



Research Article

TECHNOLOGICAL GAPS EXISTING IN FLOWER CULTIVATION IN TUMKUR DISTRICT OF KARNATAKA STATE

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Abstract: The study was conducted during 2017-18 in Tumkur district to assess the technological gaps in flower production. Madhugiri taluk from Tumkur district was purposefully selected. 30 flower growers from each of four villages were selected making total sample size of 120. Major gaps identified were use of micro nutrients, mulching and use of weedicides which secured first rank followed by drip irrigation, improved practices, fertilizer management, application of recommended FYM etc. Suggestions of flower growers to improve flower cultivation were protection from middle men, providing labour saving technologies, timely and adequate information regarding inputs availability and prices, irrigation source etc.

Keywords: *Technological gap, Drip irrigation, Improved practices, Fertilizer management*

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Introduction

India is primarily an agrarian country. Almost two third of Indian population depends on agriculture for their livelihood. It has become the main source of income. Indian agriculture is facing a gradual change especially in the cropping system, input utilization, land use system and marketing. On the one hand, the availability of land area for agriculture is shrinking because of expanding urbanization; while on the other hand, the demand is being increasing rapidly for the higher productivity and returns from the cultivable land [1]. At the same time, the hunt for higher productivity is resulting in the serious problems of high water table in irrigated areas and soil salinity. All these factors have paved path for major trends towards diversification, particularly in favour of horticultural crops like flowers, fruits, vegetables, plantation crops, spices, and ornamental crops [2]. Horticultural crops have improved the economic condition of farmers because of higher returns from many perennial flower crops, plantation crops, seasonal availability of fruits and vegetables throughout the year. Growing horticultural crops has been recognized as an ideal option for the improvement of livelihood security, attaining income and food security, enhancing employment generation and increasing income through value addition. It has also played a crucial role in women endowment, as it provides employment opportunities in vegetable production, floriculture, mushroom cultivation etc[3]. Floriculture has been the mainstay in the country but flower production under green house with international quality standard is only a latest development. The country has drawn strengths from availability of good soil, different climate zones, cheap land and labour, skilled manpower, diverse agro climatic conditions which the country is endowed with, provide opportunities for production of all major flowers all through the year in some parts of the country or other[4]. After liberalization, floriculture was identified as a sunrise industry in India. The liberalization of trade and industrial policies had led to the development of export oriented cut flower production. Because of the new seed policy, it is also possible to import the planting material and seeds of international varieties. The improved transportation facilities, e-commerce, on-line marketing of flowers have increased the availability of flowers all over the country [5]. Higher flower yield primarily depends on soil fertility. Though quality of flowers is a varietal trait, it is greatly influenced by climatic and

other nutritional factors, out of which vital elements play a major role. In general, nitrogen, phosphorus and potassium have been found to influence the production and quality of flowers. The higher production also greatly governed by the management practices being followed by the growers[6]. It is therefore, worthwhile to know the status of the cultivation of this flower crops in Karnataka where flower production is a predominant livelihood sector so that proper extension strategy could be developed to cultivate flower crops on scientific lines besides knowing the technological gaps existing in growing of flower crops.

Material and methods

The investigation was carried out in Tumkur district of Karnataka, during the year 2017-18 to assess the technological gaps existing in flower production. In Tumkur district, Madhugiri taluk was purposefully selected for the study by recognizing the importance of the floriculture as an income and employment generating activity in the taluk. The top four villages which have the highest area under flower cultivation were selected from the taluk. Then, 40 chrysanthemum, 40 jasmine and 40 crossandra growers were picked randomly from each village. Thus, the total number of the respondents selected for the study was 120. Ex-post facto research design was employed in the current study. The interview schedule was developed by review of literature, consulting experts and pre tested in non-sample area for its reliability then data was collected by personal interview method using pre tested interview schedule. The responses were scored, quantified, categorized and tabulated using statistical methods like percentage, mean and frequencies. Technological gap was assessed by taking the difference between the package of practices recommended and the extent of adoption of those recommended practices by the flower growers [7-12].

Results and Discussions

Technological gaps existing in flower cultivation

[Table-1] reveals the technological gaps existing in flower cultivation. Of all the technologies listed, cent percent gap was found in the technologies like use of micronutrients, mulching and application of weedicides and these operations

Table-1 *Technological gaps existing in flower, N=120*

SN	Technologies	Extent of gap						Total score	Mean score	Rank
		Full gap		partial gap		No gap				
		F	%	F	%	F	%			
1	Number of seedlings	0	0	84	70	36	30	204	1.7	IX
2	Use of Micronutrients	120	100	0	0	0	0	360	3	I
3	Application of FYM as per recommendation	9	7.5	87	72.5	24	20	225	1.88	V
4	Fertilizer management	29	24.17	63	52.5	28	23.33	241	2	IV
5	Drip irrigation	103	85	0	0	17	14.17	326	2.71	II
6	Plastic Mulching	120	100	0	0	0	0	360	3	I
7	Pinching (chrysanthemum)/pruning (jasmine and crossandra)	91	75.83	0	0	29	24.17	302	2.51	III
8	Use of weedicides	120	100	0	0	0	0	360	3	I
9	Pest management	0	0	102	85	18	15	222	1.85	VI
10	Disease management	0	0	100	83.33	20	16.67	220	1.83	VIII
11	Crop yield	0	0	101	84.17	19	15.83	221	1.84	VII

F- Frequency, %- percent

Table-2 *Performance analysis of flower growers, N=120*

SNo	Crops	Gross returns (Rs.)	Cost of production (Rs.)	Net Returns (Rs.)	B:C ratio
1	Chrysanthemum (n=40)	1,20,000	24,200	95,800	3.97
2	Jasmine (n=40)	82,500	31,200	51,300	1.64
3	Crossandra (n=40)	86,000	26,800	59,200	2.21

Table-3 *Suggestions offered by growers to improve the flower production and its income, N=120*

Suggestions	Extent of importance						Scores	Rank
	Very important		Important		Not important			
	F	%	F	%	F	%		
Provision of continuous power supply	37	30.83	64	53.33	19	15.83	258	V
Provision for irrigation source	45	37.5	56	46.66	19	15.84	267	III
Timely and adequate information regarding availability of inputs, prices etc.	40	33.33	53	44.17	27	22.5	267	III
Timely and adequate supply of inputs	54	45	46	38.33	20	16.67	247	VI
Provision for timely and adequate credit	39	32.5	46	38.33	35	29.17	244	VII
Longer repayment period for credit	24	20	68	56.67	28	23.33	236	IX
Providing interest free credit	33	27.5	58	48.33	29	24.17	244	VII
Providing Labour saving technologies like mulching, drip irrigation	45	37.5	60	50	15	12.5	270	II
Provision for suitable market infrastructure viz. transportation, cold storage structures, price	49	40.83	47	39.17	24	20	265	IV
Protection from exploitation by middlemen	71	59.17	32	26.67	17	14.17	294	I
Timely cash payment	39	32.5	56	46.67	25	20.83	243	VIII

F- Frequency, %- percent

secured first rank followed by drip irrigation with second rank, improved practices like pinching in case of chrysanthemum or pruning in case of jasmine and crossandra ranked at third. Further, gap was identified in fertilizer management (IV Rank) followed by application of FYM as per recommendation (V Rank), pest management (VI Rank), crop yield (VII Rank), disease management (VIII Rank) and number of seedlings (IX Rank). With respect to use of micronutrients, mulching and use of weedicides, cent percent gap was observed among Flower growers, this could be due to the lack of awareness among the growers regarding the utility and importance of micronutrients and mulching practice. Non availability of plastic sheets for mulching, lack of skill, lack of technical guidance regarding mulching practice could also be the reason for major gap in the practice. Regarding use of weedicides, fear of failure of the crop was found to be the major reason for gap. Flower growers had the notion that the weedicide might also kill the main crop along with the weeds for which they failed to use weedicides for effective weed management. In case of drip irrigation, major gap was indicated among majority of the flower growers. Majority of growers were having small area under flower cultivation for which they could get supply of water from resource rich farmers. So, more gap was found in the practice of drip irrigation. Further, gap has been found in pinching practice in case of chrysanthemum cultivation and pruning in jasmine and crossandra cultivation, this might be due to the lack of knowledge about the importance of pinching and pruning practice. Hence, concerned organizations should conduct training and demonstration programmes in the farmer's field to show the worth of the practice to convince the flower growers. When comes to fertilizer management, partial gap was found in flower crops because of the lack of knowledge about the balanced application of nutrients and difficulty in the calculation of fertilizer dosage. Many of the farmers are using DAP fertilizer which contains Nitrogen and Phosphorous. Hence, it is necessary that farmers have to be made aware of importance of balanced fertilizer application

especially potash containing fertilizers as it provides resistance against the diseases. With regard to application of FYM, gap was found because of poor knowledge about recommended quantity of FYM application and non-availability of sufficient FYM and also their excessive reliance on chemical fertilizers could also be the reason for gap. In flower cultivation relatively lesser gap was found in application of FYM than that of chemical fertilizers as majority of the growers were mainly depend on FYM as a source of nutrients for flower production and only few of them are using chemical fertilizers. In case of pest management and disease management, partial gap was found due to the poor knowledge on the part of the flower growers regarding the identification of symptoms of pests and diseases and also regarding the recommended dose of insecticides and pesticides to be applied. Disease and pest management in floriculture is crucial as improper disease management reduces the value of flowers and hence capacity building of the flower growers in regular interval is the need of the hour. Technological gap was found in yield because of the gaps found in all the above-mentioned practices like using micronutrients, pruning, pinching, pest management, disease management etc. which leads to the reduction in yield. Gaps have also been seen in number of seedlings/ cuttings used for planting might be due to their insufficient knowledge among the flower growers about using the recommended planting material and spacing to be followed in flower cultivation. The probable reason for technological gaps in flower production could be the lack of conviction, complicated technologies, lack of adequate knowledge about advanced technologies like mulching, use of micronutrients, weedicides, importance of balanced application of fertilizers and latest pest and disease management technologies etc. Floriculture requires latest technical knowledge and better skills as it is considered as one of the major incomes and employment generating enterprises. Also, these operations are more crucial for increasing production and productivity.

Hence, these technological gaps should be reduced through the education and extension activities like training and demonstrations. Demonstrations related to improved practices like pruning, pinching to enhance flowering, application of micronutrients, mulching techniques to improve soil health can be conducted to educate the flower growers and to develop motivation among them to reduce the gaps identified in flower cultivation

Performance analysis of flower growers.

Table 2 reveals that, B:C ratio of chrysanthemum production was found to be higher (3.97) followed by crossandra (2.21) and jasmine production (1.64). This could be due to the higher demand for the chrysanthemum flowers and its keeping quality which fetches the better prices compare to other two flower crops. With respect to jasmine and crossandra production, flower picking operations and handling of flowers demand high labour force which increases the cost of production thereby, leading to decreased Benefit to Cost ratio. Among jasmine and crossandra growers, majority of the crossandra growers were dependent on fym as a major source of nutrients, which reduces them the cost of chemical fertilizers when compared to jasmine growers.

Suggestions offered by flower growers to improve the flower production

Table 3 indicated the suggestions given by the flower growers to improve the flower production and its income. Of all the suggestions, first place was occupied by protection from the exploitation by middle men who are hindering the farmers to get the fair price for their produce followed by providing labour saving technologies like mulching, drip irrigation to overcome the problems of untimely availability of labour and also to improve the efficiency. Timely and adequate information regarding availability of inputs and prices and provision for irrigation source were the third suggestions expressed by them. The other suggestions given are provision for suitable market infrastructure viz. transportation, storage, price etc. (IV Rank) followed by provision of continuous power supply (V Rank), timely and adequate supply of inputs (VI Rank), provision of timely and adequate credit and providing interest free credit with the ranking of seven, timely cash payment (VIII Rank) and longer repayment period for credit with ninth rank. The above-mentioned activities are of great importance in deriving maximum benefits from the floriculture. Hence, extension professionals who are involving in organizing such activities should take at most care in making arrangements for the supply of critical inputs, technical guidance, market information, establishing market infrastructure and establishing custom hiring centres for providing implements at panchayat level to ensure flower growers to get better prices. All concerned line departments should be involved in providing all the requirements in order to achieve the above listed suggestions to overcome the constraints of flower growers.

Conclusion

The results indicated that, high technological gap was observed in practices like, use of micronutrients, mulching, improved practices like pinching and pruning, method of application of fertilizers. Hence, there is ample scope for reducing technological gap with respect to above mentioned practices by organizing extension activities like need based training, soil test-based recommendations for application of major nutrients and micronutrients, technology demonstrations coupled with ICT tools to provide market price by the department of horticulture and concerned organizations.

Application of research: Major suggestions offered by the flower growers to improve the flower production were protection from the exploitation by middle men followed by providing labour saving technologies like mulching, drip irrigation etc., timely and adequate information regarding availability of inputs, prices, provision for irrigation source etc. Hence the government and concerned agencies should make consideration of these suggestions and make sure that the flower growers are getting the above facilities in order to improve the returns from the flower production.

Research Category: Horticulture

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Cultivar / Variety / Breed name:

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