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Effect of pongamia cake, neem cake and vermicompost on gall midge of chilli

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Abstract

An experiment was conducted under field condition in order to assess the effectiveness of neem cake, vermicompost and pongamia cake on the activity of chilli gall midge at Main Agricultural Research Station, University of Agricultural Sciences, Raichur during 2014-15. The results indicated that crop amended at planting with neem cake (250 kg/ha) and vermicompost (1t/ha) were effective in keeping the sucking pests density in check, being comparable to recommended insecticides. At 15th Day After Transplanting blanket application with fipronil and dicofol and at 30th DAT second spray with fenpyroximate and spinosad. Pongamia cake (250kg/ha) was next in the order of effectiveness. The research highlights the utility of organics in managing sucking pests of byadagi chilli that has potential export value.

Keywords: neem cake, vermicompost, chilli gall midge

Introduction

Extensive cultivation of chilli especially under command area (Tungabhadra Project area and Upper Krishna Project area), the crop attracts many insect pests, diseases and other physiologically associated problems. Among them insect pests demand much attention. The chilli crop is attacked by a number of insect pests at different stages of its growth. However, the occurrence of 35 species of insects belonging to six orders and a species each of mite snail and two species of millipedes on chilli nursery alone in Karnataka. Reddy and Puttaswamy, 1984 [6]. Infestation by the gall midge results in severe flower drop, reduction in yield, fruit size, seed number, production of malformed fruits and 42.10 per cent damage to floral parts in Tamil Nadu Rangarajan and Mahadevan, 1974 [5]. The *A. capparisi* is considered as major pest that causes paprika floral galls Nagaraju, 2000 [4]. Maryana *et al.* 2006 [3] observed flower buds or very young pods of chilli transformed into galls and opined that when young pods were attacked, they do not grow normally and remain smaller than normal pods. Sertkaya *et al.* 2006 [7] noticed damaged fruits by *A. capsici* in the last week of July in both 2004 and 2005 and of the damaged fruits ranged from 1.41 to 69.71 per cent in Antakya province of Turkey. The present study was conducted to assess the effectiveness of soil application of plant cakes against chilli gall midge.

Materials and Methods

An experiment was conducted under field condition at Main Agricultural Research Station, University of Agricultural Sciences, Raichur during 2014-15 in order to assess the effectiveness of soil application of plant cakes (250 kg ha⁻¹) was done in a block of 336 square meter area for each treatment. A control was maintained without application of organic amendments. 30 to 35 days old seedlings were transplanted in the main field with a spacing of 90 × 15 cm between rows and plants, respectively with a plot size of 4.5 × 1.2 m² in a randomized complete block design (RCBD) consisting of four treatments and replicated thrice. The organic amendments selected for the present study are listed in Table 1.

Table 1: List of organics tested for their efficacy against thrips and mites.

Sl. No.	Treatment combination
1	Pongamia cake + Neem based insecticide and acaricide application with best oil
2	Neem cake + Neem based insecticide and acaricide application with best oil
3	Vermicompost + Neem based insecticide and acaricide application with best oil
4	Control with neem based insecticide and acaricide application with best oil

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Result and Discussion

Among the organics evaluated, neem cake (250 kg/ha) and vermicompost (1t/ha) application kept the gall former density at significantly lowest level means at 0.43galls/plants and 0.69 galls/plants respectively, being comparable untreated control 1.66galls/ plants that received chemical interventions. Vermicompost being known to release plant nutrients in

gradual manner, provide the crop balanced nutrition unlike the chemical fertilizers. This would probably lead to biochemical changes in the plant and make the crop plants relatively more defensive against pest infestation. Bhawalkar and Bhawalkar 1991 ^[1] and Bhide 1993 ^[2] opined that crops nourished with vermicompost would be less susceptible to pest and diseases.

Table 2: Influence of organics on chilli gall former

S. No.	Treatment	Gall former			
		At 50% flowering	At 80 DAT	At 100 DAT	Mean
1	Pongamia cake @ 250kg/ha	0.57	1.00 ^b	1.06 ^b	0.88 ^b
2	Neem cake @ 250kg/ha	0.33	0.40 ^a	0.56 ^a	0.43 ^a
3	Vermicompost @ 1t/ha	0.53	0.53 ^{ab}	1.00 ^b	0.69 ^{ab}
4	Control	0.93	1.87 ^c	2.18 ^c	1.66 ^c
S.Em±		-	0.08	0.02	0.15
CD (0.05)		NS	0.29	0.08	0.52

DAT - Days after transplanting

NS - Non- significant

Mean followed by same letter in a column do not differ significantly by DMRT (P=0.05)

Conclusion

Among the organics and cakes, neem cake (250kg/ha) application to soil resulted in effective suppression of gall midge infesting chillies, followed by vermicompost application.

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