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## *Seed Industry in Andhra Pradesh – Problems and Prospects of Seed Producers: An Empirical Study*

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*Abstract: India is an Agriculture based country. It is a well known fact that about 70 per cent of the population is still engaged in agriculture. Unfortunately the ratio between the growth rate of population and the increase in production of food is very low. The situation is quite alarming and will become more critical after 20 years, if we do not target the higher productivity resulting in a many fold increase in overall production. Seed is the most important and primary input in Agriculture. The seed quality has a direct impact on production. The need of quality seed has been felt since times immemorial when our farmers thought of selecting good fruits, seeds and planting material to raise healthy crops. In present scenario, the quality seed can be obtained in the form of branded seed which can be produced from seed production units. In this backdrop, the present study is undertaken to examine the problems and prospects of seed producers who are belonging to Andhra Pradesh as having direct impact on performance of Seed Industry and offer pertinent suggestions for the improvement of Seed Industry.*

*Keywords: Agriculture, Seed Quality, Seed Producers, Seed Industry, Farmers, Etc.*

### I. INTRODUCTION

Seed is a fertilized matured ovule together covered with seed coat is called seed or it is a propagating material i.e., part of agriculture, sericulture, silviculture and horticultural plants used for sowing or planting purpose.

Seed may be defined as “Structurally a true seed is a fertilized matured ovule, consisting of an embryonic plant, a store of food and a protective seed coat, a store of food consists of cotyledons and endosperm”

However, from the seed technological point of view seed may be sexually produced matured ovule consisting of an intact embryo, endosperm and or cotyledon with protective covering (seed coat). It also refers to propagating materials of healthy seedlings, tuber, bulbs, rhizome, roots, cuttings, setts, slips, all types of grafts and vegetatively propagating materials used for production purpose.

Seed is the basic and crucial input for successful crop production, which holds the key to the farm productivity and profitability. The advent of modern plant breeding and technology advances in seed industry has played a significant role in evolution of high yielding varieties and hybrids. The principles of introduction, selection, heterosis, use of Cytoplasmic male sterility, self incompatibility and genetic engineering (tissue culture; embryo culture, etc.) has been exploited in developing new varieties and hybrids by the plant breeder and thus this sudden change have brought and contributed to green revolution in early sixties in the world. It is estimated that good quality seeds of improved varieties can contribute about of 20-25 percent increase in production. Thus good quality seeds are seeds of green revolution.

Seed industry is heterogeneous in many dimensions. The product segment corresponds to all the major field crops and vegetables. With respect to product type, a major distinction is between hybrids and open-pollinated varieties. As a result,

beyond the initial purchase, farmers can multiply their own seed. This is not a viable strategy with hybrids because they suffer noticeable declines in yields in subsequent generations. As a result, hybrid seed need to be repeatedly purchased. Hybrids dominate in coarse cereals consisting of sorghum, pearl millet, maize, cotton and oilseeds.

## II. REVIEW OF LITERATURE

A brief review of earlier studies pertaining to seed production, distribution, policy structure and related aspects are discussed. The review of past literature helps in better understanding of the issues involved and provides guidance in conducting the study with particular reference to the use of analytical tools.

The paper of Shiva and Crompton<sup>1</sup> inform that Indian seed industry in the early 1990s was about one-half of what it is at present, implying doubling of the industry in just a decade. They put the share of private sector around 60%-70% (and that of public sector 40%-50%). The share of private sector in terms of value is still higher because the private sector sells higher value hybrids compared to low value seeds sale by the public sector.

The book published by the Association of the Seeds men<sup>2</sup> is a compendium of various annexures including reprints of the seed policy, seeds statistics and MoUs between AP government and companies. It gives both national and AP state data, with focus on the latter. It starts with development of Indian seed industry and explains trends in the quantity of seeds distributed during 1953-2000. It also covers the size of public and private sector seed companies, number of licensed dealers, details of important seed companies, total number of varieties/hybrids released by AP NG Ranga Agricultural University (ANGRAU), seed crops grown in different part of A.P. and contribution of private sector to hybrid seeds production.

The author deplores resource crunch for national research programmes of IARCs and the state agricultural universities. This makes their research programmes less effective and increases dependence of the farmers on the private sector including the strong MNCs. The author finally suggests that the need for active role of public sector in overcoming possible bad effects of private sector under the present environment of privatization and globalization milieu.

Another characteristic of the seed industry is that both the sectors outsource seed production to contract farmers. The companies supply foundation seed to the farmers under contract. In the case of rice and wheat, neither it is the public nor private sector but the farmers themselves are their own suppliers. Sidhu<sup>3</sup> reports that farmers use their own seeds to the extent of 90% of their requirements. However, as per sahil the farmer-saved or farmer-to-farmer exchanged seeds accounted for 68% of the total seed usage. As per Bala Ravi (Ref: 10), 75% of the seeds are replaced by farmers by means of savings, re-sowing, sharing, exchanging and selling.

Das in his paper<sup>4</sup> highlights certain provisions of the 2004 seeds bill which do much harm to the farming community. The proposed act requires that every seed producer should get registered and he would come under government supervision and control. The seed inspector is empowered to confiscate and penalize any farmer who attempts to store and cell the seeds. It is alleged that the act would not benefit the common people and their food security. On the other hand it blesses profit oriented Indian and foreign private traders and producers. The WTO is exerting influence to move towards reduction of subsidies on agricultural produce and encouragement of market players from abroad. The author is optimistic that their interest would be protected by the well known NGOs like Chandana Shiva, centre for interdisciplinary studies and anna swaraj.

Kumar Arun (1976)<sup>5</sup> studied that seed was a major item in cost of potato cultivation, constituting 26 per cent, while manures and fertilizers together accounted for nearly 33 per cent of the total cost production in Devanhally Taluk of Bangalore district.

<sup>1</sup> V Shiva and T Crompton, "Monopoly and Monoculture: trends in Indian Seed Industry", Economic and Political Weekly, 33(39), 1998.

<sup>2</sup> M. Prabhakar Rao (President), Seed Industry in A.P., Seedmen Association of A.P., Hyderabad, 2003.

<sup>3</sup> MS Sidhu, Impact of Intellectual Property Rights on the Indian Seed Industry", Indian Journal of Agricultural Economics", 54(3), 1999.

<sup>4</sup> S Das, "The Impending Seed Act", Vaartha, March 4, 2005.

<sup>5</sup> Kumar Arun 1976, Economics of hybrid jowar seed production in Devanhally Taluk of Bangalore district, unpublished M.S.C (A.G) thesis submitted to UAS, Bangalore.

Singhal Vikas (1996)<sup>6</sup> analyzed that the average cost of seeds was about 20 per cent of the total cost of inputs for crops in Europe. It would likely to be 40 per cent of the total cost by 2010. A part of this increase would be due to a shift from fertilizers and pesticides to new seed varieties, which either would not require these chemicals or would require them in substantially lower quantities or would contain them.

Rai Mangala (1997)<sup>7</sup> highlighted that good quality seed acted as a catalyst for realizing the potential of all other inputs in agriculture. Without good seed, the investment on fertilizer, water, pesticides and other inputs would not pay the desired dividends.

Singh H P and Srivastava R S L (1986)<sup>8</sup> concluded that the per acre cost of seed production of wheat (RR-21) and commercial crop was Rs. 2478 and Rs. 2405, respectively. The same in case of paddy (Jaya) were Rs. 2696 and Rs. 2667 respectively. The operational cost of seed crop was higher than the commercial crop due to additional operational costs involved in seed production, higher price of foundation seed and processing charges.

The study of above literature review had focused on various issues like seed production, distribution, policy matters but no one is focused on general issues of farmers before and after harvesting of paddy crop. This research paper focuses on various issues related to farmers before and after harvesting of their paddy crops in Telangana Region.

### III. OBJECTIVES OF THE STUDY

The present study has been taken up with the following objectives:

1. To evaluate the Problems and Prospects of Seed Industry in Andhra Pradesh from the point of view of seed producers.
2. To offer pertinent suggestions based on the study for the improvement of effectiveness and efficiency of Seed Industry.

### IV. RESEARCH METHODOLOGY

The present study entitled “Seed Industry in Andhra Pradesh– Problems and Prospects of Seed Producers: An Empirical Study” is under taken with the help of both primary and secondary data. The primary data is collected from the owners of seed processing units by administering a separate structured questionnaire specially designed for the purpose.

### V. SAMPLE SIZE

A sample of 120 respondents from seed production units were selected on the basis of random sampling method. The processing units from different places of A.P. constitute the base for selecting the sampling units.

### VI. SAMPLE UNIT

Sample unit means the area from which data is collected. The sample survey was conducted to seed producers to know their general problems. Hence, the following table explains the coverage area of sample survey was conducted to Seed producers:

	Sample Area of Seed Producers
<b>Region</b>	Telangana
<b>District</b>	Karimnagar & Warangal
<b>Mandal/ Villages</b>	Huzurabad, Karimnagar, Rampur.

<sup>6</sup> Singhal Vikas 1996 Indian agriculture, Published by Indian Economic Data Research Centre: 53.

<sup>7</sup> Rai Mangala 1997 Seed and seed development for agricultural transformation in India, proceedings of the national seminar on seed production and supply systems for sustainable agricultural development held on 8-9, October, 1997 at UAS, Dharwad, Karnataka.

<sup>8</sup> Singh H P and Srivastava R S L 1986, Comparative costs and profitability of seed and commercial crop production. Seeds and Farms, 13(3): 9.

**VII. SAMPLE METHOD**

The managers of the seed companies were selected by employing cluster random sampling method.

**VIII. PUBLIC-PRIVATE SECTOR COOPERATION**

Cooperation between private sector seed companies and public research institutes under ICAR, SAUs, and the International Crop Research Institute for Semi-Arid Tropics (ICRISAT), supported by the Consultative Group on International Agricultural Research (CGIAR), is growing. Public sector breeder seeds are available free of charge to private seed companies with no strings attached. The AICT annual workshops provide venues to private sector seed companies to assess what is available with public research institutes. Under the “consortium” model with ICRISAT, private companies can jointly fund research that results in publicly available parental lines, which they often cross with in-house genetics to produce proprietary hybrids. ICRISAT recently introduced a live-in campus for private sector researchers to use the institutions’ facilities and expertise. ICRISAT is focusing more on private sector partnerships for funding reasons and also because of private companies’ effectiveness in getting the research result out to farmers. ICRISAT is currently reviewing its policy of keeping all research in the public domain and is considering licensing/royalties/exclusive rights. Private companies can also fully fund research at SAUs for exclusive rights on the results and/or hire professors as consultants, although the degree of cooperation varies from state to state.

**IX. ROLE OF SEED INDUSTRY IN ECONOMIC DEVELOPMENT**

- » With over 400 Million acres under cultivation and over 60 per cent of our population dependant on agriculture, the well being of our people and economy depends to a great extent on the performance of the agriculture sector. Seed industry plays a crucial role in the agriculture sector.
- » The seed industry provides high quality varietal and hybrid seeds for farmers which help him to improve yields of his crops.
- » It helps the farmer in selecting quality input to produce quality output in any form in the field of agricultural sector.
- » It helps the nation to increase its productivity that result in economic development of country.
- » It creates employment opportunities to job seekers.
- » It promotes an equitable distribution of national income and mobilization of entrepreneurial skills.

**X. DATA ANALYSIS AND INTERPRETATION****Table No.1.1****Age –wise distribution of sample respondents**

Age	No. of Respondents	Percentage (%)
Below 25	05	4.17
25-35	12	10.00
35-45	48	40.00
45 & above	55	45.83
Total	120	100.00

*Source: Primary data*

The age wise distributions of the sample respondents have been placed in Table No. 1.1. The data clearly shows that 45.83 per cent of the respondents are in the age group of 45 and above years and followed by 40.00 per cent in the age group of 35-45

years. 10.00 per cent of the respondents are in the age group of 25-35 and remaining 4.17 per cent are in the age group of below 25 years.

From the analysis of above data it can be concluded that sample is dominated by the respondents in the age group of 45 and above and followed by 35 to 45 years age group.

**Table No. 1.2**  
**Educational background of sample respondents**

Education	No. of Respondents	Percentage (%)
Illiterate	0	0
SSC & below	13	10.83
Graduation	58	48.33
Post graduation	17	14.17
Others	32	26.67
Total	120	100.00

Source: Primary data

The data relating to the educational background of the respondents have been presented in Table No.1.2. The data depicts that the sample is dominated by the respondents of graduates and they account for 48.33 per cent and followed by 26.67 per cent of the respondents have studied others like inter or any diploma course etc. The respondents who represent post graduation stood at 14.17 per cent and SSC and below stood at 10.83 per cent.

It is observed from the above Table that the sample is dominated by the respondents possessing graduation and followed by other qualifications like inter or any diploma course.

**Table No. 1.3**  
**Type of Problems faced by seed producers at the time of plant establishment**

Problems	No. of Respondents	Percentage (%)
Lack of support from bankers	11	32.36
Lack of financial support from private financial institutions	09	26.47
Lack of support from Govt. Dept in the form of approvals	06	17.65
Proper information is not available for establishment of plant	08	23.52
Total	34	100.00

Source: Primary data

The data in Table No. 1.3 depicts that 32.36 per cent of the respondents were faced lack of financial support from bankers and followed by 26.47 per cent of the respondents were faced lack of financial support from private financial institutions. 23.52 per cent of the respondents were stated that proper information is not available for establishment of plant followed by lack of support from government department in the form of approvals with an account for 17.65 per cent.

It can be understood from the above Table that the majority of the respondents were faced lack of financial support from bankers and followed by lack of financial support from private financial institutions.

Table No. 1.4

## Type of storage problems faced by seed producers

Problems	No. of Respondents	Percentage (%)
Pests	66	55.00
Seepage of water from ground	11	9.17
Improper ventilation	07	5.83
Hamali workers not available at the required time	21	17.50
Others	15	12.50
Total	120	100.00

Source: Primary data

Further, the respondents were asked about type of storage problems for storing their paddy and the responses were placed in Table No 1.4. It depicts that 55.00 per cent of the sample respondents stated that they are facing storage problems with pests in their plant and followed by 17.50 per cent of the respondents were facing storage problems with hamali workers. 12.50 per cent of the respondents were facing storage problems with other types like long distance, rented go downs etc and followed by seepage water from ground with an account for 9.17 per cent. Only 5.83 per cent of the respondents were facing the problems with improper ventilation.

From the analysis it can be concluded that the majority of the sample seed producers have stated that they are facing storage problems with pests in their plant.

Table No. 1.5

## General production problems encounter in the plant

Problems	No. of Respondents	Percentage (%)
Machines break down quite often	07	5.83
Power cuts	70	58.33
Non-availability of labours at required time	19	15.84
Lack of coordination among the workers	06	5.00
All the above	18	15.00
Total	120	100.00

Source: Primary data

The analysis of above Table No.1.5 shows that 58.33 per cent of the respondents were getting production problems with power cuts in their plant and followed by 15.84 per cent of the respondents were stated that they encounter production problems with labours as they do not available at required time. Only 5.00 per cent of the respondents were faced the problems with workers as lack of coordination among them.

It can be understood from above analysis that majority of the respondents were having general production problems with power cuts in their plant.

Table No. 1.6

## Facing of marketing related problems

Attributes	Ranking
High dependence on monsoon	1
Heavy & Unhealthy competition	2
High cost of promotion	4
Lack of awareness regarding the brand	3
High dependence on agents / retailers	5
Others	6

Source: Primary data

Table No.1.6 depicts that among the respondents high dependence on monsoon is the major reason which cannot able to promote the product to the customers stood first place (Rank 1) followed by heavy & unhealthy competition that impact on marketing of the product was occupied second place (Rank 2). Third place (Rank 3) was occupied by lack of awareness regarding the brand and followed by high cost of promotion was occupied fourth place (Rank 4). High dependence on agents / retailers was occupied fifth place (Rank 5) followed by other which occupied sixth place (Rank 6).

From the above data it can be observed that majority of the respondents were said that high dependence on monsoon was the major reason which cannot able to promote the product to the customers and followed by heavy & unhealthy competition that impact on marketing of the product.

#### **XI. FINDINGS**

1. The age wise distributions of the sample respondents reveal that majority of the respondents constituting 45.83 per cent of the respondents are in the age group of 45 and above years and followed by 35-45 years age group (40.00 per cent). The sample is dominated by the respondents in the age group of 45 and above years.
2. The data relating to the educational background of the respondents stated that majority of the respondents are graduates and they account for 48.33 per cent and followed by other studies with 26.67 per cent. It is important to note that no illiterate person has established a seed processing unit and account for zero per cent.
3. The data pertaining to what types of problems were faced by the respondents stated that they were faced lack of financial support from bankers and followed by proper information is not available for establishment of plant.
4. Further, it is observed that majority of the respondents stated that they are facing storage problems with pests in their plant and followed by hamali workers.
5. Majority of the respondents were getting production problems with power cuts that they encounter in their plant and followed by labours as they do not available at required time.
6. Further, it is observed that majority of the seed producers expressed that high dependence on monsoon was the major reason which cannot able to promote the product to the customers and followed by heavy & unhealthy competition that impact on marketing of the product.

#### **XII. SUGGESTIONS**

1. The experience and knowledge gained by the person enables him to think in terms of starting business ventures. Middle age group people who have gain knowledge by way of working in the seed industry have started new business ventures to produce quality seeds at affordable prices. The government should support these entrepreneurs by way of giving training providing loans and helping them to start their own R&D ventures. The youngsters should also be motivated by government and agricultural departments through entrepreneur's development and training so that more number of seed producing agencies will come up and facilitate in providing quality seed to the farmers.
2. The government plays a crucial role in providing entrepreneurship because it facilitates the growth of industry and generation of employment in the society. The government through various sources is helping entrepreneurs to get loans from banks, financial institutions and other lending agencies. It also provides subsidies to start Seed Company. The government should play more active role and provide for soft loans with lower interest rates and also increase the subsidies component so that the seed companies can pass on these benefits to the farmers by way of reduced prices thus the government can facilitate the rapid growth of seed industry in this region.

3. The storage facilities for storing paddy seed inadequate because the demand for quality seed is increasing and the production of paddy is also increasing. The seed companies should increase storage facilities and also control pests, seepage water, improper ventilation etc to overcome these problems.
4. Infrastructure is a key requirement for development of any business enterprise however the seed companies are facing problems like inadequate power supply, insufficient equipments, lack of motor able roads, storage facilities etc. the government through its agencies should work out to remove the infrastructural problems and their by create proper environment for development of seed industry in this region.
5. The seed processing units encounter general production problems during processing of seeds like break down of machines, power cuts, non-availability of labour etc. they should look in to these problems and employee technicians who have the required skills to overcome break down of these machines. The seed company should look in terms of having genets and avail subsidy to implement solar electricity at their plants.
6. Marketing of seeds is a complex task as the customers are illiterate to a large extent. This causes problems to the companies in marketing their products to farmers. The seed companies in marketing their products to farmers. The seed companies are dependent on monsoon and there is heavy competition which sometimes becomes unhealthy. The cost of promoting the product and creating brand awareness also is very high. The seed companies depend on agents and retailers who demand more commission to sell their products. The seed companies should recruit sales people and train them in the skills of selling and marketing.

### XIII. CONCLUSION

The seed industry in Telangana Region is highly fragmented and present in small scale sector. The seed industry caters to the local needs of the farmer who are in search of quality seed but cannot afford the cost of seeds which are marketed by National seed companies. The government is providing subsidies, loans from banks, technical support to start the seed processing units. There is lack of awareness in the educated youth regarding the facilities that are being provided by the government to start business ventures. There are regulatory hurdles which are creating problem for prospective entrepreneurs to start business ventures in agro based sector. The government should develop infrastructure facilities to strengthen the seed industry. The seed processing units are facing problems in terms of getting different varieties of breeder seeds as they are totally dependent on agricultural university. The agricultural research institutes should develop newer variety of paddy seed which takes less duration of time and gives high yield for the improvement of seed industry to benefits the farmers and society at large.

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