A LEVEL AGRICEULTURE PAPER 3

- **Aphids**, **piercing and sucking pests**; these pierce crop tissue and suck fluids. E.gThrips, aphids, scaly insects, mealy bugs, cotton stainerseed bugs, cotton leaf hoppers,

Describe the mouth parts of each specimens

- Has Pointed stylet, needle like mouth part
- Aphids has piercing sytlets for sucking sap from crops
- Has dull colour for comflouge
- Small in size to increase surface area for food absorption
- Has wings for flight from predators

Effects of sucking pests on crops

- Transmit pathogens to crops
- Inject toxic saliva into crops affecting growth
- Create entry points for pathogens into crops
- Suck sap from crops causing wilting and stunted growth

- **Worker termite,**

- These have strong mouth parts that they use to bite and chew crop parts. Examples are termites,crikets grass hoppers, locusts, caterpillars, rodents, weevils, bean bruchids, e.t.c
- Has Pair of jaw like mouth parts/pair of cutting mandibles/pair of strong mandibles pair of cutting mandibles/strong mandibles/pair of saw-like mouth parts)

- **Describingthe damage caused by each specimen on crops or crop production.**

termite

- ✓ Cut/eat plant tissues/stems/roots reducing yields
- ✓ Eat products in store reducing yields
- ✓ Reduce crop quality
- ✓ Causes wounds on plants that act as entry point for pathogens

aphid

- ✓ Sucking plant sap/juices leading to wilting
- ✓ Introduction of toxic saliva in plants
- ✓ Transmits disease causing organisms in plants especially viruses
- ✓ Reduction in quantity of crop yields.
- ✓ Defoliation/leaf fall lowering the rate of photosynthesis

- **Give one method of controlling each specimen**.

termites

- ✓ Dig the anthill, remove and kill the queen.
- ✓ Apply termicides in the anthill to kill the termites and the queen.

aphids

- ✓ Spraying with recommended insecticide/pesticide
- ✓ Cultural methods e.g. crop rotation, proper spacing, timely planting, close spacing in g/nuts**)**

- **Give four reasons why the termites and aphids are very successful in their mode of life**.

- ✓ High mobility to search for food
- ✓ Small size not to be easily seen
- ✓ Highly prolific (producing at high rate)
- ✓ Camouflage to avoid enemies
- ✓ Feeding on a variety of food
- ✓ High ability to locate food

- **Effects of pests on crops**.
    - ✓ Eat planted seeds in soil reducing viability
    - ✓ Eat crop roots causing plants to fall or wilt
    - ✓ Eat crop leaves reducing photosynthetic capacity of crops
    - ✓ Tunnel through stems weakening it
    - ✓ Make holes in root tubers leading to rotting
    - ✓ Suck crop sap leading to wilting
    - ✓ Can eat crops completely
    - ✓ Can transmit crop diseases
    - ✓ Eat crop flowers causing low yield
    - ✓ Bore into fruits and causes rotting
    - ✓ Scratch fruits reducing their quality

- **Indirect effects of pests in crop production**
  - ✓ Cause famine and suffering to humans by destroying food crops
  - ✓ Increase costs of production in agriculture through buying pesticides
  - ✓ Cause stunted growth in crops
  - ✓ Reduce quality of crop products affecting prices
  - ✓ Cause annoyance to farmers
  - ✓ Can cause poverty to farmers
  - ✓ Chemical control of pests can cause environmental pollution
  - ✓ Some new pest species can come up when chemicals are used to control pests
- **Cultural pest control**
  - ✓ Using planting materials that are free from pests to control spread and establishment
  - ✓ Removal of infected crops from the garden to minimize spread of pests
  - ✓ Practicing crop rotation that breaks the life cycle of pests
  - ✓ Planting crops on time so that they can escape pests that come late in the season
  - ✓ Timely harvesting which reduces pest damage to crop products
  - ✓ Planting pest resistant varieties of crops. Resistance can be pseudo or real.
  - ✓ Use of trap crops that help in eliminating the pests
  - ✓ Practicing close seasoning where community can be easily mobilized
- **Drenching gun**

- ✓ It is used to administer oral treatment to animals to control internal parasites like liver flukes, round worms, tape worms, hook worms.

Features of drenching gun

- ✓ Has nozzle for passage of the drug
- ✓ Has calibrated container for storage of the drug
- ✓ Has a handle for firm grip
- ✓ Has a trigger for exerting pressure to the drug

- **Describe the procedure followed when using drenching gun.**

✓ Restrain the animal
✓ The head of animal is leftedsothat the mouth is raised to avoid medicin to flow it
✓ Fingers are inserted in one side of the mouth just behind the dental part and the thump is placed of the noise.
✓ The mouth of the bottle or delivery tube of the drenching is inserted into the calfs mouth
✓ The medicine is than poured in the mouth slowly and steadly as the animal swallows it.

Burdizzo

Describe the procedure how the burdizzo is used for castration.

✓ Restrain the animal using ropes and cast it down.
✓ Pull the scrotum down wards to locate the spermatic cords, ducts and nerves
✓ Open the jaws of the burdizzo by pressing the handles out-wards
✓ Place the burdizzo at the "neck" of the scrotum
✓ Press the handles of the burdizzo in-wards to lock the jaws and crush the spermatic cords, blood vessels and the nerves.
✓ Open the jaws of the burdizzo and remove it from the crushed area
✓ Release the animal (Oxen) after the operation
✓ Keep the animal within reach for easy supervision

- **Identify the features on the burdizzo that enable it to perform its function**

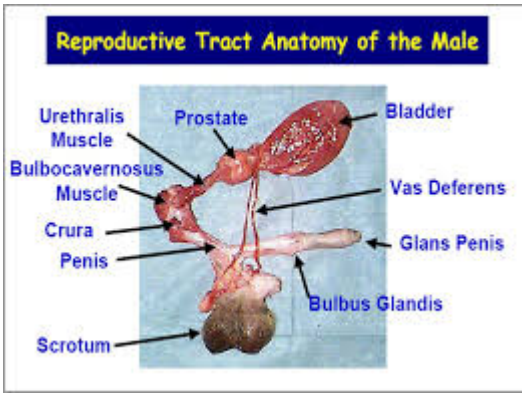
✓ Has blunt jaw used to crush spermatic cord?
✓ Has handles for holding/firm grip
✓ Has a joint for easy flexibility.
✓ Its coated with steel to prevent rusting

- **Dehorning iron**
  - ✓ Dehorning iron is heated until it is red hot and pressed on the horn bud.

Procedure of Dehorning iron

- ✓ Restrain the animal in a crush
- ✓ Heat the Dehorning iron in fire or gas until red hot
- ✓ Hot ron tip is pressed on top of the horn sothat the horn bud or tissue are burnt including the vessels to avoid any further growth.
- ✓ Release the animal from the crush

- **Reproductive system of a male animal**



- **Scrotum.**
  - ✓ It is a double sac containing the testes which is a pouch formed by the weight of the testes.
  - ✓ It supports the testes.
  - ✓ It regulates and maintains the temperature suitable for the testes to produce sperms below normal body temperature.
  - ✓ It protects the testes**.**
- **Testes.**
  - ✓ The testes produce male sex hormones (androgens) mainly testosterone, therefore, the testes perform cytogenic(cell producing) and endocrine(hormone secreting) functions.
- **Epididymis.**
  - ✓ it stores the sperms and allows them to mature further before ejaculation**.**
- **Sperm duct(vas deferens).**
  - ✓ It channels the spermatozoa from the epididymis to the urethra**.**
- **seminal vesicles**
  - ✓ They secrete seminal fluids that mix with spermatozoa to form semen.

- ✓ The fluids secreted include fructose that act as source of energy for the sperm cells.

➢ **Cowper's glands**

- ✓ They secrete bulbo-urethra for cleaning the urethra free of urine and to lubricate the semen.

➢ **The seminal fluids have the following functions**.

- ✓ They provide energy to sperms
- ✓ They dilute the sperms
- ✓ They protect sperms against any toxic substances.
- ✓ They provide a medium for nutrition of sperms

✓ **Penis**.

- ✓ It is a spongy erectile tissue that become filled with blood during erection.
- ✓ It is used for mating and urination.

➢ **Bean seeds of varying sizes and colour mixed with foreign materials.**

➢ **Qualities for good seeds for planting**.

- ✓ The seeds be free from pests and diseases
- ✓ They should be free from mechanical damage.
- ✓ They should have correct moisture content
- ✓ They be fertilized i.e. it must have gone through pollination process
- ✓ They have good size, to have good food reserve
- ✓ They should be clean i.e. free from contamination by weeds, soil
- ✓ They should be plumb and well filled.

➢ **Banana sucker with some soil on the roots**

Describe how the banana sucker is planted

- ✓ Remove perennial weeds
- ✓ Make holes 60cm deep and 60cm wide
- ✓ Place some manure e.g farm yard in the hole
- ✓ Add phosphate fertilizer to improve on rooting and rhizome establishment.
- ✓ Planting is done at the beginning of the rain
- ✓ Place the suckers in the holes and fill up with top soil.

- ➢ **A whole pineapple plant with a fruit, sucker, slip and crown**

Blood meal

- ➢ **Minerals supplied to poultry**
- ✓ Iron
- ✓ Phosphorus
- ✓ Calcium
- ✓ Zinc
- ✓ proteins
- ➢ **How blood meal is made for poultry feed,**
- ✓ blood should be collected from abattoirs.
- ✓ It is then boiled while stirring constantly to reduce moisture content.
- ✓ it should be spread on a clean surface and allowed to sun-dry or oven-dry
- ✓ it is mixed with other feeds and fed to poultry.

- **molasses**

- **How molasses is made**

✓ the sugar cane is crushed and the juice is extracted.
✓ The juice is then boiled to form sugar crystals and removed from the liquid.
✓ The thick, brown syrup left after removing the sugar from the juice is molasses.
✓ This process is repeated several times to produce a different type of molasses each time.

- **Molasses is a good source of**

✓ iron,
✓ selenium,
✓ copper,
✓ calcium

- **mineral lick**

Nutrients supplied

✓ calcium
✓ phosphorus
✓ potassium
✓ iodine
✓ sodium
✓ iron
✓ zinc

- **Function of minerals in the body of animals**

✓ They are constituents of tissues such as blood, bones and teeth.
✓ They take part in speeding up chemical reactions within the body by acting as co-enzymes.

- ✓ They regulate the osmotic properties of body fluids e.g. blood.
- ✓ They serve as components of enzymes and hormones.
- ✓ They are components of animal products.
- ✓ They are components of certain pigments in the body e.g. iron in hemoglobin, copper in melanin

- **Rhode grass**

- Urea fertilizer

Advantages of using urea

- ✓ Has high nitrogen content
- ✓ The cost of urea production is low
- ✓ Wide application, urea can be applied to all types of crops and soil

- Disadvantages of using urea
  - ✓ It is very soluble in water and hygroscopic water,
  - ✓ it reguires better storage
  - ✓ it requires skill labour to apply
- urea should be applied at the time of planting, broadcasting.

- **Green leaf Desmodium**

What observable features make Green leaf desmodium and Rhodes grasssuccessful in their habitats?

Green leaf Desmodium

- ✓ Hairy leaves that prevent being grazed on
- ✓ Fibrous roots for water and nutrient absorption
- ✓ Large leaves for photosynthesis
- ✓ Succulent stems and leaves to prevent drying
- ✓ Seeds for propagation
- ✓ Stems with nodes and buds that grow into new plants

Rhodes grass;

- ✓ Viable numerous seeds for propagation
- ✓ Fibrous roots for water and nutrient absorption
- ✓ Numerous leaves for photosynthesis
- ✓ Many tillers for propagation
- ✓ Narrow leaves to minimize water loss.

Classify the specimens into two named groups / broad families, giving reasons for your classification in each case.

Specimen	**Crop family / group**	**Characteristics/reasons.**
Green leaf desmodium	-Leguminaceae (Legume family)	-Network venation. –Broad leaves. -Tap root system. -Pods with seeds. -Root nodules
Rhode grass	-Gramineae (Grass family)	-Parallel venation. –Narrow leaves. -Fibrous root system. –Seeds in form of grains

END