

Cultivation of Coffee

**Production Technology of Fruit and
Plantation crops
B.Sc. (Ag) 2nd year 3(2+1)**

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Botanical Description

- Botanical Name: *Coffea arabica*
- Family: Rubiaceae
- Origin: Central Ethiopia
- *Coffea arabica* L. (arabica coffee) is a self-fertile allotetraploid species that belongs to the genus *Coffea* in the family Rubiaceae. Out of the 103 species in the genus, arabica coffee is the only tetraploid species ($2n = 4x = 44$), the remaining species being diploid with $2n = 2x = 22$ chromosomes. Arabica coffee originated from a relatively recent hybridization between *Coffea canephora* (robusta coffee) and *C. eugenioides* or their ecotypes in the plateaus of Central Ethiopia. Coffee is mainly grown in tropical and subtropical regions and is an important cash crop in more than 60 countries.

Distribution

World: Cultivation is mainly in developing countries but consumption is largely in developed countries: Cultivated in about 80 countries mostly of developing world. Total area under coffee is 11.6 million ha.

India

Area under coffee in India (2.60 per cent of world acreage (8th position in the world) India accounts for 3 per cent of world coffee production. In India area under arabica coffee is nearly 49 per cent while that of robusta coffee is nearly 51 per cent of total coffee area.

Production and productivity of coffee in India

Productivity of Arabica coffee = 815 kg/ha

Productivity of Robusta coffee = 1065 kg/ha

Average productivity = 946 kg/ha



Soil PH:

pH is preferred (PH of 4.50 to 6.00 and even upto 7.00)

Seeds and sowing

Coffee is propagated by seeds

Season

Planting spreads from June - December

Preparation of seeds

Healthy and well developed fully ripe berries are harvested from specially identified plants for use as seed bearers. After discarding the floats, the sound fruits are depulped, sieved and mixed with sieved wood ash and dried in shade. The seed is then graded to remove all cut, triangular and elephant beans. Prior to planting, the seeds are treated with Agrosan or any Organomercurial compound to prevent fungal infection.



Nursery



Nursery practices

Select light loamy soil of good drainage with high organic matter content with water and shade facilities. Form raised beds of 15 cm height, 1m width and at convenient length. Incorporate 30 - 40 kg of well rotten compost, 2 kg of finely sieved agricultural lime and 400 g of rock phosphate to a bed of 1 x 6 m size..

Flowering in Coffee Sowing

Pre-sowing seed treatment

with *Azospirillum* and *Phosphobacterium* can be done. Seeds are sown in December - January in the bed 1.5 - 2.5 cm apart with the flat side down wards in regular rows. Seeds germinate in about 45 days after which they are transplanted to a secondary nursery beds for raising ball or Bag nursery.



Preparation of field

Selective felling may be done while retaining a number of desirable shade trees. Terracing should be done in deep slopy areas. After the summer showers, pits of 45 cm x 45 cm x 45 cm are dug at 1.25 - 2.5 m apart. The pits are left open for weathering and then filled and heaped for planting. At the time of filling, apply 500 g of rock phosphate per pit along with top soil.

Spacing :

Arabica Coffee: 1.5 to 2.0 m either way.

Dwarf varieties: Sanraman: 1 x 1 m.

Robusta coffee: 2.5 m either way.

Irrigation

It is generally grown as a rainfed crop. But irrigation with sprinkler during March - April increases blossoming and results in higher yields.

Nutrition Management

Soil testing at least once in 2-3 years should be mandatory for lime and fertilizer applications.

Use agricultural lime analysing 80% calcium carbonate. November is the best period for lime application. Application of dolomite lime once in a while in rotation is beneficial.

Application of bulky organic manures like FYM or compost @ 5 tonnes/ha once in two years would improve the soil condition and better utilization of applied fertilizers.

Plant protection

White stem borer

Attacks arabica coffee grown under inadequate shade.

Maintain/create optimum shade

Borer infested plants should be thoroughly traced, uprooted during March and September, burnt to avoid economic loss during the subsequent years.

Install pheromone traps @ 25 /ha, if the incidence is high.

Remove the loose scaly bark on the main stem and thick primaries using coir glove or coconut husk.



- **Berry borer**

- Carry out timely and thorough harvest.

- Avoid gleanings as far as possible.

- Pick up and destroy the gleanings.

- Meticulously remove the leftover berries.

- Remove offseason berries to save main crop.

- Avoid excessive shade.

- Prune plants properly to facilitate better ventilation and illumination.



Mature Berries



Immature Berries



THANK

YOU