

MULTIPLE CROPPING OR MULTISTOREYED CROPPING IN PLANTATION CROPS

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INCREASED production from unit area of land and per unit time, or both, can be obtained by practising multiple cropping. In annuals, this is achieved by raising a sequence of crops in quick succession. But in plantation crops, since they are perennials, the land is committed to these crops for decades. Hence, a different strategy has to be employed here. The aim should be to raise crop combinations or crop mixes in which the crops grown are mutually compatible, so that the resources like sunlight, soil, fertility, and water are most efficiently utilised.

One such compatible combination of crops being tested at CPCRI, Kasaragod, is coconut + pepper + cacao/cinnamon + pineapple. Because of the differential height at which these crops develop their canopy, the light energy is harvested at vertical intervals. This is comparable to a multistoreyed building. The crowns of adult coconut palms which at a height of 10 m or more, form the top floor. The canopy developed by pepper vines on the coconut trunk at a height of 2.5-7.5 m, and that of cinnamon or cacao at a height of 2.0-3.5 m, form the second and first floor, respectively. Pineapple constitutes the ground floor of this crop building. Higher efficiency in the utilisation of nutrients and moisture in the soil is also

achieved by the differences in the rooting pattern of these crops.

Many are the factors favouring such an intensive cropping programme. The wide range of crop plants seen growing in many a coconut garden is proof enough to support the above concept. Experimental evidences are available to show that there is no adverse effect on the main crop of coconut when intercrops are raised, provided adequate fertiliser and moisture are made available to each crop. The microclimate developed inside the crop canopy was found to favour quicker growth and precocity in crops like cacao and pepper. As the water requirement of a single crop at potential production level is almost the same as that of a group of crops raised in the same area, a greater water use efficiency is attained.

However, one of the possible drawbacks can be a higher incidence of diseases and pests consequent on the availability of a wider host range and more favourable microclimate under such intensive cropping systems. A causal organism like *Phytophthora* can cause serious losses in cacao as well as bud rot in coconut. The available technology in plant protection measures and prophylactic sprayings of fungicides should be able to effectively control such diseases.