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Serial
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Notes B.Sc part 3rd, paper VI,
Unit = 2 = (3).

Question :- Write notes on PEST OF WHEAT
and CONTROL ?

Answer :-

The decline in Hessian fly
damage has been attributed to the
planting of wheat varieties
resistant to Hessian fly and an
increase in parasitic wasps which
attack this pest. Several species
of tiny wasps parasitize the
Hessian fly in the spring and
may kill up to 70 or 80 percent
of Hessian flies at that time.

Biological Control of Insect pests
in wheat :-

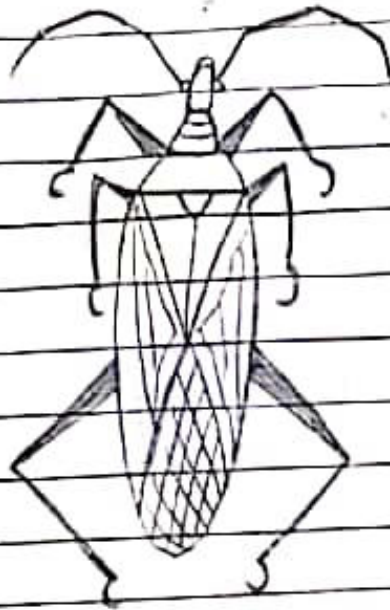
All insects have
natural enemies which, in
addition to weather and food
supply, limit their populations. This
process, unaided and often
unrecognized by man, is termed
natural control. It is important
to recognize the impact of
natural control factors and, where

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possible, encourage their action.



Actual size

Biological control is the use of natural enemies to control insect pests. The ancient Chinese distributed nests of predatory ants among citrus trees to control caterpillars and borers. Today, biological control is an increasingly important component of integrated pest management (IPM) programs for agriculture as well as for urban environments.

Biological control does not present the human health and environmental concerns associated with chemical pesticide use nor is there much chance pests will develop resistance to natural enemies, as commonly occurs with insecticide.

NATURAL ENEMIES :-

Greenbugs :- Greenbugs, like other aphids, are attacked by a variety of predators and parasites. These include the parasitic wasps, several species of lady beetles, lacewings and damsel bugs. These beneficials help keep greenbug populations from increasing to damaging levels in many years.

Parasitic wasps :- *Lysiphlebus testaceipes*, *Sinuentella rapae*, and *Aphelelus variipes* are tiny, black wasps which parasitize greenbugs whenever this pest is found. Although the adult wasps are not commonly seen, wheat producers should be able to recognize the distinctive parasitized greenbug mummy which remains attached to the wheat leaf. Greenbug mummies parasitized by *L. testaceipes* and *S. rapae* are beige or tan and are hard and swollen. Greenbug mummies killed by *A. variipes* are black and similar in size and shape to the greenbug.

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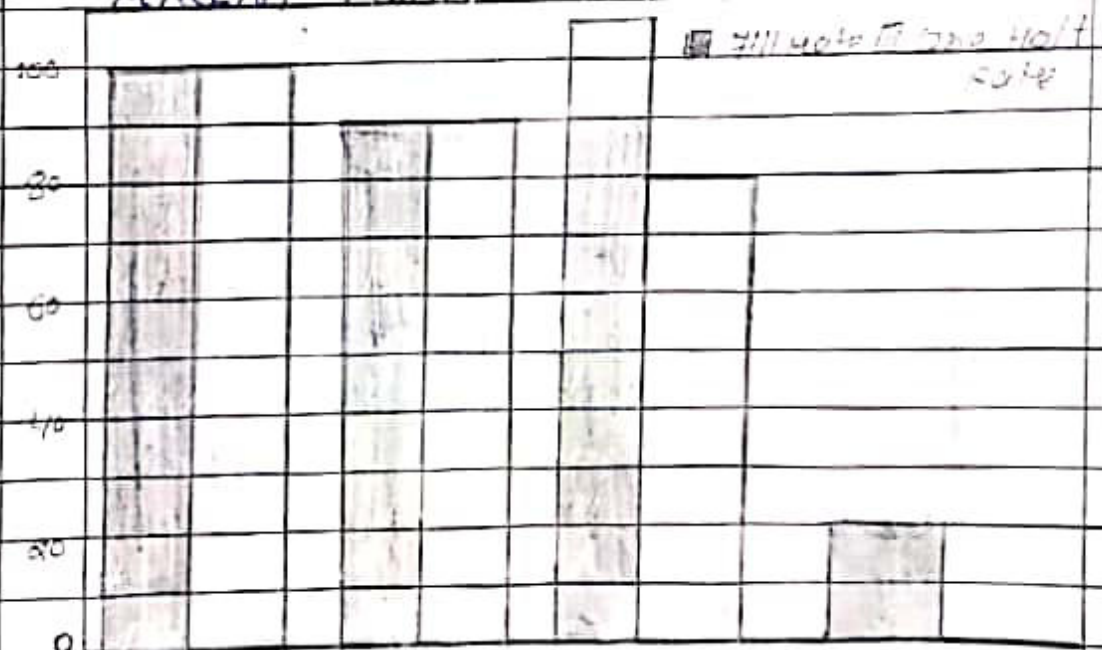
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Parasite activity in the field can be monitored looking for greenbug mummies on wheat leaves. Weather conditions will largely determine how quickly parasitism develops within, as the mummy stage does not develop until 8 to 10 days after parasitism. As a general rule, a greenbug infestation declines rapidly once 20 percent of the living greenbug are already parasitized though they have not yet entered the mummy stage.

FIGURE 2 - Insecticide toxicity to the greenbug parasite *L. testaceipes*

PERCENT MORTALITY AFTER 3 HRS.



M. fenitrothion Loxobenz Dimethoate Disulfoton
0.3-0.5

Insecticides applied as sprays will kill adult wasps and indirectly kill immature parasites by killing

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a) These greenbug hosts. Methyl parathion and chlorpyrifos (Dorsban) are more toxic to adult wasps and to immature parasites inside greenbug than the systemic insecticides dimethoate and disulfoton (Ei-System) especially at lower rates. However, the short residual toxicity of methyl parathion allows parasites to recolonize a field sooner than when insecticides with longer residual activity are used.

PARASITE PROFILE :-

Name : *Lysiphlebus testaceipes*

Description : A shiny black wasp slightly smaller than a mature greenbug. The wasp can be seen on warm, sunny days crawling across wheat leaves and stinging (parasitizing) greenbugs. Parasitized greenbugs are swollen and firm and are called "mummies".

Role :- One of the most important natural enemies of the greenbug in wheat and sorghum. Once about 20 percent of the greenbugs are in the immature stage the infestation usually declines rapidly.