

A Review :

Role of *Cassia occidentalis* L. in Encouraging the Population of *Trichogramma* Wasps

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The impact of *Cassia occidentalis* L. a waste land weed of middle Gujarat region was assessed as interspersing with cotton crop to enhance the population of *Trichogramma* wasps and thereby to reduce the bollworm incidence. Results revealed that the *C. occidentalis* attracted large number of white coloured butterfly, *Catopsilia pyranthe* (Pyralidae: Lepidoptera) to deposit their eggs. These eggs in turn were heavily parasitized by *Trichogramma* wasps which act as reservoir for the parasitoid. When cotton crop interspersed with *C. occidentalis* (6 : 1) as one of the components of Bio-Intensive Pest Management (BIPM) module along with planting of maize @ 10 % plants evaluated during 3 successive seasons i.e. 2005-06 to 2007-08 revealed that it enhanced the egg-parasitism due to *T. chilonis* wasps. This habitat manipulated treatment was compared with the treatment of insecticidal application and untreated check. Results concluded that the habitat modified plots exhibited 16.90% egg parasitism as against 4.93 and 10.33% in case of insecticidal treated and untreated plots, respectively. Enhancement of bollworm egg-parasitism due to *T. chilonis* resulted into reduction in bollworms damage and thereby increased the seed cotton yield.

Insect pest problems originated with the origin of agriculture. Each species of insect has their own natural enemies. The natural enemies have been employed in suppression of insect pest problems for centuries. It includes parasitoids, predators and pathogens which play vital role in "Biological control". The Biological control is perhaps one of the oldest methods of pest management. It is ecofriendly approaches of pest management and widely used in Integrated Pest Management (IPM) strategy developed for many insect pests in different agro-ecosystems.

Biological Control involves introduction of

exotic biotic agents (For combating accidentally introduced insect pests, mites and weeds), augmentation of biotic agents and conservation of the existing or introduced biotic agents. Of the three approaches of biological control, the conservation is one of the most important approach and is gaining increasing now-a-days because of its feasibility and easy to adopt by ordinary farmers. It is defined as the actions to preserve and increase natural enemies by environmental manipulation. It is a kind of habitat manipulation which favour the natural enemies for its survival and effective suppression of insect pests. Conservation of natural enemies is nothing but it is the modification of environment to suit the natural enemies. There are many agricultural practices that have the potential to enhance the functional biodiversity which in turn helps in conservation as well as to encourage the activity of many potential biocontrol agents. Increasing plant diversity includes wild plants which can act as reservoir for the natural enemies (Patel and Yadav, 1991).

Enhancement of natural enemy population in cotton by habitat manipulation has been extensively studied at Ludhiana (Punjab), Warangal (Andhra Pradesh) and Anand (Gujarat) during the kharif season of 2005-06 (Anon. 2006 a) and 2006-07 (Anonymous, 2007 a). Cowpea and marigold were used at Ludhiana and Warangal, whereas *Cassia Occidentalis* L. was used at Anand to modified the habitats of beneficial fauna in order to enhance their activity and thereby to reduce the damage caused by insect pests in cotton crop. Results of these trials concluded that the population of natural enemies in habitat manipulated plots was relatively higher over the treatment of insecticidal application as well as untreated check.

The mottled emigrant white coloured butterfly, *Catopsilia pyranthe* (Lepidoptera:

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