

Grasshopper

Emerging Problem in Agriculture

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INTRODUCTION

Grasshopper infestations vary in their intensity from year to year. Generally speaking seasons that have large populations will occur for two to four years simultaneously. After this cycle a period of low infestation will happen for three to four years. The cycles often repeat in this manner.

The warmer and drier the spring the earlier hatching will occur and the better the nymphs will thrive. Long, hot summers provide a bountiful food supply for them. This encourages early maturing of grasshoppers and an extended long egg-laying period. Cool summer and early fall conditions slow down grasshopper maturity resulting a reduced time period for laying eggs.

There are three stages of development for grasshoppers: egg, nymph (young adult) and adult hopper. The nymph stage goes through five instars (instar means development stages.) As each instar is completed they molt and become larger. It is in the first to the third week of reaching the adult stage that female hoppers will begin to lay eggs. They lay them in the soil covering them with a foamy like liquid which forms a hard, protective shell enabling them to withstand severe cold.

It is during the nymph stage of hoppers that you want to take control action. Even in periods of low populations grasshoppers can cause considerable damage in home gardens. The main damage that hoppers inflict on plants are the consumption of foliage. During periods of overpopulation they can and will go after shrubs and tree, just about anything.

Following are some methods to help you control grasshopper outbreaks.

- 1) Proper cleaning of bunds and alternate host grasses.
- 2) Regular monitoring of pest activity/damage.
- 3) Pot/barrier application of dust formulation viz. methyl parathion 2% D or Malathion 5% D @ 25 Kg/ha.
- 4) Scrapping of bunds prior to hatching of egg pods followed by dust application as described.
- 5) Spray application of safer insecticides like chlorpyrifos (0.05%).
- 6) Prophylactic application on fodder crop / paddy nursery through Neem seed kernel extract 5% or neem based formulation before onset of damage.

ENCOURAGE PREDATORS IN ENDEMIC AREAS

- **Blister beetle and ground beetle larvae** attack the egg pods of grasshoppers. They are both capable of consuming between 50 to 60% of grasshopper egg pods.
- Snakes, toads, garden lizard, cats feast on hoppers.

- Bird predators include bluebirds, brown thrashers, crows, hawks, mockingbirds, meadow larks, pond heron, mynah and sparrows.
- Robber flies and spiders will feed on grasshoppers.
- Field mice and many types of rodents will dig up and eat the egg pods. They also feed on the adults.
- Chickens, ducks are prolific consumers of hoppers.
- Preying mantis love to eat grasshoppers!



Mynah



Pond heron



Duck



Robber fly



Preying Mantis



Garden Lizard

BARRIERS AND CULTURAL

- Plant calendula as a barrier deterrent.
- Grasshoppers are attracted to monocultures and do not like nitrogen-fixing crops like peas and sweet clover.
- Fall cultivating will help expose buried egg pods to the weather and helps to discourage laying.
- Leaving areas of tall grass uncut can help by giving hoppers food and a refuge. You can then use the treatment of your choice to get at them in the contained areas.

TRAPS, SPRAYS AND BAIT

- Sink empty plastic soda bottles into the soil. Fill to the halfway point with a mixture of 10 parts water to 1 part of molasses. The hoppers are drawn to the sweet smell of the molasses, they dive in and drown. Clean traps as needed.
Organic botanical products like pyrethrin to knock down nymphs in the first or second instar.
- **Neem Oil spray @ 3-5 %.**
- **Bait Application of carbaryl-** Mix 1 kg wheat bran with 6 gm of carbaryl and add about 20 ml each of molasses and edible oil. Make very small granules/pellets with sufficient quantity of water and apply @ 2-2.5kg/ha.
- **Garlic Oil Spray** Spray a heavy infusion of garlic oil as a repellent.

METHOD OF PREPARATION

Combine 100gm of minced garlic cloves with 100 ml of mineral oil. Let soak for 24 hours or longer and Strain. Next mix 1 teaspoon of fish oil emulsion with 500ml of water. Add 1 tablespoon of soap to this.. Now slowly combine the fish oil emulsion water with the garlic oil. Kept in a sealed glass container this mixture will stay viable for several months. To use: Mix 2 tablespoons of garlic oil with 500 ml of water and spray.

For More Information, Plz Contact
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