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ANALYZING THE KNOWLEDGE LEVEL OF LILIUM GROWERS OF LAHAUL VALLEY OF HIMACHAL PRADESH, INDIA

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Abstract

Lahaul valley of Himachal Pradesh has enormous potential for development of floriculture, as the climatic condition prevalent in this area favours remunerative returns from these crops. Lilium cultivation due to its profitable nature has recently came into vague. As the farmers in these areas are majorly depended on agriculture, these low volume high income crops can help these people in their better sustenance. The current study was conducted in Kuthvihal, Gondhla and Dalang regions of Lahaul district of Himachal Pradesh with a view to acquaint farmers regarding the cultivation of lilium and analyze the knowledge behavior of people of these areas with a participatory approach. 40 respondents, which represented their respective communities, were selected on the ground of their knowledge about lilium flower and bulb production technology, age, level of education and occupational status. All the parameters apart from education level of farmers showed significant association with the knowledge behavior of farmers.

Key words : Lilium, level of knowledge, recommended production practices, tribal farmers.

Introduction

Floriculture, due to its remunerative returns is becoming a blooming industry throughout the world today. The advancements of scientific techniques in flower cultivation have given an impetus to its growth (Roy and Bhagat, 2012). Relatively higher unit of production, higher net returns, employment generation and export earning favors diversification of these crops and provide an option. Due to low volume, high value nature of these crops the area under these crops is showing a rapid increase. Around 2,55,000 hectare of area is under the production of flower crops (Indian Horticulture Database, 2014) (fig. 1). West Bengal, Karnataka, Madhya Pradesh and Odisha are the leading flower producing states of country. A cursory look on the production of flowers in India also shows an increasing trend (fig. 2).

Himachal Pradesh is endowed with diverse agro-climatic conditions ranging from sub-tropical to dry temperate and has an enormous potential for off- season as well as round the year flower production. About 960.0 hectare of area in Himachal Pradesh is under flower cultivation, out of which Lilium is cultivated on more than 13.22 hectare (Anonymous, 2014). Due to rapid increasing demands, lilium cultivation has turned into a profitable venture, as Lilium flower fetches a considerable higher price comparatively. The low temperature requirement of Lilium, made Lahaul area of Himachal Pradesh an excellent place for its cultivation and bulb production, which has recently emerged as a major flower growing area.

For the promotion of floriculture, several programs such as Himalayan Technology Mission and certain subsidy schemes for the flower growers has been initiated by the government (Pati and Singh, 2015). Despite the immense benefit and government support to boost flower trade, several constraints hampers the interest of the farmers and restricts the growth in this sector, while farmer's participation can positively affect the success of such programs and help promoting new technologies among them. Agro-economic, a socio-psychological characteristic of the farmers plays a major role in their knowledge and adoption for increasing production in tribal area (Gudade *et al*., 2012). Thus, keeping in view the importance of farmer's participation in success of any

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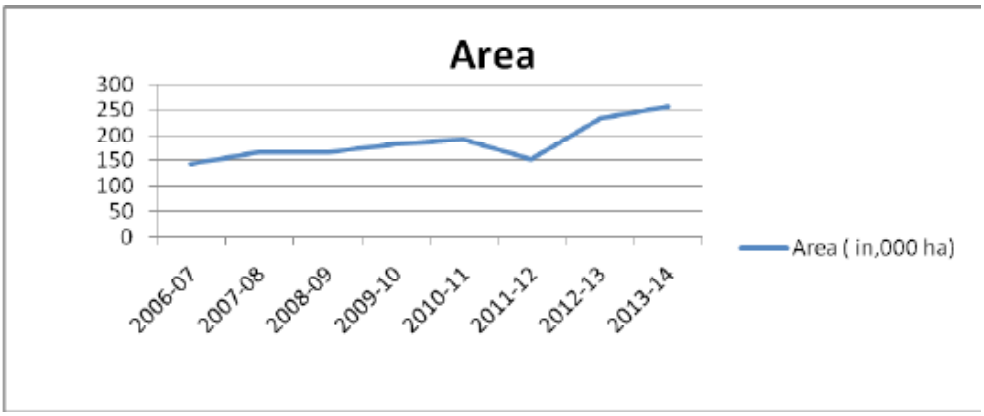

Fig. 1 : Area under flower cultivation in India (Indian Horticulture Database, 2015).

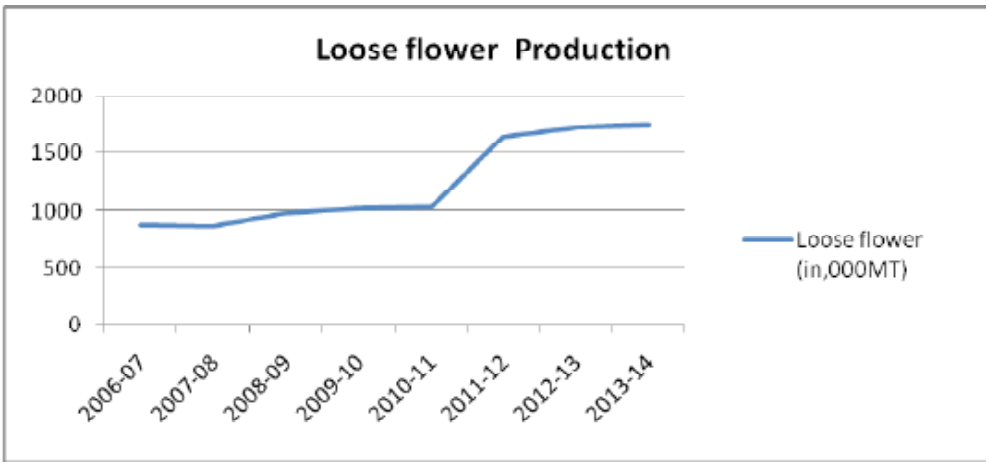

Fig. 2 : Production of flower in India (Indian Horticulture Database, 2015).

crop production program, a participatory approach program for popularizing safe, scientific and cost effective production techniques of Lilium cultivation in Lahaul area of Himachal Pradesh was initiated.

Methodology

The study was conducted in the three locations *viz*. Kuthvihal, Gondhla and Dalang regions of Lahaul district of Himachal Pradesh were selected purposively due to their favourable climatic conditions for Lilium cultivation. The present study was conducted under DST, TSP component during 2013-2015. The district has maximum area under lilium cut flower and bulb production. A list of the lilium growing villages was prepared and three locations were selected randomly. A total of 40 different farmers were selected on random basis, which represented their respective communities on the ground of their knowledge about cut flower production technology, age, level of education and occupational status. The index was developed to measure the knowledge behavior of lilium growers on the basis of recommended package of practices of lilium cut flower and bulb production technology.

This study could further assist in understanding the behaviour and willingness of people in adoption of a new technology. Frequency, percentage and correlation were used for the analysis of data. The primary data was collected with the help of interview schedule, which was prepared on the basis of the objectives of the program. For calculating the benefit-cost ratio, the three years data from participatory farmers was considered.

Results and Discussion

It is clear from the table 1 that none of the respondents were solely dependent on flower cultivation. As potato and exotic vegetable cultivation is a profitable venture, most of the growers practice crop cultivation due to its comparatively promising income generating nature. About 57.5% of the farmers practiced flower cultivation in combination with crop farming or other income sources. Flower cultivation is mainly a subsidiary, which provides them with extra income during the periods when their land is vacant or from cultivation in the areas which the generally keep fallow.

The respondents solely depending on agricultural

activities as their income source were generally found to be reluctant in taking risks for the adoption of a new technology. Mamthalakshmi *et al*. (2013) found a significant of farmer's occupational status with their adoption behaviour. Data from table 1 although portrays the increasing awareness among the farmers regarding the flower cultivation, as 75% of the total respondents practiced flower cultivation along with other primary income sources.

The mean respondents were analyzed on their level of awareness regarding the cut flower production technology. Awareness of tribal farmers about lilium cut flower production technology (table 2) revealed that out of 40, respondents were classified as very low, low medium, highly and very highly aware. The mean score for knowledge was found out to be 11.75 out of maximum score of 25. Majority of cultivators had medium (30%) and about 25% had high and very low level of knowledge of lilium cut flower production technology, respectively. Roy and Bhagat (2012) also observed some significant correlation in level of knowledge of farmer and adoption extent in tuberose. Thus, it may be concluded that training cultivators about the latest techniques of Lilium flower and bulb production had boosted knowledge levels of Lilium cultivators in this area.

Data presented in table 3 indicate that the age of the respondents was markedly varied. It was found that highest number of respondents (47.5%) belong to the middle age group (36-50 years) followed by young age group (<35 years) and only 17% of the respondents were in the old age group (>50 years). It is thus evident that young to middle aged people are more interested in the knowhow of cultivation practices for Lilium production.

Literacy plays an important role in the mental setup of people. Educated farmers can well under the physiology and mechanisms behind the techniques and if satisfied logically, educated group is more ready to adopt the latest trend and techniques that could benefit them. On the basis of education of respondents (42.5%) had achieved matric level of e3ducation, followed by graduate level (32.5%) and higher secondary (17.5%). Only 7.5% people were below matric, which shows that all of the people involved were more or less educated irrespective of their adoption behaviour. Mamthlakshmi *et al*. (2013) observed non-significant association between profile characteristics like education level and adoption behaviour

Table 1 : Occupational distribution of respondents (N = 40).

Items	Farm Owners	
	Number	%age
Only flower farming	0	0
Flower farming + Crop farming	23	57.5
Flower farming + Crop farming + Business	4	10.0
Flower farming + Business	1	2.5
Flower farming + Crop farming + Service	2	5.0
Only crop farming	10	25.0

Table 2 : Distribution according to their knowledge of cut flower production technology (N=40)

Knowledge level of lilium cut flower production technology	N	%age
0-5 (very low)	10	25
5-10 (low)	4	10
10-15 (medium)	12	30
15-20 (high)	10	25
20-25 (very high)	4	10
Mean = 11.75 Standard deviation = 2.51		

Table 3 : Distribution according to their age and education (N=40).

Character	Categories	Score (years)	Number	%age
Age	Young aged	Upto 35	14	35
	Middle aged	36– 50	19	47.5
	Old aged	>50	7	17.5
Education	Below matric	Upto 7th	3	7.5
	Matric	Upto 10th	17	42.5
	Higher secondary	+2	7	17.5
	Graduate	BA	13	32.5

Table 4 : Correlation analysis between knowledge of lilium bulb production technology/ practices and with independent variables.

S. no.	Bulb production variables	Correlation coefficient (r) of knowledge behavior of improved bulb production practices
1	Field preparation	0.781
2	Nutrient application	0.779
3	Technique of harvesting cut flower	0.757
4	Planting time and method	0.778
5	Bulb harvesting method and time	0.882
6	Storage of bulb	0.892

of chrysanthemum farmers.

Correlation analysis between knowledge of Lilium bulb production technology and crop production variables were studies and results are presented in table 4. The data pertaining to crop production at various levels was statistically worked out to calculate their correlation with knowledge behavior of improved bulb production practices to assess their respective impacts on the latter. The knowledge was found to be positively correlated with field preparation, nutrient application, technique of harvesting cut flower, planting times and methods, bulb harvesting time and storage of bulbs. This is supported by Roy and Bhagat (2012), who witnessed some significant correlation among knowledge level and mass media exposure. So the strategy should be to educate the farmers regarding new innovations in the bulb production technology of Lilium and mobilizing them towards forming the self help groups and to from cooperative associations.

Conclusion

From the study, it is quite evident that, be it out of utter interest in flower cultivation or as a source of extra income, people do practice flower cultivation, as 75% people were involved in it one way or the other and if proved as a promising income generator, flower cultivation could prove as a perfect substitute for vegetable cultivation in this area. The figure from table 1 exhibits the data from farmer's participation program. More than 60% of the farmers had above medium level of knowledge gained from the program, which reflects the willingness of farmer for a new technology that could be of constructive approach for them. The demographics clearly indicated the varied nature of age of groups of respondents out of which majority belonged to young and middle aged groups, who showed ardent curiosity in new cultivation practices. This represents an exceeding forthcoming and a better future perspective of flower cultivation in the area. The correlation of knowledge behavior of improved bulb production practices with crop production variables signifies the need to strengthen strategies for high adoption of lilium bulb production technologies among growers by using the services like training, newspaper and literature etc.

Besides this, there stands a need for domestically available planting material. Almost all of the planting material is imported from Holland and thus the bulbs are quite expensive, which makes their procurement unaffordable for the poor and marginal farmers. Also transportation of end product to the markets from these areas is a major problem for the growers, which arises a critical need for cold chains in these areas. Himachal floriculture industry has immense potential and with the proper manifestation of efforts by the policy makers as well as growers, it is expected to flourish in the forthcoming years.

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References

Gudade, B. A., T. N. Deka, P. Chhetri, N. K. Bhattarai, A. K. Vijayan and U. Gupta (2012). A study on awareness and adoption of large cardamom production technology among tribal farmers of North Sikkim. *Indian Journal of Extension Education*, **48(3&4)** : 104-106.

Indian Horticulture Database, NHB, 2015.

Mamathalakshmi, N. K., M. S. Nagabhushanam, H. S. Nataraju, B. K. Surendra and G. T. Sowmyashree (2013). Correlates of knowledge and adoption behavior of farmers with their profile characteristics: An analysis of chrysanthemum growers in Mandya District of Karnataka. *Indian Journal of Extension Education*, **49(1&2)** : 73-77.

Pati, A. M. and S. Singh (2015). Understanding need of flower growers of Himachal Pradesh. *International Journal of Research in Computer Application and Management*, **5(3)** : 16-21.

Roy, S. and R. Bhagat (2012). Level of knowledge and extent of adoption of farmers on recommended tuberose production practices. *Indian Journal of Extension Education*, **48(1&2)** : 78-80.