

Shri. S. K. DAS., I.F.S.,
Principal Chief Conservator of Forests.

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Sub: FD-Plantations - Raising of NWFP plantations with high yielding grafts
-Intensive and regular management for better survival and growth and
to obtain maximum returns - Guidelines issued - Regarding.

Ref: 1. PCCF Rc.No.9308/2005/PMU-I/1 (Circular No.2/2005) dated 28-2-2005.

Conventionally forest resource management and development has been biased in favour of Timber and Pulpwood species for commercial purpose. Not much emphasis was laid on raising successful Non-Wood Forest Products (NWFPs) plantations nor much attention was paid on the requirement of local people. Very seldom we come across a successful NWFP plantation in the department. Although the people living near the forests have been using the NWFP for their own consumption as well as for subsistence income, the resource expansion, domestication and management of NWFP species was not given adequate importance.

It has been our experience that a few species yielding NWFP are found more profitable than firewood/pulpwood or timber species. The NWFP trees provide assured annual income to the Forest dependant communities. Therefore, after the revision of the National Forest Policy during 1988 and after the advent of JFM programme during the nineties, there is a shift in the Silvicultural practices with regard to the planting of NWFP species which are considered main intended products from the degraded fringe forest areas for the forest dependant communities. Accordingly detailed guidelines have been issued in the reference cited, on the preferential treatment of NWFP species in the natural forests.

After the advent of JFM Programme in the state, grafted varieties of NWFP species like Usiri (*Phyllanthus emblica*), Chinta (*Tamarindus indica*), Neredu (*Syzygium cumini*), Kunkudu (*Sapindus emarginatus*), Seethaphal (*Annona squamosa*), Kanuga (*Pongamia pinnata*) etc., were planted as a pure or mixed crop in the plantation programme in degraded forest areas. The benefits from grafted varieties of NWFP are two-fold. First, they start yielding at a very short period. Second, because of clonal origin the quality of usufruct and quantum of yield is high. This gives instant returns and the VSS members need not wait for decades to get sizeable income.

But the performance of NWFP grafts is not uniform in all parts of the state and within the same place also it varies from year to year. Flowering, fruiting and yield are influenced by a wide spectrum of factors like soil type, soil depth, nutrient status of the soil, altitude, photoperiod (day length), intensity and frequency of rainfall, weather conditions prevailing during flowering and fruit setting, self incompatibility, availability of appropriate insect population for pollination, agronomic practices and intensity of management etc.

Among all the above mentioned factors which influence the performance of NWFP trees, intensity and continuity of management is the biggest influencing factor and unfortunately this aspect is given least priority in the departmental plantations. Mere establishment and maintenance of NWFP plantations for a couple of years will not serve the purpose. Unfortunately, we have been treating the NWFP species plantations just like the plantations of Eucalyptus, Casuarina, Teak etc.

Unlike the plantations raised with Timber and Pulpwood species, NWFP plantations require intensive management and constant attention similar to the horticultural crops such as Mango, Guava etc., so that the plantations yield desired results and provide regular yields.

The experience shows that planting of NWFP grafts in the VSS plantation programme is being done in a casual manner without giving proper attention to the nutritional, moisture and other cultural demands of these grafts. The graft is a product of cloning a reproductively matured part on a Juvenile rootstock with a management objective of early flowering and fruiting which have got enormous nutritional demand from the carbon-assimilate sink of the plant system. Therefore, unless the management does have the potential to provide these supplemental demands of the grafted plants, mere establishment of NWFP plantations does not serve the purpose. In view of this factor, it is suggested to view the NWFP plantation as an orchard-related activity and accordingly give due attention to the fertilization, irrigation, weed removal, inter-ploughing, introduction of appropriate Leguminous Cover Crop (LCC), SMC measures, pest-control, canopy architecture designing etc.

The experience gained during the past one decade shows that not much attention is being paid on the maintenance of the NWFP plantations after the prescribed maintenance period is over. Generally the FSR prescribes maintenance for 2-3 years after raising the plantation and thereafter the plantations are left unattended. The plantations are subjected to a lot of biotic interference and competing miscellaneous / weed growth. The initial euphoria fizzles out after planting out the selected clones in a well prepared site due to lack of community ownership of the created resource. This is leading to poor survival/growth of the trees in these plantations thereby the desired results are not achieved often leading to criticism that the planting stock is of poor quality.

Therefore keeping the above points in view, the following guidelines are issued to make the NWFP plantations successful.

1. Yields from the NWFP plantations mainly depend on the single dominant factor of intensive management including site maintenance, nutrition input in the form of Organic manures and Bio-fertilizers, surveillance on disease and pest control, pruning of the branches in different phenological stages of the growth etc. This has to be done by the VSS since the Forest Department can take the onus of providing the necessary financial inputs for initial period of 3-4 years and not beyond that. The field officers have to understand that in all these plantations the key is high input high output strategy. Therefore, after the maintenance period is over as prescribed in the FSR, the local officers should assess the condition of each such plantation in their jurisdiction and if required, can sanction one or two operations like ploughing across the slope, soil working, watering, application of manure, additional SMC works etc.,

as per the delegation of powers vested with the Conservators of Forests and FSR Zonal Committees. All these operations should find place in the revised Micro Plan.

2. The designing of the canopy architecture is an essential component in the NWFP plantation. Initial growth of the NWFP grafts for 2-3 years has to be confined to the vegetative growth only and horizontal crown expansion should be the main activity during that period. Thereafter periodical pruning of the branches and lifting the main canopy at least up to 1 -2 m etc., should be taken up.
3. Vermi-compost and compost produced by the VSS as an economic activity should be used in the plantations liberally every year.
4. The Forest Department staff should regularly visit these plantations and record the pest incidence if any, and guide the community regarding the control measures after due consultation with the Research staff.
5. Protection of these plantations from biotic interference is extremely important and this should be ensured by the community.
6. The plantations cannot be maintained indefinitely with the departmental funds. It has to be owned by the community. This is possible only when the field level officers demonstrate a sense of commitment by frequently visiting these plantations which require regular inputs such as ploughing, watering, manuring, weeding and disease and pest control measures as long as the usufruct is harvested and the optimum yield depends on the intensity of management schedule. **Therefore, the VSSs have to be motivated to plough back part of the amount realized by selling the usufruct for the regular maintenance of these plantations so that they get sustainable income year after year.**

Sd/-(S.K. Das)
Principal Chief Conservator of Forests