



ISSN (E): 2277-7695
 ISSN (P): 2349-8242
 NAAS Rating: 5.23
 TPI 2022; 11(7): 2834-2835
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www.thepharmajournal.com
 Received: 11-05-2022
 Accepted: 23-06-2022

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Efficacy of different insecticides against *Rhopalosiphum maidis* on Rabi Jowar

Lad DU and Pawar GS**Abstract**

Sorghum (*Sorghum bicolor*) is highly valued crop cultivated worldwide food and fodder. Investigations were carried out to study the “Efficacy of different insecticides against *Rhopalosiphum maidis* on Rabi Jowar” Studies revealed that Imidacloprid 17.8 SL (1.46 aphid/3leaf) proved effective and this treatment was found statistically equal with thimethoxam 12.6% + lambda cyhalothrin 9.5 ZC (3.13 aphid /3leaf). Whereas, the treatments emamectin benzoate 5 SG (5.09 aphid /3leaf), indoxacarb 14.5 SC (6.12 aphid /3leaf), chlorantraniliprole 18.5 SC (7.87 aphid /3leaf), flubendiamide 39.35 SC (8.62 aphid /3leaf) and Spinosad 45 SC (11.64 aphid /3leaf) found at par with each other and were the next best treatments for reducing aphid infestation. However, water spray recorded maximum population (26.73 aphid /3leaf). The results indicated that all the insecticide treatments were significantly superior in grain yield of *Rabi jowar* over water spray.

Keywords: Insecticides, *Rhopalosiphum maidi*, Rabi, Jowar

Introduction

Sorghum (*Sorghum bicolor*) is highly valued crop cultivated worldwide food, fodder, and the production of alcoholic beverages. Sorghum has a proximate composition, amino acid contents, and nutritional value. Despite its natural adaption to resource-poor and stressful environments, it has good yield potential. The leaves, leaf sheath and inflorescence may be covered with colonies of dark green aphids. Infestation of *Rhopalosiphum maidis* results in mottling, distortion of the leaves, dwarfing of new growth, turning plants yellow and unthrifty appearance.

Material and Methods**Location of experiment**

The field experiments were conducted during *Rabi* 2021-22 at the experimental farm of Loknete Mohanrao Kadam College of Agriculture, Samsal Hingangaon.

Table 1: Treatment details

Tr. No.	Treatments	Formulation	Dose (ml or gm)/ ha
T ₁	Profenophos 50%	EC	1500 ml
T ₂	Indoxacarb 14.5%	SC	425 ml
T ₃	Emamectin benzoate 5%	SG	200 g
T ₄	Spinetoram 11.7%	SC	200 ml
T ₅	Thiamethoxam 12.6% + Lambda cyhalothrin 9.5%	ZC	125 ml
T ₆	Chlorantraniliprole 18.5%	SC	150 ml
T ₇	Flubendiamide 49.35%	SC	125 ml
T ₈	Waterspray	-	-

Methodology**Table 2:** Details of experiment

Experimental Design	Randomized Block Design
Season	<i>Rabi</i> 2021-22
Plot size	6.0 x 3.6 m ²
Variety	Maldandi-35-1
Spacing between plants	60 x 30 cm ²

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Evaluation of the insecticide for management *Rhopalosiphum maidis* of Rabi jowar

The experiment was laid out in a Randomized Block Design and whole area of experimental field was divided into three replications eight treatments.

Evaluation of the insecticide for management of *R. maidis* of Rabi jowar

Pre-treatment observations were recorded one day before spray for *R. maidis* (aphids). Then post-treatment observations were recorded on 15th, 30th, and 45th days after application of insecticides for each spraying.

Observation recorded for aphid

Observation on ten randomly selected plant were recorded by taking count of number of aphids present on one top, middle and bottom leaf on each plant then calculated the population of aphid per three leaves.

Results and discussion

The "Studies on seasonal incidence and evaluation of insecticides against *R. maidis* of Rabi Sorghum" under field condition were undertaken at the Department of Agricultural Entomology, Loknete Mohanrao Kadam College of Agriculture, Samsal-Hingangaon.

Effect of insecticides on aphid population of Rabi jowar after first spraying

First spraying

The observation presented in Table revealed that the pre count of plant infestation by aphid was non-significant showing even distribution of plant infestation before spraying. The data regarding effect of different insecticides on plant infestation of aphid after first spray are given below.

After first application of insecticides, all the insecticides were found significantly superior over water spray in reducing aphid population on Rabi jowar Imidacloprid 17.8 SL (1.42 aphid/3leaf) recorded minimum aphid population and it was at par with thimethoxam 12.6 + lambda cyhalothrin 9.5 ZC (5.17 aphid /3leaf). Emamectin benzoate 5 SG (9.35 aphid /3leaf), indoxacarb 14.5 SC (9.95 aphid /3leaf), chlorantraniliprole 18.5 SC (11.42 aphid /3leaf), flubendiamide 39.35 SC (12.45 aphid /3leaf) and Spinosad 45 SC (13.95 aphid /3leaf) were the other treatments in their order of effectiveness. However, water spray (27.50 aphid /3 leaf) does not have any effect against aphid on Rabi jowar.

Second spraying

After second application of the insecticides, all the insecticides were found significantly superior over water spray in reducing aphid population on Rabi jowar Imidacloprid 17.8 SL (2.48 aphid/3leaf) recorded minimum aphid population and it was at par with thimethoxam 12.6 + lambda cyhalothrin 9.5 ZC (3.27 aphid /3leaf). Emamectin benzoate 5 SG (4.52 aphid /3leaf), indoxacarb 14.5 SC (6.27 aphid /3leaf), chlorantraniliprole 18.5 SC (8.70 aphid /3leaf), flubendiamide 39.35 SC (9.48 aphid /3leaf) and Spinosad 45 SC (14.60 aphid /3leaf) were the other treatments in their order of effectiveness. However, water spray (40.60 aphid /3 leaf) does not have any effect against aphid on Rabi jowar.

Third spraying

The observations given in Table indicated the pre-count of

aphid infestation was even before spraying and the data on the effect of various insecticides on aphid plant infestation after the third spray are given below.

After the third application of insecticides, all insecticides were found to be significantly superior to water spray in reducing Rabi jowar aphid population. Imidacloprid 17.8 SL (0.48 aphid/3leaf) was found to be substantially superior to water spray in reducing Rabi jowar aphid population along with other treatments and was at par with thimethoxam 12.6 + lambda cyhalothrin 9.5 ZC (0.95 aphid/3leaf) and emamectin benzoate 5 SG (1.89 aphid/3leaf). Other excellent treatments for aphid management were indoxacarb 14.5 SC (2.14 aphid/3leaf), chlorantraniliprole 18.5 SC (3.50 aphid /3leaf), flubendiamide 39.35 SC (3.92 aphid /3leaf) and Spinosad 45 SC (7.48 aphid/3leaf). Water spray was found to be less effective against Rabi jowar aphid (12.10 aphid/3 leaf)

Mean

It is evident from the average mean data presented in table that after sprays treatment with imidacloprid 17.8 SL (1.46 aphid/3leaf) proved effective in recording the least population of aphids. This was followed by thimethoxam 12.6 + lambda cyhalothrin 9.5 ZC (3.13 aphid/3leaf), emamectin benzoate 5 SG (5.09 aphid /3leaf), indoxacarb 14.5 SC (6.12 aphid /3leaf), chlorantraniliprole 18.5 SC (7.87 aphid /3leaf), flubendiamide 39.35 SC (8.62 aphid /3leaf) and Spinosad 45 SC (11.64 aphid /3leaf) found at par with each other and were the next best treatments for reducing aphid infestation. However, water spray recorded maximum population (26.73 aphid /3leaf).

The present finding are in conformity with findings of other workers like Daware *et al.* (2011) [4] found that all insecticides thiamethoxam 25 WG, imidacloprid 17.8 SL, dimethoate 30 EC and biopesticides namely NSKE 5 percent, neem ark and karanj leaf extract 5 percent, were significantly superior against sorghum aphid.

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