

CULTIVATION & UTILIZATION OF PULSES :

GARDEN PEA

Botanical Name **Pisum Sativum**

Vern. **Mattar**

Family **Leguminosae**

Pea (*Pisum sativum*) is a nutritious and versatile legume that is widely cultivated and consumed around the world. Here are some of the key aspects of its cultivation and utilization:

Cultivation:

1. Pea is an annual crop that can be grown in a variety of soils, but prefers well-drained, loamy soils with a pH range of 6.0 to 7.5.
2. It is a cool-season crop that grows best in temperatures between 15°C to 18°C, although it can tolerate temperatures as low as -2°C.
3. Peas require moderate water supply for optimal growth, with an average rainfall of 600-800 mm during the growing season being ideal.
4. They can be planted directly into the soil or transplanted from seedlings, with planting depths ranging from 4-6 cm.
5. Peas are generally ready for harvesting within 55-70 days after planting, depending on the variety.

Utilization:

1. Peas have a high nutritional value, containing protein, fiber, vitamins, and minerals such as iron, calcium, and potassium.
2. They are commonly used in soups, stews, salads, and other dishes, as well as being processed into canned, frozen or dried forms.
3. Peas are also used as animal feed, particularly for poultry and livestock.

4. The starch extracted from peas can be used in various food products, such as noodles, bread, and pastries.

5. Additionally, pea protein has gained popularity in recent years as a plant-based alternative to animal protein sources, and is used in a variety of food and beverage products.

Overall, pea cultivation and utilization offer numerous benefits, including improved nutrition, soil health, and sustainable agriculture practices.

RAJMAH

Botanical Name	Phascolus vulgaris
Vern.	Kidney bean, Rajmah
Family	Leguminosae

Cultivation:

Rajmah, also known as kidney beans (*Phaseolus vulgaris*), is a popular legume that is grown in many parts of the world. Here are some key aspects of its cultivation:

1. Climate and Soil:

Rajmah prefers warm temperatures for optimal growth and should be planted after the last frost date and when soil temperatures reach around 15°C.

The plant can be grown in a variety of soils, but does best in well-drained loamy soil with a pH range of 6.0 to 7.5.

2. Planting:

Rajmah seeds should be planted directly into the soil or transplanted from seedlings, with planting depths ranging from 3-5 cm.

Plants should be spaced about 10-15 cm apart and rows should be spaced at least 60 cm apart.

3. Watering:

Rajmah requires moderate water supply for optimal growth and is usually irrigated every 7 to 10 days.

Overwatering can cause waterlogging and promote fungal diseases, so care should be taken to avoid excessive moisture.

4. Fertilization:

Rajmah requires nitrogen-rich soil for optimal growth, and adding organic matter to the soil before planting can help improve soil fertility.

Additionally, fertilizers such as potassium and phosphorus can be added during the growing season as needed.

5. Harvesting:

Rajmah plants generally take around 90 to 120 days to mature and can be harvested once the pods have dried out and turned brown on the plant.

Care should be taken not to damage the pods and beans during harvesting, as this can reduce quality and yield.

Overall, the cultivation of rajmah requires careful attention to soil fertility, water management, and disease prevention, but can result in a nutritious and versatile crop that is widely used in many cuisines.

Utilization:

Uses

1. Rajmah is a good source of protein.
2. Plants are used as fodder.
3. The young pods, unripe seeds and dried ripe seeds are consumed by humans.
4. The beans are eaten fresh as vegetable in the unshelled condition or as a pulse after shelling.
5. Bean straw is used as animal feed. Discoloured seed pods are fed to live stock.
6. Rajmah seeds are nutritious and used as pulse.
7. Green pod shells used as diuretic specially for kidney and troubles.

Time of sowing

For spring season, best time for kidney beans cultivation is February-March and for Kharif season, it is sown during May-June month. In Punjab, some farmers sow kidney beans in last week of January.

URD

Botanical name	Vigna mungo
Vern. Name	Black gram, Urd
Family	Leguminosae(Papilionaceae)

Cultivation:

Urd is a type of bean that is commonly cultivated in India, Pakistan, and other parts of South Asia. Here are some general guidelines for cultivating Urd:

1. Soil preparation: Urd grows best in well-drained soil that is rich in organic matter. Before planting, prepare the soil by adding compost or well-rotted manure.
2. Seed selection: Choose high-quality seeds from a reputable source. Urd seeds can be treated with fungicide to prevent seed-borne diseases.
3. Planting: Plant Urd seeds in rows that are 45-60 cm apart. The recommended seeding rate is 8-10 kg per hectare. Plant the seeds at a depth of 3-5 cm.
4. Watering: Urd requires regular watering, especially during the flowering and pod development stages. Irrigate the crop evenly to ensure uniform growth.
5. Fertilization: Apply nitrogen, phosphorus, and potassium fertilizers according to soil test recommendations. Foliar application of micronutrients may also be required.
6. Weed control: Keep the field free of weeds by using manual or chemical methods. Hand weeding is the most effective method for small fields.
7. Pest and disease management: Monitor the crop regularly for pests and diseases. Common pests include aphids, thrips, and pod borers. Diseases that affect Urd include anthracnose, powdery mildew, and bacterial blight. Use insecticides and fungicides as needed.
8. Harvesting: Urd pods should be harvested when they are fully mature but still green. Delayed harvesting can lead to shattering of pods and yield losses. After harvesting, dry the pods in the sun for several days before threshing.

Utilization:

Urd plant, also known as urd bean or mung bean, is a type of legume that is commonly cultivated in Asia. It is an important source of protein and other essential nutrients for many people in the region.

The utilization of urd plant extends to several areas:

1. Food: Urd beans are commonly used in Asian cuisine to make dishes such as dal (a type of lentil soup), sprouts, and curries. The beans can also be ground into flour and used to make bread, noodles, and other baked goods.
2. Animal feed: Urd beans can be used as a nutritious feed for livestock, particularly poultry and swine. They are a good source of protein and other essential nutrients.
3. Soil improvement: Urd plants are known to improve soil fertility due to their ability to fix nitrogen. They are often grown as a cover crop or intercropped with other crops to improve soil health.
4. Medicinal use: In traditional medicine, urd beans have been used to treat a variety of ailments, including diabetes, inflammation, and hypertension. However, more research is needed to fully understand their medicinal properties.

In summary, the utilization of urd plant is diverse, ranging from food to animal feed, soil improvement, and medicinal use.

CULTIVATION & UTILIZATION OF VEGETABLES :

CAULIFLOWER

- Botanical Name → Brassica oleracea var. botrytis
- Vernacular Name → Phulghobhi
- Family → Cruciferae (Brassicaceae)

Cauliflower is a cool-season crop that requires a lot of care and attention to grow successfully.

* Cultivation :

① Soil preparation → Cauliflower requires well-drained soil that is rich in organic matter. The soil pH should be between 6.0 & 7.0. Before planting, add compost or well-rotted manure into the soil to improve its fertility. Loamy soil is best for cultivation.

② Planting → Cauliflower can be started from seeds or transplants. If starting from seeds, sow them indoors 4-6 weeks before the last frost date. Transplants can be placed directly into the garden after the last frost date. Space the plants 18-24 inches apart in rows that are 2-3 apart.

③ Watering → Cauliflower requires consistent moisture to grow properly. Water deeply once a week or more frequently if the weather is hot and dry. Avoid getting water on the leaves as this can lead to disease.

④ Fertilizing → Fertilize cauliflower with a balanced fertilizer that is high in nitrogen. Apply the fertilizer once a month during the growing season.

⑤ Pest and disease control → Cauliflower is susceptible to a number of pests and diseases, including aphids, cabbage worms and clubroot. Monitor the plants regularly and treat any problems promptly.

⑥ Harvesting → Cauliflower is ready to harvest when the heads are firm and compact. Cut the head off the plant with a sharp knife, leaving a few leaves attached. If the heads are not harvested in time, they may become overgrown and lose their flavour. After 90-120 days crop is ready for harvesting.

* Utilization : Cauliflower is a versatile vegetable that can

be used in a variety of ways.

- ① The condensed inflorescence i.e curd is eaten as vegetable.
- ② Cauliflower is used as soups and as pickles.
- ③ Leaf stalks are also cooked as vegetable.
- ④ Leaves and stems of cauliflowers, obtained as wastes, are utilized as livestock feed.
- ⑤ Cauliflower is used for obesity, heart diseases, cancer etc.
- ⑥ Cauliflower is used as a source of antioxidants.

BOTTLE GOURD

• Botanical Name	→	<i>Lagenaria siceraria</i>
• Vernacular Name	→	Lauki, ghia, kaddoo
• Family	→	Cucurbitaceae

Bottle gourd also known as calabash is a popular vegetable that is easy to grow and cultivate.

* Cultivation :-

- ① Choose a suitable location → Bottle gourd requires a warm and sunny location with well-draining soil. Choose a spot that receives at least 6 hours of sunlight per day.
 - ② Preparing the soil → Bottle gourd prefers fertile well-draining soil. Add compost or well-rotted manure to the soil to improve its fertility. Also ensure the soil pH is between 6.0 and 7.5.
 - ③ Plant the seeds → Bottle ground can be planted from seeds only. Sow the seeds directly into the soil, about 1 inch deep and 2-3 feet apart. Alternatively, we can sow seeds indoors and transplant them later.
 - ④ Water the plants → Bottle gourd requires regular watering, especially during the growing season. Water the plants deeply once or twice a week, depending upon the weather conditions.
 - ⑤ Provide Support → Bottle gourd is a vine plant that requires support to grow. Support can be provided by installing trellises or stakes.
 - ⑥ Fertilize the plants → Bottle gourd requires regular fertilization to promote healthy growth. Apply a balanced fertilizer every 4-6 weeks during the growing season.
 - ⑦ Harvesting → Bottle gourd fruits are ready for harvest when they are about 6-8 inches long. Cut the fruits from the vine using a sharp knife.
- * Utilization of Bottle gourd :-
- ① Fresh young fruits are eaten as vegetables
 - ② Seeds are edible and also yield an edible oil.

- ③ Vegetable is grown all the year round.
- ④ Fruit is a good source of vitamin B and fair source of vitamin C.
- ⑤ Shell is used as water bowl and water bottle.
- ⑥ Fruit pulp is considered cooling diuretic and antiligious.
- ⑦ Seeds are used in dropsy and as anthelmintic.
- ⑧ Seed oil is used for headache.

→ Cultivation and Utilization of :

FENUGREEK

Botanical Name	<i>Trigonella foenum-graecum</i>
Vernacular Name	Methi
Family	Leguminosae

Fenugreek is a plant that is widely cultivated and utilized for its medicinal and culinary properties.

Cultivation :-

- Fenugreek is an annual plant that grows upto 60 cm tall.
- It is commonly grown in the Mediterranean region, North Africa and South Asia.
- Fenugreek can be cultivated in a variety of climates. It prefers well-drained soil and full sun, but can also tolerate partial shade.
- It is usually grown from seeds, which are sown in the soil in the spring or fall.
- It requires regular watering, especially during the germination and growth stages.
- The plant takes about 3 to 4 months to mature and can be harvested when the leaves turn yellow and the seed pods turn brown.

Utilization :

- It is used as a spice and flavoring agent.
- The leaves are used as vegetable in many dishes, such as curries and stews.
- Fenugreek is used in traditional medicines to treat a variety of ailments including digestive issues, inflammation etc.
- It is also used in cosmetic industries as it is believed to possess anti-ageing properties.
- Fenugreek oil is used for good hair health.

LADY'S FINGER

Botanical Name	<i>Acalypha esculentus</i>
Vernacular Name	Bhindi, okra
Family	Malvaceae

The plant is a native of tropical parts of Africa. The plant is erect, robust, annual, up to 2m in height. The leaves are large, alternate and cordate and the flowers are yellow. Fruits are long tapering, ridged, hairy, capsule, dehiscing longitudinally. Young fruits are green, mucilaginous and with number of seeds.

Cultivation :

- Ladyfinger is a warm-season crop that requires a long growing season and plenty of sunlight to grow.
- It is usually grown from seeds, which are sown in the soil in spring or early summer.
- Its cultivation requires well-drained soil and regular watering to grow.
- The plant can grow up to 6 feet tall and produces large, yellow flowers.
- The pods are ready to be harvested when they are 3-4 inches long and tender.
- The plant usually takes around 50-65 days or about 2 months to grow from seed to harvest.

Utilization :

- Ladyfinger is a versatile vegetable that is used in a variety of dishes including stews, curries and soups.
- It is also used in pickling and canning.
- The stalks are sometimes used for making fibers.
- Europeans roast their seeds and used them as substitute for coffee.
- It is a good source of dietary fiber, vitamin C and folate.
- It is believed to have medicinal properties and is used

- in traditional medicine to treat ailments like high cholesterol and digestive issues.
- The supplements of ladyfinger are also available in the form of capsules or tablets, which are used to boost immune function and reduce inflammation.

SPINACH

Botanical Name	<i>Spinacia oleracea</i>
Vernacular Name	Palak
Family	Amaranthaceae

Spinach is a leafy green plant native to central and western Asia. It is a annual vegetable and cultivated throughout the world. Spinach is known as 'Palak' in Hindi. It is a rich source of iron, vitamin and anti-oxidants.

Cultivation:

- Spinach is a cool season crop that can be grown in both spring and fall.
- It requires well-drained soil and regular watering to grow. The spinach seeds are usually sown in the soil.
- Leeds should be planted $\frac{1}{2}$ inches deep and 2-3 inches apart.
- Spinach is ready to harvest when the leaves are about 4-6 inches long. You can harvest entire plant or pick individual leaves as needed.
- Spinach can be harvested multiple times throughout the growing season.

Utilization:

- Spinach is used in a variety of dishes including salads, soups, stews and pastas.
- It is also used as filling for pies.
- Spinach is a good source of vitamins A, C, K as

- well as iron and calcium.
- It is used in treating ailments like anemia, constipation and high blood pressure.
 - The health benefits of consuming spinach include improvement of blood glucose control in diabetic people, lowering the risk of cancer, improving bone health etc.

CULTIVATION & UTILIZATION OF FRUITS :

APPLE

Botanical name	Pyrus malus
Vern	Seb
Family	Rosaceae

Cultivation:

The cultivation of apple is a process that involves several steps, including planting, pruning, fertilizing, and pest control. Here are the basic steps involved in apple cultivation:

1. Site selection: Apple trees require full sun and well-drained soil with a pH range of 6.0 to 7.0. The site should be free from frost pockets and strong winds.

2. Planting: Apples are usually propagated by grafting onto rootstocks. The planting distance for most apple cultivars is about 20 to 25 feet apart. Trees should be planted in the early spring or fall.

3. Pruning: Pruning is essential to help maintain the size and shape of the tree and promote fruit production. Pruning should be done in late winter or early spring when the tree is still dormant.

4. Fertilization: Apples require regular fertilization to produce good yields. A balanced fertilizer with equal amounts of nitrogen, phosphorus, and potassium should be applied in the early spring before bud break.

5. Pest control: Apples can be susceptible to a variety of pests and diseases, such as apple scab, codling moth, and aphids. Regular monitoring and use of appropriate pesticides can help prevent damage to the fruit.

By following these steps, growers can successfully cultivate healthy apple trees and produce high-quality fruit.

Utilization:

Apples have a variety of uses, both culinary and non-culinary. Some common culinary uses for apples include:

1. Eating raw as a healthy snack
2. Baking into pies, cakes, muffins, and other desserts
3. Making apple sauce or apple butter
4. Using in salads or as a topping for oatmeal or yogurt
5. Juicing for cider or other beverages

Non-culinary uses for apples include:

1. Using the skin to make natural dye for clothing or crafts
2. Using apple cores and peels to make compost for gardening
3. Placing slices of apple in brown sugar to keep it from hardening
4. Using apple cider vinegar as a natural cleaning agent or hair rinse.
5. Apples are also rich in nutrients such as fiber, vitamin C, and antioxidants, which can help promote good health.

MANGO

Botanical name	Mangifera indica
Vern.	Aam
Family	Anacardiaceae

Cultivation:

Mango is a tropical fruit tree that requires warm temperatures and plenty of sunlight to thrive. Here are some general steps for cultivating mango:

1. Choose the right location: Mango trees need full sunlight and well-drained soil. The ideal temperature range for mango cultivation is between 21°C to 27°C. Make sure the location you choose receives at least 6 hours of direct sunlight.
2. Planting: Dig a hole large enough to accommodate the root ball of the sapling. Mix compost or organic matter with the soil before planting. Water the plant thoroughly after planting.
3. Watering: Young mango trees require regular watering until they establish themselves. Once the tree is established, it can tolerate drought better. However, make sure the soil doesn't completely dry out.
4. Fertilizing: Mango trees require fertilizer during the growing season. Use a balanced fertilizer with equal amounts of nitrogen, phosphorus, and potassium. Apply the fertilizer every two months during the growing season.
5. Pruning: Prune the tree in early spring to remove any dead, diseased, or damaged branches. This will promote healthy growth and fruit production.
6. Pest and disease control: Keep an eye out for common pests like mango fruit flies and mealybugs. Use organic or chemical pesticides to control them. Diseases like powdery mildew and anthracnose can also affect mango trees. Use fungicides to control them.
7. Harvesting: Mangoes are harvested when they are fully ripe. They should be picked by hand and not pulled off the tree. Mangoes continue to ripen even after being picked, so they can be stored at room temperature until they are ready to eat.

These are some general steps for cultivating mango. However, specific practices may vary depending on the variety of mango, climate, and soil type.

Utilization:

Mango is a versatile fruit that can be used in various ways. Here are some common uses of mango:

1. Eating fresh: Mangoes can be eaten fresh as a healthy and delicious snack. They are naturally sweet and rich in vitamins, minerals, and antioxidants.
2. Smoothies and juices: Mangoes can be blended into smoothies or juices for a refreshing drink. They pair well with other fruits like bananas, strawberries, and pineapples.
3. Salads: Mangoes can be added to salads for a burst of flavor and color. They go well with greens, nuts, and cheese.
4. Desserts: Mangoes are commonly used in desserts like ice cream, sorbet, pudding, and cake. They add a tropical twist to traditional desserts.
5. Chutneys and sauces: Mangoes can be cooked down into a chutney or sauce that pairs well with spicy dishes. They are commonly used in Indian and Southeast Asian cuisine.
6. Dried mango: Mango can also be dried and preserved for later use. Dried mango makes a great snack and can be added to trail mixes, granola bars, and baked goods.
7. Pickled mango: In some regions, unripe mangoes are pickled and used as a condiment. The sour and tangy flavor pairs well with savory dishes.
8. These are just a few examples of the many ways mango can be used. Its versatility makes it a popular fruit around the world.

Peach

Botanical Name	<i>Prunus persica</i>
Vern.	Aru
Family	Rosaceae

Cultivation:

Peaches are a delicious and nutritious fruit that can be grown in many regions around the world. Here are some general guidelines on how to cultivate peaches:

1. Climate: Peach trees prefer a mild climate with warm summers and cold winters. They require a certain number of chill hours during the winter to produce fruit, which varies depending on the cultivar.

2. Soil: Peaches grow best in well-draining soil that is slightly acidic with a pH between 6.0 and 6.5. The soil should also be rich in organic matter and nutrients.
3. Planting: Peach trees should be planted in early spring or fall. They need full sun and plenty of space to grow, so make sure to plant them at least 15-20 feet apart.
4. Irrigation: Peach trees require regular watering, especially during the growing season. They should be watered deeply once a week, and more often if the weather is dry.
5. Fertilization: Peach trees should be fertilized in early spring before new growth appears. A balanced fertilizer with equal amounts of nitrogen, phosphorus, and potassium is recommended.
6. Pruning: Peach trees should be pruned in late winter or early spring to remove dead or diseased wood and promote new growth. They should also be thinned to allow for better air circulation and light penetration.
7. Pests and Diseases: Peach trees are susceptible to a variety of pests and diseases, including peach leaf curl, brown rot, and aphids. Regular inspection and treatment with appropriate pesticides or fungicides can help prevent damage.

By following these guidelines, you can successfully grow and harvest juicy and flavorful peaches.

Utilization:

Peaches are a versatile fruit that can be enjoyed in various ways. Here are some common ways to utilize peaches:

1. Fresh Eating: Peaches can be eaten fresh as a snack or added to salads, yogurt, or cereal for breakfast.
2. Baking: Peaches can be used in baking recipes such as pies, cobblers, cakes, and muffins. They can also be grilled or roasted for a caramelized flavor.
3. Preserving: Peaches can be canned, frozen, or dehydrated for later use in jams, jellies, sauces, and chutneys.
4. Beverages: Peaches can be blended into smoothies or used to make juices, cocktails, and tea.
5. Savory Dishes: Peaches can add a sweet and tangy flavor to savory dishes such as salsas, chutneys, and salads.
6. Beauty Products: The oil extracted from peach kernels is used in beauty products such as creams, lotions, and shampoos because of its moisturizing properties.

Overall, the uses of peaches are diverse, and they can be incorporated into many different types of recipes due to their unique flavor and nutritional value.

ALMOND

Botanical name	Prunus dulcis
Vern.	Badam
Family	Roseaceae

Cultivation:

Almonds are a popular nut that is grown and consumed worldwide. Here are some guidelines on how to cultivate almonds:

1. Climate: Almond trees prefer a warm and dry climate with mild winters and moderate rainfall. They can be grown in regions with hot summers and cool winters.
2. Soil: Almond trees grow best in well-drained soil that is slightly acidic with a pH between 6.0 and 7.5. The soil should also be rich in organic matter and nutrients.
3. Planting: Almond trees should be planted in late winter or early spring, preferably in an area with full sun exposure. They require cross-pollination, so it's essential to plant more than one tree.
4. Irrigation: Almond trees require regular irrigation during the growing season. They should be watered deeply once or twice a week, depending on the weather conditions.
5. Fertilization: Almond trees should be fertilized in late winter or early spring before new growth appears. A balanced fertilizer with equal amounts of nitrogen, phosphorus, and potassium is recommended.
6. Pruning: Almond trees should be pruned in late winter or early spring to remove dead or diseased wood and promote new growth. They should also be thinned to allow for better air circulation and light penetration.
7. Pests and Diseases: Almond trees are susceptible to pests and diseases such as aphids, mites, and fungal infections. Regular inspection and treatment with appropriate pesticides or fungicides can help prevent damage.

Utilization:

Almonds have a variety of uses and can be utilized in many different ways. Here are some common ways to use almonds:

1. Snacking: Almonds can be eaten roasted or raw as a healthy snack.
2. Baking: Almonds can be used in baking recipes such as cakes, cookies, and muffins.
3. Milk: Almonds can be soaked and blended with water to make almond milk, a healthy dairy-free alternative.
4. Butter: Almonds can be ground into a paste to make almond butter, which is a nutritious spread for toast or sandwiches.
5. Oil: Almonds can be pressed to extract oil, which is used in cooking, cosmetics, and skincare products.
6. Savoury Dishes: Almonds can be added to savory recipes such as salads, soups, and stir-fries for extra flavour and texture.

Overall, almonds are a versatile nut that can be cultivated and utilized in many ways. They are also a rich source of nutrients and have numerous health benefits.

WALNUT & APRICOT

FRUITS - WALNUT AND APRICOT

CULTIVATION AND UTILIZATION

① WALNUT

Botanical Name - *Juglans* sp.

Vern. Name - Akhrot

Family - *Juglandaceae*

Walnuts are basically round edible seeds that come from trees that belong to the *Juglans* genus, particularly the Walnut tree. Walnut is the most important temperate nut fruit in the country. Walnut in India are found in different size and shapes. The Indian walnuts are categorised into four categories viz - paper shelled, thin shelled, medium shelled, and hard shelled.

Walnuts flourish at altitude of 900 to 3000.

Varities

Walnut varieties grown in different states of India are:-

Jammu & Kashmir Lake English, Draworsley,
Open Country

Himachal Pradesh Gobind, Eureka, Placentia,
Wilson & Kashmire budded

Uttarakhand

Chakrata Selections

Walnut is native of Persia and extensively grown in Southern Europe, China and parts of Asia.

Major Growing States

Jammu and Kashmir, Uttarakhand, HP and AP.

J&K occupies the largest share in total area of production of walnut.

CULTIVATION OF WALNUT

- Walnuts are grown in temperate regions of world, including North America, Europe and Asia.
- They prefer well-drained soil and a cool climate with moderate rainfall.
- Walnut is not very choosy about soil conditions but best soil should be well-drained, deep-sid loam, or clay loam with a pH between 6.0-7.5.
- Soil should be rich in humus.
- Walnuts are usually propagated through grafting or budding. pits are dug at a distance of 12x12 for seedling & 10x10 for grafted plants.
- The tree takes around 4-5 years to start bearing fruits.
- Walnut root develops a toxin called Juglone which is toxic to other plants.

PRUNING

Pest and Disease

Fungal disease - anthracnose, root rot, canker, leaf spot,

Harvest and yield

- Walnuts are harvested in the fall when the outer husk of the nut has split open.
- An average a tree would produce between 40-45 kg. of walnuts a year from the 8th year.
- A full grown tree will yield 120-150 kilos from 15th year from another 35 years.
- 60-80 kg - risky

Every year at least 120 cases of walnut harvested related accidents are reported in Kashmir alone.

Nuts are then dried and stored.

In JK

Total area 30800 hectare

UTILIZATION OF WALNUT

- Walnuts are rich source of proteins, healthy fats and antioxidants.
- They are commonly eaten as a snack or used in baking and cooking.
- Walnut oil is used in cooking, painting tiles.
- Tree bark, called dundosa, is used for cleaning the teeth or for chewing to redded the lips.
- Walnut timber is used for furniture, carving and making butts of guns.

HEALTH BENEFITS

- ① IMPROVES HEART FUNCTION
- ② IMPROVES BONE HEALTH
- ③ CONTROLS DIABETES
- ④ PREVENTS CANCER
- ⑤ REDUCE INFLAMMATION
- ⑥ IMPROVE SKIN
- ⑦ MOOD BOOSTER
- ⑧ HELP REGULATE SLEEP

(2) APRICOT

Botanical name - Armenian plum

— *Prunus armeniaca*

Local name — Khubani & Khumanis

Family *Rosaceae*

An apricot is a fruit or the tree that bears the ~~the~~ fruit of several species in the genus *Prunus*.

Apricot first appear in English in the 16th Century from the Middle East, from Spain and California

Species: "Apricot" → "Apricotated"

Prunus armeniaca → common apricot.

Prunus brigantia → native to Europe.

Prunus cerasifera → native to Siberia

Prunus dasycarpa → purple apricot (central Asia)

Prunus mume → Japanese apricot

Prunus sibirica → Siberian apricot native to Mongolia, China & Korea.

Apricot is small tree 8-12 m (26-39 ft) tall with a trunk up to 40 cm.

National fruit of Armenia

CULTIVATION OF APRICOT

- Apricots are grown in warm, dry climates and are native to central Asia.
- They prefer well-drained soil and a warm climate with plenty of sunshine.
- Apricots are usually propagated through budding or grafting.
- The trees take around 2-3 years to start bearing fruit.
- Apricots are harvested in the summer when they are ripe - have soft texture.
- Hybridizers have created what's known as "black apricot" or "purple apricot", a hybrid of an apricot and the cherry plum.
- The fruit is then dried, or used fresh.

Production

In 2020, world production of apricots was 3.72 millions tonnes

Turkey 22% of the total

Other — Uzbekistan, Iran, Italy And Algeria.

Nutrition

In 100gms of raw apricot

48 calories

11% carbohydrates

1% protein

1% fat

UTILIZATION

- Apricots are a good source of vitamin A, vitamin C and dietary fibre.
- They are commonly eaten fresh or dried as a snack.
- Apricots are also used in baking cooking and making jams and preserves.
- Apricot kernels are also used sometimes in cooking and as a substitute for almonds.
- The wood of the apricot tree is sometimes used in furniture making and as a fuel source.

CULTIVATION & MAINTENANCE OF INDOOR AND OUTDOOR ORNAMENTALS :

ORNAMENTAL PLANTS

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Ornamental plants or garden plants are plants that are primarily grown for their beauty but also for qualities such as scent or how they occupy's space physical

Many flowering plants and garden varieties tend to be specially bred cultivars that improve on the original species species in qualities such as color, shape, scent and long-lasting blooms.

The cultivation of ornamental plants comes under floriculture and the nurseries, which is a major branch of horticulture.

History

The cultivation of ornamental plants in gardening began in ancient civilizations around 2000 BC.

Ancient Egyptian tomb paintings of the 1500 BC show physical evidence of ornamental horticulture and landscape design.

Types of ornamental plants

- 1 Indoor plant
- 2 Outdoor plant

Indoor plants

Plant that require a low amount of light and water to thrive are typically known as indoor plant

The plants that are grown generally in containers, pots, ceramic made pots or any other container.

Examples

Aloe Vera

The aloe vera is an excellent indoor plant for medicinal purposes, especially for detoxification, and toxins absorption. It is the most sought-after medicinal plant for health care and skincare products.

Soil and Climate

Well drained laterite to loamy soil is suited for aloe vera cultivation. The soil pH must be ranged from 7.0 to 8.5.

Commercial cultivation can be done in regions having 25-40°C.

Seed and Sowing

It is propagated through suckers. The suckers are dipped in 0.1% Carbendazim for five minutes and planted in the field.

Aloe vera plants can survive constant drought conditions. However, the crop thrives well in entire tropical and sub-tropical region with mean annual rainfall of 35-40 cm.

Planting Season

The planting can be done during two seasons namely June - July and September - October.

Irrigation

It is mainly grown as rainfed crop.

During summer months 4-5 irrigation are required.

Harvest.

Harvesting can be done 6-7 months after planting. Plants are uprooted and processed (gel extraction) within 6 hours after harvest.

In India, it is grown in Rajasthan, A.P, Gujarat, Maharashtra and Tamil Nadu.

FERNS

Ferns are common house plants to decorate dull or lonely corners of home. Ferns have a special ability to purify the air. These small plants for home are eccentrically beautiful and need regular watering with the right amount of sunlight.

They do not bear flowers or seed. They propagate through spores. Spores are produced only undersides of the

fern fronds in small capsules called
Sporangia

Cultivation of Ferns

In general ferns are easy to grow, requiring little or no special treatment. They will grow better if attention is paid to the following:

Shade

Most ferns appreciate full or dappled shade and few will tolerate full exposure to sun between about noon and 3.00 pm particularly in the warmer and drier plants.

Humidity

Most ferns enjoy a humid environment, so some lateral and overhead protection from trees or shrubs is beneficial. Dry shade needs to be enriched with moisture retaining mulch or compost.

Wind

Whilst some air movement is beneficial, exposure to strong winds can be harmful.

Soil composition

The ideal soil is humus rich, with a high leaf mould content, but ferns will grow in most good garden soil even clay, because it is moisture retentive.

Wetness

A moist but not water logged soil is best for moist ferns. Wild ferns often grow in situations where the ground water is on the move not static. Few ferns will tolerate dry soil. and

MONEY PLANT

Botanical name → *Epipremnum aureum*
vern → Devil's ivy

Vaastu suggest that the Money plant is one of the common house plants used by crores of Indian households.

Money plant can adjust to almost all types of climate and to geographical situations.

In India, it is grown in Rajasthan, Andhra Pradesh, Maharashtra and Tamil Nadu.

Money plant is native to Moorea island in the Pacific ocean, widely cultivated in India.

They have gained popularity as they can grow both in soil and water and in fact even in jellies. It is found in Northern Australia, China, Japan, Bangladesh, India and Pakistan.

It is also called Devil's vine or Devil's ivy because it is almost impossible to kill and it stays green even well when kept in the dark.

Soil

Well-drained soil is what money plant requires. So one can mix river sand with normal potting soil. Sand allows brilliant aeration and drainage to plants and thus the plant will prosper well.

Water

Money plant is a strange plant as it can thrive both when water is adequate or underwater. Underwatering would still be okay but over-watering can be detrimental to its growth. Watering a money plant once in 7 or 10 days is perfect for summer season because the soil also needs to dry up between two watering sessions.

Sunlight

Money plant generally grows well in direct sunlight in gardens in indoor places or low light conditions. A partially sunny and partially shady area is also preferred for good growth of money plants.

OUTDOOR PLANTS

Outdoor plants are plants that are grown outside in the ground. Outdoor plants need less maintenance and grow up easily on the outside.

Example

Rose

Botanical name - Rosa rubiginosa

Roses are best known or ornamental plants. They have been also used for commercial perfume and commercial cut flower crops.

Maharashtra, Tamil nadu, Karnataka and West Bengal are the most rose-farming states in India.

Soil and Climate

Well-drained sandy loam with pH of 6-7 is suitable. Bright sunshine for minimum of 6 hours is essential for the cultivation of roses.

Propagation and Irrigation

Irrigation is done once in 2 days until plants establish and once a week thereafter. Avoid salt water for irrigation purposes.

Manuring

After pruning in October and again in

In July the plants are manured with FYM 10 kg and 6:12:12 g of NPK per plant.

Biofertilizer

Soil application of 2 kg each of Azospirillum and Phosphobacterium per ha at the time of planting. It is to be mixed with 100 kg of FYM and applied in pits.

Tulsi

Botanical name → Ocimum tenuiflorum

The genus Ocimum (tulsi) belongs to the family Labiatae. Many species of Ocimum contain various economically important essential oil used in perfumery and cosmetics industries.

It thrives well in warm areas.

It is found in Punjab to Trivandrum and in Bengal, Bihar also.

Climate and Soil

It is a tropical to sub-tropical plant, it prefers fairly to high rainfall areas with humid conditions. Long day and high temperature condition enhance growth and higher oil production. Ocimum can be grown in rich loam to poor lateritic soils.

It can also come up in saline or alkaline soils to moderately acidic soils.

Field preparation

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The land is well prepared with two or three ploughing until a fine tilth of soil is obtained. Farm yard manure may be applied before the 2nd or 3rd ploughing. The crop is raised from seeds and can be grown annually from the middle of February to the end of September by direct sowing or transplanting.

Harvesting

From sowing to first harvesting, it takes about 90 - 110 days in the case of direct sown and 75-90 days in the transplanted crop. The plants are cut 20-25 cm above the ground level, in the first year, 20-30 cm level in second year and 35-45 cm level in the third year.

Yield.

On an average, 25 to 30 tonnes of herbages yield can be obtained per hectare in the first year and in the subsequent years it may go up.

Uses

Natural immunity booster

Reduces fever and pain

Reduces cold cough and other respiratory disorders

Reduces stress and blood pressure.

Good for diabetes patient

MARIGOLD

Botanical name: Tagetes. They are annual plants, which means that they live for only one year. They are the ultimate disease-resistant plant. The flowers lend a dash of colour to many recipes, while adding a mild flavor to soups and pesto. The food industry uses marigold as a natural dye to give cheese and butter a more appealing yellow. The dried flowers are also put in certain teas to make them look more attractive.

Soil: Well drained loamy soil is found suitable. The soil pH should be 7.0 to 7.5. Saline and acidic soils are not suitable for cultivation.

Seeds and sowing: The seeds are sown throughout the year. Nursery is raised with 4.5 kg seeds/ha and the seedlings are transplanted after four weeks on one side of the ridge at 45 x 35 cm spacing. Treat the seeds with Azospirillum (200g in 50 ml of rice gruel) before sowing.

Irrigation: Irrigation is done once in a week or as and when necessary. Water stagnation should be avoided.

Manuring: During last ploughing, incorporate 25t/ha of FYM. Apply 45:90:75 Kg NPK/ha as basal + 45 Kg N/Ha.

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as top dressing 45 days after planting.

After cultivation: Weeding should be done as and when necessary. Irrigation should be given immediately after planting and life irrigation on third day after planting. Water stagnation should be avoided. Based on the soil moisture condition, irrigation should be done.

- Nipping / tipping: Thirty days after planting terminal portion(s) should be tipped / removed to encourage the branching.