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Strategies for Boosting Agricultural Productivity and Profitability in India

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Agriculture in India is livelihood for a majority of the population and can never be underestimated. This has made us self-sufficient and taken us from being a begging bowl for food after independence to a net exporter of agriculture and allied products. Total food grain production in the country is estimated to be a record 296.65 million tonnes, according to the Economic Survey of India for 2020-21. Increasing population, increasing average income, globalisation and corona pandemic effects in India will increase demand for quantity, quality and nutritious food, and variety of food. Therefore, pressure on decreasing available cultivable land to produce more quantity, variety and quality of food will keep on increasing. India is blessed with large arable land with 15 agro-climatic zones as defined by ICAR, having almost all types of weather conditions, soil types and capable of growing a variety of crops. India is the top producer of milk, spices, pulses, tea, cashew and jute, and the second-largest producer of rice, wheat, oilseeds, fruits and vegetables, sugarcane and cotton. In spite of all these facts, the average productivity of many crops in India is quite low. The country's population in the next decade is expected to become the largest in the world and providing food for them will be a very prime issue. Farmers are still not able to earn respectable earnings. Even after over seven decades of planning since the independence, majority of the farmers are still facing problems of poor production and/or poor returns. The major constraints in Indian agriculture according to 2010-11 Agriculture Census are:

1. Total number of operational holdings was 138.35 million with average size of 1.15 hectares (ha).
2. Of the total holdings, 85 per cent are in marginal and small farm categories of less than 2 ha (GOI, 2014).
3. Farming for subsistence which makes scale of economy in question with majority of small holdings.
4. Low-access of credit and prominent role of unorganised creditors affecting decisions of farmers in purchasing of inputs and selling of outputs.
5. Less use of technology, mechanisation and poor productivity for which first two points are of major concern.
6. Very less value addition as compared to developed countries and negligible primary-level processing at farmers level.
7. Poor infrastructure for farming making more dependence on weather, marketing and supply chain suitable for high value crops.

To address the above said constraints, Government and other organisations are trying to address the key challenges of agriculture in India, including small holdings of farmers, primary and secondary processing, supply chain, infrastructure supporting the efficient use of resources and marketing, reducing intermediaries in the market. There is a need for work on cost-effective technologies with environmental protection and on conserving our natural resources. The reforms towards privatisation, liberalisation and globalisation affected inputs market at a faster pace. Agricultural marketing reforms after 2003 made changes in marketing of agricultural outputs by permitting private investment in developing markets, contract farming and futures trading, etc. These amendments in marketing acts have brought about some changes but the rate is less. Along with this, the information technology revolution in India, new technologies in agriculture, private investments especially on research and development, government efforts to rejuvenate the cooperative movement to address the problems of small holdings and small produce etc. are changing face of agriculture in India. Many startups in agriculture by highly educated young ones show that they are able to understand the high potential of putting money and efforts in this sector. Cumulative effects of technology with proper strategies over the next decade will change the face of agriculture in India.

Six Main Strategies to Improve the Agriculture Productivity in India

India has reached a stage in development where it needs 'evergreen revolution', *i.e.* producing more in less land with less water. Agri-business and agri-processing should be the main drivers of this revolution with crop diversification as one of the main strategies. Few main strategies are as follows:-

1. Soil Health Enhancement:

Agricultural universities, research institutions, Krishi Vigyan Kendras, fertiliser companies, state departments of agriculture and farmers associations should aim to increase the productive potential of soil through concurrent attention to their physics, chemistry (macro and micro- nutrients) and micro-biology. Moreover, Dry farming areas need particular attention.

2. Irrigation Water Supply Augmentation and Management:

Water is a public good and a social resource and not a private property.Improving supply through rainwater harvesting and recharging of the aquifer should become mandatory.In addition, a nationally debated and accepted strategy for irrigating 10 million hectares of new area under Bharat Nirman Programme should be developed. All existing wells and ponds should be renovated. Demand management through improved irrigation practices, including sprinkler and drip irrigation, should receive priority attention.A water literacy movement should be launched and regulations should be developed for sustainable use of ground water as well as for preventing pollution. Seawater farming should be promoted in coastal areas through the cultivation of mangroves, salicomia, casuarinas and appropriate halophytic plants. The conjunctive use of rain, river, ground, sea and treated sewage water should become the norm.

3. Credit and Insurance:

Credit reform is the primary pathway to enhancing small farm productivity. The spread between the deposit and lending interest rates is high in India by international standards. The need is to improve efficiency in the financial delivery system by controlling both transactions and risk costs.On the part of the government, crop insurance as well as the speed and manner in which the debt recovery and settlement process operates would need to be considerably improved. Keeping in view the decline in profitability of agriculture, and the farmers distress, the Government must consider providing support to the banking system for reducing the rate of interest for crop loans.Rescheduling and restructuring of farmer's loans are not enough in

the event of successive natural calamities. The Central and State governments must step in to create an Agriculture-Risk Fund to provide relief to the farmers in the case of successive droughts and in areas hit by floods and heavy pest infestation.

4. Technology:

Agricultural scientists should state the performance of new varieties and technologies in terms of net income per hectare, and not just in terms of yield per hectare. For this purpose, there is a need for a farming system orientation involving crop-livestock integrated production systems to both research and resource use. There should be a proper match between production and post-harvest technologies.A post-harvest technology wing should be added to every Krishi Vigyan Kendra. Also, lab-to-land demonstrations should include post-harvest technology. Many of them should be organised in dry farming areas where millets, pulses, oilseeds and cotton are grown.Value addition to biomass will help generate skilled jobs in the non-farm sector. Rice occupies the largest area in the country and there are opportunities for generating more jobs and income by establishing rice bio-parks. Similarly, eco-boards can be produced from cotton stalks as a replacement for plywood .

5. Market Innovations:

Ultimately, it is only opportunities for assured and remunerative, marketing that will determine the economic viability of farming both as a way of life and a means to livelihood. Market reform should begin with production planning, so that every link in the cultivation-consumption-commerce chain receives adequate and timely attention.

6. Regionally Differentiated Strategy:

With wide variations in agro-climatic and economic conditions across the country, there cannot be a single strategy of agricultural growth to be followed everywhere. Thus action plans and policies should be designed accordingly, to cater the region-wise needs.

The following points highlight the few suggestions to increase agricultural productivity:-

1. Proper Transport Facilities:

To facilitate the farmers to produce new farm inputs and enable them to sell their product in markets, villages should be linked with mandies. It would help to raise their income which in turn stimulates the farmer's interest to adopt better farm technology with sufficient income.

2. Timely Irrigation Facilities:

Crop productivity depends not only on the quality of input but also on the irrigation facilities. Therefore, canals, tube wells should be constructed to provide better irrigation facilities for the security of crops. Extensive flood control measures should be adopted to prevent the devastation caused by floods.

3. Institutional Credit:

To save the farmers from the clutches of moneylenders, adequate credit facilities should be made available at reasonable cheap rates in rural areas. The land mortgage banks and co-operative credit societies should be strengthened to provide loans to the cultivators. The iintegrated scheme of rural credit must be implemented.

4. Proper Marketing Facilities:

Marketing infrastructure should be widened and strengthened to help the farmers to sell their products at better prices. There should be proper arrangements for unloading of the produce in the markets. Besides, price support policy must be adopted and minimum prices should be guaranteed to the peasants.

5. Supply of Quality Inputs:

The farmer in the country should be supplied with quality inputs at proper times and at controlled prices. To protect the farmers exploitation, effective steps are needed to be taken to check the sale of adulterated fertilizers.

6. Consolidation of Holdings:
In various states consolidation of holdings is not satisfactory. Therefore, efforts should be made towards completing the consolidation work in the specific period of time. Big areas of land which are lying waste, can be reclaimed and made fit for cultivation.

7. Agricultural Education:
In a bid to guide and advise the farmers regarding the adoption of new technology arrangements should be made for agricultural education and extension services. It would assist the farmers to take proper crop-care leading to increase in crop productivity.

8. Reduction of Population on Land:
As we know, that in our country, majority of population depends on agriculture to earn their both ends meet. This increases the pressure of population on land which leads to subdivision and fragmentation of land holdings. Therefore, proper climate should be generated to encourage the farm people to start employment in subsidiary occupations. It will help to reduce the population pressure on land. Surplus labour should be withdrawn from agriculture sector and be absorbed in non-agricultural sector.

9. Provision of Better Manure Seeds:
The farmers should be made familiar with the advantage of chemical fertilizer through exhibitions and these inputs should be made easily available through co-operative societies and panchayats. Liberal supplies of insecticides and pesticides should be distributed at the cheap rates all over the country side.

10. Land Reforms:
It is also suggested that efforts should be made to plug the loopholes in the existing land legislations so that the surplus land may be distributed among the small and marginal farmers. The administrative set-up should be streamlined and corrupt elements should also be punished. It will help to implement the law properly.

11. Co-operative Farming:
To check the sub-division and fragmentation of holding, the movement of co-operative farming should be launched. Co-operative farming would result in the adoption of modern technology on so-called big farms. In this way, agriculture will become profitable occupation through economies of large-scale farming.

12. Development of Cottage and Small Scale Industries:
In rural areas, more emphasis should be made to set up cottage and small scale industries. This will raise the income of the peasants and keep them busy during the off season.

Conclusion

Implementation of new strategies in agriculture sector is going to transform Indian agriculture to new folds. This may help farmers realize better profitability with access to resources, inputs and credits at the right time. The technology friendly youth in rural India will be attracted towards agriculture profession and will help to reduce migration to the urban centres for their livelihood. In coming years, probably by 2050 onwards, the digital technologies will also play key role in transformation of Indian agriculture.

"Agriculture is the most healthful, most useful and most noble employment of man".
-George Washington (2019)

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