

Crop Diversification in Agriculture

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INTRODUCTION

Crop diversification refers to a strategy of shifting from less profitable and unsustainable crop or cropping system to more profitable and sustainable crops or cropping system through the use of resources in the best possible way by changing and modifying the spatial and temporal cropping activities on a particular farm. It minimizes the adverse effects of the current system of crop specialization and monoculture for better resource use, nutrient recycling, reduction of risks and uncertainty and better soil conditions. Following the cropping systems with high productivity, profitability and sustainability. It also takes into account the economic returns from different value-added crops and improvement in ecology. It implies a shifting of resources from low value crops to high value crops, usually intended for human consumption such as fresh market fruits and vegetables. It is a strategy to maximize the use of land, water and other resources and for the overall agricultural development in the country. It is also practiced with a view to avoid risk and uncertainty due to climatic and biological vagaries. Diversion of high water requiring crops (rice) with less water requiring crops (maize, legumes vegetable). With globalization of the market, crop diversification in agriculture means to increase the total crop productivity in terms of quality, quantity and monetary value under specific, diverse agro-climatic situations world-wide. Inclusion of pulses, oilseed and vegetables in the system is more beneficial than cereals after cereals, and such inclusion in a sequence changes the economics of the crop sequences.

Two different type of crop diversification in agriculture

A) The horizontal crop diversification refers to the addition of more crops to the existing cropping system. Here, adding more crops to the existing cropping system utilizing techniques such as, multiple cropping coupled with other efficient management practices. To improve the overall productivity of a farm or region's farming economy.

B) The vertical crop diversification approach in which farmers and others add value to products through processing (canned or processed into juices or syrups), regional branding, packaging, merchandising, or other efforts to enhance the product.

Need of Crop Diversification

The conventional cropping system facing the various sustainable issues as degradation of natural resources (water, land) and environment along with various risks associated with viz., market, price risk with existing crop-management practices. To counter all the issues crop diversification is need of hour, it helps in;

- Natural resources sustainability
- Ecological Balance
- Raising agricultural productivity per unit of land
- Reducing rural poverty through a socially inclusive strategy that comprises both agriculture as well as non-farm employment.
- Ensuring self-sufficiency in food.

Indian agriculture is characterized by a dominance of small and marginal farmers (almost 68 per cent) who suffer as a result of difficult socio-economic conditions. Income from these farms cannot be raised up to the desired level to sufficiently alleviate poverty unless existing crop production systems are diversified through inclusion of high value horticultural and arable crops.

Advantage of Crop Diversification

- ✓ Increasing income on small farm holdings.
- ✓ Withstanding price fluctuation.
- ✓ Mitigating ill-effects of aberrant weather.
- ✓ Employment generation through creation of off-farm and non-farm investment opportunities within the capabilities of the resource-poor farmers.
- ✓ Changes in crop patterns and farming systems (by inclusion of pulses and legumes)

- ✓ Balancing food demand and improving fodder for livestock.
- ✓ Conservation of natural resources (soil, water, etc.).
- ✓ Minimizing environmental pollution.
- ✓ Reducing dependence on off-farm inputs.
- ✓ Decreasing insect pests, diseases and weed problems.
- ✓ Increasing community food security

Challenges in Crop Diversification

- ✓ Majority of the cropped area in the country is completely dependent on rainfall.
- ✓ Sub-optimal and over-use of resources like fertilizers, land and water, causing negative impact on the sustainability of agriculture.
- ✓ Fragmentation of land holding, less favoring modernization and mechanization of agriculture.
- ✓ Very weak agro-based industry and lack of proper market facilities.
- ✓ Inadequately trained human resources together with persistent and large scale illiteracy among farmers and of technical knowledge to farmer.
- ✓ Decreased investment in agriculture sector over the years.

In Haryana, government launched a financial incentive-linked crop diversification drive to encourage farmers to switch over to alternate crops in place of water guzzler paddy under the Mera Pani-Meri Virasat Scheme. The objective of this scheme is to encourage farmers to cultivate alternate crops such as maize in the area that was under paddy cultivation last year. Because the cultivation of rice crop has contributed to degradation of natural resources such as water and soil. Also, the ground water table of Haryana has been declining steadily.