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Challenges and opportunities before Indian Seed Industry in coming decade

Key note address

by

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The post independence era of the 50s and 60s is invariably perceived as one bubbling with national plans for industrial development and growth. National leaders placed highest priority to agriculture considering food self-sufficiency as a major goal. As a result, concerted research and development efforts were initiated. While on research side, National Agricultural Research System (NARS) was reorganized and strengthened, for development related activities, emphasis was given to build national systems for seed development, irrigation infrastructure and establishment of fertilizer cooperatives. While the AICRP on maize was the first coordinated research project to begin in 1957, the first public sector seed company "National Seeds Corporation" came into existence in 1963, with a mandate to provide good quality seeds of improved varieties and hybrids to our farmers at affordable price. Subsequently the State Farms Corporation of India (SFCI) and the State Seeds Corporations (SSCs) came into existence and played critical role in achieving country's food security. Contrary to the interest of private sector in hybrid technology, these public sector companies mainly dealt with Open Pollinated Varieties (OPVs) and played a very significant role in increasing crop productivity. As a matter of fact, while celebrating its Golden Jubilee, the NSC could rightly be called as a mother institution for accelerating seed growth in India. It is the lead national organization today in the country and had played significant role toward achieving Green Revolution in India. Its basket is full of seeds with nearly 600 varieties of 60 crops involving more then 8500 registered seed growers and 2800 dealers throughout the country. Under the National Seed Project, NSC played lead role in the establishment of State Seed Corporations during mid-seventies. It has the distinction of being largest producer of certified seeds of field crops with annual turnover of 633 crores. In true sense, NSC is a flagship of seed sector in India and deserve full appreciation on the occasion of Golden Jubilee celebration today.

Historical Perspective:

The Green Revolution, ushered during the late 60s, became a turning point in the Indian Agriculture. Introduction of high yielding, semi-dwarf and fertilizer responsive varieties of wheat and rice was a turning point for the country from "food scarce" to "food secure" status. It is well known that the success of Indian Agriculture was on account of an effective combination of excellent support of the policy makers, capable agricultural scientists and administrators, beside hard working farmers to bring in needed change.

Recognizing the fact that the introduction of the new High Yielding Varieties (HYVs) depended mainly on adequate availability of quality seeds at affordable prices, steps were taken by the Government to establish Public Sector seed industry. As a result, the Seeds Act was passed in 1966, its Rules framed in 1968 and the Act was implemented in 1969 to ensure availability of good quality seeds to the farmers at affordable price. Around same time, considering the recommendations of the Agricultural Research Review Team (1964), the Indian Council of Agricultural Research was re-organised in 1965. Starting with the first State Agricultural University at Pantnagar in 1960, several SAUs also came into existence in quick succession in different parts of the country. In 1969, the Tarai Development Corporation (TDC) got established at GBPUA&T, Pantnagar with the funding support of World Bank.

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In the seed sector, these two institutions, NSC and TDC, along with the Rockfeller Foundation (RF) at IARI, New Delhi played very important role in developing the required trained human resource to build the seed sector in the country. The first Seed Testing Laboratory was set up at IARI (in the then Botany Division) with the support of Rockfeller Foundation and the first Seed Testing Training course was organized. The second Seed Testing Lab was established with the NSC and regular training programmes in Seed Testing and Seed Production were thus initiated. In the initial years, till the implementation of the Seeds Act in 1969 and establishment of the necessary mechanism and infrastructure for seed certification, the National Seed Corporation also certified its own produced seed.

New Seed Policy: A Progressive Step:

During the 70s and 80s, in spite of the release of a large number of crop varieties and hybrids (including vegetables), the growth of the seed sector somehow reached a plateau with an annual turnover of Rs.500-600 crores by 1987. To overcome this, the New Policy for Seed Development (1988) was initiated as a liberal approach for importing seed and planting materials for the benefit of Indian farmers. At the same time a progressive decision to make available freely the breeder seeds of parental lines of public bred hybrids even to the Private Sector accelerated the pace of private seed sector development in the country. This resulted in much faster growth of seed sector, especially of private seed companies, resulting in almost 4 to 5 times increase in the overall turn over. Today, country's total seed business of about 350 lakh qtls. amounting to a turnover of Rs. 15000 crores, of which share of public and private sector is around Rs. 5000 crores and Rs. 10,000 crores, respectively.

Subsequently, Government enacted the Protection of Plant Varieties and Farmers' Rights Act (2001) to ensure faster growth of the seed sector. All these initiatives triggered major investments in Seed Sector in India. As a result, use of hybrid seeds increased significantly in different crops (in some cases even upto 80 per cent) mainly through the contribution of private seed companies, including the MNCs. Simultaneously, the ICAR also accelerated the breeder seed production of field crops, surpassing the total requirement since 2009-10.

The most dramatic change in the seed sector was experienced since 2002, with the introduction of Bt cotton in India. With over 90% cotton area currently under Bt cotton hybrids, the productivity has increased by 39% and demand for cotton hybrid (Bt) seed increased by 220% in last one decade. All this boom has mainly been possible through a proactive role of private seed sector, which accessed the technology from the MNCs and other sources, making thus huge investments and profits. On the contrary, the public seed industry, which mainly dealt with varieties and some hybrids released by the public research system, could not harness the benefits of such developments.

Accelerating Growth of Seed Sector:

In the present time, a decelerating productivity growth rate, increasing prices and demand of food grains, shrinking natural resources and the emerging challenge of climate change have all become major concerns for the policy makers and the scientists alike. To attain a national GDP growth rate of 8 percent, it is necessary that agricultural growth rate is increased from current 2 per cent to a minimum of 4 per cent. As also recommended by Hooda Committee Report, the best way to achieve this will be through bridging the existing yield gap for most of the crops

through higher coverage under HYVs and hybrids. Moreover, seed is recognized as a cheap, yet most critical single input. Use of good quality seeds can result in as much as 15-20 per cent yield increase. Therefore, any attempt to turn around our agricultural productivity will largely depend on higher replacement rate of quality seeds of high yielding varieties / hybrids. Unfortunately, the replacement rates in most of the crops both for varieties and hybrids are much below the optimal levels defined. This is more so in case of pulses and forage crops. Also for hybrids, coverage has yet to be accelerated in case of single cross maize hybrids, rice hybrids and some oilseed like sunflower, castor and rapeseed mustard.

Today, the Indian seed industry has come a long way, occupying the 5th position in the global trade (ISF, 2011) with over Rs.7500 crores turn over and an annual growth rate of 12-15%. The predominantly public sector dominated industry till 70s, has reflected declining trend, whereas private seed sector has gained momentum over the last two decades. On the contrary, the pace of growth of public sector seed organizations including NSC, has remained somehow slow over those years. Hence, the process of revitalizing entire seed sector, especially the NSC, is needed urgently to harness the fruits of available innovations for increased productivity. To accelerate the productivity growth, the entire seed sector needs revamping at the national level and more so the mother institution on celebration of its Golden Jubilee. In fact, this is the right time to have introspection as we complete 50 years of existence. We need to overcome complacency, create new enabling environment, think out of box and have clear future Roadmap to achieve newer heights in the area of seed research and development in India. In this context, following 10- Point Action Plan would require urgent policy consideration for its implementation:

1. For accelerating the progress of seed industry (both public and private), it is critical to have the New Seed Bill approved by the Parliament. Considerable time has elapsed since the Seed Act was first passed in 1966. Much of the reforms expected to ensure faster growth of seed sector are held up for want of proposed New Seed Bill. Hence, there is an urgency for getting the Bill passed without further delay.

2. A National Mission on Seed to be launched by the Central Government, based on Hooda Committee Report on Increasing Agricultural Productivity. This would provide an enabling environment for the growth of seed sector. In this Mission, adequate support for hybrid and quality seed production be ensured through strong public-private partnership and also through active involvement of progressive farmers. The Mission should aim for faster growth of seed sector in holistic manner.

3. According to the National Seed Plan (NSP), the projected seed requirement of 2.54 m q by 2009-10 has already been achieved. However, as stated earlier, there is considerable mis-match and seeds of new HYV and Hybrids are still not sufficient to accelerate the pace of increasing productivity. Therefore, advance planning through a 5 year Rolling Seed Plan consultation should be developed by ICAR and DAC in joint.

4. We now need Second Green Revolution especially through greater emphasis on hybrid seeds. Hybrids need to be promoted aggressively to improve crop productivity, especially in crops like maize, rice, sorghum (rabi), bajra, pigeonpea, rapeseed mustard, sunflower, castor etc. Farmers' will benefit if sufficient quality of hybrid seed is produced

jointly by the Private and Public Sector institutions. Seeds produced be treated on par for subsidy since greater coverage of area under hybrids will be in the best national interest. Involvement of progressive farmers in hybrid seed production will be a progressive step toward creation of healthy competition.

5. Complementarity of the public sector policy and infrastructure and the private sector dynamism can be maximized through appropriate public-private partnerships (PPP). Successful models of PPP, as experienced in the recent past, could be replicated. Again, long term contracts can be entered between state seed corporations, ICAR research institutes/state agricultural universities and the private seed sector, cooperatives of farmers or SHGs to undertake production and supply of quality seeds.

6. Our system for seed quality assurance requires considerable investment in terms of modern infrastructure, equipment and competent human resource. Seed certification agencies have to be adequately equipped and provided with trained human resource for needed efficiency in the certification process. The six Seed Testing Laboratories in the private sector that are accredited by the International Seed Testing Association (ISTA) could also be notified by the Government. Also the Seed Testing Laboratories of both IARI and NSC should get ISTA accreditation soon. They should also create capability of testing transgenic seeds and certification of organic produce.

7. India has the potential to become a major player in the seed sector globally. Its present share in global seed market is less than 2 per cent. There are good export market potentials, particularly in the African, SAARC and Southeast Asian countries. Therefore, India must aim to achieve a target of 10 per cent by 2020, as envisaged in the National Seeds Policy (2002). Some of the Indian seed companies are already having business in other countries, but the potential is still much greater. For this, we need a "Forward Looking" long term seed export policy. This golden opportunity during an era of Globalization should not be missed. To achieve this, we must create an enabling environment through single window system for the processing and clearance of export proposals.

8. Germplasm conservation through use can help in achieving both sustainable agricultural growth and development. Hence, it is emphasized that the national germplasm collection available at the NBPGR, being the national public goods, be made available more freely, to Indian scientists/ institutions/seed companies engaged in crop improvement (R&D) programmes. For this, the Standard Material Transfer Agreement (SMTA), as adopted recently by the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) for multilateral access, should be adopted for immediate implementation, with necessary safeguards as needed. All data on available germplasm in public domain be documented/catalogued and posted on NBPGR website without any further delay. Also in the national interest, all released and notified verities of different crops be got registered with Plant Variety Protection and Farmers Right Act (PPV&FRA) Authority without further delay.

9. Biotechnology offers great potential in increasing production at reduced cost of

inputs. Bt cotton has clearly revealed that such technologies are for small holder farmers. Similar benefits can be reaped in other crops like soybean, rapeseed mustard, maize, rice and some vegetables. We need to have a clear policy and Road Map defined on GM food crops as a matter of national priority or else our farmers will be deprived of greater benefits of this new science. Public perception and policy decisions be based on facts and not otherwise. Current mistrust in promoting biotechnology, especially GM food crops, is detrimental to further growth and development of Indian agriculture.

10. In this context, leadership role of NSC be seen above the operations of other State Seed Corporations. It should assume an oversight function and play an important role for PME in the national context. With the advent of new cutting edge science and technologies, there is need to develop good R&D support through well trained scientific manpower. Re-structuring of NSC is also required towards product diversification, core competence and improved governance. Finally, while celebrating Golden Jubilee and placing our appreciation on record for the role played by NSC, it is time to have introspection and define further Road Map to attain newer heights. Any complacency and business as usual will not help. We must think out of box to ensure NSC's leadership/flagship role in the current context. It should also assume a prominent role like MNC and become an efficient R&D organization in its own right. NSC must ensure a paradigm shift from production of HYVs to promising hybrids and transgenics. Also the organization needs one time catch up grant for its reorganization and much needed reforms. At no cost, complacency in the system should be perpetuated. With required will and careful planning, we must define a Road Map for continued leadership of NSC. Also NSC must become proactive in capturing global seed market. No doubt, all this would require increased funding support, system's reorientation, functional autonomy and freedom such as those of NDDB, IFFCO, etc. I am sure this will happen under the visionary leadership of Shri Sharad Pawar through proposed National Seed Mission.

Finally, once again our policy makers, scientists, the seed sector and the farmers need to join hands in the true spirit of partnership so as to revitalize Indian agriculture. This will require a missionary zeal and a Seed Technology Mission. Let the golden jubilee year of the NSC, be the beginning of another golden era of our Indian seed sector, through needed reforms and reorientation of its leadership role.