

nursery beds. Arabica seeds are sown precisely on the 15th day after sowing the Robusta seeds. For large-scale grafting operations, seeds are sown in batches at regular intervals, ensuring a continuous supply of seedlings.

Seedling care: Once the seedlings reach the topee stage, they are carefully uprooted and immersed in a dilute cow dung slurry or water containing a pinch of Propiconazole 25EC. To execute the grafting process, a new shaving blade and thin polythene ribbon/strips (1cm x 25 cm) are required.

Grafting procedure: Cut the Robusta seedling so as to retain the root portion with 3.5 cm of the stem portion, discarding the rest. Then, a vertical 2 cm cut, known as the cleft, is made through the stem. Similarly, the Arabica seedling is cut, keeping only 3.5 cm of the top portion and discarding the remaining portion. To create a wedge on the Arabica stem, two slanting cuts of about 2 cm in length are made on either side. The wedge of the Arabica stem is then carefully inserted into the cleft of the Robusta stem, and the joint is securely tied using the polythene strip.

Nursery planting: The grafted seedlings are planted in nursery bags for one month. As the wound heals, and the grafted portion joins completely, the polythene ribbon used for tying can be removed.

Field planting: Following the necessary precautions to reduce nematode populations in the soil, the grafted plants are retained in the nursery until the next planting season. Afterward, they are transplanted to the fields for long-term cultivation, ensuring the establishment of healthy and productive coffee plants.

Drench the soil around the plants with Carbosulfan 25 EC @ 480 ml/200 L of water. Depending on size of plant 50 to 500 ml solution per plant.

Three applications should be done, one during pre-monsoon, second during break in monsoon and the third during post monsoon period.

Guidelines for collection and dispatch of soil samples for nematode testing:

- Collect approximately 250 g (2 fistfuls) of moist soil from the root zone along with a few feeder roots from the suspected plants.
- If the soil is dry, sprinkle a few drops of water to keep it moist during transit.
- Place the collected soil in a polythene bag with a label inside, giving the details such as the name of the estate, name of the block/field, variety of coffee (arabica/ robusta), age of the plants, and date of collection.
- The open end of the bag must be tied to prevent the drying of the sample. The dried soil sample will be unfit for the nematode test.
- Immediately after collection, despatch the samples to the Head, Division of Entomology, Central Coffee Research Institute, Coffee Research Station 577 117, Chikmagalur District, Karnataka.

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MANAGEMENT OF ROOT-LESION NEMATODE



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Plant parasitic nematodes are microscopic 'round worms' attacking almost every crop. The root lesion nematode is highly destructive to Arabica coffee. Robusta is tolerant to nematodes.



Nematode –microscopic view

Life history

The nematode lays eggs in the root-lesions. Development from egg to adult takes about a month. All stages of the nematodes are attracted to the young and vigorously growing roots, but only the second stage juveniles enter the roots at the piliferous zone. Robusta exhibits tolerance to the nematodes at all stages, and the nematode takes more time to complete its life cycle in Robusta than in Arabica. The nematode spreads to other areas through estate implements, rain water, plants taken from the infested nurseries and soils taken from infested blocks. The pest is persistent in the soil and roots throughout the year. Higher population is noticed during

the months of July, August and September when there is heavy rainfall and increased root activity. The population declines from December to March.

Damage and Symptoms of attack

Nematodes feed and destroy the tap root, secondary roots and feeder roots. Affected plants put forth adventitious roots at the collar region during rainy season. Such plants have loose anchorage and could be easily dislodged. Affected old plants lack secondary and tertiary roots. Affected young plants become unhealthy with lean and lanky stem. Older leaves become yellow and drop, leaving very few undersized, chlorotic and crinkled leaves at the tip of the main stem giving a 'tufted' appearance. Affected bearing plants show thinner main stem and have inadequate foliage to support the crop.



Nematode infested plant

Fresh leaves produced during pre-monsoon period are smaller, crinkled, chlorotic and leathery, but the leaves produced during monsoon are normal and healthy. Death of leaves will continue till December, leaving one or two pairs of leaves at the tip during next summer or producing a 'goose-neck' after the receipt of rains.

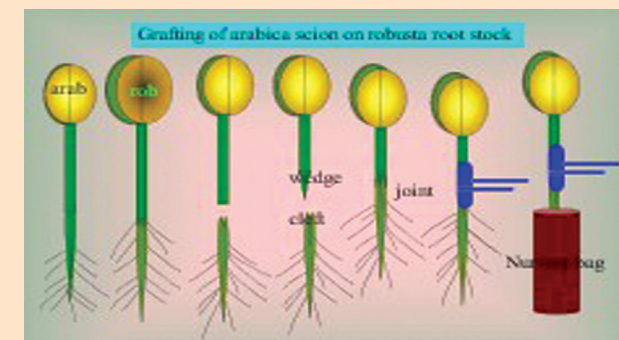
Management

I. In the nursery

- Dig up the nursery site and expose the soil to the sun during summer
- Sieve and dry jungle soil and farmyard manure thoroughly before use
- Avoid obtaining nursery plants from infested areas

II. In the field

- Uproot and burn the affected plants
- Dig up pits and expose the soil to the sun for one year
- Take care to keep the pits free from weeds
- Plant the area with Robusta (if suitable) or Arabica-Robusta grafted plants (Arabica scion grafted on to Robusta root stock).



Propagation of Robusta-Arabica grafted plants using the wedge-cleft method

Nursery seed sowing: Robusta and Arabica seeds are sown separately in designated

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