

Goat Kit Curriculum



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Author



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Curriculum Structure

The *Goat Kit Curriculum* is composed of the following lessons. Approximate lesson times are included.

Lesson	Title	Approximate Time
One	Goat Breeds	60 minutes
Two	Goat Feeding and Management	60 minutes
Three	Diseases and Parasites of Goats	60 minutes
Four	Goat Reproduction	60 minutes
Five	Goat Body System	60 minutes
Six	Goat Judging	60 minutes
Seven	Careers in Goat Production	60 minutes
	Total	7 hours

Lesson Structure

Each lesson begins with a Lesson Overview, Lesson Objectives, and a Lesson at a Glance table that lists lesson activities, materials required, suggested preparation steps, and approximate class time.

Lesson Sections

The actual lesson follows the overview, which contains some of the sections described below.

FOCUS

Every lesson begins with a FOCUS activity intended to capture participants' attention. This may be in the form of a small or large class discussion, a game, a demonstration, or a review of previous lesson information. During this activity, participants are introduced to the topic of the lesson.

LEARN

The LEARN activity in each lesson varies in its presentation mode. It may be a slide presentation, group activity, or demonstration.

REVIEW

The majority of lessons end with a REVIEW activity intended to briefly review the lesson's key messages or main points.

Lesson One – Goat Breeds

Lesson Overview

Participants will be introduced to goat breeds and terms used in goat production.

Lesson Objectives

After completing this lesson, participants will be able to:

- Define common terms used in goat production
- List common characteristics for each goat breed
- List the three uses for goats

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Intro to Goat Breeds</i> worksheet • <i>Intro to Goat Breeds</i> – Answer Key	1. Print/photocopy <i>Intro to Goat Breeds</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Common Goat Breeds and Traits</i> worksheet • <i>Common Goat Breeds and Traits</i> – Answer Key • <i>Common Goat Breeds</i> slide presentation	1. Print/photocopy <i>Common Goat Breeds and Traits</i> worksheet (one per participant) 2. Prepare <i>Common Goat Breeds</i> slide presentation for viewing	40 minutes
REVIEW	• <i>Goat Kit Breed ID Flashcards</i> • <i>Goat Breeds Quiz</i> • <i>Goat Breeds Quiz</i> – Answer Key	1. Prepare the <i>Goat Kit Breed ID Flashcards</i> 2. Print/photocopy <i>Goat Breeds Quiz</i> (one per participant)	10 minutes

Lesson One – Goat Breeds

FOCUS: Intro to Goat Breeds

10 minutes

Purpose:

Participants will pair up to fill out the worksheet. Once completed, participants will trade papers and grade.

Materials:

- *Intro to Goat Breeds* worksheet
- *Intro to Goat Breeds* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the *Intro to Goat Breeds* worksheet.
2. Provide instruction on how to fill out the worksheet.
3. After five minutes, instruct participants to go back to their seats.
4. Instruct participants to trade papers and go over the correct answers as participants grade the worksheet.
5. Collect the worksheet.

Name: _____ Class: _____

Intro to Goat Breeds

Directions: Using the answers at the bottom of the page, match them to the terms numbered by placing the correct letter in the blank.

1. Yearling _____
2. Buck _____
3. Polled _____
4. Flock _____
5. Kid _____
6. Buckling _____
7. Wether _____
8. Doe _____
9. Wattle _____
10. Doeling _____

- A. Young female goat that is younger than a year old
- B. A baby goat of either sex
- C. Male goat that is younger than a year old
- D. A castrated male goat
- E. Goat of either sex born without horns
- F. A group of goats
- G. Female goat older than a year old
- H. A small, fleshy appendage attached on or near the throat
- I. Male goat over a year old
- J. Any goat that is between 1 and 2 years old

Intro to Goat Breeds – Answer Key

Directions: Using the answers at the bottom of the page, match them to the terms numbered by placing the correct letter in the blank.

1. Yearling J
2. Buck I
3. Polled E
4. Flock F
5. Kid B
6. Buckling C
7. Wether D
8. Doe G
9. Wattle H
10. Doeling A

- A. Young female goat that is younger than a year old
- B. A baby goat of either sex
- C. Male goat that is younger than a year old
- D. A castrated male goat
- E. Goat of either sex born without horns
- F. A group of goats
- G. Female goat older than a year old
- H. A small, fleshy appendage attached on or near the throat
- I. Male goat over a year old
- J. Any goat that is between 1 and 2 years old

Lesson One – Goat Breeds

LEARN: Common Goat Breeds and Traits

40 minutes

Purpose:

Participants will be introduced to common goat breeds by viewing a slide presentation and filling out a worksheet.

Materials:

- *Common Goat Breeds* slide presentation
- *Common Goat Breeds and Traits* worksheet

Facilitation Steps:

1. Set up the slide presentation and distribute the *Common Goat Breeds and Traits* worksheet.
2. Provide directions on how to fill out the worksheet and collect it after finishing the presentation.

Slide 1: Title slide

Slide 2: 17 Common Goat Breeds

Slide 3: What Do Goats Provide?

- Goats provide 3 different types of products
- While all female goats will give milk, certain breeds are considered better at it than others
- Beyond milk, goats provide meat and fiber
- They can also be welcomed into families as pets

Slide 4: Milk Breeds

Slides 5-7: Alpine

- Upright ears and a dished face
- Range of different colors but typically have dark markings with a light head and neck or a black stripe down the back
- Thrive in any environment
- Produces the most milk
- Top producers in this breed make up to 2 gal. of milk per day, which equals between 1,500 and 1,600 lbs. per year
- Male goats or bucks weigh 180 lbs.
- Female goats or does weigh 135 lbs.

- Very popular for small farms

Slides 8-10: LaMancha

- American breed
- Known for their tiny ears
- Can be any color
- Good milkers and can be milked for 2 years before breeding again or freshening
- Easygoing, docile, and sturdy
- Produces milk high in protein
- This breed's milk has the highest percentage of butterfat

Slides 11-13: Nigerian Dwarf

- A great goat if you want a smaller version of a dairy goat
- Weigh about 75 lbs. and are normally around 17-20 in. tall
- Produce about 1 qt. of milk per day
- Variety of colors and body shapes
- Bucks have long beards
- Can live 12-15 years
- Friendly by nature

Slides 14-16: Nubian

- Most popular dairy breed in the United States
- Naturally born without horns or polled
- Comes in a range of colors and some can have spots
- Known for their floppy ears as well as a long and distinguished Roman-like nose
- Bucks or male goats weigh 180 lbs. while does or female goats weigh 135 lbs.
- Known to have a high level of butterfat in their milk
- Average milk production per year is 1,300-1,500 lbs.
- Middle Eastern heritage allows them to survive in warmer climates
- Longer breeding season
- Used for dairy but can also be raised for meat or both

Slides 17-19: Oberhasli

- Formerly called Swiss Alpine
- Can be used as pack animals as it's believed they aren't afraid of water
- Male goats or bucks are 30-34 in. tall
- Female goats or does are 28-32 in. tall
- Weight can range from 100-150 lbs.
- Coat pattern called chamoisee, meaning it has a brown base highlighted with tan and reddish brown along with black points
- 2 black stripes go from the eyes to the muzzle
- Forehead is nearly black
- Legs are black from the knees down and the inside of the ears are also black

Slides 20-22: Saanen

- Largest breed of dairy goat
- 2nd to Alpine in milk production
- Short, white hair and upright ears
- Normally solid white or cream colored
- Easygoing nature
- All males and some females have beards
- Born without horns or polled
- Bucks weight 185 lbs.
- Does weigh 135 lbs.

Slides 23-25: Sable

- Sable goats look like Saanen except with color
- Created when both parents have a recessive gene for a color other than white or cream
- To be considered a Sable, the goat must not have more than 50% white coloration
- Known as "Saanens in party clothes"
- Ears are upright, pointing forward, and may be rounded at the end
- Hair is short and fine
- Medium size
- Milk has 3-4% butterfat

Slides 26-28: Toggenburg

- Oldest registered breed
- Same color pattern consisting of a mousy light to dark brown coat with a light-colored strip down each side of the face, underside of the tail, and inside of each leg

- Bucks weigh 150-175 lbs.
- Does weight 100-130 lbs.
- Thrive in cool environments
- Have excellent udder development
- Milk, on average, contains 3.7% butterfat
- Medium size

Slide 29: Meat Breeds

Slides 30-32: Boer

- Most popular meat breed in the U.S.
- From South Africa
- Red head and neck with a white body
- Ears are large and hang like a pendulum
- Very laid-back nature
- High fertility rate
- Gains weight quickly
- Has a meat carcass or body that produces a lot of meat
- Easily breed with dairy breeds to produce a meatier kid (baby goat)
- Breed is heavy with bucks weighing around 260 lbs. and does around 245 lbs.

Slides 33-36: Myotonic or Tennessee Fainting Goats

- Only breed indigenous to the U.S.
- Wide range of colors and hair lengths
- Term "fainting goat" was coined when people saw these goats "freeze and fall over" when startled
- Fainting appearance is due to a genetic disorder called myotonic congenita
- Tennessee fainting goats are a well-muscled breed but smaller compared to other meat breeds
- Myotonic breed comes in 2 sizes:
 - Large size or the Tennessee fainting goat is mostly used for meat production
 - Smaller myotonic breed can be raised for meat but mostly are raised as pets
- Ears that can take 3 different shapes
- Bug-eyed or pop-eyed look

Slides 37-39: Savanna

- Tolerates a full range of climates
- Year-round breeding

- White, short hair and black pigmented skin
- Lop ears are present
- Good mothers and bond well with their young
- Efficient foragers
- Resistant to several external parasites including tick-borne diseases such as heartwater

Slides 40-41: Spanish

- Found throughout the U.S. but are concentrated in Texas
- Survive in harsh conditions
- Relatively tolerant of internal parasites
- Can have any color or pattern
- Medium size
- Good birthers
- Excellent foragers and will even climb trees to eat leaves

Slides 42-43: Kiko

- Comes in cream or white and solid black
- Gains weight easily by foraging natural plants without supplemental feed
- Does can give birth to multiples and have no problem giving birth
- Resistant to more parasites compared to other breeds
- Fewer problems with foot rot
- Babies wean at a higher weight compared to other breeds

Slide 44: Fiber Breeds

Slides 45-47: Angora

- Produce mohair for sweaters, scarves, and other clothing
- Long hair with a ringlet or flat lock shape
- Fur can be any color including white, tan, red, black, or a combination of colors
- Both males and females have horns
- Males have a distinctive spiral or twist to their horns
- Male horn length can be 2 ft. or longer
- Females have shorter horns that spiral a bit but only to 10 in. long
- Takes 5 years to mature but bucks will weigh 180-225 lbs.
- Does weigh 100-110 lbs.

Slide 48: Pet Breeds (no notes)

Slides 49-50: Myotonic Small Breed

- While the myotonic breed in general can be raised for meat or as a pet, the smaller variety is typically raised as a pet
- Wide range of colors and coat lengths
- Purebred goats are highly parasite resistant

Slides 51-53: Pygmy

- Great for small farms, pets, and show animals
- Can be used as a milk goat
- Short and stocky body
- Fur can be any color
- 1-2 ft. tall or the size of a medium-sized dog
- Does weigh 35-50 lbs.
- Bucks weigh 40-60 lbs.
- Come in a range of colors including:
 - All shades of caramel and gray
 - Black with silver points
 - Solid black and brown
- Produces a small amount of high-quality milk
- Raised as a pet or meat producer

Common Goat Breeds and Traits

Directions: As you watch the presentation, fill in the blanks.

1. What Do _____?

- Goats provide _____ different types of _____
- While all _____ will give _____, certain breeds are considered better at it than others
- Beyond milk, goats _____ and _____
- They can also be _____ into families _____

Milk Breeds

2. Alpine

- _____ and a _____
- Range of _____ but _____ have _____ with a _____ and _____ a _____ the _____
- Thrive in _____
- _____ the _____
- _____ in this breed can _____ to _____ of _____ per day, which _____ between _____ per _____
- _____ or bucks _____ lbs.
- _____ or does _____ lbs.
- Very _____ for _____

3. LaMancha

- _____
- _____ for their _____
- Can be _____
- _____ and can be milked _____ before _____ or freshening
- Easygoing, _____, and _____
- Produces _____ in _____

- This breed's _____ has the _____ of _____

4. Nigerian Dwarf

- A great goat if you want a _____ of a _____
- _____ about _____ and are normally around _____ - _____ in.
- _____ about _____ of _____ per _____
- _____ and _____
- _____ have _____
- Can _____ - _____
- _____ by nature

5. Nubian

- _____ in the _____
- _____ without horns or _____
- Comes in a _____ and some _____
- Known for their _____ as well as a _____ Roman-like _____
- _____ or male goats weigh _____ while _____ or female goats weigh _____
- Known to have a _____ of _____ in their _____, making a _____
- _____ milk _____ per _____ is _____ - _____
- _____ allows them to _____ in _____
- _____
- _____ for _____ but can also be raised for _____ or _____

6. Oberhasli

- Formerly _____
- Can be _____ as _____ as it's _____ they aren't _____ of _____
- Male goats or _____ are _____ - _____ in. _____

- Female goats or _____ are _____ - _____ in. _____
- _____ can range from _____ - _____
- _____ called _____, _____ it has a _____ with _____ and _____ along with _____
- _____ go from the _____
- _____ is _____
- _____ are _____ the _____ and the _____ of the _____ are also _____

7. Saanen

- _____ of _____
- _____ to Alpine in _____
- _____, _____ and _____
- Normally _____ or _____
- _____ nature
- Both male and females _____
- _____ or polled
- _____ weigh _____
- _____ weigh _____

8. Sable

- _____ goats _____ except _____
- Created when both parents have a _____ a color _____ or _____
- To be considered a _____, the goat must _____ have _____ than _____ % _____
- _____ as " _____ "
- _____ are _____, pointing _____, _____ may be _____ the _____
- _____ is _____ and _____
- _____
- _____ has _____ - _____ % _____

9. Toggenburg

- _____ registered _____

- Same _____ consisting of a _____
_____ with a _____ -
_____ each _____ the _____,
_____ of the _____, and _____ of each _____
- _____ weigh _____ - _____
- _____ weigh _____ - _____
- Thrive in _____
- Have _____
- _____, on average, contains _____ % _____
- _____ size

Meat Breeds

10. Boer

- _____ in the U.S.
- _____
- _____ and _____ with a _____
- _____ are _____ and _____ a _____
- Very _____ - _____ nature
- _____
- Gains _____
- Has a _____ or body that _____ a lot of

- _____ with _____ to _____
a _____ (baby goat)
- Breed is _____ with _____ around _____
_____ and _____ around _____

11. Myotonic or Tennessee Fainting Goats

- _____ to the U.S.
- _____ of _____ and _____
- Term “_____” was _____ when people saw these
goats “_____” when _____
- _____ appearance is _____ to a _____
called _____
- Tennessee fainting goats are a _____ - _____ breed but
_____ to _____
- _____ comes in _____:
○ _____ or the Tennessee fainting goat is mostly _____
for _____

- _____ myotonic _____ can be _____ for meat
but _____ are raised as _____
- _____ that can take _____
- _____ - _____ or _____ - _____

12. Savanna

- _____ a _____ of _____
- _____ - _____
- _____, _____ and _____

- _____ are present
- _____ and _____ well with their _____
- _____
- _____ to several _____ including
_____ - _____ such as _____

13. Spanish

- Found _____ the U.S. but are _____ in

- _____ in _____
- Relatively _____ of _____
- Can have _____ or _____
- _____ size
- _____
- _____ and will even _____
_____ to _____

14. Kiko

- _____ in _____ or _____ and _____
- _____ weight _____ by _____
_____ without _____
- Does can _____ to _____ and have _____
_____ giving _____
- _____ to _____ compared to _____

- _____ with _____
- Babies _____ at a _____ compared to other breeds

Fiber Breeds

15. Angora

- _____ for sweaters, scarves, and other _____
- _____ with a _____
- Fur can be _____ including white, _____, red, _____, or a _____ of _____
- _____ males and females _____
- _____ have a _____ or _____ to their _____
- Male _____ length can be _____ ft. or _____
- _____ have _____ that _____ a _____ but only grow to _____ in. _____
- Takes _____ to _____ but _____ will _____ - _____
- _____ weigh _____ - _____

Pet Breeds

16. Myotonic-smaller breed

- While the _____ in general can be raised for _____ or as a _____, the _____ variety is typically raised as a _____
- Wide _____ and _____
- _____ goats are _____

17. Pygmy

- _____ for _____, _____, and _____ animals
- Can be _____ as a _____
- _____ and _____
- _____ can be _____
- _____ - _____ or the _____ of a _____ - _____
- _____ weigh _____ - _____
- _____ weigh _____ - _____

Goat Kit Curriculum

- Come in a _____ including:
 - All shades of _____ and gray
 - _____ with _____
 - _____ and _____
- Produces a _____ of _____ - _____
- _____ as a _____ or _____ producer

Common Goat Breeds and Traits – Answer Key

Directions: As you watch the PowerPoint, fill in the blanks

1. What Do Goats Provide?

- Goats provide 3 different types of products
- While all female goats will give milk, certain breeds are considered better at it than others
- Beyond milk, goats provide meat and fiber
- They can also be welcomed into families as pets

Milk Breeds

2. Alpine

- Upright ears and a dished face
- Range of different colors but typically have dark markings with a light head and neck or a black strip down the back
- Thrive in any environment
- Produces the most milk
- Top producers in this breed can make up to 2 gal. of milk per day, which equals between 1,500 and 1,600 lbs. per year
- Male goats or bucks weigh 180 lbs.
- Female goats or does weigh 135 lbs.
- Very popular for small farms

3. LaMancha

- American breed
- Known for their tiny ears
- Can be any color
- Good milkers and can be milked for 2 years before breeding again or freshening
- Easygoing, docile, and sturdy
- Produces milk high in protein
- This breed's milk has the highest percentage of butterfat

4. Nigerian Dwarf

- A great goat if you want a smaller version of a dairy goat
- Weigh about 75 lbs. and are normally around 17-20 in. tall

- Produce about 1 qt. of milk per day
- Variety of colors and body shapes
- Bucks have long beards
- Can live 12-15 years
- Friendly by nature

5. Nubian

- Most popular dairy breed in the United States
- Naturally born without horns or polled
- Comes in a range of colors and some can have spots
- Known for their floppy ears as well as a long and distinguished Roman-like nose
- Bucks or male goats weigh 180 lbs. while does or female goats weigh 135 lbs.
- Known to have a high level of butterfat in their milk, making a creamier milk
- Average milk production per year is 1,300-1,500 lbs.
- Middle Eastern heritage allows them to survive in warmer climates
- Longer breeding season
- Used for dairy but can also be raised for meat or both

6. Oberhasli

- Formerly called Swiss Alpine
- Can be used as pack animals as it's believed they aren't afraid of water
- Male goats or bucks are 30-34 in. tall
- Female goats or does are 28-32 in. tall
- Weight can range from 100-150 lbs.
- Coat pattern called chamoisee, meaning it has a brown base highlighted with tan and reddish brown along with black points
- 2 black stripes go from the eyes to the muzzle
- Forehead is nearly black
- Legs are black from the knees down and the inside of the ears are also black

7. Saanen

- Largest breed of dairy goat
- 2nd to Alpine in milk production
- Short, white hair and upright ears
- Normally solid white or cream colored
- Easygoing nature
- Both male and females have beards
- Born without horns or polled
- Bucks weigh 185 lbs.

- Does weigh 135 lbs.

8. Sable

- Sable goats look like Saanen except with color
- Created when both parents have a recessive gene for a color other than white or cream
- To be considered a Sable, the goat must not have more than 50% white coloration
- Known as "Saanens in party clothes"
- Ears are upright, pointing forward, and may be rounded at the end
- Hair is short and fine
- Medium size
- Milk has 3-4% butterfat

9. Toggenburg

- Oldest registered breed
- Same color pattern consisting of a mousy light to dark brown coat with a light-colored stripe down each side of the face, underside of the tail, and inside of each leg
- Bucks weigh 150-175 lbs.
- Does weigh 100-130 lbs.
- Thrive in cool environments
- Have excellent udder development
- Milk, on average, contains 3.7% butterfat
- Medium size

Meat Breeds

10. Boer

- Most popular meat breed in the U.S.
- From South Africa
- Red head and neck with a white body
- Ears are large and hang like a pendulum
- Very laid-back nature
- High fertility rate
- Gains weight quickly
- Has a meat carcass or body that produces a lot of meat
- Easily breed with dairy breeds to produce a meatier kid (baby goat)
- Breed is heavy with bucks weighing around 260 lbs. and does around 215 lbs.

11. Myotonic or Tennessee Fainting Goats

- Only breed indigenous to the U.S.
- Wide range of colors and hair lengths
- Term “fainting goat” was coined when people saw these goats “freeze and fall over” when startled
- Fainting appearance is due to a genetic disorder called myotonic congenita
- Tennessee fainting goats are a well-muscled breed but smaller compared to other meat breeds
- Myotonic breed comes in 2 sizes:
 - Large size or the Tennessee fainting goat is mostly used for meat production
 - Smaller myotonic breed can be raised for meat but mostly are raised as pets
- Ears that can take 3 different shapes
- Bug-eyed or pop-eyed look

12. Savanna

- Tolerates a full range of climates
- Year-round breeding
- White, short hair and black pigmented skin
- Lop ears are present
- Good mothers and bond well with their young
- Efficient foragers
- Resistant to several external parasites including tick-borne diseases such as heartwater

13. Spanish

- Found throughout the U.S. but are concentrated in Texas
- Survive in harsh conditions
- Relatively tolerant of internal parasites
- Can have any color or pattern
- Medium size
- Good birthers
- Excellent foragers and will even climb trees to eat leaves

14. Kiko

- Comes in cream or white and solid black
- Gain weight easily by foraging natural plants without supplemental feed
- Does can give birth to multiples and have no problem giving birth
- Resistant to more parasites compared to other breeds
- Fewer problems with foot rot

- Babies **wean** at a **higher weight** compared to other breeds

Fiber Breeds

15. Angora

- **Produces mohair** for sweaters, scarves, and other **clothing**
- **Long hair** with a **ringlet or flat lock shape**
- Fur can be **any color** including white, **tan**, red, **black**, or a **combination** of **colors**
- **Both** males and females **have horns**
- **Males** have a **distinctive spiral** or **twist** to their **horns**
- Male **horn** length can be **2 ft.** or **longer**
- **Females** have **shorter horns** that **spiral** a **bit** but only grow to **10 in.** **long**
- Takes **5 years** to **mature** but **bucks** will weigh **180-225 lbs.**
- **Does** weigh **100-110 lbs.**

Pet Breeds

16. Myotonic-smaller breed

- While the **myotonic breed** in general can be raised for **meat** or as a **pet**, the **smaller** variety is typically raised as a **pet**
- Wide **range of colors** and **coat lengths**
- **Purebred** goats are **highly parasite resistant**

17. Pygmy

- **Great** for small **farms, pets**, and **show** animals
- Can be **used** as a **milk goat**
- **Short** and **stocky body**
- Fur can be **any color**
- **1-2 ft. tall** or the **size** of a **medium-sized dog**
- **Does** weigh **35-50 lbs.**
- **Bucks** weigh **40-60 lbs.**
- Come in a **range of colors** including:
 - All shades of **caramel** and **gray**
 - **Black** with **silver points**
 - **Solid black** and **brown**
- Produces a **small amount** of **high-quality milk**
- **Raised** as a **pet** or **meat** producer

Lesson One – Goat Breeds

REVIEW: Recap of Goat Breeds

10 minutes

Purpose:

Participants will review the goat breeds with *Goat Kit Breed ID Flashcards* and then will take a quiz.

Materials:

- *Goat Breed ID Flashcards*
- *Goat Breeds Quiz*

Facilitation Steps:

1. Instruct participants to pair up.
2. Distribute the flashcards and instruct participants on how to use them.
3. After five minutes, collect the flashcards and have participants return to their seats.
4. Distribute the quiz and provide directions on how to fill it out.
5. After five minutes, collect the quiz.

Name: _____ Class: _____

Goat Breeds Quiz

Directions: For each statement, circle the correct answer to whether the statement is true or false.

1. All goats are born with horns. True or False
2. Goats are only raised for meat and/or milk production. True or False
3. The Angora goat breed produces mohair. True or False
4. The Tennessee fainting goat is also known as myotonic. True or False
5. A buck is a male goat over a year old. True or False
6. The Pygmy goat breed is one of the largest breeds. True or False
7. A Spanish breed goat is a great forager and will even climb trees for food. True or False
8. The Toggenburg breed is the most popular meat breed in the U.S. True or False
9. Alpine goats produce the most milk. True or False
10. Nubian goats are the most popular dairy breed in the U.S. True or False
11. A doe is a female goat over a year old. True or False
12. The Saanen goat breed can also be used as a pack animal. True or False
13. Savanna goats have white hair with black skin. True or False
14. A wether is a castrated goat. True or False

Goat Breeds Quiz – Answer Key

Directions: For each statement, circle the correct answer to whether the statement is true or false.

1. All goats are born with horns. True or **False**
2. Goats are only raised for meat and/or milk production. True or **False**
3. The Angora goat breed produces mohair. **True** or False
4. The Tennessee fainting goat is also known as myotonic. **True** or False
5. A buck is a male goat over a year old. **True** or False
6. The Pygmy goat breed is one of the largest breeds. True or **False**
7. A Spanish breed goat is a great forager and will even climb trees for food. **True** or False
8. The Toggenburg breed is the most popular meat breed in the U.S. True or **False**
9. Alpine goats produce the most milk. **True** or False
10. Nubian goats are the most popular dairy breed in the U.S. **True** or False
11. A doe is a female goat over a year old. **True** or False
12. The Saanen goat breed can also be used as a pack animal. True or **False**
13. Savanna goats have white hair with black skin. **True** or False
14. A wether is a castrated goat. **True** or False

Lesson Two – Goat Feeding and Management

Lesson Overview

Participants will be introduced to the foods goats can and cannot eat as well as other requirements in goat production.

Lesson Objectives

After completing this lesson, participants will be able to:

- List foods that goats can eat
- List foods that goats cannot eat
- Describe the importance of pasture in goat production
- Define the difference between macro and micro nutrients
- Define “chaffhaye”
- Explain why chaffhaye is important in goat production

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>What Do Goats Eat?</i> worksheet	1. Print/photocopy <i>What Do Goats Eat?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Goat Feeding and Management</i> slide presentation • <i>Goat Feeding and Management</i> worksheet	1. Print/photocopy <i>Goat Feeding and Management</i> worksheet (one per participant) 2. Prepare <i>Goat Feeding and Management</i> slide presentation for viewing	40 minutes
REVIEW	• Goat Feeding and Management Poster	1. Prepare Goat Feeding and Management Poster for viewing	10 minutes

Lesson Two – Goat Feeding and Management

FOCUS: Intro to Goat Feeding and Management

10 minutes

Purpose:

Participants will receive a worksheet as an introduction to what the dietary needs of goats are and what they should not eat.

Materials:

- *What Do Goats Eat?* worksheet

Facilitation Steps:

1. Have participants pair up.
2. Distribute the worksheet and give instructions on how to fill it out.
3. After five minutes, have participants go back to their seats and trade papers.
4. Have participants grade the worksheet while the answers are presented.
5. Collect the worksheets

Name: _____ Class: _____

What Do Goats Eat?

Directions: Circle the foods listed that you feel goats eat.

1. Fruit pits
2. Hay
3. Chocolate
4. Dog food
5. Grain
6. Meat products
7. Lily of the valley
8. Wild cherries
9. Cheese
10. Coffee grounds
11. Pasture
12. Paper labels off of cans
13. Tires
14. Holly trees and shrubs
15. Chaffhaye
16. Milkweed
17. Cat food
18. All kitchen and garden scraps
19. Certain tree leaves
20. Kale

What Do Goats Eat? – Answer Key

Directions: Circle the foods listed that you feel goats eat.

1. Fruit pits
2. Hay
3. Chocolate
4. Dog food
5. Grain
6. Meat products
7. Lily of the valley
8. Wild cherries
9. Cheese
10. Coffee grounds
11. Pasture
12. Paper labels off of cans
13. Tires
14. Holly trees and shrubs
15. Chaffhaye
16. Milkweed
17. Cat food
18. All kitchen and garden scraps
19. Certain tree leaves
20. Kale

Lesson Two – Goat Feeding and Management

LEARN: Goat Dietary Needs and Management

40 minutes

Purpose:

As participants view the presentation, they will learn what goats should actually eat and other management practices that are required to keep goats healthy.

Materials:

- *Goat Feeding and Management* slide presentation
- *Goat Feeding and Management* worksheet

Facilitation Steps:

1. Set up the slide presentation.
2. Distribute the worksheet and provide directions on how to fill it out.
3. After the presentation is complete, collect the worksheet.

Slide 1: Title slide

Slide 2: Goats Eat Everything, Right?

Slide 3: A Goat's Dinner Menu

- A goat can eat several different foods that together make up a balanced diet
- This includes:
 - Hay
 - Pasture
 - Grains
 - Certain kitchen and garden scraps
 - Chaffhaye
- They also can benefit from certain food supplements, which includes minerals, black oil sunflower seeds, and apple cider vinegar

Slides 4-5: Hay

- Hay is defined as a crop raised as feed for animals
 - This crop is normally a grass
- Can be:
 - Timothy hay

- Orchard grass
- Alfalfa hay or pellets
- Bermuda grass
- Provides food during the winter

Slides 6-7: Pasture

- Pasture can be defined as land covered in grass and low-growing plants
- Pasture provides diverse vegetation that the goats will consume during the spring, summer, and fall
- The variety of plant material, which includes grasses, weeds, and small shrubs all play a role in keeping a goat's digestive tract healthy

Slides 8-13: Grains

- Grains can be defined as wheat, or any other cultivated cereal crop used as food
- For goats, the grain normally is a combination of corn, barley, and oats
- Goats can also eat distilled grains or those from a brewery
- Beyond the type of grain, you can also find grain presented in different forms
- This includes:
 - Whole grain
 - Pelleted grain
 - Rolled grain
 - Texturized grain
- Whole grains are not processed
- Pelleted grains are grain by-products cut into small pieces
- These pieces are then bound together with a binding agent
- Rolled grains are close in nutritional value to whole grains
- Pieces are flat instead of rounded or pelleted

Slides 14-15: Meals

- Meals, in this example, are parts of a plant left after oil extraction
- This includes soybeans, canola, and cottonseed

Slides 16-17: Kitchen and Garden Scraps

- Kitchen and garden scraps are parts of vegetables and fruits that humans are not going to eat or use
- Garden scraps are weeds, trimmed branches, and any other plant material removed from the garden
- Goats cannot eat:
 - Any fruit with a pit
 - Holly trees or shrubs
 - Wild cherries
 - Lily of the valley
 - Any plant in the nightshade family (includes tomatoes, potatoes, and peppers)
 - Weeds such as milkweed

Slides 18-19: Chaffhaye

- Chaffhaye is a feed consisting of a premature grass mixed with molasses
- The chaffhaye production process begins with chopping premature grass that is then sprayed with molasses
- This product is then placed in air-tight packages that lock in freshness for fermentation
- Fermentation enriches the chaffhaye with yeast, enzymes, and beneficial microflora that aids a goat's digestion
- While it can be fed anytime, chaffhaye is offered when pasture is not available

Slide 20: Feed Supplements

Slides 21-22: Minerals

- Loose minerals are added to feed as a supplement
- This includes the macronutrients:
 - Calcium
 - Phosphorus
 - Sodium
 - Magnesium
 - Sulfur
 - Potassium
 - Chlorides
- Micronutrients added include:

- Copper
- Iron
- Zinc
- Manganese
- Cobalt
- Molybdenum
- Iodine
- Selenium

Slide 23: Black Oil Sunflower Seeds

- Feeding goats black oil sunflower seeds adds vitamin E, selenium, iron, and zinc to their diet
- This helps them develop muscles

Slides 24-25: Apple Cider Vinegar

- Many goat producers add apple cider vinegar to their goats' diets
- Apple cider vinegar is high in vitamin C, which will help support the goats' immune system

Slide 26: Housing

- Goats need shelter from the elements, which can simply be a small shed
- Dairy goats will need a milking parlor (area only used for milking)
- A space for kidding (giving birth) is also required
 - It can be as simple as a small shed divided into stalls for the does

Slide 27: Fencing

- Goats are foragers and will go anywhere in search of fresh grass
- To keep your goats contained in one area, fencing is required
- Fencing is also needed to properly rotate the areas the goats graze
- It also keeps goats away from dangerous plants

Slide 28: Feeding Supplies

- The required feeding supplies includes a hay manger, mineral feeder, and water buckets
- Storage containers for feed are also needed to keep the supply fresh

Goat Feeding and Management

Directions: As you watch the presentation, fill in the blanks in each section.

1. A Goat's Dinner Menu

- A _____ can _____ several _____ that _____ make up a _____
- This _____:
 - _____
 - _____
 - _____
 - Certain _____ and _____
 - _____
- They _____ can _____ certain _____, which includes _____, _____, _____, and _____

2. Hay

- _____ is _____ a _____ for animals
 - This crop is _____ a _____
- Can be:
 - _____
 - _____
 - _____ or pellets
 - _____
- Provides _____ the _____

3. Pasture

- _____ can be _____ as _____ and _____
- Pasture _____ diverse _____ that the _____ will _____ during the _____, _____, and _____
- The variety of _____, which _____, _____, and _____ all play a role in _____ a goat's _____

4. Grains

- _____ can be _____ as _____, or any _____
_____ used _____
- For goats, the _____ normally is a combination of _____, _____, and _____
- Goats can also eat _____ or those _____ a _____
- _____ the _____ of grain, you can also find _____ presented in _____
- This includes:
 - _____
 - _____
 - _____
 - _____
- _____ are not _____
- _____ are _____ - _____ that are _____ into _____
- These _____ are then _____ with a _____
- _____ are _____ in _____ to _____
- _____ are _____ instead of _____ or _____
- _____ is one that has _____ to _____
- It is a _____ if you are _____ to _____ as a _____

5. Meals

- _____, in this example, are _____ a _____ after _____
- This _____, _____, and _____

6. Kitchen and garden scraps

- _____ and _____ are _____ of _____ and _____ that _____ are _____ to _____ or _____

- _____ are _____, _____
_____, and any other _____
_____ from the _____
- Goats cannot eat:
 - _____ with a _____
 - _____ or shrubs
 - _____
 - Lily of the valley
 - Any _____ the _____ (includes
_____, _____, and _____)
 - _____ such as _____

7. Chaffhaye

- _____ is a _____ of a _____
_____ with _____
- The _____ process begins with _____
_____ that is then _____ with _____
- This _____ is then _____ in _____ - _____
_____ that lock in freshness for fermentation
- Fermentation _____ the _____ with _____,
_____, and _____ that aids a

- While it can be fed anytime, chaffhaye is _____ when _____ is

8. Minerals

- _____ are _____ to _____ as a

- This _____ the _____:
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
- _____ added include:
 - _____
 - _____
 - _____

- _____
- _____
- _____
- _____
- _____

9. Black Oil Sunflower Seeds

- _____ goats _____
_____ adds _____, _____, _____, and
_____ to their diet
- This _____ develop _____

10. Apple Cider Vinegar

- Many _____ add _____
_____ to their _____
- Apple cider vinegar is _____ in _____, which will help
_____ the _____ system

11. Housing

- _____ need _____ the _____, which _____
simply _____ a _____
- A _____ (_____ only _____) for _____ is
not a necessity, but it does make _____ much easier
- A _____ for _____ (_____) is also

 - It can be as _____ as a _____
into _____ for the _____

12. Fencing

- _____ are _____ and will _____ in search of

- To keep your _____ in one area, _____ is

- _____ is also needed to _____ the
_____ the _____
- It also _____ away _____

13. Feeding supplies

Goat Kit Curriculum

- The _____ supplies _____ a _____
_____, _____, and _____
- _____ for _____ are also needed to keep the
supply _____

Feeding and Management of Goats – Answer Key

Directions: As you watch the slide show, fill in the blanks in each section.

1. A Goat's Dinner Menu

- A goat can eat several different foods that together make up a balanced diet
- This includes:
 - Hay
 - Pasture
 - Grains
 - Certain kitchen and garden scraps
 - Chaffhaye
- They also can benefit from certain food supplements, which includes minerals, black oil sunflower seeds, and apple cider vinegar

2. Hay

- Hay is defined as a crop raised as feed for animals
 - This crop is normally a grass
- Can be:
 - Timothy hay
 - Orchard grass
 - Alfalfa hay or pellets
 - Bermuda grass
- Provides food during the winter

3. Pasture

- Pasture can be defined as land covered in grass and low-growing plants
- Pasture provides diverse vegetation that the goats will consume during the spring, summer, and fall
- The variety of plant material, which includes grasses, weeds, and small shrubs all play a role in keeping a goat's digestive tract healthy

4. Grains

- Grains can be defined as wheat, or any other cultivated cereal crop used as food
- For goats, the grain normally is a combination of corn, barley, and oats

- Goats can also eat distilled grains or those from a brewery
- Beyond the type of grain, you can also find grain presented in different forms
- This includes:
 - Whole grain
 - Pelleted grain
 - Rolled grain
 - Texturized grain
- Whole grains are not processed
- Pelleted grains are grain by-products that are cut into small pieces
- These pieces are then bound together with a binding agent
- Rolled grains are close in nutritional value to whole grains
- Pieces are flat instead of rounded or pelleted
- Texturized grain is one that has additional ingredients to make it more nutritious
- It is a great option if you are adding grain to other ingredients as a feed

5. Meals

- Meals, in this example, are parts of a plant left after oil extraction
- This includes soybeans, canola, and cottonseed

6. Kitchen and garden scraps

- Kitchen and garden scraps are parts of vegetables and fruits that humans are not going to eat or use
- Garden scraps are weeds, trimmed branches, and any other plant material removed from the garden
- Goats cannot eat:
 - Any fruit with a pit
 - Holly trees or shrubs
 - Wild cherries
 - Lily of the valley
 - Any plant in the nightshade family (includes tomatoes, potatoes, and peppers)
 - Weeds such as milkweed

7. Chaffhaye

- Chaffhaye is a feed consisting of a premature grass mixes with molasses
- The chaffhaye production process begins with chopping premature grass that is then sprayed with molasses
- This product is then placed in air-tight packages that lock in freshness for fermentation
- Fermentation enriches the chaffhaye with yeast, enzymes, and beneficial microflora that aids a goat's digestion

- While it can be fed anytime, chaffhaye is offered when pasture is not available

8. Minerals

- Loose minerals are added to feed as a supplement
- This includes the macronutrients:
 - Calcium
 - Phosphorus
 - Sodium
 - Magnesium
 - Sulfur
 - Potassium
 - Chlorides
- Micronutrients added include:
 - Copper
 - Iron
 - Zinc
 - Manganese
 - Cobalt
 - Molybdenum
 - Iodine
 - Selenium

9. Black Oil Sunflower Seeds

- Feeding goats black oil sunflower seeds adds vitamin E, selenium, iron, and zinc to their diet
- This helps them develop muscles

10. Apple Cider Vinegar

- Many goat producers add apple cider vinegar to their goats' diets
- Apple cider vinegar is high in vitamin C, which will help support the goats' immune system

11. Housing

- Goats need shelter from the elements, which can simply be a small shed
- A milking parlor (area only used for milking) for dairy goats is not a necessity, but it does make milking much easier
- A space for kidding (giving birth) is also required
 - It can be as simple as a small shed divided into stalls for the does

12. Fencing

- Goats are foragers and will go anywhere in search of fresh grass
- To keep your goats contained in one area, fencing is required
- Fencing is also needed to properly rotate the areas the goats graze
- It also keeps goats away from dangerous plants

13. Feeding supplies

- The required feeding supplies includes a hay manger, mineral feeder, and water buckets
- Storage containers for feed are also needed to keep the supply fresh

Lesson Two – Goat Feeding and Management

REVIEW: Recap of Goat Feeding and Management

10 minutes

Purpose:

Participants will review goat feeding and management by studying a poster. Once the review is complete, participants will take a quiz.

Materials:

- Goat Feeding and Management Poster
- *Goat Feeding and Management Quiz*
- *Goat Feeding and Management Quiz – Answer Key*

Facilitation Steps:

1. Display the poster and instruct participants to review the information by studying the poster for five minutes.
2. Remove the poster and distribute the quiz.
3. Provide directions on how to fill the quiz out and give participants five minutes to work before collecting it.

Name: _____ Class: _____

Goats Feeding and Management Quiz

Directions: For each statement, circle true or false as the correct answer

1. When raising goats, one does not need to fence any area off. True or False
2. A micronutrient is needed in large amounts. True or False
3. Goats can eat any fruit with a pit. True or False
4. Apple cider vinegar is a feed supplement added due to its high vitamin C content. True or False
5. A variety of food sources is not important to the health of goats. True or False
6. Goats will eat the leaves from trees. True or False
7. A meal is the part of the plant processed for feed after oil extraction. True or False
8. Creating a separate area for kidding is an important component of goat management. True or False
9. While a milking parlor is not a necessity, it does make milking goats easier. True or False
10. Calcium, potassium, and phosphorus are just a few of the macronutrients given to goats. True or False
11. Chaffhaye is mature grass that is cut, mixed with syrup, and given to goats in the summer. True or False
12. Grain can be defined as any cultivated cereal crop used as feed. True or False
13. Grain that was used to make alcohol cannot be fed to goats. True or False
14. Hay is not fed to goats. True or False
15. Goats who eat pasture plants have a healthier digestive tract. True or False
16. Pasture is land covered in grass and low-growing plants. True or False
17. Goats can eat anything. True or False
18. Goats can eat trimming and weeds from the garden. True or False
19. A shelter for goats is not needed because goats will find their own shelter under trees. True or False
20. Black oil sunflower seeds are fed to goats because this food source contains vitamin E. True or False

Feeding and Management of Goats

Quiz – Answer Key

Directions: For each statement, circle true or false as the correct answer

1. When raising goats, one does not need to fence any area off. True or **False**
2. A micronutrient is needed in large amounts. True or **False**
3. Goats can eat any fruit with a pit. True or **False**
4. Apple cider vinegar is a feed supplement added due to its high vitamin C content. **True** or False
5. A variety of food sources is not important to the health of goats. True or **False**
6. Goats will eat the leaves from trees. **True** or False
7. A meal is the part of the plant processed for feed after oil extraction. **True** or False
8. Creating a separate area for kidding is an important component of goat management. **True** or False
9. While a milking parlor is not a necessity, it does make milking goats easier. **True** or False
10. Calcium, potassium, and phosphorus are just a few of the macronutrients given to goats. **True** or False
11. Chaffhaye is mature grass that is cut, mixed with syrup, and given to goats in the summer. True or **False**
12. Grain can be defined as any cultivated cereal crop used as feed. **True** or False
13. Grain that was used to make alcohol cannot be fed to goats. True or **False**
14. Hay is not fed to goats. True or **False**
15. Goats who eat pasture plants have a healthier digestive tract. **True** or False
16. Pasture is land covered in grass and low-growing plants. **True** or False
17. Goats can eat anything. True or **False**
18. Goats can eat trimming and weeds from the garden. **True** or False
19. A shelter for goats is not needed because goats will find their own shelter under trees. True or **False**
20. Black oil sunflower seeds are fed to goats because this food source contains vitamin E. **True** or False

Lesson Three – Goat Diseases and Parasites

Lesson Overview

Participants will learn about the common diseases and parasites goats can get along with symptoms and treatment.

Lesson Objectives

After completing this lesson, participants will be able to:

- List common indications that a goat is sick
- List five diseases commonly found in goats
- Define the two types of parasites
- Provide an example of each parasite type
- List common practices a farmer can do to reduce disease and parasites in their herd

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Is My Goat Sick?</i> worksheet • <i>Is My Goat Sick?</i> – Answer Key	1. Print/photocopy <i>Is My Goat Sick?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Goat Diseases and Parasites</i> slide presentation • <i>Goat Diseases and Parasites</i> worksheet • <i>Goat Diseases and Parasites</i> – Answer Key	1. Print/photocopy <i>Goat Diseases and Parasites</i> worksheet (one per participant) 2. Prepare <i>Goat Diseases and Parasites</i> slide presentation for viewing	40 minutes
REVIEW	• Goat Kit Diseases and Parasites Trivia Cards • <i>Goat Diseases and Parasites Quiz</i> • <i>Goat Diseases and Parasites Quiz</i> – Answer Key	1. Prepare Goat Diseases and Parasites Trivia Cards 2. Print/photocopy <i>Goat Diseases and Parasites Quiz</i>	10 minutes

Lesson Three – Diseases and Parasites of Goats

FOCUS: Intro to Diseases and Parasites of Goats

10 minutes

Purpose:

Participants will be introduced to symptoms a goat displays when it is sick by filling out a worksheet in a small group, which will be graded in class.

Materials:

- *Is My Goat Sick?* worksheet
- *Is My Goat Sick?* – Answer Key

Facilitation Steps:

1. Instruct participants to pair up and distribute the worksheet.
2. Provide directions on how to fill the worksheet out and give participants five minutes to complete it.
3. Have participants return to their seats and exchange papers.
4. Go over the answers to the worksheet as participants grade the papers.
5. Collect the worksheet.

Name: _____ Class: _____

Is my Goat Sick?

Directions: Circle the symptoms that you think goats show when they are sick.

1. Panting or breathing hard
2. Gnawing on wood
3. Stamping feet
4. Constantly leaning against something like a fence post or tree
5. Bright red gums
6. Isolation
7. Eyes bloodshot
8. Inactive
9. Chewing constantly
10. Bumping into other goats
11. Not wanting to eat
12. Clean and shiny coat
13. Unusual vocalization
14. Eating dirt
15. Runny nose
16. Running in circles
17. Hunched over
18. Clean eyes
19. Discharge coming from mouth
20. Not drinking

Is my Goat Sick? – Answer Key

Directions: Circle the symptoms that you think goats show if they are sick.

1. Panting or breathing hard
2. Gnawing on wood
3. Stamping feet
4. Constantly leaning against something like a fence post or tree
5. Bright red gums
6. Isolation
7. Eyes bloodshot
8. Inactive
9. Chewing constantly
10. Bumping into other goats
11. Not wanting to eat
12. Clean and shiny coat
13. Unusual vocalization
14. Eating dirt
15. Runny nose
16. Running in circles
17. Hunched over
18. Clean eyes
19. Discharge coming from mouth
20. Not drinking

Lesson Three – Diseases and Parasites of Goats

LEARN: Goat Diseases and Parasites

40 minutes

Purpose:

Participants will learn about goat diseases and parasites as they view the slide presentation and fill out the worksheet.

Materials:

- *Goat Diseases and Parasites* slide presentation
- *Goat Diseases and Parasites* worksheet
- *Goat Diseases and Parasites* – Answer Key

Facilitation Steps:

1. Set up the presentation and distribute the worksheet.
2. Instruct participants on how to fill the worksheet out and begin the presentation.
3. After the presentation is complete, collect the worksheets.

Slide 1: Title slide

Slide 2: How Do I Know My Goat Is Sick?

Slide 3: Symptoms of Illness

- A goat isolating itself
- Not wanting to eat
- Not drinking
- Hunched over
- Runny nose
- Labored breathing

Slide 4: Goat Diseases

Slides 5-6: Bacterial Pneumonia

- Symptoms:
 - Runny nose
 - Moist and painful cough
 - Loss of appetite or anorexia
 - Inactivity
 - Fever between 104° and 106° F
- Caused by *Pasteurella multocida* or *Mannheimia haemolytica*
- Requires a veterinarian diagnosis
- Prevention is vaccination
- Treatment is an antibiotic

- Keep sick animals isolated

Slides 7-9: Caprine Arthritis Encephalitis (CAE)

- Caused by small ruminant lentivirus (SRLV)
- Transmitted by consuming colostrum and milk from infected does
- Secondary transmission caused by blood from open wounds and contaminated instruments
- Symptoms include polyarthritis or inflammation of joints and intestinal pneumonia
- Kids between 2 and 6 months of age may experience paralysis
- Diagnosis requires lab tests
- No cure
- Prevent this disease by purchasing breeding stock from known sources, removing CAE-positive animals from the herd, and maintaining a closed herd

Slides 10-11: Caseous Lymphadenitis (CL)

- Caused by the bacteria *Corynebacterium pseudotuberculosis*
- Spread through pus of an infected animal as well as ingestion of contaminated feed and/or water
- Symptoms of CL can occur internally and externally as abscesses
- These abscesses contain a pasty, thick, yellow-green pus that smells bad
- No cure
- Must be diagnosed by a veterinarian who will do a blood test and physical exam
- Prevent and control the disease by:
 - Always using clean needles when giving shots
 - Cleaning all equipment before using on another animal
 - Having new males tested for CL
 - Maintaining a closed herd

Slides 12-15: Coccidiosis

- This parasitic disease is host specific, meaning each species of animal has its own species of coccidian
- Caused by a protozoa that naturally lives in the soil
- Begins when the goat eats oocytes when grazing or drinking water contaminated with feces
- The oocytes penetrate cells that line the intestines
- Causes inflammation and destruction of intestinal cells
- Stressing the animal can bring about outbreaks
- Symptoms:
 - Weakness
 - Constipation
 - Lack of appetite with a fever
 - Weight loss
 - Watery diarrhea
 - Dehydration
- Diagnosis comes from herd history, clinical signs, and microscopic examination of fecal matter
- Treatment includes giving the goat a coccidiostat and an intravenous (IV) fluid therapy
- To prevent and control the disease:
 - Reduce stress
 - Improve the facility's hygiene practices especially in the pasture, pens, and feeding and watering stations
 - Avoid moist areas that lack sunlight

Slides 16-18: Enterotoxemia (Overeating Disease)

- Caused by absorbing a large amount of toxins produced by *Clostridium perfringens* type C and D in the intestines
- Bacteria naturally found in the soil and the gastrointestinal tract of healthy goats
- Symptoms show up in young kids and include:
 - Loss of appetite
 - Fever
 - Laziness

- Diarrhea with or without blood
 - Sudden death
- Diagnosis is done by observing signs and a necropsy
- Prevent this disease by vaccinating all animals against *Clostridium perfringens* types C and D
- Treatment includes:
 - Oral antacid
 - Anti-bloating medication
 - Penicillin
 - Thiamin (B1) intramuscularly
 - Replacing fluids intravenously

Slides 19-22: Foot Rot and Foot Scald

- Caused by *Dichelobacter nodosus* and *Fusobacterium necrophorum*, which is found in the feces of goats and contaminated soil
- Causes inflammation between the toes
- Outbreaks occur during times of persistent rain combined with high temperatures as goats must walk across wet pasture
- If not treated, this disease can become a permanent problem
- Prevention starts with giving a foot bath to all animals new to the herd
 - This should also be done anytime animals leave the farm
- Goats suspected to have this disease should be removed from the herd
- Keep hooves trimmed
- Quarantine all new animals for 6 weeks prior to adding to the herd
- Treatment includes isolating animals with this disease so the hooves can be trimmed, and treatment given
- Treat the feet to a foot bath containing 16% copper sulfate or zinc sulfate
- The animal must stand in the foot bath for several minutes to ensure the solution goes through the hoof
- Maintain clean barns and pens

Slides 23-24: Haemonchosis

- Caused by *Haemonchus contortus*
- Commonly known as "barber pole worm"
- Symptoms:
 - Anemia

- Diarrhea
- Dehydration
- Lowers growth rates
- Substantial reduced reproductive performance
- Higher rates of illness
- Diagnosis through microscopic fecal examination
- To prevent and control this disease:
 - Rotate grazing areas
 - Only buy animals from reliable sources
 - Provide clean water and minerals
 - Keep hay and feed off the ground
 - Try a mix species grazing schedule, which means a combination of cattle and goats

Slides 25-26: Johne's Disease

- Caused by *Mycobacterium avium* subspecies *paratuberculosis*
- Causes inflammation of the intestines
- Diagnosis is difficult
- Animals can carry it for years before signs appear
- Symptoms include:
 - Loss of weight even with an appetite
 - Bottle jaw
 - Decreased milk production
 - Death
- No cure
- Prevention starts with removing sick animals from the herd and, if needed, putting animals down that show symptoms

Slides 27-29: Keratoconjunctivitis

- Commonly known as "pink eye"
- Caused by *Mycoplasma conjunctivae* and *chlamydia species*
- Outbreaks can be brought on by stress, harsh weather, and new animals introduced to the herd
- Symptoms include:
 - Cloudiness in normally clear areas of the eye
 - Squinting
 - Yellow or green pus draining from eyes; dried crust around

eyes; and/or watery, red, and swollen eyes

- Treatment includes:
 - Rinsing eyes with sterile saline
 - Separating sick animals
 - Providing fresh water
 - Controlling flies
 - Wearing gloves when working with sick animals
- You can prevent this disease by checking goats for pink eye before purchasing, controlling flies, and quarantining new animals prior to mixing with the herd

Slides 30-32: Mycoplasmosis

- Also called "contagious agalactiae" (CA)
- Caused by:
 - *Mycoplasma agalactiae*
 - *Mycoplasma mycoides subspecies capri*
 - *Mycoplasma capricolom subspecies capricolom*
 - *Mycoplasma putrefaciens*
- Animals and herds are exposed by carrier animals
- Kids and adults can suffer from this disease
- Symptoms include mastitis, arthritis, and keratoconjunctivitis
- Can cause the loss of a fetus
- No real treatment but some will pasteurize milk to give to kids
- Prevent this disease by:
 - Only buying goats from known suppliers
 - Testing milk for mycoplasma and removing animals that test positive
 - Keeping kids separate from adults
 - Keeping a closed herd
 - Keeping the milking parlor sanitized along with the milking equipment

Slides 33-35: Polioencephalomalacia

- In livestock production, this disease is commonly called polio, but it is not transmittable to humans nor is it like human polio

- Caused by a deficiency of thiamine or vitamin B1
- Normally found in areas with competition for food (such as feedlots) or when animals are under stress
- Symptoms include:
 - Aggression
 - Laziness
 - Muscle tremors
 - Temporary blindness that lasts about 2-3 weeks
 - Convulsions that occur every 2-5 minutes
 - Teeth grinding
 - Severe back arching
- Diagnosis comes from observation, herd management, and laboratory tests
- To prevent this disease:
 - Provide high quality pasture and hay
 - Provide feed with thiamine levels of 3-4 mg per kg of feed
 - Monitor sulfur content in both water and dry matter

Slides 36-37: Pregnancy Toxemia

- A metabolic disorder of fat in does carrying multiple fetuses
- Most susceptible 1-3 weeks before kidding (giving birth)
- Symptoms include:
 - Lack of appetite
 - Sluggishness
 - Poor coordination
 - Grinding teeth
 - Blindness
 - Coma
 - Death
- Diagnosis comes from herd history and clinical signs
- Treat with propylene glycol and sodium bicarbonate either intravenously or orally
- Good feeding management is very important, especially during the last weeks of pregnancy
- Reduce stress
- Supplement rations with ionophores, which will help with processing volatile fatty acids and increase energy

Slide 38: Zoonotic Diseases

Slide 39: Rabies

- A zoonotic disease that can pass from animal to human
- Transferred to humans by a bite that breaks the skin
- No cure
- Symptoms in goats:
 - Aggression
 - Drooling
 - Inability to swallow food
 - Excessive bleating or calling

Slides 40-41: Contagious Ecthyma

- Caused by parapoxvirus
- Transferred to humans through direct contact with a sore on the animal
- Appears on the goat as a wet scab on the lips, eyelids, nose, and/or ears
- Diagnosed by observation and immunologic tests
- Normally cures itself but an antibiotic can also be given
- To prevent and control this disease, minimize stress from transportation and quarantine animals 6 weeks prior to introducing them into the herd
- To prevent humans from getting this disease, wear gloves when handling sick goats and do not drink milk from does with sores on their teats and udder

Slide 42: Ringworm

- Fungal disease
- Spread to humans through contact with spores from an infected animal
- Spores can be found in hair and on animal grooming equipment, such as brushes and clippers
- Itching is the most common symptom
- Treat with a topical antifungal

Slide 43: Chlamydiosis

- Bacterial disease that is the cause of most abortions in goat production
- Can be transferred to humans by exposure to birthing tissue

- Prevent this disease by using good sanitation practices and only buying goats from known sources
- Treat with tetracycline

Slides 44-45: Campylobacteriosis

- Transmitted to goats through exposure to feces of infected animals along with vaginal discharge and aborted fetuses
- Humans are exposed by consuming contaminated or undercooked meat and/or drinking unpasteurized milk
- Comes from *Campylobacter spp.*
- Prevent by keeping food and water off the ground so it is not contaminated with feces as well as performing good barn and farm hygiene and sanitation practices
- Treat by getting a veterinarian diagnosis and antibiotic

Slides 46-48: Listeriosis

- Bacterial disease
- Humans can get this disease by consuming raw meat and unpasteurized milk
- Causes encephalitis, blood poisoning, and loss of fetus in goats
- Symptoms
 - Limp lips on one side
 - Going in a circle
 - High fever
 - Loss of appetite
- Can be transferred through milk produced by carrier goats and sick goats
- Caused by *Listeria monocytogenes*
- Occurs in cooler climates
- Is spread when goats inhale or swallow the bacteria, or when the bacteria gets in their eyes
- No cure
- Disinfecting is the only preventive measure one can take because the bacteria is very hardy and can live up to 5 years in soil, hay, and animal tissue

Slides 49-50: Salmonella

- Caused by *Salmonellosis spp.*
- Bloody diarrhea is a symptom, but goats may not show any signs of illness

- Can be spread to humans by undercooked meat and contact with feces
- A veterinarian will do a blood or fecal matter test to look for salmonella bacteria
- No cure
- Antibiotics have been given but in many cases the bacteria is resistant
- A vaccine does exist but only reduces symptoms
- Prevent this disease by frequently cleaning barns and pens as well as not cross using equipment, such as using a shovel to move manure and then using it to scoop feed

Slide 51: Q Fever

- Caused by *Coxiella burnetii*
- Transmitted by exposure to placenta, uterine fluids, or aborted material from does with Q fever
- No outward signs appear except repeated loss of fetuses
- An antibody test is required
- If the test is positive, then the animal needs to be put down

Slide 52: Internal Parasites

Slides 53-54: Lung Worm

- Caused by *Dictyocaulus spp.* or *Muellerius capillaris*
- Irritates the bronchioles inside the lung, which causes a local reaction of white blood cells (phlegm) and mucus
- This causes the goat to cough
- Fecal test required by veterinarian
- Treat by deworming
- Prevent by removing stagnant water, which attracts snails that carry the parasite

Slide 55: Liver Flukes

- Caused by *Fasciola hepatica*
- Symptoms include depression or stupor
- Fecal test required
- Treat by deworming
- Prevent by keeping goats away from stagnant water, which attracts snails that carry this parasite

Slide 56: External parasites

Slides 57-58: Lice

- Lice belong to the Order: *Phthiraptera*
- Divided into 2 groups:
 - Anoplura (sucking lice)
 - Mallophaga (chewing or biting lice)
- Symptoms:
 - Dull coat
 - Scratching
 - Scabs
 - Anemia
- Control lice by putting goats on a high-energy diet
- If it is a major problem, then an insecticide will need to be applied
- Timing is everything when it comes to chemical application
- The insecticide should be applied in the fall and then 2 weeks later to kill the newly hatched eggs

Slides 59-60: Fleas

- The 2 types of fleas common to goats are:
 - Cat flea (*Ctenocephalides felis*)
 - Sticktight flea (*Echidnophaga gallinacean*)
- Common symptoms include scratching and anemia
- Easily transferred not only to other goats but also dogs
- Symptoms appear during the spring and summer
- Treat all goats and dogs with an insecticide designed for fleas

Slide 61: Ticks

- There are 90 different species of tick that can attack goats
- Prevention is the best approach
- Keep grass around the barn cut short and check goats that have been grazing in tall grass and wooded areas often
- If needed, treat with an insecticide in spring and summer

Slides 62-63: Mites

- Common goat mites are:

- Goat follicle mite (*Demodex caprae*)
- Scabies mite (*Sarcoptes scabiei*)
- Psoroptic ear mite (*Psoroptes cuniculi*)
- Chorioptic scab mite (*Chorioptes bovis*)

- Symptoms:
 - Scratching
 - Lesions
 - Anemia
 - Hair loss around muzzle
 - Weight loss
- Isolate new animals for at least 2 weeks to make sure they do not have mites before introducing them into the herd
- Treat with an insecticide from late fall to late spring

Slides 64-65: Flies

- There are several types of flies that attack goats:
 1. Horn flies
 2. Stable flies
 3. Horse flies
 4. Deer flies
 5. Black flies
 6. Mosquitoes
 7. Nuisance flies
 8. Blow flies
- All these flies bite, causing the herd to run and clump together
- This reduces grazing and can cause weight loss
- There is a 3-step approach to follow:
 1. Keep the barn and pens clean as well as remove wet bedding, feed, and anything else that may be damp in the barn
 2. Use a small wasp that lays its eggs in fly pupae, called a parasitoid
 3. Apply an insecticide used to kill flies in the barns and pens, but if you are also using a parasitoid, make sure your spray carefully since this chemical will kill the wasps

Goat Diseases and Parasites

Directions: Watch the presentation and fill in the blanks with the proper information.

1. _____ of illness
 - A goat _____
 - _____ wanting _____
 - _____
 - _____
 - _____
 - _____

Goat Diseases

2. Bacterial Pneumonia
 - _____:
 - _____
 - _____ and _____
 - Loss of appetite or _____
 - Inactivity
 - _____ between _____ and _____ F
 - _____ by _____ or _____
 - _____ a _____
 - _____ is _____
 - _____ is an _____
 - _____ animals _____
3. Caprine Arthritis Encephalitis (CAE)
 - _____ by _____ (SRLV)
 - _____ by _____ and _____ from _____
 - _____ caused by _____ from _____ and _____
 - _____ include _____ or _____ and _____

- _____ between _____ and _____ of _____ experience paralysis
- _____ requires _____
- _____
- _____ this _____ by purchasing _____ from _____, _____ CAE- _____ from the _____, and _____ a _____

4. Caseous Lymphadenitis (CL)

- _____ the _____
- _____ through _____ of an _____ as well as _____ of _____ and/or _____
- _____ of CL can occur _____ and _____ as _____
- These _____ contain a _____, thick, _____ - _____ that _____
- _____
- Must be _____ by a _____ who will do a _____ and _____
- _____ and _____ the _____ by:
 - Always _____ when _____
 - _____ all _____ before _____ on _____
 - Having _____ for _____
 - _____ a _____

5. Coccidiosis

- _____ disease is _____, _____ each _____ of _____ has its _____ of _____
- _____ a _____ that _____ in the _____
- _____ when the _____ when _____ or _____ with _____
- The oocytes _____ cells _____ line the _____
- _____ and _____ of _____

- _____ the _____ can _____ about _____
- _____:
 - _____
 - Constipation
 - _____ with a _____
 - Weight loss
 - _____
 - Dehydration
- _____ comes from _____, clinical _____, and _____ examination of _____
- _____ includes _____ the goat a _____ and _____ (____)
- To _____ and _____ the disease:
 - Reduce stress
 - _____ the _____ practices especially in the _____, pens, and _____ and _____
 - _____ that _____

6. Enterotoxemia (Overeating Disease)

- _____ a _____ of _____ by _____ type _____ and _____ in the _____
- _____ found in the _____ and the _____ tract of _____
- _____ show up _____ and include:
 - Loss of appetite
 - _____
 - Laziness
 - _____ with or without blood
 - _____
- _____ is done by _____ and a _____

- _____ this disease by _____ all
_____ against _____
_____ types _____ and _____
- _____ includes:
 - _____
 - Anti-bloating medication
 - _____
 - Thiamin (B1) intramuscularly
 - _____ intravenously

7. Foot Rot and Foot Scald

- _____ by _____
_____ and _____
_____, which is _____ the _____ of
goats and _____
- Causes _____ between the _____
- _____ occur _____ of
_____ combined with _____
_____ as _____ must _____ across _____

- If _____, this disease can become a

- _____ starts with giving a _____ to all
_____ new to the herd
 - This should also be _____ anytime _____
the _____
- _____ to have this disease should be
_____ from the _____
- Keep _____
- _____ all _____ for _____
_____ to _____ to the _____
- _____ includes _____ with this
_____ so the _____ can be _____, and

- _____ the _____ to a _____ containing _____%
_____ or _____
 - The animal must _____ the _____ for several
_____ to ensure the _____ goes through the

- Maintain _____ and _____

8. Haemonchosis

- _____ by _____

- _____ known as “_____”
- _____:
 - Anemia
 - _____
 - Dehydration
 - _____
 - Substantial reduced reproductive performance
 - _____ of _____
- _____ through _____

- To _____ and _____ this disease:
 - _____
 - Only _____ from _____

 - Provide _____ and _____
 - Keep _____ and _____ the _____
 - Try a _____ schedule,
which means a _____ of _____ and _____

9. Johne’s Disease

- _____ by _____

- _____ of the _____
- _____ is _____
- Animals can _____ for _____ before _____

- _____ include:
 - _____ even _____ an _____
 - Bottle jaw
 - _____

 - Death
- _____
- _____ with _____
_____ from the _____ and, if needed,
_____ that _____

10. Keratoconjunctivitis

- Commonly _____ as “_____”
- _____ by _____

- _____ can be _____ by _____, harsh weather, and new _____ in the _____
- _____ include:
 - _____ in normally _____ of the _____
 - Squinting
 - _____
_____ from _____; _____
_____ around _____; and/or _____, red, and _____ eyes
- _____ includes:
 - _____ with _____
 - _____ sick animals
 - Providing _____
 - Controlling flies
 - _____ when _____ with _____
- You can _____ this disease by _____
_____ for pink eye _____
_____, controlling flies, and
_____ new animals _____ to _____ with
the _____

11. Mycoplasmosis

- Also _____ “_____”
_____ (_____)
- _____ by:
 - _____
 - _____
 - _____
 - _____
- _____ and _____ are _____ by _____

- _____ and _____ can _____ from this _____
- _____ include _____, arthritis, and _____
- Can _____ the _____ of a _____
- _____ real _____ but some will pasteurize milk to give to kids
- _____ this disease by:
 - _____ from _____
 - _____ for _____ and _____ that _____
 - _____ from _____
 - _____ a _____
 - _____ the _____ along with the _____

12. Polioencephalomalacia

- In _____, this _____ is commonly _____, but it is _____ to _____ is it _____
- _____ by a _____ or _____
- Normally _____ in _____ with _____ (such as feedlots) or _____ animals are _____
- _____ include:
 - _____
 - Laziness
 - _____
 - _____ that _____ about _____ - _____
 - Convulsions that occur every 2-5 minutes
 - _____
 - _____
- _____ comes from _____, herd management, and _____
- To _____ this _____:
 - Provide _____ and _____

- Provide _____ with _____ levels of _____ - _____
_____ of feed
- _____ content in _____ and _____

13. Pregnancy Toxemia

- A _____ of _____ in does

- Most _____ - _____ before kidding
(_____)
- _____ include:
 - _____ of _____
 - Sluggishness
 - _____
 - Grinding teeth
 - _____
 - Coma
 - _____
- _____ comes from _____ and

- _____ with _____ and
_____ either
_____ or _____
- Good _____ is very _____,
especially during the _____ of _____
- _____
- _____ with
_____, which will _____ with
_____ acids and

Zoonotic Diseases

14. Rabies

- A _____ that can _____ from _____ to

- _____ to _____ by a _____ that _____
the _____
- No cure
- _____ in goats:
 - Aggression
 - _____

- Inability to swallow food
- _____

15. Contagious Ecthyma

- _____ by _____
- Transferred to _____ through _____ with a _____
the _____
- _____ on the goat as a _____ on the _____,
_____, _____, and/or _____
- _____ by _____ and

- _____ but an antibiotic can also be
given
- To _____ and control this disease,
_____ from transportation and
_____ animals _____ prior to
_____ into the _____
- To _____ from getting this disease, wear gloves when
_____ and _____ drink
_____ from does with _____ on their _____ and _____

16. Ringworm

- _____
- Spread to _____ with _____
an _____
- _____ can be _____ in _____ and on animal
_____, such as brushes and clippers
- _____ is the most common _____
- _____ with a _____

17. Chlamydiosis

- _____ that is the _____ of
_____ in _____

- Can be _____ to _____ by
_____ to _____
- _____ this disease by _____
practices and only _____ from _____
- _____ with _____

18. Campylobacteriosis

- _____ to goats through _____
_____ of _____ along with
_____ and _____
- _____ are exposed by _____
_____ or undercooked meat and/or drinking

- _____ from _____
- _____ by keeping _____ and _____ the
_____ so it is _____ with _____ as
well as performing good _____ and _____ and
_____ practices
- _____ by getting a _____
_____ and _____

19. Listeriosis

- _____ disease
- _____ can get this disease by _____ and

- _____ encephalitis, _____
_____, and _____ in
goats
- Can be _____
produced by _____ and _____ goats
- Symptoms
 - Limp lips on _____ side
 - Going in a _____
 - High fever
 - Loss of _____
- _____ by _____
- _____ in _____
- Is _____ when _____ or _____ the bacteria,
or when the bacteria gets in their _____
- _____
- _____ is the _____
_____ one can take because the _____ is
_____ and can live up to _____,
hay, and _____

20. Salmonella

- _____ by _____
- Bloody diarrhea is a _____, _____ any signs of _____
- Can be _____ to _____ by _____ and contact with _____
- A _____ will do a _____ to _____ for _____
- _____
- _____ have been given but in many cases the _____
- A _____ but only _____
- _____ this _____ by _____ and _____ as well as _____, such as using a shovel to move manure and then using it to scoop feed

21. Q Fever

- _____ by _____
- _____ by _____ to _____, uterine fluids, or _____ from _____
- _____ appear except _____
- An _____ is _____
- If the test is _____, then the _____ needs to be _____

Internal Parasites

22. Lung Worm

- _____ by _____
- _____ the _____ the _____, which causes a _____ of _____ (phlegm) and _____
- This _____ the goat to _____

- _____ required by veterinarian
- _____ by _____
- Prevent by removing stagnant water, which attracts snails that carry the parasite

23. Liver Flukes

- _____ by _____
- _____ include _____ or _____
- _____ required
- _____ by _____
- _____ by keeping _____ from _____
_____, which _____ that _____ this

External Parasites

24. Lice

- _____ belong to the _____:
- Divided into _____:
 - _____ (_____)
 - _____ (_____)
- _____:
 - Dull coat
 - _____
 - Scabs
 - _____
- _____ lice by _____ goats on a _____ -

- If it is a _____, then an
_____ will _____ to be _____
- _____ is _____ when it comes to _____

- The _____ should be _____ in the
_____ and then _____ to _____ the

25. Fleas

- The _____ of fleas common to goats are:
 - _____ (_____)

- _____
(_____)
- Common _____ include _____

- _____ not only to _____
_____ but also _____
- _____ during the _____

- _____ and _____ with an
_____ designed _____

26. Ticks

- There are _____
of _____ that can _____
- _____ is the _____

- _____ around the barn _____ and _____
_____ that have been _____ in _____ and
_____ often
- If needed, _____ with an _____ in _____
and _____

27. Mites

- Common _____ are:
 - _____ (*Demodex caprae*)
 - _____ (*Sarcoptes scabiei*)
 - _____ (*Psoroptes cuniculi*)
 - _____ (*Chorioptes bovis*)
- _____:
 - Scratching
 - _____
 - Anemia
 - _____
 - Weight loss
- _____ for _____
_____ to make sure they do not have mites
_____ into the _____
- _____ with an _____ from _____
_____ to _____

28. Flies

- There are _____ of _____ that attack goats:
 - _____
 - Stable flies
 - _____
 - Deer flies
 - _____
 - Mosquitoes
 - _____
 - Blow flies.
- _____ these flies _____, _____ the _____ to _____ and _____ together
- This _____ and can cause _____
- There is a _____ - _____ to _____:
 - _____ the _____ and _____ as well as _____, feed, and _____ else that may be _____ the _____
 - Use a _____ that lays its eggs in fly pupae, called a parasitoid
 - Apply _____ used to _____ to the _____ and _____, but if you _____ also _____ a _____, make sure you _____ since this _____ will _____ the _____

Goat Diseases and Parasites – Answer Key

Directions: Watch the presentation and fill in the blanks with the proper information.

1. Symptoms of illness
 - A goat isolating itself
 - Not wanting to eat
 - Not drinking
 - Hunched over
 - Runny nose
 - Labored breathing

Goat Diseases

2. Bacterial Pneumonia
 - Symptoms:
 - Runny nose
 - Moist and painful cough
 - Loss of appetite or anorexia
 - Inactivity
 - Fever between 104° and 106° F
 - Caused by *Pasteurella multocida* or *Mannheimia haemolytica*
 - Requires a veterinarian diagnosis
 - Prevention is vaccination
 - Treatment is an antibiotic
 - Keep sick animals isolated
3. Caprine Arthritis Encephalitis (CAE)
 - Caused by small ruminant lentivirus (SRLV)
 - Transmitted by consuming colostrum and milk from infected does
 - Secondary transmission caused by blood from open wounds and contaminated instruments
 - Symptoms include polyarthritis or inflammation of joints and interstitial pneumonia
 - Kids between 2 and 6 months of age may experience paralysis
 - Diagnosis requires lab tests
 - No cure

- Prevent this disease by purchasing breeding stock from known sources, removing CAE-positive animals from the herd, and maintaining a closed herd

4. Caseous Lymphadenitis (CL)

- Caused by the bacteria *Corynebacterium pseudotuberculosis*
- Spread through pus of an infected animal as well as ingestion of contaminated feed and/or water
- Symptoms of CL can occur internally and externally as abscesses
- These abscesses contain a pasty, thick, yellow-green pus that smells bad
- No cure
- Must be diagnosed by a veterinarian who will do a blood test and physical exam
- Prevent and control the disease by:
 - Always using clean needles when giving shots
 - Cleaning all equipment before using on another animal
 - Having new males tested for CL
 - Maintaining a closed herd

5. Coccidiosis

- This parasitic disease is host specific, meaning each species of animal has its own species of coccidian
- Caused by a protozoa that naturally lives in the soil
- Begins when the goat eats oocytes when grazing or drinking water contaminated with feces
- The oocytes penetrate cells that line the intestines
- Causes inflammation and destruction of intestinal cells
- Stressing the animal can bring about outbreaks
- Symptoms:
 - Weakness
 - Constipation
 - Lack of appetite with a fever
 - Weight loss
 - Watery diarrhea
 - Dehydration
- Diagnosis comes from herd history, clinical signs, and microscopic examination of fecal matter
- Treatment includes giving the goat a coccidiostat and intravenous (IV) fluid therapy
- To prevent and control the disease:
 - Reduce stress
 - Improve the facility's hygiene practices especially in the pasture, pens, and feeding and watering stations
 - Avoid moist areas that lack sunlight

6. Enterotoxemia (Overeating Disease)

- Caused by absorbing a large amount of toxins produced by *Clostridium perfringens* type C and D in the intestines
- Bacteria naturally found in the soil and the gastrointestinal tract of healthy goats
- Symptoms show up in young kids and include:
 - Loss of appetite
 - Fever
 - Laziness
 - Diarrhea with or without blood
 - Sudden death
- Diagnosis is done by observing signs and a necropsy
- Prevent this disease by vaccinating all animals against *Clostridium perfringens* types C and D
- Treatment includes:
 - Oral antacid
 - Anti-bloating medication
 - Penicillin
 - Thiamin (B1) intramuscularly
 - Replacing fluids intravenously

7. Foot Rot and Foot Scald

- Caused by *Dichelobacter nodosus* and *Fusobacterium necrophorum*, which is found in the feces of goats and contaminated soil
- Causes inflammation between the toes
- Outbreaks occur during times of persistent rain combined with high temperatures as goats must walk across wet pasture
- If not treated, this disease can become a permanent problem
- Prevention starts with giving a foot bath to all animals new to the herd
 - This should also be done anytime animals leave the farm
- Goats suspected to have this disease should be removed from the herd
- Keep hooves trimmed
- Quarantine all new animals for 6 weeks prior to adding to the herd
- Treatment includes isolating animals with this disease so the hooves can be trimmed, and treatment given
- Treat the feet to a foot bath containing 16% copper sulfate or zinc sulfate
 - The animal must stand in the foot bath for several minutes to ensure the solution goes through the hoof
- Maintain clean barns and pens

8. Haemonchosis

- Caused by *Haemonchus contortus*
- Commonly known as “barber pole worm”

- **Symptoms:**
 - Anemia
 - Diarrhea
 - Dehydration
 - Lowers growth rates
 - Substantial reduced reproductive performance
 - Higher rates of illness
- **Diagnosis** through **microscopic fecal examination**
- To **prevent** and **control** this disease:
 - **Rotate grazing areas**
 - Only **buy animals** from **reliable sources**
 - Provide **clean water** and **minerals**
 - Keep **hay** and **feed off the ground**
 - Try a **mix species grazing** schedule, which means a **combination** of **cattle** and **goats**

9. Johne's Disease

- **Caused** by *Mycobacterium avium* subspecies *paratuberculosis*
- **Causes inflammation** of the **intestines**
- **Diagnosis** is difficult
- Animals can **carry it** for **years** before **signs appear**
- **Symptoms** include:
 - **Loss of weight** even **with** an **appetite**
 - **Bottle jaw**
 - **Decreased milk production**
 - **Death**
- **No cure**
- **Prevention starts** with **removing sick animals** from the **herd** and, if needed, **putting animals down** that **show symptoms**

10. Keratoconjunctivitis

- Commonly **known** as "**pink eye**"
- **Caused** by *Mycoplasma conjunctivae* and *chlamydia* species
- **Outbreaks** can be **brought on** by **stress**, harsh weather, and new **animals** **introduced** in the **herd**
- **Symptoms** include:
 - **Cloudiness** in normally **clear areas** of the **eye**
 - **Squinting**
 - **Yellow or green pus** **draining** from **eyes**; **dried crust** around **eyes**; and/or **watery**, **red**, and **swollen** eyes
- **Treatment** includes:

- Rinsing eyes with sterile saline
- Separating sick animals
- Providing fresh water
- Controlling flies
- Wearing gloves when working with sick animals
- You can prevent this disease by check goats for pink eye before purchasing, controlling flies, and quarantining new animals prior to mixing with the herd

11. Mycoplasmosis

- Also called “contagious agalactiae” (CA)
- Caused by:
 - *Mycoplasma agalactiae*
 - *Mycoplasma mycoides* subspecies capri
 - *Mycoplasma capricolom* subspecies capricolom
 - *Mycoplasma putrefaciens*
- Animals and herds are exposed by a carrier animal
- Kids and adults can suffer from this disease
- Symptoms include mastitis, arthritis, and keratoconjunctivitis
- Can cause the loss of a fetus
- No real treatment but some will pasteurize milk to give to kids
- Prevent this disease by:
 - Only buying goats from known suppliers
 - Testing milk for mycoplasma and removing animals that test positive
 - Keeping kids separate from adults
 - Keeping a closed herd
 - Keeping the milking parlor sanitized along with the milking equipment

12. Polioencephalomalacia

- In livestock production, this disease is commonly called polio, but it is not transmittable to humans nor is it like human polio
- Caused by a deficiency of thiamine or vitamin B1
- Normally found in areas with competition for food (such as feedlots) or when animals are under stress
- Symptoms include:
 - Aggression
 - Laziness
 - Muscle tremors
 - Temporary blindness that lasts about 2-3 weeks
 - Convulsions that occur every 2-5 minutes
 - Teeth grinding
 - Severe back arching

- **Diagnosis** comes from **observation**, herd management, and **laboratory tests**
- To **prevent** this **disease**:
 - Provide **high quality pasture** and **hay**
 - Provide **feed** with **thiamine** levels of **3-4 mg per kg** of feed
 - **Monitor sulfur** content in **both water** and **dry matter**

13. Pregnancy Toxemia

- A **metabolic disorder** of **fat** in does **carrying multiple fetuses**
- Most **susceptible 1-3 weeks** before kidding (**giving birth**)
- **Symptoms** include:
 - **Lack of appetite**
 - **Sluggishness**
 - **Poor coordination**
 - **Grinding teeth**
 - **Blindness**
 - **Coma**
 - **Death**
- **Diagnosis** comes from **herd history** and **clinical signs**
- **Treat** with **propylene glycol** and **sodium bicarbonate** either **intravenously** or **orally**
- Good **feeding management** is very **important**, especially during the **last weeks** of **pregnancy**
- **Reduce stress**
- **Supplement rations** with **ionophores**, which will **help** with **processing volatile fatty acids** and **increase energy**

Zoonotic Diseases

14. Rabies

- A **zoonotic disease** that can **pass** from **animal** to **human**
- **Transferred** to **humans** by a **bite** that **breaks** the **skin**
- **No cure**
- **Symptoms** in goats:
 - **Aggression**
 - **Drooling**
 - **Inability to swallow food**
 - **Excessive bleating or calling**

15. Contagious Ecthyma

- **Caused** by **parapoxvirus**
- Transferred to **humans** through **direct contact** with a **sore** on the **animal**
- **Appears** on the goat as a **wet scab** on the **lips**, **eyelids**, **nose**, and/or **ears**

- Diagnosed by observation and immunologic tests
- Normally cures itself but an antibiotic can also be given
- To prevent and control this disease, minimize stress from transportation and quarantine animals 6 weeks prior to introducing them into the herd
- To prevent humans from getting this disease, wear gloves when handling sick goats and do not drink milk from does with sores on their teats and udder

16. Ringworm

- Fungal disease
- Spread to humans through contact with spores from an infected animal
- Spores can be found in hair and on animal grooming equipment, such as brushes and clippers
- Itching is the most common symptoms
- Treat with a topical antifungal

17. Chlamydiosis

- Bacterial disease that is the cause of most abortions in goat production
- Can be transferred to humans by exposure to birthing tissue
- Prevent this disease by using good sanitation practices and only buying goats from known sources
- Treat with tetracycline

18. Campylobacteriosis

- Transmitted to goats through exposure to feces of infected animals along with vaginal discharge and aborted fetuses
- Humans are exposed by consuming contaminated or undercooked meat and/or drinking unpasteurized milk
- Comes from *Campylobacter spp.*
- Prevent by keeping food and water off the ground so it is not contaminated with feces as well as performing good barn and farm hygiene and sanitation practices
- Treat by getting a veterinarian diagnosis and antibiotic

19. Listeriosis

- Bacterial disease
- Humans can get this disease by consuming raw meat and unpasteurized milk
- Causes encephalitis, blood poisoning, and loss of fetus in goats
- Can be transferred through milk produced by carrier goats and sick goats
- Symptoms
 - Limp lips on one side
 - Going in a circle
 - High fever
 - Loss of appetite

- Caused by *Listeria monocytogenes*
- Occurs in cooler climates
- Is spread when goats inhale or swallow the bacteria, or when the bacteria gets in their eyes
- No cure
- Disinfecting is the only preventive measure one can take because the bacteria is very hardy and can live up to 5 years in soil, hay, and animal tissue

20. Salmonella

- Caused by *Salmonellosis spp.*
- Bloody diarrhea is a symptom, but goats may not show any signs of illness
- Can be spread to humans by undercooked meat and contact with feces
- A veterinarian will do a blood or fecal matter test to look for salmonella bacteria
- No cure
- Antibiotics have been given but in many cases the bacteria is resistant
- A vaccine does exist but only reduces symptoms
- Prevent this disease by frequently cleaning barns and pens as well as not cross using equipment, such as using a shovel to move manure and then using it to scoop feed

21. Q Fever

- Caused by *Coxiella burnetii*
- Transmitted by exposure to placenta, uterine fluids, or aborted material from does with Q fever
- No outward signs appear except repeated loss of fetuses
- An antibody test is required
- If the test is positive, then the animal needs to be put down

Internal Parasites

22. Lung Worm

- Caused by *Dictyocaulus spp.* Or *Muellerius capillaris*
- Irritates the bronchioles inside the lung, which causes a local reaction of white blood cells (phlegm) and mucus
- This causes the goat to cough
- Fecal test required by veterinarian
- Treat by deworming
- Prevent by removing stagnant water, which attracts snails that carry the parasite

23. Liver Flukes

- Caused by *Fasciola hepatica*
- Symptoms include depression or stupor

- Fecal test required
- Treat by deworming
- Prevent by keeping goats away from stagnant water, which attracts snails that carry this parasite

External Parasites

24. Lice

- Lice belong to the Order: *Phthiraptera*
- Divided into 2 groups:
 - Anoplura (sucking lice)
 - Mallophaga (chewing or biting lice)
- Symptoms:
 - Dull coat
 - Scratching
 - Scabs
 - Anemia
- Control lice by putting goats on a high-energy diet
- If it is a major problem, then an insecticide will need to be applied
- Timing is everything when it comes to chemical application
- The insecticide should be applied in the fall and then 2 weeks later to kill the newly hatched eggs

25. Fleas

- The 2 types of fleas common to goats are:
 - Cat flea (*Ctenocephalides felis*)
 - Sticktight flea (*Echidnophaga gallinacea*)
- Common symptoms include scratching and anemia
- Easily transferred not only to other goats but also dogs
- Symptoms appear during the spring and summer
- Treat all goats and dogs with an insecticide designed for fleas

26. Ticks

- There are 90 different species of tick that can attack goats
- Prevention is the best approach
- Keep grass around the barn cut short and check goats that have been grazing in tall grass and wooded areas often
- If needed, treat with an insecticide in spring and summer

27. Mites

- Common goat mites are:
 - Goat follicle mite (*Demodex caprae*)
 - Scabies mite (*Sarcoptes scabiei*)
 - Psoroptic ear mite (*Psoroptes cuniculi*)
 - Chorioptic scab mite (*Chorioptes bovis*)
- Symptoms:
 - Scratching
 - Lesions
 - Anemia
 - Hair loss around muzzle
 - Weight loss
- Isolate new animals for at least 2 weeks to make sure they do not have mites before introducing them into the herd
- Treat with an insecticide from late fall to late spring

28. Flies

- There are several types of flies that attack goats:
 - Horn flies
 - Stable flies
 - Horse flies
 - Deer flies
 - Black flies
 - Mosquitoes
 - Nuisance flies
 - Blow flies.
- All these flies bite, causing the herd to run and clump together
- This reduces grazing and can cause weight loss
- There is a 3-step approach to follow:
 - Keep the barn and pens clean as well as remove wet bedding, feed, and anything else that may be damp in the barn
 - Use a small wasp that lays its eggs in fly pupae, called a parasitoid
 - Apply an insecticide used to kill flies to the barn and pens, but if you are also using a parasitoid make sure you spray carefully since this chemical will kill the wasps

Lesson Three – Goat Diseases and Parasites

REVIEW: Recap of Goat Diseases and Parasites

10 minutes

Purpose:

Participants will review the diseases and parasites using trivia cards prior to taking a quiz on the topic.

Materials:

- Goat Kit Diseases and Parasites Trivia Cards
- *Goat Diseases and Parasites Quiz*
- *Goat Diseases and Parasites Quiz – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the trivia cards.
2. Provide instruction on how to use the cards and give participants five minutes to review.
3. Collect the cards and have participants go back to their seats.
4. Distribute the quiz and provide directions on how to complete it.
5. Give participants five minutes to take the quiz before collecting it from them.

Name: _____ Class: _____

Goat Diseases and Parasites Quiz

Directions: For each statement, indicate if it is true or false by circling the correct answer.

1. All goat diseases and parasites can be transferred to humans. True or False
2. While there are several indicators that a goat is sick, a few include isolating itself, runny nose, not wanting to eat, and back arching. True or False
3. Keeping feed off the barn floor is one way of reducing goat diseases and parasites. True or False
4. Coccidiosis disease is not host specific. True or False
5. Enterotoxemia or overeating disease shows up only in mature goats. True or False
6. Foot rot and foot scald cause inflammation between the toes. True or False
7. While there are several treatments of foot rot and foot scald, an easy one is to create a foot bath of 16% copper sulfate or zinc sulfate. This type of treatment requires the goats to stand in the bath for several minutes. True or False
8. Keeping barns and goat pens clean does not prevent any goat diseases or parasites. True or False
9. Johne's disease is very hard to diagnose because the goat can carry it for several years before symptoms appear. True or False
10. Keratoconjunctivitis is commonly known as barber pole worm. True or False
11. Polioencephalomalacia is commonly known as polio, which is the same strain as human polio. True or False
12. Buying goat stock from known goat breeders is not an important way of reducing goat diseases and parasites. True or False
13. Pregnancy toxemia occurs in does 1 to 3 weeks prior to kidding. True or False

14. Controlling lice in goats begins with shaving the animal. True or False
15. A goat with rabies can be aggressive, have a hard time swallowing, and constantly bleat or call. True or False
16. Isolating a goat that you may think is sick is not important and should never be done since they are herd animals. True or False
17. Signs that a goat has contagious ecthyma include wet scabs on lips, eyelids, nose, and/or ears. True or False
18. Keeping a closed herd is one approach that goat producers used to reduce the chances of developing disease and/or parasite issues in the herd. True or False
19. Mycoplasmosis can cause a loss of a fetus. True or False
20. When it comes to treating goats for fleas, there is no need to also treat dogs on the farm. True or False
21. When it comes to haemonchosis, one approach to prevention is to mix graze animals such as putting cattle and goats together in a pasture to graze instead of single-species grazing. True or False
22. All goat diseases and parasites can be cured through antibiotics. True or False
23. If an animal tests positive for Q fever, it will need to be put down. True or False
24. A goat with liver flukes will be depressed. True or False
25. Symptoms of a goat with salmonella include a fever, depression, and constant thirst. True or False

Goat Diseases and Parasites Quiz – Answer Key

Directions: For each statement, indicate if it is true or false by circling the correct answer.

1. All goat diseases and parasites can be transferred to humans. True or **False**
2. While there are several indicators that a goat is sick, a few include isolating itself, runny nose, not wanting to eat, and back arching. **True** or False
3. Keeping feed off the barn floor is one way of reducing goat diseases and parasites. **True** or False
4. Coccidiosis disease is not host specific. True or **False**
5. Enterotoxemia or overeating disease shows up only in mature goats. True or **False**
6. Foot rot and foot scald cause inflammation between the toes. **True** or False
7. While there are several treatments of foot rot and foot scald, an easy one is to create a foot bath of 16% copper sulfate or zinc sulfate. This type of treatment requires the goats to stand in the bath for several minutes. **True** or False
8. Keeping barns and goat pens clean does not prevent any goat diseases or parasites. True or **False**
9. Johne's disease is very hard to diagnose because the goat can carry it for several years before symptoms appear. **True** or False
10. Keratoconjunctivitis is commonly known as barber pole worm. True or **False**
11. Polioencephalomalacia is commonly known as polio, which is the same strain as human polio. True or **False**
12. Buying goat stock from known goat breeders is not an important way of reducing goat diseases and parasites. True or **False**
13. Pregnancy toxemia occurs in does 1 to 3 weeks prior to kidding. **True** or False

14. Controlling lice in goats begins with shaving the animal. True or False
15. A goat with rabies can be aggressive, have a hard time swallowing, and constantly bleat or call. True or False
16. Isolating a goat that you may think is sick is not important and should never be done since they are herd animals. True or False
17. Signs that a goat has contagious ecthyma include wet scabs on lips, eyelids, nose, and/or ears. True or False
18. Keeping a closed herd is one approach that goat producers used to reduce the chances of developing disease and/or parasite issues in the herd. True or False
19. Mycoplasmosis can cause a loss of a fetus. True or False
20. When it comes to treating goats for fleas, there is no need to also treat dogs on the farm. True or False
21. When it comes to haemonchosis, one approach to prevention is to mix graze animals such as putting cattle and goats together in a pasture to graze instead of single-species grazing. True or False
22. All goat diseases and parasites can be cured through antibiotics. True or False
23. If an animal tests positive for Q fever, it will need to be put down. True or False
24. A goat with liver flukes will be depressed. True or False
25. Symptoms of a goat with salmonella include a fever, depression, and constant thirst. True or False

Lesson Four – Goat Reproduction

Lesson Overview

Participants will learn about the basic reproduction systems of goats.

Lesson Objectives

After completing this lesson, participants will be able to:

- List the gestation period for goats
- Define basic goat terms used to describe the age and sex of a goat
- Properly name a castrated goat
- List the age by which goats go through puberty
- List three conditions that can effect when puberty occurs
- Define “seasonally polyestrous”
- List the length of the estrous cycle
- Explain the doe’s estrous cycle
- Define proceptivity
- Define receptivity
- Describe the “buck effect”
- Explain the “buck’s perfume”
- Explain what starts the estrous cycle
- Explain what causes the “tail wagging behavior”
- Explain the buck’s reproductive cycle
- List the most important factor that affects when puberty occurs
- Explain the three conditions by which nutrition can affect puberty
- Explain how the season by which a kid is born can influence when puberty occurs

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>How Long Do I Carry My Baby?</i> worksheet • <i>How Long Do I Carry My Baby?</i> – Answer Key	1. Print/photocopy <i>How Long Do I Carry My Baby?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Goat Reproduction</i> slide presentation • <i>Goat Reproduction</i> worksheet • <i>Goat Reproduction</i> – Answer Key	1. Print/photocopy <i>Goat Reproduction</i> (one per participant) 2. Prepare <i>Goat Reproduction</i> slide presentation for viewing	40 minutes
REVIEW	• Goat Gestation Wheel • <i>Goat Reproduction Quiz</i> • <i>Goat Reproduction Quiz</i> – Answer Key	1. Goat Gestation Wheel 2. Print/photocopy <i>Goat Reproduction Quiz</i> (one per participant)	10 minutes

Lesson Four – Goat Reproduction

FOCUS: Intro to Goat Gestation Length

10 minutes

Purpose:

Participants will be introduced to the reproductive cycle by learning about gestation lengths of different animals.

Materials:

- *How Long Do I Carry My Baby?* worksheet
- *How Long Do I Carry My Baby?* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Provide instruction on how to fill out the worksheet and give participants five minutes to complete it.
3. Have participants return to their seats and trade papers for grading.
4. Go over the answers and collect the worksheet.

Name: _____ Class: _____

How Long Do I Carry My Baby?

Directions: For every common name on the left, match the gestation period on the right. Use each letter only once.

- | | |
|-------------------------|------------|
| 1. Donkey _____ | A. 217 |
| 2. Rat _____ | B. 21-33 |
| 3. Black Bear _____ | C. 145-155 |
| 4. Llama _____ | D. 365 |
| 5. Domestic Goat _____ | E. 330 |
| 6. Horse _____ | F. 220 |
| 7. American Bison _____ | H. 330-342 |

How Long Do I Carry My Baby? – Answer Key

Directions: For every common name on the left, match the gestation period on the right. Use each letter only once.

- | | |
|--|------------|
| 1. Donkey _____ D _____ | A. 217 |
| 2. Rat _____ B _____ | B. 21-33 |
| 3. Black Bear _____ F _____ | C. 145-155 |
| 4. Llama _____ E _____ | D. 365 |
| 5. Domestic Goat _____ C _____ | E. 330 |
| 6. Horse _____ H _____ | F. 220 |
| 7. American Bison _____ A _____ | H. 330-342 |

Lesson Four – Goat Reproduction

LEARN: Reproductive System of Does and Bucks

40 minutes

Purpose:

Participants will learn about the reproductive system of both does and bucks by watching a slide presentation while filling out a worksheet.

Materials:

- *Goat Reproduction* slide presentation
- *Goat Reproduction* worksheet
- *Goat Reproduction* – Answer Key

Facilitation Steps:

1. Prepare the slide presentation for viewing and distribute the worksheet.
2. Explain how to fill out the worksheet.
3. Present the slides and collect the worksheet when the presentation is complete.

Slide 1: Title slide.

Slide 2: What About Those Goat Terms?

Slide 3: Terms You Need To Know

- Buckling: Male goat less than a year old
- Buck: Male goat at least a year old
- Doeling: Female goat less than a year old
- Doe: Female goat at least a year old
- Wether: Castrated male goat

Slide 4: Starting From the Beginning

Slides 5-6: Puberty

- A doeling's puberty starts with the first estrous cycle ovarian activity, meaning she has her first period
- A buckling's puberty begins with spermatogenesis or the sperm maturation process
- This normally happens around 5 months but there are factors that can change this timeframe
- This includes:
 - Nutrition
 - Liveweight

- Season of birth
- Season of weaning
- Presence or absence of a male

Slides 7-8: Estrus and the Length of the Day

- The estrous cycle of a doe is tied to the length of the day
- This is referred to as seasonally polyestrous and means the species does not cycle year-round
- A goat's estrous cycle occurs as the days get shorter
- The estrous cycle is around 21 days
- Why does do not cycle year-round:
 - It has to do with when food is easily available in the wild
- A domesticated goat's gestation period is between 145 and 155 days, which in many places equates to the same time fresh grass starts growing

Slide 9: The Reproductive Dance Begins With an Introduction

- The first part of the dance begins with the doe looking for a partner
 - This is referred to as proceptivity
- In this process, she stimulates the male to get him interested

Slide 10: The Dance Continues

- The next stage is referred to as receptivity
- During this stage, the female will nudge the male, stand still, and then allow the buck to mate

Slide 11: Signs of Estrus

- While the courting only lasts about 36 hours, there are other signs that the doe is in heat or on her period
- This includes:
 - Reduced appetite
 - Constant bleating or calling

- Peeing often
- Tail wagging
- Mounting other does
- Vaginal discharge
- Restlessness
- A swollen, red vulva with mucus discharge

Slide 12: The Buck Effect

- Since goats are seasonal breeders, some get a jump on the breeding season by using the “buck effect”
- In this process, a buck is introduced to a herd of does
- This introduction can start a 5-to-7-day ovarian cycle followed by the estrous cycle

Slides 13-14: The Buck’s Perfume

- Now when does are in “heat,” bucks are not sitting around the barn
- Bucks are fighting, curling their lips, and rubbing their horns on anything they can find
- Rubbing their horns spreads their scent through their scent glands, located around their horns
- This perfume production is in response to the doe being in heat
- If the buck has not started this behavior but the doe is in heat, her scent can be rubbed in the barn where the buck is located to start this process
- The reverse can be performed to start the doe’s estrus
- While does may find the buck’s perfume delightful, it is considered stinky to humans

Slides 15-22: Estrous Cycle

- The cycle begins with the release of hormones from the pituitary and hypophysis glands
- Hormonal release has internal triggers, but external triggers exist such as the length of day and if a male is present or not
- Once the cycle starts, follicles in the ovaries where oocytes (eggs) are stored

begin to successively produce until some rupture and release

- At this point, the released eggs are referred to as secondary oocytes, which appear during ovulation
- The released egg passes through the oviduct to join the spermatozoa (sperm)
- The ruptured follicle by which the egg released transforms into a corpus luteum
- The development of the follicle is under the control of FSH or follicle stimulating hormone and LH, which is luteinizing hormone
- Both are released by the pituitary gland and referred to as gonadotropins
- Through a hormonal feedback loop gonadotropins also control the release of estrogen from the ovaries
- The release of estrogen is what brings on the tail wagging behavior of the doe
- Following ovulation, the luteinized follicle or corpus luteum releases progesterone, preparing the uterus for pregnancy
- At the same time, gonadotropins are suppressed to stop further follicular development
- If pregnancy is not achieved, then the uterus releases prostaglandin and a new cycle starts
- Pregnancy occurs when the ovum is fertilized by the spermatozoon
- This fertilization occurs in the oviduct and must be timed between insemination and ovulation events
- The timing is very important since the spermatozoa are only viable for 12 hours in the female reproductive system and the lifespan of an egg is 12-24 hours
- If the timing is right, the sperm will break through the zona pellucida, which surrounds the egg
- This is done by enzymes in the cap of the sperm head
- This fusion of the sperm cell with the egg prevents other sperms from fertilizing the egg
- Within 24 hours, the fertilized eggs move from the oviduct to the uterus

- It is uncommon for does to give birth to 1 kid
- In general, does give birth to 2-3 kids
- The fertilized eggs or developing embryos will continue to progress
- During this time, they are free-floating
- After fertilization, days 15-20 are very important
 - This is when the embryos attach to the uterus
- For this attachment to occur, the uterus must be primed with progesterone, which is provided throughout the gestation period by the corpus luteum

Slide 23: Pregnancy Development

- The developing fetus is in the placenta, which is where the maternal and fetus circulation occur
- The most growth for the placenta occurs during days 90-110 of the pregnancy compared to the fetal growth, which speeds up during the 3rd trimester

Slide 24: Labor and Delivery

- Estrogen is increased 24 hours prior to delivery
- To prepare for delivery, ligaments are relaxed in the pelvic area and uterine contractions are stimulated by the release of oxytocin, and the placenta ruptures
- Kids are normally born 2-3 hours after labor starts
- The release of estrogen also helps stir maternal behavior along with the movement of the kid through the cervical region during the birthing process

Slides 25-30: Buck Reproduction

- The male goat's reproductive system is broken down into several parts
- Starts with the testes where the male gametes or spermatozoa and sex hormone or testosterone are produced
- Inside the testes, there is the germinal epithelium, which is where sperm production takes place
- The Leydig cells that line the interstitial tissue inside the testes produce the sex hormone

- The testes are in the scrotum of the buck
- The scrotum's job is temperature regulation of the testes
- The testes need to be kept between 37.4° and 41° C
- Spermatozoa moves from the testes to a structure in the scrotum called the epididymis
- While the spermatozoa hang out in the epididymis, they mature and are stored until needed
- From the epididymis, you will find the vas deferens that connects the epididymis to the ampulla and accessory sex glands
- These sex glands are in the pelvic region and provide fluid for the spermatozoa to travel in during ejaculation
- The penis is the last stop of the male reproductive system
- The purpose of the penis is to deposit sperm inside the doe
- The sigmoid flexure allows the penis to extend up to 12" by filling the empty space in the tissues with blood
- When the season is not right, the penis is protected in its sheath
- Just like the ovaries, production of sperm is controlled by gonadotropins, LH and FSH
- The number of eggs a doe will produce in her lifetime is determined prior to birth while bucks produce sperm throughout their life
- The amount of sperm available at one time is determined by age, season, and sexual activity

Slides 31-33: Puberty Influences

- Does and bucks can reach puberty between 120 and 230 days
- Factors that influence puberty include nutrition, location, breed, and season of birth
- Nutrition is one of the most important factors that influence puberty
- Poor nutrition delays puberty
- Improved nutrition can speed up puberty
- Overeating and a diet too nutritious will reduce fertility and mammary gland development

- When a kid is born this will determine what season bucklings and doeslings reach maturity
- Spring-born kids need to be brought to puberty because the cycle was determined prior to birth
- Encouraging spring-born kids to sexually mature can be done by introducing a mature buck to the herd
- If this is not done, spring-born kids will not mature sexually until the following breeding season

Slide 34: Day Length

- As the days get shorter, goats are stimulated to breed
- An animal whose natural breeding cycle is in tune with the amount of sunlight available is referred to as a “short day breeder”
- But there is a point that the days become so short that the doe’s estrous cycle stops as does the buck’s sex drive

Goat Reproduction

Directions: Watch the slide presentation and fill in the blanks with the proper information.

1. Terms You Need To Know

- _____: _____ goat _____ than a _____
- _____: _____ goat _____ a _____ old
- _____: _____ goat _____ than a _____
- _____: _____ goat at _____ a _____ old
- _____: _____ goat

2. Puberty

- A _____ with the _____ and cyclic _____, _____ she has her _____
- A _____ with _____ or the _____ maturation process
- This normally _____ around _____ but there are _____ that can _____ this _____
- This _____:
 - Nutrition
 - _____
 - Season of birth
 - _____
 - _____ a _____

3. Estrus and the Length of the Day

- The _____ of a doe is _____ the _____ the _____
- This is _____ as _____ and _____ the species _____
- A goat's estrous cycle _____ as the _____
- _____ cycle is around _____
- Why does _____ -round:
 - It has to _____ when _____ is _____ in the _____

- A _____
_____ is between _____, which in many places
equates to the _____

4. The _____ With an

- The _____ of the _____ with the _____
_____ a _____
 - This is _____ as _____
- In this _____, _____ the _____ to get
him _____
- The _____ is _____ as

- During _____, the _____ will _____ the _____,
_____, and then _____ the _____

5. Signs of estrus

- While the _____ about _____,
there are _____ that the _____ is _____ or _____ her

- This _____:
 - _____
 - Constant bleating or calling
 - _____
 - Tail wagging
 - _____
 - Vaginal discharge
 - _____
 - A _____, _____ vulva with _____ discharge

6. The Buck Effect

- Since _____ are _____, some get a
_____ the _____ by _____ the
" _____ "
- In this process, a _____ is _____ a _____ of

- This _____ can _____ a _____ - _____ - _____
_____ the _____

7. The Buck's Perfume

- Now when _____ are _____ " _____," _____ are _____
_____ the barn
- Bucks are _____, curling the lips, and _____
_____ on anything they can find
- Rubbing their horns _____
_____ their _____,
_____ their _____
- This _____ is in _____ to
the _____ being _____
- If the _____ has _____ this _____ but the _____ is
in _____, _____ can be _____ the _____
where the _____ is _____ to _____ this _____
- The _____ can be _____ to _____ the

- While _____ may _____ the buck's _____
_____, it is considered _____ to humans

8. Estrous cycle

- The _____ with the _____
_____ from the _____

- _____ has _____
_____, but _____
such as the _____ and if a _____ is _____

- Once the _____, follicles in the _____ where _____ (eggs)
are _____ begin to _____
_____ until _____
- At this point, the _____ are _____
as _____, which appear _____

- The _____ passes _____ the _____ to
_____ the _____ (sperm)
- The _____ by _____ the
_____ transforms _____ a _____

- The _____ of the _____ is _____ the
_____ of _____ or _____
_____ and _____,
which is _____

- Both are _____ the _____
_____ and _____ to as _____
- Through a _____
_____ also _____ the _____ of
_____ the _____
- The _____ of _____ is what _____ on the
_____ of the _____
- _____, the
_____ or _____
_____,
_____ the _____
- At the _____, _____ are
_____ to stop _____

- If _____ is _____, then the
_____ and a _____

- _____ when the _____
_____ the _____
- This _____ occurs _____ the _____ and must be
_____ between _____

- The _____ is very _____ since the
_____ are only _____
_____ the _____ and the
_____ of an _____ is _____ - _____
- If the _____ is _____, the _____ will _____
_____ the _____, which
_____ the egg
- This is _____ by _____ the _____ of the _____

- This _____ of the _____ the _____
_____ from _____ the

- Within _____, the _____ move
_____ the _____ the _____
- It is _____ for _____ to _____ to _____

- In general, _____ to _____ - _____
- The _____ or _____
_____ will _____ to _____

- During this time, they are _____ - _____
- After _____, _____ - _____ important
 - This is when the _____ attach to the _____
- For this _____ to _____, the _____ must be _____ with _____, which is provided _____ the _____ the _____

9. Pregnancy Development

- The _____ is _____ the _____, which is _____ the _____ occur
- The _____ for the _____ occurs _____ days _____ - _____ of the _____ to the _____, which _____ during the _____

10. Labor and Delivery

- _____ is _____ to _____
- To _____ for _____, _____ are _____ in the _____ and _____ are _____ by the _____, and the _____
- _____ are normally _____ - _____ after _____
- The _____ of _____ also helps _____ along with the _____ of the _____ the _____ the _____

11. Buck Reproduction

- The _____ is _____ into _____
- _____ with the _____ where the _____ or _____ and _____ or _____ are _____
- _____ the _____, there is the _____, which is _____ takes _____

- The _____ that _____ the _____ inside the _____ produce the _____
- The _____ are in the _____ of the _____
- The _____ is _____ of the testes
- The testes need to be _____ between _____ ° _____ ° _____
- _____ from the _____ to a _____ in the _____ called the _____
- While the _____ in the _____, they _____ and are _____ until _____
- _____ the _____, you will _____ the _____ that _____ the _____ the _____
- These _____ are in the _____ and _____ the _____ to _____ during _____
- The _____ is the _____ of the _____
- The _____ of the _____ is to _____ inside the _____
- The _____ flexure _____ the _____ to _____ up to _____" by _____ the _____ space in the _____ with _____
- When the _____ is _____, the _____ is _____ its _____
- Just _____ the _____, _____ of _____ is _____ by _____, _____
- The _____ a _____ will _____ in her _____ is _____ to _____ while _____ their _____
- The _____ of _____ at _____ is determined _____, _____, and _____

12. Puberty Influences

- _____ can _____ between _____

- _____ that _____ include _____, location, _____, and season of birth
- _____ is one of the _____ factors that _____
- _____ puberty
- _____ can _____
- _____ and a _____ will _____ and _____
- When a _____ is _____ will _____ what _____ bucklings and _____
- _____ - _____ need to be _____ to _____ because the _____ was _____ to _____
- _____ -born _____ to _____ can be _____ by _____ a _____ to the _____
- If this is _____, _____ -born _____ will _____ until the _____

13. Day Length

- As the _____, goats are _____
- An animal whose _____ is _____ with the _____ of _____ available is _____ to as a “_____”
- But there is a point that the _____ become _____ that the doe’s _____ the _____

Goat Reproduction – Answer Key

Directions: Watch the presentation and fill in the blanks with the proper information.

1. Terms You Need To Know

- **Buckling:** Male goat less than a year old
- **Buck:** Male goat at least a year old
- **Doeling:** Female goat less than a year old
- **Doe:** Female goat at least a year old
- **Wether:** Castrated male goat

2. Puberty

- A doeling's puberty starts with the first estrous cycle and cyclic ovarian activity, meaning she has her first period
- A buckling's puberty begins with spermatogenesis or the sperm maturation process
- This normally happens around 5 months but there are factors that can change this timeframe
- This includes:
 - Nutrition
 - Liveweight
 - Season of birth
 - Season of weaning
 - Presence of absence of a male

3. Estrus and the Length of the Day

- The estrous cycle of a doe is tied to the length of the day
- This is referred to as seasonally polyestrous and means the species does not cycle year-round
- A goat's estrous cycle occurs as the days get shorter
- The estrous cycle is around 21 days
- Why does it do not cycle year-round:
 - It has to do with when food is easily available in the wild
- A domesticated goat's gestation period is between 145 and 155 days, which in many places equates to the same time fresh grass starts growing

4. The Reproductive Dance Begins With an Introduction

- The first part of the dance begins with the doe looking for a partner
 - This is referred to as proceptivity
- In this process, she stimulates the male to get him interested
- The next stage is referred to as receptivity
- During this stage, the female will nudge the male, stand still, and then allow the buck to mate

5. Signs of estrus

- While the courting only lasts about 36 hours, there are other signs that the doe is in heat or on her period
- This includes:
 - Reduced appetite
 - Constant bleating or calling
 - Peeing often
 - Tail wagging
 - Mounting other does
 - Vaginal discharge
 - Restlessness
 - A swollen, red vulva with mucus discharge

6. The Buck Effect

- Since goats are seasonal breeders, some get a jump on the breeding season by using the "buck effect"
- In this process, a buck is introduced to a herd of does
- This introduction can start a 5-to-7-day ovarian cycle followed by the estrous cycle

7. The Buck's Perfume

- Now when does are in "heat," bucks are not sitting around the barn
- Bucks are fighting, curling the lips, and rubbing their horns on anything they can find
- Rubbing their horns spreads their scent through their scent glands, located around their horns
- This perfume production is in response to the doe being in heat
- If the buck has not started this behavior but the doe is in heat, her scent can be rubbed in the barn where the buck is located to start this process
- The reverse can be performed to start the doe's estrus
- While does may find the buck's perfume delightful, it is considered stinky to humans

8. Estrous cycle

- The cycle begins with the release of hormones from the pituitary and hypophysis glands
- Hormonal release has internal triggers, but external triggers exist such as the length of day and if a male is present or not
- Once the cycle starts, follicles in the ovaries where oocytes (eggs) are stored begin to successively produce until some rupture and release
- At this point, the released eggs are referred to as secondary oocytes, which appear during ovulation
- The released egg passes through the oviduct to join the spermatozoa (sperm)
- The ruptured follicle by which the egg released transforms into a corpus luteum
- The development of the follicle is under the control of FSH or follicle stimulating hormone and LH, which is luteinizing hormone
- Both are released by the pituitary gland and referred to as gonadotropins

- Through a hormonal feedback loop gonadotropins also control the release of estrogen from the ovaries
- The release of estrogen is what brings on the tail wagging behavior of the doe
- Following ovulation, the luteinized follicle or corpus luteum releases progesterone, preparing the uterus for pregnancy
- At the same time, gonadotropins are suppressed to stop further follicular development
- If pregnancy is not achieved, then the uterus releases prostaglandin and a new cycle starts
- Pregnancy occurs when the ovum is fertilized by the spermatozoon
- This fertilization occurs in the oviduct and must be timed between insemination and ovulation events
- The timing is very important since the spermatozoa are only viable for 12 hours in the female reproductive system and the lifespan of an egg is 12-24 hours
- If the timing is right, the sperm will break through the zona pellucida, which surrounds the egg
- This is done by enzymes in the cap of the sperm head
- This fusion of the sperm cell with the egg prevents other sperms from fertilizing the egg
- Within 24 hours, the fertilized eggs move from the oviduct to the uterus
- It is uncommon for does to give birth to 1 kid
- In general, does give birth to 2-3 kids
- The fertilized eggs or developing embryos will continue to progress
- During this time, they are free-floating
- After fertilization, days 15-20 are very important
 - This is when the embryos attach to the uterus
- For this attachment to occur, the uterus must be primed with progesterone, which is provided throughout the gestation period by the corpus luteum

9. Pregnancy Development

- The developing fetus is in the placenta, which is where the maternal and fetus circulation occur
- The most growth for the placenta occurs during days 90-110 of the pregnancy compared to the fetal growth, which speeds up during the 3rd trimester

10. Labor and Delivery

- Estrogen is increased 24 hours prior to delivery
- To prepare for delivery, ligaments are relaxed in the pelvic area and uterine contractions are stimulated by the release of oxytocin, and the placenta ruptures
- Kids are normally born 2-3 hours after labor starts
- The release of estrogen also helps stir maternal behavior along with the movement of the kid through the cervical region during the birthing process

11. Buck Reproduction

- The male goat's reproductive system is broken down into several parts
- Starts with the testes where the male gametes or spermatozoa and sex hormone or testosterone are produced
- Inside the testes, there is the germinal epithelium, which is where sperm production takes place
- The Leydig cells that line the interstitial tissue inside the testes produce the sex hormone
- The testes are in the scrotum of the buck
- The scrotum's job is temperature regulation of the testes
- The testes need to be kept between 37.4° and 41° C
- Spermatozoa moves from the testes to a structure in the scrotum called the epididymis
- While the spermatozoa hang out in the epididymis, they mature and are stored until needed
- From the epididymis, you will find the vas deferens that connects the epididymis to the ampulla and accessory sex glands
- These sex glands are in the pelvic region and provide fluid for the spermatozoa to travel in during ejaculation
- The penis is the last stop of the male reproductive system
- The purpose of the penis is to deposit sperm inside the doe
- The sigmoid flexure allows the penis to extend up to 12" by filling the empty space in the tissues with blood
- When the season is not right, the penis is protected in its sheath
- Just like the ovaries, production of sperm is controlled by gonadotropins, LH and FSH
- The number of eggs a doe will produce in her lifetime is determined prior to birth while bucks produce sperm throughout their life
- The amount of sperm available at one time is determined by age, season, and sexual activity

12. Puberty Influences

- Does and bucks can reach puberty between 120 and 230 days
- Factors that influence puberty include nutrition, location, breed, and season of birth
- Nutrition is one of the most important factors that influence puberty
- Poor nutrition delays puberty
- Improved nutrition can speed up puberty
- Overeating and a diet too nutritious will reduce fertility and mammary gland development
- When a kid is born will determine what season bucklings and doelings reach maturity
- Spring-born kids need to be brought to puberty because the cycle was determined prior to birth
- Encouraging spring-born kids to sexually mature can be done by introducing a mature buck to the herd
- If this is not done, spring-born kids will not mature sexually until the following breeding season

13. Day Length

- As the days get shorter, goats are stimulated to breed
- An animal whose natural breeding cycle is in tune with the amount of sunlight available is referred to as a "short day breeder"
- But there is a point that the days become so short that the doe's estrous cycle stops as does the buck's sex drive

Lesson Four – Goat Reproduction

REVIEW: Goat Reproduction Recap

10 minutes

Purpose:

Participants will review the reproductive system of goats and then take a quiz.

Materials:

- Goat Gestation Wheel
- *Goat Reproduction Quiz*
- *Goat Reproduction Quiz – Answer Key*

Facilitation Steps:

1. Have participants pair up and set up the goat gestation wheel.
2. Instruct participants on how to use the wheel and give them five minutes to interact with it.
3. Have participants return to their seats and distribute the quiz.
4. Explain how to fill out the quiz and give the participants five minutes to complete it.
5. Collect the quiz.

Name: _____ Class: _____

Goat Reproduction Quiz

Directions: Indicate if the statement is true or false by circling the correct answer.

1. A doeling is a male goat that is less than a year old. True or False
2. Puberty always starts at 5 months old for both sexes of goat. True or False
3. The first part of the reproductive dance begins with the female goat looking for a partner. This is referred to as proceptivity. True or False
4. Female goats never produce twins or triplets. True or False
5. If spring-born kids are not brought to puberty in the same year, then they will have to wait until the next breeding season. True or False
6. A buck is a male goat that is a year old or older. True or False
7. Goats get the idea that it is time to breed as the days get shorter. True or False
8. A goat that overeats and has feed that is too nutritious runs a chance of having a fertility problem along with mammary gland development. True or False
9. Does and bucks can reach puberty between 60 and 90 days. True or False
10. The male goat's sperm is only viable in the female reproductive tract for 12 hours. True or False
11. A wether is a female goat that is too old to produce kids. True or False
12. A male goat will rub his horns on everything to spread his scent when the female goat is in heat. True or False
13. Does in heat can have a lack of appetite, tail wagging, peeing often, and constantly bleating. True or False
14. Receptivity is a term used to describe when the female goat is ready to accept the male. True or False
15. The gestation period for goats is 100 to 105 days. True or False
16. Female goats go into heat 12 months a year. True or False

Goat Reproduction Quiz – Answer Key

Directions: Indicate if the statement is true or false by circling the correct answer.

1. A doeling is a male goat that is less than a year old. True or **False**
2. Puberty always starts at 5 months old for both sexes of goat. True or **False**
3. The first part of the reproductive dance begins with the female goat looking for a partner. This is referred to as proceptivity. **True** or False
4. Female goats never produce twins or triplets. True or **False**
5. If spring-born kids are not brought to puberty in the same year, then they will have to wait until the next breeding season. **True** or False
6. A buck is a male goat that is a year old or older. **True** or False
7. Goats get the idea that it is time to breed as the days get shorter. **True** or False
8. A goat that overeats and has feed that is too nutritious runs a chance of having a fertility problem along with mammary gland development. **True** or False
9. Does and bucks can reach puberty between 60 and 90 days. True or **False**
10. The male goat's sperm is only viable in the female reproductive tract for 12 hours. **True** or False
11. A wether is a female goat that is too old to produce kids. True or **False**
12. A male goat will rub his horns on everything to spread his scent when the female goat is in heat. **True** or False
13. Does in heat can have a lack of appetite, tail wagging, peeing often, and constantly bleating. **True** or False
14. Receptivity is a term used to describe when the female goat is ready to accept the male. **True** or False
15. The gestation period for goats is 100 to 105 days. True or **False**
16. Female goats go into heat 12 months a year. True or **False**

Lesson Five – Goat Body Systems

Lesson Overview

Participants will learn about the basic systems of a goat and their important functions.

Lesson Objectives

After completing this lesson, participants will be able to:

- List the components that make up the skeletal system
- List the number of bones goats have
- List the shapes of bones
- Explain the function of each shape of bone
- Explain how bones are held together
- Describe the other functions of the skeletal system
- Explain the difference between voluntary and involuntary muscles
- Define the three types of muscle
- Describe where the three types of muscle are located
- Explain how a ruminant's stomach works
- List the four glands that make up the endocrine system

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>How Many Bones Do I Have?</i> worksheet • <i>How Many Bones Do I Have?</i> – Answer Key	1. Print/photocopy <i>How Many Bones Do I Have?</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Goat Body Systems</i> slide presentation • <i>Goat Body Systems</i> worksheet • <i>Goat Body Systems</i> – Answer Key	1. Print/photocopy <i>Goat Body Systems</i> worksheet (one per participant) 2. Prepare <i>Goat Body Systems</i> slide presentation for viewing	40 minutes
REVIEW	• Goat Whiteboards • <i>Goat Body Systems Quiz</i> • <i>Goat Body Systems Quiz</i> – Answer Key	1. Goat Whiteboards 2. Print/photocopy <i>Goat Body Systems Quiz</i> (one per participant)	10 minutes

Lesson Five – Goat Body Systems

FOCUS: Intro Goat Body Systems

10 minutes

Purpose:

Participants will be introduced to the goat's body systems by figuring out the number of bones different animals contain in their skeleton.

Materials:

- *How Many Bones Do I Have?* worksheet
- *How Many Bones Do I Have?* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Explain how to fill out the worksheet and give participants five minutes to complete it.
3. Have participants return to their seats and exchange papers.
4. Go over the answers of the worksheet while the participants grade their work.
5. Collect the worksheet.

Name: _____ Class: _____

How Many Bones Do I Have?

Directions: For each species on the left, place the correct letter associated with the proper number of bones.

Species

- | | |
|-------------------|--------|
| 1. Giraffe_____ | A. 207 |
| 2. Human _____ | B. 216 |
| 3. Rabbit _____ | C. 189 |
| 4. Ox _____ | D. 170 |
| 5. Beef Cow _____ | E. 208 |
| 6. Goat _____ | F. 229 |
| 7. Cat _____ | G. 206 |
| 8. Pig _____ | H. 230 |

How Many Bones Do I Have? – Answer Key

Directions: For each species on the left, place the correct letter associated with the proper number of bones.

Species

- | | |
|--------------------------|--------|
| 1. Giraffe <u> D </u> | A. 207 |
| 2. Human <u> G </u> | B. 216 |
| 3. Rabbit <u> F </u> | C. 189 |
| 4. Ox <u> E </u> | D. 170 |
| 5. Beef Cow <u> A </u> | E. 208 |
| 6. Goat <u> C </u> | F. 229 |
| 7. Cat <u> H </u> | G. 206 |
| 8. Pig <u> B </u> | H. 230 |

Lesson Five – Goat Body Systems

LEARN: Goat Body Systems

40 minutes

Purpose:

Participants will learn about the different body systems of goats by watching a slideshow and filling out a worksheet.

Materials:

- *Goat Body Systems* slide presentation
- *Goat Body Systems* worksheet
- *Goat Body Systems* – Answer Key

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide directions on how to fill the worksheet out and collect it once the slide presentation is complete.

Slide 1: Title slide

Slide 2: Let's Take a Look Under the Fur

Slide 3: Skeletal System

- Consists of bones, cartilages, and ligaments
- The framework that supports and protects all the goat's other body systems
- Goats have 189 bones

Slide 4: Not All Bones Are Alike

- The skeleton is made up of different bone shapes
- Each shape has a purpose
- Long bones provide support like columns
- This allows the animal to move
- Short bones are shaped like cubes
- These cubes are found in joints and protect the body from friction and impacts
- Flat bones protect the animal's organs
- This includes the heart, lungs, and brain

Slide 5: What Keeps the Bones Together?

- The skeletal system is held together in 3 ways
- Joints occur where 2 or more bones meet

- Ligaments are bands of connective tissue that keep bones together
- Tendons are thick bands that connect bone and muscle

Slide 6: Other Uses for the Skeletal System

- Storing and releasing minerals
- Storing and releasing fat
- Producing blood cells through bone marrow

Slide 7: Muscular System

Slide 8: Purpose of the Muscular System

- Muscles allow the body to move
- Muscles can be either voluntary or involuntary
 - Voluntary muscles are consciously controlled such as those in your hand that allow you to write
 - Involuntary muscles are those not controlled by the animal, such as the heart

Slide 9: 3 Types of Muscles

- Smooth muscles are found in the walls of internal organs and are involuntary
- Cardiac muscles make up the heart and are involuntary
- Skeletal muscles are voluntary muscles attached to the bones that aid in movement

Slide 10: Digestive System

Slide 11: How Does the Digestive System Work?

- The digestive system breaks food down into small molecules so that the body can get nutrition
- The digestive system consists of the:
 - Mouth
 - Tongue
 - Pharynx
 - Esophagus

- Stomach
- Small intestine
- Large intestine
- Anus

Slide 12: How a Ruminant Stomach Works

- Goats are what is called a ruminant
- This means the stomach is broken into 4 compartments
- This includes the:
 - Reticulum
 - Rumen
 - Omasum
 - Abomasum

Slides 13-14: A Goat's Stomach Process

- The goat eats and breaks down the food with its teeth
- This food then forms a bolus that goes down the esophagus and into the rumen
- The bolus then goes back up through the esophagus into the mouth where it is broken down into smaller parts
- These smaller pieces are swallowed again but this time it enters the reticulum
- This goes from the reticulum to the omasum where these small pieces are broken down into molecules
- These molecules then enter the abomasum and are absorbed by the body
- The molecules not absorbed go through the small intestine and the large intestine, ending up as solid waste

Slide 15: Endocrine System

Slide 16: What Does the Endocrine System Do?

- The endocrine system is made up of glands that produce hormones
- Hormones are chemicals that control different types of bodily functions
- There are 4 glands that create this system

Slides 17: The Glands and What They Do

- Hypothalamus gland controls the pituitary gland and makes an antidiuretic hormone
- Pituitary gland makes amino acids, and releases growth hormone
- Thyroid gland creates amino acids, and encourages growth along with metabolism
- Adrenal gland makes amino acids, and releases epinephrine and norepinephrine

Goat Body Systems

Directions: As you watch the presentation, fill in the blanks below with the information presented

1. Skeletal System

- _____ of _____, _____, and _____
- The _____ that _____ and _____ all the _____ systems
- _____ have _____

2. Not All Bones Are Alike

- The _____ is _____ of _____
- Each _____ a _____
- _____ provide _____
- This _____ the _____
- _____ are _____
- These _____ are _____ and _____ the _____ and _____
- _____ the _____ organs
- This _____ the _____, _____, and _____

3. What Keeps the Bones Together?

- The _____ is _____ in _____
- _____ where _____
- _____ are _____ of _____ that _____
- _____ are _____ that _____ and _____

4. Other Uses for the Skeletal System

- _____ and _____
- _____ and _____
- _____ through _____

5. Purpose of the Muscular System

- Muscles allow the _____ to move
- Muscles can be _____ voluntary or involuntary
 - _____ muscles are consciously _____ such as those in your _____ that allow you to _____
 - Involuntary muscles are those _____ controlled by the _____, such as the _____

6. 3 Types of Muscles

- _____ are found in the _____ internal _____ and are _____
- _____ the _____ and are _____
- _____ are voluntary muscles _____ the _____ that _____ in _____

7. How Does the Digestive System Work?

- The _____ into _____ so that the _____ can _____
- The _____ of the:
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____
 - _____

8. A Ruminant Stomach Works

- _____ are what is _____ a _____
- This _____ the _____ is _____ into _____
- This _____ the:
 - _____
 - _____
 - _____
 - _____

9. A Goat's Stomach Process

- The _____ and _____ the _____
_____ its _____
- This _____ then _____ a _____ that _____ the
_____ and _____ the _____
- The _____ then _____ the
_____ into the _____ where it is _____
_____ into _____
- These _____ are _____
_____ but _____ it _____ the

- This _____ the _____ the
_____ where these _____ are _____
_____ into _____
- These _____ then _____ the _____ and are
_____ the _____
- The _____ go _____
the _____ and the _____
_____, _____ as _____

10. What Does the Endocrine System Do?

- The _____ is made up of _____ that

- _____ are _____ that _____
_____ of _____
- There are _____ that _____ this _____

11. The Glands and What They Do

- _____ gland _____ the
_____ and _____ an

- _____ makes _____, and

- _____ creates _____, and

- _____ makes _____, and

Body Systems of Goats – Answer Key

Directions: As you watch the presentation, fill in the blanks below with the information presented.

1. Skeletal System

- Consists of bones, cartilages, and ligaments
- The framework that supports and protects all the goat's other body systems
- Goats have 189 bones

2. Not All Bones Are Alike

- The skeleton is made up of different bone shapes
- Each shape has a purpose
- Long bones provide support like columns
- This allows the animal to move
- Short bones are shaped like cubes
- These cubes are found in joints and protect the body from friction and impacts
- Flat bones protect the animal's organs
- This includes the heart, lungs, and brain

3. What Keeps the Bones Together?

- The skeletal system is held together in 3 ways
- Joints occur where 2 or more bones meet
- Ligaments are bands of connective tissue that keep bones together
- Tendons are thick bands that connect bone and muscle

4. Other Uses for the Skeletal System

- Storing and releasing minerals
- Storing and releasing fat
- Producing blood cells through bone marrow

5. Purpose of the Muscular System

- Muscles allow the body to move
- Muscles can be either voluntary or involuntary
 - Voluntary muscles are consciously controlled such as those in your hand that allow you to write
 - Involuntary muscles are those not controlled by the animal, such as the heart

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- Smooth muscles are found in the walls of internal organs and are involuntary
- Cardiac muscles make up the heart and are involuntary
- Skeletal muscles are voluntary muscles attached to the bones that aid in movement

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- The digestive system consists of the:
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 - Tongue
 - Pharynx
 - Esophagus
 - Stomach
 - Small intestine
 - Large intestine
 - Anus

8. A Ruminant Stomach Works

- Goats are what is called a ruminant
- This means the stomach is broken into 4 compartments
- This includes the:
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 - Rumen
 - Omasum
 - Abomasum

9. A Goat's Stomach Process

- The goat eats and breaks down the food with its teeth
- This food then forms a bolus that goes down the esophagus and into the rumen
- The bolus then goes back up through the esophagus into the mouth where it is broken down into smaller parts
- These smaller pieces are swallowed again but this time it enters the reticulum
- This goes from the reticulum to the omasum where these small pieces are broken down into molecules
- These molecules then enter the abomasum and are absorbed by the body
- The molecules not absorbed go through the small intestine and the large intestine, ending up as solid waste

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- The endocrine system is made up of glands that produce hormones
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- Hypothalamus gland controls the pituitary gland and makes an antidiuretic hormone
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- Thyroid gland creates amino acids, and encourages growth along with metabolism
- Adrenal gland makes amino acids, and releases epinephrine and norepinephrine

Lesson Five – Goat Body Systems

REVIEW: Recap of Goat Body Systems

10 minutes

Purpose:

Participants will review the goat body system by using a goat whiteboard. Once the review is over, the participant will take a quiz.

Materials:

- Goat Whiteboards
- *Goat Body Systems Quiz*
- *Goat Body Systems Quiz – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the whiteboards.
2. Instruct participants on how to review the body systems using the whiteboards and give participants five minutes to work.
3. Collect the whiteboards and have participants return to their seats.
4. Distribute the quiz and give participants directions on how to fill it out.
5. After five minutes, collect the quiz.

Name: _____ Class: _____

Goat Body Systems Quiz

Directions: For each statement, indicate if it is true or false.

1. Goats have five different types of bones. True or False
2. Goats have three different types of muscle. True or False
3. There are four glands that make up the endocrine system. True or False
4. Goats are referred to as ruminant. True or False
5. Bones are kept together in four ways. True or False
6. The skeleton of a goat consists of 110 bones. True or False
7. Muscles of a goat can be voluntary, involuntary, or sedentary. True or False
8. The heart muscle of the goat is considered to be a voluntary muscle. True or False
9. A goat's stomach is broken down into four compartments, which includes the reticulum, rumen, omasum, and abomasum. True or False
10. The skeletal system stores and releases fat. True or False
11. Joints occur in areas where two or more bones meet. True or False
12. Long bones protect the body from friction and impacts. True or False
13. Amino acids and growth hormone is released by the pituitary gland. True or False
14. The skeletal system produces blood cells through bone marrow. True or False
15. Tendons are thick bands that unite bone and muscle. True or False

Goat Body Systems Quiz – Answer Key

Directions: For each statement, indicate if it is true or false.

1. Goats have five different types of bones. True or **False**
2. Goats have three different types of muscle. **True** or False
3. There are four glands that make up the endocrine system. **True** or False
4. Goats are referred to as ruminates. **True** or False
5. Bones are kept together in four ways. True or **False**
6. The skeleton of a goat consists of 110 bones. True or **False**
7. Muscles of a goat can be voluntary, involuntary, or sedentary. True or **False**
8. The heart muscle of the goat is considered to be involuntary muscle. True or **False**
9. A goat's stomach is broken down into four compartments, which includes reticulum, rumen, omasum, and abomasums. **True** or False
10. The skeletal system stores and releases fat. **True** or False
11. Joints occur in areas where two or more bones meet. **True** or False
12. Long bones protect the body from friction and impacts. True or **False**
13. Amino acids and growth hormone is released by the pituitary gland. **True** or False
14. The skeletal system produces blood cells through bone marrow. **True** or False
15. Tendons are thick bands that unite bone and muscle. **True** or False

Lesson Six – Goat Judging

Lesson Overview

Participants will learn the basics of how a goat show is run, what judges look for, and the different types of competition available.

Lesson Objectives

After completing this lesson, participants will be able to:

- List the types of goat judging
- Describe how a goat is shown (showmanship)
- List the seven judging traits for meat goats
- List the four judging traits for dairy goats
- Explain how a dairy goat show is arranged in classes
- Describe what it means when a goat is freshened
- Explain how oral reasoning is conducted in a goat show

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Intro To Judging Terms</i> worksheet • <i>Intro To Judging Terms</i> – Answer Key	1. Print/photocopy <i>Intro to Judging Terms</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Goat Judging</i> slide presentation • <i>Goat Judging</i> worksheet • <i>Goat Judging</i> – Answer Key	1. Print/photocopy <i>Goat Judging</i> worksheet (one per participant) 2. Prepare <i>Goat Judging</i> slide presentation for viewing	40 minutes
REVIEW	• Goat Judging Poster • <i>Goat Judging Quiz</i> • <i>Goat Judging Quiz</i> – Answer Key	1. Goat Judging Poster 2. Print/photocopy <i>Goat Judging Quiz</i> (one per participant)	10 minutes

Lesson Six – Goat Judging

FOCUS: Intro to Goat Judging

10 minutes

Purpose:

Participants will be introduced to terms used in goat judging by unscrambling words in a group and then correcting the worksheet.

Materials:

- *Intro To Judging Terms* worksheet
- *Intro To Judging Terms* – Answer Key

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Provide directions on how to fill it out and give participants five minutes to complete it.
3. Have participants return to their seats and exchange papers.
4. Share the answers while participants grade the worksheet.
5. Collect the worksheets.

Name: _____ Class: _____

Intro To Judging Terms

Directions: Unscramble the words on the right and place the answer in the blank on the left.

1. _____

A. lumevo dan worgth

2. _____

B. minfeity

3. _____

C. ructtures

4. _____

D. clanbae

5. _____

E. cuelms

6. _____

F. danhle nad sheessfrn

Intro To Judging Terms – Answer Key

Directions: Unscramble the words on the right and place the answer in the blank on the left.

- | | |
|--------------------------------|-------------------------|
| 1. <u>Volume and growth</u> | A. lumevo dan worgth |
| 2. <u>Feminity</u> | B. minfeity |
| 3. <u>Structure</u> | C. ructtures |
| 4. <u>Balance</u> | D. clanbae |
| 5. <u>Muscle</u> | E. cuelms |
| 6. <u>Handle and freshness</u> | F. danhle nad sheessfrn |

Lesson Six – Goat Judging

LEARN: Goat Judging

40 minutes

Purpose:

Participants will learn about goat judging by watching a slide presentation and filling out a worksheet.

Materials:

- *Goat Judging* slide presentation
- *Goat Judging* worksheet
- *Goat Judging* – Answer Key

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide directions on how to fill it out and present the slides.
3. When the presentation is finished, collect the worksheet.

Slide 1: Title slide

Slide 2: Types of Goat Judging

Slide 3: Goat Judging

- Types of goat judging:
 - Meat or market goat judging
 - Dairy goat judging
- Important factors:
 - Showmanship
 - Oral reasoning
- Both sexes are judged

Slide 4: Meat or Market Goat Judging

Slide 5: Breeds of Meat Goat

- The top meat producer is the Boer breed
- Other pure breeds include:
 - Spanish
 - Tennessee Fainting Goat
 - Kiko
 - Pygmy
- Goats crossbred with Boer are also allowed

Slide 6: Meat Goat Breakdown

- Meat or market goats are broken down into groupings by weight, breed, and sex

- Meat or dairy wethers are weighted and placed in groups according to the show's requirement
- A dairy wether is a castrated dairy goat, which will be raised for meat production

Slide 7: Does of Meat Breeds

- Does of meat breeds are judged by breed and age
- This type of judging is not for meat production but looking at traits that make a good mother for meat breeds

Slide 8: Breeds of Does

- Judging classes are broken into:
 - Registered pygmy goats
 - Grade pygmy goats
 - Purebred does
 - Grade and percentage of Boers
- A grade goat is not a purebred or could be purebred but does not have paperwork to prove it

Slide 9: Ages of Meat Breed Does

- Junior class is broken down into animals that are under 3 months, 3-6 months, and 6-9 months
- Yearling class consists of does that are 9-12 months
- Senior class is broken into 13-24 months, 25-36 months, and 37 months and older

Slide 10: 3 Types of Meat Judging

1. Animal is judged for its meat and preferred characteristics of its breed
2. Showmanship
3. Student is judged on their oral reasons for ranking animals

Slides 11-12: Judging the Animal

- In this type of judging, a judge will walk down a row of goats analyzing characteristics that will allow them to rank goats from best to worst when it

comes to meat production and breeding stock

- Males are judged for their meat quality or ability to produce good meat
- Females are judged on positive traits they can pass on to offspring

Slides 13-16: 7 Judging Traits

1. Degree of muscling
 - Includes center leg width
 - Can be too thick, average, or thin
 - Width of loin
 - Length of loin
 2. Evaluating soundness
 - Includes feet and toes
 - Pasterns
 - Knees
 - Hocks
 - Levelness on top
 3. Evaluating finish
 - Lean but unthrifty
 - Lean with bloom
 4. Evaluating capacity or volume
 - Body width
 - Body depth
 - Body length
 5. Evaluating balance
 - Unbalanced alert
 - Nicely balanced
 6. Evaluating style
 - Poor weak top vs. nice level top
 - Poor short thick neck vs. nice long clean neck
 - Poor coarse shoulder vs. nice smooth shoulder
 - Excellent style
 7. Evaluating freshness
 - Not fresh
 - Fresh
- Freshness is a measure of whether the animal looks healthy or not

Slide 17: Top Traits for Meat Does

- While all 7 judging traits are important, the top 4 that are most important for does include:
 1. Structure
 2. Capacity
 3. Muscle
 4. Balance

Slide 18: Top Traits for Meat Wethers

- The most important traits judges look for in meat wethers include:
 1. Muscle
 2. Structure
 3. Balance
 4. Finish

Slides 19-21: Dairy Goat Judging

- Dairy goat judging is only for females
- While male goats are required, most male dairy goats are castrated and used for meat production
- The recognized dairy goat breeds include:
 - LaMancha
 - Oberhasli
 - Nubian
 - Saanen
 - Toggenburg
 - Alpine
 - Nigerian Dwarf
 - Sable
- A dairy goat show can be 1 of 3 types:
 - Goats are judged for their traits based on breed
 - The skill of the handler is judged (showmanship)
 - Oral reasoning

Slides 22-27: Ages of Does for Dairy

- Junior doe show ages are broken down to the birthday
- A junior doe kid is born on or after April 1 of the current year
- An intermediate doe kid is born March 1 to March 31 of the current year
- A senior doe kid is born January 1 to February 28 of the current year
- Yearling class is 1 year and under 2 years but not freshened
- A freshened goat has given birth and is producing milk
- Senior class consists of 13-24 months, 25-36 months, and 37 months or older
- A senior doe must be freshened
- Senior class breakdown starts with does 1 year and under 2 years that are producing milk or milking

- Does that are 2 years and under 3 years (milking)
- Does 3 years and under 5 years (milking)
- Does 5 years or older (milking)
- There are also competitions that include all breeds
- Mother and daughter pair
- Produce by the dam
- A dam is a doe or female goat that is allowed to nurse her kids
- In this competition, twins produced by the same female are shown
- Get of sire refers to a male goat or buck that produced 3 does
- In this case, it is not 3 does of different ages produced by the same father but triplets

Slides 28-29: 4 Judging Traits of Dairy Goats

1. General appearance
 - Looking for an attractive framework that can support pregnancies
2. Dairy strength
 - Looking for openness of rib cage and flat bones
3. Body capacity
 - Includes width and depth of body
4. Mammary system
 - Evaluates the area of the udder that is important for a long life not only as a milk producer but also as a mother

Slides 30-32: Showmanship Skills

- How to hold your goat
 - Hold the chain collar with the right-hand palm up
 - If you must encourage the goat to lead, move the collar to the left hand and lightly pull the goat's tail with the right
 - Once moving, switch the collar back to the right hand
- How to line up
 - If you're lining up in a row, make sure each goat's shoulder is lined up with its neighbor

- If you're lining up head to tail, line up your goat's head to the tail of the goat in front of you
- Line up the goat's legs to the 4 corners of the body
- Keep the goat's head over the body
- Brace the animal on your leg so that the head is held up, but the ears are at a natural position
- Always keep the goat between you and the judge

Slides 33-36: Oral Reason Judging

- During this type of judging, the judge is graded according to how well they defend their position when it comes to goat ranking
- In this type of show, 4 goats are presented, and the "judge's" job is to decide the order of goats from 1st to 4th
- This order is based on the same judging traits used in judging the animal
- For meat or market, these traits include:
 - Muscling
 - Soundness
 - Finish
 - Capacity or volume
 - Balance
 - Style
 - Freshness
- Dairy traits include:
 - Appearance
 - Dairy strength
 - Body capacity
 - Mammary system
- A notebook is used to make notes of the pros and cons of each animal
- This information is then used to rank the 4 goats from 1st through 4th
- When organizing the goats, judges need to give their reasons for how they ordered the goats using judging terms, such as the soundness of the animal or muscling
- When the goats are organized, each person will defend their ranking orally without the aid of their notes
- This is very much like a speech

Goat Kit Curriculum

- Keep in mind that this judging is not based on whether the ranking of the animal is correct
- The judging is based on how well you defend your ranking using the correct goat terminology

Goat Judging

Directions: As you watch the presentation, fill in the blanks below.

1. Goat Judging

- Types of goat _____:
 - _____ or market _____ judging
 - _____ goat judging
- _____:
 - _____
 - _____
- Both _____ are judged

2. _____ of Meat Goat

- The _____ is the _____
- Other _____ include:
 - _____
 - _____
 - _____
 - _____
- _____ with _____ are also _____

3. Meat Goat _____

- Meat or market goats are broken down into _____, _____, and _____
- _____ or _____ are _____ and _____ in _____ to the _____
- A _____ is a _____, which will be _____ for _____

4. Does of Meat Breeds

- _____ of _____ are _____ by _____ and _____
- This _____ of _____ is _____ for _____ but looking at _____ that make a _____ for _____

5. Breeds of Does

- _____ are broken into:
 - _____
 - _____
 - _____
 - _____ and _____
- A grade goat is _____ a _____ or _____ but does not have _____ to _____

6. _____ of _____ Breed _____

- _____ is _____ into animals that are _____, _____, and _____ and older
- _____ consists of _____ that are _____
- _____ is broken into _____, _____, and _____

7. _____ of _____

- _____ is _____ for its _____ and _____ of its _____
- _____
- _____ is _____ for their _____ for _____

8. _____ the _____

- In this type of judging, a _____ will _____ a _____ of _____ that will allow them to _____ from _____ when it comes to _____ and _____
- _____ are _____ for their _____ or _____ to _____
- _____ are _____ on positive traits they can _____ on to _____

9. _____ Judging _____

1. _____

- Includes _____
- Can be _____, _____, or _____

- _____
- _____
- 2. _____
 - Includes _____
 - _____
 - _____
 - _____
 - _____
- 3. Evaluating _____
 - _____
 - _____
- 4. Evaluating _____
 - _____
 - Body _____
 - Body _____
- 5. Evaluating _____
 - _____
 - _____
- 6. Evaluating _____
 - _____ vs. _____
 - _____ vs. _____
 - _____ vs. _____
 - _____
- 7. Evaluating _____
 - _____
 - _____
 - _____ is a _____ of whether the animal

- 10. _____ for _____
 - While all _____ are
_____, the _____ that are _____
_____ for _____ include:
 1. _____
 2. _____
 3. _____
 4. _____

11. _____ for _____
- The _____
_____ for in _____ include:
 1. _____
 2. _____
 3. _____
 4. _____

12. _____ Judging
- Dairy goat judging is _____ for _____
 - While male goats are required, most _____ dairy _____ are
_____ and _____ for _____

 - The _____ dairy goat _____ include:
 - ☐ _____
 - ☐ _____
 - ☐ _____
 - ☐ _____
 - ☐ _____
 - ☐ _____
 - ☐ _____
 - ☐ _____
 - A dairy _____ can be _____
_____ :
 - Goats are _____ for their _____ based _____

 - The _____ the _____ is judged
(_____)
 - _____

13. _____ of _____ for _____
- _____ are _____
_____ the _____
 - A _____ is _____
_____ 1 of the _____
 - _____ is born _____
_____ of the _____
 - A _____ is born _____
_____ of the _____
 - _____ is _____
_____ but _____

- A freshened _____ has _____ and is _____
- _____ consists of _____ - _____, _____ - _____, and _____
- A _____ be _____
- _____ breakdown _____ with _____ that are _____ or milking
- _____ that are _____ (milking)
- _____ and _____ (milking)
- _____ or _____ (milking)
- There are also _____ that _____
- _____ and _____
- _____ the _____
- A _____ is a doe or _____ that is _____ her kids
- In this competition, _____ produced by the _____ are _____
- _____ refers to a _____ or buck that _____
- In this case, it is _____ of _____ produced by the same father but _____

14. _____ of _____

1. _____

- _____ an _____ that can _____

2. _____

- _____ of _____ and _____

3. _____

- _____ and _____ of _____

4. _____

- Evaluates the _____ the _____ that is _____ a _____ not only as a _____ but _____ as a _____

15. _____

- How to _____
 - _____ the _____ the _____
 - If you must _____ the _____, _____ the _____ to the _____ and _____ the goat's _____ the _____
 - Once _____, _____ the collar _____ the _____
- _____ line up
 - If you're _____ a _____, _____ goat's _____ is lined up with its _____
 - If you're _____ head to _____, line up your _____ head to the _____ of the goat in _____ of you
 - _____ up the goat's _____ to the _____ of the _____
 - Keep the _____ the _____
 - Brace the animal on your _____ so that the _____ is held up, but the _____ are at a _____ position
 - Always _____ the _____ and the _____

16. _____ Judging

- During this type of judging, the _____ is _____ to _____ they _____ their _____ when it comes to _____
- In this type of show, _____ are _____, and the " _____ " _____ is to decide the order of goats from 1st to 4th
- This _____ is _____ the _____ used in _____ the _____
- For _____ or market, these _____:
 - _____
 - _____
 - _____
 - _____ or volume
 - _____
 - _____
 - _____
- _____ traits include:
 - _____

- _____
- _____
- _____
- A _____ is used to _____ on the _____ and _____ of _____
- This _____ is then used to _____ the 4 goats from _____
- When _____ the goats, _____ to give their reasons for _____ ordered the goats _____, such as the _____ or muscling
- When the _____, _____ will _____ their _____ the _____ of their _____
- This is very much _____ a _____
- Keep in mind that this _____ is _____ on whether the _____ of the animals _____
- The judging is _____ how _____ you _____ your _____ the _____

Goat Judging – Answer Key

Directions: As you watch the presentation, fill in the blanks below.

1. Goat Judging

- Types of goat judging:
 - Meat or market goat judging
 - Dairy goat judging
- Important factors:
 - Showmanship
 - Oral reasoning
- Both sexes are judged

2. Breeds of Meat Goat

- The top meat producer is the Boer breed
- Other pure breeds include:
 - Spanish
 - Tennessee Fainting Goat
 - Kiko
 - Pygmy
- Goats crossbred with Boer are also allowed

3. Meat Goat Breakdown

- Meat or market goats are broken down into groupings by weight, breed, and sex
- Meat or dairy wethers are weighted and placed in groups according to the show's requirement
- A dairy wether is a castrated dairy goat, which will be raised for meat production

4. Does of Meat Breeds

- Does of meat breeds are judged by breed and age
- This type of judging is not for meat production but looking at traits that make a good mother for meat breeds

5. Breeds of Does

- Judging classes are broken into:
 - Registered pygmy goats
 - Grade pygmy goats
 - Purebred does
 - Grade and percentage Boers

- A grade goat is not a purebred or could be purebred but does not have paperwork to prove it
6. **Ages of Meat Breed Does**
 - Junior class is broken down into animals that are under 3 months, 3-6 months, and 37 months and older
 - Yearling class consists of does that are 9-12 months
 - Senior class is broken into 13-24 months, 25-36 months, and 37 months and older
 7. **3 Types of Meat Judging**
 - Animal is judged for its meat and preferred characteristics of its breed
 - Showmanship
 - Student is judged for their oral reasons for ranking animals
 8. **Judging the Animal**
 - In this type of judging, a judge will walk down a row of goats analyzing characteristics that will allow them to rank goats from best to worst when it comes to meat production and breeding stock
 - Males are judged for their meat quality or ability to produce good meat
 - Females are judged on positive traits they can pass on to offspring
 9. **7 Judging Traits**
 1. **Degree of muscling**
 - Includes center leg width
 - Can be too thick, average, or thin
 - Width of loin
 - Length of loin
 2. **Evaluating soundness**
 - Includes feet and toes
 - Pasterns
 - Knees
 - Hocks
 - Levelness of top
 3. **Evaluating finish**
 - Lean but unthrifty
 - Lean with bloom
 4. **Evaluating capacity or volume**
 - Body width
 - Body depth
 - Body length
 5. **Evaluating balance**
 - Unbalanced alert
 - Nicely balanced

6. Evaluating style
 - Poor weak top vs. nice level top
 - Poor short thick neck vs. nice smooth shoulder
 - Poor coarse shoulder vs. nice smooth shoulder
 - Excellent style
7. Evaluating freshness
 - Not fresh
 - Fresh
 - Freshness is a measure of whether the animal looks healthy or not
10. Top Traits for Meat Does
 - While all 7 judging traits are important, the top 4 that are most important for does include:
 1. Structure
 2. Capacity
 3. Muscle
 4. Balance
11. The most important for Meat Wethers
 - The most important traits judges look for in meat wethers include:
 1. Muscle
 2. Structure
 3. Balance
 4. Finish
12. Dairy Goat Judging
 - Dairy goat judging is only for females
 - While male goats are required, most male dairy goats are castrated and used for meat production
 - The recognized dairy goat breeds include:
 - LaMancha
 - Oberhasli
 - Nubian
 - Saanen
 - Toggenburg
 - Alpine
 - Nigerian Dwarf
 - Sable
 - A dairy goat show can be 1 of 3 types:
 1. Goats are judged for their traits based on breed
 2. The skill of the handler is judged (showmanship)
 3. Oral reasoning

13. Ages of Does for Dairy

- Junior doe show ages are broken down to the birthday
- A junior doe kid is born on or after April 1 of the current year
- An intermediate doe kid is born March 1 to March 31 of the current year
- A senior doe kid is born January 1 to February 28 of the current year
- Yearling class is 1 year and under 2 years but not freshened
- A freshened goat has given birth and is producing milk
- Senior class consists of 13-24 months, 25-36 months, and 37 months or older
- A senior doe must be freshened
- Senior class breakdown starts with does 1 year and under 2 years that are producing milk or milking
- Does that are 2 years and under 3 years (milking)
- Does 3 years and under 5 years (milking)
- Does 5 years or older (milking)
- There are also competitions that include all breeds
- Mother and daughter pair
- Produce by the dam
- A dam is a doe or female goat that is allowed to nurse her kids
- In this competition, twins produced by the same female are shown
- Get of sire refers to a male goat or buck that produced 3 does
- In this case, it is not 3 does of different ages produced by the same father but triplets

14. 4 Judging Traits of Dairy Goats

1. General appearance

- Looking for an attractive framework that can support pregnancies

2. Dairy strength

- Looking for openness of rib cage and flat bones

3. Body capacity

- Includes width and depth of body

4. Mammary system

- Evaluates the area of the udder that is important for a long life not only as a milk producer but also as a mother

15. Showmanship Skills

- How to hold your goat
 - Hold the chain collar with the right-hand palm up
 - If you must encourage the goat to lead, move the collar to the left hand and lightly pull the goat's tail with the right
 - Once moving, switch the collar back to the right hand
- How to line up

- If you're lining up in a row, make sure each goat's shoulder is lined up with its neighbor
- If you're lining up head to tail, line up your goat's head to the tail of the goat in front of you
- Line up the goat's legs to the 4 corners of the body
- Keep the goat's head over the body
- Brace the animal on your leg so that the head is held up, but the ears are at a natural position
- Always keep the goat between you and the judge

16. Oral Reason Judging

- During this type of judging, the judge is graded according to how well they defend their position when it comes to goat ranking
- In this type of show, 4 goats are presented, and the "judge's" job is to decide the order of goats from 1st to 4th
- This order is based on the same judging traits used in judging the animal
- For meat or market, these traits include:
 - Muscling
 - Soundness
 - Finish
 - Capacity or volume
 - Balance
 - Style
 - Freshness
- Dairy traits include:
 - Appearance
 - Dairy strength
 - Body capacity
 - Mammary system
- A simple notebook is used to make notes on the pros and cons of each animal
- This information is then used to rank the 4 goats from 1st to 4th
- When organizing the goats, judges need to give their reasons for how they ordered the goats using judging terms, such as the animal or muscling
- When the goats are organized, each person will defend their ranking orally without the aid of their notes
- This is very much like a speech
- Keep in mind that this judging is not based on whether the ranking of the animals is correct
- The judging is based on how well you defend your ranking using the correct goat terminology

Lesson Six – Goat Judging

REVIEW: Recap of Goat Judging

10 minutes

Purpose:

Participants will review the process of goat judging by studying a poster. Once the review is complete, participants will take a quiz.

Materials:

- Goat Judging Poster
- *Goat Judging Quiz*
- *Goat Judging Quiz – Answer Key*

Facilitation Steps:

1. Display poster and instruct participants to review the information on it.
2. After 5 minutes, remove the poster and distribute the quiz.
3. Provide directions on how to fill the quiz out and give participants five minutes to complete it.
4. Collect the quiz.

Name: _____ Class: _____

Goat Judging Quiz

Directions: After reading each statement, indicate whether it is true or false.

1. Both meat and dairy wethers compete in market judging competitions. True or False
2. Does compete in the meat competitions only as breeding stock. True or False
3. The top meat producer breed is the pygmy goat. True or False
4. In meat competition, goats are broken into groups by weight, breed, and sex. True or False
5. There are three different types of judging when it comes to goats. True or False
6. Goats crossbred with a Boer are not allowed to compete. True or False
7. Showmanship refers to how well the animal shows off for the judge. True or False
8. During oral reasoning, only four goats will be judged. True or False
9. Meat goats are judged according to 10 traits. True or False
10. Both male and females compete in dairy goat competitions. True or False
11. In dairy goat competitions, the birth date of the animal is important. True or False
12. When judging freshness in meat goats, you're determining if the animal looks healthy. True or False
13. In goat judging, a grade is given to the goat depending on how well it performs. True or False
14. In both the meat and dairy competitions, judges compete in what is referred to as "oral reasoning," which is a speech-like presentation you give detailing why you ranked four goats from 1st to 4th. True or False
15. There is a separate competition for a dam and her twins. True or False
16. There are five general traits observed by a judge during a dairy goat competition. True or False
17. When competing in showmanship, it does not matter which hand holds the collar. True or False
18. During oral reasoning before a judge, a competitor can use his or her notes. True or False
19. In dairy goat competition, the udder is not judged. True or False
20. When evaluating the capacity or volume of a meat goat, one must look at the body's width, depth, and length. True or False

Goat Judging Quiz – Answer Key

Directions: After reading each statement, indicate whether it is true or false.

1. Both meat and dairy wethers compete in market judging competitions. **True** or False
2. Does compete in the meat competitions only as breeding stock. **True** or False
3. The top meat producer breed is the pygmy goat. True or **False**
4. In meat competition, goats are broken into groups by weight, breed, and sex. **True** or False
5. There are three different types of judging when it comes to goats. **True** or False
6. Goats crossbred with a Boer are not allowed to compete. True or **False**
7. Showmanship refers to how well the animal shows off for the judge. True or **False**
8. During oral reasoning, only four goats will be judged. **True** or False
9. Meat goats are judged according to 10 traits. True or **False**
10. Both male and females compete in dairy goat competitions. True or **False**
11. In dairy goat competitions, the birth date of the animal is important. **True** or False
12. When judging freshness in meat goats, you're determining if the animal looks healthy. **True** or False
13. In goat judging, a grade is given to the goat depending on how well it performs. True or **False**
14. In both the meat and dairy competitions, judges compete in what is referred to as "oral reasoning," which is a speech-like presentation you give detailing why you ranked four goats from 1st to 4th. **True** or False
15. There is a separate completion for a dam and her twins. **True** or False
16. There are five general traits observed by a judge during a dairy goat competition. True or **False**
17. When competing in showmanship, it does not matter which hand holds the collar. True or **False**
18. During oral reasoning before a judge, a competitor can use his or her notes. True or **False**
19. In dairy goat competition, the udder is not judged. True or **False**
20. When evaluating the capacity or volume of a meat goat, one must look at the body's width, depth, and length. **True** or False

Lesson Seven – Goat Production Careers and Training

Lesson Overview.

Participants will explore careers that involve goat production.

Lesson Objectives

After completing this lesson, participants will be able to:

- List five careers in the goat industry
- Explain the job tasks for each of the five careers
- Describe jobs goats are hired for
- Use research skills to find out more about a goat career of interest

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• <i>Careers in Goat Production Scramble</i> worksheet • <i>Careers in Goat Production Scramble – Answer Key</i>	1. Print/photocopy <i>Careers in Goat Production Scramble</i> worksheet (one per participant)	10 minutes
LEARN	• <i>Goat Production Career, and Training</i> slide presentation • <i>Goat Production Careers</i> worksheet • <i>Goat Production Careers – Answer Key</i>	1. Print/photocopy <i>Goat Production Careers</i> worksheet (one per participant) 2. Prepare <i>Goat Production Careers and Training</i> slide presentation for viewing	40 minutes
REVIEW	• <i>Career Exploration Graphic Organizer</i> worksheet • <i>Goat Production Careers Quiz</i> • <i>Goat Production Careers Quiz – Answer Key</i>	1. Print/photocopy <i>Career Exploration Graphic Organizer</i> worksheet (one per participant) 2. Print/photocopy <i>Goat Production Careers Quiz</i> (one per participant)	10 minutes

Lesson Seven – Goat Production Careers and Training

FOCUS: Intro to Careers in Goat Production

10 minutes

Purpose:

Participants will be introduced to careers in goat production by working in pairs to unscramble the words on the worksheet listing some of the possible jobs in this industry.

Materials:

- *Careers in Goat Production Scramble* worksheet
- *Careers in Goat Production Scramble – Answer Key*

Facilitation Steps:

1. Have participants pair up and distribute the worksheet.
2. Go over the directions on how to fill the worksheet out and give participants five minutes to complete it.
3. Have participants go back to their seats and trade papers.
4. Go over the answers while participants grade papers before collecting the worksheet.

Name: _____ Class: _____

Careers in Goat Production Scramble

Directions: Uncover the different careers in goat production by unmixing the letters to fill in the blanks

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

1. Gato Fedeer
2. Yarid Narb Usrhdabybn Stassiant
3. Neerrivtay Ssnaastit
4. Chutber
5. Taog Porrettanrs
6. Rinarianveter
7. Fech
8. Tago Chreareesr
9. Kamesseecher
10. Agto Dehr Dnah

Careers in Goat Production Scramble – Answer Key

Directions: Uncover the different careers in goat production by unmixing the letters to fill in the blanks

1. Goat Feeder
2. Dairy Barn Husbandry Assistant
3. Veterinary Assistant
4. Butcher
5. Goat Transporter
6. Veterinarian
7. Chef
8. Goat Researcher
9. Cheesemaker
10. Goat Herd Hand

1. Gato Fedeer
2. Yarid Narb Usrhdaby Stassiant
3. Neerrivtay Ssnaastit
4. Chutber
5. Taog Porrettanrs
6. Rinarianveter
7. Fech
8. Tago Chreareesr
9. Kamesseecher
10. Agto Dehr Dnah

Lesson Seven – Goat Production Careers and Training

LEARN: Careers in Goat Production

40 minutes

Purpose:

Participants will learn about careers in goat production by watching a slide presentation while filling out a worksheet.

Materials:

- *Goat Production Careers and Training* slide presentation
- *Goat Production Careers* worksheet

Facilitation Steps:

1. Set up the slide presentation and distribute the worksheet.
2. Provide instructions on how to fill the worksheet out.
3. Once the slide presentation is completed, collect the worksheet.

Slide 1: Title slide

Slide 2: What Can I Do as a Goat Professional?

Slide 3: Careers Working With Goats

- All the goat production careers discussed require some level of one-on-one interactions with the animal
- The workday for all these careers requires being outside during all kinds of weather

Slides 4-6: Veterinary Assistant

- A veterinary assistant is to animals as a nurse is to humans
- An assistant will help the veterinarian with numerous tasks such as:
 - Cleaning cages
 - Watering and feeding animals
 - Restraining animals safely
 - Gathering information such as the weight, sex, and health of the animal
- Assistants work in the office and go on farm calls
- They are also responsible for answering the phone and making appointments
- They have working knowledge of:

- Laboratory techniques and tests
- Pharmacology
- Radiology
- Surgery
- Nursing skills

Slides 7-9: Goat Researcher

- Aids producer organizations and large commercial farms
- Needs to have working knowledge of some aspects of goat production including:
 - Animal behavior
 - Meat science
 - Genetics
 - Environmental physiology
 - Health
 - Nutrition
 - Reproduction
 - Parasitology
- Works both in a lab and in the field conducting tests
- Publishes results in animal science magazines and layperson works such as a goat farmer newsletter
- Must have:
 - Computer skills
 - Excellent writing skills
 - Can think in a scientific manner
 - Can communicate well verbally

Slides 10-11: Goat Feeder

- Takes care of kid goats from newborn to weaning age
- Feeds goats with bottles
- Mixes powdered milk
- Takes care of automatic feeding machines and feed grain
- Gives vaccinations and antibiotics

Slides 12-13: Goat Herd Hand

- Helps with animal husbandry, including trimming hooves, giving medication, and aiding in kidding

- Helps maintain the barn and equipment
- Aids in keeping the livestock area clean
- Assists with milking in the dairybarn
- Bottle feeds kids
- Monitors goat herd health
- Distributes fresh water feed daily

Slides 14-16: Dairy Barn Husbandry Assistant

- Responsible for moving goats from pasture to barn
- Keeps barn aisles clean
- Helps with husbandry tasks such as hoof trimming, deworming, and clipping hair
- Monitors the health of the animals and biosecurity issues
- Repairs fencing, barns, etc.
- Reports on the health of the animals and any concerns

Slides 17-19: Cheesemaker

- Milks goats
- Cleans equipment
- Keeps accurate records for food safety such as temperature of foodstuffs
- Makes cheese
- Develops new cheese recipes
- Processes finished product including selling on the farm and/or shipping
- Prepares for inspections
- Keeps records on inventory
- Rotates stock
- Keeps up to date on cheese trends and products

Slides 20-21: Goat Shearer and/or Fiber Artist

- Angora goats are the only ones sheared
- Many Angora goat farmers are also fiber artists
- Shearers are responsible for removing the hair twice each year
- They sort out the desirable hair
- Keep equipment clean and working
- May help dye the yarn
- Creates projects using the yarn
- Researches trends in fiber arts

Slides 22-24: Veterinarian

- Visits goat farms to treat animals

- Examines animals to determine if they are healthy
- Advises animal owners about how to care for their goats and informs the farmer of any problems with the goats
- Performs surgery on goats
- Treats wounds
- Collects samples for lab tests
- Prescribes medication
- Vaccinates goats
- Puts animals down when required
- Conducts research
- Enforces government food safety regulations

Slides 25-27: Butcher

- Prepares larger cuts of meat for resale by cutting it down and trimming it up
- Follows food sanitation practices
- Offers advice on how to prepare certain cuts of meat
- Prepares meat for special orders
- Packages and prices cuts of meat
- Must be in good health and understand proper hygiene practices
- Needs to know the common cuts for each animal species
- Must have good eye-hand coordination
- Required to work independently and in a team

Slides 28-30: Chef

- Monitors kitchen sanitation practices and safety requirements
- Orders food and other supplies
- Inspects supplies, kitchen, and equipment to make sure they meet standards
- Checks the freshness of food and ingredients
- Trains employees
- Develops new recipes and plans out their cost
- Creates menus and makes sure the dishes meet the standards established by the kitchen
- Must be an excellent communicator
- Must have good recordkeeping skills

Slides 31-34: Goat Transporter

- In recent years, goats have entered the job market and are hired to do all sorts of unique jobs
- To get to work, they need transportation and someone to watch over them or they end up in the road
- If you need to move goats to locations that are not easily accessible to goat herding, then you need to move them by truck
- Driving them to their jobs requires a driver's license
- After getting the goats to their location, the transporter must:
 - Stay with the herd
 - Make sure the goats have water
 - Keep the goats away from dangerous areas
 - Load the goats up at night to take them home

Slides 35-49: Jobs Goats Can Perform

- Goats are hired in some states as firefighters
 - Rather than put fires out, goats prevent them by eating flammable dried grass
- Due to goats' grazing nature, they are wonderful additions to any maintenance program established for a landfill
 - It is true that goats eat a lot but, in this job, their responsibility is to keep the weeds down that grow up in and around the landfill

- Goats are also hired to consume toxic and invasive plant material
 - Since goats tend to eat all the way to the ground, some species can be eliminated from an area by having goats graze
 - Other plants are controlled by goat grazing
- Some goats are in big demand as party animals
 - They can be trained but, in most cases, they are just invited due to their cuteness
- Goats are also in demand at spas as part of a yoga practice
 - Goat yoga is a simple practice where an instructor teaches yoga while goats interact with students
- Some states will hire goats to "mow" grass along the interstates
 - Golf courses and airports also hire goats to maintain the grass

Goat Production Careers

Directions: As you watch the slide presentation, fill in the blanks of the worksheet.

1. _____ Working _____
 - All the goat production _____ of _____ - _____ - _____ with the _____
 - The _____ for _____ these _____ during _____

2. Veterinary Assistant
 - A _____ is _____ as a _____ is to _____
 - An assistant _____ the _____ with _____ such as:
 - _____
 - _____ and _____ animals
 - _____ animals _____
 - _____ such as the _____, _____, and _____ of the _____
 - Assistants _____ the _____ and go on _____
 - They are also _____ for _____ the _____ and _____
 - They have _____ of:
 - _____ and _____
 - _____
 - Radiology
 - _____
 - _____

3. Goat Researcher
 - _____ organizations and _____
 - _____ to have _____ of some _____ of goat _____ including:

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____ both _____ a _____ and _____ the _____
- _____ results _____ and _____ such as a _____
- _____ have:
 - _____
 - _____
 - Can _____ in a _____
 - Can _____ well _____

4. Goat Feeder

- Takes _____ of _____ from _____ to _____
- _____
- _____
- Takes _____ of _____ and _____
- _____

5. Goat Herd Hand

- _____ with animal husbandry _____ trimming hooves, giving _____, and aiding in _____
- Helps maintain the _____ and equipment
- Aids in _____ the livestock area _____
- Assists with milking in the _____ barn
- Bottle feeds _____
- Monitors goat _____ health
- Distributes fresh _____ and feed daily

6. Dairy Barn Husbandry Assistant

- _____ for _____ from

- _____
- _____ with _____ such as
_____, _____, and

- _____ the _____ of the
_____ and _____
- _____, barns, _____
- _____ on the _____ of the _____ and any

7. Cheesemaker

- _____
- _____
- _____ accurate _____ for _____
_____, such as _____ of

- _____
- _____
- _____ finished _____ including
_____ and/or

- _____ for _____
- Keeps _____ on _____
- _____
- _____ on _____
_____ and _____

8. Goat Shearer and/or Fiber Artist

- _____ are the only ones _____
- _____ goat _____ are _____

- Shearers are responsible for _____ the _____

- _____ out the _____
- Keep _____ and _____
- _____ help dye the _____
- _____ using the _____
- _____ trends in _____

9. Veterinarian

- _____ goat _____ to _____

- _____ _____ to _____
_____ if they are _____
- _____ animal _____ about _____ to _____
_____ their _____ and _____ the _____ of any
_____ with the _____
- Performs _____

- _____ for _____
- _____
- _____
- _____ animals _____
- _____
- _____ government _____

10. Butcher

- _____ of meat for _____
_____ by _____ it _____ and
_____ it up
- _____ food _____

- Offers _____ on _____ to _____ certain
_____ of _____
- _____ for _____

- _____ and _____ of

- _____ be in _____ and
_____ proper _____

- _____ to _____ the _____ for each
animal species
- _____ have _____ -

- Required to _____ and _____ a

11. Chef

- _____ kitchen _____
_____ and _____
- _____ and other _____
- _____,
_____, and _____ to make sure they

- _____ the _____
_____ and _____
- _____
- Develops _____ and _____ out

- _____ and makes sure the
_____ the _____
established _____ the _____
- Must be an _____

- Must have _____ skills

12. Goat Transporter

- In recent years, _____ have _____ the _____
_____ and are _____ to do all sorts of _____

- To get to work, they _____ and
_____ to _____ or they
_____ the _____
- If you need to _____ goats to locations that are not _____ accessible to goat
_____, then you need to _____ them by truck
- _____ them to their _____ requires a driver's _____
- After getting the _____ to their location, the _____ must:
 - Stay with the _____
 - Make sure the _____ have water
 - Keep the _____ away from dangerous _____
 - Load the goats up at _____ to take them _____

13. _____ Can _____

- Goats are _____ as

 - _____ fires out, goats
_____ flammable
dried grass
- _____ to goats' _____, they are
_____ to any

- _____ established _____ a
- _____
- It is true that _____ a lot but, _____
_____, their responsibility is to _____ the _____
_____ that grow up in and _____

 - Goats are also _____ consume toxic and _____ plant

 - Since goats tend to _____ all the way to the _____, some species can
be _____ from an area by having _____ graze
 - Other plants are _____ by goat grazing
 - Some _____ are in _____ as _____

 - They _____ but, in most cases, they are
just _____ to their

 - _____ are also _____ as part
of a _____
 - _____ is a simple practice where an
_____ while

 - Some states will _____ to “_____” _____ along
the _____
 - _____ and _____
also hire _____ to _____ the _____

Goat Production Careers – Answer Key

Directions: As you watch the slide presentation, fill in the blanks of the worksheet.

1. Careers Working With Goats

- All the goat production careers discussed require some level of one-on-one interaction with the animal
- The workday for all these careers requires being outside during all kinds of weather

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- Responsible for moving goats from pasture to barn
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- Monitors the health of the animals and clipping hair
- Repairs fencing, barns, etc.
- Reports on the health of the animals and any concerns

7. Cheesemaker

- Milks goats
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- Keeps accurate records for food safety, such as temperature of foodstuffs
- Makes cheese
- Develops new cheese recipes
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- Prepares for inspections

- Keeps records on inventory
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- Prescribes medication
- Vaccinates goats
- Puts animals down when required
- Conducts research
- Enforces government food safety regulations

10. Butcher

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11. Chef

- Monitors kitchen sanitation practices and safety requirements

- Orders food and other supplies
- Inspects supplies, kitchen, and equipment to make sure they meet standards
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- Driving them to their jobs requires a driver's license
- After getting the goats to their location, the transporter must:
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- Goats are hired in some states as firefighters
 - Rather than put fires out, goats prevent them by eating flammable dried grass
- Due to goats' grazing nature, they are wonderful additions to any maintenance program established for a landfill
 - It is true that goats eat a lot but, in this job, their responsibility is to keep the weeds down that grow up in and around the landfill
- Goats are also hired to consume toxic and invasive plant material
 - Since goats tend to eat all the way to the ground, some species can be eliminated from an area by having goats graze
 - Other plants are controlled by goat grazing
- Some goats are in big demand as party animals
 - They can be trained but, in most cases, they are just invited due to their cuteness
- Goats are also in demand at spas as part of a yoga practice
 - Goat yoga is a simple practice where an instructor teaches yoga while goats interact with students
- Some states will hire goats to "mow" grass along the interstates
 - Golf courses and airports also hire goats to maintain the grass

Lesson Seven – Goat Production Careers and Training

REVIEW: Recap of Careers in Goat Production

10 minutes

Purpose:

Participants will explore a career they have interest in by using the career graphic organizer and then they will test their knowledge by taking a quiz.

Materials:

- *Career Exploration Career Graphic Organizer* worksheet
- *Goat Production Careers Quiz*
- *Goat Production Careers Quiz – Answer Key*

Facilitation Steps:

1. Distribute the career graphic organizer and provide directions on how to use it.
2. Give participants five minutes to fill out the information on their career choice before collecting the worksheet.
3. Distribute the quiz and provide directions on how to fill it out.
4. After five minutes, collect the quiz.

Name: _____ Date: _____

Career Exploration Graphic Organizer

Compare and contrast careers working in the career cluster of Agriculture that relates to goats. Possible sources for information include your school library, public library, Bureau of Labor Statistics website, Occupational Outlook Handbook website, FFA, or other career-related websites on the internet.

CAREER: _____

Degree or license required	
Length of time to complete training or earn degrees	
Average starting salary per year	
Average hourly wage	
Job outlook	
5 skills needed for this job	
Describe the job setting	
What are the primary job duties?	
Do you work alone or with people?	

What needs or wants does this occupation fill?	
What is one thing an employer would expect from someone in this position?	
What kinds of people will be successful in this career?	

Name: _____ Class: _____

Goat Production Careers Quiz

Directions: After reading each statement below, indicate whether it is true or false by circling your answer.

1. A veterinarian only sees goats in his/her office. True or False
2. A goat feeder does not take care of kids. True or False
3. Goat researchers only do research and do not publish their findings. True or False
4. Cheesemakers are required to keep records not only of their cheese but also must follow Board of Health recordkeeping regulations. True or False
5. A goat shearer is needed to cut the hair of all goat species. True or False
6. Transporting goats to their jobs falls under the job of goat transporter. True or False
7. A chef involved in the goat industry can be expected to develop new recipes using this meat.
True or False
8. A veterinary assistant is to animals as a nurse is to a human. True or False
9. A butcher must know how to cut the common cuts of goat meat and be able to answer questions about the meat. True or False
10. The only service or job that goats have is in meat and dairy production along with a supplier of fiber. True or False

Goat Production Careers Quiz – Answer Key

Directions: After reading each statement below indicate whether it is true or false by circling your answer

1. A veterinarian only sees goats in his/her office. True or **False**
2. A goat feeder does not take care of kids. True or **False**
3. Goat researchers only do research and do not publish their findings. True or **False**
4. Cheesemakers are required to keep records not only of their cheese but also must follow Board of Health recordkeeping regulations. **True** or False
5. A goat shearer is needed to cut the hair of all goat species. True or **False**
6. Transporting goats to their jobs falls under the job of goat transporter. **True** or False
7. A chef involved in the goat industry can be expected to develop new recipes using this meat. **True** or False
8. A veterinary assistant is to animals as a nurse is to a human. **True** or False
9. A butcher must know how to cut the common cuts of goat meat and be able to answer questions about the meat. **True** or False
10. The only service or job that goats have is in meat and dairy production along with a supplier of fiber. True or **False**

Sources

1. (2022, January 8) *12 Popular Goat Breeds* Retrieved from: <https://www.agriculture.com/family/living-the-country-life/12-popular-goat-breeds>
2. (2022, January 8) *14 Common Goat Breeds* Retrieved from: <https://familyfarmlivestock.com/14-common-goat-breeds-in-america/>
3. (2022, January 8) *Breeds of Livestock-Toggenburg Goats* Retrieved from: <http://afs.okstate.edu/breeds/goats/toggenburg/index.html/>
4. (2022, January 8) *Sable Goat Characteristics, Breeding & Uses* Retrieved from: <https://www.roysfarm.com/sable-goat/>
5. (2022, January 8) *Oberhasli Goat* Retrieved from: <https://livestockconservancy.org/heritage-breeds/heritage-breeds-list/oberhasli-goat/>
6. (2022, January 8) *Nigerian Dwarf: A Wonderful Goat In A Small Package* Retrieved from: <https://familyfarmlivestock.com/nigerian-dwarf-a-wonderful-goat-in-a-small-package/>
7. (2022, January 9) *Goat Breeds Boer* Retrieved from: <https://goats.extension.org/goat-breeds-boer/>
8. (2022, January 9) *Goat Breeds Kiko* Retrieved from: <https://goats.extension.org/goat-breeds-kiko/>
9. (2022, January 9) *Goat Breeds Spanish* Retrieved from: <https://goats.extension.org/goat-breeds-spanish/>
10. (2022, January 9) *Goat Breeds Pygmy* Retrieved from: <https://goats.extension.org/goat-breeds-pygmy/>
11. (2022, January 9) *Angora Goat Characteristics, Feeding, Breeding* Retrieved from: <https://www.roysfarm.com/angora-goat/>
12. (2022, January 9) *Breeds of Livestock-Angora Goats* Retrieved from: <http://afs.okstate.edu/breeds/goats/angora/index.html/>
13. Jones, JJ, and Stephens, Harold (2022, January 9) *Breeds of Meat Goats* Retrieved from: <https://extension.okstate.edu/programs/meat-goat-production/site-files/docs/chapter-2-breeds-of-meat-goats.pdf>
14. (2022, January 9) *Goat Breeds Savanna* Retrieved from: <https://goats.extension.org/goat-breeds-savanna/>
15. Akinbobola A., (2022, January 9) *The Fainting Goat-All Breed Information* Retrieved from: <https://www.livestocking.net/fainting-goat-breed>
16. (2022, February 8) *Goats* Retrieved from: <https://goats.extension.org/goat-glossary-of-terms/>

17. (2022, February 8) *Animal Terms And Their Proper Usage* Retrieved from:
<https://livestockconservancy.org/resources/animal-terms/>
18. (2022, February 8) *Breed Profile: Savanna Goats* Retrieved from:
<https://backyardgoats.iamcountryside.com/goat-breeds/breed-profile-savanna-goats/>
19. (2022, February 8) *Breed Profile: LaMancha* Retrieved from:
<https://backyardgoats.iamcountryside.com/goat-breeds/lamancha-goat-spotlight-from-goat-journal/>
20. (2022, February 8) *Angora Goats and Soil Health* Retrieved from:
<https://backyardgoats.iamcountryside.com/ownership/angora-goats-and-soil-health/>
21. (2022, February 8) *Breed Profile: Pygmy Goats* Retrieved from:
<https://backyardgoats.iamcountryside.com/goat-breeds/breed-profile-pygmy-goats/>
22. (2022, February 8) *Breed Profile: Kiko Goat* Retrieved from:
<https://backyardgoats.iamcountryside.com/goat-breeds/breed-profile-kiko-goat/>
23. Pezzanite, Lynn, Neary, Michael Dr., Hutchens, Terry, and Scharko, Patty Dr., (2022, February 8) *Animal Sciences Common Diseases and Health Problems in Sheep and Goats* Retrieved from: <https://www.extension.purdue.edu/extmedia/as/as-595-commondiseases.pdf>
24. (2022, February 8) *Diseases from goats and livestock* Retrieved from:
<https://kingcounty.gov/depts/health/communicable-diseases/zoonotic/facts-resources/diseases-by-animal/goats-livestock.aspx>
25. (2022, February 9) *Goats and Their Nutrition* Retrieved from:
<https://www.gov.mb.ca/agriculture/livestock/goat/pubs/goats-and-their-nutrition.pdf>
26. (2022, February 9) *Basic goat management and feeding* Retrieved from:
<https://www.farmersweekly.co.za/farm-basics/how-to-livestock/basic-goat-management-and-feeding/>
27. (2022, February 9) *What Do Goats Eat? How To Feed Your Goats* Retrieved from:
<https://rurallivingtoday.com/livestock/what-do-goats-eat/>
28. (2022, February 9) *Complete Food List: What Goats Do Eat And What Not?* Retrieved from: <https://modernfarmertips.com/what-do-goats-eat/>
29. Smith, Cheryl, K., (2022, February 9) *Raising Goats For Dummies Cheat Sheet* Retrieved from: <https://www.dummies.com/article/home-auto-hobbies/hobby-farming/goats/raising-goats-for-dummies-cheat-sheet-209109>
30. Paws, Healthy, (2022, February 9) *Signs of Illness in Goats* Retrieved from:
<https://carlisleveterinarian.com/signs-illness-goats/>
31. (2022, February 9) *Signs of Illness in Goats* Retrieved from:
<https://www.hoschtonanimalhospital.com/2016/01/15/hoschton-ga-vet-illness-goats>

32. Brady, Boyd, (2022, February 14) *Common Diseases of Dairy Goats and Sheep* Retrieved from: <https://www.aces.edu/blog/topics/sheep-goats/common-diseases-of-dairy-goats-and-sheep/>
33. Kinder, Cindy (2022, March 5) *Skeletal Structure* Retrieved from: <https://www.uidaho.edu/-/media/UIDaho-Responsive/Files/Extension/4-H/Animal-Science-Lesson-Plans/Selection-Skeletal-Structure-L2-CKinder-ALL.pdf?la=en&hash=4235D95CE1283AB7D42519422B59F2E387CB8157>
34. (2022, March 5) *Cat Anatomy and Physiology* Retrieved from: <https://co4h.colostate.edu/projects/manuals/Cats-WashingtonState-U3.pdf>
35. (2022, March 5) *Veterinary Gross Anatomy* Retrieved from: <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=123582>
36. Mitchell, Graham (2022, March 5) *How Giraffes Work* Retrieved from: <https://oxford.universitypressscholarship.com/view/10.1093/oso/9780197571194.001.0001/oso-9780197571194-chapter-15#:~:text=The%20giraffe%20skeleton%20consists%20of%20~170%20bones>
37. Garman, Janet (2022, March 5) *The Smelly Truth About Goat Reproduction* Retrieved from: <https://backyardgoats.iamcountryside.com/health/the-smelly-truth-about-goat-reproduction/>
38. (2022, March 5) *Goat Reproductive Biology* Retrieved from: <http://www.luresext.edu/?q=content/goat-reproductive-biology>
39. (2022, March 5) *Goat Reproduction* Retrieved from: <https://animalcorner.org/goat-reproduction/#:~:text=Below%20is%20the%20general%20breeding,into%20season%20every%2021%20days>
40. (2022, March 5) *Breeding Season* Retrieved from: <https://www.farmhealthonline.com/health-welfare/goat-welfare/goat-reproduction/>
41. (2021, March 5) *Gestation Period For Cows & All Other Mammals* Retrieved from: <https://beef2live.com/story-gestation-period-cows-mammals-0-109436>
42. (2021, March 5) *Listeriosis in Your Herd* Retrieved from: <https://content.ces.ncsu.edu/listeriosis-in-your-herd>
43. (2022, March 5) *Zoonotic Diseases From Sheep/Goats* Retrieved from: <https://www.vet.cornell.edu/animal-health-diagnostic-center/programs/nyschap/modules-documents/zoonotic-diseases-sheepgoats>
44. Villarroel, A. (2022, March 5) *Internal Parasites in Sheep and Goats* Retrieved from: <https://smallfarms.oregonstate.edu/sites/agscid7/files/em9055.pdf>
45. Talley, Justin (2022, March 5) *External Parasites of Goats* Retrieved from: <https://extension.okstate.edu/fact-sheets/external-parasites-of-goats.html>

46. Brady, Boyd (2022, March 5) *Common Diseases of Dairy Goats and Sheep* Retrieved from: <https://www.aces.edu/blog/topics/sheep-goats/common-diseases-of-dairy-goats-and-sheep/>
47. (2022, March 8) *Goat Anatomy-External and Internal Anatomical Features with Labeled Diagram* Retrieved from: <https://anatomylearner.com/goat-anatomy/>
48. (2022, March 8) *anatomy and physiology of the goat* Retrieved from: https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0010/178336/Anatomy-and-physiology-of-the-goat.pdf
49. Kinder, Cindy A., .Mavencamp, Denise (2022, March 11) *Judging Meat Goats And Oral Reasons 101* Retrieved from: <https://www.extension.uidaho.edu/publishing/pdf/PNW/PNW678.pdf>
50. (2022, March 11) *Meat Goat Showmanship* Retrieved from: <https://cemonterey.ucanr.edu/files/197374.pdf> .
51. (2022, March 11) *Guide to Dairy Goat Shows* Retrieved from: <https://adga.org/guide-to-dairy-goat-shows/#:~:text=The%20eight%20breeds%20recognized%20by,%2C%20Saanen%2C%20Sable%20and%20Toggenburgs> .
52. (2022, March 20) *Basic Judging for Boer goats* Retrieved from: https://www.shsu.edu/academics/agricultural-sciences-and-engineering-technology/documents/judging_boer.pdf
53. (2022, March 20) *Guide to Dairy Goat Shows* Retrieved from: <https://adga.org/guide-to-dairy-goat-shows/>
54. (2022, March 20) *Judging Meat Goats* Retrieved from: <http://afs.ca.uky.edu/livestock/presentation/Judging-Meat-Goats#Evaluating-Freshness-Characteristics>
55. (2022, March 20) *ADGA Breed Standards* Retrieved from: <https://adga.org/breed-standards/>
56. (2022, March 20) *Goats* Retrieved from: <https://extension.purdue.edu/news/county/henry/2021/02/Goats.html>
57. Bowers, Kraig (2022, March 20) *Evaluating Meat Goats* Retrieved from: <https://d3vhqawhyaq08k.cloudfront.net/F/huntington/meat%20goat%20selection2.pdf>
58. (2022, March 20) *What Makes a Winning Dairy Goat?* Retrieved from: <https://redwoodhill.com/stories/what-makes-a-winning-dairy-goat#:~:text=When%20judging%2C%20the%20ADGA%20licensed,Body%20Capacity%2C%20and%20Mammary%20System> .
59. (2022, March 23) *Sheep or Goat Researcher or Consultant* Retrieved from: <https://www.careerexplorer.com/careers/butcher/>

60. (2022, March 23) *What does a butcher do?* Retrieved from: https://animalcareers.cornell.edu/list_careersby.php?id=75
61. Hirsch, Jesse *5 Cool Jobs Held by Goats* Retrieved from: <https://modernfarmer.com/2013/04/5-cool-jobs-held-by-goats/>
62. (2021, March 29) *Angora Goat Shearing* Retrieved from: <https://ag.umass.edu/crops-dairy-livestock-equine/fact-sheets/angora-goat-shearing>
63. St. John, Autumn (2021, March 29) *Job Description of Cheesemaker* Retrieved from: <https://work.chron.com/job-description-cheese-maker-18789.html>
64. (2021, March 29) *What Veterinarians Do?* Retrieved from: <https://www.bls.gov/ooh/healthcare/veterinarians.htm#tab-2>
65. Hirsch, Jesse (2021, March 29) *5 Cool Jobs Held By Goats* Retrieved from: <https://modernfarmer.com/2013/04/5-cool-jobs-held-by-goats/>