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System providing organic manure is environment friendly

Diverse needs: View of the experimental farm at CPCRI, Kasaragod.- Photo: Special Arrangement

Growing inter crops in coconut gardens not only increases the utilization of unexploited natural resources, but will also have a beneficial effect on the farm economics and acts as a carbon sequester as the greenery is maintained throughout the year.High density multi species cropping system (HDMSCS), is one of the mixed cropping systems, where a number of compatible crops are grown in an area to meet the diverse needs of the farmers such as food, fuel, timber, fodder and cash.

Small areas

“It is ideally suited for smaller areas of land and aims at maximum production both temporally and spatially,” says Dr. H.P. Maheswarappa, Project Co-ordinator (Palms), All India Coordinated Research Project on Palms, Central Plantation Crops Research Institute, Kasargod.This also leads to control of weeds, soil and water conservation, regulated temperature and favourable microbial activity in the soil. “Such a system plays a pivotal role in the present day context to overcome the effects of climate change, particularly rise in temperature,” he says.In this line of interest, a long term study is being conducted at the institute's coconut garden intercropped with clove, banana, black pepper and pineapple.The coconut trees are grown at a spacing of eight metres apart in square system of planting and intercrops are grown in between them.

Advantage

“The advantage of the system is the generation of recyclable biomass which is the backbone of organic farming to generate useful organic manure. CPCRI has developed a technology to convert the recyclable biomass into nutritive organic manure with the help of an earthworm (Eudruilus sp.) which resembles the African night crawler.This organic biomass is dumped in a pit of convenient length and breadth and depth and treated with cow dung slurry and allowed to undergo a preliminary decomposition for about 2–3 weeks,” says Dr. Maheswarappa

Total microbial counts and beneficial microbial population were more in the vermicompost treated with the slurry compared to the base material and it was found to be rich in vitamins, enzymes also and a suitable organic manure for crops.In about 60- 75 days the whole biomass gets transformed into a suitable vermicompost, which is nothing but faecal material of earthworms.

Yields

In the coconut-based high density multi species cropping system in which this compost was applied, the

coconut yield ranged from 165 to 170 nuts/palm/year indicating positive effect of such a system compared to pre-experimental yield of 63 nuts/palm/year. The clove yield was from 0.6 kg/tree/year compared to 1.5 kg/tree/year.The average weight of banana bunch was more (7.2 kg/bunch).The average weight of pineapple fruit was highest in the full recommended fertilizer dose treatment (1.1 kg).Black pepper yield ranged from 1.4 kg to 2.4 kg kg/bush/year. The total cost involved in maintaining the system ranged from Rs. 48,000 to Rs. 57,000 and the net return was from Rs.75,000 to Rs. 1,15,000 per ha a year depending upon the market price of the produce.

Additional income

Overall such a system provided additional income even during price fluctuations of coconut, and other requirements for a coconut farmer without affecting the soil health.There was build up of soil nutrient status and increase in microbial activity in such system. Such a system absorbs atmospheric Carbondioxide and helps to store organic carbon content below the soil which is called as carbon sequestration.“The system has proved to be environmentally friendly and one of the socially acceptable technologies for climate change mitigation,” he says.

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