

# INTENSIVE CULTIVATION PACKAGE FOR ARABICA

## Planting material

- Varieties like S.795, Sln.5B, Sln.7.3, Sln.9, Sln.10 and Cauvery are suitable for Pulney zone except Perumalmalai.
- In high elevation areas with high rainfall like Anamalais, Coonoor, Gudalur and Perumalmalai varieties like Sln.S.795, Sln.6 and Cauvery are suggested.
- In the case of Shevaroy's, varieties recommended are S.795, Sln.7.3, Sln.9 and Cauvery.
- Within an estate, each variety should be planted in pure blocks and same variety should be used for gap filling.

## Consolidation of holdings

- Vacancies within a block should be filled with same variety.
- The unproductive or off type plants may be top worked with good scion material.
- Replanting of old, unproductive blocks in a phased manner.

## Soil management

- Contour planting/terracing in moderate to steep slopes prevents soil erosion. Planting of soil binding grasses like *Vetiver*, *Paspalum* etc. across the slope at suitable intervals also helps in preventing soil erosion.
- Cover digging during the first year of planting (Jan-Feb.) suppresses weed growth. However, in slopy terrain avoid digging and adopt only manual weeding.

- Scuffling during post-monsoon (Jan-Feb.) from 2<sup>nd</sup> to 4<sup>th</sup> year of planting helps in conservation of soil moisture. Avoid scuffling in slopy terrain.
- No soil cultivation like digging, scuffling should be practiced in established fields.
- Take up cradle pits/trenches in a staggered manner across the slope in established fields to conserve soil and moisture.
- Mulch the base of young plants with dry leaves, for conserving moisture during dry months.

### **Bush management**

- Light pruning needs to be undertaken every year after crop harvest. In die-back affected plants pruning should be done only after receipt of few showers.
- Drastic pruning (Agni Kavath) by untrained labourers affecting the framework of plants as practiced in certain areas of Pulneys should be strictly avoided.
- Avoid too much opening of the center of bushes. Restrict centering to 6 inches radius only.

### **Shade management**

- A two-tier canopy consisting of temporary dadaps and permanent shade trees like *Albizzia stipulata*, *A. moluccana*, *Terminalia bellarica*, *Gmelina arboria*, *Achrocarpus fraxinifolius*, Jack fruit etc. with a tree population of 100-120 per ha including Silver Oak.
- Avoid planting Malachitian and Thondi shade trees to avoid caterpillar menace.
- In Bodinayakanur zone, planting of *Cupresses* (a conifer tree) may be taken up as wind belt.
- Shade regulation to be carried out during June-July preferably after receiving few showers, instead of the present practice of regulation during summer months.

## Weed control

- Cultural methods like cover digging, scuffing, cover cropping with cowpea, horse gram etc. in the early years suppress the weed growth.
- In large estates, an integrated method of weed control involving pre-monsoon weedicide spray, mid-monsoon slash weeding and post-monsoon weedicide spray is suggested.
- In the case of chemical weeding, use of contact (Gramoxone @ 500 ml/barrel) and systemic (Glycel or Round Up @ 600 ml/barrel) weedicides in a rotation, in combination with Urea @ 2 kg/barrel may be adopted to control all types of weeds.
- The current practice of scraping the soil for weed control should be strictly avoided.

## Nutrition

- Application of bulky organic manures like FYM or compost @ 5 tonnes/ha at least once in 2 years would improve the soil condition and better utilization of applied fertilizers.
- The soils of Pulney zone have normal pH but in other zones the soils are found to be acidic in reaction. In areas with acidic soils, periodical liming based on the soil test values is suggested.
- The recommended dose of fertilizers should be applied in 2 splits [Pre-blossom (after receipt of blossom showers) and pre-monsoon (Sep.)]. In high rainfall areas fertilizers should be applied in 3-4 splits.
- In soils with pH above 6.2 application of Ammonium sulphate and water-soluble phosphatic fertilizers like DAP, Super phosphate is suggested.
- In soils with acidic pH, rock phosphate may be used as a source of P.
- Application of phosphorus solubilising biofertilizer 'Biophos' @ 10 kg/ha would be useful in increasing the yield besides enabling one-third saving in phosphorus dosage.

- Fertilizers may be evenly broadcast in drip circle, 6 inches away from the main stem. After application, the fertilizers should be lightly worked into the soil by forking followed by mulching. No fertilizers should be broadcast over the mulch.

### **Use of growth regulators**

- Spray of Mepiquat chloride @ 1000 ppm (Chamatkar @ 4 litres in 200 litres of water) during August and September is suggested, in areas where flower bud induction is not satisfactory.
- Foliar spray of nutrients (urea 2kg, MOP 0.5 kg, zinc sulphate 0.5 kg) along with 50 ml of any one the hormones like Planofix, Hormonol, Agronaa etc. may be given 15 days after blossom to increase fruit set, berry development and extension growth.
- In high rainfall areas, where pre-mature fruit drop occurs during monsoon period, spray of Planofix (50ml per barrel) could be given along with Bordeaux mixture. Alternatively, of soil application of Biozyme granules @ 10 grams per plant could be given along with NPK fertilizers during pre-monsoon period.

### **Drought management**

- A nutrient mixture spray containing 1kg urea, 1kg SSP, 500 g of MOP and 250 g Zinc sulphate in 200 litres of water may be given 45 days after the last rainfall, to overcome the adverse effects of drought. A second spray may be given at 45 days after the first spray if drought continues.

### **Pest management**

#### ***White Stem Borer***

- Maintain optimum shade and build up shade in open patches.
- Regular tracing especially prior to flight periods i.e., in March and Sept., uprooting and immediate disposal of the affected plants is essential to reduce the pest build up. Tracing at monthly intervals in fields with high incidence is desirable.

- If infestation is not spread to lower portion of stem, allow a new framework by collar pruning.
- Spray Lindane (1300 ml/barrel) during April and October on the main stem and thick primary branches using Bakpak sprayer fitted with jet nozzle. An additional round of spray may become necessary in Nov-Dec., in case of higher incidence of pest and especially when the N-E monsoon is weak.
- Scrubbing the main stem and thick primaries during post-monsoon period using coir gloves would be helpful in reducing the pest incidence.

### **Nematodes**

- In the nursery, thorough drying of jungle soil while preparing the nursery mixture.
- Uproot the affected plants and expose the pit for at least one season and plant with arabica grafts on robusta or excelsa rootstocks.
- The affected area should be kept free from weeds.

### **Coffee berry borer**

- Timely and clean harvest.
- Collection of gleanings and leftover/ off-season berries. Use harvest mats to minimise gleanings.
- Spot application of endosulfan 35 EC ( 340ml in 200 lit.of water) or chlorpyrifos 20EC ( 600 ml in 200 litres of water ) during when most of the beetles are waiting at the navel region.
- Proper bush management to make the control measures (sprays) more effective.
- Install bottle traps with alcohol mixture as bait during harvest and post-harvest period.

As Shevroy zone is free from coffee berry borer, the following precautions may be taken to prevent its possible entry.

- Do not procure seeds from berry borer affected areas.
- Do not transport berry borer affected coffee into the zone.
- Use only new gunny bags for packing the harvested crop.

### **Green scale**

- Maintain optimum shade
- Destroy ant nests and control ants by dusting Folidal 2% or Ekalux 1.5% dust at the base of coffee plants and shade trees.
- Spot application of pesticides like Ekalux 150 ml; Lebaycid 120 ml; Folithion 150 ml in 200 litres of water along with 200 ml of wetting agent.

### **Disease management**

#### **Leaf Rust**

- Maintain optimum shade
- Post-blossom application of Bordeaux mixture (0.5%) during May/ June and a second application of either Bordeaux mixture or Bayleton (160 grams in 200 litres of water) during September (pre-monsoon) is suggested for effective management of leaf rust.

#### **Black Rot**

- In high rainfall areas which are endemic to black rot disease, mono shade of Silver Oak should be discouraged as it aggravates the disease incidence. It is therefore desirable to maintain mixed shade of conventional trees at wider spacing.
- Thinning of shade, opening of cradle pits, cleaning of bushes by removing fallen shade tree leaves etc. should be attended, prior to monsoon.
- Two rounds of handling and centering of bushes (pre-monsoon and mid-monsoon)

- Pre-monsoon spraying with 1% Bordeaux mixture in place of 0.5% Bordeaux usually done against leaf rust.
- When disease is noticed, clean the bushes by removing affected leaves, branches etc. and spray with 0.03% Bavistin (120 g/barrel) during the break in monsoon.

### **Die-back**

Dieback occurs mainly due to exhaustion of bushes and exposed conditions. This disorder is becoming more frequent because of indiscriminate opening of shade and deficit rainfall during Oct.-Nov. onwards. Adopting the following measures could effectively control this disorder.

- Avoiding early cropping on green wood (up to 3 years).
- Maintaining optimum shade.
- Proper bush management involving pruning and handling.
- Conserving the soil moisture by opening cradle pits followed by mulching.
- Judicious use of organic manures.
- Pre-blossom spray with 0.5% Bordeaux mixture, in addition to the recommended spray schedule against leaf rust.

### **Inter cropping/ mixed cropping**

- The population of intercrops like orange and pepper should be maintained at optimum level to avoid dense shade to coffee.

### **Estate level processing**

Apart from the usual recommendations on preparation of arabica parchment at estate level, the following points require careful attention to improve the quality of coffee.

- The machinery and the pulping yard should be kept clean and tidy well before the commencement of pulping season.

- Use mats while harvesting to minimise gleanings.
- Do not heap harvested fruits for long periods, as it encourages mould growth and quality deterioration. Pulping should be done within six hours after picking.
- Sort out greens from ripe fruits and dry them as cherry.
- Prepare as much parchment coffee as possible, by duly adopting pollution control measures.
- Wherever possible, adopt natural fermentation followed by manual washing to improve the quality. Avoid over fermentation.
- Soak the washed coffee under fresh water for at least 12 hours, to enhance the quality.
- Sort out unpulped fruits, stinkers and other extraneous matter from the parchment before drying.
- Dry the fresh parchment on raised wire mesh trays for initial one or two days, for enhancing the drying process, and then dry it on pucca yard.
- Do not dry coffee on mud or cow dung plastered surfaces.
- Cover the parchment during night hours using polythene sheet, to avoid rewetting.