Biology and management of Painted bug, *Bagrada hilaris* on mustard (Brassicaceae)

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Abstract

The bagrada bug, *Bagrada hilaris* (Burmeister), also called the painted bug, is native to Africa. It became first said withinside the county of Los Angeles, California. *Bagrada hilaris* can be burdened with the same searching harlequin bug, Murgantia histrionica (Hahn), that's massive during the United States. It has additionally been burdened with ladybird beetles (Family: Coccinellidae). The bagrada bug is a true bug withinside the order Hemiptera, and extra in particular is a stink bug withinside the family Pentatomidae. It has grown to be an extreme agricultural pest withinside the southwestern United States.

Mustard crop is being broadly promoted as a matter of crop diversification and substantial emphasis is being laid on saving the crop from insect pests as scientists are constantly striving their quality for the betterment of the excellent of the produce of the crop. These studies become carried out to decide the efficacy of various pesticides towards the mustard aphid which reasons substantial yield losses in Brassicaceae. Study become carried out for the duration of crop season 2016-17 the use of RCBD layout with three replications, information has been recorded at unique advocated time intervals. Maximum mortality of mustard aphid become due to Advantage (98.70%) observed via way of means of Plenum (96.60%), Oshin (87.10%), and Pirate (49.60%). Advantage and Plenum represented least differentiated mortality probabilities even as outcomes of Pirate remedy confirmed a probable indication of resistance improvement in bugs towards this precise insecticide.

Keywords: *Bagrada hilaris*, Brassicaceae, *Murgantia histrionica*

Introduction

Mustard, *Brassica nigra* (Linn.) Koch is a critical oilseed crop of the cruciferous own circle of relatives grown throughout the Rabi season. The inexperienced leaves and stems of mustard are a great supply of inexperienced veggies and fodder and also are wealthy in protein, minerals, nutrients A and C. The oil content material of mustard seeds varies among 32 and 42 percentage, implemented to safe to eat purposes. The oil is likewise used for cleaning soap making, pores and skin softening, and the lubrication process. After extracting the oil from the seeds, the relaxation is used as mulch and fodder for livestock. About 50 species of bugs infesting mustard had been located in India, such as the painted insect, *Bagrada hilaris* (Burmeister) (Hemiptera: Pentadomidae) is the maximum critical pest of cruciferous vegetation in India and overseas withinside the entire world. It is a extreme pest of rapeseed and is located lively throughout the sowing segment and the harvest segment. The painted trojan horse has been pronounced to be lively year spherical and infest diverse crucifers throughout the iciness in which it reasons widespread damage. An excessive assault withinside the seedling degree may even kill the flowers and that they appearance greater intense. The loss attributed to the seedling degree because of assault through painted bugs ranged from 26.8 to 70.8 percent, 30.1 percent yield and 3.4 percent oil content material.

Biology and Description

The grownup frame is shield-fashioned and measures 57mm lengthy to 34mm wide. Female bugs are barely large than male bugs. Adult coloring is black with crimson and yellow markings at the frame. The eggs are generally laid personally and near together. Each grownup lady can produce greater than a hundred eggs in a season. The eggs are opaque white to mild crimson and the pupa emerges after approximately 3 to 4 days all through the most effective temperature period. Bagarada bugs encompass 5 pupal ranges. The first, newly emerged ranges are brilliant crimson and feature a barely darker to black colour at the pronotum, head, legs and antennae, the stomach stays reddish and develops black bands and white dots because the first pupal ranges matures. The lateral ranges are darker and might have light crimson to darkish crimson markings at the frame.

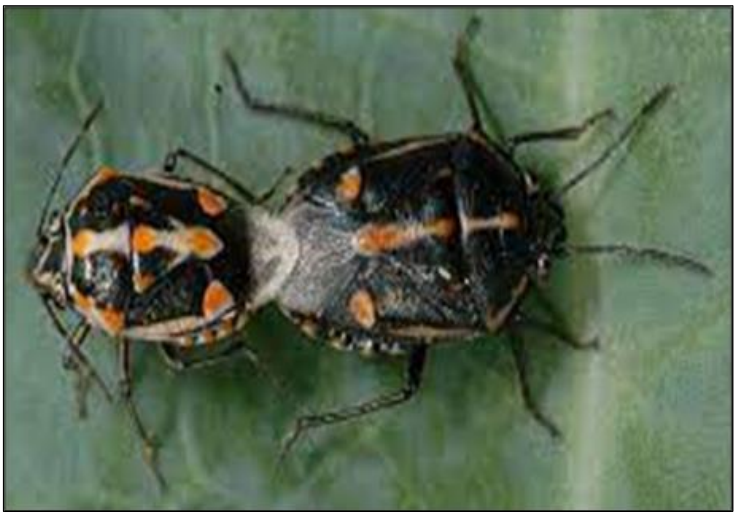

Fig 1: Male and female Painted bug

Fig 2: Eggs of Painted bug

Damage

Painted insects, *Bagrada hilaris* use their needlelike mouthparts to pierce and feed on flowers and their seeds. Both nymphs and adults suck mobileular sap from leaves at seedling level and growing pods, which step by step wilt and dry up. Leaves of younger flowers broaden white spots because of insects feeding. Depending at the type of plant, plant age and plant element they feed on, harm consists of leaf spotting, wilting, stunting, significant stem tip demise inflicting a couple of branches on crowns and demise of the entire plant.

Fig 3: Damage caused by Painted bug

Management techniques

Monitoring

In preliminary tiers whilst the pest has simply began out to emerge, the right tracking and scouting of the trojan horse is needed. Farmer must search for adults on the bottom of cotyledons and leaves throughout the hotter instances of the day due to the fact the pest prefers to pop out harm throughout excessive temperature and are determined to be the maximum active.

Cultural and Mechanical ways

- Use of resistant varieties
- Use of trap crops
- Exclusion of bugs by picking with hands

Synthetic pesticides

Use of quickly-appearing touch insecticides to offer brief time period safety to the crop is recommended. For offering long time management, use of systemic pesticides like organophosphates or carbamates are recommended.

Some beneficial synthetic insecticides are mentioned below:

- Bifenthrin
- Methomyl
- Chlorpyrifos
- Dinotefuran
- Melathion

Botanicals

The software of merchandise acquired from certainly to be had plant life and different supply is the maximum useful issue for a farmer. Chemicals to be had in marketplace aren't constantly low priced for the small scale farmers therefore the processing and manufacturing of oils and plant extracts is new technique for the control of *Bagrada hilaris.*

Few easily available and quickly prepared botanicals are mentioned below:

- Neem
- Garlic
- Opium poppy
- Eucalyptus
- Turmeric
- Lemongrass

Conclusion

Painted bug, *Bagrada hilaris* is a completely voracious pest of cruciferous vegetation specifically mustard. There are many methods that may be implemented to manipulate the populace of *Bagrada hilaris* however the fine manner is to achieve an incorporated pest control approach. Integrated pest control strategies now no longer handiest kills the populace however additionally protects the surroundings from getting contaminated.

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