

Poultry

- Protect birds from excess summer heat
- Vaccination for Fowl Pox and Ranikhet disease to be given

Fisheries

- Fishermen should plan the fish harvest during the first –second week of June to get better pricing on Mrughshira Karthi (8th June, 2020) and also plan the partial harvest fish and supply to local markets.
- Organic manure raw cow dung @3-4 tonne/ha, poultry manure @1.5-2 tonne/ha should be applied in the pond to increase the zooplankton population 15 days prior to stocking. After that apply 1000 kg of cow dung/ha in every month.
- Feed the brood stock fish with CIFABROOD fish@2-3 % of body weight/day.
- Ban on catching of brood stock of Indian major carps and any other Economic Species during Monsoon i.e from 15th June – 31th August to allow every fish to breed at least once during its lifetime.
- Provide optimal quantity of feed based on biomass calculation to avoid excess feeding, since
 cost of feed is the major expenditure in fish culture.
- Try to feed the fish with mixure of De-oiled rice bran (DOB) groundnut/mustard oil cake at 1:1
 ratio or any other balanced feed for proper growth.
- Regular monitoring of water level and water quality is followed for entire culture period.

TAMIL NADU & PUDUCHERRY

Paddy (Transplanted)

- High yielding short duration with fine grain rice varieties, ADT 45, ASD 16, ADT 53& CO 51;
 raise green manure crops utilizing summer showers before paddy
- Adopt drum seeding, transplanting in unpuddled soil & machine transplanting to maintain optimum plant population and cost reduction;
- Adopt STCR based fertilizer management to reduce excess fertilizer use
- For managing sulphur deficiency, application of 40 kg sulphur basally as gypsum.
- Zn deficiency appears in initial stages of the crop (within 30 days) hence if the soil is deficient
 in Zn, apply 25 kg ZnSO, ha-1 for normal soil and 37.5 kg ZnSO, ha-1 for sodic soils.
- In Cauvery Delta Zones, Cu deficiency is widely observed in the soils hence basal soil application
 of 5 kg CuSO₄ ha⁻¹ ha may be followed.
- Adopt alternate wetting and drying method based irrigation schedule
- For management of blast: Seed treatment with Pseudomonas fluorescens @ 10g/kg, seedling dip
 with Pf1 @ 10g/lit or Treat the seeds with Pseudomonas fluorescens TNAU liquid formulation
 @ 10 ml/kg of seeds; Foliar spray with P. fluorescens TNAU liquid formulation @ 5 ml/l. Upon
 observing the initial infection of the disease foliar spray with tricyclozole 75 WP @ 500 g/ha or
 metominostrobin 20 SC @ 500 ml/ha or Azoxystrobin 25 SC @ 500 ml/ha.

Wet seeded puddled Lowland Rice

Apply N and K as 25% each at 21 DAS, at active tillering, PI and heading stages.



- If N applied through LCC, use the critical value 4 for line sown drill seeded rice.
- Entire P as basal applied in the last plough or at the time of incorporation of green manure/ compost.

Dry seeded Rainfed Un-Puddled Lowland Rice

- Apply 50:25:25 kg N:P,O,:K,O /ha
- Apply a basal dose of 750 kg of FYM enriched with fertilizer phosphorus (P at 25 kg/ha)
- Apply N and K in two equal splits at 20 25 and 40 45 days after germination.
- If the moisture availability from the tillering phase is substantial, three splits (25 kg N and 12.5 kg K at 20-25, 40-45 and 60-65 DAG) can be adopted.
- N at PI may be enhanced to 40 kg, if the tiller production is high (may be when the estimated LAI is greater than 5.0) and moisture availability ensured by standing water for 10 days.
- Basal application of FeSO₄ at 50 kg/ha is desirable for iron deficient soil (or) apply TNAU
 Rainfed rice MN mixture @12.5 kg/ha as EFYM at 1:10 ratio incubated for 30 days at friable
 moisture.

Semidry/Rainfed rice

- Apply 25 kg ZnSO₄ ha⁻¹ and 50 kg FeSO₄ ha⁻¹ along with available organic manure when the soil
 is deficient in Zn or Fe.
- After the establishment of crop, if the deficiency is observed in plants foliar spraying of 0.50% ZnSO₄ or 1.0% FeSO₄ + 0.10% citric acid on 15, 25 & 35 DAS may be given for alleviating the respective nutrient deficiencies.
- Dry Seeded Rainfed Un-Puddled Lowland Rice with Supplemental Irrigation
- Apply recommended dose of fertilizer 75:25:37.5 kg N:P,O,:K,O /ha
- Apply a basal dose of 750 kg of FYM enriched with fertilizer phosphorus (P at 25 kg/ha)
- Apply N & K in three splits at 20-25, 40-45 and 60-65 days after germination.
- Each split may follow 25kg N and 12.5 kg K₂O.
- If the moisture availability is substantial, split application at panicle initiation may be done with 40 kg N and 12.5 kg K,O.
- If the moisture availability is substantial, the split at 40-45 DAS (panicle initiation) may be applied up to 40kg N and 12.5kg K,O to enhance the growth and the grain yield.

Dry seeded irrigated Un-puddled Lowland Rice

- Apply FYM/compost at 12.5 t/ha or 750 kg of FYM enriched with 50 kg P₂O₅ as basal dose in clay soils of Nagapattinam / Tiruvarur district.
- Apply recommended dose of fertilizer 75:50:37.5 kg N:P₂O₅:K₂O /ha
- N and K in three splits at around 20-25, 40-45 and 60-65 days for short duration varieties or four splits for medium duration varieties at around 20-25, 40-45, 60-65 and 80-85 days after germination is suitable.
- Each split may follow 25kg N and 12.5 kg K₂O.
- If the moisture availability is substantial and canal water received from tillering phases itself,

the split at panicle initiation (40-45 DAS in short duration and 60-65 DAS in medium duration) may be applied up to 40kg N and 12.5kg K,O to enhance the growth and the grain yield.

Blackgram/ Greengram

- High yielding black gram varieties, VBN 8, VBN 9, VBN 10 & VBN 11; Green gram varieties, CO 8, VBN 3, VBN 4 & KKM 1; Seed treatment with imidachloprid @ 5 ml / kg of seed; seed drill sowing to maintain optimum plant population; Installation of micro sprinklers (must be provided under MI scheme of Central / State Govt.) application of pre emergence herbicides or early hand weeding before 15 20 DAS; Installation of traps; Foliar spray of TNAU Pulses Wonder @ 5 kg/ac during peak flowering stage; mechanical harvest.
- To mitigate moisture stress 2 % KCl + 100 PPM boric acid is recommended.
- Seed hardening with 100 PPM ZnSO4(10 g/100 litre of water) for 3 hours soaking in one third
 of water for germination improvement and withstand the drought
- Treat the seeds with T. asperellum @ 4 g or P. fluorescens @ 10 g or Carbendazim @ 2 g/kg of seed
- Growing resistant varieties such as VBN 6, VBN 7 and VBN8
- Spray imidacloprid 17.8 SL @ 250 ml/ha or thiamethoxam 75 WS 1 g /3 l
- To control Spodoptera litura, growing castor along field bund is recommended. Spraying of chlorantraniliprole 18.5 % SC @ 150 ml/ha is recommended if it is above ETL.
- Foliar spray of PPFM (Pink Pigmented Facultative Methylotrophs) @ 1% solution (10ml/litre
 of water) to mitigate the drought in rainfed condition.

Redgram

- The redgram varieties Co (Rg)6, Co (Rg) 7, Co (Rg) 8 and Co 9 are suitable for kharif season
- Seed treatment with Trichoderma viridi @ 4 gm/ kg or Pseudomonas fluorescens @ 10gm/kg of seeds followed by Rhizobium @ 40gm / kg of seeds is recommended
- Pre emergence application of Pendimethalin 0.75 kg/ha (2.5 litres/ha) on 3 DAS mixed with 500 litres followed by one hand weeding on 30-35 days is recommended

Maize

 Use of TNAU hybrids, CO 6, CO 8; Mechanized sowing; Installation of drip irrigation by changing crop geometry i.e., paired row system of planting, adoption of IPM module for FAW; STCR based fertilizer application; Raising of green manure crops in the intercrops & incorporation; Use of power weeder; Foliar application of TNAU maize maxim @ 7.5 kg/ ha during tassel initiation and grain filling stages & mechanized harvest and threshing.

Millets

- Small Millet (Co3, Co4, ATL1), Fox Tail Millet (Co 7, ATL1), Prosomillet (Co 3, Co 5), Kodo Millet (Co 3), Barnyard Millet (Co2, MDU1), Ragi (Co 13 and Co 14 and Paiyur 2), Cumbu (Co 10) and Sorghum (Co 30 and Co32) recommended during the Kharif season throughout the Tamilnadu State.
- Seed pelleting to facilitate Tractor drawn seed drill sowing under rainfed conditions; Machine transplanting under irrigated conditions to maintain optimum plant population;



Cotton

 Use of high yielding, short duration (120 days), zero monopodium cotton variety, CO 17 under high density planting system (HDPS) with a spacing of 100 x 10 cm, application of fertilizers based on STCR values: installation of drip irrigation, intercropping of black gram, green gram, green manure in the interspaces; Installation of traps, raising of trap crops; adoption of IPM modules against sucking pests & boll worm.

Groundnut

- Suitable varieties for kharif season TMVGn 13, VRIGn 6, VRI 8, CO 7, TMV 14, BSR 2.
 Application of MNM @ 12.5 kg/ha; Seed treatment with Pseudomonas fluorescens @ 10g/kg & soil application of Pf1 along with FYM @ 50 kg/ha; Seed drill sowing; Gypsum application @400 kg / ha during 45 DAS & earthing up; Castor and pulses as border and inter crops; Installation of traps
- Insttu soil moisture conservation techniques like compartmental bunding is recommended
- Raise one row of cowpea for every five rows of groundnut wherever red hairy caterpillar is endemic.
- Management of Groundnut Root rot
- Treat the seeds with carbendazim @ 2 g/kg or Trichoderma asperellum @ 4 g / kg or Pseudomonas fluorescens @ 10 g/kg of seeds
- Soil application of P. fluorescens @ 2.5 kg /ha with 50 kg of well decomposed FYM / sand at 30 DAS.

Sugarcane

- Daincha / Sunhemp can be intercropped in the wider spaced cane cultivated area for improving soil health and reduce the weed infestation. It also reduces early shoot borer incidences and increases cane yield.
- Introduction of power weeder with rotovator for weeding and earthing up with ridger to save the cost on labour and also to reduce human drudgery.
- Trash mulching to avoid incidence of early shoot borer.

Sesame

- Recommended varieties are Co-1, Paiyur-1, VRI-1, VRI-2, TMV-7, VRI 3.
- Appropriate sowing time is Second fortnight of May to Second fortnight of June.
- Seed treatment with Trichoderma @4g/kg of seed, Pseudomonas fluorescens @ 2 g/Kg seed or Bacillus subtilis @ 2 g/Kg seed or NSKE 4% avoid pest and disease incidence.
- Intercropping of Sesamum+Redgram (6:1) will give additional net returns

Horticultural crops

Tornato

High yielding varieties PKM 1 and Paiyur 1 and hybrids COTH 2 and COTH 3 can be used
for Kharif season. The farmers can use private varieties for cultivation. The protray nursery
seedlings should be used to get development in the main field. The coir pith used to raise
seedlings may be enriched with Pseudomonas fluorescens and Trichoderma viride to give
protection against diseases in the nursery and main field.

- In the nematode affected areas the farmers should grow marigold as intercrop at 8:1 ratio.
 In these areas the bio-inoculants such as Pseudomonas fluorescens, Trichoderma viride and Purpureocillium lilacinum @ 2Kg/ac along with neem cake or FYM either at the time of planting or 15-30 days after planting.
- To manage Tomato pin worm Tuta absoluta, the practices such as placing pheromone traps @ 40/ha, border crop with pulses or combination to encourage natural enemies, release of Trichogramma pritiosum @ 40,000/acre at weekly intervals may be practiced. If more pinworm incidence is noticed Azadirachtin 1.0 % EC (10000 ppm) 2.0 ml/lit or Indoxacarb 14.5 SC 8 ml/10 lit. or Chlorantraniliprole 18.5 SC 3.0 ml/10 lit or Emamectin benzoate 5SG @ 4 g/10 lit or Spinetoram 11.7 SC @ 1.0 ml/lit. Or Spinosad 45 SC @ 3.2 ml/10 lit may be sprayed to manage the pinworm menace.
- Leaf curl and tomato spotted wilt virus will be the major problems for the farmers. To manage the vector spraying of thiamethoxam 25 WG @ 0.4 ml/lit or cyantraniliprole 10.26 OD @ 1.8 ml/lit or Imidacloprid 17.8 SL @ 0.3 ml/ lit can be done.

Small Onion

- Small onion sowing begins in May –June 2020. So the farmers are advised to do seed bulb treatment before sowing
- Bulb treatment with Pseudomonas fluorescens @ 5 g/kg + Trichoderma asperellum @ 5 g/kg should be done
- Apart from bulb treatment with bio control agents the basal application of T. asperellum @ 2.5 kg/ha along with VAM @ 12.5 kg/ha should be done to reduce the basal rot incidence in Onion
- Foliar spraying of 0.5% ZnSO₄, 1% MnSO₄ thrice on 30, 40 & 50 days after sowing should be carried out.
- Then five days after sowing of bulbs, a barrier crop maize to be sown in 2 rows around the field and ridges at a spacing of 1 feet, to prevent the entry of Thrips from the outside field

Brinjal

- TNAU region specific varieties viz., CO 1, CO2, COBH .1 and COBH.2 for Coimbatore, Erode, Tirupur and Salem, MDU 1 for Madurai, PKM-1 for Theni and Madurai, PLR 1, PLR (Br) 2 for Cuddalore, KKM 1 for Tirunelveli, PPI 1 for Kanyakumari and TNAU Brinjal VRM-1 for Vellore and Thiruvannamalai may be grown.
- Treat the seeds with Trichoderma viride @ 4 g / kg or Pseudomonas fluorescens @ 10 g / kg of seed and with Azospirillum @ 40 g / 400 g of seeds using rice gruel as adhesive
- Apply P. fluorescens to soil @ 2.5 kg/ha with 50 kg of FYM to reduce the disease incidence
- Apply 8-10% neem oil mixed neem cake @ 100Kg/ac at the last ploughing to reduce the fruit and shoot borer incidence

Bhendi

- Main sowing is done during June to August @8 kg for varieties and 2.5kg for hybrids
- Sowing is done at 45 x 30 cm spacing in ridges and furrows and for paired row system in drip irrigation 90 x 45 x 45 cm, Popular hybrids CO4 and Arka Nikita



- Seed treatment with Trichoderma viride @ 4 g/kg or Pseudomonas fluorescens @ 10 g/ kg of seeds and again with 400 g of Azospirillum using starch as adhesive and dried in shade for 20 minutes.
- Spray Oxyflourfen at 0.15 kg ai / ha or Fluchloralin @ 1.0 kg ai / ha or Metolachlor @ 0.75 kg
 a.i / ha as pre emergence application on third day of sowing .

Gourds

- The TNAU recommended Pumpkin Varieties: CO 1, CO 2, Arka Suryamuki and Arka Chandan
- Snake gourd Varieties: CO1,CO 2, PKM 1, PLR 1 and PLR 2 & Hybrid: Snake gourd COH1
- Ridge gourd Varieties: CO 1, CO 2 and PKM 1 & Hybrid: Ridge gourd COH1
- Bottle gourd Varieties : Pusa Summer Prolific Long, Pusa Summer Prolific Round, Pusa Manjari, Pusa Megdoot and Arka Bahar & Hybrid: TNAU Bottle gourd Hybrid CO1
- Bitter gourd Varieties: CO 1, MDU 1, Arka Harit, VK1, Priya and Preethi & Hybrid: COBgoH1
- Seed treatment with Trichoderma viride @ 4 g or Pseudomonas fluorescens @ 10g/kg of seeds
- Apply Azospirillum and Phosphobacteria @ 2 kg/ha and Pseudomonas 2.5 kg/ha along with FYM 50 kg/ha and neem cake @ 100 kg/ha before last ploughing.
- Spray Ethrel 100 ppm (1 ml in 10 lit of water) four times starting from 10 to 15 days after sowing at weekly intervals.
- Spray PPFM @ 1% at critical stage of crop growth and subsequent spray at 30 days interval
- Foliar spray of Arka IIHR Vegetable special @ 0.1% at 30, 45 and 70 days after sowing to maximise the yield
- Apply neemcake @ 30g/plant as spot treatment 10 days prior to sowing and Soil application of P. fluorescens @ 2.5kg/ha should be done to reduce the nematode incidence.
- Install cucurbit fruit fly trap @ 12 Nos/ ha to mass trap fruit fly adults. Place yellow sticky traps
 @ 12/ha to attract the sucking pests such as aphids, leaf hoppers and whiteflies.

Mango

- Place Methyl euginal trap @12/ha for the control of fruit fly. Spraying of Mango special @ 5
 percent to overcome micronutrient deficiency.
- Dip the harvested fruits in 52°±1°C hot water immediately after harvest for 5 minutes followed by 8% plant wax (Fruitox or Waxol) to reduce anthracnose disease in mango during storage.

Guava

- Planting is done from June to December at a spacing of 5-6 m either way. Plant the layers/grafts
 with the ball of earth in the center of pit of 45 cm x 45 cm x 45 cm size filled with FYM 10 Kg
- Plant the layers/grafts with the ball of earth in the center of pit of 45 cm x 45 cm x 45 cm size filled with FYM 10 Kg

Papaya

 June - September is the best season for planting. For Initial control of papaya ring spot virus, raise papaya seedlings in insect proof net house and spray with a systemic insecticide 3 days before transplanting. For root rot/ wilt, It is advisable to drench the soil with 1% Bordeaux mixture or metalaxyl @ 0.2% at fortnightly intervals 2 to 4 times

Turmeric

- The turmeric varieties viz., CO 1, BSR 1, BSR 2, CO 2, Roma, Suroma, Suvarna, Sudarshana, Suguna, Sugandham, Ranga, Rasmi, Rajendra Sonia, Krishna, IISR Allepy Supreme, IISR Kedaram, IISR Prabha, IISR Prathiba, IISR Pragati, Erode local and Salem local can be chosen by the farmers
- Seed treatment with P. fluorescens @ 10 g/kg or T. asperellum @ 4 g/kg of rhizome and soil
 application of 2.5 kg/ha each of P. fluorescens and T. asperellum with 50 kg of FYM as basal and
 top dressing on 150 days after planting should be done to reduce the incidence of rhizome rot
 in turmeric
- Based on the location Onion, Chilli, Elephant foot yam, Coriander and Fenugreek can be planted as intercrop on the sides of the ridges 10 cm apart for additional income. Raised bed planting in the area water stagnation.

Coconut

Coconut Rugose Spiralling Whitefly is to be managed with sticky traps, water sprays and release
of bioagents wherever feasible

Animal Husbandry, dairy & fisheries

 KVKs may be contacted for mineral mixtures, mineral blocks, Ranikhet vaccines, fodder seeds and other advices.

Large Ruminants (Dairy cattle/buffaloes)

- To protect animals from the weather fluctuations keep them in well ventilated shelters and in the shade of trees.
- In hot days, animals should be grazed in pastures during the early hours in the morning and late evening.
- To alleviate heat stress potable water should be ensured all the time for livestock especially for milch cows.
- Dairy animals/buffaloes should be splashed with water directly or by providing sprinklers two
 to three times a day preferably between 11.00 am and 3.00 pm.
- The dairy animals should be monitored frequently for heat signs as during peak summer the signs will be subtle.
- Prepare fodder fields for transplantation of fodder grasses (10 cent model: 4 cent grasses (Co4), 3 cent cereal fodder (Cofs 29 / cofs31), 3 cent legumes (Hedge Lucerne, Cow pea). Border area planned for tree fodders (Agathi, Subabul, etc.,)
- COVID-19 has affected the dairy farmer, since the price per litre of milk has reduced from Rs.3

 5/- in different places. To overcome the shortfall in price and high cost of production, farmers have to follow a cost-effective feed ration since 60-70% of cost of production is for feeding the animals and hence locally available feed materials may be effectively used for feeding and the same popularized.

- The dry fodder like paddy straw and sorghum stover may be enriched with urea or molasses and salt to enhance the digestibility in large ruminants
- Hydroponics fodder may be utilized wherever available.
- During the onset of rainfall worm infestation may be more. Hence proper deworming has to be done at regular intervals by assessing the worm load in dung at any clinical laboratories or outreach centers of the University.
- Management of ectoparasites may be taken up by use of medicinal dip or topical applications or by injections.
- For calves up to 3-6 months of age, mineralised salt blocks may be hanged in the sheds to prevent mineral deficiency.
- Supplementation of TANUVAS mineral mixture along with concentrate feed @ 30- 50 gm/ animal /day for milch animals
- Supplementation of TANUVAS mineral mixture along with concentrate feed @ 15 gm/animal /day for dry animals
- Supplementation of Salt (NaCl) @ 30-50 g/day/animal for better milk yield.
- Supplementation of Sodium Bi-carbonate (Baking soda) @ 30-50 g/day/animal for better milk fat yield and to avoid SARA.
- Azolla supplementation may be taken-up @1-2 Kg/dairy cattle per day
- If brewer's yeast or any other unconventional feed is added in the ration, farmers are advised to feed not more than 10% in the ration
- TANUVAS Masti-guard may be used to prevent Mastitis and for clean milk production.
- Farmers to utilize the validated EVM (Ethno Veterinary Medicine) practices.

Small Ruminants (Sheep and goat)

- Keep animals in well ventilated shelters/tree shades
- Locally available feed materials may be effectively used for feeding and the same popularized
- Hydroponics fodder may be utilized wherever available.
- Before the onset of monsoon, based on worm load by dung examination, deworming to be done with appropriate deworming medicine.
- Enterotoxaemia vaccine should be done during May.
- Blue tongue vaccination should be done between July and August
- New animals added to the herd should be quarantined for 25 days to assess incidence of PPR or any other infection
- 250-300 gms of concentrate feed should be given to the pregnant ewes to avoid stillbirth or weak kids which is common in June, July months due to scarcity of pasture in grazing
- Fodder tree seedlings should be cultivated by using the rainfall and green fodder leaves may be fed to the animals

- Crop residues, unconventional feeds such as tapioca leaves, onion crop residues, banana leaves and stems etc., may be fed to the animals in case of scarcity of pasture in grazing lands.
- Azolla supplementation may be taken-up @ 250-500 gms/sheep/goat per day
- Dipping with acaricides should be carried out to get rid of ectoparasites (ticks/fleas) in small ruminants.
- Farmers to utilize the validated EVM practices

Poultry (Desi-chicken)

- Chicks may be purchased from authorised hatcheries of Veterinary University or private hatcheries with proper precautionary measures of maintaining social distance and wearing face mask at farm and the hatchery.
- Desi birds should be vaccinated against Ranikhet Disease (7th day F1 strain (Eye drop), 28th day Lasota (Eye drop), 56th day RDVK vaccine).
- Amla/butter milk or lemon juice may be added in good quality drinking water to alleviate stress in birds
- To improve the growth rate 1 per cent protein level (soya bean meal) may be added in the feed.
- Suitable coccidiostat should be added in the feed continuously by consulting the local veterinarian to prevent coccidiosis
- 3-5 grams of oyster shell/limestone/grit per day/bird shall be given to laying hens to avoid leathery eggs.
- Shifting, transportation, de-beaking and vaccination of birds should be done during night or cool hours of the day.
- Azolla supplementation may be taken-up @ 50 gms/bird per day
- Farmers to utilize the validated EVM practices

Fisheries

- Carp culture
- Exchange of 10 to 20% of water and replace with 10 to 20 % of borewell/creak water in fresh water carp culture.
- Parasite free seed selection.
- Analysis of water quality parameter at least monthly once.
- Avoid over feeding.
- Provide feed based on the biomass
- Application of OTC 100 mg /kg of pellet feed for 5 days

Shrimp Culture

- PCR test is compulsory before releasing the shrimp PL into the pond.
- Culture water should be treated before releasing the seed.



GIFT Tilapia culture

- Exchange of water and replace with borewell water to avoid DO problem
- Reduce the biomas by partial harvest, reduce the application of fertilizers to prevent the deterioration of water. Analysis of water quality parameter at sleast monthly once.
- Feeding tray (check tray) should be properly monitored to avoid over feeding.

Ornamental fish culture

- Application of Oxy tetracycline at the rate of 50 mg/kg of feed for one-week period to control bacterial diseases
- Dip treatment with 0.5 ppm KMNO4 and 3% salt solution to control bacterial diseases.
- Seabass Culture
- Size segregation has to be done in the initial stage. Avoid shortage of feeding