



## **Establishment and Maintenance of chawki (Young age silkworm) garden**

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<https://doi.org/10.5281/zenodo.7600044>

### **Introduction**

Various factors that influence to successful of young age silkworm rearing and supply of suitable nutritious mulberry leaves as feed is important. The larval duration and larva health are most vital for the success fully of cocoon production for every rearing or crop. The qualitative and quantitative are requirements of the feed for silkworm various at different stages of larval period. In generally young age silkworm's larva is required of rich nutritious leaf such as higher succulency, moisture and nutrient contents and others to compare on late age silkworm rearing. The good nutritional requirements silkworm larva directly obtained only from mulberry leaves. Other vital factors determining the success of cocoon crop are the health care and hygiene during the chawki rearing. Successfully of chawki rearing to require on separate chawki garden can be established by chawki farmers.

The chawki larva to meet for quality of mulberry leaf is directly influence by high nutritional determining varieties. Certain, mulberry varieties can be obtained rich nutritional content that varieties grown under garden – popularly called as chawki garden. In central silk board under the institute of central sericulture research and training institute, Mysore (CSRTI, Mysore) recommended chawki rearing varieties can be grown by chawki garden. The S36 and G2 varieties is the best suited for chawki rearing by VI.



### **Selection of place and land preparation**

Selection of place is most vital role of the establishment of chawki mulberry garden. The place should be flat and well secured in soil profile along with soil such as deep sandy loam or clay loam or loamy soils. Field must be obtained free from termite infestation. The ideal spacing is 90 x 90 cm or (90+150) x 60 cm. The site should have assured irrigation source.

### **Land preparation**

After choosing the field site the land must have deep ploughing with tractor which is helpful for losing the soil. The ideal soil pH range is 6.5 to 7.5. Perhaps soil has below or above the corrective measure must be adopted. Soil analysis desirable for identified the soil reaction and nutrients status. Land can be divided into eight equal plots of convenient size with mass provision for irrigation channels and bunds. Organic manure @ 20 MT/ha shell be applied either in trenches or in the pits.

### **Spacing**

Spacing for planting the saplings should be 90 x 90 cm between the plants in a row. With this spacing, about 4840 saplings can be planted in an acre (0.4 ha). However, wider spacing of paired method can also be adopted.

### **Planting material**

Three to four months sapling suited for main field. Healthy, 100-120 days old saplings of 100-120 cm height can be used for planting. Because of already developed root system in saplings, plants get established quickly and grow vigorously.



## **Planting**

Planting work should be taken up soon after the onset of regular South West monsoon. One sapling per pit placed deep and straight. After this, the soil around the saplings must be pressed firmly. When planting work is over, adequate irrigation has to be given immediately.

## **Inter-cultivation and maintenance during establishment**

About one year after plantation, light weeding/hoeing should be done. Second weeding must be done after three months of planting. Weeding operations should be thorough and should be regularly carried out. After first weeding, gaps must be filled by healthy saplings followed by watering.

The plantation taken up during the monsoon will have the advantages of receiving fairly distributed rain from June to October. If there is no adequate rain for a period of over 10 days, irrigation has to be given. After the cessation of the monsoon, irrigation has to be given regularly at an interval of 6-7 days, but this frequency varies depending on types of soil. 1.5-2.0 acre inches (34,000-45,000 gallons) of water are required per irrigation, which can be given by furrow system and whenever possible, drip or sprinkler system can be adopted.

Mulberry grows vigorously under assured irrigation and soil fertility. First dose of chemical fertilizer should be given as booster dose at the rate of 50: 50: 50 kg NPK/ha after second weeding and 3rd month of planting. By sixth month, plants would be ready for first harvest of leaves. After the first harvest of leaves followed by weeding, a second dose of chemical fertilizer must be applied at the rate of 50 kg N/ha.



In the pursuit of good establishment of the plantation, it is not advisable to go for regular leaf harvest till the completion of one year of planting. After 6 months of planting, 3 light leaf harvests can be made till basal pruning is given.

In the event of occurrence of fungal diseases, spraying of 0.1% Bavistin and in the case of attack of insect pests, spraying of 0.1% Metasystox has to be done. Care should be taken to allow required safety period before harvesting leaf for feeding the silkworm.



### **Training schedule in eight crop patterns**

After garden establishment period of about one year, the plants should be pruned (30 cm above ground) during the onset of monsoon. After 35 days of bottom pruning, harvesting of leaf is commenced for next 10 days (up to 2nd moult). At the end of rearing, the top terminal bud is clipped. Twenty five days after top clipping, second leaf harvest of shootlets is to be done for rearing of worms up to second moult. Thereafter, plants are again pruned at crown (80th day after 1st pruning). This cycle has to be repeated 4 times to get 8 crops in a year. Thus, plants are pruned at the crown (20 cm above ground level) 4 times in a year (after 2nd, 4th, 6th and 8th crops) (Figure 2). (Individual leaf picking is recommended for 1st, 3rd, 5th and 7th crops while the shootlets are to be harvested in 2nd, 4th, 6th and 8th crops for the purpose of rearing.



### **Manure and fertilizer schedule**

The annual dose is 40 MT FYM/ha to be applied in two equal splits in 1st and 5th crops. The annual fertilizer dose is 225: 150: 150 kg NPK /ha in 8 equal splits @ 28:19:19 kg NPK /ha/crop. This can be applied as 127 kg Suphala (15 N: 15 P: 15 K) plus 20 kg urea per crop



### **Irrigation**

1.5-acre inch of irrigation water is to be provided once in 4-6 days by ridges-furrows method (34,000 gallons of water per acre each time).

### **Leaf yield and quality**

Leaf yield: The above technology ensures a high yield of 29 MT of chawki leaves per hectare per year as against 7 MT/ha of chawki leaves obtained from common gardens. Almost 100% of the leaves produced are suitable for chawki rearing.



Leaf quality: Qualitatively the leaves produced by this technology are superior (about 80% leaf moisture, and by dry weight 25 % of leaf protein and 13 % of leaf sugar) to leaves obtained from common garden (74 % leaf moisture, and dry weight 21 % leaf protein and 11 % leaf sugar).

To work out the economics of chawki leaf production, three models of 0.2 ha (yearly 5,000 kg leaf and 30,000 Dfls), 0.4 ha (yearly 10,000 kg leaf and 60,000 Dfls) and 0.8 ha (yearly 20,000 kg leaf and 1, 20,000 dfls) have been considered. This consideration is based on the availability of 10,000 kg leaf/0.4 ha (1 acre)/year by 12 harvests. Also, as 15 kg leaf requirement/100 dfls. The cost of chawki leaf production works out to be Rs.2.60 per kg, with depreciation and Rs.1.77 per kg without depreciation.





### Reference

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