Scholars Academic Journal of Biosciences (SAJB) **ISSN 2321-6883 (Online)**
Sch. Acad. J. Biosci., 2016; 4(4A):318-319 **ISSN 2347-9515 (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI : 10.36347/sajb.2016.v04i04.002

Short Communication

Study Some Biological Aspects and Development of Pest Management Program for Safflower Weevil, Bangasternus orientalis Cap.

Sh. Amanov
Uzbek scientific institute of plant protection institute, Tashkent 111215, Tashkent region, Kibray district, Babur str., 4

***Corresponding author**
Sh. Amanov
Email: shuha2082@yandex.ru

Abstract: Small safflower weevil, Bangasternus orientalis cap. is one of the most important insect pests of safflower in Uzbekistan. Potential components of management program for small safflower weevil were investigated at Djizzakh region, in Uzbekistan from 2010-2013. The efficacy of five insecticides, Cypermethrin 25 EC, Atilla 5 EC, Decis 2.5 EC and Sumi alfa 5 EC were tested for the control of small safflower weevil. Based on the present finding it could be suggest that Atilla 5 EC, Decis 2.5 EC and Sumi alfa 5 EC should be listed in the spray schedule for the control of small safflower weevil.
Keywords: Safflower, small safflower weevil, Insecticides, Efficacy.

INTRODUCTION

Small safflower weevil, Bangasternus orientalis cap. is one of the most important pests of safflower in Uzbekistan. Requires the development of management of pest, having full knowledge of biology, economic threshold level and population dynamism. The biology and behavior of small safflower weevil has been described by some entomologist in Uzbekistan [1]. However, no full information is available on the biology and control of this pest in Uzbekistan. The present study was designed to learn biological aspects and to find the most effective method in small safflower weevil control in order to reduce losses and improve harvest.

Biology

Overwintered adults of small safflower weevil, Bangasternus orientalis cap. appear on bolting safflower plants during April and adults of the summer generations emerge from seed heads from the mid of June until July. Oviposition starts about 25-30 days after overwintered adults appear and lasts for about 10 days (Table 1). Eggs are laid singly on/or near young buds and are covered with a protective cap. Newly hatched larvae mine into flower heads from eggs lay on branch tips of the host plant. Adults feed and damage safflower by feeding on leaves and larvae consume developing seeds.

Table 1: Biological development's period of small safflower weevil

April			May			June			July		
I	II	III	I	II	III	I	II	III	I	II	III
											
				◦	◦						
											
											
											

 - adult ◦ - eggs laying  - larvae  - pupae

Alternative host plants

In Uzbekistan some species (Acroptilonrepens (L.) DC, Carthamus oxyantha MB, Carthamus turkestanicus M.Pop., Centaurea depressa MB, Centaurea iberica Trev., Centaurea sguarrosa Willd.) of weeds have been recorded as alternative hosts of small safflower weevil.

Time of sowing

The loss caused by small safflower weevil can be reduced by manipulating the sowing time. In Uzbekistan, April sown crop harbored maximum infestation while, the March sown crop experienced less damage.

Economic threshold level

Injuriousness of small safflower weevil from one bug come to 0, 4-0, 45 c/ha. Economic threshold level is 1-2 individual/m^2.

Chemical control

It was tested the efficacy of Cypermethrin 25 EC, Decis 2.5 EC, Atilla 5 EC and Sumi alfa 5 EC on small safflower weevil. The experiment was laid out in Randomized Complete Block Design in three repeats and the plot size measuring 10x10 m^2 row to row. A path of 100 cm was maintained among the treatment. All the agronomic practices were applied as and when needed and kept constant for the whole safflower field. Various insecticides were evaluated against small safflower weevil. The concentrations, their sources, trade names are given in Table 2.

Control plots were sprayed with water only. The insecticides were used in the morning at 7.30. Before each spray, the volume of spray solutions was calibrated by spraying measured volume of water on the check plots (300 l/ha). Fifteen litters hand operated Knapsack sprayer was used for the application of insecticides. The insecticides were applied one times. Percent decrease over control for small safflower weevil was calculated by the formula of Khattak .

Table 2: List of insecticides used under field conditions

Name of chemical	Trade name	Source	Application rate, l/ha
Cypermethrin 25 EC	Cypermethrin	Elektrochimzavod JV, Uzbekistan	0,2
Lamda cyhalothrin 5 EC	Atilla	Agrokim LLC, Uzbekistan	0,25
Deltamethrin 2.5 EC	Decis	Bayer Crop Science, Germany	0,4
Esfenvalerate 5 EC	Sumi alfa	Sumitomo chemicals, Japan	0,4

Table 3: Percent decrease of small safflower weevil population over time in comparison to control

№	Insecticides	3^{rd} days	7^{th} days	14^{th} days
1	Cypermethrin 25 EC	89,5	88,9	83,3
2	Lamda cyhalothrin 5 EC	95,3	85,0	77,5
3	Deltamethrin 2.5 EC	96,1	91,7	87,5
4	Esfenvalerate 5 EC	95,0	84,2	76,3

Percent decrease of small safflower weevil over time in comparison to control was high in Deltamethrin 2.5 EC (96, 1%) followed by Lamda cyhalothrin 5 EC (95, 3%), Esfenvalerate 5 EC (95, 0%) and Cypermethrin 25 EC (89, 5%) (Table 3). Overall, the performance of Deltamethrin 2.5 EC proved best of all treatments where maximum percent decrease over control was recorded.

The present study confirmed the efficacy of these insecticides against small safflower weevil in Uzbekistan. As the time passes more and more new products are being introduced to the market which need close monitoring and evaluation. The present study was such an effort in which various insecticides were tested for their efficacy. Based on the present finding it could be suggest that Deltamethrin 2.5 EC, Lamda cyhalothrin 5 EC, Esfenvalerate 5 EC should be listed in the spray schedule for the control of small safflower weevil.

ACKNOWLEDGEMENTS:

I gratefully acknowledge the support of Professor, F. Gapparov (Uzbek science research institute of plant protection, Tashkent) for providing the research facilities to enable me to carry out this research.

REFERENCE

1. Rodd A.E, Gussakovskiy V.V, Antova Yu.K.; Pests of dry regions of Central Asia, 1933; 10-135.