Managementpracticesof diseases and insect pest in marigold and gladiolus flowerlocation

Abstract

Gladiolus and marigold being important commercial flowers are fetching high returns to the growers in national and international markets. The occurrence of diseases and insect pest attack in devastating form, has become a limiting its production. The present study was planned with objective to study management of common diseases and insect pest in marigold and gladiolus flower. A total of 80 farmers were selected for this study. Data were collected personally with the help of interview schedule. The findings revealed that 55 per cent of the respondents adopted recommended fungicide to control disease in marigold andall the respondents treated the corms before planting in gladiolus. Also 10 and 15 per cent of the respondents used recommended pesticides in marigold and gladiolus to control the attack of insect-pestrespectively.

Keywords: marigold, gladiolus, diseases, insects, management

INTRODUCTION

Agriculture contributes about 17.8 per cent to country(which country?) GDP and gives work to over 54.60per cent of the population (Anonymous 2021). In our country almost 80.00per cent of the total cultivated land is put under cereals to make the nation self-sufficient in food requirements. The major crops after the green revolution in India are wheat, rice, cotton, sugarcane, sorghum, bajra and maize (Nelson *et al*2019). In the context of Punjab, the majority of farmers follow the rice wheat cropping system. Rice and wheat yields have reached the plateau. There is a high time need for diversification to solve the problems of low farm income, yield plateau of cereals, marketing, deterioration of soil and water (Khanam*et al*2018).

To meet the challenges of a globalizing market in agriculture as wellas the growing and changing needs of the population many countries inSouth East Asia have undertaken crop diversification to enhance productivityand cultivate high value crop with positive outcome. These countries aregradually diversifying their crop sector in favour of high value commodities, especially flowers, fruits, vegetables and spices. Diversification is takingplace either through area augmentation or by crop substitution. If carriedout appropriately, diversification can be used

as a tool to augment farmincome, generate employment, alleviate poverty and conserve precious soiland water resources.

Modern flori-business in India has in recent years morphed into atechnology and knowledge driven activity. Success or failure in flori-businessis not only the outcome of grower/entrepreneur skill at growing flower cropssuccessfully in a high tech. environment but also on a number of extraneousfactors like marketing and supply and demand over which a grower has nocontrol. Floriculture has become a highly capital and technology intensive enterprise. Even a marginal farmer/grower has to shell out a sizable cash/218 Agricultural Marketingfinancial outlay to be able to set up an enterprise that runs sustainably

Flowers, which symbolize love, affection, tranquility and peace, are the most beautiful creations on this earth. Among these, rose, gerbera, carnation and orchids have its admirers and enthusiasts all over the worldfor its use both as a commercial flower crop and as a popular exhibition flower. Commercial floriculture has become increasingly popular not only as an essential part of good living but also as a commercial enterprise with vast potential for export. After achieving self-sufficiency in the production of food grains following the green revolution in agriculture, of higher number of quality flowers from unit area for domestic and export markets there should be strong technological base to solve the day-to-day problems (Singh *et al* 2015).More information about choosing Punjab and situation of these flower in Punjab

Have more literature review

Commercial floriculture has its own problems to achieve its full potential. One of such problems is recurrent occurrence of diseases and pests on these commercial flower crops. Due to congenial environment available inside the polyhouse for quick and easy multiplication and spread of these diseases and pests, it makes a potential problem in achieving marketable yield..Keeping this in view, the present study was planned to study insect-pest management in marigold and gladiolus.

MATERIALS AND METHODS

The study was conducted in Punjab state in year 2022.The prominent flower crops grown in Punjab can be categorized into cut flower and loose flower. Further marigold and gladiolus was selected from loose and cut flower category respectively for the present study. List of flower growers of the Punjab state was procured from the Department of Floriculture & Landscaping (PAU) and Department of Horticulture, Punjab. From the list, 40 farmers cultivating each flower

crop was selected through simple random sampling technique. Thus, 80 respondents were surveyed through face to face interviews. The data was compiled on a reference excel file to perform computation. The data collected were analyzed and interpreted based on their frequencies and percentages.

RESULTS AND DISCUSSION

Demographic information of famer

Disease Management in marigold

Table 1 emphasized that marigoldgrowers facedproblem of leaf spot, it was found that 55 per cent of the respondents adopted recommended fungicide (Dithane M-45) for the disease control. Among them 55 per cent applied the recommended dose (2gm/ltr) while 10 per cent of the growers applied more than recommended dose of same fungicide.Among un-recommended fungicides, 70per cent of respondentsapplied Ridomil Gold MZ followed by Kavach (65%),Indofil Z-78 and Zineb 75 % WP (62.5 %), Tilt 25 EC (60 %),Baviston 50 % WP (55 %) andAmistarAzoxystrobin 23% SC (50%) respectively.During the study it was observed that growers who faced the problem of blight, about one third of the respondents appliedan un-recommended fungicide i.e. Score (Difenoconazole) 25 % EC andRidomil Gold MZ, while 25 per cent of the respondents applied Baviston 50 % WP(carbendazim) and 20 per cent applied Kavach (cholorothalonil) 75 % WP. The results were in track with findings of Gowda (2005) and Subhash (2010) who reported that of jasmine growers knew about fertilizer requirements during planting, the first year, and the second year, respectively

Table 1 Distribution of respondents according to disease management in marigold loose flower n=40

Diseases	Treatments			Frequency (f) *	Percentage (%)
Leaf spot	**Recommended**	Dithane M-45	Recommended	22	55.00
			More than recommended	4	10.00
	Un-recommended	Kavach (cholorothalonil) 75 % WP		26	65.00
		Ridomil Gold MZ		28	70.00
		Blitox 50 W		16	40.00

		Copper oxychloride		
		Kocide 46 DF (Copper oxychloride)	10	25.00
		Baviston 50 % WP	22	55.00
		Score (Difenoconazole) 25 % EC	16	40.00
		Indofil Z-78, Zineb 75 % WP	25	62.50
		FolicurTebuconazole 250 EC (25.9% w/w)	11	27.50
		Curzate fungicide (cymoxanil 8% + mancozeb 64%)	6	15.00
		Pulsor 24 SC (thifluzamide)	10	25.00
		Sixer (Carbendazim 12% + Mancozeb 63% WP)	6	15.00
		Tilt 25 EC (propiconazole)	24	60.00
		Spectrum (Azoxystrobin 11% &Tebuconazole)18.3% w/w SC.	11	27.50
		Amistar (Azoxystrobin 23% SC)	20	50.00
Blight	**Un-recommended**			
	Score (Difenoconazole) 25 % EC		13	32.50
	Baviston 50 % WP		10	25.00
	Pulsor 24 SC (thifluzamide)		2	5.00
	Kavach (cholorothalonil) 75 % WP		8	20.00
	Ridomil Gold MZ		13	32.50

*multiple response

Insect- Pests Management in Marigold

An overview of data in Table 2 indicated that marigold growers faced the problem of tinged bug and Thrips. It was found that 10 per cent of the respondents adopted recommended pesticides i.e. Ekalux 25 EC (quinalphos) and Spinosade 48 SC) but in more than recommended

quantity. Among un-recommended pesticides, 75 per cent of the respondents applied Dhanuka largo Spinetoram 11.7 SC followed by Delegate 11.7 SC (70%), *Actara, Thiamethoxam 25% WG*(55%), Osheen 20 SG (55%) and *Syngenta Pegasus(47.5)* respectively.

It can be seen from the Table 2 that marigold growers faced the problem of American bollworm, Bihar hairy caterpillar, tobacco caterpillar, it was observed that 17.5per cent of the respondents applied recommended (Ekalux 25 EC (quinalphos) but in more than recommended quantity. Among un-recommended 80 per cent applied Coragen (chlorantraniliprole 18.5 SC) while 77.5 per cent usedFame (Flubendiamide 39.35 % SC). However *Celcron 50 EC prophenophos*and *Regent 5 SC Fipronil 5 % SC ww*was applied by 52.5 and 50 per cenbt of the respondents respectively.

Table 2 Distribution of respondents according to the adoption of insect-pests management measures in marigold (loose flower) n=40

S. No.	Pest	Preventive measures			Frequency (f) *	Percentage (%)
1.	Tinged Bug, Thrips	**Recommended**	Ekalux 25 EC (quinalphos), Spinosade 48 SC)	More than recommended	4	10.00
		Un-recommended	Dhanuka, largo Spinetoram 11.7 SC		30	75.00
			Monocrotophos 36 % EC		13	32.50
			Delegate 11.7 SC		28	70.00
			NuvanDichlorvos (*ddvp*) 76% EC		3	7.50
			Imida (Imidachloprid 30.5% SC		5	12.50
			Syngenta Pegasus (diafenthiuron) 50 % w/w		19	47.50
			Actara, Thiamethoxam 25% WG		22	55.00
			Kingdoxa 14.5 SC (indoxacarb)		14	35.00
			Osheen 20 SG (dinotefuran)		22	55.00

2.	American bollworm, Bihar hairy caterpillar, tobacco caterpillar	**Recommended**	Ekalux 25 EC (quinalphos)	More than recommended	7	17.50
		Un-recommended	Coragen (chlorantraniliprole 18.5 SC		32	80.00
			Monocrotophos 36 % EC		6	15.00
			Jump (Fipronil 80 % WG)		14	35.00
			Sevin (carbyrl 50 %WDP)		3	7.50
			Proclaim 5SG (emamectin Benzoate)		12	30.00
			Celcron 50 EC prophenophos		21	52.50
			Spark (Deltamethrin 1% + Trizophos 35 %)		4	10.00
			DecisDeltamethein 2.8 % EC		1	2.50
			Delegate Spinetoram 120 SC		2	5.00
			Lethal super (chloropyriphos 50 % + cypermethrin 5 %)		3	7.50
			Regent 5 SC (Fipronil 5 % SC ww)		20	50.00
			Tata Takumi (Flubendiamide 20 % WG)		11	27.50
			CyruxCypermethrin 25% EC		14	35.00
			Jadu (Triazophos 25% + Deltamethrin 1% EC)		3	7.50
			Asataf 75 SP acephate		7	17.50
			Fame (Flubendiamide 39.35 % SC)		31	77.50

*multiple response

Disease Management in gladiolus

Table 3 inferred that to control wilt/collar rotin gladiolus, all of the respondents treated the corms before planting and Corms raised from cormels should be used for planting. Thereason

may be that gladiolus faces the problems of botrytis, which had no cure, only precautions is the best measure. Field rotation was adopted by 52.5 per cent of the respondents to control wilt and collar rot disease while 35 per cent of the respondents gave pre storage treatment to corms as preventive measure. From the data, it was evident that only 15 per cent of the respondents adopted the storage of corms in a thin layer as a preventive measure against the storage rot of corms. The results were in line with Lakshmi (2010).

Table 3 Distribution of famers according to the adoption of disease management of Gladiolus cut flower n=40

	Preventive measures		**Frequency (f)**	**Percentage (%)**
1.	**Wilt / collar rot**			
a.	Corms treated before planting	Practiced	40	100.00
b.	Field rotation	Practiced	21	52.50
		Not practiced	19	47.50
c.	Corms raised from cormels should be used for planting	Practiced	40	100.00
d.	Drenching soil with Bavistin(0.2 %)	Practiced	04	10.00
		Not practiced	36	90.00
e.	Pre storage treatment to corms	Practiced	14	35.00
		Not practiced	26	65.00
2.	**Storage rot of corms**			
a.	Storage of corms in thin layers	Practiced	06	15.00
		Not practiced	34	85.00

* multiple response

Insects Pests Management in gladiolus

An overview of Table 4 figured out that gladiolus growers faced the problem of thrips. Only 15 % of respondents used the recommended pesticide Rogor 30 EC (dimethoate) in greater quantities than recommended for controlling the attack of thrips. The data further revealed that among unrecommended pesticides, 80 per cent of respondents applied Pager (Diafenthiuron 50% WP) followed by 57.50per cent of respondents who applied Actara (Thiamethoxam 25%WG, and *Imida (Imidachloprid 30.5% SC).* Nearly half of the respondents applied *Dantotsu 50 WG (clothianidin*), and 40 per cent of the respondents *applied Syngenta Pegasus (diafenthiuron) 50* w/w. The results were supported by Lakshmi (2010)

Table 4 Distribution of famers according to insect-pests management of Gladiolus cut flower n=40

Pest	**Preventive measures**		**Frequency (f)***	**Percentage (%)**
Thrips	**Recommended**	Rogor 30 EC (dimethoate)	06	15.00
	Un-recommended	Actara, Thiamethoxam 25% WG	23	57.50
		Areva (Thiamethoxam 25% Wg)	4	10.00
		Pager (Diafenthiuron 50% WP)	32	80.00
		Syngenta Pegasus (diafenthiuron) 50 % w/w	16	40.00
		Osheen 20 SG (dinotefuran)	14	35.00
		Dantotsu 50 WG (clothianidin)	21	52.50
		Imida (Imidachloprid 30.5% SC)	23	57.50
		Celcron 50 EC (profenophos)	6	15.00
		Polo 50 WP (diafenthiuron)	4	10.00

***multiple response**

CONCLUSION

Flower cultivation is the fastest growing enterprise in agriculture and flower power is ceaseless to blossom in the Indian context. In Flower cultivation to get quality products under control or open conditions must require accurate knowledge, fine quality seed, expert systems, tools,

equipment's, packaging facilities, storage facilities and advisory services at every point from field to market.In order to have more people use the effective techniques for growing and controlling insect-pest, diseases in marigold and gladiolus, people awareness through extension programmes like trainings, workshops, seminars etc need to be done(Please write something you have done and what you got on conclusion?)

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