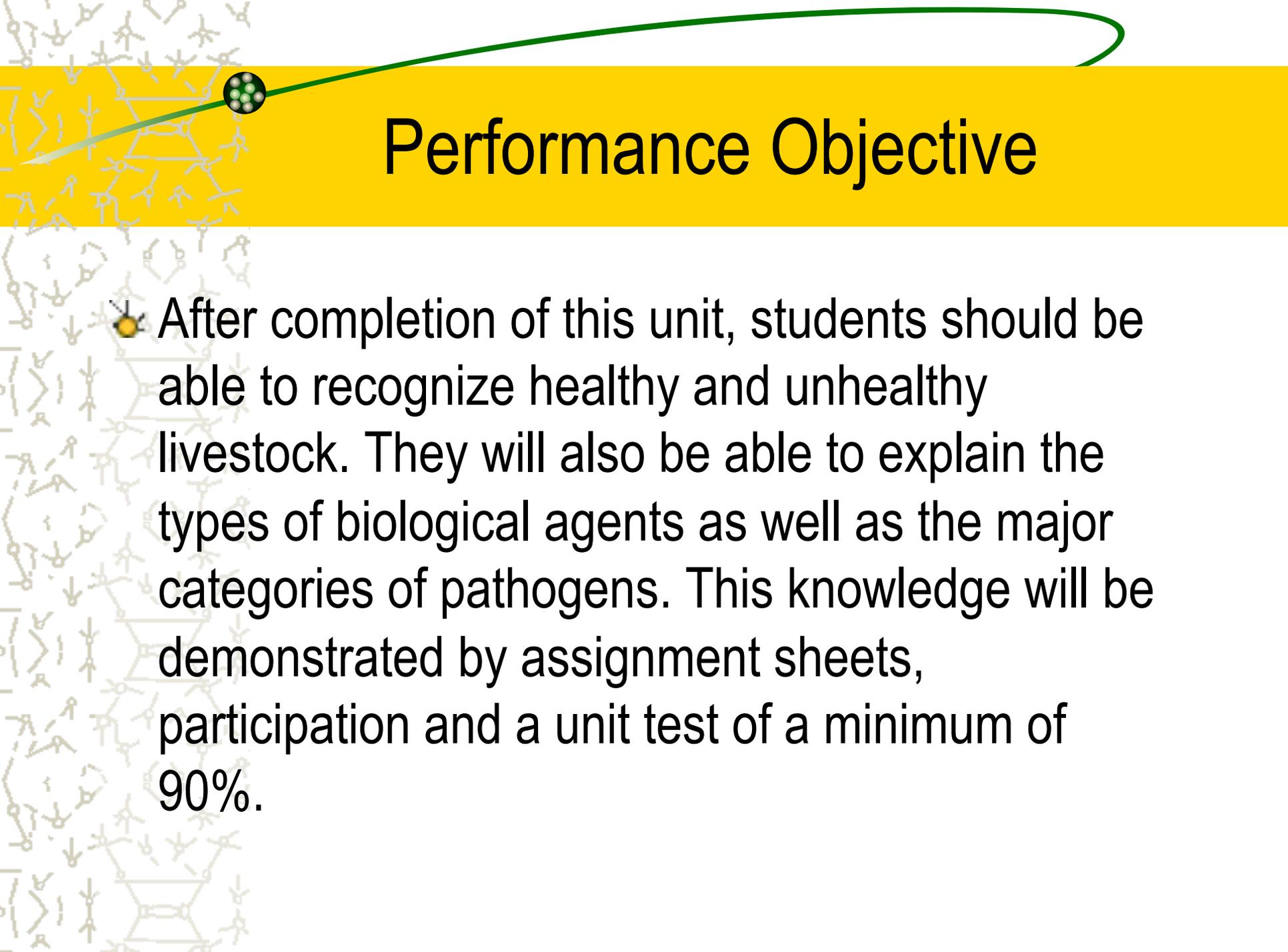


The slide features a decorative background on the left side consisting of a repeating pattern of chemical structures, including hexagons and various molecular diagrams. A prominent green swoosh starts from the left edge, curves upwards and then downwards, ending on the right side. A small black circle with four green dots is positioned at the start of the swoosh on the left. The main title is centered on a yellow horizontal band.

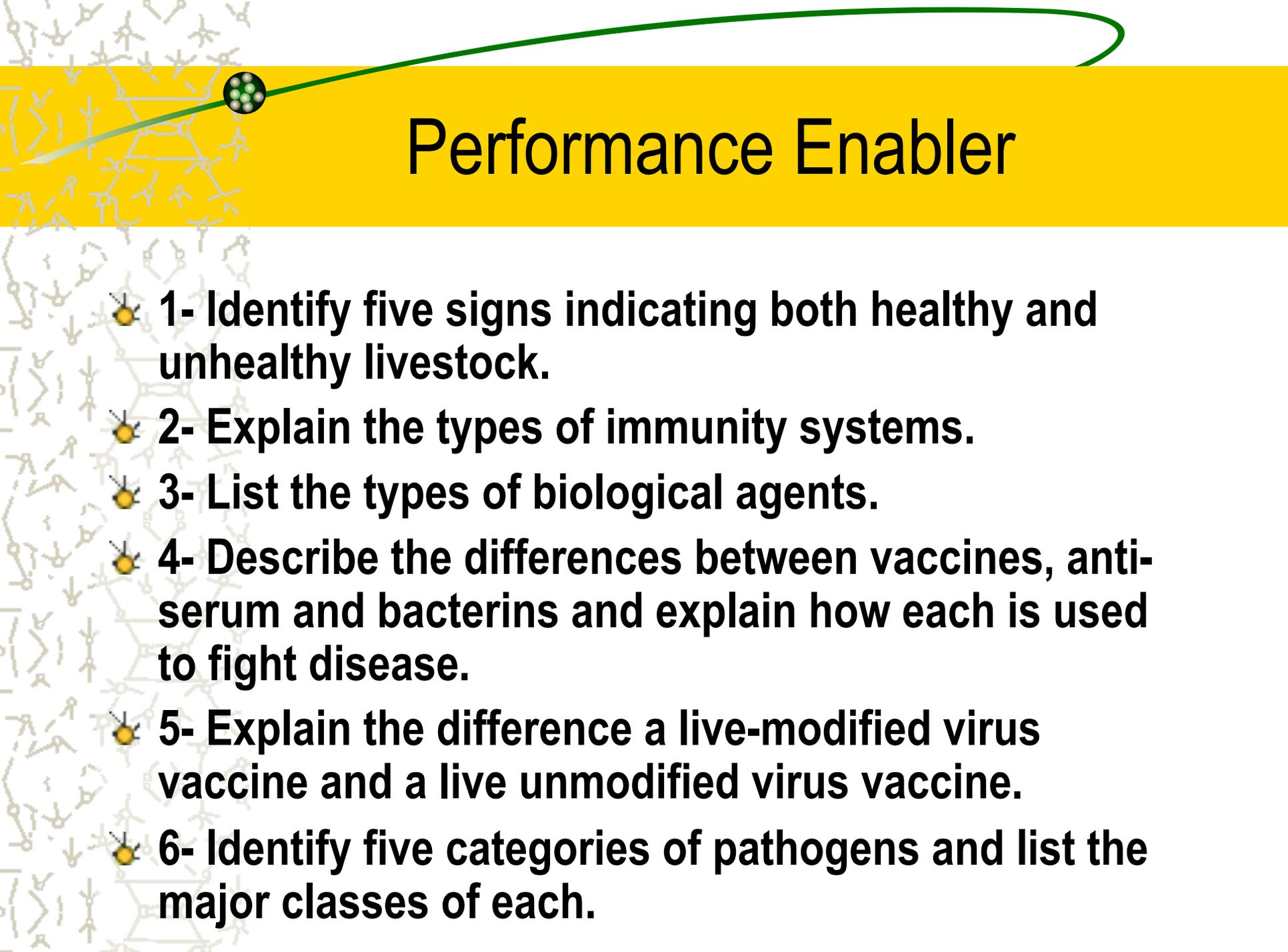
Threats to ANIMAL HEALTH

PRESENTED BY
UINTAH HIGH
AGRICULTURE TECHNOLOGY



Performance Objective

- After completion of this unit, students should be able to recognize healthy and unhealthy livestock. They will also be able to explain the types of biological agents as well as the major categories of pathogens. This knowledge will be demonstrated by assignment sheets, participation and a unit test of a minimum of 90%.



Performance Enabler

- 1- Identify five signs indicating both healthy and unhealthy livestock.**
- 2- Explain the types of immunity systems.**
- 3- List the types of biological agents.**
- 4- Describe the differences between vaccines, anti-serum and bacterins and explain how each is used to fight disease.**
- 5- Explain the difference a live-modified virus vaccine and a live unmodified virus vaccine.**
- 6- Identify five categories of pathogens and list the major classes of each.**

● Performance Enabler Continued

- **7- Determine the relationship of internal and external parasites and selected deficiencies on livestock.**
- **8- Name four types of arthropods that affect livestock.**
- **9- Identify factors that may increase or decrease an animals temperature.**
- **10- Take the body temperature of four livestock species and compare the readings with the normal temperature of each reading.**
- **11- List five plants that are poisonous plants.**
- **12- Describe an effective overall health program.**
- **13- Develop a herd health plan for a livestock operation.**

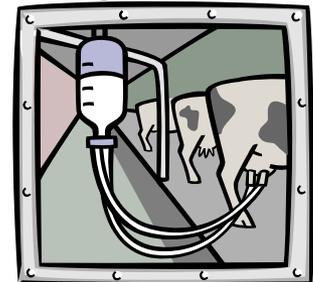
Signs that Indicate Healthy and Unhealthy Animals

Healthy Livestock:

- ☛ Contentment
- ☛ Alertness
- ☛ Chewing of cud
- ☛ Sleek coat
- ☛ Bright eyes and pink eye membrane
- ☛ Normal feces and urine
- ☛ Normal temperature
- ☛ Normal pulse rate
- ☛ Normal respiration

Unhealthy Livestock:

- ☛ Loss of appetite
- ☛ Rough hair coat
- ☛ Abnormal feces
- ☛ Dull eyes
- ☛ High temperature
- ☛ Discolored urine
- ☛ Ruminants not chewing their cud



Types of Biological Agents

- ✦ **A- Antigens and antibodies** The antibodies of diseases whose causative organisms have been identified. Organisms are prepared so that an animal may be injected with them for protection from diseases which they have not been exposed to.
- ✦ **B- Bacterin-** A type of vaccine prepared from disease causing organisms (bacteria) that have been killed.
 - 1- “Mixed bacterins” contain more than 1 kind of killed bacteria.
 - 2- These dead pathogens are injected into the animal and cause it to manufacture antibodies against that disease and stimulate immunity.
 - 3- This is an example of “active acquired immunity”.

immunity

Types of Biological Agents

- **C- Vaccines**-Made from living organisms (bacteria or viruses) that have been weakened or changed so as to lose much of their original virulence (disease causing ability).
 - 1- Upon injection the animal gets a mild dose of the disease.
 - 2- The animals body then produces antibodies against the disease which often results in permanent immunity.
 - 3- Animals susceptible to a disease should be vaccinated with a vaccine when they are healthy.
 - 4- This is another example of “active acquired immunity”.

● Types of Biological Agents continued

● **D- Anti-Serums: (an immunizing agent)**– Contain no organisms (dead or alive). They are made of from infecting a donor animal with the disease for which the serum is desired, or by vaccination.

1- The antibodies form in the blood and the blood is withdrawn and anti-serum is recovered from the blood.

2- The antiserum give a 2-4 weeks of protection to animals continually exposed to a disease.

3- The injection of anti-serum does not cause the animal to produce antibodies, therefore it gives only temporary immunity.

4- This is an example of “passive acquired immunity”.

Types of Biological Agents cont.

- **Toxioids**-Toxioids are inactivated toxins obtained from toxin-producing organisms grown in the laboratory which stimulate a strong active immunity in the injected animal.

TOXIIDS

Infectious Disease Causing Agents

- **Bacteria**- is the smallest and simplest form of plant life that does not contain chlorophyll.
- Bacteria are single-celled and vary in size and shape.
- They are very numerous in nature, and the majority are beneficial.
- Bacteria has had many distinguishing characteristics.
 - A- shape: rod shaped (bacilli); spherical (cocci); spiral (spirilli).
 - B- Oxygen needs- no oxygen (anaerobic) or oxygen required (aerobic).
 - C- Ability to absorb a “grams stain” – gram positive or negative.
 - D- Their ability to release toxins.
 - E- Their ability to form spores which are shell-like coverings which may allow bacteria to survive several years despite environmental conditions.

Infectious Disease Causing Agents

- **Viruses**- can only be seen using an electron microscope.
- They can cause serious, contagious diseases.
- They are classified according by the type of tissue they invade, by their appearance, and by the host they normally affect.
- They are not a plant or an animal, but must have living cells to parasitize if they are to grow and reproduce, since they cannot live independently of living cells.



Infectious Disease Causing Agents cont.

 **Parasites**- organisms living on, in, or at the expense of another living organism.

 Can be grouped into 4 major areas:

- a- Protozoa
- b- Helmintha
- c- Arthropods
- d- Fungi

They cause damage by:

- a- Absorbing food from the digestive tract (worm parasites)
-  b-Sucking blood or lymph (worm parasites-which is rare)
- c-Feeding on tissue of the host.
- d-Obstructing passages (worm Parasites-which is rare)
- e-Causing irritation (all)
- f- Transmitting diseases (arthropods)

infectious



Parasites

 **Protozoans**- the simplest form of animal life consisting of only a single cell.

A- Most are common in the environment and only a few concern the animal health industry causing disease such such as coccidiosis and trichomoniasis.

parasite

Parasites

 **Helminths**: (worm parasites)- are many celled animals varying greatly in size, shape, structure and physiology.

A- Most undergo some development outside the host.

B- There are four general types of helminths:

***Flukes** (trematodes) soft, flat, leaf shaped worms. They usually have 2 or more hosts, one of which is a mollusk.

***Tapeworms** (cestodes) can grow up to 10 feet long. They live in the intestinal tract and rob the host of nutrients.

***Roundworms** (nematodes) long, cylindrical, unsegmented worms. Some are microscopic.

***Thorny-headed worms** (acanthocephala) they have a retractable snout armed with hooks.

Parasites

 **Arthropods**- may act as vectors (intermediate hosts) that carry disease organisms or transmit parasites. There are six common types of arthropods affecting livestock.

***Flies**- most suck blood, deposit eggs in necrotic dead or dying tissue, cause annoyance and congregate where there is filth and waste matter

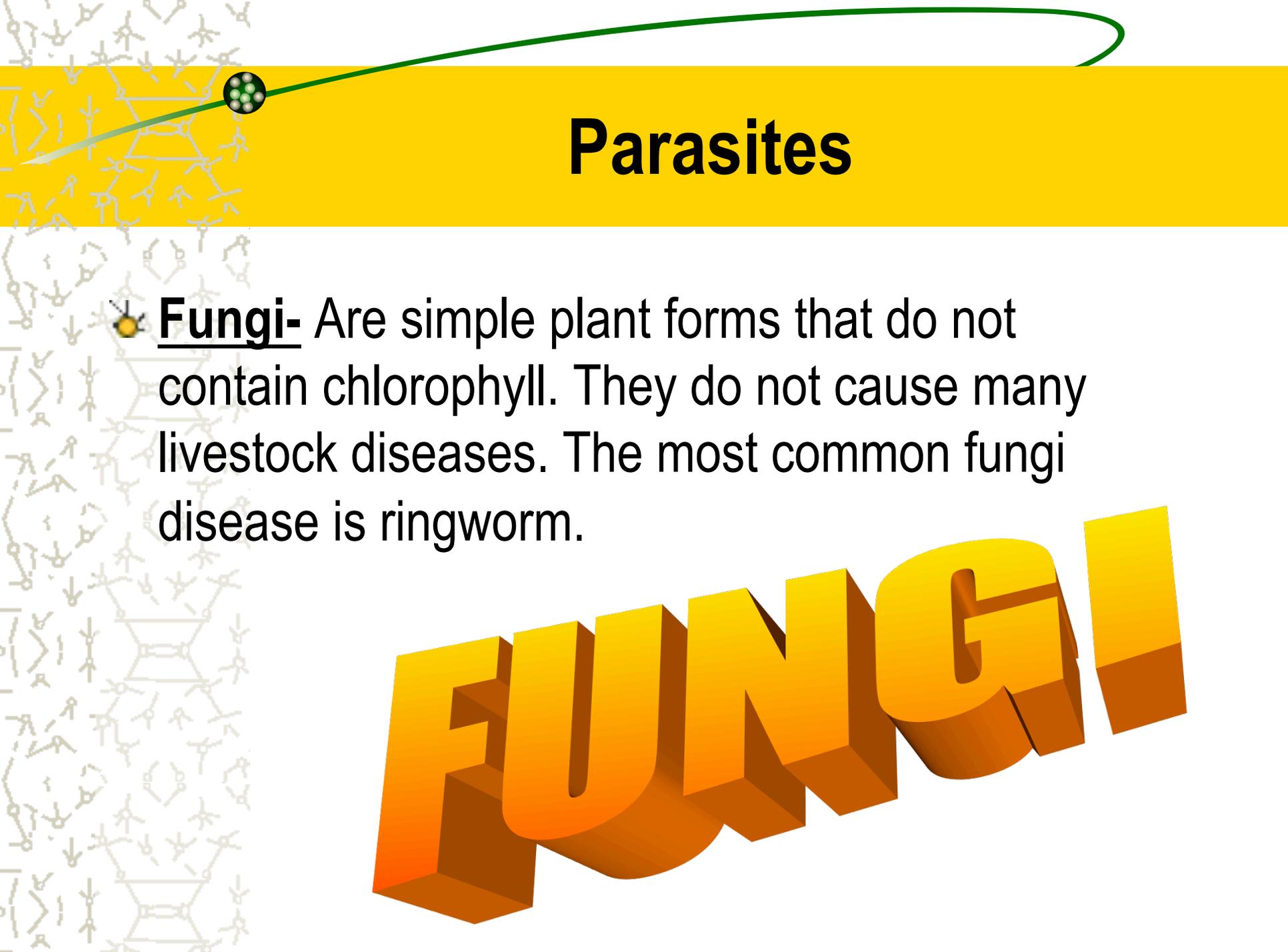
***Mosquitoes**- they suck blood and transmit disease and are especially prevalent in areas where water is allowed to accumulate.

***Ticks**- they suck blood, carry disease, lay eggs in the hair of the animal and transmit parasites

***Fleas**- they suck blood, transmit disease and parasites and live in hair and bedding.

***Lice**- they are a small flat wingless insect, which scratching and eventually resulting in a general decline in overall health and appearance

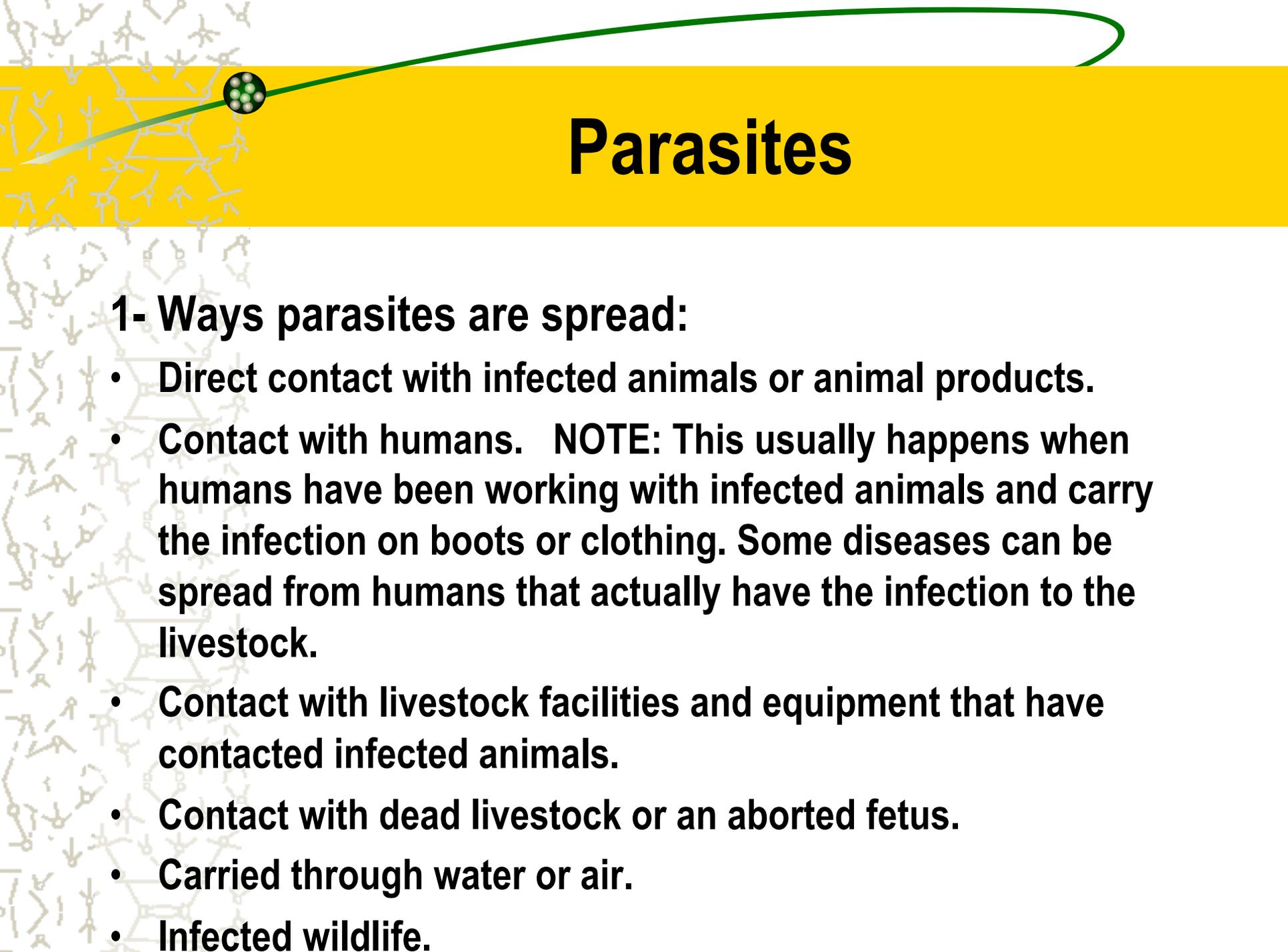
***Mites**- they are very small insects that produce mange so eventually the skin becomes rough and wrinkled.



Parasites

- **Fungi**- Are simple plant forms that do not contain chlorophyll. They do not cause many livestock diseases. The most common fungi disease is ringworm.

FUNGI!



Parasites

1- Ways parasites are spread:

- **Direct contact with infected animals or animal products.**
- **Contact with humans. NOTE: This usually happens when humans have been working with infected animals and carry the infection on boots or clothing. Some diseases can be spread from humans that actually have the infection to the livestock.**
- **Contact with livestock facilities and equipment that have contacted infected animals.**
- **Contact with dead livestock or an aborted fetus.**
- **Carried through water or air.**
- **Infected wildlife.**

Parasites

2- Measures for controlling internal and external parasites.

Internal: Practice pasture rotation.

Check animals regularly.

Treat animals showing signs of parasites.

Practice proper lot sanitation.

Graze young animals on clean pastures.

External: Keep manure cleaned from barnyards to prevent fly breeding.

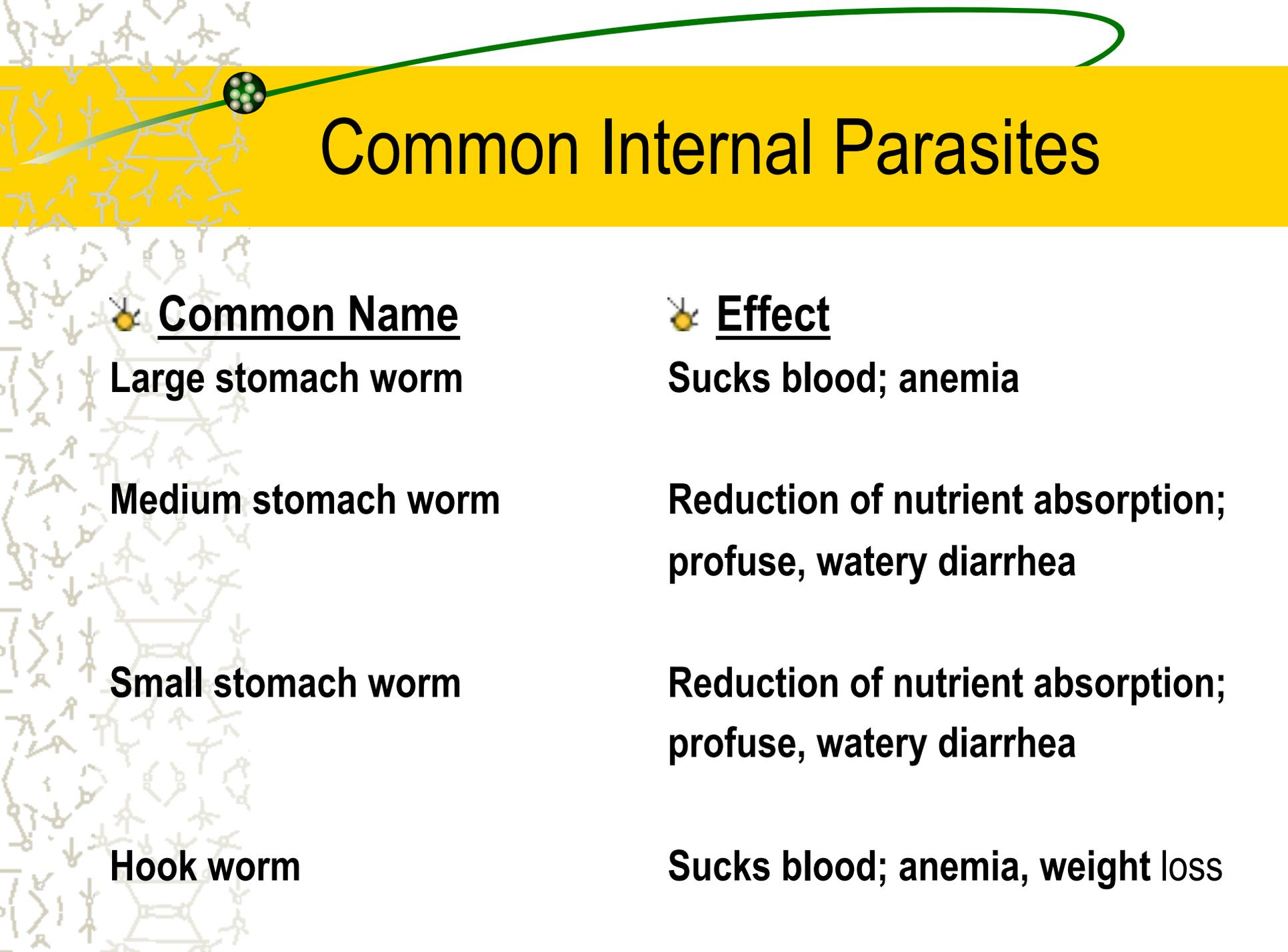
Spray livestock regularly.

Spray livestock housing.

Control grubs before they damage hides.

Spray new animals arriving on the farm.

Check livestock frequently.



Common Internal Parasites

Common Name

Large stomach worm

Medium stomach worm

Small stomach worm

Hook worm

Effect

Sucks blood; anemia

Reduction of nutrient absorption;
profuse, watery diarrhea

Reduction of nutrient absorption;
profuse, watery diarrhea

Sucks blood; anemia, weight loss

Common Internal Parasites

Common Name

Intestinal thread worm

Lungworm

Tapeworm

Effect

Intestinal hemorrhages

Coughing; rapid shallow breathing; secondary bacterial infections

Reduce nutrient absorption; occasional diarrhea



Common Internal Parasites

Common Name

Common liver fluke

Stomach fluke

Effect

**Hemorrhage of liver;
cystic and enlarged bile
Ducts**

**Diarrhea; loss of appetite;
loss of weight**



Body Temperatures

Body temperature

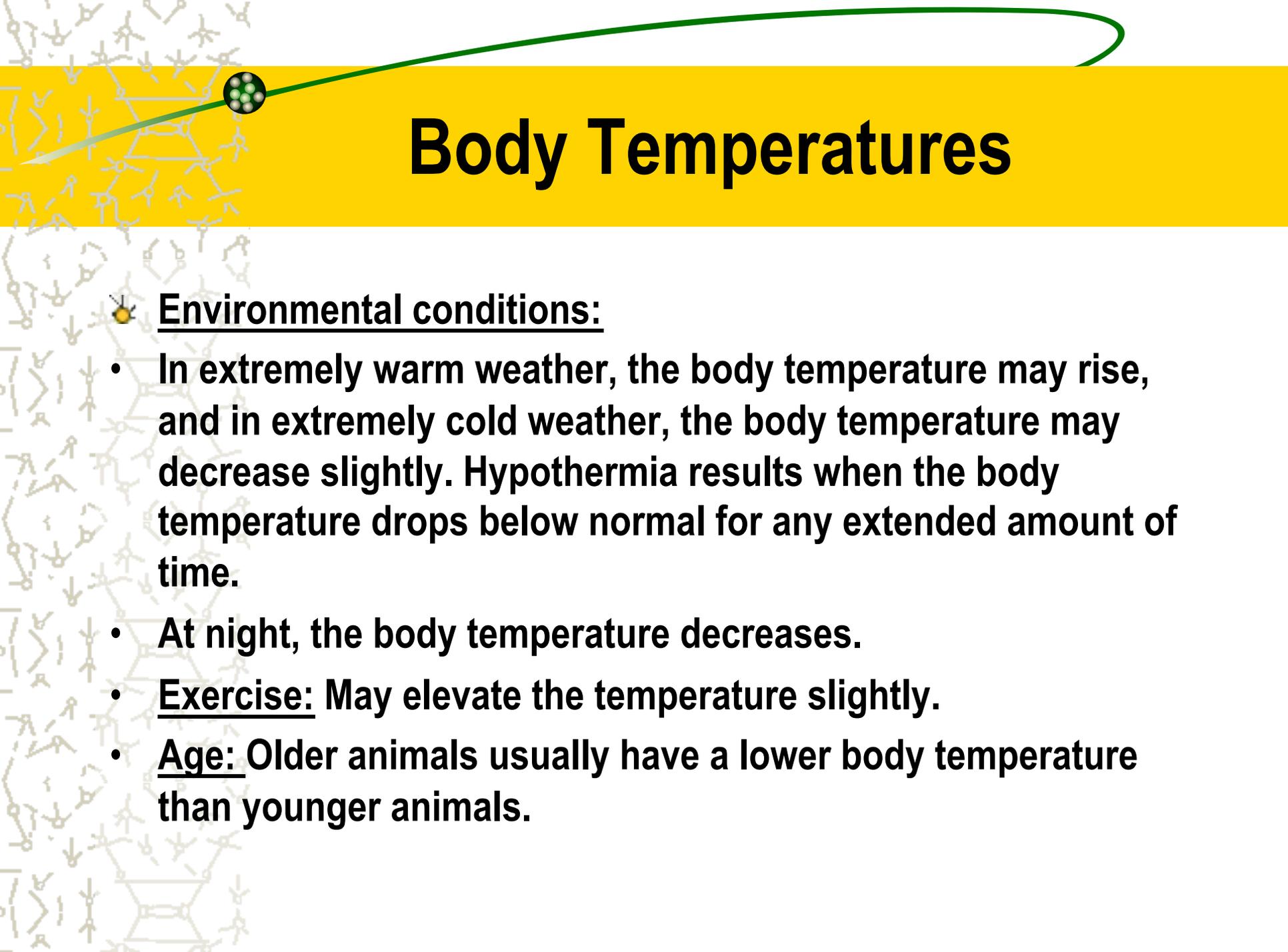
is useful in diagnosing a disease and observing its course

• Factors affecting body temperatures:

1- Infectious diseases:

- A rise in body temperature will occur due to the nature response from an inflammation from a wound.
- A fever can be one of the first signs of a disease.

Body Temperature



Body Temperatures

• Environmental conditions:

- In extremely warm weather, the body temperature may rise, and in extremely cold weather, the body temperature may decrease slightly. Hypothermia results when the body temperature drops below normal for any extended amount of time.
- At night, the body temperature decreases.
- Exercise: May elevate the temperature slightly.
- Age: Older animals usually have a lower body temperature than younger animals.

Types of Poisonous Plants

☛ These are only a few of the most poisonous plants found on western ranges.

1- Milkweed

2- Chokecherry

3- Lupine

4- Nightshade

5- Cocklebur

6- Brackenfern

7- Locoweed

8- Arrowgrass

9- Death Camas

10- Greasewood

11- Halogeton

12- False Hellbore

13- Yellow Star Thistle (horses)

14- Larkspur

15-Oak

16- Hemlock

17- Ponderosa Pine Needles

18- Klamath Weed

19- Tansy Ragwort

Types of Poisonous Plants

» Preventing losses from Poisonous Plants:

- **Avoid areas heavily infested with poisonous plants which, due to animal concentration and overgrazing, include waterholes trails, salt licks, and bedding grounds.**
- **Control and eradicate poisonous plants by mechanical or chemical means.**
- **Recognize signs of poisoning in various livestock species.**
- **Recognize various species of poisonous plants and their characteristics.**
- **Graze in proper season, when poisonous plants are not palatable or are unavailable.**
- **Provide salt.**
- **Avoid cutting poisonous plant infested meadows for hay.**

Preventing Losses from Poisonous Plants.....

- ⚡ When poisonous plants become mixed with hay, it is difficult for animals to separate the safe from the toxic material.**
- ⚡ The increase likelihood of consumption of poisonous plants make the hay a very poor investment of time and money.**





Herd Health Plan

- ✦ **Provide adequate nutrition**
- ✦ **Maintain adequate livestock facilities; avoid overcrowding.**
- ✦ **Keep facilities clean and disinfected.**
- ✦ **Use proper immunization.**
- ✦ **Develop procedure for parasite control.**
- ✦ **Isolate new or returning animals for 3-4 weeks before combining with bred.**
- ✦ **Rotate pastures.**
- ✦ **Keep animal stress to a minimum.**
- ✦ **Control possible disease spread by visiting humans.**
- ✦ **Work closely with veterinarian in developing prevention programs as well as treating diseases.**



Herd Health Plan

- ✿ **Bring only clean animals into herd.**
- ✿ **Drain lots so that they will remain dry and free of stagnant water (paved lots are best).**
- ✿ **Isolate all animals known to have contagious infections.**
- ✿ **Treat open wounds and navels of newborn calves with reliable disinfectant.**
- ✿ **Provide plenty of exercise for breeding herd.**
- ✿ **If cows calve in places other than clean pastures, be sure area is well-bedded and disinfected.**
- ✿ **Provide plenty of clean, fresh water.**

The End

