



FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

ENT -321 Management of Beneficial Insects 2 (1+1)

Lecture-9 Moriculture:

Arboriculture: Arboriculture is the cultivation, management, and study of individual trees, shrubs, vines, and other perennial woody plants. The science of arboriculture studies how these plants grow and respond to cultural practices and to their environment. The practice of arboriculture includes cultural techniques such as selection, planting, training, fertilization, pest and pathogen control, pruning, shaping, and removal.

Moriculture: cultivation of mulberry plants is called Moriculture. There are over 20 species of mulberry, of which four are common: *Morus alba*, *M. indica*, *M. serrata* and *M latifolia*. Mulberry is propagated either by seeds, root- grafts or stem cuttings, the last one being most common. Cuttings, 22-23 cm long with 3-4 buds each and pencil thick, are obtained from mature stem. These are planted directly in the field or first in nurseries to be transplanted later. After the plants have grown, pruning is carried out routinely which serves two purposes, induction of growth and sprouting of new shoots. Harvesting of leaves for feeding larva is done in three ways: leaf picking, branch cutting and top shoot harvesting. In leaf picking, individual leaves are handpicked. In branch cutting method, entire branch with leaves is cut and offered to 3rd instar larva. In top shoot harvesting, the tops of shoots are clipped and given to the 4th & 5th instars. The yield and quality of leaf depend upon the agronomic practices for cultivation of mulberry trees, namely irrigation, application of fertilizers etc. It is estimated that 20,000 to 25,000 kg of leaves can be harvested per hectare per year under optimum conditions. It has also been estimated that to rear one box of 20,000 eggs, 600-650 kg of leaves are required for spring rearing and 500-550 kg for autumn rearing in Japan. In India, to rear 20,000 eggs the quantity of leaves required is about 350-400 kg.

Cultivars of Morus:

- Kanva-2, S-13 and S-34 varieties are recommended for rainfed (rainfall: 500-800 mm) regions of South India (Karnataka, Andhra Pradesh and Tamil Nadu).
- Kanva-2. Belongs to *Morus indica*. Diploid. Widely cultivated in Southern India. Selection from natural population of Mysore local variety. Inflorescence and sorosis: female, profuse flowering, many soroses. Production characteristics: medium leaf maturity, yields about 30 to 35 tonnes/ha/year under irrigated conditions. Leaf moisture content 70 percent, protein content 21 percent and sugar content 11.5 percent. High rooting ability (80 percent) and wide adaptability. Resistant to leaf spot. Moderately resistant to leaf rust and powdery mildew.
- S-13. Belongs to *M. indica*. Selection from open pollinated hybrids of Kanva-2. Recommended for rainfed areas of South India during 1990. Inflorescence: male, profuse flowering. Production characteristics: yields 8-12 tonnes/ha/year under rainfed conditions, depending on rainfall. Moisture content 70.6 percent protein content 24.3 percent and sugar content 13.8 percent. Resistant to leaf spot and powdery mildew, moderately resistant to leaf rust and tukra infestation.

- S-34. Belongs to *M. indica* Diploid. Selection from progeny of S30 x Berc 776. Recommended during 1990 for rainfed areas with black cotton soils of South India. Inflorescence and sorosis: male, profuse flowering, occasionally few soroses. Production characteristics: under rainfed conditions, yields about 15 tonnes/ha/year. Moisture content 70 percent, crude protein content 23.7 percent. Soluble sugar content 13.2 percent. Resistant to powdery mildew and leaf rust. Moderately resistant to leaf spot and susceptible to tukra infestation.

