

Evolution of Production and Marketing Channels for Seed

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ABSTRACT: The paper records the changes that have taken place in Gujarat State over the past three decades with respect to the production and marketing of improved seeds. The dry climate at harvest time provides a favourable situation for seed production in this state. The physical quality of the seed is maintained high, as the emphasis has long been on varietal purity. But availability of irrigation water is the main limiting factor.

Key words: Evolution, Production, Marketing channels, Seed

Entrusting the marketing responsibility to co-operatives in the initial period was to safeguard the interests of seed users and to prevent their further exploitation by seed growers and traders. In the pre-HYV period, cotton seed of approved varieties were arranged through cotton growers' co-operatives. The state agriculture department supplied the breeder seed and supervised the rest of programme. In the absence of co-operatives private ginners were entrusted the work. There was no financial investment by the Government in the seed trade. Even the cost of supervision and premium paid for seed storage work was made good by levying fees for agmark labels affixed on cotton bales. These bales carried a premium in the market.

The Government seed farms provided strengthening of supply of foundation stage. The subsequent stages of production was by private seed growers. With the advent of hybrid seed the work was entrusted to a co-operative, under strict conditions of technical supervision, pricing and distribution. Seeds were certified by government. The risk of making available adequate quantity of seed for the government targeted spread was covered by government which ensured adequate supply and rapid coverage by hybrids. The demand for later years grew very large and consequent diversification of system led to creation of state seeds corporations.

The demand for good quality seed from neighbouring states have encouraged private seed producers to increase their share in seed production. The value of certified seeds produced in 1987-88 in

the state is estimated at Rs. 140 million rupees, out of which about 50 percent is for other states. The share of private traders in seed is 70 per cent and of cooperatives 15 percent. The state's seed corporation markets about 15 per cent of the total value of seeds produced in the state.

In a large country like India with innumerable agro-climatic zones and uneven development of infrastructures a uniform seed policy for all its facets can neither be desirable nor possible to implement. This is so, especially for intra-state trade. The inter-state and international trade will however have to have a uniform policy.

The seed is one input which is produced on farm and also used on farm. Therefore, any large-scale transportation of seed should be considered as an avoidable cost, except under climatic compulsions where due to such conditions certain types cannot be produced or their production is costlier. Production centres then get located in places far from the users' area. Furthermore, if centralised production is advocated in a large country with over half a million villages it would become an impossible task to supply seed in critical sowing time period due to transportation bottleneck. This is particularly so for rainfed crops.

The policy makers should consider the nature of the marketed product and its climatic relationship, inadequacy of communication system particularly due to high illiteracy of target group and marketing infrastructure. In developing situations, the possibility of exploitation of both seed growers and

users necessitates state intervention not only for technological improvement but also seed production and marketing.

A comprehensive review of the situation prevailing in the country will have to wait until each state can prepare documents describing their policy related to prevailing situations. Here, therefore, an attempt is made only to depict how and why policies were introduced and altered in the state of Gujarat over the past three decades and more.

THE AGRO-ECONOMIC SETTING

Located on the western boundary of the country Gujarat's geographical location results in extreme variability of climate in space and time. Its southern most part is in the subhumid tropic, and larger part is semiarid. The northern areas are in the arid tropic merging with the deserts farther north. The geographical location makes the state vulnerable to vagaries of monsoon. The reliability of monsoon in a season, or from year to year is very low. Large variations in productivity of crops due to variable rainfall is to be faced by seed producers. It seriously upsets seed production estimates, resulting in problems in the marketing system, and development programmes. The soil sunshine and precipitation pattern however provide conditions for diversification of growing crops depending on the facility for irrigation. As many as 14 crop-soil zones have been identified. Eighty-six crops have been recorded as being sown in small and large areas. Many of them are remunerative crops. The so-called non foodgrain crops occupy 60% of gross area sown and foodgrains only 40%. Pearlmillet, sorghum (mostly for fodder), wheat, rice and maize are the principal foodgrains. Cotton, groundnut and tobacco are the commercial crops. Though the states land mass is only 8% of India's area, it produces 25% of country's cotton, and 30% of groundnut.

Only 23% of sown area is irrigated. Though the extent is small, it supports a diversified cropping system with several crops like, cumin, fennel, sugarcane, fruits and vegetables which are grown in small areas but are of economic importance in local areas. There are 29 million landholders with an average holding of only 3.5 ha. The ability of small farmers to bear great risk in agriculture and seed

production is meagre. This can be mitigated by Irrigation. Small holdings and scattered inadequate irrigation resources create special problems for seed production and marketing organizations. However, the small holder with spare time, and large labour force can carry out manual cross fertilization for hybrid cotton seed and other seed production. Economic production of hybrids has been made possible due to this labour availability. At the same time the state has a strong, vibrant farming community and had also traditions of trade and commerce both across the country and abroad. In the country as a whole, the farming community and rural areas have been exploited with an unfavourable terms of trade between farm and nonfarming communities. For Gujarat, the terms are even more unfavourable than the average for the country because of the national and state's economic policies.

The Government both at the centre and the state however desires a policy to assist farmers in their efforts to produce more and improve their economic lot. Under the Indian constitution agriculture per se is a state subject. Agriculture research is envisaged to be divided, with the aspects fundamental research, the responsibility of the central agencies, and the applied and adaptive aspects that of the states. Likewise the policies and their implementation in regard to distribution of manufactured inputs are different between states. However like agriculture produce, seed production has to be decentralized so as to produce seed suitable for local agro-climatic conditions. Gujarat has consistently advocated at decentralized policy so as to develop seeds suitable for local conditions particularly for rainfed crops. This approach however should not be considered in opposition to any central government policy for facilitating inter-state and international trade in seed.

For a discussion on policy issues, one may divide the past period in three broad time spans related to the development and spread of High Yielding Hybrids and Varieties (HYV).

1. The Pre-HYV: 2, the HYV: and 3, the post-HYV stage.

Pre-HYV stage

In this early stage of development, seed as different from grain crop had not been well recognised by

farmers. A central government policy of establishing seed farms for multiplying breeders' seed to foundation stage seed was initiated as a part of third Five Year Plan. In Gujarat over a hundred such farms were established to ensure the multiplication of improved seed. The development of new varieties and supply of breeders' seed was the responsibility of research workers. The subsequent multiplication became the responsibility of state government which also had to organize further multiplication of foundation stage. The programme gave considerable fillip to multiplication of improved seed of cotton, wheat and some other self-pollinated crops. The intermediate step of multiplication on seed farms was not found necessary for tobacco as the seed rate has been very small and a single institution could supply all the needed quantity of reliable seed. The production of improved seed of cotton and its marketing date back to colonial times of the pre-independence era. Cotton had acquired a major role in the state's economy and was an important supplier to the textile manufacturers in Manchester. Later, the budding textile industry in the country soon created a situation for production of quality cottons in the state. In the twenties most of the ginning was in the hands of private businessmen. The resulting exploitation of growers had led to the development of strong cotton farmers' co-operative ginning, pressing and marketing societies registered under a state enactment. The movement had grown so strong that by fifties in some districts no private ginning and pressing units survived. The development of co-operatives was however not uniform over the state and at the peak of development the co-operatives were marketing 30% of cotton produced in the state. This brief mention of co-operatives development is made because it also provided an efficient organizational infrastructure for seed production and marketing. The state government then had taken a decision to give breeders' seed for multiplication only to co-operatives. Their members were to multiply them and seed marketed through their co-operatives. Usually three to four stages of multiplication were necessary to cover the entire area under improved seed and growers got new certified seed of specified variety of ensured varietal purity every year.

The cotton produce of farmers using the same stage of seed was pooled, ginned and marketed in

bulk and uniform prices were paid to each. The textile industry recognized the efficiency of the system in producing uniform quality of cotton and quoted higher prices for such produce. Each bale produced from the identified stages of seed was given Agmark labels of different colours. Two qualities were recognized and market quotations specified a premium for bales bearing these labels. The system of co-operative cotton seed production and marketing was developed over 20-30 years and over a million hectare was grown from such certified seed. The cost of service of providing Agmark labels was charged to the Institutions. The income so generated was utilized for providing services of the entire State cotton development organization and the project was self-sufficient. Further, these institutions holding and marketing certified seed were also granted a premium to compensate for any loss due to storage and market fluctuations of cotton seed price. The sale price of seed was fixed by a formula prescribed by the State Government.

The seed-development system was thus characterized by government as an agent of change, providing technical services, promotional measures and help to co-operative ginning and pressing units. This resulted in non-involvement of government agency in actual procurement and trade of cotton seed or cotton. As a part of the cotton-development programme legal enforcement existed in respect of the growth of notified rainfed varieties in defined cotton zones, which prevented growth of other varieties in the notified area and ensured availability of cotton of single variety to textile industry as well as certified seed to growers.

In the pre-HYV stage, seed production was government sponsored except for seeds brought from temperate climate (e.g., cabbage, cauliflower etc.). In Gujarat however, the trading and marketing of seed other than foundation and breeder was entrusted to non-government co-operative agencies. The technical aspects however was the responsibility of the state department of agriculture. This differed from many states in the country which expected the government department to undertake marketing function. In Gujarat, the extension staff therefore remained available for their main function of agricultural extension for which they are meant.

HYV stage

This developmental stage had the advantage of an existing organizational set up and traditions in seed trade in the state. The integration of the HYV seed procurement and trade of seed of self-pollinated crops in the system was relatively easy with the large number of government seed farms established to undertake growth of foundation stage seed, in particular for wheat seeds. In the initial period the foundation stage seed, in particular for wheat seeds. In the initial period the foundation stage seed produced in seed farms was not in demand due to the colour of the seed but after the availability of light-coloured grain the farmers' response was immediately favourable and the demand for foundation stage seed usually exceeded the supply. The coverage of Irrigated wheat area with HYV was therefore rapid and wheat production went up from an annual average of a mere 0.5 million tonnes in 1964-65 to 1.15 million tonnes in 1975-76. The productivity had increased @ 10.3% as compared to 5.7% for the country in the same time span.

The production of hybrid bajra seed however needed a change in the policy of intermediary of seed farms. These farms were small and the problem of needed isolation was difficult to overcome. Wherever it was possible attempt was made to use them. But the large quantity of seed needed each year, necessitated a change in policy. Bajra is grown in 1.5 m ha in Gujarat and is the dominant foodgrain of rural area. Its annual hybrid seed requirement is of the order of 5.500 tonnes, requiring approximately 1.000 ha of seed plots each year.

The state government in order to use the existing co-operatives in seed business, entrusted the available parents seed to a state level co-operative federation (GUJCOMASOL) to organize hybrid seed multiplication: on farmers' fields. This responsibility was however completely hedged by limitations of a price formula permitting reasonable expenditure on services needed and commission to be paid to co-operative retailers. The size of the programme was fixed by state Government each year. A special feature was an inbuilt insurance fund from which the state Government made provision to reimburse losses due to factors beyond the control of management. The certification was by government

agency. The loss insurance-fund was not required to be used for about a decade at the end of which due to an epidemic the susceptible variety had to be substituted and old stocks remaining unsold had to be destroyed. The whole programme was further supported by government through agricultural extension service by arranging demonstrations by each gram sevak, by providing minikits containing the required inputs. The total effect of the whole programme was such that in a span of less than ten years, 70% of the bajra area was under hybrid seed. Then the co-operative programme had grown into large dimensions. Later in the post HYV period the number of contracted growers increased to nearly 7,000. Over 4,000 tonnes of seed of 15 crops were marketed and the turn-over of seed marketed reached Rs 45 million. The co-operative system provided uniform procurement prices to seed growers, users and retailers at all centres. It resulted in increasing the interest of farmers in seed production and its technology became familiar in rural areas. One of the results of the policy was an increase in the interest of private seed producers. The diversification of crops needing improved seed and the huge demand of certified seed caused stress in the co-operative system. The Central and State co-operative federations for reasons of maintenance of purity of seed, were not in favour of their own small organizations undertaking responsibilities other than retailing of seed.

With the phenomenal success of the co-operatives in seed trade, their experience provided a background for large number of local private seed organizations in contracting seed production who for many decades were engaged only in trade of seeds brought from outside the state (e.g seeds of cabbage, cauliflower potato etc.).

Post-HYV stage

The demand for opening out the HYV seeds trade to private bodies was incessant. One main reason thereof was the phenomenal increase in demand for improved seeds of a much greater varieties of crops and in the larger number of seed growers. The states interest in supporting farmers' co-operative as a means of reducing exploitation of farmers had also waned. Further, a unitary management structure

(within the cooperative) for seed production, procurement and marketing, faced management constraints and could not expand beyond a limit without modernization of the system as a whole. State government, in addition to the already existing National Seeds Corporation with headquarters in Delhi which had little share of business in Gujarat, established a State Seed Corporation in mid-seventies. The original intention of establishing this corporation was supply of parents and foundation stage seed, whose production was limited and acted as a constraint for increased production of certified seed and growth of seed industry as such. Even today this constraint is felt and many seed producers depend for the supply of breeders' seed on sources outside the state. The Gujarat State Agriculture University and the State Seed Corporation have to enlarge their activities to fulfil the demand.

The evaluation of policies for production and marketing of seed are reflections of the attitude of government towards farmers and farming. In the pre-HYV stage, rural people were considered an exploited group of the society. To remedy this, farmers' co-operatives were encouraged to make themselves reliant. Entrustment of seed production and marketing to co-operatives was a result of such attitude. In this period all seed trade was with co-operatives which were established under a State Act. Later, State Seed Corporation owned and controlled by the State Government and established under a Central Government Company Law, gained an important share of breeders seed produced by the Gujarat State's Agriculture University. It should be clarified that the law under which the seed corporation, like other government corporations is registered is meant for registration and regulation of privately owned profit-oriented companies. There is no hint therein about consumer protection. The State Seed Corporation however tries to keep out private retailers and establishes its own selling centres and prefers co-operative retailers. This helps to serve consumer interests. In contrast, a similarly established central government undertaking, the National Seeds

Corporation prefers private trade channels for marketing. The volume and variety of seeds required, have increased to such a large proportion that there is need for many agencies and channels to fulfil the demand. Moreover, the State is located in a region with a favourable climate for seed production, which also helps to enlarge the demand for seeds from other states. This in fact has been an important stimulus for participation of private trade in seed industry. The current share of about 100 private institutions in seed business is about 70%, and that of co-operatives and seed corporations is about 30%. The total value of seed produced in Gujarat is estimated at Rs 300 million.

The expansion in seed industry will be larger in the next decade particularly because of increased irrigation facilities envisaged by the Sardar Sarovar Project, on river Narmada. In retrospect it is clear that the policies adopted and altered from time to time have been generally tilted in favour of consumers without any statutory control on prices. But the significant share of co-operatives and State Corporation has been able to restrain seed price rise. For example, hybrid bajra retail seed price had increased only by 28% between 1976 and 1987 as compared to an increase of 120% in bajra grain wholesale prices in the same years.

The state policies have also resulted in production of quality seeds as evidenced by the increased demand of seeds from other states also. The share of exported seed of other states is 50% of the total value of seed produced and marketed in Gujarat. Quality certification has all along been a responsibility of the State Government. The State Seed Certification Agency facilities are now extended to 70 to 80 thousand seed growers for six major groups of crops comprising cereals, pulses, oilseeds, fibre, fodder and vegetable seeds grown in 30,000 to 40,000 hectares. Recent trend in seed industry indicates that more and more multinational and national industrial organizations are eager to enter the seed business in India.