

Sustainable agriculture in India : Current situation and future needs

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ABSTRACT

Indian agriculture is facing with an array of problems such as water scarcity, reduction in cultivable land/capita, high cost of crop inputs, lack of marketing network and avenues for value addition of farm produce and fluctuating market prices. Current conventional farming can however be improved by adopting appropriate technologies of crop production, post-harvest processing and by improving quality so that agriculture becomes not only sustainable in long term but a profitable business also by linking production with consumerism. The future trends and means of sustainability are discussed.

Key words : Inoculation, *Azospirillum*, *Azotobacter*, Growth attributes, Yield attributes, Economics.

INTRODUCTION

In India, >65% of the population is dependent directly or indirectly on agricultural activities.

As in earlier plans, Central Government envisaged in the tenth 5-yr plan (2002-07), at least 3.5-4 per cent growth rate per annum in agriculture from the present rate of 2 per cent with emphasis on food security and employment opportunities in rural areas. Also, irrigated area increased from 22.5 m ha to 97 m ha during last 50 years. The national agricultural policy aimed to strengthen current economic growth through efficient marketing to accelerate foreign trade from the major crop growing areas where technical know-how and facilities for export have been established. There is a shift from sustainable to commercial agriculture in some areas where farmers can avail the opportunities to increase their income in agriculture. The increasing demand for organic foods and fibre, and the by-products would certainly open a new vista in consumerism. In future, the agricultural production on a large scale by adopting improved farming techniques would transform small farmers into viable commercial producers, link production with consumption would bring about real economic changes in the present conventional non-sustainable agriculture.

Present situation :

At present, the total area available for cultivation accounts for 180 m ha, of this 122 m ha (65%) is in dry land areas from where 42-44 per cent of total food and 75 per cent of cotton is produced. The characteristics of these areas are: shallow/light to deep/black alluvial soils with poor fertility levels and low moisture retention capacity, poor crop stand, erratic weather, inadequate crop inputs and farming infrastructure, uncertain and low

rainfall (500 mm or less/year) coupled with late onset and early cessation of rains or prolonged dry spells during crop season, subsistence/conventional farming, lack of improved technology, soil salinity or alkalinity, water and soil erosion, low productivity of cattle and lack of fodder and minimum crop yields. These situations result in socio-economic constraints such as, poverty, illiteracy and poor standard of living. In reality, concerted efforts for maintaining sustainability in these areas are urgently needed.

Sustainability :

Sustainable agriculture is often restricted to conventional/traditional farming and creates confusion. In fact, it helps to improve soil health by integrating all possible measures so that crop productivity is maintained for a longer time. According to United Nations Development Programme, sustainable development means national food security, upgrading living standard of farmers, and conservation of the natural resources. Therefore, various traditional and modern methods of cultivation are included in sustainable agriculture. Nevertheless, unless scientific agriculture is practiced, average per capita income will not attain to a desirable level and disparity between rich and poor would widen further. For example, government declared in 1999-2000 the population below poverty line (BPL = \$ 1/day) at 28.6 per cent whereas international survey reported it at 35.3 per cent (\$1/ day) and 80.6 per cent (\$2/day) (World Development Report, 2005). Similarly, the National Sample Survey Organization reported the average per capita expenditure of Rs. 503 only (lowest being Rs. 225 in Madhya Pradesh); of which 50 per cent is spent on food alone. These figures denote the present economic