Guide on Identification and Control of Army Worms

Introduction

Spodoptera exempta (Walk.) is a noctuid moth and its larvae, which are often known as "army worms", are a great pest of upland rice, maize, millet, wheat and other crops in the northern states of Nigeria. These armyworms are caterpillars which often occur in great numbers and at such a high density that they quickly demolish the crop, and when or before this happens they may 'march' on vegetation like an 'army' to fresh feeding grounds, feeding as they go where there is still anything to eat. Wild grasses are the normal host-plants, and larvae usually only move into cultivated crops when the surrounding grass area is destroyed or dried up. It is a pest characterised by very spectacular population fluctuations so that a really severe outbreak year can be catastrophic.

Occurrence and Causes of Outbreaks:

Outbreaks of armyworms occur at the beginning of rains after a prolonged and severe dry season. The appearance of large numbers of adult females at the beginning of the rains is likely to be due to uniform weather condition which breaks the resting phase in all of them so that they all appear together. When there is variation in weather from place to place, then there will not be the large numbers moving off at the same time.

Outbreaks may result from the direct effect of delayed rains on one hand, and on the other hand, the abnormally early incidence of high temperature, which affects the number of eggs laid by the female. Certain agricultural practices, such as burning of mature grasses, mowing of pastures, over-stocking and over-grazing during the dry season have their effect in that if there is sufficient rainfall, young and succulent growth regenerates in their places and outbreaks of armyworms frequently build up on the patches of succulent growth.

An outbreak may develop by a big increase in a small resident population of armyworms previously undetected or the increase may be the result of immigration of moths on a large scale from further south.

Life History:

The moths fly at night and deposit eggs in clusters on bush vegetation—mostly grasses. It takes 3—4 days for the eggs to hatch and the larvae feed on the grasses. As they eat the grass they migrate and their migrations may take them towards a crop of cereal. These larvae disappear below ground to pupate after a fortnight or so of heavy damage on grasses or cultivated crops. The emerging moths immediately migrate by night, and usually unobserved, to other distant areas.

There is no diapause. In the north, a few moths survive in wet areas but most migrate up from the south with the change in wind direction at the beginning of the rains. It is this first migration which gives the first major outbreak. There are probably three generations during the wet season, but subsequent generations are less clearly defined.

Description of Larva:

The underside of the larva is whitish, while the sides and dorsum (back) have a series of longitudinal light and dark stripes. The larva may reach a length of about 30 mm.

The Nature of Damage

The larvae feed almost entirely on the vegetative parts of the host plants. Leaves are at first skeletonised and eventually the young plants may be completely destroyed. The damage to older cultivated crops is indirect since in most cases the grain constitutes the crops and the host plants are capable of considerable foliage regeneration during the rainy season.
CONTROL MEASURES

1. Early detection of larvae
   When wild grasses surrounding a farm, a favourable food for young larvae, have all been consumed, these larvae, by this time at advanced stage of growth and more destructive, transfer to the crop and heavy damage results. It is advisable that younger larval instars of armyworm should be looked for in the bush and wild grasses surrounding a farm and destroyed by the use of a recommended chemical, before they become half grown, very voracious and start to invade the cultivated crops.

2. Trenching
   Dig a furrow 19—30 cm (8"—12") deep in front of advancing armies of larvae, or surround cultivated crops by protective furrows. Make the side in the direction in which the larvae are moving vertical and smooth so that these larvae cannot easily crawl out of the furrow. The furrow may then be kept flooded with water or treated with insecticide. Alternatively, the accumulated larvae may be burnt or treated with kerosine.

3. Barriers
   Barriers of lime 25.4 mm (1") deep or coal tar may be used instead of trenches to check an advance. This control method is subject to availability of lime or coal tar.

4. Weed Control
   Grasses which grow as weeds in or around a crop may be favourable for the feeding of the young larvae, and an outbreak may start. It is safe and beneficial if the crops and the surrounding area are kept permanently free from gramineous weeds.

5. Light Traps
   A system of reporting based on light trap catches would be good but not possible at the moment. An outbreak in or near an area may be preceded by the appearance of unusually large numbers of adult in the traps. A system of reporting based on farmers' report with support from light trap records at Mokwa, Samaru and Kano would need to be organised.

Chemical Control
   Almost any of the commonly available insecticides will control armyworms, so choose the cheapest and safest to use. The following have been shown to be effective:

1. DDT/BHC mixture available as DIDIGAM, Vetox 20 or AUDUGATOX.
   Rate: 2.3—4.6 litres in 450 litres of water (4—8 pints in 100 gallons of water.)

2. DDT Marketed as DIDIMAC 25
   Rate: 1.7—3.4 litres in 450 litres of water (3—6 pints in 100 gallons of water).

Note: States should have control equipment and chemicals available to handle any reported outbreak, and farmers should be prepared to provide water and labour.

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