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Trends in Agriculture in India

Summary

The Indian agriculture sector is now set for a leap with the introduction of new technology like IT and biotechnology in Agriculture. Intensive cultivation, precision farming and organic farming with new improved technology are the future of Indian Agriculture.

Future challenges are also increasing because of squeezing of cropping land, population growth and climatic changes.

Over view of Indian Agriculture

The Indian Agriculture sector is the largest sector in the Indian economy contributing 25% to the GDP of the country as well as accounting for 13% of India's exports. In the initial years, agricultural activity was limited to the production of food grains and a few cash crops such as cotton, sugarcane and jute to meet the own consumption and a little surplus for other needs, but recent years have seen a remarkable shift in the agricultural scene, including increasing diversity in a range of products and greater sophistication with the creation of critical infrastructural facilities like cold storage, refrigerated transportation, packaging, quality control etc.

The success of India's agriculture is attributed to a series of steps that led to availability of farm technologies which brought about dramatic increases in productivity in 70s and 80s often described as the Green Revolution era.

The major sources of agricultural growth during this period were the spread of modern crop varieties, intensification of input use and investments leading to expansion in the irrigated area.

The Indian agriculture sector is now set for a leap with the introduction of new technology like IT and biotechnology. As the population of India is more than 102 core (Census 2001), the area under agriculture is decreasing day by day.

The pressure under agriculture land is increasing due to industrialization, urbanization and establishment of SEZ. The area on agriculture is 141.23 million hectares out of which only 40% area is irrigated and 60% is under rain-irrigated area.

The average size of holding in India is continuously decreasing due to population growth. Fragmentation of land is more common in the small and marginal farmer who suffers more due to this low land holding. Erratic climate change is also closely associated with the changing trend in agriculture in India.

Shift from staple to cash crop



Most of the Indian farmers derive their livelihoods from agriculture. During the Tenth Five Year Plan, gross domestic product (GDP) originating from agriculture and allied activities was 2.3 percent compared to 8.0 percent in the industrial sector and 9.5 percent services sector. During this plan period, the growth in the agriculture and allied activities averaged 2.3 percent which is lower than that of 3.2 percent during the 1990s and 4.4 percent during the 1980s. Also, there is a shift from staples to cash crops which is the major reason for food insecurity.

From 1960-61 to 1998-99 the area under grain crops has gone down from 45 million hectares to 29.5 million hectares; area under cotton has increased from 7.6 to 9.3 million hectares and area under sugarcane has increased from 2.4 to 4.1 million hectares.

Since 1990-91, due to the new economic policies, the area under food grains and coarse grains has declined by -2 and -18 percent respectively while area under non-food cash crops such as cotton and sugar-cane has increased by 25 and 10 percent respectively.

However, production of milk has increased from 84.4 m tones (2001-02) to 97.1 m tones (2005-06).

Production of eggs has increased from 38729 million (2001-02) to 46231 million (2005) (Ghatak, 2007).

Notwithstanding increased availability of milk, fruits, vegetables, fish and other produce, the agricultural sector is facing new challenges of diminishing land resources, factor productivity decline, threatened loss of bio-diversity, natural resource degradation and widening economic inequality, factors that have serious implications on the livelihoods of the poor.

Indian agriculture has also come under significant adjustment pressure from market liberalization and globalization.

(Source: Agriculture in India by I. P. Abrul)

Food grains production growth rate in India

Crop	1950-51 to 1959-60	1960-61 to 1969-70	1970-71 to 1979-80	1980-81 to 1989-90	1990-91 to 1997-98
Rice	3.2	-8.05	1.91	4.29	1.53
Wheat	4.51	5.9	4.69	4.24	3.67
Coarse cereals	2.75	1.48	0.74	0.74	-0.49
Total cereals	3	2.51	2.37	3.63	1.84
Pulses	2.72	1.35	-0.54	2.78	0.76
Total food grains	3.22	1.72	2.08	3.54	1.66

Source: Center for Advanced sustainable Agriculture

The figure shows there is an increase in food grains over the period but the growth rate is not sufficient to meet the future demand because of challenges like productivity, shrinkage of crop land and unusual climatic condition.

Consumption Pattern

The changing consumer preferences have also added to the complexities of adjustment. The food consumption pattern in India is diversifying towards high value commodities. The decline in per capita consumption of cereals, in particular coarse cereals, has worsened the nutritional status of the rural poor. In the case of the poor, total consumption of high value cereals like rice has declined by 10 percent due to rise in prices of cereals in real terms during the 1990s and dietary diversification towards non-food grains.

Similarly, average daily intake of protein by the Indian population has decreased from 60.2 grams to 57 grams in the rural area between 1993-94 and 2004- 05 (Praduman Kumar, et. al. 2007).

Livelihood Security

It is important to realize that livelihood security has to be understood from the farmers' perspective. More than 35% of farmers are in BPL category who have less than 1ha of land. Food security is a subjective concept defined as an individual farmer's own perception as to whether s/he has been able to support the family's food and fodder requirements adequately round the year using all resources under his control (Hiremath, et. al. 2004).



Food security is only one (although extremely important) element of livelihood security. As farmers never make their decisions in a one-track logic, it seems possible that the one-track security based on food alone would have to be enlarged to the more holistic notion of security of livelihood, or speaking even more simply, life-security. Livelihood security encompasses food security, social security and psychic security. Each one of them has some basic minimum threshold level to achieve and maintain and also must be pursued in a balanced way.

Farm to Non-farm sector, the driving force

According to the National Sample Survey, the percentage of employment in the rural non-farm sector (RNFS) in total rural employment increased from 18.4 per cent in 1983, to 21.6 per cent in 1993-94 and 23.8 per cent in 1999-2000. The driving force for shift from farm to non-farm sectors is less landholding, climate change, low income, high disease and pest attack, high investment and, a long time to get returns.

Threats to small and marginal farmer

To date, the central government has approved 237 SEZs in 19 states (occupying 86,107 hectares) out of which 63 of these SEZs have already been notified. Around 23 SEZs are operational, 18 in the IT sector. Total area of land to be acquired across India is estimated to be around 150,000 hectares

(Source: The changing face of Rural India by B. N Hiremath).

This land – predominantly agricultural and typically multi-cropped – is capable of producing close to 1 m tones of food grain. If SEZs are seen to be successful in the future and more cultivated land is acquired, they will not only endanger the country's food security but also affect the small and marginal farmers who have been getting their income from the land.

Feature price of the commodity in the hands of retailer

The entry of corporate in retail will have a significant impact on retail service economy. On one hand corporate retail will create two million jobs; on the other, it will destroy 38 million livelihoods of people involved in running small shops and street markets. The growth being projected as a new contribution to the economy hides the destruction of the contribution of millions of people involved in small retail to the Indian economy.

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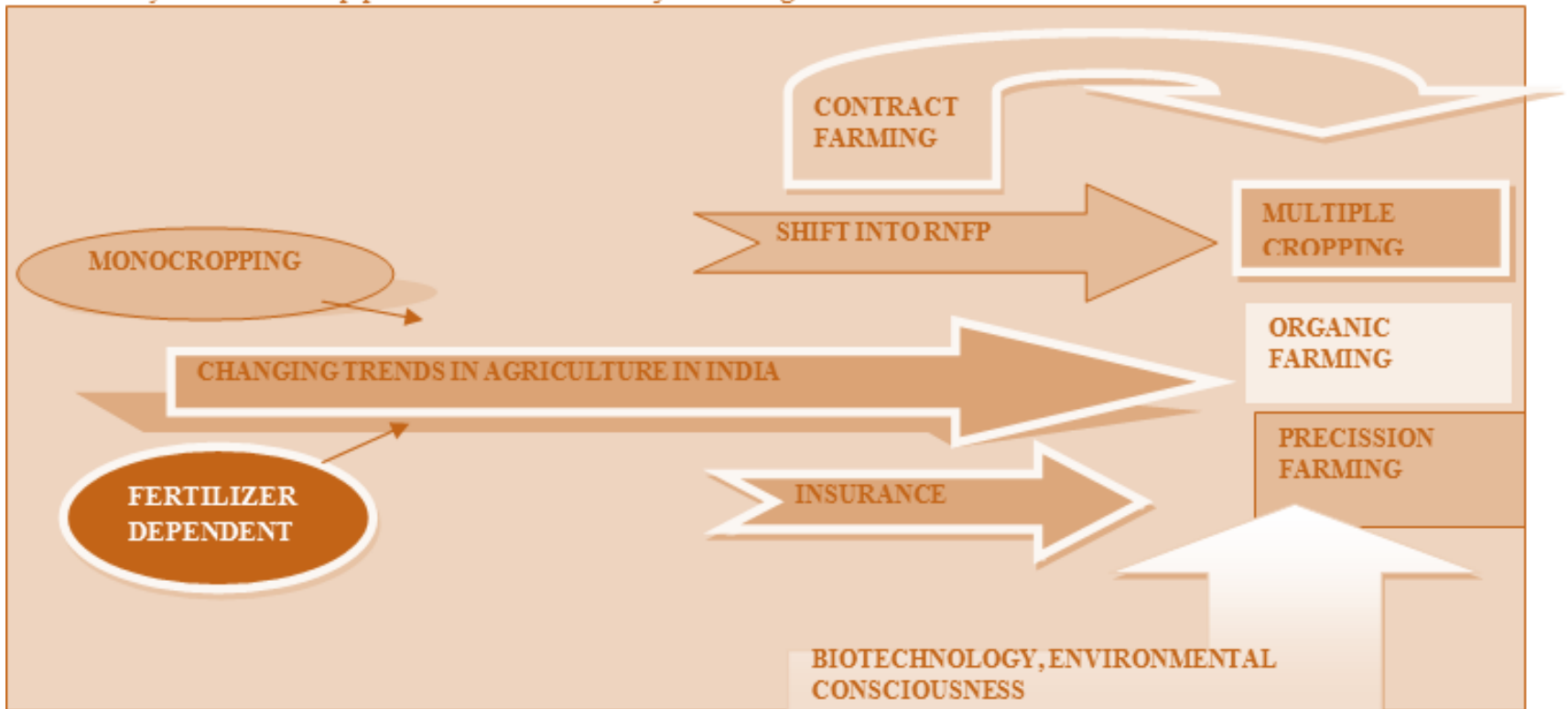


Our retail democracy is characterized by high levels of livelihoods in retail with nearly 38 million accounting for 8 percent of the employment and 4 percent of the entire population. It is predominantly self organized with low capital input and is highly decentralized. In a country with large population and high levels of poverty, this model of retail democracy is the most appropriate in terms of ecological sustainability and economic viability. By 2011, more than 6600 mega stores are planned with an investment of \$ 8 billion. Reliance plans to invest \$5 billion over next four years to open thousands of retail stores. Walmart's partner Bharti also plans to invest up to \$2.5 billion in new stores in the next eight years. The entry of the giant corporate retail in India's food market will have direct impact on India's 650 million farmers and 40 million people employed in tiny retail. These retail giants will buy the product from farmers at low price and they will sell it to customers at higher price. Again at the rear end, farmers will not have a right to negotiate with big retailers. (Source: The changing face of Rural India by B. N Hiremath)

Challenges for future agriculture

Land holding per farmer will be less than one ha. Fertilizer consumption per ha of land has increased from 4:2:1 to 6:2:4 (N:P:K) from 2006 to 2009. It will reduce the soil productivity and soil health in the long run. The growth of livestock population is an important source of competition for land.

The increase in number of major classes of livestock is a challenge as providing them adequate fodder (which requires land) will be a tough task. An estimate suggests that the area under fodder crops will have to be increased by 10 percent or more to support increasing livestock based activity. Water for crop production is another major challenge.



Future growth path for Agriculture

Call for Evergreen Revolution

The Pioneer of Indian green revolution Mr. Swaminathan, presently chairman of National Commission on Farmers gave a new call for “Evergreen Revolution” for doubling the present production level of food grains from 210 million tons to 420 million tones. For making Evergreen Revolution a success, he stressed on adoption of best scientific techniques and promotion organic farming. He also mentioned four prerequisites for getting success.

1. Promoting soil health.
2. Promoting “Lab to Land” exhibitions.
3. Making rainwater harvesting compulsory.
4. Providing credit to farmers on suitable conditions.



Better soil health management will give long term productivity and sustainable yield. Integrated nutrient management and integrated pest management will maintain and improve the soil health in long run. Use of organic manure and organic fertilizer improve the soil health. It will also promote the growth of soil microorganism which helps in recycling the biodegradable material in the soil.

Improved and new invented technology has to be developed and transferred to the field so that it will add to the productivity of the land as well as income for the farmer.

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So most of the water goes without absorption and the water table decreases day by day. Time has come to rain for more and more of rain water harvesting to increase the availability of water for use in crop field as well as to meet the demands for daily need.

Most of the farmers in India are small and marginal; to increase their income there must be soft credit depending on the ability of the farmer potential to do well in specific sector like agriculture, horticulture, poultry, fishing etc. Depending on certain favorable conditions, there must be a mechanism to give to diversified sectors for getting some income out of the activity so that farmers can repay the loan amount and get some income out of their investment.

The rapid changes at the macro level that India has witnessed since the early nineties have contributed to the instability of the livelihood systems of the poorer section of both rural and urban households.

While the benefits of globalization have largely accrued to the urban sector growth, the rural sector has been left behind. Slowdown in agricultural growth and productivity, changing cropping patterns, increase in distress migration, changing consumption patterns, government policies favoring industrial houses among others have seriously undermined the food and livelihoods security of the poorer households.

Progressive Indian farmers, with guidance from the public and private sectors, and agricultural associations adopt new practices on a

limited scale as the technology shows potential for raising yields and economic returns on fields with significant variability, and for minimizing environmental degradation.

Tags: Farm technologies, consumption patterns, Reliance, Walmart, Bharti, farmers, corporate retail, India's food market, land holding, livestock numbers, Swaminathan, soil health management, soft credit, agricultural growth, environmental degradation,