

A model organic farm - An holistic approach for sustainable agriculture

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ABSTRACT

A model organic farm was in operation since 2006-08 on holistic approach comprising of integrated farming system components viz., cows/cattle, sheep, annual crops (ragi, maize, groundnut etc) Orchards (mango, guava, sapota. etc). Scientific recycling of all crop and animal wastes in crop production was done. Biodigester was constructed to prepare liquid manure out of cattle shed waste washing, crop residues and weeds. In the biodigester co-composting of wide C:N ratio (crop residues, weeds, fibrous materials) and narrow C:N ratio materials was done so that nutrients are released quickly into the liquid manure. The farm soils were analyzed block wise soil organic carbon was low to medium (0.52 to 0.68 %). pH was also low (4.4 to 5.2) and lime was applied @ 938 kg/ha. In the first year 10 tons of FYM for ragi, groundnut and redgram and 12 tons for maize was applied. Crops were top dressed with 900 liters of Jeevamrutha and 980 liters of cattle urine diluted with water (1:10). Plant protection for crops was through the use of clerodendron extract, NSKE sprays, light traps, *Trichogramma viridae* seed treatment. Contents of cattle urine, Jeevamrutha, bio-digester manure varied greatly with breed, type of feeds and other inputs used. Yields of ragi (1979 kg/ha), redgram (2343 kg/ha) and groundnut (1188 kg/ha) were higher than the inorganic block (1733, 1080, and 743 kg/ha, respectively). Further Mango, Sapota and Cashew also produced higher yields (5537, 2234 and 855 kg/ha) as compared to previous years (4000, 1500 and 700 kg/ha, respectively). High net returns and B:C ratios were realized from organic block. Major break through in crop yield was by using bio-digester manure or other liquid manures as top dress material to meet the crop demand.

Key words : Model organic farm, Sustainable agriculture, Ragi, Redgram, Groundnut, Mango, Sapota and cashew yield, B: C ratio

INTRODUCTION

Agricultural scenario after green revolution is dismal and coupled with many problems. Fast expansion in cultivated area, reduction in the use of organic manures and continuous cropping with only fertilizers have created hungry and thirsty soils. Organic agriculture is a holistic crop production and management system, which encourages conservation and development of on-farm natural resources and their optimum utilization so organic agriculture claims to be sustainable. In the context of agriculture, sustainability basically refers to the successful management of resources of agriculture to satisfy human needs while at the same time maintaining or enhancing the quality of the environment and conserving natural resources. Sustainability in organic farming must, therefore, be seen in a holistic sense, which includes ecological, economical and social aspects. Sustained production at higher levels becomes possible only when the factors leading to the continued maintenance of soil health are adequately taken care of. Hence, the sustainability of present level of agriculture is at stake.

Organic farming and integrated farming also represent real opportunities on several levels, contributing to rural economies through sustainable development. Indeed, new employment opportunities in farming, processing and related services are already evident in

the growth of the organic sector. As well as the environmental advantages, these farming systems can bring significant benefits both to the economy and the social cohesion of rural areas (Pandey *et al.*, 2008). Organic farming can be practiced in any situation from lowest rainfall areas to highest rainfall areas. Managing local natural resources like seeds, manure, plant protection technique, rain water harvesting will reduce the input cost and improve farm income. It does not involve borrowing heavy loan for input purchases. Organic farming seeks balance and harmony among the various inputs. additionally organic farming strives to maintain and enhance soil fertility through crop rotation and composting. Avoids deficiency of nutrients in soil, which directly influences farmer's income and thus their level of independence versus debt. There is a noticeable improvement in the farmers' income by adopting the organic farming system. In this model organic farm, organic inputs produced and used for organic farming practices to disseminate the organic farming system to organic growers. For this direction model organic farm was established with holistic approach for sustainable agriculture.

MATERIALS AND METHODS

Field trails were carried out at Model Organic Farm,

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