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Infrastructural Facilities for Floriculture Development in Kashmir Himalayas with special reference to Greater Srinagar

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Abstract: *Beyond the invaluable beauty, purity, flowers have commercial value. In our country flowers are part of life and its commercial value is increasing day by day. Infrastructure development serves as an engine for floriculture development. This study is based on primary and secondary data sources like articles by experts in the concerned area, codes and laws formulated by the association and authorities both national and international, scientific books and other website documents. In order to collect the necessary information, a comprehensive survey and interview was also conducted for the existing orchid researchers and development centers to derive suitable implementations in the concerned area. This study revealed that the infrastructural facilities in the study area are not adequate as we have only 5 refrigerated vans, 14 walk-in-cold-rooms and some of them are not even functional. Lack of storage facilities, packing, assistance to the growers and post-harvest technology are rather inadequate. No tissue culture laboratory is available in the study area and only 11 training rooms in the study area are available for the training of the floriculturists. This paper is an attempt to study the existing position of floriculture cultivation and necessary measures needed to promote this lucrative industry in Kashmir Valley.*

Keywords: ***Floriculture, Infrastructure, Walk-in-cold-rooms, Training rooms, packing, Kashmir valley.***

INTRODUCTION

Floriculture can be defined as "a discipline of horticulture concerned with the cultivation of flowering and ornamental plants for gardens and for floristry, comprising the floral industry. (Getu M. 2009). The present day floral industry is a dynamic, fast growing industry, which has achieved significant growth rate during the past few decades and has extended worldwide with the major paradigm shift of production centers from developed to developing nations. New and modern technologies and techniques are being used in the floriculture industry from production to consumption (Sabil and Rashadur, 2013).. Floriculture provides ample opportunity not only for farming benefit but also vast employment to the people of the state and has enormous potential for the significant contribution to the national economy (Bharane, 2007, Yanai et al., 2007). India is also paving its way to emerge as an important production base for floriculture products. The area under floriculture at all India level had increased from 53,000 hectares in 1993-94 to 88,609 hectares in 1999 (National Horticulture Board, 2002). Enormous genetic diversity, varied agro-climatic conditions, versatile human resources etc., *offer* India a unique scope for judicious employment of existing resources and exploration of avenues yet untouched. Constraints like poor marketing system, poor transport system, lack of knowledge, training facilities, application of modern technology, poor irrigation system, insufficient application of fertilizers and pesticides, etc., are responsible for backwardness in the production of floriculture. Water pollution, soil and water quality degradation, human and cattle health effects, air pollution, risk on aquatic life, as well as water logging and salinization are only a few of the undesired impacts (Getu 2009).

The Kashmir region lying in the North-West Himalaya possess a temperate geo-ecological conditions, and has a great potential for the development of floriculture. The department of floriculture was created in 1969 in the state. This sector is progressing by leaps and bounds on commercial lines. In Srinagar city, summer capital of the State of Jammu and Kashmir, department of floriculture is maintaining all parks and looks after all floriculture related activities.

Objective of the Study:

1. To study the infrastructural facilities for the floriculture development in the study area.

2. To suggest suitable strategies for improvement of floriculture activities in the study area.

STUDY AREA

The Srinagar city along with its Rural-Urban Fringe is selected for the present study. The study area is located between 33º 53′ 49″ N to 34º 17′ 14″ N Latitude and 74º

36′ 16″ E to75º 01′ 26″ E Longitude. It is situated at an altitude of 5200 feet above mean sea level and has an area of about **1068.72 sq**. kms with a population of **931282** (Census, 2011).

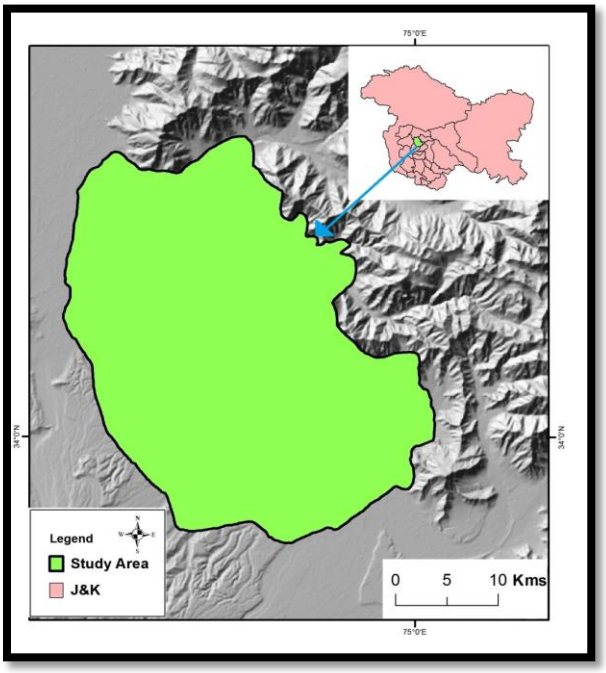

Figure. 1: Location Map of the Study Area (Source: SOI Toposheet 1:5000)

MATERIALS AND METHODS

In order to achieve the objectives both the primary and the secondary data have been used. The primary data was collected through the combination of structured and non-structured questionnaire. The purposive sampling technique was used for the collection of the data. The data was collected from the various govt. departments. The production and area under flower farming were analyzed and the total number of various gardens, V.I.P Lawns, the parks and the area under these gardens and V.I.P Lawns in the Kashmir valley were calculated. The financial assistance provided to the growers and the exposure visits provided by the Government to the floriculturists under the centrally sponsored schemes were also analyzed. The physical and financial achievement made by the floriculture department were also analyzed. Marketing and trade channels which the floriculturists in the study area used were analyzed by using the primary data. Packing and post harvest technique, transportation facilities were also seen. The SWOT analysis for floriculture was also done in order to suggest the suitable strategies for improvement of floriculture in the region.

RESULTS AND DISCUSSIONS

Planners, social scientists, administraters have played and are playing a major role for growth and development of floriculture in J&K State. In this regard, they are keen in implementing the policies for the expanding of floricultural activities in the valley. Recently the government realized its importance and have started grabbing the opportunity. In this direction, it has identified flowers as a thrust area and have started giving many facilities to develop and promote the activity.

Table 1: Area and Production of Floriculture Crops in Kashmir Valley

Crops	2008-09			2009-10			2010-11			2011-12			2012-13			2013-14		
	Area (ha.)	production		Area (ha.)	Production		Area (ha.)	Production		Area (ha.)	Production		Area (ha.)	production		Area (ha.)	Production	
Flowers		Loose (Mt)	Cut (lake No.)		Loose (Mt)	Cut (lake No.)		loose (Mt)	Cut		loose (Mt)	Cut (lake No.)		loose (Mt)	cut (lake No.)		Loose (Mt)	Cut (lake No.)
Lilliu m	5	-	3.0	5	-	5	8	-	8	9	-	18	11	-	22	11	-	22
Marig old	5	5	0.2	5.4	5.6	-	8	18.5	-	15	300	-	15	310	-	16	310	-
Rose	12	0.10	-	15	-	7.7	18	-	10	18	-	32	19	-	33.15	19.25	-	33.4
Tulip	5	-	-	8	-	12	8.5	-	15	12	-	40	18	-	45.1	18	-	45.1
Gladio lus	20	-	5.0	23	-	15	30	-	20	30	-	60	30	-	62	30	-	60

Source: - Directorate of Floriculture Department J&K (2008-14).

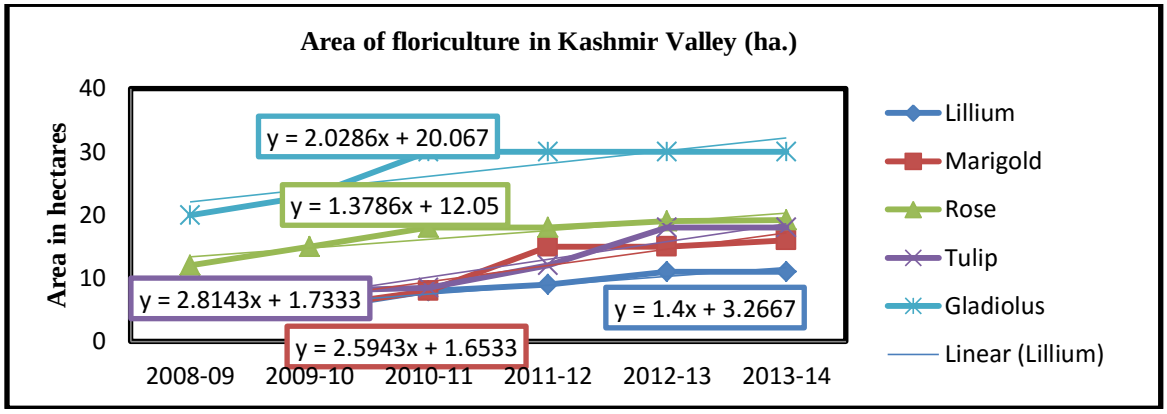

Figure. 2: Shows the area of Floriculture in hectares from 2008-14 in Kashmir Valley. (Source: - Directorate of Floriculture J&K (2008-14).

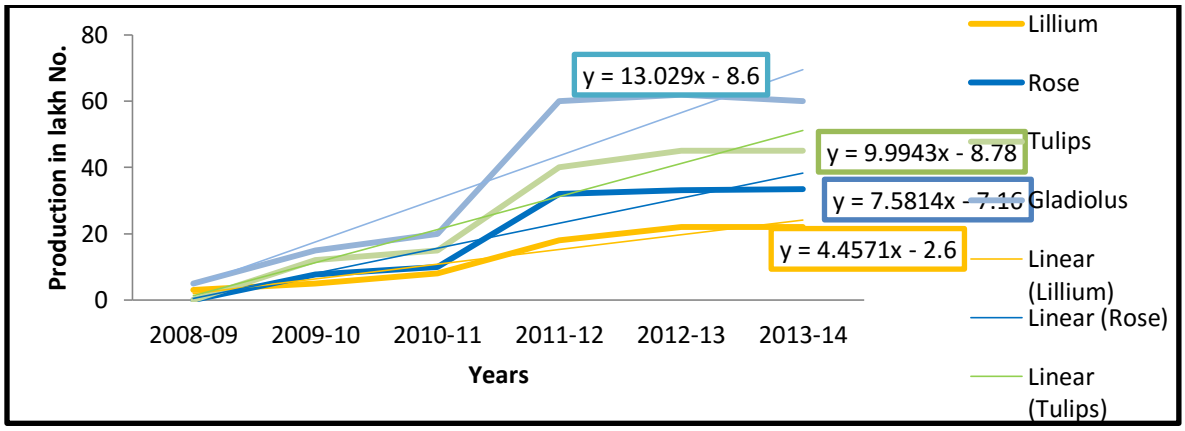

Figure. 3: Show the Production of Floriculture crops in Kashmir Valley. (Source:- Directorate of Floriculture, J&K (2008-14).

Table 2: Number of Gardens/Parks/VIP Lawns in the Kashmir Valley.

S No.	Districts	No. of Gardens/Parks/VIP lawns	Area Hectares
1	Srinagar (city parks)	98	16.95
	Srinagar (main gardens parks)	24	183.00
	Srinagar (VIP quarter lawns)	80	41.95
2	Anantnag	21	62.86
3	Ganderbal	04	12.70
4	Bandipora	01	2.80
5	Budgam	09	20.35
6	Baramulla	16	24.40
7	Kupwara	03	1.80
8	Kulgam	02	1.45
9	Shopian	04	0.90
10	Pulwama	02	0.80
	Grand total	**264**	**369.95**

Source: - Directorate of floriculture, J&K (2013-14).

Table 3: Physical and financial achievement under CSS from 2010-2014: (Rs. in lacs.)

Activity/Components	Unit	HMNEH		RKVY		TOTAL	
		Physical	Financial	Physical	Financial	Physical	Financial
Establishment of model nursery (public)	No.	2	12.50	-	-	2	12.50
Establishment of nursery (public) 0.25 ha.	No.	-	-	2	2.751	2	2
Establishment of nursery (privet)	No.	-	-	51.60	31.876	51.60	31.876
Area expansion (privet) 0.2 ha.	No.	160.355	21.660	206.39	27.876	366.745	49.466
Cost intensive aromatic plants	Sq.m	2030000	11.417	6057.5	111.414	263575	122.831
Cost of high value flowers for polyhouse (public)	Sq.m	-	-	13617	23.944	13617	23.944
		PROTECTED CULTIVATION					
Fan and pad (public)	Sq.m	909.75	13.328	2050	15.028	2959.75	28.356
Fan and pad (privet.)	Sq.m	10139	74.217	500	3.660	10639	77.877
Wooden structure(privet)	Sq.m	1307	3.367	4761	12.266	6068	15.633
Tubular structure(privet)	Sq.m	18341	83.977	34835	162.862	53176	246.839
Low cost poly greenhouse (privet)	Sq.m	273	0.341	1590	1.987	1863	2.328
Hi-tech green house(privet)	Sq.m	1559	5.069	1783	5.795	3342	10.864
Shade nets(privet)	Sq.m	13033	39.098	13797	37.250	26830	76.338

Source: - Directorate of floriculture J&K (2013-14)
HMNEH (Horticulture Mission for North East and Himalayan), **RKVY (**Rashtriya Krishi Vikas Yogna).

Table 4: Training/ Exposure visit of the floriculturists under centrally sponsored schemes (2010-2014) in Kashmir Valley.

Activity	units	HMNEH		RKVY		ATMA		TOTAL	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
Training of floriculturists									
Within the district @ Rs 400/ day	**Man day**	562	2.384	-	-	955	3.820	1517	6.204
Within the state @ Rs 750/ day	Man day	1248	9.324	4165	31.240	373	2.7975	5786	43.3615
Outside state @ Rs 1000/days for 7 days	Man day	200	13.065	404	28.986	12	0.65	616	42.651
Exposure visit for the floriculturists									
Within the district @ Rs.250/day	Man day	2925	8.3575	-	-	878	1.834	3803	10.1915
Within the state @ Rs300/day	Man day	168	2.460	155	0.465	707	3.471	1030	6.396
Outside the state @ Rs 600/day	Man day	175	0.840	-	-	1149	5.883	1324	6.723

Source: - Directorate of Floriculture, J&K (2013-2014).

HMNEH (Horticulture Mission for North East and Himalayan), RKVY (Rashtriya Krishi Vikas Yogna) and ATMA (Agricultural Technology Management Agency).

They also launch awareness camps in all districts, training programme in SKUAST, Kissan Mela and display many item related floriculture for benefit of people.

We all know the flowers are perishable item so needed great care. To prevent loses, government is setting up walk in cold room and refrigerated vans. In our valley we have 15 walk in cold room in almost every district and 5 refrigerated van and 3 in pipeline. The growers can store flowers for 15 to 20 days without losing its fragrance. The flower Mandi is operational at Raj Bagh Srinagar to facilitate marketing preservation and transportation of flower goods. The flower Mandi has been established at Raj Bagh at the cost of Rs 112.71 lakh.

Marketing and Trade Channels:

Most of the flower growers sell their produce directly to agents in the Delhi market in spite of low production volume. Growers entirely depend upon the agents in the Delhi for reimbursement of the proceeding of the sale and there is no way to establish the veracity of the returns. From February till April, the demand for Tulip is very high in Indian market Tulips mostly come from Kashmir. But the overall market facility is not available in Kashmir. Mostly the local market is not available we are using artificial flower instead of fresh flowers.

Packing and Post harvest technique:

Packing and transportation are the major items of the marketing cost of the flowers. Before packing cut flowers are graded which involves categorization of spikes on the basis of length of the spikes, number of flowers on the spikes, strength of the spikes, their appearance, freedom form disease and weight of the flowers. It has been observed during our study that many farmers make bundles of the ungraded spikes, wrap them in course cloth and transport them to the Delhi market either by road or by air. However, these ungraded spikes do not fetch good price in the market and more over such careless packing damages the spikes. Therefore, whatever the number is available for sale they must be graded properly. The state is totally backward in packing and postharvest technique, 40 percent flowers are damaged because of packing and post harvest technique (Department of Floriculture).

Transport of flower is the vital weak link in flora-business in Kashmir. Transport of flowers by road from Kashmir valley is hazardous as the nearest Delhi market is 900 km away. Flower consignment can remain in transition for several days in bad weather when road gets blocked. Though department of floriculture has 5 refrigerated vans and 3 in pipeline, but the volume are too low to make surface transport of flowers to Delhi sustainable and the department needs more vans for transport of flowers within the state in order to prevent the loss (Directorate of floriculture). Air transport is very expensive. Air freight if Rs 35 per kg if the consignment is less than 100 kg. Growers get 50 percent rebate if the consignment is over 100 kg in weight but up to Delhi only and not for foreign market. Growers have small operations and consignment weight exceeds 100 kg is rare. Growers in valley spend 30-40 percent of production cost on transport (Flower Mandi, Rajbagh). The growers complain about the lack of assistance in reaching the market. For storage purpose 14 walk-in-cold-rooms are constructed in almost every district in 2011 some of them are not functional and for training purposes 11 mallies room are constructed. A poly carbonate house is constructed in tulip garden it is a sheet which maintain temperature in winter. It is constructed at the cost of 14-15 lakh. The flower Mandi is operational at Rajbagh Srinagar to facilitate marketing, preservation and transportation of flowers at the cost of Rs 112.71 lakh (Directorate of Floriculture (J&K).

SWOT Analysis:

The strength, weakness, opportunities and threat for the floricultural activities in this area are given below:

Strengths:

- Ideal climate.
- Favorable soil conditions.
- Educated labour.
- Tourism spots.

Weakness

- Shortage of air freight
- Tourism spots.
- High air freight rates.
- Non availability of market.
- Shortage of cold storage facilities.

The land limit set by the government is not feasible, due to which many small cultivars suffer.

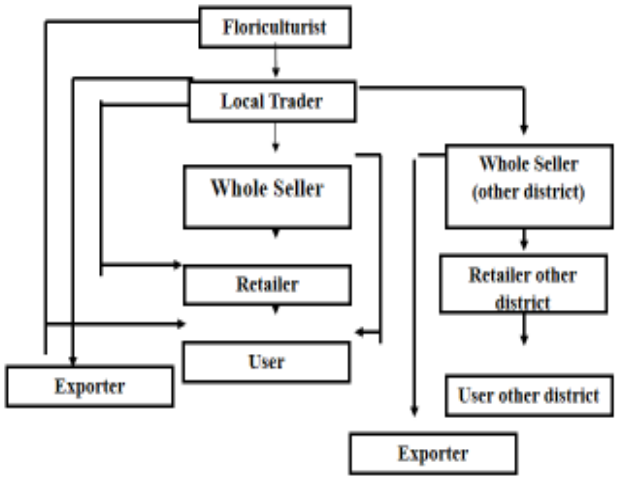

Figure. 4: Marketing channels of selected flower in the study area.

CONCLUSION

The success of floriculture sector depends on a carefully designed and scientific infrastructure. Despite lack of knowledge on modern floriculture production techniques, difficulty in obtaining the latest varieties and the lack of infrastructure is the major cause of the backwardness of the industry. Inadequate and underdeveloped transportation and storage facilities, unstructured market are among the major problems faced by the floriculturists. The availability of refrigerated vans is low and the air freight rates are very high. Clean handling and better storage environment is also important in floriculture supply chain. Adverse conditions in the supply chain could cause bacterial growth which blocks flower stems, or fungi growth which infects flower boom. In short avoiding high temperature fluctuations, careful handling and good air circulation reduce the risk of fungi and other diseases. Thus temperature, humidity controlled transport (refrigerated vain) is needed at all stages of the transportation process to ensure that the quality of the flowers does not deteriorate. The floriculturists in the study area usually employ traditional techniques for the growth of the flowers. They should be given the training regarding the modern and scientific ways that enhances the production of the flowers. It is suggested that the state government should prepare a long-term strategy for floriculture so that not only the production capacity of the state will increase but also more and more people will be interested in taking up floriculture as an entrepreneurial career.

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