

Management of Beneficial Insects 2 (1+1)

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Topic: Importance of beneficial insects

Applied entomology or economic entomology deals with the usefulness of the science of entomology for the benefit of mankind. It covers the study of insects which are either beneficial or harmful to human beings. It deals with the ways in which beneficial insects like predators, parasitoids, pollinators or productive insects like honey bees, silkworm and lac insect can be best exploited for our welfare. There are many insects found in forests, and agricultural lands which neither cause harm nor benefit us. The important beneficial insects are classified under this topic.

(A) Productive insects

Silk worm: The silk worm filament secreted from the salivary gland of the larva helps us in producing silk which is a great worth of textile.

Honey bee: Honey bees are provides us with honey and many other byproducts like bees wax, pollen, propolis, venom and royal jelly.

Lac insects: The secretion from the body of these scale insects is called lac. Useful in making vanishes and polishes, cosmetic, and as a medicinal drug etc.

(B) Helpful insects

Parasites: These are small insects which feed and live on harmful insects by completing their life cycle in a host and kill the host insect. Eg. egg, larval, pupal and adult parasitoids

Predators: These are large insects which capture and devour harmful insects. Eg. Coccimellids, lacewings and praying mantis.

Pollinators: A pollinator is the biotic agent (vector) that moves pollen from the male anthers of a flower to the female stigma of a flower to accomplish fertilization. Many cross pollinated plants depend on insects for pollination and fruit set. Pollinators are extremely diverse, with more than 20,000 pollinating bee species and numerous other insect. Therefore pollinators are essential for diversity in diet and for the maintenance of natural resources. The pollination is a

"free ecological service". Eg. Honey bees, bumblebees, fig wasp and wasps (bombyliid flies and syrphid flies).

Weed killers: Insects which feed on weeds, kill them called as weed killer insects. Eg. Parthenium beetle (*Zygogramma bicolorata*) feeds on *Parthenium*, Cochneal insect feeds in *Opuntia dillenii*, coccid, (*Orthezia insignis*) and seed fly (*Ophiomyia lantana*) feeds on *Lantana camara*, bruchids (*Neochetena bruchi* and *Neochetina eichhorniae*) etc.

Soil builders: soil insects such as ants, beetles, larval of cutworms, crickets, collembola, make tunnels in soil and facilitate aeration in soil. They become good manure after death and enrich soil.

Scavengers: Insects which feed on dead and decaying matter are called scavengers. Since insects help to remove from the earth's surface the dead and decomposing bodies, which would otherwise be a health hazard concerns, They play their important role for maintaining hygiene in the surroundings. Eg. Carrion beetles, Rove beetles and ants feed on dead animals and plants.

(C) Insects useful as drugs, food, ornaments etc,

As medicine- Eg. Sting of honey bees- remedy for rheumatism and arthritis.

Cantharidin - extracted from blister beetle which is useful as hair tonic.

Dye- obtain from cochineal insect. Deep crimson dye extracted from female cochineal insects.

Cochineal is used to produce scarlet, orange and red tints.

As food - for human beings - aquatic insects used as fish food. Grass hoppers, termites, pupae of moths. They have been used as food by human beings in different parts of the world.

Ornaments, entertainers

-Artists and designers copy colour of butterflies.

- Beetles worm as necklace.

- Insect collection is a hobby to decorate their home.

(D) Scientific research

Drosophila and mosquitoes are useful in genetic and toxicological studies, respectively.

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