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Knowledge of farmers regarding polyhouses

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Abstract
Floriculture is one of the branches of agriculture, which deals with growing, cultivation and marketing of flowers and foliage plants. After liberalization the Government of India identified Floriculture as a sunrise industry and accorded it cent percent export oriented status. In present scenario of increasing demand for cut flowers, protected cultivation in polyhouses is the best alternative for using land and other resources more efficiently. Government of India also takes initiatives to promote the floriculture at the international level. So, the present study was conducted in Haryana state on 100 farmers with the objective to find out the knowledge of farmers regarding floriculture in polyhouses. The study found that all the 50 farmers having polyhouses had more knowledge about the government initiatives i.e. subsidy provision, Mission for Integrated Development of Horticulture (MIDH) scheme, National Horticulture Mission (NHM) scheme and awareness programmes for promoting the floriculture. All of them were also having knowledge about Anti Insect Shade Net House (AISNH) and Natural Ventilated Polyhouse (NVPH) types of polyhouses while 74 and 42 percent farmers doing open cultivation had knowledge about AISNH and NVPH types of polyhouses respectively. Overall, majority of farmers (83%) had knowledge about covering sheet followed by drip irrigation system (77%) and ventilation system (74%) of polyhouses. Farmers of open cultivation had less knowledge about all these parts of polyhouses. So, government needs to create more training programmes for the awareness of farmers on benefits and use of polyhouses for growing flowers.

Keywords: Floriculture, farmers, polyhouses, awareness and benefits

Introduction
Floriculture is one of the branches of agriculture, which deals with growing, cultivating and marketing of flowers and foliage plants. It also includes the production of planting materials through seeds, cuttings, budding and grafting. After liberalization the Government of India identified floriculture as a sunrise industry and its cent percent export oriented status. India is bestowed with diverse agro-climatic and ecological conditions, which are favorable to grow all types of commercially important flowers generally found in different parts of the world. India is having a better scope in the future as there is a shift in trend towards tropical flowers and this can be gainfully exploited by a country like India with high amount of diversity in indigenous flora. The liberalization of industrial and trade policies paved the way for the development of export oriented production of cut flowers. In present scenario of increasing demand for cut flowers protected cultivation in polyhouse is the best alternative for using land and other resources more efficiently. Polyhouse provides suitable environmental conditions for better quality production by controlling temperature, humidity and light intensity inside the polyhouse. Floriculture in different types of polyhouses can increase the production and export of the different types of flower. Demand of polyhouse farming is increasing with increase in population and its demand of agriculture products. The government of India is supporting the farmers for lifting up of polyhouses by providing them subsidy. Presently, floriculture in different types of poly house offers a great opportunity for farmers in terms of income generation and empowerment. Small and marginal farmers may also grow the flower and foliage crops in different types of polyhouses with the help of subsidy provided by the government for increasing the use of polyhouses. Keeping the above facts in mind the present study was planned with the objective to find out the farmers' knowledge about flower cultivation technology in polyhouses.

Methodology
The present study was conducted in four districts i.e. Hisar, Panipat, Sonepat and Gurugram of Haryana state having floricultural units. Total 100 farmers were growing flowers i.e. open cultivation (50 farmers) and polyhouses (50 farmers) were selected randomly from selected districts. Data were collected with the help of pre tested interview schedule by the personal interview method. Frequency, percentage, WMS and ranks were calculated for data analysis.

Results: The results of the present research according to the objective have been presented.

General profile of farmers: Table 1 shows the general profile of the farmers that covers age, educational status, occupation, land holding, monthly income and affiliation with the organization of farmers.

Table 1: General profile of farmers n=100

Sr. no.	Variables	Frequency
1.	**Age (years)**	
	30-40	19
	41-50	56
	51-60	25
2.	**Educational status**	
	Illiterate	10
	High school	30
	Senior secondary	30
	Graduate	25
	Post graduate	05
3.	**Occupation of farmers**	
	Farming	83
	Service	10
	Business	07
4.	**Area of land (acres)**	
	2-4acres	18
	4-6 acres	67
	6-8 acres	15
5.	**Monthly income of farmers**	
	Rs. 50000-Rs. 60000	57
	Rs. 60001-Rs. 70000	33
	Rs. 70001-Rs. 80000	10
6.	**Affiliated with organization ***	
	District Horticulture Office	76
	Krishi Vigyan Kendras	87

It was found that the majority of farmers (56%) belonged to 41-50 years of age groups. Equal number of farmers (30%) had the education status up to the level of high and senior secondary school, majority of farmers (83%) belonged to farming occupation, 67 percent farmers had 4-6 acres area of land, 57 percent farmers had the income from Rs. 50000-60000 per month and 87 percent farmers were affiliated with the *Krishi Vigyan Kendras*.

Table 2: Source of information of farmers about polyhouses

Sr. No.	Source of information*	Source of information				Total (n=100)
		Farmers having open cultivation (n=50)		Farmers having polyhouses (n=50)		
		Frequency	Percentage	Frequency	Percentage	
1.	Internet	23	26	43	86	66
2.	Friends	24	48	19	38	43
3.	Relatives	11	22	17	34	28
4.	Neighbors	09	18	11	22	20
5.	District Horticulture Office	35	70	41	82	76
6.	*Krishi Vigyan Kendra*	32	64	41	82	73

Source of information of farmers about polyhouses: Table 2 represents the source of information of farmers about polyhouses. It includes internet, friends, relatives, neighbors, District Horticulture Office and *Krishi Vigyan Kendras*. It was found that majority of the farmers (76%) got the information from the Districts Horticulture Office, followed by *Krishi Vigyan Kendras* (73%) and internet (66%).

Table 3: Farmers' knowledge about types of polyhouses and government initiatives to promote the polyhouses

Sr. no.	Parameters	Farmers having open cultivation (n=50)		Farmers having polyhouses (n=50)		Total (n=100)
		Frequency	Percentage	Frequency	Percentage	
1.	**Types of polyhouses ***					
	AISNH (Anti Insect Shade Net House)	37	74	50	100	87
	WIT (Walk in Tunnel)	11	22	39	78	50
	NVPH (Natural Ventilated Polyhouse)	21	42	50	100	71
	High Tech	05	10	37	74	42
2.	**Government initiatives for promoting the polyhouses ***					
	Subsidy provision	17	34	50	100	67
	MIDH scheme	19	38	50	100	79
	NHM scheme	07	14	50	100	57
	Awareness programme	19	38	50	100	69
	Special training for use of polyhouses	20	40	42	84	62
3.	Source of availability of polyhouse	17	34	50	100	67
4.	Source of subsidy on polyhouses	06	12	50	100	56

*Multiple responses

Farmers' knowledge about polyhouses: Table three presents the farmers' knowledge about polyhouses and their types. It includes types of polyhouses, government initiatives, source of availability of polyhouses and subsidy on polyhouses. Majority of farmers (87%) had the knowledge about AINSH type of polyhouses followed by NVPH (71%) type of polyhouses and WIT type of polyhouses. More than three forth (79%) of the farmers had the knowledge about the MIDH programme, followed by awareness programme (69%) and 62 percent farmers had the knowledge about the training programme initiated by the government for the use of polyhouses. Most of the farmers (67%) had the knowledge about the source of availability of polyhouses and 56 percent farmers had the knowledge about the source of subsidy on polyhouses. Farmers of polyhouses had more knowledge about the types of polyhouses and government initiatives for promoting the polyhouses than the farmers of open cultivation.

Table 4: Farmers' knowledge about different parts of polyhouses

Sr. no.	Parts of polyhouses*	Farmers having open cultivation (n=50)		Farmers having polyhouses (n=50)		Total (n=100)
		Frequency	Percentage	Frequency	Percentage	
1.	Operating system	11	22	47	94	58
2.	Exhaust fan	13	26	43	86	56
3.	Drip irrigation system	27	54	50	100	77
4.	Lighting system	17	34	50	100	67
5.	Ventilation system	27	54	47	94	74
6.	Covering sheet	33	66	50	100	83
7.	Foggers	21	42	43	86	64
8.	Structure/frame	50	100	50	100	100
9.	Cooling system	09	18	36	72	45
10.	Insect net	50	100	50	100	100
11.	Shade net	50	100	50	100	100

*Multiple responses

Farmers' knowledge about different parts of polyhouses: Table no. 4 focuses on the knowledge of farmers about different parts of the polyhouses. It covers the operating system, exhaust fan, drip irrigation system, lighting system, ventilation system, foggers, structure etc. Cent percent farmers had the knowledge about insect net, shade net, structure of polyhouses followed by covering sheet (83%), drip irrigation system (77%) and ventilation system (74%). Less than half of the farmers (45%) had the knowledge about the cooling system of polyhouses.

Table 5: Farmers' knowledge about benefits of polyhouses as compared to open cultivation (n=100)

Sr. no.	Benefits *	Knowledge
1.	Higher production	76
2.	Better quality production	77
3.	Less damage	67
4.	Off season production	37
5.	Provide suitable temperature	73
6.	Provide suitable humidity	73
7.	Weed free cultivation	59
8.	Protection from winds	74
9.	Protection from animals	100
10.	Protection from insects-pests	21
11.	Protection from rain	53

*Multiple responses

Farmers' knowledge about benefits of polyhouses as compared to open cultivation: Table no. 5 represents the benefits of polyhouses known by the farmers. Cent percent farmers (100%) had the knowledge that polyhouses protect the crops from the animals followed by 77 percent of farmers having knowledge that polyhouses provide better quality, high production (76%) and protect the crops form winds (74%).

Conclusion

It is concluded that the majority of farmers belonged to 41-50 years of age group and got the information about polyhouses from the District Horticulture Offices. Most of the farmers had knowledge about Anti Insect Shade Net Houses (AISNH) type of polyhouse and Mission for Integrated Development of Horticulture (MIDH) scheme initiated by the government. Cent percent farmers had knowledge about different parts of polyhouses i.e. about insect net, shade net and protect the crops from the animals. Smitha *et al.* (2016) [5] also concluded that majority of respondents were not aware about the suitable extension service, subsidy schemes, programmes, benefits and opportunities related to floriculture and vegetables in polyhouses.

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