

## PROJECTS COMPLETED DURING THE YEAR 2008-2009

### **Project 1: Reclamation of Iron Ore mine spoil in Karnataka through afforestation.**

The physical, chemical, biological analysis of iron ore minespoil, and selection of suitable plant species for the iron ore minespoil in the nursery were completed. *Pongamia pinnata*, *Eucalyptus*, *Casuarina equisetifolia*, *Cassia siamea*, *Emblica officinalis* were selected in the nursery experiment for the afforestation of iron ore minespoil. Planting of 5 tree species with different soil amendment techniques were also completed by imposing the treatment with biofertilizers VAM, Rhizobium, Azospirillum, Pisolithes tinctorius, mulching, sowing of cover crops such as *Senna angustifolia*, *Catharanthes roseus* were done in the iron ore minespoil. The growth data were collected. Interpretation of growth data, soil chemical data collected from the iron ore minespoil is in progress. Iron ore minespoil amended with biofertilizer along with cover crops have encouraged better growth compared to other treatments. The preparation of the final project report is being continued for submission.

### **Project 2: Bioecology and Integrated management of Insect Pests of Aonla, *Emblica officinalis* Gaertn.**

The seasonality of insect pests of aonla was recorded at two locations at Hyderabad and Rajahmundry. Fifty one insect species of economic importance and twenty spider species were recorded during the study period. The following were identified as key insect pests in aonla production system and needs deliberate management tactics to be followed for realized yield potential of aonla cultivars.

1. Aonla aphid, *Schoutedenia* (= *Cerciaphis*) *emblica* Patil & Kulkarni
2. Gall insect, *Betulosa stylophora* Swinh.
3. Bark eating caterpillar, *Indarbela* sp.
4. Spherical mealybug, *Nipaecoccus viridis* (Newstead)

*S. emblica* density was rated on a scale of 0-10, where 0 is for no incidence and 10 for highest density. The mean rating of density of *S. emblica* was 1.7. In cultivars Krishna, Kanchan and PD, *S. emblica* density was higher than the over all mean density and in the rest of the cultivars it is lower. Cultivar Kanchan was recorded for highest density (2.8) and Anand for lowest aphid density. In case of stem galls caused by *B. stylophora*, mean no. of galls per plant were highly variable. In cultivars Krishna lowest number of galls (3.5) per plant was recorded. On the other hand in Anand (27.2) followed by Kanchan (22.2), highest number of galls per plant were noticed. Number of galleries caused by *Indarbela* sp. were maximum in the cultivar Francis (8.7) followed by the cultivars LU (8.2) and Anand (7.5). Cultivar PD was noticed with minimum number of galleries per plant.

Five synthetic and one botanical insecticide viz., Dimethoate, Imidacloprid, Spinosad, Profenophos, Neem Seed Kernel Extract, and Acetamipride were evaluated under field conditions at Hyderabad in the month of March, 2008 against aonla aphid, *S. emblica* on the cultivar *Chakiya*. Experiment was replicated thrice with three trees per replication. One untreated control was maintained. In this preliminary trial, normal dosages that are recommended in tree

crops for were followed. Absolute counts of number of aphids per determinate branch (5<sup>th</sup> or 6<sup>th</sup> from the growing tip) were taken with the help of a hand lens. Counts were taken before the treatment and one day after treatment (DAT), 3 DAT, 5 DAT and & 7DAT. Perusal of data revealed that before the treatment aphid population was distributed homogeneously on all the treatments. After the spraying all the insecticides were found effective. However Dimethoate, Confidor, and Profenophos were found highly effective. Neemarin was least effective.