

APPLE FARMING

This ultimate guide on **apple farming** will guide you in cultivating and harvesting apple in your apple farm. Get to know variety, fertilizers, plantation, irrigation requirement of apple.



Soil Requirements:-

Well drained, aerated **loamy soil** that is rich in organic matter is ideal for cultivating apple. Apple tree loves **soil pH** range of **5.5 to 6.5**. Avoid planting apple trees in waterlogged, soggy or compact soil.

Climate & Temperature:-

Apple is a **temperate fruit crop** that likes to grow in dry temperate areas. It requires **temperature range** of **21 to 24° Celsius** during its growing season. You can cultivate apple at an altitude of **1,500 to 2,700 above mean sea level** which experience **1,000 to 1,500 chilling hours**.

(Chilling hours means that the time in hours for which the temperature should remain below 7 Celsius during winters.)

Well evenly distributed **100 to 125 centimetres annual rainfall** during growing season is ideal for growth and fruiting. However, excessive rains and fog during fruit maturity phase can harm the production and quality.

Excessive moisture results in **poor fruit quality, improper colour development**, and increase chances of **fungal spots** on the surface. Therefore uneven distribution of rainfall can cause problems in apple production.

Varieties Of Apple:-

Cultivation of apple is mainly possible in Jammu & Kashmir, Himachal Pradesh, and Uttar Pradesh in India. Cultivars that you can cultivate in these places are given in this table.

State	Cultivar
Jammu & Kashmir	Benoni, Irish Peach, Cox's Orange Pippin, Ambri, White dotted Red, American Apirouge, Red Delicious, Golden Delicious.
Himachal Pradesh	Tydemans Early, Mollies Delicious, Starkrimson, Starking Delicious, Red delicious, Richared, Granny-Smith, Red Spur, Top Red, Red Chief, Oregon Spur, Golden Spur, Michal, Schlomit.
Uttar Pradesh	Early Shanburry, Chaubattia Princess, Fanny Benoni, Red Delicious, Starking Delicious, Rymer, Buckingham.

Planting Season & Material:-

Early spring season, i.e. usually from **late January to February** is the best time for propagation and plantation of apple trees. You can propagate apple tree by grafting, budding, or rootstocks.

Budding and **tongue grafting** are common methods for propagation of apple. If you are not propagating yourself then purchase propagating material only from the trusted agriculture stores.

Budding

T-budding or Shield budding is a common practice that farmers use for propagating apple trees by budding. You can practice budding during active growing season i.e. during summers.

For T-budding, cut a single bud with shield piece of stem along with scion and insert it beneath the rind of the rootstock. For this perform a T-shaped incision on the rind of the rootstock.

Grafting

You can practice whip or tongue, cleft, or roots grafting during early spring season for propagation of apple. Practice tongue grafting at 15 centimetres above the collar for best results.

Planting Method:-

This is one of the most crucial step after propagation of apple for successful apple farming. If you are planting apple in valleys then you can try square or hexagonal system of planting but on the slopes you can try contour planting method.

For proper fruit set, plantation of pollinator species between main species is necessary. For two to three large trees planted at 10 metres distance one pollinator tree is good for enhanced pollination. Or you can also plant one row pollinator for two rows of main species tree.

Prepare pits of size **1×1×1 metres** depth during late fall or October to November for plantation. Mix 30 to 40 Kilograms of organic manure or Farm Yard Manure and 500 grams of single super phosphate. After mixing properly add malathion dust. Fill all the pits with this mixture and do plantation after one month.

Irrigate the orchard immediately after apple tree plantation.

Spacing:-

In one hectare of land you can plant around 200 to 1,250 apple trees. Depending on the variety and region you can try any one of these spacing methods:

1. **Low Density Plantation:** You can plant around less than 250 apple plants per hectare.
2. **Moderate Density Planation:** You can plant around 250 to 500 apple plants per hectare.
3. **High Density Plantation:** You can plant 500 to 1,250 apple plants per hectare.
4. **Ultra High Density Plantation:** You can plant more than 1,250 apple plants per hectare.

Fertilizers:-

You can apply **10 Kilograms of Farm Yard Manure per year age of tree** for proper growth and development. Along with FYM also apply 350 grams of nitrogen, potassium, and 175 grams of phosphorus per apple plant per year in split dozes.

You can also apply jeevamrut or waste decomposer time to time for increased leaf size and plant protection.

Irrigation:-

Apple tree requires **114 centimetres** of water annually. In a year apple orchard will require around 15 to 20 irrigations to fulfil its water needs. During summers irrigate at an interval of 7 to 10 days but during winters irrigate at an interval of 3 to 4 weeks.

Both excess or less moisture content in the soil can harm apple production. Fruit size and quality decreases due to water stress in active growing season. Therefore it is necessary to meet water needs of the tree to get good quality apple fruits.

Training & Pruning:-

Training and Pruning of apple tree timely is necessary for proper growth and productivity. Train apple trees according to the growth habit and vigour of the rootstocks. Training on modified central leader system is standard practice that allows trees to get proper sunlight.

Although you can also practice Spindle bush training system for high density planting. It will help to improve fruit colour and will minimize the harsh effects of heavy snowfall.

National Board Of Horticulture, India suggests that to maintain proper balance between vegetative growth and spur development, pruning is necessary. During pruning you should remove weak and diseased branches from the apple tree.

Pests & Diseases Of Apple:-

Apple can get affected from various pests and diseases that can reduce fruit quality and plant growth. Controlling them well in time is a necessary step. These tables given below will guide you in controlling pest and diseases of apple.

Diseases Of Apple	Control Measures
Scab	Spray 0.1% Tridemorph before flowering, 0.25% Mancozeb at fruit bearing stage.
<u>Powdery Mildew</u>	Spray 0.05% Dinocap .
Fire Blight	Remove infected parts, spray Streptomycin 500ppm .
Soft Rot	Dip the fruits in Aureofunginsol 500ppm for 20 minutes.
Bitter Rot	Spray 0.25% Mancozeb .

Pests Of Apple	Control Measures
Woolly Aphids	Spray Dimethoate 30 EC 0.06% , and release parasitoid <i>Aphelinus mali</i> .
San Jose Scale	Summer spray with Phosalone 50 EC 0.05% , and winter spray with diesel oil emulsion at 8-12 l/ tree .
Codling Moth	Apply Virosoft CP4 Granulovirus , and Spray 0.04% DDVP .
Cottony cushion scale	Spray 2% neem oil , or 5% NSKE .
Stem Borer	Prune out the branches that contains Grub.

Harvesting Of Apple:-

Apple trees will start bearing fruits from 8th year after plantation. This will continue till 30th year after plantation of apple trees. Generally, after full bloom stage it will take around 150 days for fruits to mature. Depending on the cultivar the color of the skin at maturity can vary.

You can harvest apple fruits when they are uniform, firm, and crisp.