

Relationship of Different Pesticide Treatments on Rose Yield and Vase Life, under Polyhouse Condition

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(Received : 21.10.2021 Accepted : 06.11.2021)

Abstract

A field experiment was conducted at Hi-Tech Floriculture and Vegetable Project, College of Agriculture, Pune during 2013 to study the Effect of Different Pesticide Treatments On Rose, Vase life and number of flowers per plant under polyhouse condition. The overall results revealed that the treatments with Spinosad and Clothianidin were observed to be most effective against thrips by recording the lowest mean population of 2.20 and 2.68 thrips/three leaves, respectively and were on par with each other. The maximum vase life of flower 13.66 days was observed with pesticide treatment Spinosad 45% SC @ 0.3ml l⁻¹ (T₂). The number of flowers plant⁻¹ differs significantly due to different pesticide treatments. The treatment with Spinosad 45% SC @ 0.3ml l⁻¹ (T₂) recorded highest no. of flowers (8.6) which was on par with Clothianidin (8.0). This was followed by the treatments. The increasing trend was observed with decrease in mites, thrips incidence in different pesticide treatments T₄, T₅, T₃, T₆, T₁, T₇, T₉, T₁₀ and T₈ as regards to the number of flowers plant⁻¹.

Key words : Spinosad, Thrips (*Scirtothrips dorsalis*), Rose, Vase life.

India is the largest flower grower after China. In India, area under flower production is about 1,99,890 ha. Bangalore rank 1st while Pune, rank 2nd in cut flower production of rose. Maharashtra is having 10 per cent share of total area of flower production. During 2011-12, total area under protected flower cultivation in Maharashtra was 459 ha with production of 772.8 million stems per year.

Cultivation of rose under polyhouse condition is about 185 ha. While in 2011-2012, total flower production under protected cultivation was increased thereby production of cut flowers was increased to 887.4 million stems year⁻¹. Similarly, the area under protected rose flower cultivation also increased to 274 ha. The polyhouse projects with technical, management and marketing supports from the Netherland and Israel are being set up around Bangalore, Pune, Nashik, Kolhapur, Satara, Delhi and Hyderabad.

Cultivation of rose under protected conditions has gained importance in recent years due to its export potential. In polyhouses, rose is highly susceptible to sucking pests. Next to mites, the rose thrips (*Scirtothrips dorsalis*) is also a serious problem on rose grown under protected cultivation. Both immature and adults feed on tender and moderately matured leaves and developing flower buds by lacerating the tissue and sucking the sap. The feeding results in mottling, severe curling, browning and drying of tender leaves, sepals, tender stalks, outer petals of green and half opened buds turn to brown colour and appear as if they are burnt. Damaged flowers get discolored and distorted in shape and reduced in size (Jhansi Rani and Jagan Mohan, 1997). This pest can cause 28-95 per cent damage with a population density of 11-33 thrips/flower (Gahukar, 2000)

Materials and Methods

The polyhouse installed at Hi-tech

Floriculture and Vegetable project, College of Agriculture, Pune was used for the experiment. The polyhouse was naturally ventilated (GH II) type and U.V. stabilized 200 μm thickness polythene film was used as cladding material. For control of temperature and humidity misting system was provided. Earthen pots having 15 cm height, 30 cm upper diameter and with 4 liters capacity were used for experiment. Each pot was filled manually with 1.5 kg coco peat.

There were eleven pesticides treatments with three replications and completely randomized block design were used for the experiment. Two plants of rose were planted in each pot and six plants per treatment were maintained. Total three spray was given at 15 days of interval.

The growing area was filled with porous and well drained material of cocopeat was used as growing media and obtained from Sterling Farm Research and Services Pvt. Ltd. (Cochin, Kerala, South India). Coco peat was used as waste material from coconut palm industry after fiber was extracted and allowed to be washed with 4-5 monsoons for obtaining low pH and EC. Yellow liberty cultivar of rose was selected on the basis of its performance in Hi-tech Floriculture and Vegetable Project, College of Agriculture, Pune.

Results and Discussion

Vase life of rose as influenced by different pesticide treatments : The maximum vase life of flower 13.66 days was observed with pesticide treatment Spinosad 45% SC @ 0.3 ml l⁻¹ (T₂). The next best treatment was Clothidin which recorded 12.33 days of vase life. This was followed by treatments with Chlorfenapyr, Thiamethoxam, Hexythiazox, Acetamiprid, Spinosad, M-Impact, Neem oil and *M. anisopliae*. The untreated control recorded lowest days of vase life. Further it was observed from Table 1, that the flower vase life increases

Table 1. Flower bud initiation, flower diameter, flower stalk length, Vase life and number of flowers plant⁻¹ as influenced by different pesticide treatments

Treatments	Vase life (Days)	Yield no. of flowers plant ⁻¹
T ₁	10.66	6.5
T ₂	13.66	8.6
T ₃	11.33	7.3
T ₄	12.33	8.0
T ₅	11.66	7.7
T ₆	11.00	6.9
T ₇	10	5.9
T ₈	8	5.2
T ₉	9.33	5.8
T ₁₀	8.66	5.3
T ₁₁	5.33	4.9
SE (m)±	0.08	0.24
CD at 5%	0.24	0.71

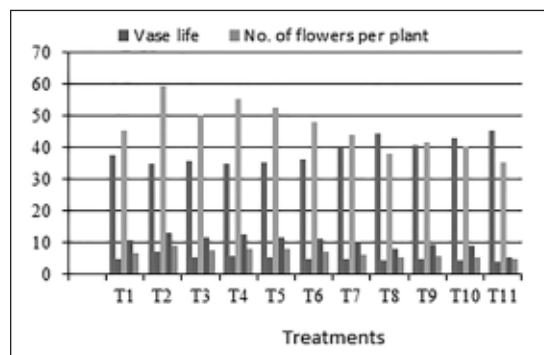


Fig. 1. Number of flowers per plant Vase life and as influenced by different pesticide treatments

with decrease in mites and thrips incidence in all pesticide treatments.

These results are in agreement with results reported by Rengasamy and Arun (2000).

Yield parameters:

Number of flowers plant⁻¹ : The observation regarding number of flower plant⁻¹ was recorded at the time of harvesting of flowers.

It could be seen from the data presented in Table that the number of flowers per plant differs significantly due to different pesticide treatments. The treatment with Spinosad 45% SC @ 0.3 ml l⁻¹ (T₂) recorded highest no. of flowers (8.6) which was on par with Clothianidin (8.0). This was followed by the treatments The increasing trend was observed with decrease in mites, thrips incidence in different pesticide treatments T₄, T₅, T₃, T₆, T₁, T₇, T₉, T₁₀ and T₈ as regards to the number of flowers plant⁻¹. The minimum numbers of flowers (4.9) were observed in the treatment of control (T₁₁) with untreated check.

These results are in agreement with results of Rengasamy and Arun *et al.* (2000). Who reported that Chlorfenapyr, Spinosad and Acetamiprid were significantly superior in recording more no. of flowers plant⁻¹, flower stalk length and diameter due to less incidence of mites.

Conclusion

The treatments with Spinosad and Clothianidin were observed to be most effective against thrips infesting rose leaves and buds. In case of growth flowering and yield, all the pesticide treatments recorded significantly increased primary branches, number of flower, Vase life and yield due to decreased incidence of mites and thrips.

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