

A GLIMPSE OF FLOURISHING SEED INDUSTRY OF INDIA

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Introduction

Seed is the basic and vital component of agriculture. It acts as a carrier of new technology by transferring superior genetic potentialities of high yielding varieties to farmers for enhancement of agricultural production. The quality of seed increases the efficiency and response of other agricultural inputs to a larger extent. Contribution of quality seeds individually towards the total production was estimated about 15-20% depending upon the crop which can be further increased up to 45% with efficient management of other inputs (NSC, 2012).

The seed industry in India was primarily an unorganized sector during 1960's and whatsoever seed was sold was non-branded. Farmers used their own seeds popularly known as 'Farm Saved Seed' for planting during the next season, and most of the varieties were traditional and non-hybrid. In the last 30 years, Indian seed industry has witnessed a major development due to the implementation of various progressive policies by the government. The seed industry of India was given a new shape and hope by implementing policies such as National Seed Project Phase-I (1977-78), Phase-II (1978-79) and Phase-III (1990-1991) which was a need of an hour during that time, which helped to strengthen the seed industry. This can be considered as a first step in shaping of an organized seed industry. Indian Seed sector was again boosted with the implementation of New Seed Development Policy, 1988 and National Seed Policy, 2002, which primarily focused and laid emphasis in the areas of Research and Development, product development of various cereals and vegetable crops and introduction of GMO crops. All these policies had made a pavement to the Indian farmers in order to grab such opportunities to acquire and access quality seeds for agricultural production. Based on the current reports of growth of the graph of seed industry in the market, Indian farmers have a wide range of product choice and as a result India has emerged as the 5th largest seed market in the world. Both the private and public sectors have played a vital role in setting up and uplifting of the Seed Industry by promoting the adoption of high yielding varieties, hybrid varieties among the Indian farmers who were previously relied on planting their farm saved seeds and traditional varieties. The other factors which caused significant growth were commercialization of agriculture, rapid growth in income of farmers and implementation of Protection of Intellectual Property Rights of crop varieties through PPV&FR Act (2001). It is estimated that depending upon these factors, the Indian Seed industry will show strong growth in years to come and contribute in the national endeavour of increasing food production to attain food and nutritional security.

Global Scenario of Seed Industry

One of the crucial factors for seed markets is the increasing demand of cereals, oilseeds and vegetables. As grains and cereals are the major staple food as well as daily calorie intake in most of the developing countries of the world. The farmers all around the world have given up old method of using farmers saved seeds and adopted the use of enhanced varieties of seeds for production of crop. The various advantages of developed and enhanced seed varieties such as higher yield, higher

nutrition values, superior quality of product, insect and disease resistance, low cost and higher income has encouraged the farmers to adopt the commercial seeds.

In Western Countries, there is a huge demand of biofuels and large subsidies are also provided to farmers and as a result, there has been a massive increase in global biofuel production by almost 150% in between 2004 and 2010 from 42 billion liters to 104 billion liters respectively (NSAI, Company Reports and ICFA) Biofuel plays a significant role in expansion of global seed market because it is estimated that without biofuel, the growth rate of world cereal consumption is equal to 1.3%, as compared to 1.8% of biofuel. Apart from these, the area under genetically modified crop and rapid adoption of biotechnological crop and massive demand for poultry and animal feeds are increasing the farmer's per capita income which are ultimately leading to the development and growth of the seed industry. The global seeds market was valued at USD 59.71 billion in 2018, exhibiting a CAGR of 7% during 2011-2018(NSAI, Company Reports and ICFA).It is further expected to register USD 90.37 billion in 2024 witnessing a CAGR of 7.9% during the forecast period 2019-2024.

Indian Scenario of Seed Industry

In India, more than 80% of populations are dependent upon agriculture and its allied activities as the major source of livelihood which secures huge opportunities for the seed market. The farming practice in India has changed over the period of time, earlier the farmers used to sow their farm saved seeds but now a days they depend upon advanced and developed varieties for productive harvest. This shifting of farming practices and in adoption of advanced seed varieties, is not only practiced in India, but it's a worldwide activity. Therefore, in order to increase the quantity and quality of produce, efforts are made to introduce enhanced varieties of seeds with the help of advanced technology and modern agricultural methods. It is reported that in 2018, the Indian seeds market reached a value of US\$ 4.1 billion, registering a CAGR of 15.7% during 2011- 2018. It is further estimated to grow at a CAGR of 13.6% during 2019-2024, reaching a value of US\$ 9.1 billion by 2024 (ICFA,2018), The seed industry of India is flourishing with the increase in demand for quality seeds both in domestic and foreign countries, mainly the South East Asian countries. But the Indian seed market is majorly dominated by crops such as paddy, wheat, sorghum, maize, cotton, sunflower and millets. Grain seeds represent the largest seed type, accounting for more than half of the total seed production. Uttar Pradesh represents the largest producer, accounting for around 12% of the total market share of grain seed production.

Factors responsible for uplifting and developing Indian Seed Industry

The growth of Indian seed industry is the result of many factors working together, few of them are mentioned below :

1. Diverse agro-climatic conditions providing suitable environment for production of improved quality seeds for all important cereals, oilseeds, pulses, commercial crops and vegetables.
2. Extensive Research and Development and Technology development system both by Public and Private Sectors.
3. Enhancement in Seed Replacement Rate
4. Adoption of New Technologies
5. Well established Extension Services
6. Supportive Government policy and protection of varieties through PPV&FRA
7. Systematic plant breeding, production, product evaluation and release processes driven by both Public and Private sectors.

Role of Public and Private Seed Sector in Indian Seed Industry

In the past four decades, the Indian Seed Industry has seen vast and significant changes. Apart from Public Seed Sector, many private sectors have also entered in the Indian seed Industry and have started to play a significant role in development. The number of private seed producing and trading companies is increasing gradually. Private companies mainly focuses on high value low volume seeds such as vegetables seeds, propagating materials of horticultural crops. Apart from these, private sector is a dominant player in case of cotton, maize and sunflower seeds production and trading. The major players in private seed sectors are JK Agri-Genetics Ltd. (JK Seeds), Kalash Seeds Pvt. Ltd., Maharashtra Hybrid Seeds Company Pvt. Ltd. (Mahyco), Krishidhan Seeds Pvt. Ltd., Nuziveedu Seeds Ltd., Rasi Seeds Pvt. Ltd., etc.

At present, the Indian Seed Public sector consists of two national level seeds corporation, i.e. National Seed Corporation and State Farms Corporations of India; consisting of 15 State Seed Corporations and all these agencies produce seeds in significant amount. Public sector is much more interested in producing and marketing low value high volume crops such as cereals, oilseeds, pulses, etc. The public sector will remain dominant in terms of seed production of high volume low value crops in years to come because the private sectors are not interested to enter in the market of producing cereals, pulses, oilseeds etc. Small seed producers, such as Farmers' Societies, Farmer Producing Organization, local seed productions organizations etc. also have considerable contribution in production of low value high volumes seeds.

Major Legislations that changed Indian Seed Industry

1. Seed Act 1966
 - Compulsory labeling and voluntary certification
 - Focus on seed quality regulation and to cover notified crops and varieties
2. Seed Control order 1983
 - License for selling, exporting and importing seeds
 - Powers to State Governments to regulate seed trade under EC act 1955
3. New Policy on Seed Development (1988)
 - Encouraging commercial seed production by private sector
 - Import of vegetable and flower seeds under OGL
 - Time-bound Plant quarantine/Post entry quarantine system
4. The Seeds Bill (2004)
 - Registration of kinds and varieties of Seeds etc.
 - Regulation of Sale of Seed and Seed Certification
 - Seed Analysis and Seed Testing
 - Export and Import of Seeds and Planting Material
5. Protection of Plant Varieties and Famers' Rights Act, 2001
 - Farmers' Rights on Seeds
 - Breeders' Rights
 - Researchers' Right

Conclusion

Based on the reviews of the Indian agricultural system, seed industry has made a large scale transformation and it will continue to grow in coming years due to huge demand of quality seed in terms of both domestic and International. Both private and public sector have played a significant

role in developing the seed industry. Public sectors have improved a lot in past years and they have expanded their area of interest and activities which are recently dealing with variety of crops, high quantity of seeds that are produced and also distribution of seeds to remote areas. Major emphasis should be given in seed replacement rate by replacing traditional and lower performing varieties with hybrids and high yielding varieties especially in case of crops such as paddy, wheat, corn, sorghum, oilseeds etc. To encourage quality seed production, Government should provide attractive incentives and subsidy to farmers and private sectors. Awareness among general public and farmers about the benefits and risks associated with transgenic crops should be made clear. New technologies should be adopted and improved crop cultivars with insect –pest resistance and resistance to biotic and abiotic stress should be selected to reduce crop damage thereby leading to the increase in production. Lastly, it is necessary to encourage national and international collaborations with all the stakeholders involved in seed industry so that, India can become a worldwide exporter of quality seeds.

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