**AGRICULTURAL SCIENCE JSS 1**

**SECOND TERM**

## SCHEME OF WORK

**WEEK TOPIC**

1. Revision
2. Farm Animals I (meaning, identification and types)
3. Farm Animals II (Criteria for classifying farm animals and classes)
4. Characteristics of selected farm Animals

5. Characteristics of Farm Animals (Contd)

6. Importance of Farm Animals

7 Weeds: Meaning of weeds, Common farm weeds, characteristics of weeds

8. Pest: Meaning of Pests, Classification of pests

9. Weeds and Pest Control

10. Revision

11. Examinations

**REFERENCE BOOKS**

1. Essential Agricultural science for senior secondary schools by O. A. Iwena
2. WABP Junior Secondary Agriculture for Nigerian Schools, Book 1, by A. Youdeowei et al.

**WEEK ONE**

**TOPIC: REVISION OF LAST TERM’S WORK**

**CONTENT**

* Answers to last term’s objective questions
* Answers to last term’s theory questions

**WEEK TWO**

TOPIC: FARM ANIMALS (identification and types)

Content

Farm animals are animals that have been domesticated and are raised by humans for various purposes. They are collectively referred to as livestock and serve as a valuable resource in agriculture. Examples of farm animals include cattle, sheep, goats, poultry, rabbits, camels, horses, donkeys, grass cutters, fish, snails, and more.

Types of Farm Animals

Farm animals exhibit diverse characteristics and are utilized for different purposes based on their unique traits. They can be categorized into various groups:

1. Mammals: Mammals are animals that typically have fur, wool, or hair and feed their young with milk. Examples of mammals among farm animals include rabbits, cattle, sheep, and goats.

2. Birds (Poultry): Birds, or poultry animals, possess feathers and beaks adapted for feeding. Common examples in this category are chickens, ducks, geese, and quails.

3. Fish: Fish are aquatic animals with scales and gills for respiration. They primarily inhabit water bodies. Farm-raised fish include mackerel, horse mackerel, herring, tilapia, blue whiting, hake, alaska pollock, argentina silus, and catfish.

4. Invertebrates: Invertebrates lack a backbone and include creatures like snails and insects. Among farm animals, snails and certain insects, such as bees, are relevant.

Each type of farm animal possesses distinct features, scientific classifications, and breeds. Below, we provide details about some commonly raised farm animals.

Evaluation

1. What is the definition of farm animals?

2. List three types of farm animals and provide examples for each.

Cattle (Bos spp):

Cattle are hoofed mammals that can be further categorized as humped (Bos indicus) or humpless (Bos taurus). They may have horns or be polled (hornless). Breeds of cattle include Sokoto Gudali, Keteku, Red Bororo, N'dama, Muturu, White Fulani, and more.

Goat (Capra hircus):

Goats are hoofed mammals characterized by both male and female animals having horns. Male goats possess beards and emit a distinctive odor. Goat breeds include Sokoto Red, Angora, West African Dwarf, and Kano Brown, among others.

Sheep (Ovis aries):

Sheep are hoofed mammals closely resembling goats, even in their vocalization (bleat). However, sheep are distinguished by the presence of wool on their bodies. They can be polled or horned, but females typically do not have horns. Sheep breeds include Ouda, Yankasa, Balami, and more.

Pig (Sus domesticus):

Pigs are mammals with modified noses that form snouts with two holes. They are highly prolific animals and lack sweat pores. Pigs are often seen wallowing in mud to regulate their body temperature when raised extensively. Pig breeds encompass Duroc, Yorkshire, Berkshire, Poland China, Large White, and others.

Chicken (Gallus domesticus):

Chickens are birds characterized by beaks designed for feeding, long toes with claws for scavenging, and feathered bodies. Breeds of chickens include Cornish, Sussex, Barred Plymouth Rock, Rhode Island Red, and more.

Rabbit (Oryctolagus cuniculus):

Rabbits are small farm animals covered in fur and possess a highly developed sense of smell. They are sometimes referred to as pseudo-ruminants because, despite primarily consuming concentrates, they can digest grasses. Rabbit breeds include Chinchilla, Flemish Giant, French Giant, and others.

Please note that the term "breed" refers to a specific group of animals within the same species that share distinctive characteristics, which may include fur or skin color patterns, behavior, or abilities.

The distribution and success of these farm animals are influenced by factors such as pest and disease prevalence, regional climate conditions, including rainfall patterns and water availability, cultural beliefs, religious practices, and the availability of suitable food sources.

General Evaluation

1. Mention three breeds of goats.

2. Define the term "breed" in animal husbandry.

3. What is the overarching category for animals raised by humans for various purposes?

4. Provide the scientific names for sheep, pigs, and rabbits.

Weekend Assignment

1. Animals that possess fur, hair, or wool on their bodies are known as \_\_\_\_\_\_.

A. Fishes

B. Rabbits

C. Mammals

D. Insects

2. Polled cattle are cattle that \_\_\_\_\_\_.

A. Are humpless

B. Have humps

C. Have horns

D. Do not have horns

3. "Bos indicus" is the scientific name of \_\_\_\_\_\_.

A. Rabbit

B. Humped cattle

C. Humpless cattle

D. Horned goat

4. Which of the following is the odd one out?

A. Duroc

B. Sussex

C. Flemish Giant

D. Muturu

5. Which of the following does not significantly affect the production and distribution of farm animals?

A. Rainfall distribution

B. Light

C. Religion

D. Availability of food

Theory

1. What is the definition of a farm animal?

2. What is the term used to refer to the meat obtained from (A) goat, (B) cattle, (C) pig, and (D)sheep?

**WEEK THREE**

TOPIC: FARM ANIMALS II

Content

Animal husbandry is the science of breeding and tending to farm animals, collectively known as livestock. These animals can be categorized into five distinct classes based on specific criteria. The classification criteria include size, habitat, reproduction pattern, stomach type, and their intended uses or purposes.

Classification of Animals Based on Size:

This criterion classifies animals based on their physical size, distinguishing between large and small farm animals:

1. Large Farm Animals: Examples include horses, cattle, camels, and donkeys.

2. Small Farm Animals: This category encompasses animals like rabbits, snails, goats, sheep, pigs, and chickens.

Classification of Animals Based on Habitat:

Animals can be categorized based on their natural habitats, differentiating between terrestrial and aquatic animals:

1. Terrestrial Animals: These animals inhabit and adapt to life on land, such as goats, chickens, and rabbits.

2. Aquatic Animals: This group includes animals that live in water, like various fish species.

Classification of Animals Based on Reproduction:

Animals can also be classified based on their reproductive methods:

1. Viviparous Animals: These animals give birth to live offspring. Examples are mammals like pigs, rabbits, sheep, and horses.

2. Oviparous Animals: Animals in this category lay eggs, which hatch to give rise to their young. Examples include fish, poultry, snails, and bees.

Classification of Animals Based on Stomach Type:

This criterion classifies animals according to their stomach complexity and feeding habits:

1. Monogastric (Non-Ruminant) Animals: These animals have a simple stomach and primarily feed on concentrated feedstuff. Examples are chickens and pigs.

2. Ruminant (Polygastric) Animals: Ruminants possess a complex stomach with four compartments (rumen, reticulum, omasum, and abomasum). They are known for chewing cud, regurgitating consumed forage for further digestion. Common examples include cattle, sheep, and goats.

It's essential to note that some animals can regulate their body temperature and are termed warm-blooded, such as cattle, sheep, and goats. In contrast, others, like fish, have body temperatures influenced by their surrounding environment.

Evaluation

1. What is the definition of animal husbandry?

2. List the criteria used for classifying farm animals.

3. Provide examples for each class under the classification criteria.

Classification of Animals Based on Uses:

Farm animals serve diverse purposes, leading to their classification into different categories:

1. Work/Draught Animals: These animals are harnessed as sources of farm power or labor. Examples include bulls, oxen, buffalo, horses, donkeys, and camels. Characteristics of work animals include strength, endurance, large frames, and docile behavior.

2. Dairy Animals: Dairy animals are primarily used for milk production. Cattle, sheep, and goats are common in this category. Characteristics of dairy animals include well-formed udders, developed milk veins, narrow and deep bellies, and placid dispositions.

3. Guard Animals: These animals are raised and trained to provide protection for humans and their properties. Examples include dogs and geese. Characteristics of guard animals include intelligence, quick reactions to stimuli, and an aggressive nature.

4. Pet Animals: Pet animals are kept as companions or friends of humans. Examples include rabbits, guinea pigs, and dogs. Characteristics of pet animals include attractiveness, calm behavior, and closeness to their owners or keepers.

5. Meat Animals: These animals are raised for their flesh, providing various culinary delicacies. Examples encompass cattle meat (beef), pig meat (pork), sheep meat (mutton), goat meat (chevon), poultry (chicken, turkey), and fish, among others.

6. Sport Animals: Farm animals are sometimes engaged in sporting activities like cockfights, ram fights, polo, and fishing. Sport animals are typically strong, able to withstand stress, possess large frames, and exhibit speed.

Evaluation Questions

Provide three characteristics for each of the following:

a. Guard animals.

b. Sport animals.

c. Pet animals.

General Evaluation/Revision Questions

1. What is the definition of a farm animal?

2. Define dairy animals.

3. Mention three characteristics of dairy animals.

4. What are guard animals?

5. List two examples of work animals.

Weekend Assignment

1. The following animals are used for milk production except:

A. Horse

B. Sheep

C. Goat

D. Cattle

2. \_\_\_\_\_\_ animals react quickly to stimuli.

A. Work

B. Meat

C. Guard

D. Dairy

3. All these animals possess a simple stomach except:

A. Geese

B. Cow

C. Duck

D. Sheep

4. \_\_\_\_\_\_ are animals which are kept as a friend or companion of man.

A. Aquatic animals

B. Pet

C. Poultry

D. Guard animals

5. Which is the odd one out?

A. Rumen

B. Reticulum

C. Gullet

D. Abomasum

Theory

1. List five uses of farm animals.

2. List five criteria used in classifying farm animals.

3. State five examples of poultry birds.

**WEEK FOUR**

TOPIC: CHARACTERISTICS OF SELECTED FARM ANIMALS

Content

Cattle (Bos spp):

Cattle belong to the family of hoofed animals and are primarily reared for meat and milk. There are two distinct categories of cattle based on the presence of humps. Humped cattle are scientifically referred to as Bos indicus, while those without humps are known as Bos taurus. Notably, cattle may or may not have horns.

Characteristics of Cattle:

1. Large Body Size: Cattle are notable for their substantial physical size.

2. Mammals: They belong to the mammalian family known as Bovine, as they give birth to live offspring.

3. Ruminants: Cattle are classified as ruminant animals.

4. Horns: Both male and female cattle typically possess horns.

5. Reproduction: Female cows usually produce one calf annually, with a gestation period of approximately 283 days.

6. Meat and Dairy: Beef cattle are typically stocky, with significant flesh/meat, while dairy cattle tend to be leaner.

7. Diet: Cattle primarily feed on forage crops.

8. Breeds: There are various cattle breeds, including Sokoto Gudali, Keteku, Red Bororo, N’dama, Muturu, and White Fulani.

EVALUATION

1. Humped and humpless cattle are called \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_.

2. Cattle belong to which family of animals?

Sheep (Ovis aries):

Sheep also belong to the family of hoofed animals and are raised in various countries to provide meat (mutton), milk, and wool.

Characteristics of Sheep:

1. Ruminant Mammals: Sheep are classified as ruminant animals.

2. Body Size: They have a medium body size with relatively long legs.

3. Earlobes: Sheep possess long and droopy earlobes.

4. Versatile Use: They are primarily reared for meat, wool, leather, milk, and fleece.

5. Horns: Male sheep typically have horns, while females are polled (lacking horns).

6. Reproduction: Sheep mostly give birth to twins and can reproduce up to three times in two years, with a gestation period of approximately 150 days.

7. Tail:They have long, thick tails that hang down.

8. Breeds: Various sheep breeds exist, including Ouda, Yankasa, and Balami.

Goat (Capra hircus):

Goats, similar to cattle and sheep, belong to the family of hoofed animals and are reared globally for meat (chevon) and milk.

Characteristics of Goats:

1. Medium Body Size: Goats possess a medium-sized body.

2. Horns: Both male and female goats typically have horns.

3. Toughness: They are known for their adaptability to harsh environments, ability to thrive on diverse diets (including waste), and resistance to various diseases and high temperatures.

4. Use: Goats are kept for meat, milk, and skin production.

5. Beards: Male goats often have beards.

6. Reproduction: They can give birth up to three times in two years, with a gestation period of approximately 150 day

Breeds of goats include Sokoto Red, Angora, West African Dwarf, Kano Brown, and more.

GENERAL EVALUATION/REVISION QUESTIONS

1. State five characteristics of each of these animals.

a. Cattle

b. Sheep

2. State four features of a goat.

Weekend Assignment

1. Which animal can best adapt to harsh weather conditions?

A. Sheep

B. Cattle

C. Goat

2. Which of these animals possess long and droopy earlobes?

A. Cattle

B. Goat

C. Sheep

3. Meat from cattle is called:

A. Beef

B. Pork

C. Mutton

D. Red-meat

4. Humpless cattle are called:

A. Bos taurus

B. Bos Taurus

C. Bos Taurrus

D. Bostaurus

5. One distinctive feature between a male and female goat is that:

A. Male goats have beards

B. Female goats have beards

C. Male goats have horns

D. Female goats have udder

Theory

1. Mention two characteristics of sheep.

2. State three importance of goats.

**WEEK FIVE :………………**

TOPIC: CHARACTERISTICS OF FARM ANIMALS (CONTINUED)

Content

Pig (Sus domesticus):

Pigs are among the most productive of commonly reared farm animals, with the capability to produce 8 to 16 piglets per litter.

Characteristics of Pigs:

1. Snout: Pigs possess a distinctive snout, which is a modified nose.

2. Ears: They have long, droopy ears or erect ears, depending on the breed.

3. Tail: Pigs have short, curly tails.

4. Sweat Glands: Pigs lack sweat pores.

5. Prolific: They are highly prolific animals, often farrowing up to 16 piglets per litter.

6. Horns: Pigs do not have horns.

7. Use: They are primarily reared for their meat and fat (lard).

8. Breeds of pigs include Duroc, Yorkshire, Berkshire, Poland China, Large White, and more.

Rabbits:

Rabbits are found in both tropical and temperate regions and are raised primarily for their meat and skin. They can reproduce up to four times a year, yielding about 6-8 kits per litter.

Characteristics of Rabbits:

1. Medium Body Size: Rabbits possess a medium-sized body.

2. Vision: Young rabbits are typically born blind.

3. Reproduction: They can give birth up to 4 times a year.

4. Horns: Rabbits do not possess horns.

5. Type of Animal: They are mammals but non-ruminants.

6. Gestation Period: The gestation period is approximately 32 days.

7. Litter Size: Rabbits give birth to large litters, usually about 6-8 kits.

8. Meat Quality: They produce high-quality meat, known as white meat.

Poultry:

Poultry are reared primarily for their meat and eggs and can be found worldwide. They are referred to as fowl or birds.

Characteristics of Poultry:

1. Digestive System: Poultry are monogastric animals with a simple stomach.

2. Size: They are medium-sized animals.

3. Egg Production: Poultry are prolific egg layers.

4. Type of Animal: They are non-mammals as they lay eggs that hatch into chicks.

5. Beak: Poultry have beaks modified for feeding.

6. Feathers: Their bodies are covered with feathers.

7. \*\*Uses: They are raised for meat, eggs, and feathers.

8. \*\*Examples of Poultry: Examples include ducks, chickens, geese, turkeys, pigeons, quails, and more.

IMPORTANT DETAILS TO NOTE ABOUT COMMON FARM ANIMALS

| ANIMAL | SCIENTIFIC NAME | MALE | FEMALE | YOUNG | MEAT | PARTURITION | GESTATION PERIOD | GROUP/CLASS |

| ------ | --------------- | ---- | ------- | ----- | ---- | ----------- | ---------------- | ----------- |

| Cattle | Bos spp | Bull | Cow | Calf | Beef | Calving | 283 days | Mammal |

| Goat | Capra hircus | Buck | Doe | Kid | Chevon | Kidding | 150 days | Mammal |

| Sheep | Ovis aries | Ram | Ewe | Lamb | Mutton | Lambing | 150 days | Mammal |

| Pig | Sus domesticus | Boar | Sow | Piglet | Pork | Farrowing | 114 days | Mammal |

| Rabbit | Oryctolagus cuniculus | Buck | Doe | Kit | - | Kindling | 32 days | Mammal |

| Chicken | Gallus domesticus | Cock | Hen | Chick | - | Hatching | 21 days | Bird |

GENERAL EVALUATION

1. Provide three (3) reasons why cattle, sheep, goats, and rabbits are regarded as mammals.

2. State the names of the following types of meat:

a. Goat meat

b. Cattle meat

c. Fowl meat

WEEKEND ASSIGNMENT

1. The most productive farm animal is?

A. Sheep

B. Goat

C. Pig

D. Horse

2. Meat from sheep is called:

A. Chevon

B. Mutton

C. Pork

D. Beef

3. Which of these animals has the shortest gestation period?

A. Sheep

B. Rabbit

C. Goat

D. Pig

4. Which of these farm animals can be used for work on the farm?

A. Bullocks

B. Rabbit

C. Chicken

D. Goat

5. Which of these farm animals is a monogastric animal?

A. Cattle

B. Camel

C. Horse

D. Chicken

THEORY

1. List four classes of farm animals based on uses.

2. Mention five characteristics of rabbits.

**WEEK SIX** ` :…………

CONTENT

* Importance of farm animals

IMPORTANCE OF FARM ANIMALS

Farm animals are used by man for the following purposes:

1. Food: Some products obtained from farm animals include meat, milk and eggs, which are eaten by man.
2. Clothing: Animals products such as wool, skin and furs are used for clothing, the skin and fibres of animals that are used for leather bags, drums, foot wear are gotten from animals like cattle, Goat and Sheep. Feather from poultry are used for stuffing pillows and cushions
3. Farm power or work: Some animals such as bullocks, horses, camels and donkeys could serve as sources of power to help with farm work.

EVALUATION

1. State three importance of Farm animals.
2. Feather from poultry are used for?
3. Fertilizer or Manure: Animal dropping such as excreta are used as organic fertilizer or farm manure to add nutrients to the soil or fertilize the soil.
4. Security or Protection: Some farm animals e.g dogs and geese are used by farmers to protect their property against thieves.
5. Sports: Farm animals like horses, ram, bull and chicken are used for sports e.g horse racing and playing polo etc.
6. Medicine: Medicine are manufactured from the thyroid glands of sheep and cattle and are used to cure diseased thyroid gland of human beings.

GENERAL EVALUATION

1. Mention five uses of farm animals.
2. List any five by-products that can be gotten from poultry birds.
3. State two reasons why dogs are used for security.
4. State three animals that are used for farm work.

WEEKEND ASSIGNMENT

1. Which of the farm animals is used for protection? A.Sheep B.Goat C.GooseD.Horse.
2. Meat from cow is called A. Chevon B.Mutton C.Pork D.Beef.
3. \_\_\_\_\_\_ are manufactured from the thyroid glands of farm animals A. Milk B. Sweat

C. Medicine D. Fertilizer.

1. Which of these farm animals can be used for work on the farm? A.Bullocks B.Rabbit C.Chicken D.Goat.
2. Which of these animals can be used for sport A. Sheep B.SnailC. Goat D. Pig

THEORY

1. List three examples of food gotten from farm animals.
2. Mention two examples of animals used for farm power.

**WEEK SEVEN :…………………**

TOPIC: WEEDS

Content

Definition of Weeds:

Weeds are defined as any plants that grow in locations where they are not intentionally cultivated and are considered a nuisance by farmers. Examples include common plants like Commelina, goat weed, or the ubiquitous water leaf (Talinum triangulare) found encroaching on cassava fields.

Types of Weeds According to Lifecycle:

A. Annual Weeds: These plants grow and complete their life cycle within a single year.

B. Perennial Weeds: These are plants that grow for more than one year.

Types of Weeds According to the Shape of Their Leaves:

i. Broad-Leaved Weeds: These are weed plants with broad leaves, categorized as dicotyledonous plants.

ii. Grasses and Sedges: These plants have long, slender leaves and belong to the monocotyledonous group.

Examples of Common Weeds:

Here are some common weeds found in Nigeria:

1. Goat Weed: Ageratum conyzoides

2. Guinea Grass: Panicum maximum

3. Pig Weed: Amaranthus spinosus

4. Bahama Grass: Cynodon dactylon

5. Elephant Grass: Pennisetum purpureum

6. Carpet Grass: Axonopus compressus

7. Tridax: Tridax procumbens

8. Spear Grass: Heteropogon contortus

9. Sida Weed: Sida acuta

10. Water Leaf: Talinum triangulare

Characteristics of Weeds:

Weeds share several common characteristics:

1. Rapid Growth: Weeds have the ability to grow quickly and cover vast areas of land rapidly.

2. Seed Production: Many weeds produce numerous fruits and seeds that easily spread via various means such as wind, water, animals, and humans.

3. Persistence: Weeds often persist throughout the year, continuing to grow under favorable weather conditions, even when cultivated crops are present.

4. Competition: Weeds compete with cultivated crops for essential resources, including nutrients, space, water, and sunlight.

5. Resilience: They are resilient and can endure harsh climatic conditions.

Advantages of Weeds:

1. Source of Food: Weeds can serve as a source of food for humans.

2. Animal Feed: They provide fodder for livestock.

3. Soil Fertility: Weeds can enhance soil fertility either directly or indirectly.

4. Erosion Control: Weeds help control soil erosion.

5. Medicinal Herbs: Some weeds contain medicinal properties and are used for various herbal remedies.

Disadvantages of Weeds:

1. Nutrient Competition: Weeds compete with cultivated crops for soil nutrients.

2. Growth Suppression: Rapid weed growth can suppress the growth of desirable plants.

3. Cultivation Challenges: Weeds make land cultivation more difficult.

4. Strangulation: Some parasitic weeds can strangle host crops.

5. Pest and Disease Vectors: Weeds can transmit pests, fungi, and other harmful organisms to crops.

6. Reduced Crop Quality: Weeds can reduce the value and quality of farm produce.

7. Control Costs: Controlling weeds can be expensive.

8. Increased Production Costs: Weeds can increase the overall cost of agricultural production.

9. Livestock Poisoning: Some weeds are toxic to livestock and can lead to livestock losses.

GENERAL EVALUATION/REVISION QUESTIONS:

1. What are weeds?

2. List five examples of weeds and their botanical names.

3. Mention three characteristics of weeds.

4. State five negative effects of weeds on crops and the economy.

WEEKEND ASSIGNMENT:

1. \_\_\_\_\_ is an unwanted plant growing among cultivated crops.

A. Weed

B. Crops

C. Plants

D. Animals

2. The following are characteristics of weed except \_\_\_\_\_.

A. they grow very fast

B. they produce many fruits

C. they remain in the ground throughout the year

D. they are mainly annual weeds.

3. \_\_\_\_\_ are weeds that grow and complete their life cycle in one year.

A. Perennial crop

B. Perennial weed

C. Annual weeds

D. Biennial weed.

4. The following are effects of weed except:

A. They make land cultivation difficult.

B. Weeds compete with cultivated crops for the nutrients in the soil.

C. Transmission of insects, fungi, and other organisms harmful to crops.

D. They result in the increase in value and quality of farm produce.

5. The scientific name of goat weed is \_\_\_\_\_.

A. Amaranthus spinosus

B. Mimosa pudica

C. Ageratum conyzoides

D. Striga hermonthica.

THEORY:

1. Define weed.

2. Provide the common names and botanical names of four weeds you know.

**WEEK EIGHT**  :…………………

TOPIC: PESTS

Content

Definition of Pests:

Pests are living organisms, including both plants and animals, that can cause damage to cultivated crops, farm animals, and humans.

Classification of Animal Pests:

Animal pests can be categorized as follows:

i) Insect Pests: Insect pests belong to the group of animals known as Arthropods, which encompasses various creatures such as insects, crabs, shrimps, millipedes, spiders, centipedes, and scorpions, among others. In this category, we primarily focus on insects that pose threats to agriculture.

ii) Non-Insect Pests: Non-insect pests comprise organisms like nematodes, snails, slugs, as well as vertebrates including rodents like rats and squirrels, monkeys, glasscutters, birds, and jackals. These pests can inflict harm on crops and other agricultural resources.

EVALUATION QUESTIONS:

1. What is a pest?

2. Name two classes of animal pests.

Classification of Insect Pests:

Insect pests can be further classified based on their mouthparts, which differ across insect groups. Here are three primary categories:

1. Biting and Chewing Pests: These insects are equipped with robust mandibles, a secondary pair of jaws called maxillae, a flat upper lip known as the labrum, and a lower lip referred to as the labium. They use their mandibles to bite off and chew various parts of crops, while the maxillae aid in pushing the food into their mouths. Examples include grasshoppers, locusts, beetles, crickets, armyworms, termites, leaf worms, mantids, and others.

2. Piercing and Sucking Pests: In this category, insects possess sharp, needle-like mouthparts that enable them to pierce into the stems, fruits, and seeds of crops, from which they then extract juices. Common examples are mosquitoes, aphids, mealybugs, tsetse flies, whiteflies, cotton stainers, and capsids.

3. Boring Insects: These pests create holes within crops and take up residence inside, where they feed on the internal components of the plant. Notable examples include bean beetles, stem borers, and weevils.

Nature of Damage Caused by Insect Pests:

Insect pests inflict various forms of damage:

1. Crop Tissue Destruction: They consume or destroy crop tissues.

2. Stunted Growth: Insects can hinder the growth of crops and animals.

3. Weakened Plants: Affected crop plants often become weaker.

4. Infection Risk: Pierced holes can become sites for the infestation of harmful organisms like fungi, bacteria, and viruses.

5. Transmission of Harmful Organisms: Insects can transmit harmful organisms from infected crops to healthy ones.

6. Human and Livestock Health Issues: Some pests, like the tsetse fly and ticks, can cause health problems in humans and livestock, such as sleeping sickness and babesia.

GENERAL EVALUATION AND REVISION QUESTIONS:

1. What is a pest?

2. Name two classes of animal pests.

3. State two classes of insect pests and provide two examples of each.

4. List five possible damages caused by pests.

WEEKEND ASSIGNMENT:

1. Insect pests are animals without backbones and belong to the group of animals called:

A. Chors

B. Arachnids

C. Arthropods

D. Annelids

2. Possession of mandibles and maxillae are special features of:

A. Piercing and sucking insects

B. Biting and chewing insects

C. Boring insects

D. Piercing and chewing insects

3. These insects have sharp needle-like mouthparts that suck juices from crop plants except:

A. Aphids

B. Beetles

C. Mealybugs

D. Tsetse flies

4. Non-insect pests include the following except:

A. Mites

B. Snails

C. Shrimps

D. Slugs

5. Pierced holes in crop plants can be infested with the following except:

A. Pests

B. Fungi

C. Bacteria

D. Viruses

THEORY:

1. Define what a pest is.

2. Describe the types of insect pests.

**TOPIC: WEED AND PEST CONTROL**

Content

Definition of Weed/Pest Control:

Weed and pest control entails the management and prevention of the rapid spread of weeds and pests, which can cause damage to cultivated crops and farm animals. Several effective methods for weed and pest control exist:

1. Physical Control:

This method involves the manual removal of weeds and insects from crops or animals by hand, commonly known as handpicking. While it is effective for larger insects like grasshoppers, it becomes challenging for larger farmlands or when dealing with a high number of pests. This approach is relatively slow and labor-intensive but proves efficient in small-scale farming. Regular weeding with tools such as hand-held cutlasses or hoes is essential, particularly during the wet season when weeds tend to proliferate. Other physical control methods include setting traps, using scarecrows, employing nets, deploying reflective plastic strips, and making use of empty tin cans.

2. Chemical Control:

The predominant method for managing insect pests and weeds is chemical control. Chemicals that are toxic to insects and weeds are respectively referred to as insecticides and herbicides. Insecticides and herbicides are typically applied through sprayers, which are machines designed for this purpose.

3. Biological Control:

Biological control involves leveraging the assistance of natural enemies of insect pests and weeds to combat them. These natural enemies can be other insects that feed on the pests or their eggs. For instance, beetles can effectively control water weeds and water hyacinth by consuming their stems and leaves. Similarly, cats can help control rats, and chickens can contribute to insect control.

4. Mechanical Control (Use of Machines):

In large farms, mechanical control methods employ machines like cultivators or weeders to efficiently and effectively remove weeds. This method is particularly suitable for farms where crops are well-organized in rows.

5. Cultural Control (Use of Cropping Systems):

Cultural control methods include practices like crop rotation, early planting, and timely harvesting, which can prevent weed growth and spread. Additionally, cover crops can be cultivated to suppress weed growth. These cover crops have broad leaves and rapid spreading capabilities, effectively stifling young weed seedlings. Examples of cover crops include various members of the bean family, such as Mucuna and Centrosema.

EVALUATION QUESTIONS:

1. Define the following:

a. Physical control

b. Chemical control

c. Biological control

d. Mechanical control

e. Cultural control

2. Chemicals that are toxic to insects and weeds are called \_\_\_\_\_ and \_\_\_\_\_\_.

GENERAL EVALUATION/REVISION QUESTIONS:

1. What is biological control?

2. Provide a brief explanation of cultural control.

3. Define natural enemies.

4. Mention two examples of cover crops.

WEEKEND ASSIGNMENT:

1. Which of these methods becomes very difficult to use when the number of pests is high?

A. Chemical control

B. Physical control

C. Biological control

D. Cultural control

2. Pollution of water bodies can likely be reduced by:

A. Washing of chemicals from farmland

B. Falling of suspended chemicals in the air with rain

C. Release of waste products from chemical-producing industries

D. Adequate awareness campaigns by extension agents

3. \_\_\_\_ involves the use of natural enemies of insect pests and weeds against them.

A. Physical control

B. Chemical control

C. Cultural control

D. Biological control

4. Which of the following is not a physical control method?

A. Use of traps

B. Use of nets

C. Use of chemicals

D. Hand picking

5. Natural enemies of weeds and water hyacinths include:

A. Beetle

B. Ant

C. Bees

D. Spider

THEORY:

1. State and explain two pest control methods.

2. Provide two examples for each of the methods mentioned above.

**WEEK TEN**

**REVISION**

**WEEK ELEVEN**

**EXAMINATION**