

**A CASE STUDY :**

Seed sector development strategy for AP and Telangana after bifurcation

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SUMMARY : Indian seed Industry development was increased after new policy on seed development, 1988 and introduction of Bt cotton into India. Indian seed industry is comprising of public and private sector organizations is well poised to meet the seed requirements of the country as well as for exports and custom production. The private sector accounts for more than 60% of the quality seed production of hybrid in cotton, maize, sorghum, bajra, sunflower, forage sorghum etc. and incase of vegetable seed production as much as 90 per cent comes from private producers. The seed valley concept helps to produce quality seeds to meet the requirements of the state, country and also export to other countries directly or through joint ventures. The seed valley will bring related organizations/institutes and departments together in one location to extend services to seed industry various aspects. The good quality seeds supplied by the industry to the farmers within and outside the state has helped for increasing the productivity of different crops and to ameliorate the economic conditions of the farming community. An essential element of any developmental programme for achieving the said goals is evaluation and monitoring. Even though both the states has weaknesses and threats can overcome them by effective planning and management and growth rate can be increased by 12-15%.

KEY WORDS :

Seed sector,
Development
strategy

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BACKGROUND AND OBJECTIVES

Indian seed market is undergoing an important transformation for the past one-decade and more. The increasing private participation in seed production, development of new varieties for value added crops and introduction of genetically modified varieties has characterized the new seed regime. The new seed policy definitely shaped the growth of private participation joined by the global

seed companies. However, breeder activity is still predominantly undertaken by the state through agricultural universities and other research institutes. Even though the reliance on market for the development of seeds and varieties marks new seed regime, we are yet to evolve a fool proof regulatory mechanism that ensures quality and standards in production of seeds and effective laws to deal with failures associated with thereof. This became pretty clear in the recent experiences

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of agrarian crisis faced by the farmers in Andhra Pradesh, Telangana and elsewhere. The problems associated with seeds in terms of spurious seeds, failure of yields and lack of compensation mechanisms seriously exposed the lacunae in the regulatory regime for which the government finally responded with a new draft bill. It is important to understand the process of establishment of market dominated seed regime to appraise its relative merits and limitations. It is an established fact that private seed sector has taken firm roots in production by now. Yet it is important to identify the complementary institutions that support the successful working of market. In this paper, we trace the changing seed policy that enabled the emergence of private seed sector, discuss the problems of seed failures faced by farmers.

Prospects of seed industry in the both the states : *State seed rolling plan:*

The crop varieties are being grown under different environmental influences with regard to ecological conditions. It is essential to maintain the genetic purity of seed stock in large-scale multiplications and ensuring conformity to the original types. The maintenance of population in an organized and systematic way is a big task, because it has to retain the relationship of small amount of nucleus seed with that originally selected by plant breeders and the certified seed marketed to the farmers. The entire seed production programme should be in the hands of qualified plant breeders and highly skilled technical personals for production of high quality seeds. Genotype x environment interaction may also effect the maintenance of genetic purity of a variety. If the crop varieties are grown other than the environment where the varieties have been selected associated with natural selection and management practices will affect the genetic purity of a variety. Growing environments also have major effect on population behaviour and will have important consequences for varietal maintenance. Seed is one of the basic input of any plant production activity. The importance of seed as the carrier of important characteristics of crop production has been recognized from the early days of agriculture. For the development of seed industry in the country, lessons learned from other developing developed countries should be considered.

Administrative co-ordination:

The Director of agriculture should act as a nodal officer for the development of seed sector. To carry out

these operations effectively he should have control of public and private agencies involved in the seed industry. Fortnightly meetings need to be arranged with these agencies to take the track record of production marketing and availability of seed of all crops grown in the state with these agencies. This information will be helpful to regulate the seed marketing net works of the public/private agencies in the state. The advantage of this system is availability of certified seed of private sector to use in the seed distribution net work systems. The indented quantities of Breeder/Foundation seed should be available to private sector with the condition that the seed will be multiplied and sold in the state itself.

Varietal replacement :

The replacement of old or obsolete varieties with the recently released high yielding and disease resistant varieties has been the major consideration to increase the agriculture production. Farmers realize the benefits of crop improvement research. The varietal replacement component is very low in some crops like wheat, paddy and maize etc. Hence, there is need to bring awareness in the farming communities in the country with respect to recently released varieties, their adaptive potential and technological advances to realize the high yields. There is need for conscious production of identified varieties before their release and notification. This seed can be put under test seed stock multiplication in the farms of Seed Corporation and can be further distributed to the farmers in the recommended area for cultivation in the state. This may increase the seed demands of improved varieties in the county and ultimately results in faster varietal replacement. As we all are aware that variety development programmes itself requires minimum of 10 to 13 years in the present system of conventional breeding and evaluation. At the time of release if the breeder is having adequate quantity of nucleus seed produced through maintenance breeding, it will not be a problem to produce breeder seed meeting the standard of 100% genetic purity. This is a rare event in the existing pattern of crop improvement work because the breeder gives more attention to the development of variety and its release but not for the genetic purity of the variety that is being given to the production of breeder seed.

Seed replacement rates :

The replacement of the farmers saved seed with the certified or high quality will have an improvement

increasing yield potential to the extent of 15 to 25% in different crops. The impact of certified seed increasing the yield potential has been well recognized by the farming community in the state. These seed replacement rates fixed by the expert group on seeds in upto 15% in varieties and 100% in case of hybrids. However, National Commission on Agriculture has fixed up the target of seed replacement rates of varieties to the extent of 33% and 100% in case of hybrids.

Seed multiplication ratio's :

The conversion factor of breeder seed to certified seed is extremely low for majority of crops as compared to national targets fixed by the Ministry of Agriculture: There is a need to corrective measures in the seed multiplication agencies to enhance the multiplication rates so that the valuable breeder seed can be properly utilized and reaches the farmers with adequate quantities of certified seeds. The low seed multiplication rates at the level of foundations/certified seed will create a recurring short falls in the seed distribution network.

Crop improvement programmes linked with seed sector:

A dynamic seed sector can be developed with continuous release of improved varieties and hybrids from crop research programmes. To ensure the crop research programmes, strong support is needed from MOA, ICAR and the states so that better varieties and hybrids can be developed.

Seed production and supply alternative :

SFCI, NSC and Method levied and State Seeds and Farms Development Corporations has been the agencies to manage the foundation certified seed production programme in the country. Policies that encourage the dynamic development of commercial seed industry in the private seed sector have helped several states in different parts of the country by continuous supply of good quality seed to farmers. The programmes sponsored by respective governments to encourage the further growth and development of the commercial seed industry are important if the seed sector is to play its proper role in

Table 1 : Year wise seed requirement for united AP

Crop	2013-14 (qtls)	2014-15 (qtls)	2015-16 (qtls)	2016-17 (qtls)
Paddy varieties	1878900	1888800	1942500	1984100
Paddy hybrids	6000	6750	8250	12000
Maize	148750	143500	145250	154000
Jowar varieties	2743	2210	2097	2380
Jowar hybrids	30700	12600	28800	14400
Bajra hybrids	2640	2400	2400	2200
Ragi	1008	1140	1212	1358
Redgram	58680	60210	63480	66120
Blackgram	62400	70800	69780	73000
Greengram	39440	39500	42560	46500
Bengalgram	367575	383240	387595	409500
Groundnut	1535700	1657500	1690950	1744650
Soybean	85800	97500	104000	110500
Sesame	2070	2280	2400	2472
Sunflower	16520	19000	22500	23000
Safflower	525	600	546	559
Castor varieties	1080	0	1000	0
Castor hybrids	9500	11000	10500	11500
Cotton hybrids	22800	19920	19980	21240
Grand total	4272561	4418950	4545800	4679479

agriculture development in the state. The amount and kind of assistance from the control Governments can greatly affect the rate of growth of the commercial seed industry.

Quality control alternatives:

The first alternative is to consider how the quality of seed saved by the farmer can be improved. This can assist the seed sector by pushing it to be more quality and variety conscious. A strong emphasis on internal quality control helps and assures that only good quality is sold and build a good reputation for the seed corporation/seed growers in particular and seed sector general. Seed certification agencies are organized with a degree of autonomy in the state. However, quality control at the marketing stages on all seeds sold, offers many advantages and needs to be complemented to other system.

Personal development and training alternatives:

Human resources development is the most important factor in strengthening the seed sector. If the seed sector is to be developed attention must be given to the selection of people for their training and their use. Personal management must result in sharing responsibility, the opportunity for individuals to free self-worth in their work and high level of moral and motivation. Presently, the seed sector in the state has no proper plans, unsystematic growth and waste of this most precious resource.

Resource alternatives:

The seed sector needs physical, financial and human resources to grow and develop. Special policies to help seed sector includes: Encourage the local production of equipment needed by the industry. Recognition of lending institutions of unique credit needs of seed growers / seed enterprises and seed marketing groups and the adjustment of their programmes to meet the needs of the state government goals. Development of training facilities and continuous training opportunities for people from seed sector.

Choosing the alternatives:

There is need to establish seed review teams representing all parts of the seed sector in the state. These review teams develops a long-term plans for the development of seed sector so that the goals can be set

and choices made to achieve the goals. These choices become the policy guidelines for the seed sector. Review teams can assess the seed programme from time to time and make the recommendations on the steps needed to strengthen the seed sector in the state.

Impact of seed village scheme:

The Seed Village Programme was introduced in *Rabi* 2004-05 in the state by state Govt. of A.P. and From *Rabi* 2005-06 onwards the Scheme is being implemented as per the norms of GOI. From 2014-15 onwards the Seed Village Programme (SVP) is one of the most important components of the Sub-mission on Seeds and Planting Materials (SMSP) under Nation Mission on Agriculture Extension and Technology (NMAET) being implemented by Government of India. The certified seed produced under the scheme is having more demand due to the source of the seed is known and the farmers have confidence on the quality as the seed is produced in the farmers field by the supervision of the departmental officials. The farmers are benefited under this scheme by getting foundation seed on 50% subsidy. For the produced certified seed the farmers are getting remunerative price over the market price. The produced certified seed is available to the farmers at their door steps in time at affordable price. The farmers of the scheme are acquainted knowledge on the package of practices and seed production technology by the village level training programmes conducted under the scheme. As the area was increased under the scheme for the last two years the produced certified seed was procured by the seed supplying agencies. The procured seed under Seed Village Scheme is being utilized for further distribution under departmental programmes.

SWOT analysis of seed industries in AP and Telangana :

SWOT analysis is an acronym for the internal strengths and weaknesses of a firm and the external opportunities and threats facing by that firm. A good fit maximizes a firm's strengths and opportunities and minimizes its weaknesses and threats.

Strengths :

Most favourable climate for seed production and storage of field as well as horticultural crops compared to coastal Andhra, Rayalaseema. Nearly 400 companies

are present in and around of Hyderabad and Rangareddy districts. About 60% of total seed in India is produced from Telangana region. 80% of total hybrid rice seed production of the country is in Karimnagar district and that of pearl millet and fodder jowar is in Nizamabad district. Vertical support from government of India organizations viz., NSC/SFCI, ICAR and SAUs, support from department of agriculture. Forecasting, demand and planning, feedback from seed officers/ dealers/farmers, organization production/ multiplication, support of shareholders and farmers organization. Better extension service. Low rejection rate. Good co-ordination from seed certification agency and quality control officials. Co-operation of processing staff/labour to the farmers, quality control lab. Timely payment of compensation. High acceptance of public varieties by the farmers.

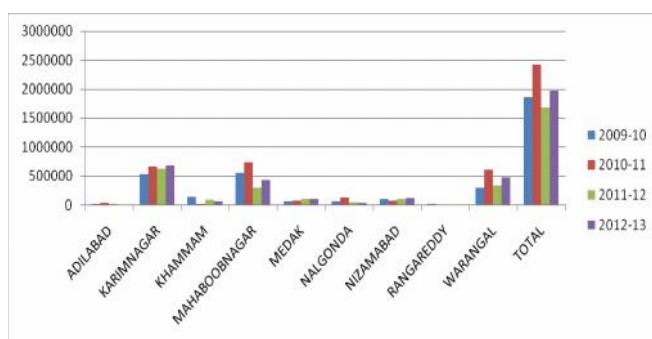


Fig. 1 : Quantity of seed certified (qtls) during 2009-13 in Telangana

Opportunities:

Scope for public private partnership in seed production and marketing, germplasm exchange as many private companies in Hyderabad have R and D facilities. Lot of scope for seed production of pulses as well as oilseeds like castor and groundnut by govt or semi govt organisations like SFCI and NSC. Involvement of PACS for seed production, Opportunity to expand seed production in new potential areas, adopting staggered sowing, Plan to replace old condemned machinery, plan to construct new processing plants to decentralize the processing, Strengthening the quality control lab, Opening of more sales counters, Production of vegetable seeds.

Weakness :

Limited role of public sector in seed production and marketing of high value low volume seeds like hybrid

seeds of vegetables, cotton etc. Defuncting of government seed farms. Inadequate trained power in seed technology to cater the needs to ever growing public and private seed industry. Lack of government of India policy to encourage the PACS to organize seed production activity, lack of research and development. Heavy workload to the staff. Fluctuation in power supply, insufficient logistics storage, transport, warehousing, distance of processing plant. Delay in packing of certified seed lots because of delay in the results of quality control. Compensation rates based on the market. Prices prevailing at the time of agreement. Lack of support to the dealers from banks. Cumbersome reporting documentation work, management information system.

Threats :

In view of state bifurcation issues related to germplasm exchange and sharing may crop up which may slow down the progress on varietal development especially on public front. Some lag phase initially in terms of infrastructure development and hence the progress may be hindered. No marketing wing in the University for Sale of the seed. Frequent changes in the policies. Withdrawal of subsidy on seeds. Quality monitoring-threat of rejection due to isolation. Threat of damage to seed due to improper storing. Black marketing by suppliers during shortage of a popular variety.

Strategies for seed production :

Strengthening of establishing Co-operative seed production societies. Linking farmers to the seed production channel by providing the breeder, foundation and certified seed at subsidized rate. Capacity building of the farmers by providing training. Strengthening of seed certification agency by developing infrastructure, recruitment of additional staff and 4 Seed Testing Laboratories. Developing storage, Transportation and Post-harvest facilities. Bonus for seed producer farmers.

Action plan :

Identifying alternate areas for other crops production. Strengthen seed village concept. Establishing seed science and technology colleges and polytechnic colleges. Separate wing for seed production and marketing of seed of university bred varieties has to be created. Telangana seed industry needs policy support to make even bigger contributions in the future:

Encouragement for investment in research and infrastructure. Minimal regulation and compliance. Freedom to operate based on free market principles. Streamlining of regulatory processes to accelerate the development and introduction of new GM technology. Robust PPP models are needed to better serve the farmers by removing the various productivity constraints through technological interventions.

Proposal of seed valley project for Telangana state:

Quality seed is a vehicle for the delivery of improved technology; it is for food, economic and nutritional security for the nation. The quality seed alone contribute 15-20% higher production. The newly formed state of Telangana is bestowed with God gift of congenial climatic conditions to take up the seed production round the year and store the seed safely. More than 400 seed companies including MNCs, established their R and D in and around Hyderabad. Thus, Hyderabad became “Seed hub” of India. Telangana Deccan Plateau is well suited for seed production due to fewer incidences of pests and diseases to realize quality seed besides congenial weather. Major farming is under bore wells, irrigation is given to the crop as and when needed. Villages like Ankapur and Anksapur of Nizamabad dist. and few cluster of villages of Warangal and Karimnagar dist. transformed into seed villages, need to duplicate it. During 1960’s hybrid maize and 1993-94 hybrid rice first time in India seed production taken in Karimnagar district. 85-90% Hybrid Rice seed production of different seed companies is being taken in Warangal and Karimnagar Districts 100% country’s hybrid fodder sorghum is being produced in Armoor mandal Cotton, maize, bajra, castor, soybean, sunflower, hybrid rice etc., seed production is being taken up in most of the Telangana District Quality seed and seed luster is

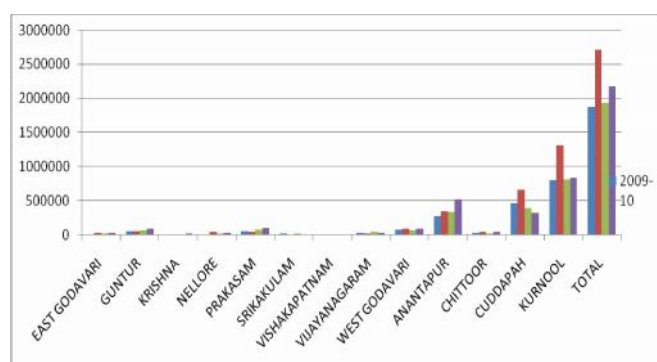


Fig. 2 : Quantity of certified seed (qtls) during 2009-13 in AP

realized in this region. Thus, it fetches good market price at national/ international level.

Export potential of seeds:

The seed can be exported to Indonesia, Pakistan, Bangladesh, Philippines, Cambodia, Vietnam, China, Srilanka, African countries, Central and South America and markets in developed countries. Public sector seed organizations and private sector seed companies including MNCS, National (big, medium and small) established their R and D at Hyderabad. National hub for Agricultural institutions for International, National and State level Institutions at Hyderabad.

Future plan of seed state of Telangana:

Strengthening various seed sectors in the state:

– Cultivable area divided into zones: 1. General 2. Commercial 3. Vegetables 4. Orchard 5. Floriculture etc.

– For seed production (S.P): a). S.P. crop wise b) Seed Atlas: present and future c) New areas for S.P. d) Compact area approach e) Seed village concept f) Contract forming for S.P.

– Infrastructure development in seed sector and logical support from state and center

Proposal should be sent to Central Govt. to declare Telangana as Seed State of India. Seed production areas should be provided assured free quality electricity for 10 hours. Bore wells, need to be encouraged for assured irrigation for seed production. Central assistance for seed growers to reap good harvest of quality seeds. Seed processing plants, construction of go downs for the welfare of seed growers. Seed testing labs at each district level. An action plan on seed to become Telangana a “Seed valley of India”. Public-Private Partnership to improve the seed sector in the state. 30-40 % seed required for the country is being produced in Telangana and supplied rest of states of our country, thus the national production is increased to 15-20%. To reap quality seed central assistance for electricity and irrigation to seed production areas. Vibrant Seed Insurance policy needed to safe guard the interest of seed growers. Creation seed corridors in and around Hyderabad for the National and International seed trade. Establishing seed production technology centers in major seed production areas. Center should be asked special package for Electricity, Irrigation and other input subsidies, since this region is supplying quality seed to rest of the states. Similar to SEZ, Seed

industry zones (SIZ) and seed production area (SPA) should be declared, to promote seed industry and human resource in the state. Special package for seed industry, since it is Eco-friendly and Farmer- friendly

Strengthening of state Agricultural University and Dept. of Agriculture:

Strengthening of SAU in seed sector to become COE (Centre for Excellence). Establishing 2-4 new agricultural colleges in the state. Each district introduction of Diploma course in Agriculture and Seed Technology. Strengthening of TSSDC, TSSCA, APSSDC, APSSCA and Department of Agriculture seed wing with infrastructure and quality seed technology personnel. Identification of stewardship personnel in quality seed management. Stewardship management enabling domestic and international trade. Stewardship in establishing STL, ISTA accredited labs in the state. Seed grid needs to establish to face any eventuality due to drought, excess rain etc. Seed rolling plan to reach 100% SRR within 3 years in major crops. Prospective plan for newly developed command and non- traditional areas. Cell for National and International Regulations for Seed Certification, Seed

testing lab. Creation of Plant Variety Protection cell, in the university. Establishing purity and GM (Genetically Modified) crop testing centers in various centers.

Conclusion :

Even though both the states have problems and we can overcome them by good action plans and annual growth rate can be increased by 12-15%.

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