

Course code: ENT304 Industrial Entomology 2(1+1)

## **INTRODUCTION, SIGNIFICANCE, HISTORY AND SCOPE**



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# Introduction

- Entomology is a branch of zoology that deals with the study of insects. The term derived from the Greek word Entomon=insects and logos= study.
- With over one million different species inhabiting the earth, insects make up more than 80% of all described animal species and form a major component of the earth's biodiversity.
- The industrial entomology refers to the commercial rearing and industrial utilization of insects and their products.
- Usually insects are considered harmful to man but hardly 1 percent of insect species fall in the pest category.
- Benefits of insects in maintaining economy outweigh the injury inflicted.

# Significance and scope

- There are about 1 million named insect species.
- It has taken about 300 years for scientists to describe them.
- Estimates of actual species richness vary from less than 5 million to as many as 80 million.
- Because of their diversity, their world-wide distribution, their ecological importance, and their impact on other life-form, the insects are placed indeed in a class of distinction.
- **They have different roles:** as plant consumers and herbivores, food source for other organisms, scavengers and detritivores (feeding on decomposing organic matter), predators and parasites feeding on other insects and keeping balance in nature.
- They also directly affect human welfare by competing with us for food (damaging crops) and transmitting diseases.
- Hence, insects affect us in different ways.
- Some are beneficial while some are harmful.

# Detrimental effects

**Less than 1 % of the known insect species are regarded as pests.**

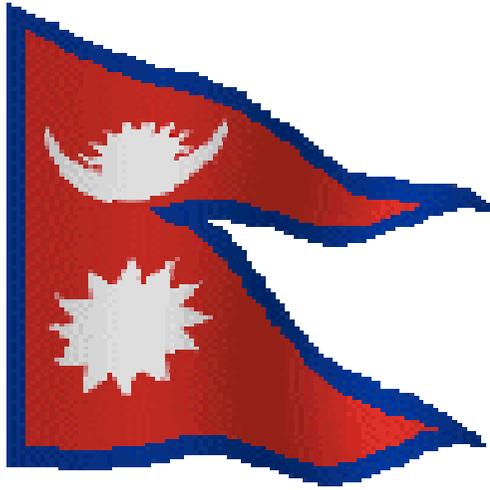
1. Destruction or spoilage of food (both fresh and stored) and crop (including forests)
2. Damage to goods-leather, paper, textile (by beetle, cockroaches, silverfish or moths), timber (by termites and different types of borers)
3. Transmits disease in plants, animals and human beings.
4. Possess venoms and cause allergies.
5. Some insects are a nuisance to our well being-house flies, ants, mosquitoes
6. Require use of pesticides and other poisons, which often harm other animals.

# Beneficial effects

Most of the insects are beneficial or have an indirect influence

- 1. Pollination:** Insect-mediated pollination is an essential step in reproduction for the majority of the world's flowering plants, including numerous cultivated plant species *i.e.* *Sunflower*, *Cucurbitaceous vegetables*, *Alfalfa*, *Coriander*, *Cardmom*, *Gingelly*, *Apple* etc. Many crops depend on pollination for seed production and fruit set to achieve good yield.
  - Globally, an estimated 35% of crop production is a result of insect pollination. It is estimated that 80% of the commercial food crops are pollinated by honey bees.
- 2. Bio control:** some parasitic and predatory insects are excellent bio-control agents for controlling other injurious insects. Example *Encarsia formosa* is an excellent bio-control agent for white flies on tomatoes and potatoes.
- 3. Insect product:** Honey, wax (from *Apis mellifera*), silk (from *Bombyx mori*), shellac (from *Laccifer lacca*) and cochineal dyes, *i.e.* red dye widely used in cosmetics, medicinal and food product (derived from scale insects, *Dactylopius coccus*)

4. **Nutrient recycling:** Insects feed on dead and decaying plants, animals and animal excreta and help in recycling the nutrients. Some insects burrow into soils and improve the soil structure and texture. Examples are dung feeders and termites.
5. **Source of food:** Over 500 species of insects are used as food by humans-usually crickets, grasshoppers, beetles, wasps, butterfly larvae, bugs etc.
6. **Scientific study:** insects are very important materials for research and study, like genetic study in *Dorsophila melanogaster*
7. **Miscellaneous:** Some insects are used for medicinal purpose, decoration, hobby, and pets.



Thank you  
for your attention

