



Challenges of the Flower Seed Industry

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ABSTRACT Seed is the most important input component for productive agriculture. The expansion of seed industry has occurred in parallel with growth in agricultural productivity. Given the fact that sustained growth to cope with increasing demand would depend more and more on the pace of development and adoption of innovative technologies, the seed would continue to be a vital component for decades to come. The organized seed industry of the country is just forty years old. Yet, its growth has been phenomenal. The private seed industry is no more confined to just production and marketing of seed. It has as well acquired technological strength to cater to the varietal needs of tomorrow. There are about 150 organized seed companies in India today. Several companies have Government of India recognized research and development departments and have released a large number of varieties and hybrids in several crops. The contribution of private research in terms of value is steadily increasing.

Commercial seed production has undergone unrestricted revolutionary growth in terms of number of crops and their varieties as well as production. This phenomenal development is the result of technological advancements in the production of flower seeds and developments in the areas of production, packaging, handling, transportation and marketing of flowers and ornamental plants all over the world. The world germplasm contains more than 1500 different varieties of flowers and ornamental crops. Hybrid vigour in ornamental plants was exploited for the first time in 1940s to produce all double F₁ petunia hybrids, which revolutionized the flower seed industry. Now the F₁ hybrids are available for almost all the flower crops from A to Z including ageratum, begonia, calendula, cyclamen, carnation, gerbera, hollyhock, impatiens, marigold, petunia, stock, etc. The real breakthrough in hybrid flower seed production occurred since 1950s and there have been tremendous advancements in this area, with numerous creative approaches being employed to produce F₁ hybrids. These include the use of male sterile lines, synthetic/artificial seed production through somatic embryogenesis, use of vacuum pump for pollen collection, use of infrared light for dehiscence of anthers for pollens, long term storage of pollen grains and the use of pollination aids to overcome tedious conventional hand pollination techniques. The F₂ seeds developed in recent years have gained popularity, including antirrhinum, petunia, pansy and are less expensive than F₁ seeds. The major goals of the floriculture seed industry to increase the floricultural production through the spread of high quality seeds are:

1. Rapid multiplication
2. Timely supply
3. Assured high quality seeds
4. Reasonable price

Current Status:

The varied agro-climatic conditions existing in India provide a vast scope for the production of a wide range of flower seeds of both tropical and temperate origin. With the availability of relatively inexpensive human labour, technical expertise, and other materials, it is possible to organize a strong flower seed production program exclusively for export purpose. The following four basic factors must be considered in developing an efficient seed programme.

1. Assessment of world seed demand, its consistency or stability and the approximate pricing structure
2. Identifying best areas for quality seed production and

determination of export potential based on the existing global demand for seed and the facilities available

3. Promotion of both internal and international seed trade
4. Development of basic infrastructure for the production of flower seeds

Production of seasonal flower crops is a lucrative business and practiced in considerable areas in Punjab and Haryana. This offers higher returns from unit area. Of late, demand is increasing in domestic market also. Research work is required to develop high-yielding varieties including F₁ hybrids, agro-techniques for producing uniform seed with higher certification standards. India's seed industry has grown in size and level of performance over the past four decades. Both private and public sector companies/corporations are involved with the production of seed. The public sector component comprises two central corporations, viz. National Seed Corporation (NSC) and State Farm Corporation of India (SFCI) and 13 State Seed Corporations. The private sector comprises around 150 seed companies, which include national and multinational companies and other seed producing/selling companies. Now, in India we produce the open pollinated flower seeds in bulk particularly in the surrounding areas of Ludhiana, Kalimpong, Ranchi, Bangalore, Ooty and Kashmir valley. Flower seeds which are generally produced in India are petunia, coreopsis, helichrysum, phlox, nasturtium, marigold, gaillardia, verbena, pansy, poppy, candytuft, sunflower, balsam, cosmos, annual chrysanthemum, cosmos, African and French marigold, zinnia, statice, salvia, dahlia, cornflower, sweet pea, linum, lupin, portulaca, nigella, calendula, echium, etc. Around 60 per cent of the total production comes from Ludhiana. In Bangalore, at Ranebennur and Itigi, nearly 25 per cent of the flower seeds are produced. The rest of the production comes from Srinagar, Kullu valley, Ranchi, Kalimpong and Terai areas.

Special features of growing flower seeds:

Cultivation of flowers for the production of seeds demands more special care and continuous attention that is required for growing crops. The culture of all seed crops and flower seeds in particular, is a specialized business requiring trained skills, knowledge and vigilance. Production of seed of most of the flower crops requires elaborate techniques with increased risk of crop loss and great skill and technical knowledge are needed to carry the crops through the final essential stages of flowering and seed development. Flowers consisting of several species cannot be considered as one crop. Each species requires individual attention. High quality

seeds can greatly increase the profits of farmers and growers. Although the cost of seed represents a mere fraction of the total crop production, the seed quality plays a decisive role in influencing profitability. Seed producers, thus, have a great responsibility and need a thorough scientific knowledge of the biology, production, storage and processing of seeds.

Challenges:

Flower seed industry seems to have a great scope of expansion in developing countries like India, especially under North Indian climatic zones having favourable growing conditions, availability of skilled and cheap labour, marginal resources from small land holdings and need for crop diversification. Seeds are the perfect natural packages that facilitate the migration of plant species across the land and sea. New trends in desirable flower types, colour and how the flowers are used to develop, and the flower seed trade evolves to accommodate these trends. The vast diversity of flower crops is an important, unique feature of the flower seed industry and this presents greater technical challenges to it than to other agricultural industries. The flower seed trade developed from small scale sales of selected varieties by speciality nurseries two centuries ago to a highly technical, vibrant segment of the seed industry today. There are a number of unique characters that set aside the flower seed industry apart from its crop and vegetable seed counterparts.

1. Product range: Existing flower seeds come from a broad botanical base and new crops are being introduced every year. Most of the popular flowers are annuals but there are also many biennials and perennials. They are commonly used as bedding plants, pot plants and cut flowers. Some flowers are edible and are often used in regional gourmet cuisines or as garnishes in salads. This very broad product range demands a very broad knowledge base for those involved in the industry.

2. Continuous quest for new product: New flowers are selected mainly for their ornamental value rather than crop yield, which is the primary selection factor in food crops. Being a qualitative trait, ornamental value is largely subjective and depends greatly on cultural changes in the society. Novelty captures the attention of the consumers and there is a continuous need for a different look, a newer colour. Flower breeders have to keep abreast of significant cultural changes in society and the successful ones are trendsetters, much like designers in the fashion industries.

3. Serving highly sophisticated customers: Greenhouse industry is a highly industrialized segment of the agriculture sector today and green house growers have very exact product requirements for their seed suppliers. The growers need to know the technical details of the crop culture and information on how to force a flower crop for special holidays when the demands for fresh flowers are high. The seed companies must ensure that seeds of the desirable varieties are available at the required time. They also need to develop cultural guidelines for optimal crop performance and provide information on how to induce flowering at the desired period.

4. High seed germination requirement: For the flower seed industry, the single most important development in greenhouse production in the last 20 years is the emergence of 'plug' growers. These are the growers who specialize in the production of young plants that are then sold to 'finishers' who bring the young plants to flower to the market. To optimize production efficiency, the growers demand that each seed must germinate and produce a seedling; otherwise the valuable greenhouse space and nutrients are wasted. Seed companies have to produce flower seeds of the highest quality in order to satisfy these growers.

5. Advances in seed technology: Because growers have high expectations for flower seed performance, they are willing to pay increased high seed costs compared to other agronomic and vegetable seeds. Fortunately, these increased prices also allow the industry to practice seed enhancement technologies not commonly encountered in other crops. For instance, many flower seeds are routinely primed for improved performance or pelleted to permit greater ease of handling. Each of these techniques must be researched for optimum performance according to crop, which requires specific equipment, expertise and knowledge.

Conclusion:

The horticultural industry is becoming increasingly competitive. It demands an ever broader range of new products. In order to succeed, the speed of product development has to be accelerated as the average life cycle decreases. Constant basic and applied research efforts are needed to develop the biotechnology fundamental to the continued progress of the seed industry. Many current developments in the flower seed industry, including breeding for crop improvement, are the results of the vision and needs of the consumers, growers, packers, shippers, processors and seeds men as well as the significant contribution made by many federal and state breeding programmes, initiated and sustained with public funds. Very different set of skills are required to address these new flower seed production challenges. Some general knowledge background is available, but much more research is needed to bring about solutions to these challenges. It is likely, at least in the short term that these challenges will be met by different specialists rather than one large seed producing company. These issues offer the opportunity for new players to come into the flower seed industry and challenge existing seed producers to evaluate where they can deliver the best value.

REFERENCE

- Bhattacharjee SK, 2003. Floriculture Industry In: Advanced Commercial Floriculture, Avishkar Publishers and Distributors, Jaipur. Pp. 3-50 | Bhattacharjee SK, 2006. Development and Research on Ornamental Horticulture In: Advances in Ornamental Horticulture, Vol.1. Pointer Publishers, Jaipur. Pp.1-33 | Desai BB, 2009. Flowers and Ornamental Crops In: Seed Handbook- Biology, Production, Storage and Processing. Replika Press Ltd., pp- 361-397. | Gadwal VR, 2003. The Indian Seed Industry: Its history, current status and future. Current Science 84(3): 399-406. | McDonald MB and Kwong FY, 2005. Introduction to flower seed industry and flower seeds In: Flower Seeds: Biology and Technology, CAB International, UK. Pp. 1-6