

Do a thorough appraisal of the type "Pests of Crops" in your subject note. All the necessary drawings should be taken care of.

PESTS OF CROPS

A pest can be described as an organism whether plant or animal, which causes economic damage to crop plant, livestock, man and his possessions. They attack crops on the field as well as in the store. They may harm crops directly or introduce diseases into them. Examples of pests are insects, rodents, higher parasitic plants, etc.

Classification of Crop Pests.

Pests are classified in different ways as follows:

1. Insect Pests
2. Non-insect Pests

Insect Pests

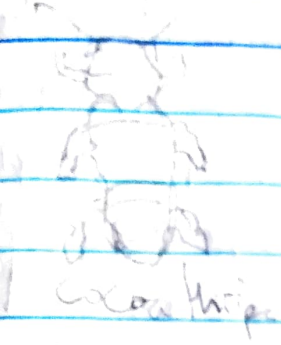
These are the most serious pests of agricultural importance, and the group includes all insects which cause damages to crops and crop products. Examples of insect pests are grasshopper, weevils, beetles, white fly, termites, crickets and locusts. They feed on crops either on the field or in the store.

Non-Insect pests.

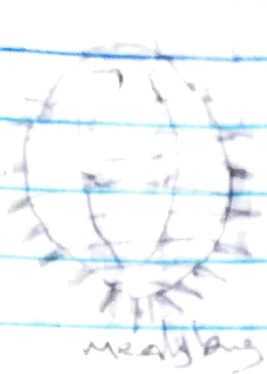
These are Organisms other than insects which attack and feed on crops. They cause a lot of damages to crops though they are not as many as insects.

insect pests. Examples of non-insect pests include rodents, giant rats, grass cutters, monkeys, porcupines and birds.

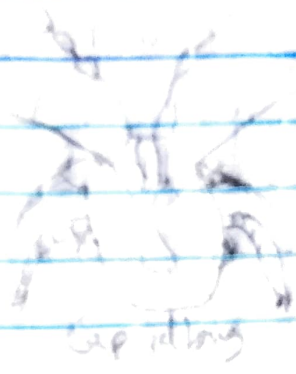
Boring Insects



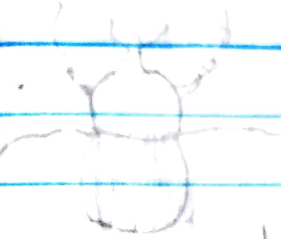
grasshopper



beetle



caterpillar



grasshopper

Classification of Insect Pests Based on Mouth Parts / Mode of Feeding

Insect pests are classified into different groups based on their mouth parts and the mode of feeding. The groups include: (a) Biting and chewing insects, (b) Piercing and sucking insects, (c) Boring insects.

(a) Biting and Chewing Insects.

This group of insects has mouth parts adapted for biting and chewing. They possess strong mandible and maxillae which they use for biting and chewing plant parts. Other parts of their mouth are labium and labrum. They consist of insect larvae or caterpillars as well as adult ones. Examples of insect with biting and chewing mouth parts are grasshoppers, crickets, locusts, mantis, beetles.

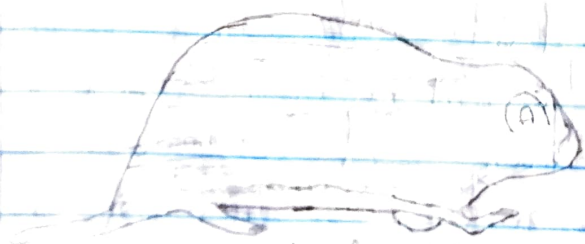
(b) Piercing and Sucking Insects.

These insects have mouth parts that have been modified to pierce the tissues of plants and suck the contents of the part of the plants they attack. They have strong mouth parts called proboscis which enables them to pierce through plants and suck liquid materials (sap) from the plant tissues. They weaken and inject poison (toxin) into the plants they attack. Examples of piercing and sucking insects are cotton stainers, Capsids, mirids, aphids, mealybugs, moths, Scale insects, white flies and butter flies.

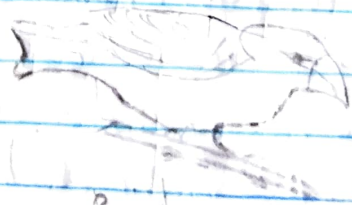
c) Boring Insects.

The insects in this group have mouth parts that are modified for boring into stems, fruits and seeds. Examples of boring insects include stem borers, maize weevils, rice weevils, bean weevils, and rhinoceros beetle of coconut palm.

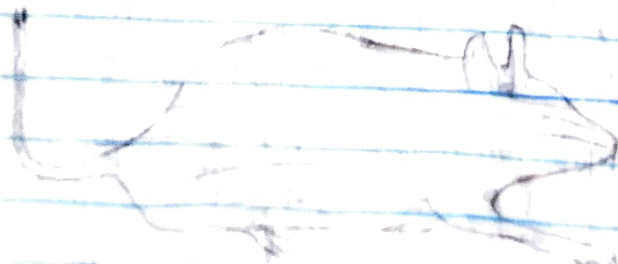
Non insect Pests.



Grasshopper of cutting grass.



Bird



Grasshopper

Name and Description of Important Insect Pests.

A. Pests of Cereal Crops.

Stem Borers: These are pests that attack all cereal crops causing damage to their stems. Stem Borer is a larvae of moth. It eats out the juices center of stem thereby damaging the growing crops. The adult female lays eggs in the axils of leaves, these later hatches into the larvae which then bore into the stem.

Army Worm: These are caterpillars (larvae of insects of the Lepidoptera order) which eat the leaves and succulent shoot of crops causing mechanical damage to the plants.

Ear worms: These are larvae of insects which bore into the ears of maize thereby eating the fresh grains.

B. Pests of Legumes.

Pod borers: These attack cowpea and other legumes with pods. The adult female which is a nocturnal moth lays eggs on leaf buds, flower buds and flowers. These hatch into larvae which feed on the tender parts of the stems, flowers and the pods. The pupa stage takes place in the soil during which time they molt into adults.

Aphids: These are small green or black flies which feed on crops by piercing and sucking fluid thereby causing distortion and stunted growth. Without making the wingless

Parasites produce more nymphs after feeding on the host plants. This is called parthenogenesis. The nymphs develop into wingless adults in about 15 days and later into winged male and female and migrate to other plants.

- ii) Leaf beetle beetles: These are small beetles that eat the fresh leaves of Cowpea and Soyabeans. They eat the leaves in patches creating different patterns on the surface.

C. Pests of Beverage Crops.

- i. Cocoa myridid Caperids: These are piercing and sucking insects which attack young cocoa shoot and introduce toxic saliva into the sap. They also transmit fungal disease.

D. Pests of Root and Tuber Crops.

- b) Yam beetle: These beetles feed on yam tubers creating holes on them. The beetles are black in color and have their breeding areas around river banks.
- c) Cassava mealy bugs: These are tropical pests of Cassava which was first observed in Nigeria in 1979. The pest is a piercing and sucking insect which attacks young shoot. The shoot becomes stunted and develops knobby tops. The leaves of the shoot die off. The stem is twisted. In the final stage is a canker stick appearance of the plant.
- ii) Cassava green aphid: This insect is green in color at a young age, turning yellow later. They live on the under surface of Cassava leaves. They attack the young shoots of the crop. The very young leaves become small

and spring while the already expanded leaves show various degrees of yellowish spotting.

§ Pests of Fibre Crops.

Cotton stainer: These are small reddish insects which attack the opening cotton bolls. They do it by sucking and feeding on the unripe cotton seeds. The excreta passed out during the feeding stains the cotton lint, giving it yellow coloration. They also transmit viral diseases. They have some crops. They have some crops as alternative host, and these includeokra, mizer and tomato.

Boll worms: These are larvae of certain moths. They eat into the succulent buds and damage them. This leads to premature boll dropping and subsequently yield reduction.

§ Pests of Fruits and Vegetables.

Thrips: These are very small slender with black to dark brown colour. Both the nymphs and the adults feed by pierce and piercing into and sucking out the juice from the soft tissues of crops like tomato and onion. They cause wilting of leaves, wilting of plants and reduction of yield.

Variegated Grasshopper: These are biting and chewing insects whose adults and larvae eat up the leaves and stems of plants. The female lay eggs on the under-side of leaves. These eggs hatch into nymphs. The nymph feeds on leaves of plants until they grow into adult stage. They attack cereals, banana and Yam.

Scale Insects: These belong to the family of insects called Homoptera. They are piercing and sucking insects and attack crops such as Cashew nut etc. The insects about 1mm in size

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any case, such a quantity of animal products
is not for feeding
Crop pests can cause total death of crop

Revised Code

Abdullah

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These two crops are then also divided at the
midpoint of the second and at the end of every
distance of 100 feet and distance. The length of the
distance points are divided and the resulting distance
is 100 feet.

Constitutional History

- This involves the use of farm machinery to perform or control tasks especially those held by the operator.
- Use of post harvest operation of crops.
- Use of insect traps.
- Harvesting of crops.
- Appropriate tillage operations such as ploughing, harrowing and ridging.
- Timely planting of crops.

- vii. Hand picking and destruction of insects.
- viii. Timely harvesting.
- ix. Regular weeding.
- x. Farm sanitation practices.
- xi. Close-season practices especially in cotton production.

D. Biological Method.

This is the introduction of natural enemies of pests to control/keep the pest population under control. Such enemies may feed on the pest; hinder their feeding or their reproductive activities. The natural enemies can be predators or parasites. The only drawback is that the natural enemies may also cause damages to crop plants.

E. Chemical method.

This is the use of chemical agents called pesticides to control pests of ^{crop} plants. Chemicals that are used to control pests are classified according to the pest they control. They include:

- i) Insecticides - Used for general control of insects like grasshoppers and termites.
- ii) Rodenticides - For general control of rodents like rats and giant rats.
- iii) Avicides - For general control of birds such as weaver birds.
- iv) Nematocides - For general control of nematodes.
- v) Ovicides - Used for general control of eggs of insects.
- vi) Miticides - For general control of mites.

Group	Made of Action.
Powder	Contact with pest
Liquid	Systemic poisoning, inhalation, or absorption
Granules/tables	Stomach poisoning
Gaseous	Respiratory poisoning by fumigation.

Side Effects of Various Preventive and Control measures.

The use of various methods of pest control has some notable side effects. Their short comings are highlighted below.

Physical Control methods measures.

It is time consuming.

Not all pests can be picked by hands.

Biological Control Measures.

They may feed on other beneficial organisms.

They cause imbalance in the ecosystem.

Cultural Control measures.

Constant weeding and clearing may expose the farmland to erosion problem.

Fire may spread to other farms.

Chemical Control Measures.

Some chemicals may be toxic to man and domestic animals.

Some of the chemicals leave undesirable residue which can cause pollution.