

Guar Industry Vision 2020: Single Vision Strategies

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Single vision strategy is an approach to align the views of producers, processors, exporters, traders, policy makers, researchers and other stakeholders in the value chain. It stresses to provide a road map to enhance guar derivatives export by increasing the efficiency and profitability of the industry. Single vision unites all parts of the value chain and links the supporting pillars to maximize benefits to all participants in the industry. The first of its kind efforts made in Australia for grains by Grain Research and Development Corporation through the Grain Grower Organizations of Australia. The vision of the Single Vision Grains Australia is to achieve a united, vibrant and internationally competitive Australian Grains Industry. The main approach is identifying consensus between growers and other industry participants on the need for a 'single vision'.

Guar is annual arid and semi-arid legume crop grown during Kharif season in India. Guar gum, extracted and processed from guar seeds, is the source of a natural hydrocolloid, which is a cold water soluble forming thick solution at low concentrations. The guar seed consists of three parts: the seed coat (14-17%), the endosperm (35-42%), and the germ (43-47%). It is from the endosperm that guar gum is derived, which is the primary marketable product of the plant. This spherical-shaped endosperm contains significant amounts of galactomannan gum (19 to 43% of the whole seed), which forms a viscous gel in cold water. Like other legumes, guar is an excellent soil-building crop with respect to available nitrogen. Root nodules contain nitrogen-fixing bacteria, and crop residues, when plowed under, improves yields of succeeding crops. The by-products of guar processing, 'Churi' and 'Korma' are used as cattle feed. Guar gum recovery normally comes around 31% of total guar seed processed, whereas Churi and Korma account for 29% and 37% respectively.

Guar is annual arid and semi-arid legume crop mainly grown in India (about 80% of global guar production), Pakistan (15%), Sudan, Australia, and USA countries. In India, Rajasthan is the leading producer of guar seed (more than 60% of total production in the country), followed by Haryana, Gujarat, Punjab. The crop is grown in marginal lands mainly rainfed, thus production fluctuates from 2 lakh tones to 15 lakh tones annually with the level and intensity of monsoon rainfall in the major producing areas. Current production of guar seed in the country is 12.61 lakh tones from 28.5 lakh hectares of area under cultivation.

The current average productivity of guar seed achieved in Haryana state is 1200 kg/ha, if the same level of productivity is achieved at the national level, the total production can be increased at 35.70 lakh tones, three times of the present level. Taking a conservative and achievable estimate of doubling the productivity, the total production can be achieved at 23.34 lakh tones. Highest production in the country was 15.13 lakh tones in the year 2003-04. With this level of expected production of guar seed, about **7 lakh tones of guar gum** can be produced.

The yield in Haryana is higher by 206%. If 10% growth in productivity is achieved every year, the total productivity can be doubled by the year 2020. The present revenue (foreign exchange earned) is 1125.77 Crores from export of guar products which would also be doubled at the same level of prices, if India is able double its guar seed productivity. The guar processing industry is fragmented and food safety concerns are growing in export front. Processing technology in the country is still not well developed and product specific guar gum derivatives are not processed in the country. To achieve all these, measures required are brought-out in this report. This forms the Guar Industry Vision 2020. Through the different stakeholder's discussions/ consultations at different major production and industry locations and structured interview, the views and suggestions were sought and consensus has been identified for the overall development of the guar industry from farm production till export. Different stakeholders including farmers, traders, researchers, processors and exporters,

etc were consulted at Jodhpur, Bikaner, Sri Ganganagar, Hanumangarh, Hisar, Siwani, etc. locations.

The views expressed by stakeholders were:

Related to Production and Yield

- A. Production or supply pattern of Guar is erratic as guar is largely grown in rain fed conditions therefore production and yield is dependent on vagaries of nature. Most of the farmers grow guar on their waste land and not taking it as a commercial crop. Therefore, it is hard to maintain consistent supply to the industry.
- B. Productivity is poor because farmers cultivate on marginal soils with poor management conditions and hardly use any inputs. High yielding and drought resistant variety seeds are not available. Maximum use of local strains/ land races due to inadequate availability of the quality certified seed of improved varieties. The seed replacement rate is lowest in all crops (less than 10%).
- C. Though research on development of high yielding varieties of guar seed is done and few good varieties have been developed, but there is nobody to look after the certified seed development and dissemination of these varieties. Farmers' wants to use HYV seeds but seed is not available in the market.
- D. The research institutions/ agricultural universities face fund crunch for research in new variety development and product processing and technology development.
- E. Agricultural extension system in the states does not give much attention on guar crop and the crop is treated as marginal crop. The improved varieties have been developed by research institutions/ agricultural universities, improved agro-technology is defined but it does not reach to the farmers.

- F. **Enhancing Productivity:** The productivity level in Rajasthan is 3.25qt/ha under irrigated conditions and 2.75 qt/ha under rain-fed conditions. While Haryana state made success in improving productivity and the current productivity level in Haryana is about 11.0 qt/ha. Therefore, continuous research and extension work needs to be in place for increasing Guar seed production and productivity in the state. Total guar seed production in Haryana have increased to about 35 lakh qt presently from a level of 5-7 lakh qt. Variety development according to market demand is poor and guar production technology and research extension is not fully reaching upto the farmers' level. Therefore, the extension system should be strengthened in the state.
- G. It is possible to have two crops in a year in certain areas where irrigation facilities are available. Second crop can be taken after Rabi (April-July) but short duration varieties would be needed which should mature before onset of the monsoon.
- H. The industry's knowledge about the developments in agricultural research is poor. In case of guar although chemical analysis of different varieties is available and the processors could exercise preference for varieties with higher gum contents, but is not being done due to lack of knowledge by the trade and industry. The parameters for buying are quite subjective to parameters like colour, shape and size. Even farmers are not aware of varieties suitable for their area.
- I. Guar is considered as a minor crop by the State Agriculture Departments and Agricultural Universities, who give more attention to crops like cereals, oil-seeds and pulses rather than guar.
- J. Since Guar crop is highly dependent on monsoon rainfall, and if production fails there is no risk cover for farmers. Therefore, crop insurance product in guar seed should be developed and farmers' guar crop should be insured.

- K. As the crop is highly dependent on monsoon rainfall, if there is long dry spell crop fails completely. In this case, promotion of rainwater harvesting as was prevailing in the form of *tanka* in Churu district of Rajasthan can be used critical life saving irrigation to the crop and increase productivity.

Related to Marketing

- A. There is wide fluctuation in prices of guar seed and its derivatives. Though commodity futures in guar seed and guar gum is available for risk management, but the farmers are not in a position to take direct benefit of this complex method for them.
- B. The information on domestic consumption as well as export potential is also not available to industry. There is also lack of market intelligence in guar seed and guar gum.
- C. **Market Fee:** Mandi fee for Guar in Rajasthan is chargeable at the rate of 1.60%, while in Haryana it is 1.0%, in Gujarat- 0.50% and in Punjab there is no mandi fee chargeable on Guar. Mandi fee structure needs to be corrected and made uniformly.
- D. **Warehousing and pledge financing:** Warehousing facilities for storage of guar seed is inadequate thus needs more storage structures to be built. The quality of the commodity is not maintained properly at the warehouses, and there should be strict regulations for the warehouses on quality issue. Also the benefit of pledge financing scheme is not reaching farmers and other stakeholders. Therefore, wider publicity of the scheme is needed.
- E. **Logistics:** Manufacturers send their processed product through train to the port. The main problem regarding this transport is unscheduled train timings. They can't send it through road, as it is very expensive means of transportation.
- F. **Packaging:** For packaging of splits they use plastic bags and each bag contains upto 50 kg of splits. Guar powder is packed in paper bags and

each bag contains 25kg of powder. Then these packets are being filled in the containers and each container consists of 800 packets. Packaging also poses a problem occasionally.

Related to Value addition and Exports:

- A. Value-addition is poor. The pulverized gum is largely sold as a commodity. About 40% of the exports are still in the form of refined splits. Also machinery and technology for the product specific value addition is required in the country.
- B. Cheaper substitutes of Guar are available for industrial applications. Tamarind kernel powder has considerably replaced Guar Gum in textile sector. Similarly *Cassia Tora* is expected to substitute guar gum in textiles, pet food etc. Only food and pharmaceutical end-users have stable demand due to increasing preference for natural products.
- C. USA, China and Germany are the major importing countries accounting for more than 50% of total exports from India. Considerable quantities of value added derivatives are being re-exported from European countries.
- D. There is a potential for marketing of value added Guar based health foods, dietary fiber, slimming-aid, fat replacers, medicines etc. in the international markets. For technical grades, the potential for exporting value added derivatives exists in the areas of oil-drilling and textiles. But hardly any efforts are being made in this regard in the country.
- E. Harmonized product codes meant for Guar products are not being used by internationally important trading countries. While India is using Harmonized product codes, USA and E.U. countries are using different codes which are perhaps resulting in some discrepancies in the data.
- F. **Quality certification:** The quality certification of guar seed as well as of the guar derivatives is negligible. The stakeholders opined that there should be a third party certification of the produce and products. There are

- negligible arrangements for quality certification of guar gum for export. Exporters have to face lot of problems regarding certification. Like phyto-sanitary certification facility is not available at Jaipur, Jodhpur and Bikaner. Foreign quarantine restriction has become very strict. Therefore, appropriate agencies should be in place to help facilitate smooth exports. Exporters have gone through Kosher and Halal certification when they export their product to Israel and Pakistan, respectively.
- G. China's custom tariff on Indian Guar Gum powder is 15% and on guar splits is 5%. Thus, China's policy is to encourage import of raw material (guar splits) from India and process it into their own processing industries and re-export it, rather than importing finished products. While import tariff for products imported from Pakistan is nil, thus there is clear discrimination between India and Pakistan.
- H. There is no any reputed Research and Development institution working on guar seed production and development of guar gum powder industry specific products, and its processing technology, plant and machinery in the country.
- I. Many of the guar processing industries are small and does not have technical manpower/ skilled labour, and operate under unhygienic conditions. There is urgent need of capacity building of manpower working with guar processing industries in all respect including food safety and quality aspects.
- J. **Port Handling:** Guar seed derivatives are being exported from Mundra port. Exporters face problems regarding infrastructure available at port. Port infrastructure as well as the handling process is not upto the required. Capacity building of personnel and workers working at port is required for safe keeping and handling of food grade produce particularly food safety aspects. Containers should available at industry site, so that problems in container stuffing at port can be avoided.

The suggestions and recommendations are given below:

- There is need to develop a Research and Development centre as the centre of excellence for Guar. The major activities of this centre could be collection and dissemination of information, promoting usage of Guar and its derivatives, development of processing technology according to changing market demand and food safety concerns and development of value added products. This centre should also have R&D facilities and pilot plant/ machinery for trial production of value added derivatives of Guar. The centre should also have facilities and authority to issue quality certification. Capacity building of small and medium enterprises in guar processing on the lines of growing food safety concerns is of utmost importance. The objectives of the institute can be defined as:
 - Research and development of High yielding varieties along with quality requirements of industry,
 - Certified seed development and distribution,
 - Research and Development of processed guar gum products, industry use specific,
 - Research and development of Guar gum products processing technology and machinery, pilot plant for industry training
 - Export facilitation to industries like export documentation, specialized container and transport arrangements, port handling, etc.
 - Guar production technology extension dissemination to farmers,
 - Market information creation and dissemination to all stakeholders,
 - Promotion of contract farming.
 - Authority to keep vigil on industry and to issue certification like GMP, HACCP, ISO 22000 and Food Safety Management,
 - To impart training among human resource engaged in guar industry and develop skilled manpower for the industry.
- Consistent funding for Research from government is required. The institutes/ agricultural universities lack funding for guar research.

- Major problem of farmers and industry is the non-availability of certified seed at the time of sowing. Multiplication of certified seed by agricultural universities/ state seed corporations is required. A well organized research program for seed production of high viscosity varieties, and cultivation practices is needed.
- Proper and targeted extension mechanism for dissemination of agro-technology of guar production, and technology/ knowledge support to farmers need to be ensured.
- Farmer-Industry linkages to be enhanced through direct marketing arrangements at the mandi yards and promotion of contract farming.
- Since Guar crop is highly dependent on monsoon rainfall, and if production fails there is no risk cover for farmers. Therefore, crop insurance product in guar seed should be developed and farmers' guar crop should be insured.
- Many of the guar processing industries are small and does not have technical manpower/ skilled labour, and operate under unhygienic conditions. There is urgent need of capacity building of manpower working with guar processing industries in all respect including food safety and quality aspects.
- Product diversification keeping in view the demand of importing countries.
- Value addition of Guar Meal. Guar meal can be used for animal and human consumption. Research on odorless guar meal will prove a significant step to develop different uses of guar meal.
- Introduction and proper implementation of crop insurance by assistance of State Govt.