

Frequently asked questions on Mulberry Cultivation

S.No	Question	Answer
1	How to avoid (measures to be taken to avoid) failure of plants planted in pits. ?	To avoid failure of new saplings planted in pits following steps are useful. <ol style="list-style-type: none"> 1. Take up gap filling as early as possible i.e., within 2-3 months of plantation 2. Use thicker and healthy saplings for gap filling 3. For gap filling, make pits of 44 x 30 x 30 cm size and apply about 1kg FYM and 10g Diathane M-45 (fungicide) as per pit and mix 4. Before planting, dip the root zone of the sapling in 0.1% Bavistin (fungicide) solution for 30 minutes. 5. First year provide additional quantity of manure, fertilizer and irrigation to the gap filled plants for better establishment
2	What should be the age of the mother garden for taking cuttings. ?	Generally, it is better to collect the seed cuttings from 8-9 months old shoots to get higher survival rate. However, seed cuttings can be collected from a minimum of six months old shoots. It is always advisable to collect seed cuttings from seed multiplication garden.
3	What are the reasons for death of cuttings after plantation. ?	Death of cuttings in the nursery beds may be due to following. <ol style="list-style-type: none"> 1. Using immature cuttings of less than 6 months of age 2. Drying of cuttings due to delayed planting 3. In-sufficient irrigation 4. Damage to the bark while preparing the cuttings 5. Poor soil drainage due to low sand and high clay content resulting in water stagnation 6. High soil pH 7. Infection due to nursery diseases like stem canker, collar rot cutting rot etc.
4	How to overcome the date of cuttings after plantation. ?	<ol style="list-style-type: none"> 1. Select nursery site near to the water source 2. Provide adequate quantity of sand and FYM to improve drainage 3. Collect seed cuttings from a minimum of six months old shoots 4. Reject lower thicker and upper immature portion of shoots 5. Dip the cuttings in 0.1% Dithane M-45 solution for 30 minutes 6. Nursery Guard a bio-formulation of Trichoderma pserudokonigllii developed by CSR&TI, Mysore may be used effectively against nursery diseases 7. Provide sufficient irrigation.
5	Why cuttings should be planted straight in nursery bed. ?	Planting cuttings straight in the nursery beds helps in straight development of shoot. Such saplings with straight shoot are suitable for proper training of plants
6	Whether sprouting improves if nursery beds are covered with polythene sheet. ?	Nursery beds with poly mulch improves sprouting and survival of cuttings significantly by increasing the soil temperature, humidity and moisture retention inside the beds. Poly mulch also helps in checking the growth of the weed. Use black polythene sheet as mulch to get better results
7	How to maintain chawki garden. ?	<ol style="list-style-type: none"> 1. For developing chawki garden always select elevated land with fertile soil. 2. Use S-36 or V-1 varieties for raising chawki garden 3. Maintain wider spacing or either 90 x 90 cm or paired row of (90 +150) x 60 cm. 4. Supply GYM at rate of 40 MT/ha/year in 5-8 slits 5. Apply chemical fertilizer NPK @ 260:140:140 hg/ha/yr in 8

		<p>equal splits in the form of straight fertilizers corresponding to 8 harvests</p> <p>6. Irrigate once in 4-6 days depending upon soil texture</p>
8	What re the reasons for yellowing of leaf. ?	Yellowing of leaf is mainly due to the deficiencies of nutrients and due to the effect of leaching. To over come this, it is very essential to know the fertility status of the soil by soil testing and adopting suitable corrective measures. In general, deficiency of nutrients can be over come by improving the fertility of soil and the soil recommended dose of chemical fertilizers, green manure and also by foliar application of Seriboost @ 2.5 ml/liter of water. Water stagnation in the plot due to poor drainage also results in yellowing of leaves.
9	Is there any difference in yield and quality of V-1 compared to existing varieties. ?	Variety V-1 has high yielding capacity and can yield 60-70 MT of leaf/ha/yr under full input conditions compared to 45 MT/ha/yr in S-36 and 35-38 MT/ha/yr in Kanva-2 varieties under similar conditions. Leaf quality in case of V-1 is superior to other varieties
10	How many months after establishment of the garden the first leaf harvest is to be made. ?	Proper establishment of mulberry garden after planting is very important for the better maintenance of garden in the coming years. During the first year of plantation more emphasis should be given for the better establishment of the plants than the yield. Hence, plantation should be allowed at least for six months.
11	How to use Glycel (Glyphosate 1%) ?	<p>In order to control the weeds in general and perennial weeds like Cyprus, Cynodon etc., it is advisable to use systematic weedicide " Glycel". Two sprays per year in alternate crops (1st & 3rd) are recommended. The method of using</p> <ol style="list-style-type: none"> 1. Remove all the leaves from the plants within 2-3 days after pruning 2. Mix 7.1 ml. Glycel and 5g of Ammonium sulphate in one liter of water to prepare 0.2% solution 3. About 200 liter solution is required for spraying in one acre (About 1.5 liter Glycel is required) 4. Use WFN 40 nozzles for the spray 5. After spraying, do not cultivate the land till the weeds dries completely.
12	How to develop good stump in mulberry ?	<p>Developing good stump is beneficial in the proper establishment of the plant.</p> <ol style="list-style-type: none"> 1. Choose well developed saplings with many rootlets 2. Plant the saplings in upright position. After planting, within 3-4 days, cut the sapling at the height of 10 cm above ground level using secateur. 3. Allow only 3-4 branches/plant to grow for six months 4. After six months, prune the plants at 20-25 cm height from the ground level using secateur. 5. Maintain the stump height at 25 cm from ground level during subsequent pruning and harvestings.
13	Can the green manure be applied for mulberry garden. ?	Yes, green manures are grown as mixed crops/ inter crops in widely spaced mulberry garden to enrich soil fertility. In majority of cases, leguminous crops of short duration with high biomass production capacity are used as green manure crop. Important green manure crops are Sunhemp, Dhaincha, Cowpea, Cluster bean, Horse gram etc., One day prior to sowing, soak the seeds in water and broadcast the seeds @ 5-7 kg/acre. Mulch the green manure plants before flowering and irrigate thoroughly.
14	How may days once the mulberry garden is to be irrigated. ?	In light sandy loam soils, irrigation at 7-8 days interval may be necessary while in heavy clay loam soils, irrigation at 8-10 days interval may be adequate. It is most important to supply adequate quantum of water at a time i.e., 1 ½ to 2 acre-inch of

		water per irrigation.
15	Whether top clipping is necessary in mulberry ?	Not necessary. Generally, top clipping is practiced to improve the maturity of leaves to suit final instar larvae in leaf feeding method of rearing. In shoot harvest method, maintain 65-70 days crop period to get suitable quality leaf for final instar worms.
16	Is it possible to cultivate mulberry without chemical fertilizer by application of bio-fertilizer and FYM.?	As mulberry is grown for its foliage and harvested five to six times in a year, requirements of manure and fertilizers are very high. Therefore it is difficult to continue profitable sericulture for longer period by application of only bio-fertilizers and Farm yard manure. Hence, balanced application of required elements in the form of manure, fertilizers and bio-fertilizer is very essential for the sustainable yield.
17	What is method of collection of soil sample ?	Correct diagnosis of soil status depends on correct method of collection of representative soil samples. Number of soil sample to be collecting depends on uniformity of the land. Divide the plot into subplots that look different in appearance, soil type etc. Scrape a thin layer of soil from top to bottom on all sides of the pit. Mix soil samples of a sub-plot thoroughly and spread it on a paper. Divide samples in four equal parts and reject two opposite parts. Do not collect the soil from extreme corners of the field or immediately after rain or after the application of fertilizer.
18	Whether S-36 has got rooting problems ?	A six month old cutting of S-36 variety gives about a 50% rooting. However, this can be improved marginally by using cuttings of 8 months old shoots. Rooting can also be improved by treating the cuttings with root promoting hormones like NAA, IAA, IBA etc.
19	Is there any problem, if urea is applied for alkaline soil. ?	Among the various nitrogenous fertilizers, higher nitrogen loss and lower mineralization were observed in case of application of urea in alkaline soils. Hence, application of ammonium sulphate was found to be superior in alkaline soils as it being an acidic fertilizer and contain sulphur that helps in bringing down the pH and reduces nitrogen loss.
20	How does the pH of the soil affect the growth of mulberry ?	The availability of number of plant nutrients is optimum when soil pH is in the range of 6.5 to 7.5. Extreme range of soil pH i.e., 6.0 and above 7.5 causes some of the nutrients into insoluble forms and poorly accessible to plants. This reduction in uptake of nutrients and absorption of high quantity of sodium and calcium salts, results in poor growth of the plants. Exchangeable sodium percentage of alkaline soils also affects the soil physical characteristics, biological activity and influence the growth of mulberry.
21	What is the chemical fertilizer dose to be applied after two months of plantation ?	It is suggested to apply chemical fertilizer (N:P:K) @ the rate of 50:50:50 kg/ha, after two months of plantation i.e., during establishment.
22	As the temperature is high in Andhra Pradesh, is it possible to raise nursery under shade ?	In high temperature area, it is suggested to raise the saplings under shade. However, the shade should not be too dense. About 40% of the light should be made available to the nursery beds.
23	How to apply fertilizer in drip system of irrigation ?	In Drip irrigation system, it is possible to apply fertilizer through fertigation method. In case of non-fertigation method, apply the fertilizer at the spot of dripper by making a small pit and cover it with soil.
24	Is there any problem if the leaf is fed immediately after irrigation ?	As such, there is no problem. However, it is difficult to harvest the shoots immediately after the irrigation. The chances of mud sticking to the shoots also increase.
25	What is the productive span of mulberry garden ?	When the gardens are maintained with recommended package of practices, stable yield can be obtained for about 15 years. Proper care should be taken after 15 years by training of stumps and thinning of branches for better yield and quality.

		However, it is advisable to go for new plantation after 15 years of plantation as there will be more number of failed pits, multiple thrunks, termite infested stumps etc.
26	How to prepare the Vermi-compost and what are its advantages?	A thatched shed of approximately 7.5 x 6.0 meters on a slightly elevated ground is sufficient for utilizing sericultural waste from one hectare mulberry area. All around the shed stone bund is to be prepared to prevent infestation of predators. In the shed, eight trenches measuring 2.4 x 0.6 x 0.45 metres in two rows of four trenches each side are to be made. The trenches are to be lined with polythene sheet. For every ton of waste add 5 kg cow dung/biogas slurry and mix in 100 liters of water in an open pit with 200-300 kg semi-decomposed sericultural waste having the feed @ 1.5 kg/metric tonne of waste and leave for 6-7 weeks. Sprinkle water regularly to maintain moisture around 30-40%. After 6-7 weeks, the casts appear as loose granules. Harvest the Vermi-compost and sieve through wire mesh to separate earthworms.
27	Whether it is possible to alter the existing 3' x 3' garden to paired row system without losing leaf yield.?	By removing a row after every two rows, it is possible to alter the existing 3' x 3' garden into paired row system to facilitate mechanisation. However, the yield per unit area during first two years of row thinning will reduce about 20%.
28	What is the schedule of irrigation?	For the garden maintained for rearing late age silkworm, irrigation once in 7-8 days for sandy loam soils, once in 10 days in red loamy soils and once in 12 days in clay loam soils is sufficient. However, this schedule may be modified based on environmental conditions. For the garden maintained for rearing chawki worms, irrigation once in 3-5 days is recommended.
29	Why we have to apply chemical fertilizer after 25 days of pruning ?	This is because after 25 days of pruning there will be sufficient sprouts in the plants which helps in better utilization of applied nutrients. Otherwise, nutrients may leach out or the nutrients may transform into non-available form. The weeds may also utilize the applied nutrients.
30	Whether the mulberry leaf produced from sloppy land is suitable for silkworm rearing or not ?	Soil erosion, leaching and providing irrigation are the biggest constraints while maintaining mulberry gardens in sloppy land. However, by adopting suitable cultivation practices like contour bund, increases application of FYM and by arranging sprinkler irrigation, suitable quality leaf can be produced from sloppy land.
31	If bio-fertilizer is used, how much fertilizer can be saved ?	By application of Azotobacter bio-fertilizer @ 20 Kg/ha/year in five equal splits and following recommended cultural practices, application of 50% of the recommended dose of nitrogenous chemical fertilizer can be saved. In such situation, NPK @ 150 : 120:120 kg/ha/year may be applied.
32	Mention the quantity of irrigation water required in drip system of irrigation. ?	In general, about 2 liters of water per day per plant in plantation with 90 x 90 cm spacing is the requirement in the drip system. However, after pruning the plants, sufficient irrigation has to be given to bring the plot to field capacity. Later the quantum of irrigation water should be determined based on prevailing weather conditions.
33	Whether application of straight or complex fertilizer is good?	For the easy availability of the nutrients to the plants, straight fertilizers are better than the complex fertilizer.

34	What is the difference between furrow irrigation and drip irrigation? How much water is required for each plant in drip method?	Drip irrigation involves the localized release of water near the root zones, which is economical. In furrow irrigation the water is given along the furrows. The water requirement in drip irrigation is about 2 liter/day/plant. Compared to furrow irrigation, there is saving of about 40% water in drip irrigation.
35	What is the correct placement of fertilizer?	Fertilizer can be applied both by placement method by making two to three holes of about 10 cm depth around the plant at a distance of 15 cm and also by broadcasting the fertilizer along

		the furrow and mixing with soil.
36	What re the advantages of tank silt application to mulberry garden?	The application of tank silt improves water holding capacity of the soil and also improves the fertility of the soil as it contains the major / micro elements, which are useful for mulberry growth.
37	Is there any harm to plants due to five times shoot harvest?	Pruning and harvest of leaf is naturally harmful to the plants. As the quantity of leaf produced in a unit area is more important, repeated pruning of shoot and harvest of leaf is inevitable. The damage of pruning the plants 5 times in a year can be compensated by sufficient application of manure and fertilizer and proper maintenance of the garden.
38	What is the quantity of bio-fertilizer and gypsum to be applied for one-hectare mulberry garden?	Bio-fertilizer is to be applied @ 20 kg/ha/year in 5 equal split doses. Fore each dose, four kg of bio-fertilizer are to be mixed with 200 kg farm yard manure and applied within 10 days after pruning the plants. Gypsum is applied to reclaim the alkali soil. The quantity of Gypsum to be applied varies with the pH value of the soil. However, application of Gypsum @ 8MT/ha/year can be done as a general recommendation to reduce soil pH.
39	Whether silkworm excreta can be applied to mulberry garden ?	Applying silkworm excreta and rearing waste directly to the mulberry garden is not at all good. This may lead to contamination and disease out break. Rearing waste should be composted first and then applied to the field. By this, one can prepare good manure and also ensures hygiene and check the spread of disease.
40	For how many days leaf can be stored after harvesting?	It depends mainly on the prevailing weather conditions. Under congenial weather condition, leaf can be stored about two days by keeping the shoots loosely and covering it with wet gunny cloth.
41	Whether S36 and V-1 can be fed in the same silkworm crop ?	Feeding S-36 and V-1 in the same silkworm crop as such no problem. However, the leaf quality and age should be the same. However, it is better to use S36 for chawki and V-1 for late age rearing.
42	What is the role of micronutrients in mulberry production?	The micronutrients are involved in several metabolic activities of the mulberry plant that are responsible for quality leaf production. Micronutrients such as Calcium, Magnesium, Zinc and Iron stimulate the metabolic activity in silkworm leading to improved rearing performance, silk content and higher fecundity rate.