

# “STUDY OF EVOLUTION AND ECONOMIC DEVELOPMENT OF FLORICULTURE IN MAHARASHTRA PUNE”

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## **Abstract:**

*Floriculture is the modern branch of farming that involves the growth of flowering plants and foliage plants to gain high returns on investment. With the increased consumption of flowers for various purposes, it has increased the demand and production in India. Floriculture becomes one of the popular agricultural sectors in Maharashtra. Also, compared to conventional crop plants, the production and development of flowers give a large income per unit area and hence many entrepreneurs are showing interest in floriculture. Through this study, the researcher has tried to understand the evolution of floriculture in Pune, Maharashtra. Also, the researcher has tried to get clear insights into floriculture's role in strengthening the economic system. Through the study, the researcher observed that many factors influence flower production and its outcome.*

**Keywords:** *Evolution of floriculture, economic development, floriculture in Maharashtra, plant nursery*

## **1. Introduction**

For India, farming or agriculture is the main resource of income for the majority of the people. In other words, agriculture is the principal means of survival for around more than 60% Indian population. According to a study, India's GDP from 2008 to 2009 was around 17.1% and dropped down to 16% in 2009 and 2010.[1]

### **1.1 Floriculture status in Maharashtra**

Floriculture is one of the rapidly growing farming sectors. It involves the cultivation of green plants, cut flowers, garden plants, flowering potted plants, foliage plants, and floriculture propagative material. Since the last two decades, the field has gone through tremendous changes and growth phases. More specifically, floriculture in India remained unidentified till the late 80s'. Not only flowers but also floriculture products are showing huge demand and consumption for the last two decades. Several agricultural reformations helped farmers to understand the value of floriculture during 90s'. Initially, floriculture was limited to only 106000 hectares from 2001 to 2002. Still, with the increasing awareness, 339000 ha occupied by floriculture in 2018-19 [2]. Such increase in production and preference for floriculture in India was due to the timely formation of proactive policies. According to current study observations over the cultivation of flowers, floriculture becomes the prime source of employment and income generation.

Also, India and specifically Maharashtra have received suitable climatic conditions for the growth of flowers. Maharashtra, some other states like Tamil Nadu, Andhra Pradesh, Karnataka, Gujrat, West Bengal, and Delhi are involved in floriculture. Here, the researcher observed that in 2007-2008, India had produced 870 thousand MT loose flowers and 43417.46 lakh cut flowers in 160 thousand hectares. [3]

Flowers like marigold, aster, roses, tuberose, gladiolus, and jasmine are cultivated in an open field of India. Also, flowers like carnation, roses, and orchids are grown under a controlled greenhouse environment. The EXIM policy of India shows the presence of floriculture as the thrust area for export. [4] Also, the ministry of commerce has recognized floriculture as an extreme focus part of farming. Apart from this, the Central government and the government of Maharashtra commenced giving subsidies to greenhouse owners.

## **1.2 Significance of the Study**

The major focus of the study was on flower cultivators who are involved in the production and cultivation of various flowers in the open field. The present study will be helpful in the production of selective flowers of different sizes of farms. Also, the finding and results of the study will be helpful for farmers, research institutions, and government in policy reformation. Apart from this, the present study is conducted in a limited area, i.e., Pune district. Hence, the findings are mostly applicable in such areas having similar agricultural conditions and facilities.

## **1.3 Statement of the Problem**

Here, the researcher has considered the economic status of the Indian farmer and found that they need to move ahead towards modern agricultural practices and innovative farming methods. Several technologies and methodologies are meant to transform farming and farming business and economic status of both farmer and nation. Moreover, along with production, it is essential to perform effective marketing of those products. Many farmers have created awareness about increasing productivity, but insufficient knowledge and confidence to market farm produce. Hence to resolve their challenge, more study has been performed so far in agriculture or floriculture. But the available data is limited, so further study is performed to obtain more empirical evidence about the cultivation of flowers through floriculture.

#### 1.4 Objectives of the Study

As mentioned above in the statement of the problem, the researcher has planned to conduct a present study with the following objectives:

- To study the development of floriculture in Maharashtra
- To determine the benefit-cost ratio of flowers
- To understand challenges faced by floriculturist in Maharashtra
- To determine the marketing scope for flowers in Maharashtra
- To identify ways to improve the floriculture industry in Maharashtra

#### 1.6 Definitions

##### Definition of Floriculture

- Based on the concept put forth by Prasad and Kumar in 2005, the floriculture sector mainly involves the growth of plants on an annual, biennial, and perennial basis, either indoor or outdoor and then dispatch of the same at a wholesale or retail rate to the market. [6] In other words, the floriculture industry is the mixture of conventional and non-conventional flowers and dry flowers.
- According to Kadam, 2012, the cultivation and business of conventional and non-conventional flowers and dry flowers are known as the floriculture industry or green industry. Floriculture also covers the production, processing, and marketing of a variety of flowers. [7]
- Floriculture is the branch that includes cultivation, processing, and marketing of ornamental plants and landscaping of areas, garden maintenance to enhance the aesthetic looks of the space. [8]

### **Definitions of evolution**

- According to Bowler 1975, nature has a history, and that history is not static. Natural science holds power to attempt to repair several past events to tell the story of nature's history and work with evolution in its first sense, which changes over time in the natural world. [9]
- Evolution is the word that denotes the mechanism that introduces the morphological change intended by inadequate common descent modification through successive ages. [10]

### **Definitions of economic development**

- According to David Ricardo (1819) and later Robert Solow (1956) et al., the economy is a machine that provides economic output by using functional inputs such as workforce, property, and equipment. [11]
- Economic Development is the development of capabilities that contribute to the progress of society within the understanding of personal, corporate, and community potential. [12]

### **Review of literature**

The researcher has performed a detailed study of different national and international published literature based on the research title.

The research professional has reviewed the literature under the following titles.

#### **a. Study on the evolution of the floriculture industry**

Here, in the present study, the researcher has aimed to study the evolution and economic development of floriculture in Maharashtra Pune. Also, derived some of the research objectives to understand the proper answers and performed a literature review. In India, floriculture is growing with the pace and particularly farming sector has created more employment options and ensured high returns on investment to rural farmers. According to Thipaiaha (2003) and Gowda (2009), the production of flowers or floriculture is an age-old practice. [13]

As a result, farmers started producing more flowers to match demands from the international and national market. Gowda (2009) have suggested several factors that increase the demands for flowers and includes urbanization, increased personal purchase power among middle-income families, increased corporate bodies and businesses, tourists, temples, and hotels. Also, changing lifestyles show high value to flowers which boosted the overall demand for flowers. [14]

**b. Study of floriculture as a source of economic development**

Due to technology revolutions in India, the country has encouraged its farmers to enter into floriculture. Now the country has acquired access to technology, a skilled workforce, trading, and privatization options. The country shows huge consumption of floriculture-based products. In India, flowers are widely used on different occasions and with different purposes. From decorating gardens and home decoration to worshipping Gods and offering bouquets, flowers are changing their roles. Several flowers like aster, lilies, Jai-Jue, marigold, Liliun, Dalia, Tuberose receive high demand for festive seasons like Dashera, Ganesh Chaturthi, and Diwali. Along with the increased personal use of flowers, the floriculture business supports life's social and economic aspects. The floriculture sector creates huge employment opportunities throughout the year and gives returns in foreign exchange.

Here, the researcher has reviewed a study performed by Getu (2009), which states that many developing countries have received the best environmental and geographical conditions to support the growth of flowers and enhance the overall economic status. [15]

The further researcher has reviewed a study performed by Peter (2008) that focused on floriculture which is regarded as the newest branch of agriculture and involves diversified practices to obtain increased returns. [16] Accordingly, the floriculture area is considered the sector for improving farm income and reducing employment concerns of rural individuals. Also, according to Labaste (2005) production of cut flowers is the practice that enhances the economic status of developing countries. [17]

Further, researcher observed that floriculture is a potential money-spinner and a financially viable farming business. Also, the sector is shifting conventional flower cultivation practices to modern practices. Here, modern floriculture practices are designed to extend the shelf life of flowers and grown in controlled environmental conditions. [18]

**c. Study of floriculture considering marketing scenario of Maharashtra**

Further, to understand the floriculture system in Maharashtra Pune, the researcher has studied "The Rose in India" the book published by Pal B.P. (1991), where he has explained the marketing of roses. [19] Many farmers living around Pune and Nashik can market their cultivated roses to these major centres of Maharashtra and gain more profits. Also, both cities have developed huge flower market due to convenient transportation facilities. Further, to understand the investment and returns from floriculture, the researcher has reviewed the study performed by Armitage (1992). [20] The

researcher observed that cut flower production is the economical way to obtain profits with less investment from the study.

While attaining answers to research objectives, the researcher has reviewed a study performed by Mahale (2002), which offers knowledge about the development of floriculture in Maharashtra. [21] More specifically, the researcher has studied article “Floriculture Development in Maharashtra” and observed that Kolhapur, Sangli, and Pune are the three developed districts concerning hi-tech floriculture practices.

## **2. Research methodology**

Here, in the present section, the researcher has offered information about the selection of research method, research design, sources of data collection, selection of the population, sampling procedures, information about various research tools, and research tests.

### **3.1. Methodology**

For the present study, the research scholar has selected the survey method and interview technique. Research is a systematic activity performed to obtain, discover, and develop a well-organized set of knowledge.

### **3.2 Research Design**

Research design is a well-defined framework of a research study. In the present study, the researcher has selected several floriculturists belong to villages Pune district, Maharashtra. Also, the researcher has considered them as samples. Also, the same data is used for data collection and data analysis.

### **3.3 Population and Sampling Technique**

The researcher selected several floriculturists from nearby villages of Pune district Maharashtra as the population of the study and chosen Maharashtra state because it holds favourable conditions for floriculture.

**Sampling method** is the systematic approach performed to study the limited and particular population units to attain the study's goals. More specifically, the researcher has performed a random sampling of probability method for the present study.

### 3.4. Research Tools

Here, the developed questionnaire was applied as a basis for data collection and interviews with selected respondents. Then obtained data through primary and secondary data collection methods were analyzed using standard statistical tools. The researcher has preferred to conduct a survey method and arrange interviews with the flower cultivators.

### 3.5 Data analysis

Here, the research scholar has conducted a thorough analysis of data using several statistical techniques. First, the researcher has separated and rearranged collected data and adopted techniques of analysis. Here, the researcher has performed the One-way ANOVA method of data analysis.

## 4. Findings

The performed research aim to gain the evolution and economic development of floriculture in Pune, Maharashtra. Here, the researcher has tried to fulfil the very first research objective as follows:

### 4.1 Development of floriculture in Maharashtra

To understand the floriculture status of Maharashtra, the researcher has reviewed literature and studied online data. The researcher observed that Maharashtra is considered the biggest state in India based on population and Gross Cropped Area through the review. However, in comparison to the country's population, Maharashtra has only 9% population, and still, the state shares around 20% of the output and 13% GDP since the last 50 years. [22] Maharashtra is in a leading position in agricultural practices, and it has emerged as a floricultural state on the national level. Such growth is only because the state has received supporting climate, availability of technically skilled professionals, transportation facility, and availability of market, irrigation, and greenhouse systems. Apart from this, the state government supports farmers by curating different supporting programs and schemes.

Further, to understand floriculture in detail, the researcher observed that the floriculture in Maharashtra was only limited to conventional practices to match the homely requirements. But now, with the developments and available facilities, many farmers have entered into this field and started cultivation of flowers on a large scale using greenhouse conditions. The state's transformations or revolutionary changes have helped farmers move towards the cultivation of flowers to gain the highest returns on investment. Based on the available literature and data, Maharashtra is in the leading position in floriculture compared to other states of India. [23] The state has received superior

soil types and supporting climate, which creates huge scope for floriculture practices. [24] In this study, the researcher has selected the Pune district because, like Kolhapur, Nashik, Satara, Pune has received hi-tech floricultural support. These districts produce flowers using open floriculture practices and cultivate flowers like Mogra, Gerbera, Rose, Tuberose, Chrysanthemum, Marigold, Kagda, Jasmine, etc.

## 4.2 The benefit-cost ratio of flowers

Here the research scholar was aimed to understand the benefit-cost ratio of economically profitable flowers. Hence, to understand the benefit-cost ratio, the researcher has determined the input-output relation of flowers like rose, marigold, chrysanthemum, and tuberose. Here, the basic motive behind selecting those flowers was that they receive high demand from the market in all seasons. The high demand is because they are useful in almost all places like home decorations, worshipping, funerals, and many other places.

It is also observed that the benefit-cost ratio is a relative measure of profit and useful in performing comparative analysis. Also, agriculture flower production is completely analyzed in quantities of input given and result obtained. Here, land, compost, workforce, fertilizers, water, pesticides are considered as inputs. So, the relation between input and output of production defines the behavior of dependent variables. Based on the study's objectives, it is essential to consider several stages of the cost production. Here, these stages involve operation-wise labor utilization, hectare-wise resource engagement, per item market price, overall costs, and returns.

### 4.2.1 Benefit-cost analysis

Based on observations, the researcher has got clarification on the benefit-cost ratio of various flowers. Here, the researcher has referred the benefit-cost ratio of aster farm, which is more than one. The ratio suggests that the cultivation of aster flower is economically affordable. [25] In the case of marigold, the cost-benefit ratio was more than unity, and hence, the researcher suggests that the cultivation of marigold flowers is affordable in Maharashtra. Also, the climatic conditions of Maharashtra are favorable for the growth of a marigold flower. Hence, farmers can choose this flower to obtain the best returns on investment. Further, chrysanthemum farms are also beneficial from an economical perspective and hence studied in detail. The researcher found that the cost-benefit ratio of this flower was greater than unity, and hence it is best for small-sized farmers as well. [26] Intending to understand the cost-benefit ratio of rose flower, the researcher has performed a study. Through literature reviews, the researcher observed that the output-input ratio of rose flower indicates that profitability was greater than investment, and hence it is best for cultivation. [27] Therefore, farmers



of all land sizes, including small, medium, and larger land sizes, can go for rose cultivation. Likewise, other discussed flowers, tuberose, are another financially important flower. Because, from the study and literature, the researcher observed that tuberose farms give more output than the input. Here, the cost-benefit analysis denotes the tuberose cultivation is more profitable for all-size farmers. Further findings are several factors like land, labor, irrigation, technology, manure, fertilizers, etc., affect the cost-benefit ratio of the flower.

### **4.3 Challenges faced by floriculturist in Maharashtra**

Since ancient times, India is involved in the cultivation of flowers. The government recognized the sector as the financially potential and growing industry. The farmers have not reached its 100% outcomes due to many internal issues. Following are several constraints due to which the floriculture in Maharashtra and the nation has not truly tapped targets.

From the study and literature review, the researcher observed that farmers in Maharashtra lack quality planting material to attain the targeted production of flowers. Apart from this, they do not access the right information regarding flower and their cultivation procedures. Ultimately, due to a lack of awareness of the cultivation method, farmers face some restrictions in planning and production. Furthermore, due to illiteracy and less access to internet-based information technology, rural farmers do not get expectations and trends in the international market and lastly fail to produce competitive flowers.

Many floriculture businesses in Maharashtra reside in rural areas, and those people do not know advanced production methods and technology. For example, they don't know about advanced planting geometry, seeds, plant nutrition, management, irrigation, grading methods. Also, the researcher found no proper coordination between farmers involved in flower cultivation and government which creates a knowledge gap. As a result, farmers fail to know about various government schemes, funding policies, and subsidies to strengthen infrastructure and technology. Many farmers fail to gain access to the right support from the government; for example, NHB gives loans to farmers, and APEDA offers subsidies. The state has received inadequate infrastructural facilities like a greenhouse, cold storage, which is essential for export quality flower production. According to Singh J. and Dhillon (2000), "agriculture modernization indicates technological and organization improvement. Therefore modernization increases modern inputs in farming and maximizes overall yield." [28] Hence central and state government of India has developed many policies and schemes to fulfill the increased credit requirements by farmers.

Also, rural farmers in Maharashtra lack transportation facilities as they are not directly connected with other states through airlines, and it is the major concern of flower cultivators. As a result, farmers need to pay double or increased transportation costs, and meanwhile, it leads to spoilage of flowers. Apart from this, India has higher airfreight costs, making flower production uncompetitive for the International market because many African and Latin American countries supply them cheaply. Also, many farmers in Maharashtra do not perform research activities before trying new species of flowering plants and fail to attain maximum outcome.

#### **4.4 Marketing scope for flowers in Maharashtra**

The researcher observed that marketing is a key element that determines the income of the producer. It is the final step that converts farmers' efforts and investment into cash or profits. With the changing time, many enterprises are depending upon returns and marketing practices. India has received the 18th rank in global floriculture trade and contributes around 0.6% share. [29] The domestic flower market in India is growing by 25% per year. Also, Maharashtra has emerged as an important floriculture center in India, and it has strengthened the cultivation of wide varieties of flowers considering the agricultural climate. Availability of market, workforce, and connectivity with metropolitan cities has shifted its focus from conventional flowers to cut flowers of export qualities.

Further, the researcher has performed a study to understand the marketing status of flowers in Maharashtra and observed that In India marketing of flowers is not systemic. However, major states and cities of India produce a variety of flowers at a wholesale rate. Further, the researcher observed that many flower associations are established to resolve marketing-related concerns and work without middleman interference. Due to this, flower cultivators are receiving many benefits to market flowers.

#### **4.5 Scope of improvement for floriculture industry in Maharashtra**

Maharashtra state is mainly divided into four major regions: Western Maharashtra, Vidarbha, Marathwada, and Kokan. All these regions show varied climatic conditions and rainfall ratios. It will go beyond the information technology sector globally, and people can see it as a perennial source of income. Moreover, with the increased use of flowers on every occasion, many European countries are looking towards India as a new flower production center. The future of India will be prosperous due to the following factors:

- India has received outstanding agro-climate to support the growth of a variety of flowering plants.
- Expansion and acquisition of required technical skills and knowledge to match market needs.

- An increase in the number of nurseries to obtain quality planting material at an affordable cost.
- Availability and adaptability of flower cultivators to sophisticated irrigation systems and climate control systems.
- Farmers are getting access to hi-tech and newly modified greenhouse technology.

## 5. Conclusion

Here, throughout the study, the researcher collected and observed several data. Based on the performed study, the researcher concluded that the floriculture sector in Maharashtra and, more specifically, in the Pune district plays a crucial role in the strengthening economy of the district and state. Because Maharashtra has occupied around 16.74 thousand hectares of land under flower cultivation, and the state holds 5th rank in India. [30] Apart from this, the state produces 8% of loose flowers and considering the flower production using greenhouse systems and the state has received 2nd position. [31] Further, from the study, the researcher has stated that only the Pune region has occupied about 45% area under flower cultivation. [32] Specifically considering the flower variety, Pune district has got popularity in producing aster, tuberose, and roses. Further, to understand the role of floriculture to strengthen the economic development of Maharashtra, the researcher concluded that the sector is performing well to contribute to the economy.

## 6. Recommendations

Floriculture receives the huge impact of science and technology developments, policymakers, researchers, changed agricultural and horticultural practices. All these factors bring enormous changes in market situations as well. Here in the present study, the researcher has described various recommendations for farmers involved in the floriculture business and farmers and nursery owners from the Pune district. For entrepreneurs, it is essential to produce flowers under controlled conditions. Also, they need to accept the innovative changes happening in the sector to match the global competency. Considering changing climate, availability of quality planting material, water availability, irrigation, and fertilizers, farmers and nursery owners can choose plant variety.

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