



MONITORING OF COTTON PINK BOLLWORM *PECTINOPHORA GOSSYPIELLA* WITH NOVA AGRITECH PHEROMONE

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ABSTRACT

An experiment was carried out during *kharif*, 2017 in cotton to evaluate the efficacy of Nova Agritech pheromone lure ((Z,Z)-7, 11-hexadecadienyl acetate, (Z,E)-7,11-hexadecadienyl acetate) against the pink bollworm *Pectinophora gossypiella* (Saunders). Results revealed that the catches of male moths started from September with a peak in the 3rd and 4th week of December. These preliminary observations with Nova Agritech pheromone lure suggest that it is an effective attractant for males and could be used for monitoring of populations.

Key words: Cotton pink bollworm, trap catches, males, Hexadecadienyl acetate, Nova Agritech pheromones

Cotton, white gold is an important fibre crop of global significance. In India its productivity is low as compared to other cotton growing countries. Among various factors responsible for the lower yields, the losses caused by insect pests gained significant importance. In India more than 160 species of insect pests had been reported, of which the boll worms are important. The pink bollworm (PBW) *Pectinophora gossypiella* (Saunders) is amongst these, as the most serious and responsible for huge loss of yields by deteriorating the quality. It has emerged as a threat to cotton cultivation in southern and central parts of India. It causes locule damage to an extent of 55 % and reduction in seed cotton yield in the range of 10-20% (Ingole, 2019). The major control method of the cotton pests, especially the bollworms, is still depended upon chemical pesticides (Mohamed., 2010). Careless or excessive use of pesticides often results in poor control due to their drastic effects on natural enemies, development of resistance in pest strains, secondary pest out breaks, hazards to health and environment (Atwal, 1994). Use of the sex pheromone-mediated mating disruption technique has proven successful cases for controlling of several moth pests of field crops, orchards and vineyards (Pree, 1994; Carde and Minks, 1995). This study is to obtain preliminary data on the effectiveness of Nova Agritech pheromones towards monitoring of PBW populations.

MATERIALS AND METHODS

Field experiment on cotton (Cv. LAHH-7) was

conducted in *kharif*, 2017 at the Nova Agritech Ltd. Experimental farm, Kamareddy, Telangana. Land was selected and ploughed twice during summer in May with tractor drawn implements. Levelling and marking was done after receiving sufficient amount of rainfall. The seeds were sown manually by dibbling at a spacing of 120 x 60 cm on 24th of July, 2017. The recommended dose of fertilizer was applied in the form of urea, single super phosphate and murate of potash. For monitoring of pink bollworm population, Nova Agritech funnel traps baited with Nova Agritech pheromone lures (silicon rubber septa were impregnated with gossyplure ((Z,Z)-7,11-hexadecadienyl acetate, (Z,E)-7,11-hexadecadienyl acetate) were used. The traps were suspended with bamboo sticks at the top of cotton canopy and adjusted with height of the crop. Five traps were installed in equal spacing within the cotton foliage from the first week of September, 2017 till the end of February, 2018. The traps were rebaited at 25 days interval after the first installation to maintain the catching efficiency. The traps were examined at weekly intervals for recording the moth catches.

RESULTS AND DISCUSSIONS

The results revealed that the population of males of the pink bollworm were maximum during November and December (Fig. 1). The least population was observed during September and February. The data revealed that trap catch of adults started from September, density increased from 2nd week of October till the 3rd week of December. A peak of (191.02 moths/

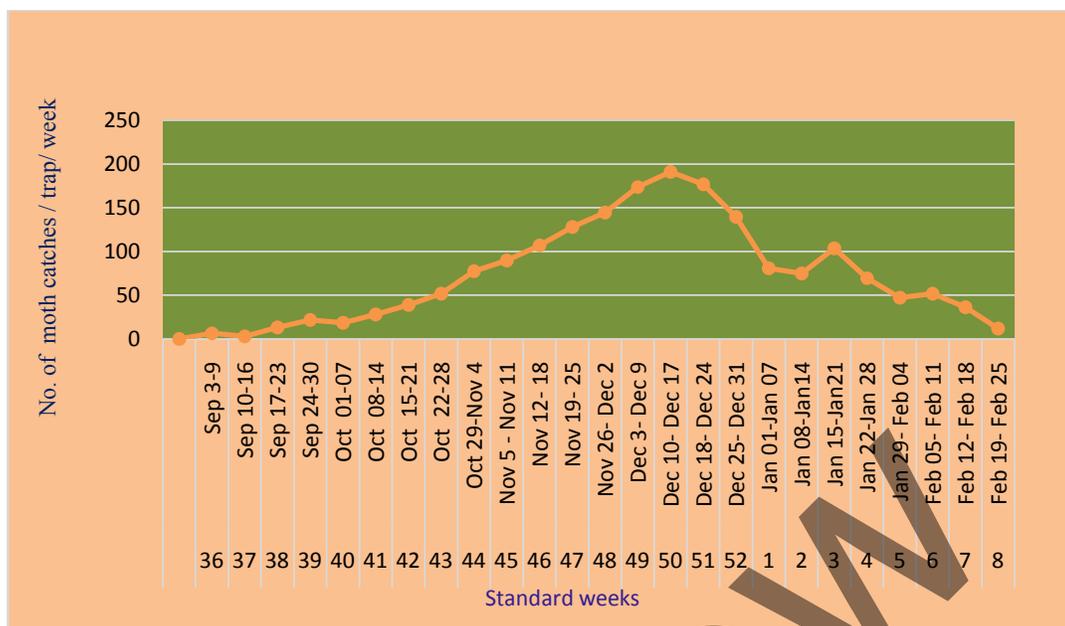


Fig. 1. Standard week wise PBW moth catches (Nova Agritech pheromone)

trap) was observed in the 50th standard week (3rd week of December). The number of the captured male moths in the pheromone baited traps decreased gradually from 4th week of December to 4th week of February except in 3rd week of January i.e suddenly more number of male moths got captured during 3rd standard week. Its population declined to negligible level by 8th standard week.

These results were in close conformity with the findings of Gopaldaswamy et al. (2001) who reported that progressive buildup of pink bollworm starts from November. These results also corroborate those of Gupta et al. (1996) who reported that the highest emergence of pink bollworm was observed in December. Sanga Reddy and Patil (1997a) observed the peak pheromone trap catches during 50th standard weeks. From February onwards the pink bollworm population progressively declined to negligible level. These results agree with those of Sanga Reddy and Patil (1997a) who recorded the low trap catches of pink bollworm adults in the month of April and May.

Thus, the study revealed the effectiveness of Nova Agritech pheromone lure, and it is a matter of communication disruption between males and females leading to monitoring PBW population.

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