

## Increase Coffee Production Through Top Working -A Success story

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In general, coffee is mainly propagated through seeds as this method is simple and easy to adopt by growers. By seed propagation, high degree of uniformity could be achieved in Arabica coffee (on selfing) because of its self-compatible nature. But in case of cross pollinated robusta, seedling progeny population tends to be heterogeneous, resulting in many undesirable plants in the estate. In such plantations Field grafting also known as top working, it is a perfect technique to convert old unproductive or off-type plants into productive ones. Whereas, coffee growers in general are inclined to traditional way of uprooting unproductive plants and filling those gaps with young seedlings, which is labour- intensive as well as time consuming.

Whereas, the success of top working in the estate of Shri B.T. Shivaram Rai, goes like this. He own 2.3 Ha's of ancestral land to look after, and also he has developed an inclination to develop coffee in another 2 acres of land on his own. To develop the estate, he could not raise his own nursery, he had to buy robusta seedlings from a nursery and planted at 10 x 10 spacing, which constituted 435 plants per acre and interplanted the same with Cauvery. Over the years, he keenly observed that the performance of the bearing plants despite of adopting pucca farming, only 80% of the plants responded well to timely cultural operation, and appeared like real soldiers. The rest were unproductive, off type and prone to leaf disease. His only instinct was to increase the production in the existing area and not to expand it.

He decided to knockoff these unproductive plants, he thought of supply planting with high yielding varieties (which again is a time-consuming process). As he is an ex-employee of the board, he had the knowledge of grafting and found it attractive than supply plants. Therefore, he decided to cut about 20 % of well-grown robusta and Cauvery which were also susceptible to leaf rust.

**Method of Topworking / Grafting:**

- The undesirable plants have to be collar pruned at a height of 20-30 cms from the ground level at 45° angles after the receipt of a couple of summer showers (March/April)
- The plants that were collar pruned had a strong root system as they were of 15 years old.



**Pictures above depicts Topworking / Grafting**

- After 20 – 30 days, new suckers sprouted from the stumps.

- After a month, the suckers attained a pencil thickness. Therefore, a sucker of the same girth from a good, healthy and high yield potential, leaf rust resistant, good bean quality plant was selected and a single node cutting was made by retaining two primary branches.
- They were then given two slant cuts at the lower end using a sharp knife and the scion of which is cut with utmost care and bottom of the stalk was split to insert the scion (good sucker)
- The scions were positioned carefully and tied with polythene strips using little pressure and covered with polythene bags.

In about 20 days, union occurred and new shoots sprouted, the success was over 90% and as he himself completed the exercise in over 300 plants the expenditure towards grafting was nil (except the cost of knife i.e. Rs. 5/-)

As the root system of these plants is already established, the graft grows rapidly and begins to bear fruit and started giving economical yield from 2<sup>nd</sup> year onwards and the plants grafted for their poor show are over 10 years old now and giving good yield year after year. Also, he is following the same method on few unproductive plants without collar pruning. In this method, he is making an injury on the bark of the main stem at 20-30cms from the ground level. The branches of the plants were cut on one side of it to facilitate sufficient light. After few days, suckers sprout in usual way and the same grafting technique is adopted.

In this method chances of physical damage to the graft are less and he harvest the crop from the other portion of the plant (retained branches) for 2-3 years and by the time, the grafted sucker develops and starts yielding, later he will remove the retained branches. Grafted coffee plants in Shri B.T. Shivaram Rai's estate are giving very good yield year after year resembling their mother plant. I conclude by saying this easy, cost-effective technique of grafting/top working is a blessing for coffee growers. This technique could well be adopted by all who definitely have a few undesirable coffee plants in your estate.