Do a thorough appraisal of the topic "Pest of Crops in your subject not. All the nessary drawings should be taken care of.

PESTS of Crops

What is a Pests

A pest can be described as an organism, whether Plant or animal, which causes economic damage to crop Plants, livestock, man and his possessions. They attacks crops on the Field as well as in the Store They may harm crops directly or introduce diseases into them.

Classification of Crop Pests

Pests are Classified in different ways as Follows.

1 Inset Pests

2 Non - insect Pests

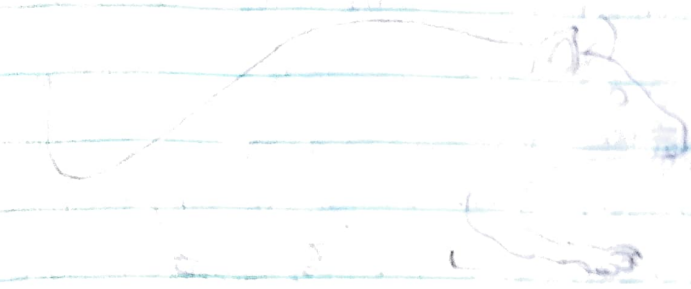
Insect Pests

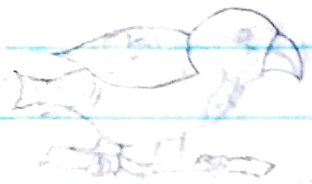
These are the most serious pests of agricultural importance, and the group includes all insects which Cause damages to crops and crop Products. Examples of insect Pests are grass hopper, weevils, beetles, white flies, termites, Crickets and locusts.

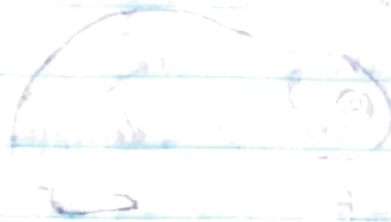
They feed on crops either on the Field or in the store.

Non - insect Pests

These are organisms other than insects which attacks and feed on crops. They Cause a lot of damages to crops though they are not as many as insect Pests. Examples of non-insect Pests include rodents like giant rate, grass Cutter, monkeys, nematodes and birds.







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) Borning 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 insects with biting and chewing mouth Parts are grass hoppers, crickets, locusts,

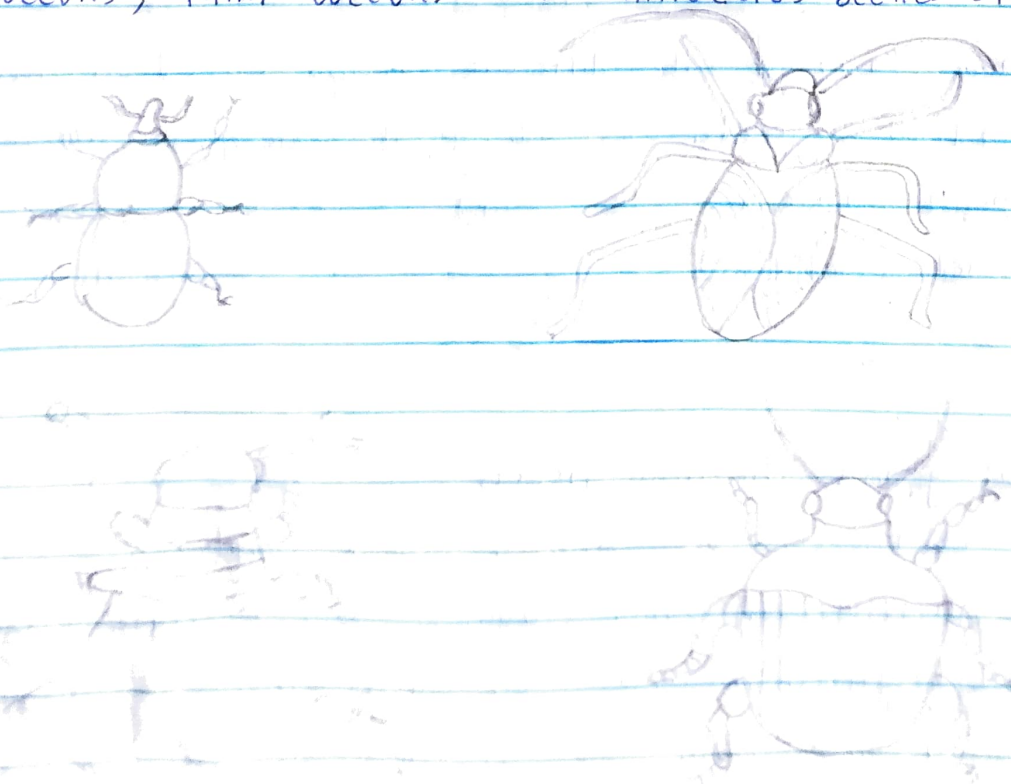
~~Mantis~~ mantis, termites, leaf worm, army worms and yam beetles.

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 part called proboscis ~~with~~ which enables them to pierce through plants and suck liquid materials (sap) from the plant tissues. They weaken and inject poision (toxin) into the plants they attack. Examples of piercing and sucking insects are cotton strainers, capsids, mirids, aphids, mealy bugs, mouths, scale insects, white flies and butter flies.

c ~~Born~~ 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~~ bean weevils, palm weevils and rhinoceros beetle of coconut plam.



Cocoa thrips

mealy bug

Yam beetle

Name and Description of Important Insect Pests

A Pests of ~~Crea~~ Cereal c Crops

Stem Borers: These are Pests that attack all Cereal Crops causing Causing damage to their stems. stem borer is a larvae of mouth. 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 shoots 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.

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 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

mating, the wingless females Produce live nymphs after feeding on the host plants. This is called Parthenogenesis. The nymphs develop into wingless adult in ~~about~~ about 15 days and later into winged male and femals and migrate to other Plants.

ii) Leaf beetles: These are small beetles that eat the fresh leaves of Cowpea and Soybeans. They eat up the leaves in patches creating different Pattern on the surface.

c Pests of Beverage Crops

i) Cocoa myrids / Capsids: 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

i) Yam beetle: These beetles feed on yam tubers creating holes on them. The beetles are blacks in color and have their breeding areas around river banks.

ii) 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 ~~be~~ becomes ~~stan~~ stunted and develops bunchy tops. The leaves of the shoot die off, the stem is twisted while the final stage is a candle stick appearance of the Plant.

iii) Cassava green spider mite: The mite is green in color at a young age, ~~turn~~ turning yellow later. They live on the under-surface of Cassava leaves. They attacks the young shoots of the crops. The very young leaves remain small and sping while the already expanded leaves show various leaves remain small and sping while the already expanded leaves show various deg

E Pests of Fibre Crops

i) Cotton Stainer: These are small reddish insects which attack the opening cotton balls. They do it by sucking and feeding on the unripe cotton seeds. The excreta passed out during the feeding stains the cotton lints, giving it yellow coloration. They also transmit viral diseases. They have some crops as alternative host, and these include okra, maize and tomato.

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

F Pests of fruits and vegetables

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

ii) Variegated grass hoppers: These are biting and chewing insects whose adults and larvae eat up the leaves and stems of plants. The female lays eggs on the under-side of leaves. These eggs hatch into nymphs. The nymphs feed on leaves of plants until they grow into adult stage. They attack cereals, cassava and yam.

iii. Scale insects: These belong to the family of insects called Hemiptera. They are piercing and sucking insects, and attacks crops such as cashew and citrus. The insects also transmit virus disease.

iv) Leaf rollers: These attack vegetables, causing rolling and twisting of leaves. They reduce photosynthetic activities.

v) Leaf beetles. These eat up the leaves and stems of vegetable crops such as pepper, okra, and tomato. They reduce photosynthe

and yield of Crops.

Pests of Stored Produce

i) Weevils: These attacks grains in the store. The adult of these weevils lay eggs in the grains while still growing in the field. After harvesting and the grains ~~kept in~~ kept in the store, their larvae emerge and start to feed on the ~~gra~~ grain ~~cot~~ Cotyledon. This reduces the value of the seed both for food and for sale.

ii) ~~Bet~~ Beetles: These attacks legumes and tubers in the store. They eat up the leaves of plants, it characterize by a pair of ~~hard~~ hard shell-like front wing which covers and protect a pair of rear wings. They bore holes in grains and eat them up, reduces viability of infested grains, reduce the market quality and low income to farmer.

PREVENTIVE AND CONTROL MEASURES OF CROP PESTS

Effects / Economic Importance of Pests

1. Insect Pests destroy crops in the field through their biting, chewing
* boring, sucking and defoliation activities.
* They reduce the quality and yield of crops either on the field
* or in the store.
* They increase cost of production during the cause of controlling
* them.

Vegetables and Fruits are rendered unattractive and unmarketable

They cause reduction in viability of stored produce meant for planting.

spots of injuries may predispose crops to disease attack.

In order to reduce the damage done to crops by pests, there is the need for prevention and control.

Physical method

A This methods involves physical removal of Pests by means.

i) Fencing round the farm with wire nets.

ii) Setting ~~tap~~ traps to catch rodents and other animal Pests.

iii) Shooting rodents and other animal ~~Pes~~ Pests ~~with~~ with gun.

iv) Hand-Picking of insects and larvae.

v) Use of scare crow to chase birds

B Quarantine method

When new crop~~s~~ varieties are introduced into the country, they are quarantined at the point of entry and screened for Pests and diseases. Through this process, foreign Pests are prevented from being introduced into the country.

C Cultural method

This involves the use of farm Practices (Operations) to prevent or control pests especially on the field by;

i Crop rotation

ii Use of Pest resistant varieties of Crops

iii Use of insect traps

iv Burning of Crop residues

v Appropriate tillage operations such as ploughing, harrowing and ridging

vi Timely Planting of Crops

vii Hand Picking and destruction of insects

viii ~~T~~ Timely harvesting

ix Regular weeding

x Farm Sanitation Practices.

Biological method

This is the introduction of natural enemies of Pests to control

on the Pest, hider their feeding or their reproductive activities. The natural enemies can be Predators or parasites. The only disadvantage is that the natural enemies may also cause damages to Crops Plants.

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. These include;

i) Insecticides - used for general control of insects. e.g grasshoppers
ii) Rodenticides - For general control of rodents like rats and giant rats.
iii) Avicides - for general control of birds such as weaver birds.
iv) Nematicides - For general control of nematodes
v) ovicides - used for general control of eggs of insects
vi Miticides - for general control of mites

Classification / forms of Insecticides

Insecticides are divided into four groups as follows

Group	Mode of Action
Powder	Contact with Pest
Liquid	systemic Poisoning ie inhalation or absorption
Granules/tablets	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 Measures

i) It is time consuming.

ii) Not all pests can be picked by hands.

Biological Control Measures

i) The newly introduced natural enemy may have its Population shoot up, and beign to attack crops when all pests have been killed.

ii) They may feed on other beneficial organisms

iii) They cause imbalance in the ecosystem.

C Cultural Control Measures

i Constant weeding and clearing may expose the ~~Farm~~ farm Land to erosion Problem.

ii) Beneficial organisms may be destroyed together with harmful Pest during burning.

iii Bush burning may cause loss of organic matter from the Soil.

iv Fire may spread to other farms.

v Resistance varieties of Crops may become adapted to the environment.

D Chemical Control Measures

i Some beneficial insects ~~at~~ and Soil organisms may be destroyed in the Process of chemical application.

ii Some Chemicals may be toxic to man and domestic animals.

iii Some of the Chemicals leave undesirable residue which

Can Cause Pollution-

~~Continuous~~ Continuous use ~~of chemicals~~ leave undesirable residue which can cause

Continuous use of chemical on pests leads to the ~~could be a source of~~ ~~Poisonous~~ development of resistance to the chemical.