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## A study on the knowledge and adoption of recommended production and management practices of registered gladiolus growers of Srinagar and Budgam districts of Kashmir Valley

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### Abstract

The study was conducted in two districts of Kashmir, District Srinagar and district Budgam owing to the majority of registered flower growers. The type of survey was exhaustive in nature. An interview Schedule was devised as a tool to assess the knowledge and adoption level of the registered Gladiolus growers. Data was collected by personal interview method from 90 registered Gladiolus growers. Education, experience in cut flower production, exposure visits, participation in training programmes, economic motivation of growers were found to have a positive and significant relationship with knowledge and adoption level of the registered flower growers.

**Keywords:** Gladiolus, registered growers, Interview Schedule, knowledge and adoption

### Introduction

The world floriculture trade is growing at an average rate of 10 per cent per year. Currently over 50 countries are active in floriculture production on a large scale in terms of production value. The Netherlands, the United States, Japan, Italy and Canada are the largest producers of cut flowers and plants. China and India between themselves have the largest acreage under floriculture in the world (17 per cent). Europe, USA and Japan are the major consumers of floriculture products. The global exports of flowers stood around at US \$ 17 billion in the year 2007 (Anonymous, 2013). Fresh cut flowers accounted for around 49.1 per cent market share whereas live plants, bulbs and cuttings accounted for 50.9 per cent of total floriculture products exported in 2010. Developed countries account for 90 per cent of the world flower trade. Roses contribute to around 70 per cent of cut flower trade. The Netherlands continues to dominate the world floriculture industry accounting for 49.6 per cent of world floriculture trade. Columbia is the second largest exporter with a market share of 6.5 per cent. With an annual average growth rate of around 10 per cent floriculture is expected to reach US \$ 25 billion by 2014 (Anonymous, 2014). Germany was the largest importer (US\$ 2.59 billion), followed by the United Kingdom (US\$ 2.59 billion), the Netherlands (US\$ 2.59 billion) and France (US\$ 2.59 billion). Europe as a region is the world's leading importer of flowers and foliage. Roses are the most popular flowers imported by Europe. Other flowers imported by Europe include tropical flowers, summer flowers and orchids. (Anonymous, 2014). Government has propped the fledgling commercial flower production in J&K with the help of subsidies from centrally sponsored schemes like Horticulture Technology Mini Mission and RKVY. Department of Floriculture that previously was known as Department of Gardens and Parks (entrusted with the upkeep of gardens and public recreational spaces) underwent a radical revamp in 2007. The department started its activities in individual districts with the help of centrally sponsored schemes. (Misri, 2014). Government was able to create a primary extension and development apparatus in the districts that was instrumental in kick-starting commercial floriculture in different districts of J&K. The area under commercial floriculture has witnessed a quantum jump during the last six years. Government has also created a significant market side logistics/infrastructure in the form of cold storage facilities and refrigerated vans at district level. 15 walk-in-cold chambers at the cost of ` 182.00 lakhs have been established at various district headquarters in the Kashmir Valley and a provision of 9.00 lakhs has been kept for operational cost of these Walk-in Cold Rooms. This has been further augmented by the creation state of the art auction centre at centrally located Srinagar district. At the end of the 11<sup>th</sup> five year plan, government has put in place the requisite level of

investment in infrastructure and logistics that need to be further built upon and strengthened in the current financial plan. There is a need to consolidate the gains made so far by investing in critical areas to make further growth Sustainable long term growth (Misri, 2014). Hence, the present study is intended to address the following specific objectives.

- To study the Knowledge of Production and management of the registered Gladiolus growers.
- To study the adoption level of production and management practices of registered Gladiolus growers.
- To study the relationship between the Socio-economic characteristics and Knowledge/Adoption level of registered gladiolus growers.

### Materials and Methods

The materials and methods used in this study are presented in the following subheads:

- Locale of the study
- Selection of the respondents
- Construction of Interview Schedule for data collection
- Pre-Testing of Interview Schedule
- Procedure for Data Collection
- Statistical Analysis

#### Locale of the study

The present study was conducted in Central Kashmir i.e., District Srinagar and District Budgam of Jammu and Kashmir State to find out the Impact of Floriculture development programme.

#### Selection of the respondents

A list of the respondents (registered flower growers) was obtained from the Floriculture development Officers of the concerned districts. All the registered growers (95) i.e. 55 from Dist. Srinagar and 40 from Dist. Budgam were taken for the study.

#### Construction of interview Schedule for data collection

An Interview Schedule was constructed based upon the objectives, variables and available literature on the topic. The

schedule was prepared in English language. While preparing the schedule, due care was taken to avoid questions with dual meaning and contradictory statements. The language used for the questions was simple for easy understanding. In this way the research schedule was constructed to collect the necessary information. Interview Schedule Part A. It consists of two parts. Part I dealt with the profile of the registered flower growers. In part II of the Schedule, questions related to Knowledge and Adoption of recommended flower Production Practices were included. Part B included the items related to the constraints faced by the flower growers in adoption of recommended flower Production Practices.

#### Pre-Testing of Interview Schedule

Before, finalization of the schedule, it was pre-tested by interviewing ten members who were not included in the sample in order to know whether the respondents furnish the required information and whether the questions were clear and can be easily understood by the respondents. The confusing questions were modified so that no practical difficulties arise while filling the schedule.

#### Procedure for Data Collection

The author personally interviewed the respondents included in the sample. The help of concerned Floriculture Officers (FOs) was sought for obtaining the list of registered flower growers. The importance and objectives of the study were clearly explained to all the registered growers. They were assured that all the information furnished by them will be kept confidential and would be used for the research study only.

The author attempted to contact the registered flower growers at their homes during their leisure time and some farmers were also contacted at their fields to get the information. The interview was conducted in a friendly and informal manner.

#### Compilation of data

The qualitative data was quantified by using various statistical tools and working out different scores in order to find out the nature of association between dependent and independent variables.

**Table 1:** Knowledge of recommended package of practices of registered Gladiolus growers.

Practice	Knowledge Srinagar (n=55)						Knowledge Budgam (n=40)					
	Complete		Partial		No		Complete		Partial		No	
	f	%	f	%	f	%	F	%	f	%	f	%
Soil type and soil testing	14	25.45	36	65.45	5	9.10	8	20.00	25	62.50	7	17.50
Planting method	30	54.54	25	45.46	0	0.00	17	42.50	20	50.00	3	7.50
Manure and Fertilizer application	9	16.36	34	61.82	12	21.82	7	17.50	30	75.00	3	7.50
Method of Nitrogen application	8	14.55	30	54.54	17	30.91	3	7.50	18	45.00	19	47.50
Disease and pest management	15	27.27	33	60.00	7	12.73	8	20.00	22	55.00	10	25.00
Post-harvest management practices	13	23.64	29	52.72	13	23.64	5	12.50	23	57.50	12	30.00

### Gladiolus

#### Soil type and soil testing

In district Srinagar, a majority (65.45%) of the registered flower growers had partial knowledge of recommended soil type and soil testing in gladiolus followed by about one fourth (25.45%) had complete knowledge of recommended soil type and soil testing. While as only 9.10 per cent of the registered gladiolus growers had no knowledge of recommended soil type and soil testing. In district Budgam, 62.50 per cent of the registered flower growers had partial knowledge of recommended soil type and soil testing in gladiolus followed by (20%) had complete knowledge. While as only 17.50 per cent of registered gladiolus growers had no knowledge of

recommended soil type and soil testing.

#### Planting method

In district Srinagar, more than fifty per cent (54.54%) of the registered flower growers had complete knowledge of the recommended planting method while as 45.46 per cent of the registered flower growers had partial knowledge of recommended planting method in gladiolus. Whereas, in district Budgam, 50 per cent of the registered flower growers had complete knowledge and 42.50 per cent had partial knowledge while as (7.50%) of the registered flower growers had no knowledge of recommended planting method of gladiolus.

**Manure and fertilizer dosage**

In case of manure and fertilizer dosage, it was reported that in district Srinagar, 61.82 per cent of registered flower growers had partial knowledge of recommended manure and fertilizer dosage in gladiolus while as 21.82 per cent had no knowledge of manure and fertilizer dosage and only 16.36 per cent had partial knowledge of recommended manure and fertilizer dosage in gladiolus.

In district Budgam, a majority (75%) of the registered flower growers had partial knowledge of recommended manure and fertilizer dosage in gladiolus. While as 17.50 per cent of the registered flower growers had complete knowledge and only 7.50 per cent had no knowledge of recommended manure and fertilizer dosage in gladiolus.

**Nitrogen application method**

Regarding the knowledge of nitrogen application, it was reported that in district Srinagar, more than half (54.54%) of the registered flower growers had partial knowledge of recommended method of nitrogen application in gladiolus while as only 14.55 per cent had complete knowledge. Near about one-third (30.91%) of registered flower growers had no knowledge of recommended method of nitrogen application in gladiolus. In district Budgam, a majority (47.50%) of the registered flower growers had no knowledge of recommended method of nitrogen application in gladiolus followed by 45 per cent of the registered gladiolus growers had partial knowledge of nitrogen application in gladiolus. While as only 7.50 per cent of the registered flower growers had complete knowledge of recommended method of nitrogen application in gladiolus.

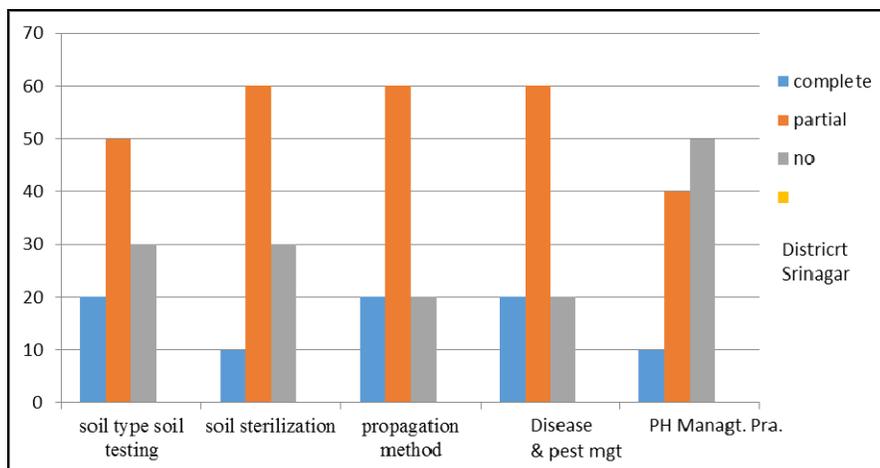
**Disease and pest management**

In district Srinagar, 60 per cent of the registered flower growers had partial knowledge of disease and pest management in gladiolus. While as 27.27 per cent of the registered flower growers had complete knowledge and only 12.73 per cent had no knowledge of disease and pest management in gladiolus. Whereas, in district Budgam, more than fifty per cent (55%) of the registered flower growers had partial knowledge of disease and pest management in gladiolus while as 25 per cent of the registered flower growers had no knowledge of disease and pest management in gladiolus and only 20 per cent had complete knowledge of disease and pest management in gladiolus.

**Post –harvest management practices**

Regarding the post-harvest management practices in Gladiolus, more than fifty per cent (52.72%) of the registered flower growers had partial knowledge of recommended post-harvest management practices of gladiolus. While as only 23.64 per cent of registered growers had complete knowledge and the equal percentage (23.64%) had no knowledge of recommended post-harvest management practices of gladiolus.

Whereas, in district Budgam, 57.50 per cent of registered flower growers had partial knowledge of post-harvest management in gladiolus while as 30 per cent of the registered flower growers had no knowledge of post-harvest management practices in gladiolus and only 12 per cent had complete knowledge of the post-harvest management practices in gladiolus.



**Fig 1:** Knowledge of recommended package of practices of registered gladiolus growers.

**Table 2:** Adoption of recommended package of practices of registered gladiolus growers.

Practice	Adoption Srinagar (n=40)						Adoption Budgam (n=35)					
	Complete		Partial		No		Complete		Partial		No	
	f	%	f	%	f	%	f	%	f	%	f	%
Soil type and soil testing	10	18.18	36	65.45	9	16.37	5	12.50	24	60.00	11	27.50
Planting method	30	54.54	25	45.46	0	0.00	17	42.50	20	50.00	3	7.50
Manure and Fertilizer application	6	10.91	35	63.64	14	25.45	5	12.50	30	75.00	5	12.50
Method of Nitrogen application	6	10.91	30	54.54	19	34.55	3	7.50	18	45.00	19	47.50
Disease and pest management	13	23.64	34	61.81	8	14.55	6	15.00	22	55.00	12	30
Post-harvest management practices	4	7.27	35	63.64	16	29.09	4	10	21	52.50	15	37.50

**Gladiolus**

**Soil type and soil testing**

Table 2 revealed that in district Srinagar, a majority (65.45%) of the registered flower growers had partial adoption of

recommended soil type and soil testing in gladiolus followed by (18.18%) had complete adoption of recommended soil type and soil testing. While as only 16.37 per cent of the registered gladiolus growers had not adopted the

recommended soil type and soil testing. In district Budgam, 60 per cent of the registered flower growers had partial adoption of recommended soil type and soil testing in gladiolus followed by 27.50 per cent had complete adoption of recommended soil type and soil testing. While as only 12.50 per cent of the registered gladiolus growers had not adopted the recommended soil type and soil testing in gladiolus.

**Planting method in Gladiolus**

In case of planting method in Gladiolus in district Srinagar, it was reported that 54.54 per cent of the registered flower growers had complete adoption of recommended planting method while as 45.46 per cent of the registered flower growers had partial adoption of recommended planting method in Gladiolus. In district Budgam, 50 per cent of the registered flower growers had partial adoption and the 42.50 per cent of registered flower growers had complete adoption of recommended planting method in gladiolus while as (7.50%) of the registered flower growers had not adopted the recommended planting method.

**Manure and fertilizer dosage in Gladiolus**

Regarding the manure and fertilizer dosage, it was reported that in district Srinagar, 63.64 per cent of the registered flower growers had partial adoption of recommended manure and fertilizer dosage in gladiolus while as 25.45 per cent of the registered flower growers had not adopted the recommended manure and fertilizer dosage and only 10.91 per cent of the registered flower growers had complete adoption of recommended manure and fertilizer dosage in gladiolus.

In district Budgam, a majority (75%) of the registered flower growers had partial adoption of recommended manure and fertilizer dosage in Gladiolus. While as 12.50 per cent had complete adoption and the same percentage (12.50%) had not adopted the recommended manure and fertilizer dosage in gladiolus.

**Nitrogen application method**

Regarding the method of nitrogen application, it was reported that in district Srinagar, more than half (54.54%) of the registered flower growers had partial adoption of recommended method of nitrogen application in gladiolus while as only 34.55 per cent had not adopted the recommended nitrogen application method in gladiolus.

However, only (10.91%) of the registered flower growers had complete adoption of recommended nitrogen application in Gladiolus.

In district Budgam, a majority (47.50%) of the registered flower growers had not adopted the recommended method of nitrogen application in gladiolus followed by 45 per cent of the registered gladiolus growers had partial adoption of recommended nitrogen application. While as only 7.50 per cent of the registered flower growers had complete adoption of recommended nitrogen application method in gladiolus.

**Diseases and pest management in Gladiolus**

In case of diseases and pest management in Gladiolus, it was reported that in district Srinagar, 61.81 per cent of the registered flower growers had partial adoption of diseases and pest management. While as 23.64 per cent of the registered flower growers had complete adoption of the recommended disease and pest management and only 14.55 per cent had not adopted the recommended disease and pest management in gladiolus.

In district Budgam, more than half (55%) of the registered flower growers had partial adoption of the recommended disease and pest management in gladiolus while as 30 per cent had not adopted the recommended disease and pest management in gladiolus and only 15 per cent of the registered flower growers had complete adoption of the recommended disease and pest management in gladiolus.

**Post –harvest management practices**

Regarding the post-harvest management practices, it was reported that in district Srinagar, a majority (63.64%) of the registered flower growers had partial adoption of recommended post-harvest management practices in gladiolus. While as 29.09 per cent had not adopted the recommended post-harvest management practices and only 7.27 per cent of the registered flower growers had complete adoption of recommended post-harvest management practices in Gladiolus.

In district Budgam, 52.50 per cent had partial adoption of recommended post-harvest management practices in gladiolus while as 37.50 per cent had not adopted the recommended post-harvest management practices in gladiolus and only 10 per cent of the registered flower growers had complete adoption of the recommended post-harvest management practices in gladiolus.

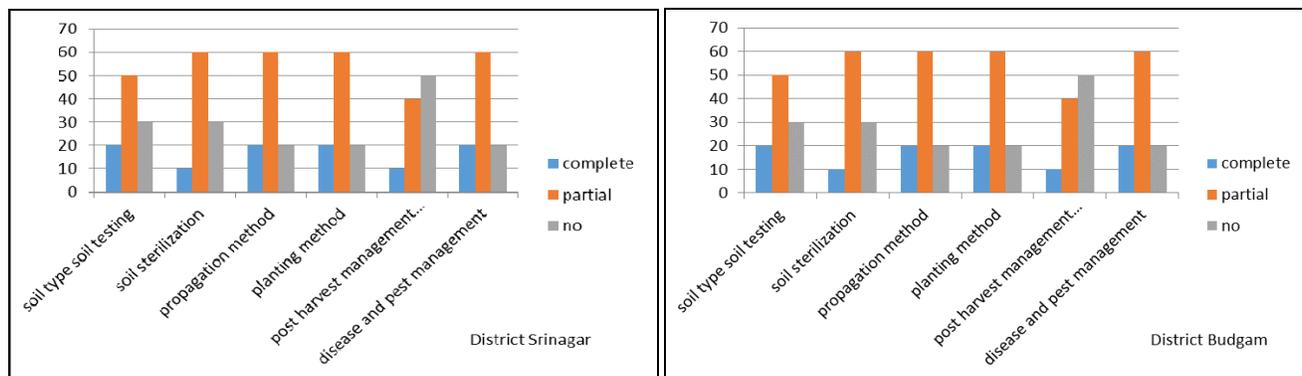


Fig 2: Adoption of recommended package of practices of registered gladiolus growers.

**Relationship between Knowledge level and Socio-economic characteristics of registered Gladiolus growers.**

The correlation co-efficient and the corresponding p-value presented in the Table 3 shows that five variables namely

education, experience in flower growing, sources of information of the registered flower growers had a positive and significant relationship with their knowledge level. It is a known fact that formal education widens the horizons of an

individual. In addition, the possible reasons for significant association might be that literate people are more receptive and always in search for new information and technologies which help them to improve their socio-economic conditions. Whereas, with more experience of flower growing, knowledge level increases and more the sources of information, more will be the knowledge of the respondents. However, the variables namely family size, annual income, land holding social participation, economic motivation, age and state of modernization were not significantly related to the knowledge level of the respondents.

**Table 3:** Relationship between personal, socio-economic characteristics and Knowledge level of the registered flower growers.

Socio-economic Characteristics	Coefficient of correlation (r)
Age	0.6195
Family Size	0.4344
Annual Income	0.7592
Land Holding	0.7491
Experience	0.0002*
Economic Motivation	0.0004*
Educational Qualification	0.0007*
Source of information	0.0009*

\*significant at 5% level of significance

#### Relationship between personal, socio-economic characteristics and Adoption level of registered growers.

A cursory look at Table 4 clearly indicated that relationship of adoption level with the socio economic characteristics i.e., education, land holding, experience in flower growing and social participation were significantly associated. Obviously education, land holding, experience in flower growing and social participation have helped the registered flower growers to acquire knowledge for better adoption and exposed to new technologies and their urge to know the new things in floriculture which have significantly contributed in adoption. Other variables namely age, family size, annual income, sources of information, economic motivation and state of modernization were not significantly related to the adoption level of respondents.

**Table 4:** Relationship between personal, socio-economic characteristics And Adoption level of registered flower growers.

Socioeconomic Characteristics	"r"
Age	0.9412
Family Size	0.8451
Annual Income	0.2997
Land Holding	0.0003*
Experience	0.0011*
Economic Motivation	0.2953*
Educational Qualification	0.0003*
Source of information	0.2533

#### Conclusion

The findings of the study indicated that only 15.38 per cent of the registered flower growers from district Srinagar and 1.33 per cent of the registered flower growers from district Budgam had high level of knowledge about recommended flower production practices. Hence it is imperative that State Department of Floriculture, University of Agricultural Sciences and other NGOs should make integrated and concerted extension efforts to provide required knowledge about recommended flower production practices to the registered flower growers.

Majority (60%) and (38.66%) of the registered flower growers from district Srinagar belonged to medium and low adoption

categories respectively in case of adoption of recommended flower production practices. Similar trends were observed in district Budgam as well. Hence, registered flower growers need to be educated and convinced about the importance of recommended flower production practices. So that their adoption level can be improved.

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