



Advantages of training and pruning

- Harvesting and utilization of maximum solar energy by regulating plant growth for betterment of yield and quality of nut and apple
- Development of stronger framework of branches with equal distance at desirable direction
- Equi-distant branches enhances resistance against strong wind in wind prone areas
- Trimming of tangled and low lying branches facilitates the intercultural operations
- Less vegetation restrict the micro-climate congenial for pest infestation
- Maximum exposure of ground helps to disinfect pest and disease inoculum during summer
- Removal of dried branches, dead woods and criss-cross branches reduce the effect of shade and extra burden on trees
- Thinning out of dead branches reduce the chance of secondary infection

Precautions and aftercare during training and pruning

- Training must be made in live tissue to facilitate good callus formation for rapid healing
- Sharp tools should be used for implementing training or pruning to avoid the damage to bark/phloem
- After training or pruning, 10% Bordeaux mixture paste swabbing for large cut ends or 1% Bordeaux mixture spray for pruned shoots is recommended
- As a preventive measure, the pruned trees are to be sprayed with 0.2% λ -cyhalothrin twice or thrice in the initial 24 months of pruning
- The tender shoots should be protected against Tea mosquito bug attack by spraying λ -cyhalothrin 0.003% (6 ml in 10 L of water)

Tools used for pruning

- Training and pruning done through manual method is cumbersome in cashew. There are tools available to make the operation simple and easy.

Secateur: Used to prune lateral shoots and small twigs of 1.5 to 3 cm diameter

Pruning saw: Used to prune small woody branches of 5 to 10 cm diameter

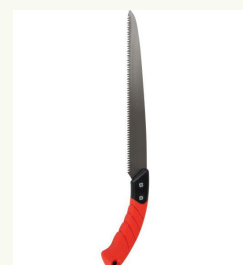
Pole tree pruner and Pruning shears: Used to prune 10 to 20 cm diameter upto its reachable height

Chain saw: Power or fuel operated chain saw is used to prune woody shoots of any size

Telescopic power tree pruner: Used to prune woody branches of smaller size upto its reachable height



Secateur



Pruning saw



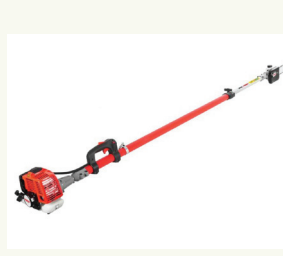
Pole tree pruners



Pruning shears



Chain saw



Telescopic power tree pruner

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Training, Pruning and Aftercare in Cashew

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Cashew is a tropical nut tree introduced from Brazil during 16th century to mitigate soil and water erosion in coastal areas. The commercial cultivation of cashew started during late 19th century, when the relishing and nutritive status of cashew nut was explored. Every year cashew growing area has been increased exponentially not only for delicious nut but also for reasonable income with minimum crop management practices.

Cashew is a vigorously growing woody perennial tree. Naturally grown cashew trees produce unconditional branches resulting in irregular canopy shape. Sometimes, the condition of too many branches at one direction results lodging of trees. In such kind of orchards, taking up intercultural operations in later years become difficult and those criss-crossed branches affect the quantity of light interception which results in low yield and poor quality fruit development.

Light is an important natural requirement for plant growth, development, yield and production of quality fruits. The green leaves exposed to sunlight produces photoassimilates such as carbohydrate and sugars which are translocated to the needy and interior plant parts viz., shoots, buds, flowers and fruits. Since, trees shape determines the light interception, maintaining the shape of tree through proper training and pruning practices are essential.

Training

Training is a method of regulating plant growth in a desired direction during early years of planting, to form a definite canopy shape. Such type of initial training provides good architecture to the plants and further helpful in good nut production.

In cashew, the training system and the diameter of canopy to be maintained is dependent on spacing. In general, two types of training systems are being practiced in cashew, a) Modified leader system and, b) Open centre system.

a) Modified leader system

In this system, cashew grafts are allowed to grow as single stem upto a height of 75 to 100 cm by removing side sprouts. Then lateral branches are allowed to grow at desirable direction by de-topping. De-topping height varies from 2.5 to 4 m depending on spacing. Under normal spacing (8m x 8m), de-topping at 4 m

from ground level is recommended. Whereas, for high density planting (5m x 5m), de-topping at 2.5 m from ground level is recommended. Removal of criss-cross branches and trimming of branches has to be resorted to get dome shape canopy and the same should be maintained in later years by imposing mild pruning. This kind of canopy helps in reducing weak shoots and water shoots development. Modified training system is suitable for both normal and high density planting system.



b) Open centre system

Cashew grafts are allowed to grow straight upto 50-60 cm from ground level. The terminal growing point is pinched off to form lateral branches. The branches are regulated to grow in four directions at equal distance. Because of fast vegetative growth, the canopy spreads rapidly. To avoid this, canopy centre needs to be opened once in a while to support more light interception to the interior plant parts. This encourages flowering at inner and outer surface of canopy and thus increases the yield.



Pruning systems in cashew

Cashew plantation under normal or less spacing, requires regular pruning to avoid unnecessary supply of photoassimilates to unproductive shoot *i.e.*, water shoots and weak branches. In cashew, trimming of exhausted branches induce productive growth and helps to promote the yield. In high density planting system, pruning operation plays a vital role to accommodate the canopy within the allotted space. Pruning and canopy shaping along with suitable special operations need to be taken up every year after harvest of the crop. Cashew trees enter a distinct resting period (quiescent stage) after harvest (May – June) till next flush production time (September - October). The lateral shoots which bears flowers/fruits are formed in the terminal of leader shoot after resting period. The past season leader shoots can produce only one lateral from its terminal. Pruning enhances the production of lateral shoots, thus the yield can be increased. Pruning intensity and time varies for different specific agro-climatic regions. The details of pruning pertaining to East coast region are furnished in the table below,

Region	Best Pruning method	Month of Pruning	Collective operations (if any)	Percentage of yield increase	Suitable varieties
Karnataka	Leader shoot pruning (Secondary shoots) – 50% to 60% canopy	July	-	34.02	H-130 VRI-1 VRI-3 Vengurla-4 Ullal-1 VTH-30/4
	Leader shoot pruning (Secondary shoots) – Whole tree	August	-	53.85	VTH-539
Tamil Nadu	Lateral shoot pruning (Tertiary shoots) – whole tree	August	Two Foliar sprays 1. New flush stage (August)– NPK 19:19:19 @ 1% 2. Flowering stage (December-January)	44.69	VRI-3
Odisha	Branch thinning (3 branches)	July	-	37.92	Vengurla-4
West Bengal	Leader shoot pruning (Secondary shoots) – Whole tree	July	-	53.51	Vengurla-4