days. Jaggery is also given with feed. **Keywords:** mahua, weak milch animal, jaggery	Ms Sarbani Das Plot no 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003
2607	Use of gur, ajwain, turmeric and mustard oil to increase work efficiency of drought animals	Generally in hilly area the terrain is undulated and ploughing is done with drought animals. For increasing their drought power, gur, ajwain and turmeric are mixed thoroughly with mustard oil and fed to the animals. Small balls of the mixture are prepared for feeding the animals twice a week. This practice is widely used in the upper belt of Kalakot block in Rajouri district (Jammu and Kashmir). Keywords: work efficiency, drought animals, gur,ajwain, turmeric, mustard oil	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2292	Indigenous buffalo husbandry practice in Haryana	Drs. V.B. Dixit, D.Lal, A. Manuja and T.R.Chouhan studied farmers rationale of indigenous buffalo husbandry practices in Haryana. The study was conducted in Murrah tract of Haryana, representing the districts of Hissar, Jind, Rohatak and Bhiwani. The information about indigenous buffalo husbandry practices and their rationale was collected from 100 farmers. The information so obtained was classified in to breeding, feeding, health and management practices as indicated below: I.Breeding practices (a) Wallowing of buffaloes before natural service is avoided. Wallowing of female buffaloes is avoided before natural service	Ref: Indian J. Dairy Sc. 53,4,2000.

because it reduces sexual desire in buffaloes.
(b) To provide extra energy gram and gur are provided to the bulls after natural service.
(c) To ensure better conception buffalo owners also reported that it is necessary to pour water on the back of the she buffaloes after natural service.
(d) To identify community bull, a mark of a ring is put on the posterior of the animal.
(e) Farmers select breeding bulls whose dam's yield is high and that too from distant villages to get high yielding progeny and to avoid inbreeding.
Keywords: wallowing, buffalo, sexual desire, gram, gur, conception, community bull

II. Feeding practices
(a) Feeding of methi for speedy involution of uterus About ½ to 1 kg methi (boiled or soaked in hot water) and 1 kg jaggery is mixed and this mixture is given daily after calving. It helps in involution of the uterus. (b) Feeding of dalia for speedy recovery and to avoid constipation About 2 kg dalia (broken wheat) is boiled on slow heat and given as energy source after calving. It helps for speedy recovery and to avoid constipation.
(c) Deworming of calves and to relieve from constipation Drenching of 50-100 g mustard oil, 1 kg lassi (butter milk) and 5-10 g salt mixture to young calves as a dewormer as well as laxative.
(d) Use of mustard oil for easy calving About 200-300 g mustard oil is given to pregnant buffaloes daily for 10-15 days before calving. It facilitates in easy calving.
(e) Enhancement of butter fat Cotton seed is boiled on slow heat for 5-6 hours and fed to lactating animals. It increases recovery of fat from milk.
(f) To boast milk production in ensuring lactation About 4-5 kg desi ghee is fed to the animals in late pregnancy to boast milk production in ensuring lactation.
(g) To check excess salivation

Mixture of garlic, gur and chapatis is given to the animals to check the excess salivation.
(h) Use of methi for induction of heat in animal Methi (boiled or soaked) is fed to anestrus buffaloes to bring the animals in heat in time. Keywords: methi, involution of uterus, dalia, constipation, lassi, desi ghee, chapatis, heat in animals

III. Health practices
(a) Treatment of Haemorrhagic septicemia Equal quantities of macoy leaves, neem and amaltas pulp are heated and applied on the neck of diseased buffaloes.
(b) Cure of mastitis Application of turmeric paste on udder is done. It is a natural antiseptic and useful in the treatment of mastitis.
(c) Treatment of brucellosis
To check brucellosis, washing of vagina with warm water containing alum or neem leaves is done. It acts as an antiseptic.
(d) Foot and mouth disease
To control foot and mouth disease in buffaloes, about one litre boiled water containing 12 g alum is used for washing lesions, as it is considered to be an antiseptic.
(e) Treatment of tympany
For treatment of tympany, mixture of ginger rhizomes with few seeds of pepper, handful of salt, little asafoetida and few shavings of back is given to the animal. This mixture is well pounded together and the extracted juice is diluted with water and drenched into the animals throat. This treatment helps the buffaloes to release the gas and ultimately curing the tympany.
Keywords: Haemorrhagic septicemia, macoy, neem, amaltas, mastitis, brucellosis, antiseptic, foot and mouth disease, tympany, ginger, pepper, salt, asafoetida

IV. Management practices:
(a) Animals are kept by the farmers alongside their dwellings, in order to facilitate women to look after their

		animals. (b) Wallowing is the other practices which is most widely followed that helps in increasing milk production in buffaloes. (c) Roofing of the animal sheds is done with locally available material such as cotton sticks, waste paddy straw and locally available grasses. It keeps the animals comfortable in summer and winter. (d) Farmers still prefer mud flooring for buffloes in their houses because buffloes are more comfortable on mud flooring. **Keywords:** dwellings, wallowing, roofing, flooring	
2301	Agricultural knowledge system in ancient India and its relevance in sustainable development	Shri A.K. Pandey studied the agricultural knowledge system in ancient India and its relevance in sustainable development regarding animal husbandry, veterinary science, animal nutrition, pasture management, management of animals, milk and milk products pertaining to dairy technology, improvement of animal breeds, improvement through hybridization and animal training, for the partial fulfillment to obtain the Ph.D degree (Extension Education) which has been accepted by Banaras Hindu University, Varanasi in 1997. **Keywords:** agricultural knowledge system, pasture management, hybridization	Shri Anil Kumar Pandey Department of Extension Education, Banaras Hindu University, Varanasi (Uttar Pradesh) 221 005
806	Seasonal migration of domestic animals	Seasonal migration of animals from higher reaches to lower areas in winter and vice-versa in summer is a common practice in Shimla district and tribal areas of Himachal Pradesh. In the beginning of cold weather (October- November) the animals are driven to the lower hills of Kangra, Nurpur and Pathankot, from where they are brought back in April to their own villages to manure the fields, and in June they are given to a shepherd for the summer months. After a month in the Trakar pastures some animals are led to the shars of Chaurah, Bharmaur and to other parts, and other animals are taken	ITK project Staff MRDA, Summer Hill Shimla (Himachal Pradesh) 171 005

		over the passes of the Pangi range to the gahars of Pangi and Lahaul, where they remain during July and August. In the beginning of September the herd commences the age-old return journey from Pangi range, from where they are brought back to the Trakar pasture. In October, they are traditionally taken to the village to manure the fields, whose owners have to provide food for the shepherds and their dogs as well as fuel at night. After October, the herd is again led to the jungles of Bhattiyat, Nurpur and Pathankot, where they remain till March. **Keywords:** seasonal migration, winter, summer, shepherd	
2516	Use of cumbu, pig fat and indigenous liquor for treatment of ranikhet disease in poultry	Mixture of pig fat, powdered cumbu and indigenous liquor are fed to poultry birds to treat ranikhet disease. Farmers of Nadutheru village in Tamil Nadu are using this practice since 4 years. **Keywords:** cumbu, pig fat, indigenous liquor, ranikhet disease	Shri P. Kandan S/o Shri Palaniryandi, Nadutheru, Koppu, Trichinapalli (Tamil Nadu)
2549	Use of garlic (Allium sativum) to cure ranikhet disease in poultry birds	One small piece of garlic clove is fed to the birds. The dry skin of the clove is removed and cut into small pieces with the help of nails. Stem of garlic plant is also used. Farmers of Tiruppathur in Tamil Nadu are using this pracice since 5 years. **Keywords:** garlic, ranikhet disease	Shri V. Azhagu S/o Shri Vellaiyan, S. V Mangalam, Tiruppathur, Sivagangai (Tamil Nadu)
2598	Use of garlic for curing ranikhet disease in poultry	Ranikhet disease is a common occurrence in poultry. Garlic is reported to be effective against the disease. Garlic cloves are mixed with maize flour and are then fed to the infected birds. Garlic feeding also enhances egg production in the layers. This probably acts in mobilization of excess fat in the bird. In this way it increases egg production as well as regularizes egg laying in the birds. Garlic and maize flour are the domestic consumption items and involves very nominal cost. The practice is common among the farmers of Akhrootbagh of Chhakachinot panchyat of Doda district in Jammu and Kashmir. **Keywords:** ranikhet disease,	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collec-tion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu

		garlic clove, maize flour, egg production, mobilization of fat	
2614	Increasing egg production in hens by using electric bulbs	This method is being followed in Theong tehsil of Shimla district. Farmers hang the bulbs of 25-40 watts at the height of 50 cm at every 2 m distance to lure the insects towards light. The lamps are switched on for 2 hours every night. Thus the insects collected due to light serve the purpose of feed for hens. This can increase the egg production by 30 per cent. This involves no cost and does not consume time. **Keywords:** hens, bulbs, insects	Shri Deep Ram Verma Ghaghri, Theog, Shimla (Himachal Pradesh) 171 201
2615	Stimulating the hens for laying to produce more eggs	There are some indigenous methods that are being followed in Theong tehsil of Shimla district for stimulating hens to lay more eggs: (a) One gram of honey is mixed with water and feedstuffs and given to the hen every morning and evening. (b) 10 per cent grain component is replaced from the forage and earthworms are gradually added to the forage. (c) Earthworms are boiled and cut into pieces and 10 % grain components are replaced by it. (d) Powder of peanut shells is added to the forage instead of the grain component. **Keywords:** hen, honey, earthworm, peanut	Shri Deep Ram Verma Ghaghri, Theog, Shimla (Himachal Pradesh) 171 201

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 12
Fishery

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2657	Renovating the fish pond for cleaning the mud once in 2 years	For fish cultivation the ponds are cleaned by excavating the mud from pond before monsoon. Annual rainfall is the main source of water for fish rearing in ponds. About 20% pond owners of Nasali village in Khurda district of Orissa are rearing rohu, mrigal and catla fish species in their ponds. Rice bran, cow dung etc. are used as fish feed in the locality. The fishes are sold in local or town market and the cost involved per application is Rs 1000/year. This practice is helpful to maintain the depthof pond water. **Keywords:** excavating mud, rohu, mrigal, catla, rice bran, cowdung	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126
2656	Fish farming in terraced fields	Farmers of Porba village in Phek district, practice a method of fish farming in terraced fields. As they depend mainly on rain water for cultivation of paddy, rearing of fishes become difficult in dry winter season. Therefore, they have developed a particular system of rearing fishes by digging a square pit of about 6 feet with a depth of 5-6 feet in their terraced fields. Fishes remain in these pits during dry season when the water in the terrace field gets dried up. The farmers harvest the fish from these pits as and when required. **Keywords:** fish farming, terrace fields, square pit	Shri Shekhozo T. Vadeo Porba village, Pfutsero, Phek (Nagaland)
2659	Enhancing fish growth by application of banana stem	After harvesting, banana stems are cut and put in the pond. Banana stems help in making water alkaline, which enhances aeration and subsequently fish growth. About 30-40% more yield is obtained by adopting this practice.This practice is used in Astaranga block of Puri district in Orissa since time immemorial. **Keywords:** banana stem, pond,	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit-8, Bhubaneswar (Orissa) 751 003

		aeration, alkalinity	
2660	Application of mahua or karnaja oilcake for easy netting of fish	Small pieces of mahua (Madhuca latifolia) or karnaja (pongamia pinnata) oilcakes are dropped into the pond. Both the cakes inactivate the movement of fish inside the pond. After some time, netting of fish with fishnet is done. this method helps in easy harvest of fish with more quantity. **Keywords:** fish, inactivation, mahua, karanja, netting.	Ms Sarbani Das 1068/32, Shatbdi Nagar, Unit-8, Bhubaneswar (Orissa) 751003
2658	Storage of fresh fish for a longer period	For improving the keeping quality of fresh fish, the fishes are kept in earthen pots for 15-20 days without feeding, but water is changed every alternate day. In rainy season, storing fish in fresh water helps in avoiding the muddy taste of fish.About 20-30% farm families of Chiplima block of Sambalpur district in Orissa have been using this practice since time immemorial. **Keywords:** earthen pot, rainy season, muddy taste.	Ms Mamata Mohapatra L-294, Baramunda Housing Board Colony, Bhubaneswar (Orissa) 751 003

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 13
Ethno-botany and agro-biodiversity

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2707	Relief of pain due to extraction of thorn from any part of the body	The villagers of Chandaka of Khurda district in Orissa are using this practice. Young shoots of kanta banso (Bambusa arundinacea) are scratched on the surface with a sharp knife. The powder thus obtained is applied locally for immediate relief from pain due to extraction of a thorn from any part of the body. **Keywords:** relief of pain, thorn, kanta banso	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2714	Use of baigab (Jatropha gossypifolia) twigs to relieve tooth ache	Villagers of Chandaka in Khurda district of Orissa are using fresh latex extracted from baigab (Jatropha gossypifolia) tender twigs to relieve toothache. **Keywords:** toothache, twig, latex, baigab	Shri Ashish Mohapatra Plot No. 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2713	Use of latex of stem of dimiri (Ficus hispida) to relieve tooth ache	Latex of stem of dimiri (Ficus hispida) is applied locally for toothache. This practice is common in Chandaka village in Khurda district of Orissa. **Keywords:** relief, toothache, dimeri	Dr Arati Bala Prusti Plot No. 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2712	Use of balibhainso (Flacourtia indica) shrub juice to control dysentery	Juice of balibhainso (Flacourtia indica) shrub is extracted from fresh roots and is given orally (about 10-15 ml twice a day) on empty stomach to control dysentery. **Keywords:** balibhainso, dysentery	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2711	Use of aak (Calotropis gigantea) for cure of sterility	Villagers of Chandaka of Khurda district in Orissa are using this age-old treatment. In this treatment, fresh root juice of aak (Calotropis gigantea) is given orally on empty stomach for 3 days during mensuration to cure sterility. **Keywords:** sterility, juice, aak	Dr Arati Bala Prusti Plot No. 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2673	Use of walnut leaves and barks for teeth and gum	People of Rajouri district in Jammu & Kashmir use fresh leaves of walnut tree for cleaning of teeth. The bark of this tree is used for the same purpose as well as for the	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of

		colouration of leather. It is believed that if the teeth are cleaned the leaves or bark of walnut tree regularly, it become germ-free as the leaves of walnut tree have germicidal property. **Keywords:** walnut leaves and bark, teeth and gum, germicidal property.	Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2670	Use of bamboo leaves for treatment of pyrrhoea	In rural area people are less aware of their health. Due to this, pyrrhoea develops and teeth become yellow and hollow or cavity develops. Many villagers use vegetation brush (datun) made of neem tree. Similar treatment is suggested by an experienced person, Shri Manji Nanoma. Green leaves of bamboo (Dandrocalamus strictus) are dried and ash is prepared after burning it. This ash is used as tooth paste, once a week. Many people of Naya Talab, Hathai in Dungarpur district of Rajasthan are using this treatment and it is being practised from generation to generations. **Keywords:** pyrrhoea, bamboo leaves, datun, ash	Shri Manji Nanoma S/o Shri Harji Nanoma, Naya Talab, Hathai, Dungarpur (Rajasthan)
2709	Driving away mosquito by using bherua (Chloroxylon swietenia) leaves	Fresh leaves of bherua (Chloroxylon swietenia) are hung to drive away mosquitoes. This practice is being used in Chandaka village of Khurda district in Orissa. **Keywords:** mosquito, bherua	Dr Arati Bala Prusti Plot No. 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2690	Uses of sea buckthorn	The people in high mountainous area have been using sea buckthorn fruits for curing several ailments including skin, tumor diseases, digestive disorders, respiratory ailments and foot and mouth disease in cattle. Major traditional uses of sea buckthorn are wood for fuel and timber, fodder for goats and cattle, fencing to protect fruit trees, in nurseries, in orchards, maintenance of irrigation channels, soil conservation, improving fertility, subsidiary food items, medicinal products and alcoholic preparations. **Keywords:** sea buckthorn, tumor, digestive disorder, respiratory ailments, foot and mouth disease, fuel, irrigation, fertility, timber, food items,	Shri A.K. Agnihotri Joint Director (Planning) and Sr. Scientist, Directorate of Research, Dr. YSPUHF Naini, Solan (Himachal Pradesh)

		medicinal, alcoholic	
2708	Treatment of cough with Jhau (Tamarix ericoides)	A few leaves of jhau are cooked with rice and given to children to get relief from cough. The decoction of leaves is reported to cure children as well as adults. This wisdom is being used throughout the hilly area of Himachal Pradesh. **Keywords:** cough, jhau leaves	People of Karsog area in Mandi district of Himachal Pradesh Communicated by: Prof L. R. Verma Department of Bio-Sciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2685	Treatment of stomach pain with Xylosma longifolium	This practice is very effective for control of stomach pain and intestinal worms in human beings. About 5 g powder of bark of Xylosma logifolium is given to the patient suffering from stomach pain. In case of intestinal worms, a big doze is given early in the morning. This is being practiced throughout the hilly areas of district Mandi in Himachal Pradesh since time immemorial. **Keywords:** stomach pain, worms in intestine, Xylosma longifolium	People of Mandi district of Himachal Pradesh at large Communicated by: Prof L. R. Verma Department of given Sciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2666	Use of local vegetation for the treatment of white discharge with urine	In tribal area of Dungarpur district of Rajasthan, there is malnutrition in people. This causes weakness among the living persons. Sometimes weakness occurs due to physical abnormalities. In youths whitish secretion with urine happens to discharge constantly. Discharge of such material from the body causes weakness, thus man becomes inactive. Experienced person like Manji and Pargi provide local vegetation-based treatment as follows: (a) 2-3 green twigs or branches of bada gokhru (Pedalium murex) are taken and dipped in cupful of water 4–5 times. It is kept in water for 10 minutes or till the water become sticky or thick. It is given to the patient for 7 days. (b) Green twigs of the Amrita (giloe) (Tinospora urgensia) are extracted. Half cup of extract is given to patient for 7 days. After and during the treatment one has to avoid sour things (butter milk). **Keywords:** white secretion, bada gokhru, giloe	Shri Manji Nanoma S/o Shri Hajri Nanoma and Shri Harish Pargi S/o Shri S. S. Pargi, Naya Talab, Hatai Dungarpur (Rajasthan)
2671	Use of lal charmoli for treatment of excess bleeding after menstruation	Tribal women of Naya Talab, Hathai in Dungarpur district of Rajasthan are using this treatment since long time, which is suggested by Shri Manji Nanoma. As a natural course in	Shri Manji Nanoma S/o Shri Harji Nanoma, Naya Talab, Hathai, Dungarpur (Rajasthan)

		ladies there is bleeding due to rupturing of cells. In certain cases bleeding continues, which causes problem to ladies. Lal charmoli (Abrus precatorius) is used for its treatment. Lal charmoli is a rainy season creeper. The green leaves of lal charmoli are taken. After drying the leaves, these are crushed to powder form. One teaspoonful of powder is mixed in water and given orally for 7 days. **Keywords:** lal charmoli, excess bleeding	
2665	Use of Clerodendron infortunatum leaves for germination of paddy seeds, healing wounds and controlling dysentery in animals and human beings	1. This plant is used for turning in soil to control soil-borne pests, especially parasitic nematodes for banana and betelvine. 2. The leaves of this plant are used for facilitating germination of paddy seeds after soaking. The soaked paddy seeds are stored in basket, lined with the leaves of this plant. It is suggested by the farmers that the leaves create hot atmosphere, facilitating easy germination and removal of pathogenic fungi. 3. The young leaves and buds of this plant are used locally for dressing wounds of human beings and animals. The leaves have soft hairs and are known to heal wounds due to their antimicrobial action. 4. The plant is commonly used for controlling dysentery in farm animals and human beings especially in young ones. 5. Recent studies conducted at CPCRI, Kasaragod had shown that this plant has very good insecticidal properties, and when it is used at the rate of 3% in manure pits, it has been clearly shown to control rhinoceros beetles. **Keywords:** Clerodendron infortunatum, paddy seed germination, nematode, healing the wounds, dysentery, insecticidal, rhinoceros beetle	Shri S. R. Prabhu 4/803 Near Karippalam, North Cherlai Cochin (Kerala) 682 002
2701	Use of bana soriso (Cleome viscosa) leaves to cure headache	Fresh leaves of bana soriso (Cleome viscosa) are pasted and applied on forehead for the relief of headache. **Keywords:** headache, bana soriso, forehead	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2718	Use of narguni (Atalantia monophylla) leaves for curing ear trouble	About 2 g fresh leaves of narguni (Atalantia monophylla) shrub is wrapped in a banana leaf and heated on fire for 5 minutes. Juice	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014

		of the leaves is dropped in ears for ear troubles. **Keywords:** narguni (Atalantia monophylla), ear trouble, banana leaf	
2706	Use of nma-nma roots as anti-emetic	Nma-nma is a weed which is available mainly during summer season. The people of Nsungu village in Kohima district of Nagaland use the roots of the plants, when one suffers from vomition as an anti-emetic. One to two pieces of about 2 inches in length of this plant is crushed and mixed with a 1-2 spoonful of the exract is taken orally. **Keywords:** nma-nma root, antiemetic	Shri Tezenmo Nsunyu, Tseminyu, Kohima (Nagaland)
2662	Use of saslasar creeper for relief from joint and body pain	Many people of Naya Talab, Hatai in Dungarpur district of Rajasthan are using this treatment for joint and body pain. The roots of saslasar creeper (Asparagus) are mainly used. The upper bark of the root is removed and kept under shade for drying. These dried roots are kept in under sun for complete drying. Dried roots are ground properly. This asparagus root powder is given to needy person for 7 days. This gives relief from joint pains. To get relief from body pains one teaspoonful asparagus root powder is given orally for 1 day before going to bed. **Keywords:** joint pain and body pain, asparagus root	Shri Manji Nanoma Naya Talab, Hatai, Dungarpur (Rajasthan)
2710	Use of leaf paste of kajncha (Abrus precatorius) shrub to reduce filarial swelling (lymph angites)	In this practice, leaf paste of kajncha (Abrus precatorius) is applied in swelled part due to filarial swelling (a smear of castor oil is made locally before the above said application). Farmers of Khurda district have been using this practice. **Keywords:** filarial swelling, kajncha, castor oil	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2693	Use of garlic nodes for curing joint pains	Joint pain is common problem specially during older age. For curing joint pains, garlic nodes are given to the person suffering from joint pains once a day till the pain is relieved. This prescription is being used in hilly areas of Kathua district of Jammu and Kashmir. **Keywords:** garlic node, joint pain	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu Province (J&K State) on Collection, (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Documentation and

			Validation of ITK, 2002. Sher-E Kashmir University of Agricultural Sciences & Technology, Jammu
2688	Use of methi seed for curing cough	Cough is a common problem in winter season. Sometimes cough creates major problems, if not cured in time. Methi seeds are boiled in water, filtered and water extract is given to the ailing person twice a day for two days. This Agriculprescription is being commonly used by the farmers in Nagri area of Kathua district in Jammu and Kashmir. **Keywords:** methi seed, cough	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agriculprescription tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2689	Use of root juice of pokasunga (Blumea lacera) for curing blood dysentery	About 5 ml fresh root juice of pokasunga (Blumea lacera) is given orally once a day in empty stomach with honey for controlling blood dysentery in children. **Keywords:** pokasunga, blood dysentery, honey	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2687	Use of onion extract for curing cholera	In rural areas because of unhygienic conditions, people suffer from cholera. In this condition, patient is given onion extract. One or two onions serve as one dose. It immediately controls vomiting and nausea. Some times mint is also added to increase effectiveness and flavor. There is widespread use of this practice in rural areas of Jammu region of Jammu & Kashmir. **Keywords:** onion extract, cholera, mint	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricul tural Sciences & Technology, Jammu
2692	Use of flower buds of lasoora tree for curing dysentery	In rainfed belt of Jammu and Kathua districts, if a person suffers from dysentery in the month of March-April, the flower buds of lasoora (Cordia obliqua dichotoma) is used for the treatment. The flower buds are cut into small pieces, mixed with gram flour, cutlets are prepared and given to the person suffering from dysentery. About 2-3 cutlets (twice-a-day) are given for two	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection.

		days continuously. It has been observed that when the cutlets are taken with curd their effectiveness is increased. This prescription is popularly used in Kandi areas of Jammu and Kathua districts of Jammu and Kashmir. **Keywords:** dysentery, flower buds of lasoora, cutlets	Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2700	Curing ulcers in mouth of children	Fresh roots (3 g) of agara (Argemone maxicana) and 3 black peppers are made into a fine paste and used to cure ulcers in mouth of children. **Keywords:** ulcer, agara, black pepper	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2691	Use of kauka (Ampelocissus latifolia) leaves for suppression of boils	In this practice tender leaves of kauka (Ampelocissus latifolia) is made into a fine paste and applied locally on the boils for suppression. **Keywords:** kauka, boils	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2683	Curing cuts by use of koinsiri Commelina benghalensis) stem	In this practice, exudates of fresh koinsiri (Commelina benghalensis) stem is applied locally to cure for cuts. **Keywords:** cuts, koinsiri stem	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2669	Treatment for paralysis in human being	The tribal people of Naya Talab, Hathai in Dungarpur district of Rajsthan are using indigenous treatment for paralysis, from generation to generation. In villages, sometime people become victim of paralysis. It may be partial or complete. With the indigenous treatment, they get relief. Shri Manji Nanoma is an experienced person, who helps tribal people by providing local treatment. Leaves of peelwan (a creeper) are used for this purpose. Peelwan is perennial in nature and remains green throughout the year. It climbs on salvadora tree. The creeper's leaves are bitter in taste. Its green leaves are taken and dried under shade. These leaves are crushed to powder form. This peelwan powder is given to paralytic person daily one teaspoonfull. Beside this, treated water bath is also taken. For that peelwan powder is mixed in bathing water. Both these practices are followed till the patient cures. **Keywords:** paralytic effects, peelwan, water bathing	Shri Manji Nanoma Naya Talab, Hathai, Dungarpur, Rajasthan
2715	Use of chakunda (Cassia tora) to cure ear troubles	Some villagers of Chandaka in Khurda district of Orissa are using this practice since time	Shri Ashish Mohapatra Plot no 2658, BJB Nagar, Bhubaneswar

		immemorial. In this practice, 5 g fresh leaves of chakunda (Cassiatora) is wrapped in a banana leaf and heated for 5 minutes. Extracted juice of the leaves is poured in ear. **Keywords:** ear trouble, chakunda, banana leaf	(Orissa) 51 014
2716	Use of pods of karongal for relieving constipation	People of Jammu and Kathua districts of Jammu and Kashmir use karongal (Cassia fistula) pods for its treatment. Karongal pods (including seeds) are boiled in water for 15 minutes. The boiled water (soup) is filtered and is given to the individuals suffering from constipation. The soup serves as laxative and relieves the individuals from constipation. **Keywords:** pod of karongal, constipation, laxative	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2675	Use of kumutia (Clerodendrum viscosum) to reduce pain and swelling of hydrosole	Leaves of kumutia (Cleroden-drum viscosum), Piper betle and tobacoo (Nicotiana tabacum) are smeared with warm mustard oil, placed one above other and wrapped around the hydrosole to reduce pain and swelling. **Keywords:** swelling of hydrosole, kumutia, Piper betel, tobacco	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2676	Use of phiriki (Benkara malabarica) for curing chronic dysentery	Phirki is a thorny shrub, used as a cure for chronic dysentery. Fresh roots of phiriki is taken and juice is prepared. This juice is given orally in emptry stomach @ 10-15 ml once a day for 20 days. **Keywords:** phiriki, chronic dysentery	Dr Arati Bala Prusti Plot no 2658, BJB Nagar, Bhubaneswar (Orissa) 751 014
2695	Plant leaves in use to avert damage to food stuffs	Many food stuffs, when stored for later use, may get damaged due to infestation and infection with insects and other micro organisms. Certain plants have immense insecticidal and pesticidal properties and also work as lrepellent to the insect pests. Among such plants neem (Azadiractha indica) and tobacco (Nicotiana spp) are very prominent. Leaves of these plants are put to use by blending them with the stored food stuff. This method helps keeping the food material free from Collection by pests. The technique is in use in and around some areas of Jammu. **Keywords:** neem and tobacco	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu

		leaves, insecticidal and pesticidal property, stored food stuff	
2696	Preparation of pula (foot wear) by using bizia fibre	Pula are foot wear which are traditionally used by many people of Kullu district of Himachal Pradesh, since a long time. Pula are mainly prepared by women from the fibre of the plant bizia (Canvissp). The fibre is collected from the stems of the plants and then thick and thin threads are made. It is done locally through kaidulu and tekli. To make them attractive in the upper portion, cloured thread of goat and sheep wool are also used. **Keywords:** pula, bizia fibre	Dr Onkar Singh Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2698	Use of shabal juice as a medicne for eye disease	Shabal is a orchid species and is grown mostly on the rocks. Shabal roots are collected and crushed properly. Then it is boiled in water and the extracted juice is used for treatment of eye disease by the local people of Nichar block of the tribal district of Kinnaur (Himachal Pradesh) since very long time. It is used as an ointment for many eye diseases. **Keywords:** shabal root juice, eye disease	Dr Onkar Singh Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2664	Treatment of piles by using roots of shalu plant	The rhizome roots of shalu an orchid, are used for treatment of piles by the people of Phati Khani of Anni tehsil of Kullu district in Himachal Pradesh since very long time. The rhizome roots of the shalu plant are collected and cut in the small pieces. The pieces are then powdered and the powder is called shalu jhalakada. It is eaten with butter for 15 days to 1 month. It is also used in stomach disorder which is also prescribed by local vedu. **Keywords:** shalu roots, piles, shalu jhalakada, stomach disorder	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2699	Use of kufla to make fire	Kufla is a herb, and the fibrous product made from the plant which is locally called kufli. The leaves of kufla are collected, dried and rubbed. Due to rubbing the coat of the leaves gets removed. The remaining fibre of the leaves are dried. The dried kufla is ready for use. A small piece of kufla is put on a shining stone and kufla is striked by saj, which is made up of iron. The kufla catches fire at once and it goes on burning for long time. The shepherd uses it for smoking	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005

		and for fire purposes. This is an age-old practice and is used by tribal and semi-ribal people of Himachal Pradesh. **Keywords:** kufla, herb, fire, kufli, saj	
2697	Preparation of kittas, chabus and tokries from bamboo stem	Nagal or gohru is the local name of the bamboo species that grows in higher altitudes ranging from 6,000 feet to 10,000 feet in high hills of Kullu, Shimla and Kinnaur district of Himchal Pradesh. The outer portion of the plant is used by the local artisans to prepare kiltas, chabus and tokries for agricultural, horticultural and domestic uses by the people of Kullu, Kinnaur and upper hill of Shimla district. These kiltas, chabus and tokries are very useful for carrying compost to field, in bringing agricultural produce from field etc. **Keywords:** kiltas, chabus, tokries, nagal, gohru	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2702	Use of otana jar (cheriberi) root for diarrhoea	Otana jar (Achyranthus aspera) is a weed, which is available in plenty . the Nepali farmers use the extract from root of this weed to control diarrhoea. A small piece of the root of about 2-3 inches is crushed and mixed with water. The extract is taken orally to control diarrhoea. **Keywords:** otana jar, diarrhoea	Shri Baburam Aadhikari Medziphena, Dimapur (Nagaland)
2678	Extraction of oil from deodar wood and its multi-purpose use	This is a crude method of extracting oil from deodar wood and is being practiced among the farmers of Dandi village of Udrana panchayat, Bharderwah tehsil Doda district in Jammu Kashmir. The old deodar branches, which are somewhat reddish in colour, are selected for the purpose. These are cut into small pieces and put in earthen pot. Small holes are bored out in the centre of the bottom of the pot. The pot is placed over the top of another smaller earthen pot adjusting its bottom hole copening inside the lower pot. The pots, placed one over the other, are then burried in the soil in a manner that 1/3rd of the lower pot is buried beneath the soil surface. The upper pot, containing wood pieces, is covered with a lid and heated by burning wood from above, taking proper care that heat does not dissipate much to the lower pot and causes it to release oil which is then collected in the lower pot.	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Colletion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu

		This method of extracting oil is practical and feasible. The oil is having multipurpose uses in the field of agriculture and allied areas and may be applied against various diseases, infections and infestation of insect pests in crops and plants. It also act as repellent to inset-pests. This oil is also used to cover the arms upto elbows and legs upto knees during hand-weeding operation in the rice crop for protection against irritation due to fertilizer and herbicides. **Keywords:** extraction of deodar oil, earthen pot, multipurpose uses	
2681	Use of bhang (Cannabis sativum) leaves for treatment of swelling caused by stinging of honey bee or wasp	Use of bhang (Cannabis sativum) leaves to get relief from stinging of honey bee or wasp is a commonly used practice in Amathrad village of Kangra district in Himachal Pradesh since time immemorial. In this method, bhang leaves are heated and crushed properly to make a paste. The paste is applied on the swelling part (which is caused by stinging of honey bee or wasp) and wrapped with a cloth. The patient gets relief from irritation and pain. **Keywords:** bhang leaves, stinging, honey bee or wasp, swelling	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2661	Use of ghrutkumari herb for curing headache	Villagers of Rajailuda village in Ganjam district of Orissa are using ghrutkumari herb (Aloe vera) for treatment of headache since long time. Leaves of this locally available herb are rubbed on scalp to get relief from headache. The chemical present in this mesophytic herb leaf is helpful in curing headache. **Keywords:** ghrutkumari (Aloe vera), mesophytic	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126
2717	Use of palash leaves for making plates and bowls	Palash (Butea monosperma) tree is commonly grown in kandi terrain of Jammu and Kathua districts covering at least 8 blocks. The size of leaves, in general, is 8x6 inches. The poor pesants of Jammu and Kandi belt of Kathua districts, make plates and bowls (locally known as duna-pattal) with the palash leaves. Being evergreen in nature, palash bears leaves round the year. This practice is also taken as an income and employment generating venture. **Keywords:** palash leaves, plate, bowl, income source	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agricultural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 **Ref:** A Survey Report from Jammu Province (J&K State) on Collec-tion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricul tural Sciences &

			Technology, Jammu
2684	Use of chuha phool for gastritis	About 200-300 g of chuha phool (Pogoda alba) bark is crushed and boiled in about 200-300 ml water. After cooling, it is strained and the filtrate is taken only in empty stomach, preferably in the morning. Taking this preparation for 2-3 times is sufficient to cure gastritis in human being. **Keywords:** chuha-phool, bark, gastritis	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2686	Use of aak pada for sprain and dislocation	Aak pada (Calotropis gigantean) is a shrub, which is available in plenty. The plant has milky juice. This milky juice used for massaging to relieve pain in sprains and dislocations. The juice is applied over the affected area, massaged and bandaged. Some times the leaves are also heated and placed over the affected area after the application of the juice. In Assam, the juice is used to subside any flammatory condition of the skin. **Keywords**: Aak pada, sprains, dislocation, massage	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2679	Treating whooping cough by using tulsi (Ocimum sp) and black pepper (Piper nigerum)	Whooping cough is a very common disease in human being. For treatment of this disease, tulsi leaves and black pepper are ground properly and then this content is added to tea. Its intake can provide relief to the patients. This is an age-old practice and is being used in village Mashal in Kangra district of Himachal Pradesh. **Keywords:** tulsi, black pepper, whooping cough	Shri Rajeev Kumar Room no. 32D, NBH II Hostel, Himacal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2668	Treatment of tuberculosis	Two bottles of 1 litre size are taken. Root tips of desi babool (Acacia arabica) and neem (Azadirachta indica) are kept in separate bottles. These bottles are buried separately in the soil for a fortnight till it is filled with the root secretion. In third bottle a mixture is prepared by taking equal quantity of both the secretions(i.e. babool and neem). One drop of this ultimate solution is given daily to T.B. patient till the person gets relief. People of Naya Talab and Hatai village are using this practice since generations. **Keywords:** T.B., desi babool, neem, root secretion	Shri Manji Nanoma S/o Shri Harji Nanoma, Naya Talab, Hatai, Dungarpur (Rajasthan)

2674	Use of nilkhanthi leaves and black pepper (Piper nigrum) for treatment of measles	Measles problem is very common in children. For its treatment, brown leaves of nilkhanthi are properly ground and mixed with equal amount of black pepper (Piper nigrum). The content is given orally to patients to get relief from measles. This is an age-old treatment and commonly used in Reddi village of Kangra district in Himachal Pradesh. **Keywords:** measles, nilkhunthi leaves, black pepper	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2703	Use of ratbiche (golden shower) for curing dysentery	Ratbiche (Cassia fistula) fruit is used for curing dysentery. When the fruits get mature and dry, the inside, which has two layers between seeds, becomes black and sticky. The upper layer is thicker than the lower layer. For the treatment of dysentery, about 3-4 pieces of this layer is dissolved in a little quantity of lukewarm water and taken orally. If the stool is mucous type, then the lower layer is used as in the same way as above. This is a very popular medicine used by Nepalese. **Keywords:** ratbiche fruit, cure of dysentery, upper layer, lower layer	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)
2672	Use of Mirabilis sp. flower in treatment of piles problem	The purpose of the practice is to solve the problem of piles in human beings. Piles is treated with salty soap made from Mirabilis sp. flower. The flower is fried in clarified butter and mixed with coriander, chillies, onion and salt (5-10 g each) and given orally to the patients. A majority of the farmers of village Patyar in Kangra district of Himachal Pradesh are using this age-old practice. **Keyboard:** piles, Mirabilis sp, coriander, onion, chilli, salt	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2677	Cure of cough by using peach leaves	The Nishi tribe of Arunachal Pradesh use peach leaves for cough treatment. In this treatment, a few clean pieces of peach leaves are crushed between palms and it is taken orally as such. This cures cough in human being effectively. **Keywords:** cough, peach leaves	Shri Techi Nega Nu SASRD, Medziphema, Dimapur (Nagaland)
2667	Use of teiseny-u leaves to ripen boil	A shrub called teiseny-u or akashi is used ror ripening boil (abscess) in human being. Leaves are heated in flame and placed over affected area and kept overnight. This quickens ripening of boil.	Shri Vithongunuo SES School, Medziphema (Nagaland)

		Keywords: teiseny-u leaves, ripen boil	
2682	Use of gatheru leaves to control high blood pressure	Gatheru/ nonzawen/ remrem (Hottuynia cordata) is a shrub and a commonly available vegetative. The leaves are boiled and taken along with the soup. This controls high blood pressure. **Keywords:** gatheru leaves, high blood pressure	Shri Vithongunuo SES School, Medziphema (Nagaland)
2680	Use of local vegetation for treatment of diarrhoea	In Naya Talab, Hatai, which is the tribal area of Dungarpur district of Rajsthan, people have indigenous way for treatment of diarrhoea. Manji Nanoma used to help tribal people by providing local treatment. For the treatment of diarrhoea, the bark of mango (Mangifera indica), ber (Ziziphus zuzuba), santra (Citrus reticulata) and khankra (Butea monosperma) are taken. Each tree bark is dried separately under the shade and dried bark is crushed to powder form. A mixture is prepared by mixing equal quantity of dried tree bark powders. This mixture is filled in bottle. One teaspoonful of mixture is given to patient in morning and evening for 2 days. It will check diarrhoea. This practice is very cheap and involves cost or expenditure of Rs 10-20 only. **Keywords:** diarrhoea, local vegetation	Shri Manji Nanoma S/o Shri Harji Nanoma, Naya Talab, Hathai, Dungarpur (Rajasthan)
2705	Use of Zanthoxylum alatum and Murraya koenigii shrub as tooth brush	Twigs of Zanthoxylum alatum and Murraya koenigii, which grow in abundance in the wild, are used as tooth brush by the people of Serathana village of Kangra district in Himachal Pradesh . This is an age-old practice. In this practice people make small sized (approximately 2-4 inches long) twigs of these plants for cleaning of teeth. It is also used for medicinal purpose, as it has astringent and anti-microbial property. **Keywords:** Zanthoxylum alatum, Murraya koenigii, tooth brush, twigs, medicinal property	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005
2663	Use of baheda (Terminalia belerica), harra (Terminalia chebula) and aonla (Emblica officinalis) for treatment of gum problem of teeth	Gum problem is very common in case of human being. For the treatment of this problem, baheda (Terminalia belerica), harra (Terminalia chebula) and aonla Emblica officinalis) are dried and ground. The content is mixed with water, and is taken along with	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171 005

		one spoon of salt and thymol for treatment of gums. This treatment is being used in Candi village of Kangra district in Himachal Pradesh since time immemorial. **Keywords:** gum problem, baheda, harra, aonla, salt	
2704	Use of bhakhimolo seed for treatment of dysentery	The seeds of bhakhimolo (Ehus semialata) are pound and mixed with water and salt. The preperation is taken orally to cure dysentery in human being, which is found to be very effective. **Keywords:** bhakhimolo seed, dysentery	Shri Baburam Adhikari Medziphema, Dimapur (Nagaland)

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Document 2 (Supplement 1)

Chapter 14
Weather Forecasting

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
1980	Weather forecasting by observing behaviour of birds, trees etc.	A majority of the Korku tribals of Chopan village in Amrawati district of Maharashtra have indigenous knowledge about predicting the rains as indicated below. (a) When salai (Boswellia sarata) tree sprouts green leaves profusely, the rains are expected to be normal. (b) When kokila bird (Black cuckoo) sings intensely in the night hours then indicates the arrival of rains on next day. (c) If the wind blows from south-north direction continuously for 3 days, the rains are expected in next 2-3 days. (d) If white clouds appear by the end of September and October at regular intervals, then there is good chances of receiving rains. (e) When the ants move fast in the ant-hill, it indicates the arrival of rains in a day or two. (f) When heavy rains are expected, a typical grinding sound is heard through ant hills. **Keywords:** salai tree, kokila, ant hill, wind direction	Dr O. P. Ingle Associate Professor and Head Department of Extension Education, Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Akola (Maharashtra) 444 104
2721	Weather forecasting due to sudden change in direction of wind flow during spring season	Weather forecasting about rains in spring season is done for timely harvesting of rice crop for collecting rice for seed purpose. The farmers of Sumara Pradha village of Khurda district in Orissa can anticipate rainfall during spring (February - March), i.e. before akhaya trutiya (beginning of cropping season in Oriya), if there is sudden change in the direction of wind flow i.e. north-eastern wind. Thus rice crop is saved from pest and disease attacks. This is an age-old practice. **Keywords:** weather forecasting,	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126

		spring season, akhaya trutiya, north-eastern wind	
2297	Weather forecasting in almanacs relating to farming operations	Shri Sumanta Kumar Mishra studied the theoretical basis of weather forecasting in panchang and ancient literatures for Extenhis Doctorate degree which has been accepted for award of Doctor of Univerphilosophy degree in Agricultural Extension by Banaras Hindu University, Varanasi in 1998. Some of the findings which are indicative of receipt of rainfall are mentioned below. 1. According to Varahamihira and others, the formation of clouds takes place before 195 days from the days of their fall. According to them, symptoms of cloud formation are to be detected when the moon transits the asterism (nakshatra) of Purvashadha, commencing from the first day of the lunar month of margashira. Foetuses formed the dark-half will come out in the bright half and vice versa; those formed in day time will come out at night and vice versa; those formed at dawn will come out in the evening and vice versa; if formed in east will give water in west and vice versa; and if formed in north will rain in south and vice versa. 2. Good symptoms at the time ofconception of clouds are a delightful and cool breeze from north, north-east and east; a clear sky; a good twilight; groups of birds and animals chirping pleasantly in the north, north-east and east etc. In addition, there are some special rules relating to the growth of embryos and arising from the particular nature of the season. In contrast, fall of meteors, lightning, dust storm, earth-quake, internal conflicts (graha yuddha), portentous thunder, rainbow and eclipse of the sun or the moon are the indicaters for miscarrying (garbha pata) of the foetuses. 3. For measurement of rainfall or rainwater, the unit of rain-gauging was adhaka. An adhaka is the quantity of rainfall that fills to	Shri Sumanta Kumar Mishra Department of Extenhis sion Education, Banaras Hindu Univerphilosophy sity Varanasi (Uttar Pradesh) 221 005

the brim of a vessel 20 inches in diameter and 8 inches deep. Four such adhakas constitute a drona. The amount of rain fall in coming months/ seasons/ year is assessed on the basis of symptoms at cloud conception, position of the sun and the moon in the particular nakshatra division or zodiacs, and some related considerations.

4. According to ancient scriptures including those of Garga, Varahamihira and Parasar etc., there are four types of clouds, viz. (i) abartak (ii) sambartak (iii) pushkar, and (iv) drona. If dominating cloud of year is abartak, rain will take place in certain places in that year; if sambartak - in all parts of the country; if pushkar - the quantity of rainfall will be very less; and if drona - that year will receive abundant rainwater.

5. According to ruling planet of a year, overall rainfall of that particular year should be anticipated as follows: (i) sun - moderate (ii) moon - very heavy, (iii) mars - scanty, (iv) mercury - good (v) jupiter - very good (vi) venus - good, and (vii) saturn - very low and stormy wind.

6. Three days in the month of Ashadha (June- July) have been specially selected by our ancient meteorologists for observation of atmospheric conditions to determine the future prospect of rain. They are the days when in the lunar month of Ashadha, the moon passes through the asterisms of Rohini, Swati, and Uttarashadha, respectively known as Rohini yoga, Swati yoga and Ashadha yoga days.

7. Changes in weather are associated with the sun, the moon and other seven planets under certain conditions of positions, either when they act alone or in combination (planetary conjunction or graha yoga). Strong positions or aspects of planets leave impactful impressions on the weather progressively all-round the world . The slower-moving planets (especially Jupiter and Saturn) exert a telling influence because of their slow speed and great masses

for a long period of
time.
8.When the sun and the moon are in neutral asterisms, there will be winds; when they are in feminine asterisms, there will be lightning and phosphorescence; and when the sun occupies a feminine asterism and the moon a masculine or vice versa, there will be rains.
9. Researches have shown that there are some important days in a year, and by observing the atmospheric activities of those days and correlating those with the planetary positions, an indication of future behaviour of weather can be foretold, e.g. when it rains in the new moon days and the days succeeding them (i.e. pratipada days), there will be good rainfall during the bright-half of the lunar month; if the constellation of Rohini coincides with the 10th lunar day in the month of Ashadha, there will be terrible rains.
10. There are 10 nakshatras through which the sun passes during the rainy months (from mid - Ashadha to mid - Kartika) to foretell the amount and time of rain in any year. They are Ardra, Punarvasu, Pushya, Ashlesha, Magha, Purva - Phalguni, Uttara - Phalguni, Hasta, Chitra and Swati.
11. Dashatapa Siddhanta (10 hot days theory) is an important theory found in ancient astrological texts, also considered for predicting the amount of rain in the four major months of rainy season, baesd only on the hotness of 10 days commencing from new moon
day of jyeshtha to the tenth day of the bright-half (i.e. from Jyestha Krishna amavasya up to Ashadha shukla dashami).
12. For predicting the monsoon and its subsequent effect on weather, all panchang-makers consider three different nadi siddhantas (capsular theories), commonly known as nadi charkas. These are: (i) dwinadi chakra (ii) trinadi chakra, and (iii) saptanadi chakra, named after grouping all the nakshatras into two, three and seven categories, respectively

		according to specific criteria. 13. Each and every day of a year shows some particular symptoms expressed in significant weather occurrences and atmospheric changes. By observing those particular symptoms, an indication of future weather (short-range, medium-range, as well as long-range) can be known. 14. Like different signs or indicators of future rain and immediate rain, the ancient astro-meterologists have also keenly observed, examined and documented a number of signs of drought or scanty rain. These signs are again of varied nature like the signs from planets and nakshatras, from the symptoms at pregnancy of cloud, from wind blow, from rainfall, from planetary conjunction and planetary conflicts, from the union of different genders of planets or nakshatras, and from creepers and plants etc. **Keywords:** Varahamihira, nakshatra, Margshira, graha yuddha, adhaka, drona, abartak, sambartak, pushkar, Sun, Moon, Mars, Mercury, Jupiter, Venus, Saturn, Ashadha, Rohini, Swati, Uttarashadha, Pratipada, Kartika, dashtapa, dwinadi chakra, trinadi chakra, saptanadi chakra	
2295	Methods of weather forecasting	Shri Dorjey Angchok for his Masters degree in Extension Education under Banaras Hindu University in 2000 reviewed the traditional methods of weather forecasting, which he classified as non-bioindicators of weather / rainfall. Among non-bioindicators of weather forecasting, change in organic and inorganic chemical compounds, smoky atmosphere, foul smell of butter, physical changes in the atmosphere appearing around the sun, speed and direction of wind, atmospheric pressure , humidity, colour of sky and colour of cloud indicate receipt of rainfall. Bio-indicators of weather which Shri Dorjey Angchok reviewed include, behaviour of ants, branching in trees, direction of new leaves of creepers, change in behaviour of crows, cuckoo and sparrow and growth of particular vegetation as	Shri Dorjey Angchok Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (Uttar Pradesh) 221 005

		indicator of rainfall. **Keywords:** change in behaviour of insects, birds, vegetation, sky, cloud, sun	
2723	Prediction of rainfall through abiotic indicators	Farmers of Boden block of Kalahandi district in Orissa revealed that heavy rainfall is indicated when condensed clouds come from north-west direction or a mystery circle is formed around the moon after one to two showers of rain. Prediction of rainfall through observation is easy which helps in proper crop planning. **Keywords:** rainfall, cloud in north-west direction, circle around moon	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit 8, Bhubaneswar (Orissa) 751 003
2719	Forecasting of rainfall	Villagers of Barmasa of Dumka district in Jharkhand observe the following for prediction of rainfall: (i) If the clouds are dark black and wind is blowing fast for longer period, the rain will occur after some time. (ii) Turning blackish colour of palas (Butea monosperma) leaves is indication of approaching rain. (iii) If flying of bagula in big groups is seen, it means heavy rain will occur. (iv) During summer season, when temperature is very low, if cry of titahari bird is heard, there will be rainfall after some time. **Keywords:** palas, bagula, titahari bird, rainfall, cloud	Shri Baroop Lal Singh Barmasa, Sahra Dumka (Jharkhand)
2296	Methods of rainfall prediction	Shri R. M. Tripathi studied the methods of rainfall prediction based on authenticity of panchang for his master's degree which has been accepted for Masters degree in Agricultural Extension by Banaras Hindu University, Varanasi in 1996. Some of the findings are indicated below. 1. There is a formula evolved by Parasar rishi to determine the type of clouds that occurs from year to year. Addition of 3 to the current sakabda (shakaera) and dividing the result by 4, the reminder represent the clouds of that year. If remainder is 1, the cloud is abartaka If remainder is 2, the cloud is sambartak If remainder is 3, the cloud is pushkar If remainder is 4 (practically), the cloud is drona. (a) If the dominating cloud of the year is abartaka, there is rain in certain part. (b) If the dominating	Shri Ram Pritimani Tripathi Department of Extension Education, Banaras Hindu University, Varanasi (Uttar Pradesh) 221 005

cloud of the year is pushkar, the quantity of rainfall is less. (c) If the dominating cloud is drona, the rainfall is heavey. 2. Ruling planet of the month influence the rainfall. Sun: If Sun is the ruling planet of the month, there is little rain, people suffer, theft increases, there are more eye disease and the storms and cyclones become frequent. Moon: If Moon is the ruling planet of the month, diseases like cold and cough develop and there is good rain and good crop. There is well being every where. Mercury: If Mercury is the ruling planet of the month, there is little rain. Crop yield is half. Jupiter: If Jupiter is the ruling planet of the month, there is good rain, crop yield is better and people are happy. Venus: If Venus is the ruling planet of the month, there is good rain, good crop and milk yield increases. Saturn: If Saturn is the ruling planet of the month, there is a heavy rain and flood damage to crops. According to Brhat Samhita of Varahamihira, the nakshatra (constellation) of the Moon in which cloud conception takes place in the same nakshatra of the moon after 195 days, its delivery will take place. But there is opposite relationship between cloud conception and its delivery regarding days, parts of days, paksh and direction. For example, if the cloud conception occurs during krishna paksha (first fortnight of month), its delivery will take place in shukla paksha (second fortnight of month). Likewise, the day's conception of cloud will be delivered in night and so on. Basis for consideration of cloud conception: According to Brahat Samhita the basis for the consideration of cloud conception is pratipada of shukla paksha (first day of second fortnight) or Margshirsh month when is the Purvasadha nakshatra. The delivery of clouds (rainfall) is only possible in feminine gender of nakshatra i.e. Aadra, Punarvasu, Pusya, Ashlesha, Magha, PurvaPhalguni, UttaraPhalguni, Hastha, Chaitra, Swati (total 10 constellations). **Keywords:** sakabda (shakaera), abartaka,

		sambartak, pushkar, drona, ruling planet, Sun, Moon, Mercury, Jupiter, Venus, Saturn, Brahat Samhita, Varahamihira, nakshatra, Krishna paksha, shukla paksha, pratipada, Margshirsh, Purvasadha.	
2720	Forecasting of rain	Farmers of Jammu region forecast rain on the basis of the following observations: - Black snakes coming out of inhabitation are the indication of rains. - Black ants coming out of their holes Agriculare the indication of rain. - Honeybee flying towards hill means there will be lack of rains and vice- versa. - Morning white clouds nearer to sun means there will be no rain and vice-versa. - Onset of rains is expected on the full Collecmoon day. **Keywords:** honeybee, white cloud, black snake, black ant	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agriculare tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collecmoontion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2722	Forecasting of drought	The farmers of Boden block of Nawapada district in Orissa predict drought by observing red colour sky in rainy season and blowing of wind from south-west direction. This practice is helpful in crop planning or contingent cropping. This is an age old practice. Keywords: red colour sky, blowing of wind, south-west direction	Ms Sarbani Das 1068/32, Shatabdi Nagar, Unit 8, Bhubaneswar (Orissa) 751 003

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Chapter 15
Thermal efficiency

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
291	Use of wooden stove or chulha for tasty and speedy cooking	All the tribal villagers of Karamadai block in Tamil Nadu use wood stove or chulha for cooking food for more than 100 years. This wood stove or chulha is used to prepare tasty food items speedly by using woods available in their fields. Mud- hulha, bricks, sand, cement and cowdung paste are the materials used for making such a wooden stove. About 50% of time, firewood and energy are saved by this method. Total cost to install a chulha is around Rs 150 which would serve for more than 20 years. **Keywords:** mud, brick, sand, cement, cowdung	Ms Gowri Adhityan Training Associate, Shri Avincashilingam KVK, Vivekanandapuram, Karamadai, Coimbatore (Tamil Nadu) 641 133

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Chapter 16
Waste Water Management

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2724	Management of proper drainage in soil for excess water disposal	Soil drainage removes excess water from the soil. The presence of free water in the soil is injurious to plant life. The presence of excess moisture in the soil is reflected by the growth of weeds and by the sick appearance of the growing crops. If free water comes into direct contact with the plant stems, the plants may start rotting. In the hill areas, the drainage of surplus water takes place through the streams and along the slope. In the crops that are very sensitive to the presence of free water in the soil, the clearance of water is affected through shallow drains. The drains are made at an angle across the slope to prevent erosion and to offer a quick means of escape to the surplus water. The depth of the drains should not exceed 1 foot (30 cm) unless the soil is clayey. In case of clayey soil, the depth may be increased to 1 or 1/2 feet (30-45 cm) or more, depending upon the saturation and the nature of terrain. This ITK is used throughout the hilly area of Himachal Pradesh since time immemorial. **Keywords:** soil, excess water, drains	Dr T. R. Nandal Vegetable Scientist, RARC Dhaulakuan, Sirmour (Himachal Pradesh) - 171 005
2725	Water conservation for vegetable cultivation	Waste water is conserved in small ponds or pitches and utilized in vegetable cultivation. The farmers of Kalipat, Devghar and Narmundi villages of Jharkhand are growing vegetables by this practice. Water conservation is done by digging small ponds near the fields and water is used for cultivation of potato, onion and other vegetables. It prevents water losses due to run off and evaporation and increases water level in soil. Proper utilization of this waste water prevents epidemics and other diseases. **Keywords:** conservation of waste water, small ponds,	Shri Baroop Lal Singh Barmasa, Sahra, Dumka (Jharkhand)

		epidemic	

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Chapter 17
Garbage disposal and Management

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2726	Use of cattle or buffalo urine for composting	The cattle urine from cattle shed is collected and poured in compost pit with cowdung and other household wastes. Thereby the compost is enriched with nitrogen. The farmers of Sadargi Sali village of Khurda district of Orissa are using cattle or buffalo urine from the time of forefathers. **Keywords:** cattle shed, compost pit, nitrogen	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126
2727	Preparation of compost from waste materials	Farmers of Barmasa village of Dumka istrict in Jharkhand prepare compost from plant residues, wood ash, cow dung and other home-based waste materials. For compost preparation, a pit is dug and the waste materials are dumped in it. The pit is covered with soil. After a few days the materials are decomposed and compost is prepared. The compost is used as an organic manure to improve soil fertility. **Keywords:** compost, waste material, pit	Shri Baroop Lal Singh Barmasa, Sahra, Dumka (Jharkhand)

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Chapter 18
Food Product Developement

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
504	Preparation of ghee and churpi (wet cheese) from milk	Churpi and ghee are prepared predominantly from milk of yak and dzomo (yak x cattle hybrid F female). Apart from these, cow milk is also used. A minimum of 10-12 litres is required for preparation of one batch of churpi and ghee. Following are the steps: 1. After collecting the milk, it is held for 2-3 days until it is fermented to curd by natural process. In winter, milk is heated intermittently for the same purpose. Usually milk is kept in a bucket by the side of chulha (fire place). 2. The curd is then transferred in a churning machine, locally called zsopu. This churner is made of bamboo and wood. The diameter and height of zsopu depend on the amount of milk to be processed. The churner consists of some other parts, namely rhupli (made of wood, with which churning is done), khaskar (made of wood and ghee is collected here), khakhep (wooden cover for khaskar). Khaskar is fixed with zsopu with the help of flour dough. 3. Churning is done for about 1-1.5 hrs. During churing, the zsopu is kept near chulha for intermittent heating. All sides are heated up by turning the zsopu. 4. Ghee is extracted by churning, which is formed and deposited in khaskor. It requires some experience to learn when to stop churning. 5. After extraction of ghee, the remaining portion is transferred to a copper container, named tow, and it is heated in low heat over a chulha for about 30 minutes with intermittent stirring. Churpi is separated and the watery portion (whey) is left.	Shri Samir Kumar Barari I/c Technical Cell, National Research Centre on Yak (ICAR), Dirang, West Kameng (Arunachal Pradesh) 790101

		6. The watery churpi is taken out with the help of wooden spoon called zeru and it is kept in a bamboo netting container, called therkhap (flat type, larger) or chuntsa (small bucket) for straining the watery portion. 7. Churpi is ready for consumption. Usually it is stored for some time before consumption after drying over chulha. After drying, churpi is stored in locally made yak leather bags. 8. Whey is fed to the guard dogs or other animals. **Keywords:** ghee, churpi, chulha, zsopu, rhupli, khakhep, khaskar,zeru, therkhap, chuntsa	
2730	Preperation of ghee from cow and buffalo milk	Ghee preperation from cow and buffalo milk is an age-old practice. In this process milk is first boiled and kept undisturbed for 4 hours. Then the cream layer formed in due course is collected and processed by centrifugation and then it is boiled. The liquid remained after boiling is collected as ghee. It is very delicious and increases the taste of meal, besides being nutritious, rich in fat and lipid. It is a good source of energy. This method is practised in Madhesara village of Bhutahi block in Sitamarhi district of Bihar since ages by almost all the families. **Keywords:** ghee, centrifugation, source of energy	Shri Rajeev Kumar Jha Research Associate, Department of Fisheries, Ranchi Veterinary College, BAU, Kanke, Ranchi (Jharkhand) 834006
2736	Low-cost poshaka ahara (chatua) for undernourished and malnourished children	To meet the nutritional requirement of children, the people in Benakunda village in Ganjam district of Orissa prepare chatua from available cereals, pulses and oilseeds. The food grains are roasted at low heat, ground and kept in water- roof containers, preferably in steel jar. This powder is given to the children either by mixing with milk or in water, adding jaggery or sugar. This food provides almost all the nutrients required for the children. This is given twice a day along with daily diet. This poshaka ahara is given at least in two servings each of 100 g, starting from 3 years of age along with their normal diet and upto 200 g or 2 servings per day up to 7 years of age. This helps in increasing the height and weight	Dr Saswati Parichha Training Associate (Home Science), KVK Bhanjanagar, Dihapodhala, Ganjam (Orissa) 751 003

		of the children. Poshaka ahara can also be made similar to that of laddu. Laddu is prepared with wheat (2 kg), chickpea (1 kg), groundnut (250 g), sesame (250 g) and jaggery (3 kg). All the foodstuffs, except jaggery, are roasted first on slow heat separately, ground, powdered finely and mixed well. Jaggery syrup is prepared, all the poshaka powders are mixed in this syrup, and ball shaped laddus are prepared . The cost of each laddu is Rs 1 each. Each laddu weighing about 100 g, should be taken twice a day. There are other methods to get more nutritious food: (i) Parboiling of rice: During parboiling of rice, most of the nutrients are leached (driven) into the grain. Hence there is retention of nutrients like vitamin B and minerals. (ii) Puffing of rice: The grains are soaked in water and then roasted. The grains are puffed under high pressure and become crisp like puffed rice. Also rice flakes are made which contain a lot of vitamin B and minerals. (iii) Porridge making: Coarsely ground cereals which are left over while milling process, can also be utilized by making porridge. Cereals can be cooked in water after adding a little salt to it. Examples are rice porridge, ragi porridge, wheat porridge, maize porridge etc. (iv) Sprouting of pulses: Bengalgram, greengram and blackgram may be sprouted in water for 1 or 2 days. It improves the vitamin C and vitamin B content of the pulses. This is a healthy practice. Therefore poshaka ahara is a good supplementary food used to overcome the nutritional deficiency diseases among under nourished and malnourished children. **Keywords:** poshaka ahara, chatua, undernourished, malnourished, laddu, parboiling of rice, puffing of rice, porridge making, sprouting	
2732	Preparation of subzi (curry) of dried rice	During functions at home if rice is left in excess quantity, the women of Kasoli area of Solan district of Himachal Pradesh prepare small round balls of this rice. These rice balls are sun dried for 3 to 4 days.	Shri Pawan Kumar Parihar, Himchal Pradesh Government Press, Shimla (Himachal Pradesh) 171 005

		After complete drying these small balls can be stored in airtight container for later use. Whenever curry is to be prepared, these balls are fried into mustard oil by adding all the spices. **Keywords:** dried rice, rice balls, curry	
2735	Preperation of bhatugi from kachalu leaves	Bhatugi is prepared from the deliciousimmature leaves of Colocasia sp. (kachalu). This food dish is very delicious and nutritive, and it improves digestion. The leaves of Colocasia sp. are cooked over steam (usually over a closed container used for the preparation of rice). Then the leaves are crushed and fried in mustard oil as usual for other vegetables are fried. This dish is then eaten with rice or chapati. This ITK is in use throughout the Kangra district of Himachal Pradesh. **Keywords:** Colocasia sp. (kachalu), bhatugi, rice	Shri Bovinder Chand Katoch Research Fellow, Departmnet of Biosciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2733	Use of bael (Aegle marmelos) as a natural medicinal fruit	More than 60 % villagers of Jiruli village of Ganjam district in Orissa are using this medicinal fruit since the last 20 years. The bael tree is considered sacred by the Hindus. They offer its leaves to Lord Shiva during worship. Its fruits and leaves possess an evaporating oil that is very good for human system. The leaves absorb foul gases from the atmosphere and keep it clean and salubrious whereas the raw bael fruit produces heat and has purgative effect. The ripe fruit has cooling effect and causes constipation. Raw bael fruit is consumed for treatment of ailments such as arthritis and gout. Ripe fruits are taken during summer to keep the body and mind cool. Bael also helps to sharpen the intellect and concentrate the mind. The bael has quality of preventing the diseases and has therapeutic values. The medicinal value of bael fruit is enhanced due to the presence of tannin, the evaporating substance, in its rind. The rind contains 20% and the pulp has only 9 % of tannin. This substance helps to cure diabetes. Other uses are given below. A. Uses	Dr Saswati Parichha Training Associate (Home Science), KVK Bhanjanagar, Dihapodhala, Ganjam (Orissa) 751 003

1. For asthma: About 5 g bael leaves are ground and a spoonful of honey is added. It is taken orally in morning and evening for relief.
2. For anaemia: Pulp of bael is extracted. It is dried and ground to powder form. One teaspoonful of this powder is added to boiled cow milk along with some sugar candy. It is taken twice a day in morning and evening for a long period.
3. For fracture: The pulp of raw bael is extracted. It is dried and ground to a powder form. Ten gram bael powder, 50 g pure ghee and ½ teaspoonful turmeric powder are mixed with a glass of lukewarm water. It is stirred well and taken orally twice a day.
4. For healing of wound: Root, rind, leaves and fruit pulp are taken in equal quantity. These are ground to extract juice. About 10 g honey is added and it is drunk.
5. For swollen joints: Raw bael pulp is mixed with hot mustard oil and it is applied on the affected part, twice a day, during morning and evening for relief.
6. For high blood pressure: About 5-7 bael leaves are taken in the morning daily. The juice of bael leaves is added with honey and taken in the morning.
7. For jaundice: Juice of 100 soft bael leaves is extracted. The powder of 10 black pepper is dissolved into it. Mixture is taken daily in the morning and evening.
8. For diarrhoea: Fruit pulp of raw bael is dried. Seeds are taken out. If the dried pulp is consumed quickly, it stops loose motion.
9. or troubles during pregnancy: If one teaspoonful of raw fruit pulp is taken daily, it stops frequent vomiting and nausea during pregnancy. Little sugar candy may be added to the pulp for taste.
10. For typhoid: The body becomes weak due to high fever in typhoid. Bael leaves (200) are ground and boiled in 1 cup of water till it becomes thick. This paste is taken with a little honey, twice or thrice a day. xi) For healthy mind and brain: Ripe bael fruit is taken with fresh cream (butter) and sugar candy

		powder which sharpens the concentration and intellect. B. Value addition to bael fruit: Villagers make bael squash and keep it at home, thus preserving and utilizing surplus ripe bael fruit for off seasons. Bael squash: Well ripened bael fruit is cleaned with water and the pulp is extracted. Lemon juice is added to the pulp in the proportion of 8 table spoonful of lemon juice to 1 kg pulp. This mixture is boiled in water (1 litre per kg). It is stirred well while boiling. The mixture is stained through steel stainer. For 1 kg pulp, 1 kg sugar is taken and it is boiled in ½ litre of water for 15 minutes. The stained bael juice is added to the sugar syrup. A little amount of preservative, potassium meta- bisulphite (¼ teaspoonful), is mixed with the sugar solution. It is kept in a sterilized bottle. The bottle is sealed with paraffin wax and kept for future use. **Keywords:** bael, pulp, asthma, anaemia, fracture, healing of wound, swollen joints, high blood pressure, jaundice, diarrhoea, typhoid, bael squash	
2734	Storage of surplus mango (Mangifera indica)	Methods of storage of surplus mango are very common in Tulasipalli village of Ganjam district in Orissa, which are in practise for more than 10 years. During the harvesting season, surplus fruits are collected from the nearby jungle areas. They generally preserve the fruits in raw stage or in ripe stage by sun drying and pickling . As mango is a delicious and nutritive fruit, the products made from it are also tasty and refreshing. A. Methods and processes 1. Preservation of raw and unripe mango by adding salt: Matured mangoes are selected and peeled with a steel knife and cut into two pieces. The pieces are put in turmeric and salt powder for a day. Then it is dried under hot sun for 7-10 days. It is stored in a glass jar. It is a method practised by farm women. It is called ambula, which is used as a substitute for tomato in the preparationof curry. Pickles are good appetizers and add variety to the daily diet. Pickle stimulates the secretion of various digestive juices and assist in	Dr Saswati Parichha Training Associate (Home Science), Krishi Vigyan Kendra, Bhanjanagar, Ganjam (Orissa) 761 126

digestion. 2. Mango leather or papar: Ripe mangoes are taken. The juicy pulp is squeezed by hand. The pulp is stained through a stainless steel sieve or mosquito net cloth. The pulp is spread on bamboo mats and small quantity of sugar and oil is smeared over it. It is also spread on wooden trays whose bottom
is smeared with oil. It is covered with a fine net cloth and placed in hot sunlight for drying. When the first layer dries, nother layer of pulp is spread over it for drying. This is repeated until the dried slab is about 3 inches thick. The leather is yellow in colour and delicious to taste. It can be kept for at least 6 months, if properly dried and stored. For longer duration of storing it is cut into small pieces and sweet pickles are made using the process followed for mango pickle. 3. Mango powder: Unripe and green mangoes are pealed, sliced and dried in sunlight for 10 days at least. It is kept after hand pounding as a powder. It is added to different food or curry preparations.B. Value addition: 1. Sour mango pickle: Ingredients required are: raw mango (½ kg), red chilli (10 g), turmeric powder (10 g), garlic (20 g), fenugreek seed, mustard and ajwain (10 g each), salt (to taste), mustard oil (100 ml) and hing (a pinch, roasted and ground). Washed and peeled mangoes are cut into pieces and their stones are removed. Salt and turmeric are added to the mangoes. It is kept in an earthen pot. Mustard, fenugreek and ajwain seeds are roastedand ground and then chilli powder, garlic pieces, grated ginger and mustard oil are added to the mango pieces. The resultant mixture is packed in a glass jar and its lid is closed tightly and kept in sunlight for 10 days. 2. Sweet pickle: Ingredients required are: raw mango (1/2 kg), turmeric powder (10 g), jaggery (300 g). chilli powder (10 g), jeera powder (25 g), fenugreek (15 g), salt (to taste) and ustard oil (100 ml). Mangoes are washed and cut into small pieces. Salt and turmeric powder are mixed with the

		mangoes. It is kept in an earthen pot. Jeera powder and fenugreek are roasted and ground. Chilli powder, jeera powder and fenugreek powder are mixed with mango pieces and jaggery is added to the mixture. It is kept in hot sun for a week. Mustard oil is added into it and it is packed in a glass jar. The lid is tightened and the jar is kept in sunlight for 7 days. Mango jam: Ingredients required are: ripe mango pulp (1 kg), sugar (750 g) and lemon juice (20 tablespoonfull). Ripe mango fruits are washed. Fruits are peeled and cut into small pieces bydiscarding the stone. Pulp may also be collected by squeezing and staining through a mosquito net. Mango pulp, lemon juice and sugar are mixed well. It is cooked to a thick consistency until the end point is reached. End point is judged by taking a small quantity of the product and it is allowed to cool and then tested by dropping it. If the flow of the liquid is in the form of sheet, the end point reached. Jam is poured into a clean sterilized glass jar, the lid is closed, and the jam is allowed to cool. 4. Mango squash: Ingredients required are: mango juice pulp (1½ kg), sugar (1½ kg), citric acid or lemon juice (35 g), water (750 ml), potassium meta-bisulphite (1½ teaspoonful). Sugar, citric acid and water are boiled then it is cooled and filtered through muslin cloth. Mango pulp is mixed with the syrup by constant stirring. Again it is filtered through mosquito net. Potassium meta-bisulphite is added after dissolving it in a small quantity of water and it is mixed well with the prepared squash. The squash is filled in a sterilized bottle and the neck is sealed. **Keywords:** ripe mango, unripe mango, mango pickle, sun-drying, mango leather, juicy pulp, mango powder, sour mango pickle, sweet pickle, mango jam, mango squash	
2728	Preparation of pickle in sterilized earthen pots	Pickles of various food items are prepared in sterilized earthen pots in whole of the Hamirpur district of Himachal Pradesh since time immemorial. The earthen pots are firstly sterilized with the fumes of burning chillies. It inhibits the	People of Hamirpur at large Communicated by: Prof L. R. Verma Department of Bio-Sciences, Himachal Pradesh University, Shimla (Himacha

		bacterial growth and moisture content from the earthen pot. All the ingredients like salt, chilli and spices are mixed with mango or citrus pieces. The lid of the pot is closed air tight so as to avoid the contamination. In this way people can store the pickle for 1- years of duration without any spoilage. **Keywords:** pickle, earthen pots, chilli fumes	Pradesh) 171 005
2731	Preserving neem leaf product cooked with mustard slurry	The tender neem leaf is plucked during March, April or May, or round the year. These leaves are cooked with mustard slurry, salt, turmeric and oil. After cooking, a dry product is prepared. This product can be kept for even a week in winter season and 2-3 days in other seasons. This practice is being used in Balasore district of Orissa since a long time. **Keywords:** neem leaf product, mustard slurry	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126
2737	Preserving extra fish (small one) for future use	After consumption, the remained extra fish is preserved by drying on heat. After cooking, the fish treated with turmeric is put on the sim flame of chulha (not burning) on a tawa. This becomes dry. It is just turned 2- 3 times then cooled and kept in bamboo baskets with narrow mouth. This is low cost fish preservation technology and being used in Balasore district of Orissa. **Keywords:** turmeric, chulha, tawa	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126
2729	Preparation of alcohol (daru) from roots of Ziziphus spp (ber).	Local alcohol (daru) is prepared from roots of ber throughout the hilly areas in Mandi district of Himachal Pradesh since time immemorial. This product is taken to provide resistance from cold and it also increases the basic metabolic rate of the body. Half kg crushed roots of Ziziphus spp and half kg jaggery are taken and 5-10 litre water is mixed to it. These ingredients are allowed to ferment for 6-7 days. The lid of earthen pot is tightly closed. Afterwards the mixture is boiled and vapors are collected through a funnel (distillation) in a separate container. **Keywords:** daru, root of ber, distillation	Shri Ajay Kumar Atrri P. O. Tihra Sarkaghat, Mandi (Himachal Pradesh)

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Chapter 19
Natural Yarns, Dyes and Weaves

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2742	Use of banana pseudostem and palmyra palm leaf stock for preparing yarns	The yarn is extracted by soaking banana pseudostem and palmyra palm leaf stock in water. The fiber thus obtained is used for thatching the roof of houses. This practice is being used by the farmers of Balipatna block in Khurda district of Orissa since long time. **Keywords:** banana pseudostem, palmyra palm leaf stock	Ms Bishnu Priya Mishra Training Associate (Extension Education), KVK, Ganjam, Bhanjanagar (Orissa) 761 126
2743	Method of making ropes from the twigs and branches of Grewia oppositifolia	Preparation of ropes from the twigs and branches of Grewia oppositifolia tree is very common among the people of Samloti village of Kangra district in Himachal Pradesh since time immemorial. The twigs and branches of the tree are used as fodder for the cattle. After the foliage has been eaten by the animals, the branches are piled up and kept for drying. In rainy season, these piled branches are dipped in water tanks for a few days till proper rotting of the fibres. Later on, the fibres commonly called sale, are separated from the branches and are used for making ropes of desired thickness. **Keywords:** ropes, twigs and branches, Grewia oppositifolia, sale	Shri Rajeev Kumar Room no 32 D, NBH II Hostel, Himachal Pradesh University, Summer Hill, Shimla (Himachal Pradesh) 171005
2746	Use of sutli (grafting material) for grafting	In Himachal Pradesh nursery growers use jute fibre (sutli) to wrap the grafting material. The grafting material consists of ball of clay soil and cowdung. It is easy to follow and no cost is involved. **Keywords:** sutli, grafting material	Shri A.K. Agnihotri Joint Director (Planning) and Sr. Scientist, Directorate of Research, Dr. YSPUHF Naini, Solan (Himachal Pradesh)
2745	Use of local vegetation for dying cotton clothes	People of the Naya Talab (Hathai) village in Dungarpur district of Rajasthan are using natural colours for dyeing of cotton	Shri Manji Nanoma S/o Shri Harji Nanoma, Naya Talab, Hathai Dungarpur (Rajasthan)

		clothes since last 30 years. Indroka tree is commonly found in the area. Its leaves (amount depends on size of the cloth) are taken and boiled in water by adding some quantity of common salt. The clothes are dipped in it and are kept for 30 minutes. The coloured clothes thus produced are dried under shade. **Keywords:** dyeing, indroka, common salt	314 034
2741	Spreading of thin layer of sand in the rearing room for sericulture	This tecnology is practised in Krisnam Reddipalli village of Anantapur district in Andhra Pradesh. In summer season a thin layer of sand is spread in the rearing room below the rearing stands, and it is watered frequently. It reduces the temperature by increasing relative humidity in the rearing room. With high temperature in summer it is very difficult to rear silkworm. **Keywords:** layer of sand, watering, humidity, sericulture	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhra Pradesh) 515701
2738	Control of diseases for sericulture by exposing rearing equipments to hot sun	It is practised in Krishnam Reddipali, Raghavam Palli and Dharmavaram in Anantapur district of Andhra Pradesh. After harvest (cocoons) the rearing trays, rearing stand and mountages are placed outside the rearing house to expose to hot sun in summer with the objective of natural disinfections. Exposing the rearing equipments in sun helps kill the pathogens and microorganisms, thereby controlling the spread of diseases. **Keywords:** rearing equipment, hot sun, exposing, natural disinfection	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515701
2744	Exposing mountages of cocoons to morning sunlight for better spinning	For better spinning, mountages of cocoons are kept in slanting position and exposed to morning sunlight when temperature is optimum. This process also hastens spinning activity. This practice is being used by almost all sericulture farmers. **Keywords:** exposing, mountages, sun light	Krishi Vigyan Kendra Reddipalli, Anantapur (Andhara Pradesh) 515701
2739	Use of kinnauri cap	Kinnauri cap is traditional cap of district of Kinnour. All men and women wear it and they can be	People of Himachal Pradesh at large Communicated by: Prof

		recognized anywhere due to their caps. This cap is used throughout Himachal Pradesh since Biotime immemorial. Woolen threads from sheared wool of goats and sheep is used to prepare this cap. In the front portion a piece of red or blue makhmal is used. **Keywords:** kinnauri cap, woolen thread, sheared wool, makhmal	L. R. Verma, Department of Biotime Sciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005
2740	Making of long coat (lohia)	Wool is sheared from goats and sheep. The sheared wool is combed and made smooth with phanani. The combed wool is stored in a small bamboo basket (Kamoli) in the form of a small pack (Fa). These small woolen packs are used for spinning a thread with a special spindle device known as Taklu. These woolen threads are used for making woolen fabrics such as coat. **Keywords:** phanani, kamoli, taklu, Fa, coat	People of Himachal Pradesh at large Communicated by: Prof L. R. Verma, Department of Bio- Sciences, Himachal Pradesh University, Shimla (Himachal Pradesh) 171 005

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Chapter 20
Low-Cost Housing Materials

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2747	Construction of house using low-cost material	A majority of the villagers of Barmasa village in Dumka district of Jharkhand construct their house walls by using soil, paddy straw and wood. The roof is constructed by roof tiles, cane, paddy straw etc. Farmers are using this practice since time immemorial. **Keywords:** house, soil, paddy straw, wood, roof tile, cane	Shri Baroop Lal Singh Barmasa, Sahra, Dumka (Jharkhand)

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Chapter 21
Ethnic Food

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2004	Preparation of food and beverages in Bastar district of Chhattisgarh	Different ethnic foods are prepared by the tribals in Bastar district of Chhattisgarh as detailed below: 1. Bobo: It is made from rice flour, jaggery and oil. Rice flour is kneaded with jaggery and different forms and shapes of vada are made and afterwards deep fried. 2. Boda amat: Tamarind, cowpea, ginger, garlic, chilli salt and water are added to rice flour and cooked. It has a pouring consistency. 3. Rice amat: Puffed rice, jaggery, milk and banana are mixed in water and served as such. 4. Red ant chutney: Red ants and their eggs, garlic, ginger, chillies and salt are ground and consumed in the form of a paste. 5. Pej (Chaur): In 5 litres water, about 100 g rice is added and boiled. Salt is added to taste. 6. Madia pej: In 5 litre water, 50 g rice and 50 g fingermillet are added and boiled. Salt is added to taste. 7. Maize gruel: Maize is ground and soaked in water overnight. Next day it is boiled till thick gruel is formed. 8. Ksa pani: Horsegram, jaggery, garlic, chind root, kakai root and bael leaves are mixed in water (5 litre) and boiled overnight in an earthen pot. 9. Sulfee/ Fulfulee/ Mand: It is an alcoholic beverage. Mahua flowers are collected and mixed with rice, kutki, ragi and sap taken directly from trees. This mixture is allowed to ferment for few days. Then spirit is distilled in distillation plant.	Ms Rekha Singh C/o Shri Jitendra Singh Scientist, ZARS Kumharawand Farm, Jagdalpur, Bastar (Chhattisgarh) 494 005

		10. Landa: It is also an alcoholic beverage. Kutki and ragi husk are takenin equal proportions. After fermenting distillation is done. **Keywords:** bobo, boda amat, rice amat, red ant chutney, madia pej, pej, maize gruel, ksa pani, sulfee, landa	
2752	Preparation of jhol	This ethnic food dish is very famous for its taste and nutritive status. This dish is prepared in every house in Mandi district of Himachal Pradesh. This dish is supposed to improve the digestion. Jhol is prepared from whey (lassi). Lassi is first boiled in a container. Coarsly crushed rice or maize is added to it. Boiling is continued till it gets properly cooked. Finally chilli and salt are added according to taste. This dish is served with saag (made of sarson) and maize rotis. This jhol is prepared throughout the hilly area of Mandi, Hamirpur and Bilaspur districts of Himachal Pradesh since time immemorial. **Keywords:** jhol, lassi, maize, rice	Shri Yash Paul Gopalpur, Sarkaghat, Mandi (Himachal Pradesh) 171005
2753	Consumption of tapioca (Manihot esculenta) and sweet potato (Ipomoea batatas) during scarcity of food	To meet the daily requirement of food, the scheduled tribe people consume this cheaply available food during scarcity period. These foods are abundant in forest and hilly areas. Tapioca roots are sometimes eaten raw. Freshly harvested or soaked roots are boiled for 15-20 minutes, peeled and eaten with salt and sugar. For domestic consumption it is used in preparation of curry. The tuber contains starch and can be stored for several weeks in a cool dry place. Sweet potato is also an important tuber crop like tapioca. It is also eaten raw and also by boiling for 15-20 minutes in water. Also the raw tubers are baked and roasted in fire for a few minutes until brown colour is obtained, and eaten after peeling. For domestic consumption it can also be used in curry or in preparation of chutney. As both the fooditems possess large quantity of starch, least amount of protein and fat and little amount of vitamins and minerals, the crops are considered poor-quality food. The roots of tapioca, if kept un-harvested for more than a year	Dr Saswati Parichha Training Associate (Home Science), KVK Bhanjanagar, Ganjam, Bhubaneswar (Orissa) 761 126

		contains a poisonous substance. It is present in the outer peels of the root which is normally peeled off while cooking. The poisonous substance is bitter in taste and can be easily known. It is, therefore, ot eaten raw. More than 80% families of Jayamangala village in Ganjam district of Orissa are using these food items since 20 years. **Keywords:** tapioca, sweet potato, scarcity of food, roots and tuber	
2757	Preparation of boonthu ki bhazi from mushroom	Boonthi is a wild edible, tuber species of mushroom. It is cultivated for domestic purposes. The bhazi is prepared by cutting and roasting it. It is very delicious mushroom. Bonthu species grows in symbiotic relation with cedrus plant. Therefore, it can be used for afforestation by inoculating the mycelium in the soil where young seedings are grown. Boonthu ki bhazi is a protien rich diet, which is collected from nature, free of cost. Now-a days boonthu is also used for oil extraction purpose. **Keywords:** boonthu ki bhazi, wild mushroom, afforestation, oil extraction	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2756	Preparation of chachi ki bhazi from lal chatri mushroom	Chachi ki bhazi is prepared from lal chatri mushroom (Agaricus spp.) after cutting and washing it. It is a widely grown, edible mushroom which is protein rich and is used as vegetable food by poor people of Himchal Pradesh. **Keywords:** chachi ki bhazi, lal chhatri mushroom	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2754	Preparation of chuai ki bhazi from chuai mushroom	Chuai ki bhazi is made by the poor people of Himchal Pradesh from chuai mushroom (Cluvaria spp). Chuai grows wildly and people are using it by making vegetable since long time. It is collected in wild and does not cost much. **Keywords:** chuai ki bhazi, chuai mushroom, wild mushroom	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2751	Preparation of bakra from mushroom	Bakra is a traditional dish of Himchal Pradesh, which is prepared from mushroom (Hericium spp.). It is fried like meat and eaten by the local people. Mushroom is rich in protein and it is like the meat of goat that is why it is called bakra. **Keywords:** bakra, mushroom, goat meat	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2759	Preparation of dry chulies	Chulies are used as dried fruit in winter season. The fruits of chuli along with seeds are sun dried	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal

		properly. The time of drying is June-July in Kinnaur, which is a tribal district of Himcahl Pradesh. Dried fruits are stored and eaten later. The life of those dried fruits is very long. Chuli are stored and even sold by the poor people. Many families of Kinnaur and Kullu districts of Himchal Pradesh are using this practice. **Keywords:** dry chulies	Pradesh) 171 005
2749	Extraction of chuli or shadi seed for oil	The chuli or shadi (Himalayan apricot) seeds are used for oil extraction by many families of Shimla, Kullu and Kinnaur districts of Himachal Pradesh. After breaking of hard shell, the seeds are sundried. These naked seeds are peeled and oil is extracted in koholi, which is an old oil extracting device. Now-a-days oil is extracted through machine and is used as cooking oil and hair oil also. Now many people are collecting the oil from the poor people and exporting it. Thus it is a goodsource of money for the local people. Chuli or shad fruits and seeds are also eaten and the fruiting season is May-June **Keywords:** chuli or shad extraction, kohli	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2748	Preparation of childe from ogla	Childe is prepared from ogla which is a traditional crop in areas of Kinnaur, Kullu and Shimla districts of Himachal Pradesh. Ogla seeds are ground in gharat, the traditional floor mill run by water and flour is made. Childe is made by making solution of flour with water and the solution is spread on tawa and some oil is spread over it. It is served as a very light, digestible and tasty dish. **Keywords:** childe, ogla, gharat, flour mill	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2755	Kathu bhazi and bedha preparation from kathu	The leaves of young kathu plants are plucked, cooked and used as vegetable by the poor families of Himchal Pradesh. The bedha is also made by grinding the leaves and cooking it with bread. Kathu cultivation is done on higher altitudes of Kullu district of Himachal Pradesh. It is also grown as mixed crop and kathu seeds are used as food and fodder also. **Keywords:** kathu bhazi, bedha	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005
2760	Preparation of vegetable curry from the immature flower buds of kachnar	This dish is highly nutritive and hygeinic, and has good taste. The immature, delicate buds of	Shri Yash Paul Gopalpur, Sarkaghat, Mandi (Himachal Pradesh)

		kachnar (Bauhinia variageta) are collected, washed in water and cut into small pieces. About 20 g each of garlic, onion and 5 g chilli and salts are added. The above ingredients are mixed thoroughly and then fried as other curries are fried. This dish is then eaten with rice or chapatis according to taste.This ITK is practiced till date in Mandi district of Himachal Pradesh. **Keywords:** kachnar (Bauhinia variegata), buds,onion, garlic	171005
2750	Preparation of bharunni	This vegetable is prepared in Mandi district of Himachal Pradesh. Bharunni is prepared from immature fruit buds of Ficus vacalta locally called deveri. This vegetable is very delicious, nutritious and hygienic. The immature fruit buds of Ficus vacalta (deveri) are collected and boiled till it gets softened. The water is then extracted and buds are fried in ghee or oil. Onion, garlic, chilli and salt are added to prepare a thick gravy. When gravy is prepared soft fruits of deveri are mixed in the gravy. This curry is boiled upto 30-40 minutes over adequate heat. This vegetable dish is eaten mostly with chapatis.This ITK is being practised in Mandi district of Himachal Pradesh since time immemorial. **Keywords:** bharunni, deveri, Ficus vacalta	Ms Roshni Devi Gopalpur, Sarkaghat, Mandi (Himachal Pradesh)
2758	Preparation of suka meat	It is natural preservation of meat. The meat of sheep and goat is dried in December- January, by hanging meat pieces on a rope, in a room. The skin and vicera are removed from meat pieces and some salt is also spread on it. It is kept in the separate room for 10-15 days. This suka meat is eaten by the people, later in May month. It does not get spoiled by bacteria. It is best method for preserving food, particularly meat. **Keywords:** suka meat, goat and sheep, hanging on rope	Dr Onkar Shad Prakash Lodge, Summer Hill, Shimla (Himachal Pradesh) 171 005

Inventory of Indigenous Technical Knowledge in Agriculture

Document 2 (Supplement 1)

Chapter 22
Unclassified

Code No.	Title of the ITK	Description of the ITK	Name and address of the discloser/facilitator
2303	Complete opening of cotton bolls during full moonlight nights	It is a good indicator for farmers of Magalvedha tehsil of Solapur and Ahmednagar districts that if some full moonlight nights are observed continuously for some days during August and September, there is complete opening of cotton bolls. It is a good indicator for farming community and farmers arrange for picking of cotton hurriedly. **Keywords:** complete opening of cotton bolls, full moonlight	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Use of Choras calamos in banana garden to avoid snake problem	In banana-growing areas of Jalgaon district of Maharashtra there is problem of snake bite because snakes are often observed in banana garden. It is risky to move in the garden to perform various operations. To overcome this risk, some banana growers broadcast pieces of Choras calamos. The snakes migrate from the field to somewhere else. **Keywords:** banana garden, snake, Choras calamos	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2303	Intake of earthworms and betel leaves for lack of breast milk	Women of tribal areas of Nandurbar and Dhule districts in Maharashtra are using this practice. In some mothers there is lack of breast milk during nourishment period. After delivery one earthworm in betel leaves is given for a week. It improves the breast milk of a nourishing mother. **Keywords:** earthworms, betel leaves, breast milk	Director of Extension Education, Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (Maharashtra) 413 722
2761	Use of basket for carrying fruits and other farm products	Baskets are made locally from flexible wooden sticks called killar. It is a useful carriage for fruit and farm products. At a time lot of quantities of fruits and farm products can be transported from oneplace to another. Killar is conical in Agriculshape measuring about 3' to 3.5' in height. The mouth of the basket is 1.5' to 2' in diameter. The shape and structure of the basket is such designed that it can easily be carried on the back	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E- ashmirUniversity of Agriculshape tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collecoperations, tion, Documentation and

		of a person in doing day-to-day farm operations. While doing their farm Collecoperations, farmwomen can also carry their child in the basket. A basket costs around Rs 40/-. It is locally made and a lot of skill is involved in making the basket. This basket is prepared by people of Bhaderwah tehsil of Doda district in Jammu and Kashmir. **Keywords:** killar, flexible wooden stick, carriage	Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2762	Use of reen for colouration of leather	Reen (Quarcus incona) is locally known as bunz. The bark of reen tree is useful in giving colour to leathers. The bark is collected and heated in boiling water and then leather is dipped in this water for colouration. This practice is common Agriculin some parts of Rajouri district of Jammu & Kashmir. **Keywords:** reen, colouration of leather	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agriculin tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province J&K State) on Collection, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2763	Use of Samer (hybrid yak) as drought animal	Samer is being extensively used in the Kahi village in Bhederwah tehsil of Doda district (Jammu and Kashmir). Hybrid yak, locally called samer, is a cross between yak and local cow. The farmers with predominantly large size tract use Agriculsamer as drought animal for ploughingthe field. It can plough field @ 1 ½ kanal per hour and can work whole day tirelessly. It is hardy and strong in nature and can be handled by men of strong built. It grazes on the grass and is fed with concentrate feed. The feed Collecrequirement of the animal is only 1/4th of that of bull. It is second generation hybrid, a cross between the first eneration hybrid found in Padar area and local desi breed. The original breed mainly inhabits in cold deserts of Ladakh, in Jammu and Kashmir and Lahul spiti (Himachal Pradesh). It is considered 10 times more powerful and speedy as compared to the common bull. As per an estimate, 20-25% of the farmers in the area own yak for drought purposes. During summer period	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agriculsamer tural Sciences and

		of 4 months, it is left free to graze on the higher reaches of the hills and does not require any domestic feeding. Keywords: samer, hardy drought animal, concentrate feed	
2764	Rearing of bakarwali dog for watch and ward services to flock of sheep and goats	Bakarwali dog is a cross breed. It is a cross between an exotic breed and the local breed. The breed has a special sense/ knack for looking after a herd of animals while it is grazing or moving from one place to another. The dog Agriculprovides watch and ward service for the herds of animals. The owner of the goats and sheep carry a dog whenever they go out with the herd of animals for grazing. A flock of 50-60 animals may require a single watchdog whereas 100 or more require services of a pair of Collecdogs. This practice is common in Kulwand, Malhori and such other numerous villages and around Doda and Udhampur districts of Jammu and Kashmir. **Keywords:** dog, sheep and goat folk, watch and ward	Communicated by: Dr M. P. Gupta Director Extension Education, Sher-E-Kashmir University of Agriculprovides tural Sciences and Technology, Jammu (Jammu and Kashmir) 180 004 Ref: A Survey Report from Jammu Province (J&K State) on Collecdogs. tion, Documentation and Validation of ITK, 2002. Sher-E-Kashmir University of Agricultural Sciences & Technology, Jammu
2300	Indigenous technological knowledge and communication pattern	Shri G.S. Narayana, M.Sc. (Agric.) studied the indigenous technological knowledge and its communication pattern in east Godavari district of Andhra Pradesh on 49 agricultural practices, 34 livestock practices and 78 human health practices. In agricultural practices, different issues like crop husbandry, soil and water management, fertility management, interculture operations and harvesting are discussed. In the category of livestock practices, different issues like selection of milch animal, breeding practices, feeding practices and animal disease treatment are included. In human health practices, different aspects like vomiting and motions, cough, wounds and sores, body pains, biting problem, teeth problem, paralysis, head lice, fever, throat infection, white discharge, jaundice, worms, eczema, mouth cleaning, constipation, face beauty, sneezing and cold, bone dislocation, spots and paithyam, sugar disease and miscellaneous problems are highlighted. **Keywords:** agricultural	Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu university, Varanasi (Uttar Pradesh) 221 005

		practices, livestock practices, human health practices	