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Crop Diversification

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INTRODUCTION

The most important reason for the emergence of agrarian distress in the country during the 1990s was the low level of absolute income as well as the large and deteriorating disparity between the income of a farmer and that of a non-agricultural worker, which turned even more serious in the latest years. In this context, the goal set to double farmers' income by 2022–23 can play a crucial role in promoting farmer welfare, reducing agrarian distress, and bringing income parity between farmers and those working in non-agricultural professions. According to Niti Aayog reports, doubling farmers' real incomes will take until 2022 or 2023.

Crop diversification refers to a shift from the regional dominance of one crop to the regional production of a number of crops to meet the ever-increasing demand for cereals, pulses, vegetables, fruits, oilseeds, fibres, fodder, grasses, etc. It aims to improve soil health and maintain the dynamic equilibrium of the Agro ecosystem. In the instant case, crop diversification is intended to promote technological innovations for sustainable agriculture and enable farmers to choose crop alternatives for increased productivity and income.

As described by the central government, the major sources of growth operating within the agriculture sector may be improvements in productivity, resource use efficiency, savings in the cost of production, an increase in cropping intensity, diversification towards high value crops, etc. Agricultural crop diversification is an important stress relieving option for the economic growth of the farming community.

Agricultural diversification can improve crop productivity and deliver multiple ecosystem services by adopting more diversified cropping systems through crop rotation, multiple cropping or intercropping in arable crops, intercropping in orchards, and agro forestry.

If coupled with sustainable soil management strategies, such as adopting cover crops for green manure or fodder, conservation agriculture (reduced tillage, crop diversification, and residue management), organic farming, and fertilization management, they also contribute to increased yields, profitability, and resilience to climate change, environmental risk, and socio-economic shocks in the long-term.

Diversification attempts to lessen the use of energy and agrochemicals, as well as the detrimental impacts of intensive agriculture on the biodiversity of a region's ecosystems, eutrophication and water pollution, emissions of greenhouse gases, and soil erosion.

Benefits of crop diversification

Through crop diversification, farming households can spread production and economic risk over a broader range of crops, thus reducing financial risks associated with unfavourable weather or market shocks. Growing diverse produce may also help financially by expanding the market's potential. In some areas, the inclusion of a variety of crops can lead to the development of new agriculturally based industries, improving the economic potential of a rural community. Additionally, diverse cropping systems generally provide more varied and healthier food for humans and livestock.

The concerns relating to the diversification of rice-wheat cropping systems in the country came to the fore when yield levels of these two most important food crops experienced stagnancy and net profit accruals showed a diminishing trend.

By disrupting the cycles of insects and diseases, lowering weed growth and soil erosion, and preserving soil moisture, growing a variety of crops on the same piece of land can have several agronomic advantages in pest management. The population of helpful bacteria in the soil that fight off pests is more diversified the more diverse a farming system is in terms of plants, animals, and soil-borne organisms. This strategy may enhance the farm's financial situation by lowering production costs and raising gross income. For instance, adding two or more crops to the rotation, which results in less pest issues, lowers spending on pesticides, or including legumes in the rotation lowers spending on nitrogen fertilizer.

Below is a list of some potential benefits of increasing crop diversity on the farm:

- increases income on small farm holdings.
- helps withstand fluctuations in commodity prices.
- provides resilience to highly variable weather conditions resulting from climate change.
- increases profits by reducing the cost of production.
- provides more varied and healthful food, both for humans and livestock.

- decreases pest pressure, including diseases, insects, and weeds.
- enhances beneficial pollinator populations.
- improves soil quality.
- increases employment opportunities.
- Diverse crop rotations may increase crop yields and produce quality.

Some potential challenges to increased adoption of crop diversification on the farm are:

- Market demand may be limited by a range of factors, such as government policies, subsidies, etc.
- Inadequate storage and transportation infrastructure. absence of suitable equipment.
- Price and supply of inputs.
- lack of technical knowledge and references regarding their production practices.
- lack of crop varieties adapted to the specific region.
- fear of increased complexity.
- Public regulations.

CONCLUSIONS

Diverse farming systems tend to increase soil quality and crop yields while reducing the likelihood of widespread crop failures and insect pressure. Producers should start searching for chances to include new crop species into their current rotation in order to support wholesome, successful, and sustainable agricultural production in Nevada. With the increased demand for water in Nevada, this development will help them overcome problems caused by climate change, such as droughts and problems with water usage. Additionally, adjustments to the laws that support crop diversification may be required to help support initiatives to guarantee community food security.