

SUBJECT: AGRICULTURAL SCIENCE

CLASS: S S 2

WEEK: 9 AND 10

TOPIC: PEST OF CROPS

### PESTS OF CROPS

A pest can be described as any organisms capable of causing damage to crop plant. OR They are those organisms that cause damages to crops livestock, humans, or land fertility.

### CLASSIFICATION OF PESTS

Pest can be classified into two main categories namely;

- Insect pests (invertebrates)
- Non-insect pests.

Insects' pests are those insects that feed on crops produce thereby damaging the crops.

Non- insect pests are those organisms which are not plants e.g. rodents, monkeys, etc.

### CLASSIFICATION OF INSECTS PESTS BASED ON MOUTH PARTS

Based on mouth parts, insects pests can be categorize into three namely;

- (1) Biting and chewing insects
- (2) Piercing and sucking insects
- (3) Boring insects.

**BITING AND CHEWING INSECTS:** These insects' pests possess strong mandible and maxillae (mouth parts) which enables them to bite and chew plant parts e.g. termites grasshoppers, crickets, leaf worms tiny worms, mantids locusts, beetles etc.

**PIERCING AND SUCKING INSECTS:** They possess strong mouth parts called proboscis which enable them to pierce through plants and suck liquid materials from plant tissues e.g. aphids, cotton strainers, mealy bugs, scale insects, capsids or mirids, white flies, butterfly or moth etc.

**BURROWING INSECTS PESTS:** These insects including their larvae are capable of boring (burrowing) into plants parts and destroying the tissues of the plants or fruits or seeds e.g. stem burrower, maize weevils and rice weevils, yam beetle ,cowpea beetle or beans weevils,caterpillar.

### EFFECTS OR ECONOMICS IMPORTANCE OF INSECTS PESTS IN CROP PRODUCTION

1. They destroy crops in the field through their biting, chewing, boring, sucking and defoliation activities.

2. They cause reduction in viability of stored produce.
3. They reduce crop yield generally.
4. They render vegetables and fruits unattractive and unmarketable.
5. They increase the cost of production.
6. They can also cause the total death of crop plants.
7. Some are carriers or vectors of diseases....

#### PREVENTION AND CONTROL OF PESTS

1. Physical control
2. Biological control
3. Cultural control
4. Chemical control

**PHYSICAL CONTROL:** This involves the physical removal of pests by:

Handpicking, fencing round the farm with more nets, setting traps to catch rodents, shooting rodents with guns.

**CULTURAL CONTROL:** This method involves the use of farm practices to prevent or control pests especially on the field e.g. practicing crop rotation.

- Use of pest resistant varieties of crops
- Appropriate tillage operations
- Use of insect traps
- Handpicking or destruction of insects
- Burning crop residues
- Timely planting of crops etc

**BIOLOGICAL CONTROL:** This involves the introduction of the natural enemies of pest to control or keep the pest population under control. Such enemies eat up or feed on these pests thereby reducing the population of the pests.

**CHEMICAL CONTROL:** This involves the use of chemicals called insecticides or pesticides to control pest of crop plants.

Notes: An insecticides is a chemical preparation used to control insect pests.

Examples of chemicals used to control insect pests are:

- i. Insecticides: chemicals used to control insects e.g. grasshopper
- ii. Pesticides: chemical used to control pests
- iii. Rodenticides: chemicals used to control rodents e.g. rats
- iv. Avicides: chemicals used to control birds e.g. weaver birds
- v. Nematicides : chemicals used to control nematodes e.g. eel worms

#### SIDE EFFECTS OF THE VARIOUS PREVENTIVE AND CONTROL METHODS OF DISEASES AND PESTS OF CROPS

##### CHEMICAL METHOD OF CONTROL

- Some beneficial insects and soil organisms may be destroyed
- The chemical used may be toxic to man and domestic animals
- It may leave undesirable residue in the environment

- Pest and diseases may develop resistance to chemicals.

BIOLOGICAL METHOD OF CONTROL

- The predators expected to control others may rather feed on other beneficial insects.
- The activities may cause serious imbalance in the ecosystem
- The new organism introduced may start attacking crops which were originally free from attack.

CULTURAL METHOD OF CONTROL

- If care is not taken, fire may spread to other farms
- The use of fire to kill harmful pests may also result in the destruction of other beneficial organisms
- Resistant varieties may become adapted to the environment so that the resistance is short-lived where fire is used.
- The use of fire may cause the destruction and loss of organic matter from the soil.

IMPORTANT PESTS OF MAJOR CROPS

INSECT PESTS	CROPS ATTACKED	NATURE OF DAMAGE AND ECONOMIC IMPORTANCE	PREVENTION AND CONTROL MEASURES
Stem burrower	Cereals e.g. rice ,maize, guinea corn	Reduced growth and yield, they weaken the plants, they eat up the tissues and larvae bore holes into stems.	Crop rotation, uproot and burn infected plants, spray with insecticides. Early planting.
Pod burrower	Legumes e.g. cowpea, soybeans.	Reduced yield, they eat up the seeds, larvae bore into the pods, introduce diseases.	Crop rotation, early harvesting, spray with insecticides.
Aphids	Legumes e.g. cowpea, soybeans.	Stunted growth, galls on leaves, vectors of diseases.	Spray with insecticides, to kill vectors, uproots and burn infected plants.
Yam beetles	Tubers e.g. yam	Bore holes into yam tubers, reduction in yield, reduction in quality and market values.	Dust yam setts with ADREX dust before planting, crop rotation.
Cassava mealy bugs	Tubers e.g. cassava	Reduced yield, twisting of stems and reduce internodes, swelling of shoots.	Early planting, cutting treatment, use of resistant varieties, spray with insecticides.
Varigated	Tubers e.g.	Adults and larvae eat	Hand picking, spray

grasshopper	cassava, yam	up the leaves and stems, reduced yield, reduced growth, reduced the rate of photosynthesis	with insecticides e.g. Arex 40.
Cotton strainer	Cotton	Transmit diseases, reduces quality of balls, leaf distortion, they pierce and suck sap from plants.	Hand picking, spray with insecticides.
Thrips	Vegetables e.g. onion, tomato	Browning of leaves, wilting of plants, reduced yield.	Spray with insecticides
Birds	Rice, maize millets, sorghum	Feed on grains in the field, reduction of quality and yield, reduction of income of farmers.	Use of bird scare or scare crows, use of avicides, shooting with catapult, use of cage traps with bait, fencing.
Rodents e.g. bush, rabbits, rats, squirrel	Rice, yam, cassava, fruits	They feed on crops, reduced of yield, destroy whole plants, and increase the cost of production.	Use of pit traps .trapping with baits, use of rodenticides, wire traps, shooting and fencing.

#### ASSIGNMENT

(1)State the effects of cotton strainers, bollworms, and cocoa myrids in crop plants.

