



Alpine

Origin – Alps of Switzerland.

Type – Dairy breed.

Hair – Short to medium length hair with colors that may range from pure white through shades of fawn, gray, brown, black, red, bluff, piebald, or various shadings or combinations of these colors.

Face/Ear Type – Straight or slightly dished face, and ears that are medium sized, fine textured, and erect.

Important Traits – Hardy, adaptable animals that thrive in any climate while maintaining good health and excellent production.





American Cashmere

Origin – Australia and New Zealand.

Type – Fiber breed.

Hair – The fleece consists of the very fine, crimped down (cashmere) and the usually longer, outside, coarse, straight guard hairs. The hair can be solid colored or combinations of colors, with solid colors much preferred.

Face/Ear Type – Straight face or “Roman” nose, and ears that are typically downturned.

Important Traits – Insulative properties of dual coat, hardy, and high health.





Angora

Origin – District of Angora in Asia Minor.

Type – Fiber breed.

Hair – The hair (mohair) is very similar to coarse wool in the size of fiber and should be solid white in color.

Face/Ear Type – Straight or slightly dished face, and ears that are heavy and drooping.

Important Traits – Mohair production, browsing ability, meat production, and not as prolific as other goats (single lambs more common than twins).





Boer

Origin – Africa.

Type – Meat breed.

Hair – Short, glossy hair that is colored light to dark red on the head and ears and white on the remainder of the body. A white face blaze should be evident.

Face/Ear Type – Gently curving nose, and large, floppy ears (lop ears).

Important Traits – Meat yield, growth rate, browsing ability, fertility, adaptability to wide climatic conditions, and extended breeding season.

Photos provided by *Buckeye ILLINI Genetics*





Kiko

Origin – New Zealand.

Type – Meat breed.

Hair – Short to medium length hair that can be a range of colors, but white is the most predominant.

Face/Ear Type – Straight or slightly dished face, and ears that are medium length and somewhat pendulous.

Important Traits – Meat yield, growth rate, constitution, and twinning rate.





Lamancha

Origin – Oregon, United States.

Type – Dairy breed.

Hair – Short, fine, and glossy hair that can be almost any color or combination of colors.

Face/Ear Type – Straight or slightly dished face, and very small ear flaps that almost make them look earless.

Important Traits – Milk yield, high butterfat, sturdy, hardy, and excellent temperament.





Nubian

Origin – England.

Type – Dairy breed.

Hair – Short, fine, and glossy hair with any color or colors (solid or patterned) being acceptable. However, black, red or tan are the most common colors, any of which may be in combination with white .

Face/Ear Type – A “Roman” or convex nose, and ears that are very long and pendulous (a “bell” shape) that hang close to the head.

Important Traits – High butterfat content, extended breeding season, best suited for hot conditions, and multi-purpose use (milk, meat, and hide).





Oberhasli

Origin – Switzerland.

Type – Dairy breed.

Hair – Short, fine, and glossy hair that is a light to a deep red bay color (chamois), with black markings on the face, forehead, ears, poll, neck, and back, belly and udder, and legs.

Face/Ear Type – Straight or dish shaped face, and ears that are medium in length and erect.

Important Traits –Milk production and vigorous.





Pygmy

Origin – Africa.

Type – Exotic and meat breed.

Hair – Straight, medium length hair with all colors acceptable. The predominate coloration is a grizzled (agouti) pattern produced by the intermingling of light and dark hairs, of any color.

Face/Ear Type – Straight or slightly dished face, and ears that are medium sized, firm, and erect.

Important Traits – Hardy, good-natured, gregarious, and well-muscled.





Saanen

Origin – Saanen Valley of Switzerland.

Type – Dairy breed.

Hair – Short and fine hair that is white or light cream in color, with white preferred.

Face/Ear Type – Straight or slightly dished face, and ears that are erect and alertly carried, preferably pointed forward.

Important Traits – Heavy milkers, rugged bone, and vigor. Saanens are sensitive to excessive sunlight and perform best in cooler conditions.





Spanish

Origin – Descendants of goats brought to America by Spanish explorers.

Type – Meat breed.

Hair – Short to medium length hair that can be almost any color.

Face/Ear Type – Straight or slightly dished face, and ears that are medium length and somewhat pendulous.

Important Traits – Meat yield, tough and hardy, agile, and browsing ability.





Tennessee Fainting

Origin – United States.

Type – Meat breed.

Hair – Short to medium length hair and although black and white is the predominant color, multi-colors also exist.

Face/Ear Type – Straight or slightly dished face, and ears that are medium length and point forwards.

Important Traits – Meat yield, good milk yield, good mothers, and are myotonic (they lock up or faint when frightened or excited).





Toggenburg

Origin – Toggenburg Valley of Switzerland.

Type – Dairy breed.

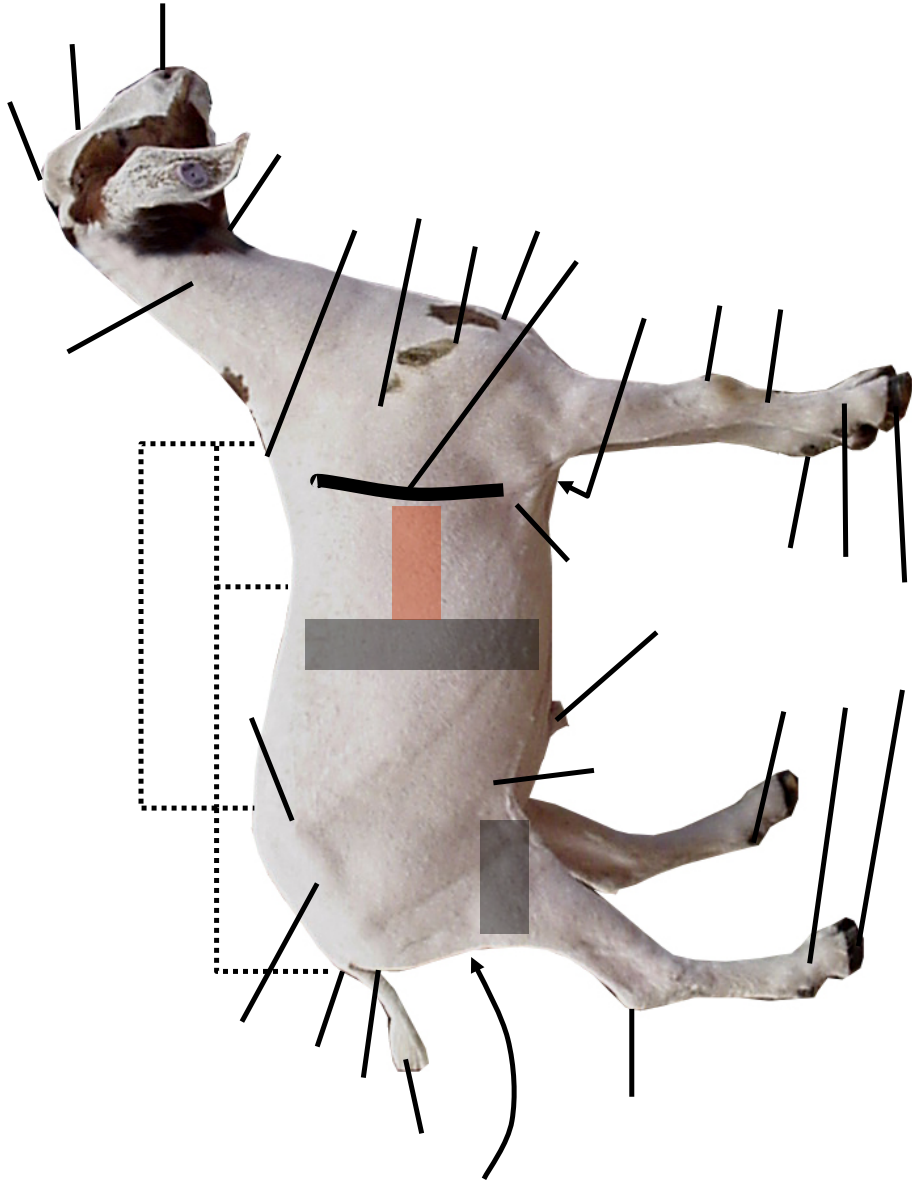
Hair – Short to medium length hair whose color is solid varying from light fawn to dark chocolate with distinct white markings on the ears, face, hind legs, forelegs, each side of tail, and wattles.

Face/Ear Type – Straight or slightly dished face, and ears are erect and carried forward.

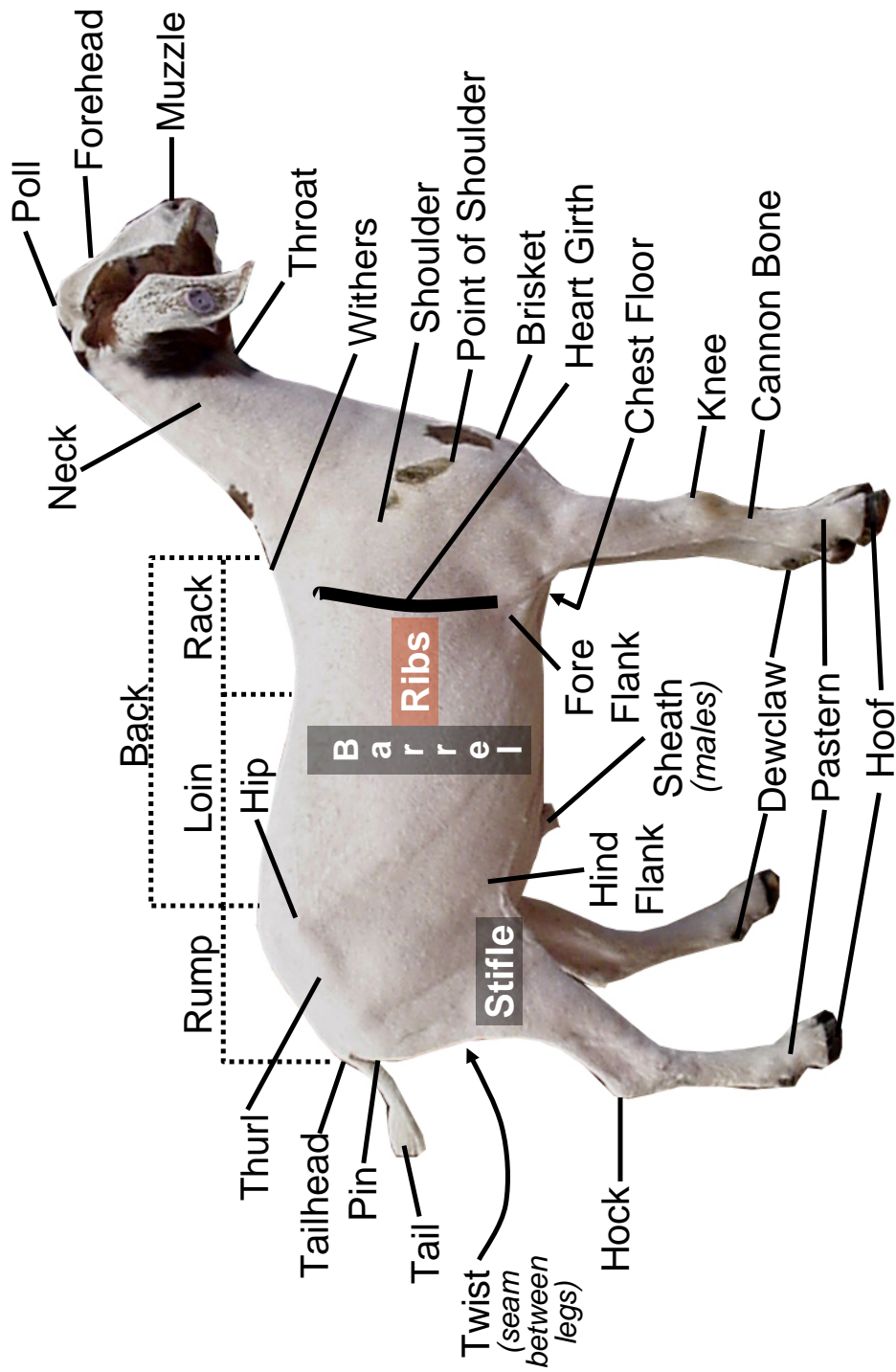
Important Traits – Milk production, udder development, sturdy, and vigorous.



External Parts of Goats



External Parts of Goats



Genetic Selection – Physical Characteristics Game

Instructions: Form two or more teams and ask each team to elect or choose a captain. Give each captain a red flag and a green flag. Read each physical characteristic aloud and ask the team captains to raise their red flag for “no” (not a physical characteristic that can be changed in one generation through genetic selection) or their green flag for “yes” (is a physical characteristic that can be changed in one generation through genetic selection.) Team captains should confer with their team before raising their flag.

Muscle shape	Yes
Feet and leg structure	Yes
Angle of the shoulder	Yes
Topline structure	Yes
Rib shape	Yes
Length of cannon bone	Yes
Yield grade	Yes
Udder shape	Yes
Scrotal circumference	Yes
Cannon bone circumference	Yes

Genetic Selection – Physical Characteristics Worksheet

Which of the following physical characteristics could be changed in one generation through genetic selection?

Physical Characteristic	Changed through Genetic Selection?	
	Yes	No
Muscle shape		
Feet and leg structure		
Angle of the shoulder		
Topline structure		
Rib shape		
Length of cannon bone		
Yield grade		
Udder shape		
Scrotal circumference		
Cannon bone circumference		

Genetic Selection – Physical Characteristics Worksheet *Answer Key*

Which of the following physical characteristics could be changed in one generation through genetic selection?

Physical Characteristic	Changed through Genetic Selection?	
	Yes	No
Muscle shape	YES	
Feet and leg structure	YES	
Angle of the shoulder	YES	
Topline structure	YES	
Rib shape	YES	
Length of cannon bone	YES	
Yield grade	YES	
Udder shape	YES	
Scrotal circumference	YES	
Cannon bone circumference	YES	

Genetic Terms Matching Worksheet

Match the terms in the left column with the definitions in the right column.

- | | |
|--|--|
| _____ Chromosome | a. The mother of the kid. |
| _____ Crossbreeding | b. The amount of differences, measured or observed, that are transmitted to offspring. |
| _____ Dam | c. A form of inbreeding in which an attempt is made to concentrate the inheritance of an outstanding ancestor. |
| _____ Dominant Gene | d. The published results of national sire evaluation programs that compare sires of the same breed on different economically important traits. |
| _____ Expected Progeny Difference (EPD) | e. An animal whose parents are from the same breed. |
| _____ Fertilization | f. Anything to do with how genes influence a trait. |
| _____ Gene | g. Carrying identical genes for the same trait. |
| _____ Genetics | h. The mating of animals of different breeds, taking advantage of heterosis. |
| _____ Heritability | i. An estimate of a doe's future productivity for a trait, such as her future kid' weaning weight, based on past productivity. |
| _____ Heterosis | j. The father of a kid. |
| _____ Homozygous | k. Molecules where genes are located. Goats have 30 pairs of chromosomes. |
| _____ Inbreeding | l. The amount by which crossbred animals exceed the average for the two purebreds that are crossed to produce the crossbreds. |
| _____ Most Probable Producing Ability (MPPA) | m. An indication of how well or poorly animals compare to others in the group they are raised with for a specific trait. |
| _____ Line Breeding | n. Differences in these values between animals of the same breed indicate the expected differences in the average performance of their offspring for that trait. |
| _____ Out-Crossing | o. Production of offspring from parents more closely related than the average of a population. Increases the proportion of homozygous genes, increased prepotency, and uncovers recessive genes. |
| _____ Pedigree | p. A summary of ancestral names of three to five generations. |
| _____ Progeny | q. When the egg and sperm join and form an embryo. |
| _____ Purebred | r. Present in homozygous or heterozygous forms, this determines the way an animal looks or grows. |
| _____ Ratio | s. The mating of individuals who are less closely related than the average of the breed. Introduces new, unrelated bloodlines into the herd. |
| _____ Sire Summary | t. The basic unit of heredity found in pairs on chromosomes. |
| _____ Sire | u. The offspring of animals. |

*Source: Black, J.P., Flood, R.W., Grimes, J., & Osborne, J.M. (2001). Beef Resource Handbook. OSU 4-H 117R. Columbus, OH: Ohio State University Extension. Pp.G-1 – G-12.

Genetic Terms Matching Worksheet

Answer Key

Match the terms in the left column with the definitions in the right column.

- | | |
|--|--|
| <p><u> K </u> Chromosome</p> <p><u> H </u> Crossbreeding</p> <p><u> A </u> Dam</p> <p><u> R </u> Dominant Gene</p> <p><u> N </u> Expected Progeny
Difference (EPD)</p> <p><u> Q </u> Fertilization</p> <p><u> T </u> Gene</p> <p><u> F </u> Genetics</p> <p><u> B </u> Heritability</p> <p><u> L </u> Heterosis</p> <p><u> G </u> Homozygous</p> <p><u> O </u> Inbreeding</p> <p><u> I </u> Most Probable Producing
Ability (MPPA)</p> <p><u> C </u> Line Breeding</p> <p><u> S </u> Out-Crossing</p> <p><u> P </u> Pedigree</p> <p><u> U </u> Progeny</p> <p><u> E </u> Purebred</p> <p><u> M </u> Ratio</p> <p><u> D </u> Sire Summary</p> <p><u> J </u> Sire</p> | <p>a. The mother of the kid.</p> <p>b. The amount of differences, measured or observed, that are transmitted to offspring.</p> <p>c. A form of inbreeding in which an attempt is made to concentrate the inheritance of an outstanding ancestor.</p> <p>d. The published results of national sire evaluation programs that compare sires of the same breed on different economically important traits.</p> <p>e. An animal whose parents are from the same breed.</p> <p>f. Anything to do with how genes influence a trait.</p> <p>g. Carrying identical genes for the same trait.</p> <p>h. The mating of animals of different breeds, taking advantage of heterosis.</p> <p>i. An estimate of a doe's future productivity for a trait, such as her future kid' weaning weight, based on past productivity.</p> <p>j. The father of a kid.</p> <p>k. Molecules where genes are located. Goats have 30 pairs of chromosomes.</p> <p>l. The amount by which crossbred animals exceed the average for the two purebreds that are crossed to produce the crossbreds.</p> <p>m. An indication of how well or poorly animals compare to others in the group they are raised with for a specific trait.</p> <p>n. Differences in these values between animals of the same breed indicate the expected differences in the average performance of their offspring for that trait.</p> <p>o. Production of offspring from parents more closely related than the average of a population. Increases the proportion of homozygous genes, increased prepotency, and uncovers recessive genes.</p> <p>p. A summary of ancestral names of three to five generations.</p> <p>q. When the egg and sperm join and form an embryo.</p> <p>r. Present in homozygous or heterozygous forms, this determines the way an animal looks or grows.</p> <p>s. The mating of individuals who are less closely related than the average of the breed. Introduces new, unrelated bloodlines into the herd.</p> <p>t. The basic unit of heredity found in pairs on chromosomes.</p> <p>u. The offspring of animals.</p> |
|--|--|

*Source: Black, J.P., Flood, R.W., Grimes, J., & Osborne, J.M. (2001). Beef Resource Handbook. OSU 4-H 117R. Columbus, OH: Ohio State University Extension. Pp.G-1 – G-12.

Goat Dominant & Recessive Genes Worksheet

Identify which genes are dominant and which are recessive in each pair.

Gene Combination	Dominant	Recessive
White versus Black coat		
Horned versus Polled		

Goat Dominant & Recessive Genes Worksheet

Answer Key

Identify which genes are dominant and which are recessive in each pair.

Gene Combination	Dominant	Recessive
White versus Black coat	White coat	Black coat
Horned versus Polled	Polled	Horned

Goat Genotype – Phenotype Scenario

You purchased three market wethers for your 4-H project, one purebred Boer (KUIP # 5110), a three-quarter Boer (KUIP #5111) and a half-blood Boer x Nubian cross (KUIP # 5112). You are feeding them with another purebred Boer wether that you raised (KUIP # 5113). All four wethers were born during the month of January and weighed approximately 40 pounds when you brought them home. All four wethers have been fed the same diet, free-choice, together in the same pen. At the county fair (held during the last week of July) the wethers had the following weights:

#5110 – 120 lbs

#5111 – 126 lbs

#5112 – 112 lbs

#5113 – 117 lbs

Explain the possible reasons for the difference in the growth rate of these wethers.

Goat Genotype – Phenotype Scenario

Answer Key

You purchased three market wethers for your 4-H project, one purebred Boer (KUIP # 5110), a three-quarter Boer (KUIP #5111) and a half-blood Boer x Nubian cross (KUIP # 5112). You are feeding them with another purebred Boer wether that you raised (KUIP # 5113). All four wethers were born during the month of January and weighed approximately 40 pounds when you brought them home. All four wethers have been fed the same diet, free-choice, together in the same pen. At the county fair (held during the last week of July) the wethers had the following weights:

#5110 – 120 lbs
#5111 – 126 lbs
#5112 – 112 lbs
#5113 – 117 lbs

Explain the possible reasons for the difference in the growth rate of these wethers.

- 1. Hybrid vigor (heterosis) could account for the faster ADG of wether #5111, as compared to #5110 and #5113..*
- 2. The EPD's for post-weaning gain are probably higher for #5111.*
- 3. Numbers 5112 and 5113 could have the lowest feed conversion.*
- 4. Numbers 5110 and 5111 could be the best eaters.*
- 5. The lighter weight wethers could have gotten sick during the feeding period.*
- 6. The lighter weight wethers might not have liked their diet as well.*
- 7. The half-blood wether, being half Nubian, is almost certainly lighter muscled and therefore grows more slowly.*
- 8. Although all wethers were born in January, there could be up to four weeks difference in age. The youngest wether could have been the fastest growing and gained the most during the feeding period.*

Goat Purebred Combinations Worksheet

Match the following possible breed combinations with the resulting offspring. Some breed combinations may be used more than once. (All breed combinations result from an F1 combination of two purebred parents.)

Physical Characteristics	Combination A	Combination B
Pendulous ears Moderate muscled		
Heavy muscled Small framed		

- A. Boer
- B. Kiko
- C. Lamancha
- D. Nubian
- E. Pygmy
- F. Saanen
- G. Toggenburg

Goat Purebred Combinations Worksheet

Answer Key

Match the following possible breed combinations with the resulting offspring. Some breed combinations may be used more than once. (All breed combinations result from an F1 combination of two purebred parents.)

Physical Characteristics	Combination A	Combination B
Pendulous ears Moderate muscled	A x D	D x B
Heavy muscled Small framed	A x E	B x E

- A. Boer
- B. Kiko
- C. Lamancha
- D. Nubian
- E. Pygmy
- F. Saanen
- G. Toggenburg

Goat Trait Heritability Worksheet

Identify the level of heritability (low, medium, high) for each of the following traits. Heritability estimates of 40% or higher are considered highly heritable traits. Those from 20 to 39% are moderately heritable, while those below 20% are lowly heritable.

Trait	Low	Medium	High
Multiple Births			
Birth Weight			
Weaning Weight			
Postweaning Gain			
Mature Weight			
Milk Production			
Mohair Production			

Goat Trait Heritability Worksheet

Answer Key

Identify the level of heritability (low, medium, high) for each of the following traits. Heritability estimates of 40% or higher are considered highly heritable traits. Those from 20 to 39% are moderately heritable, while those below 20% are lowly heritable.

Trait	Low	Medium	High
Multiple Births		20	
Birth Weight		30	
Weaning Weight		30	
Postweaning Gain			40
Mature Weight			50
Milk Production		30	
Mohair Production	20		

Factors Affecting Nutrient Requirements Discussion Sheet

Using the terms youth find in the Factors Affecting Nutrient Requirements word search, lead a discussion about how each of these factors impacts the nutritional needs of animals. Use Goat Resource Handbook for background.

Factor	How it affects nutritional requirements
Age	The younger the animal, the higher its nutrient requirements are. Young animals are growing quickly, so they need feeds high in protein, energy, vitamins, and minerals to meet the demands of growth. Mature animals, which by definition have stopped growing (may be getting fatter, but they're not growing) do not need such high nutrient levels.
Dry	Using this word in the sense of "not milking." A female not producing milk has much lower nutrient requirements than one that is lactating.
Gestation (Pregnant females)	Nutritional requirements for pregnant females increase as the female advances in stage of gestation. The increase in requirements is very rapid in the last third of gestation as the female approaches birth.
Mud	It takes a lot of energy to walk through mud. Animals in soggy conditions have higher nutrient requirements (particularly energy) to support the greater level of activity.
Weight	For animals that are the same age and body condition (degree of fitness), nutrient requirements increase as weight increases. This is because their maintenance requirements (nutrients needed to maintain current body weight) increase.
Body condition	A very thin animal has greater nutrient requirements than a fat animal. Obviously, a fat animal can obtain energy from its fat stores instead of from its diet if necessary.
Environment	The friendlier the animal's environment, the lower its nutritional needs. Harsh environments increase nutrient requirements because the animal has to expend energy maintaining normal body temperature. A stressful environment (noisy, frightening, unfamiliar, etc.) also increases nutrient needs.
Hot	When the temperature exceeds the thermoneutral zone (too hot to be comfortable), nutrient needs increase.
Cold	When the temperature drops below the thermoneutral zone (too cold to be comfortable), nutrient needs increase.
Rate of gain	The faster an animal is growing, the higher its nutritional needs.
<i>(NEXT PAGE)</i>	

Factor	How it affects nutritional requirements
Season	Obviously, season affects environment and temperature and both of those affect nutrient needs. Wet, windy, or humid seasons increase animal needs. Seasons in which temperatures fall outside the thermoneutral zone also increase an animal's nutrient needs.
Number of kids	Multiple kids place a higher nutritional requirement on the dam. Twins have a higher nutritional requirement than a single. Triplets have higher nutritional requirements than twins, etc.
Activity level	The more walking or climbing an animal has to do, the more nutrients it needs. Rough terrain, sparse vegetation, or even very large pastures with long distances between feed, water, and salt sources increase nutrient requirements.

Factors Affecting Nutrient Requirements

Simon Says

Using the rules of the game Simon Says, members get practice with the concepts of how factors affecting nutrient requirements raise and lower animals' nutritional needs.

Have all members stand in a circle, facing outwards so they can only see their neighbors, not the whole group. Blindfolds could also be used. The leader (Simon) should stand in the center of the circle.

Based on the factors affecting nutrient requirements, Simon calls out a given situation. Members should stand if the situation causes nutrient requirements to increase. They should sit if it causes nutrient requirements to decrease. Decisions should be made within a few seconds of the announcement. When an individual guesses incorrectly, he or she leaves the circle. The last person left in the circle is the winner.

Following are some situations the leader may call out and the appropriate action. Leaders can make up more situations to make the game more difficult.

Situation to call out:	Appropriate action:
Day over 100°	Stand
Weaning kids from doe – effect on doe	Sit
Switching from poor quality hay to good alfalfa	Sit
Reaching maturity	Sit
Walking 1 mile to feed bunk	Stand
Drought	Stand
Very low body condition	Stand
65° day	Sit
Walking in a muddy feedlot	Stand
Kidding	Stand
First pregnancy	Stand
4-year old buck	Sit
Gaining more than 6 oz per day	Stand
Heavy milking female	Stand
Dry, comfortable fall day	Sit
98% humidity	Stand
Moving from a 100-acre pasture to a 5-acre one	Sit
Obesity	Sit
Last two weeks of pregnancy	Stand
Transporting kids to yard	Stand
Weaning kids from doe – effect on kids	Stand
Temperatures below freezing	Stand
Gentle breeze	Sit
Hot, humid summer day	Stand

Goat Nutrient Groups Worksheet – Clover

Circle the six essential nutrient groups for goats from the list below.

Protein

Sunshine

Oxygen

Soybean meal

Fat

Fiber

Cholesterol

Sugar

Energy

Water

Barley

Minerals

Silage

Grass

Carbohydrates

Salt

Air

Hay

Caffeine

Vitamins

Corn

Vegetable oil

Goat Nutrient Groups Worksheet – Clover

Answer Key

What is a nutrient? A specific *chemical element or compound* supplied by or derived from the *diet* and absorbed into the *blood* from the *gastrointestinal tract* to be used by the body tissues *to support physiological processes*.

What is a nutrient group? Those six categories of nutrients that include all the individual nutrients necessary for life.

The six nutrient groups are in large bold print below (circled). All the other items are tagged with explanations as to why they *are not* essential nutrient groups.

Protein

Oxygen – *not part of diet*

Sunshine – *not part of diet*

Soybean meal – *a feedstuff, not a nutrient*

Fat

Cholesterol – *essential to life, but body makes it; animal does not have to eat any*

Fiber – *essential for rumen health, but not absorbed into blood from GI tract*

Sugar – *compounds used by the body, but not essential because it can be made by the body from other compounds*

Energy – *umbrella term used to refer to both fats and carbohydrates, which provide energy to animal*

Water

Barley – *a feedstuff, not a nutrient*

Minerals

Silage – *a feedstuff, not a nutrient*

Grass – *a feedstuff, not a nutrient*

Carbohydrates

Air – *not part of diet*

Salt – *two individual minerals which are part of the Mineral nutrient group*

Hay – *a feedstuff, not a nutrient*

Caffeine – *not essential to support physiological processes*

Vitamins

Corn – *a feedstuff, not a nutrient*

Vegetable oil – *a feedstuff, not a nutrient*

Determining the Level of Nutrition Required – Group Activity

Part of Animal Science is "Animal Husbandry," that is, the art of caring for animals. Part of mastering that art is the ability to look at an animal, assess its situation, and make management decisions, even without any scientific data to review.

For example, if a producer were feeding grain to 100 doe kids each day individually, picking up and measuring how much feed each animal left behind, and measuring how much grass or hay each animal ate each day, the producer would have a lot of data telling her/him how to feed each animal. But none of us do all that. Instead, we use thumb rules and guidelines based on scientific data to help us determine how to feed our animals. And then we use our eyes and experience (which add up to husbandry skills) to look at those animals and determine if they're getting enough feed and if it is the right kind of feed.

In order to make decisions like that, you have to be able to look at a given animal and answer the questions "Is this animal getting enough feed?" "Are this animal's nutritional requirements being met?" "If not, how do I fix the problem?"

Following this page are three sheets with the labels "High, Medium, and Low" written on them. Provide a copy of all three sheets to each club member.

Following that are several descriptions of goats in different production situations. Read each situation to the club and ask them to assess if that animal's nutritional needs are high, medium, or low. Ask them to raise the sheet they think applies to that animal for quick polls. Then ask members to explain their reasoning and decide, as a group, what the nutrient needs for that animal are.

In general:

- The younger the animal, the higher its nutritional needs.
- The faster the animal is growing, the higher its nutritional needs.
- The more active an animal is, the higher its nutritional needs.
- The further along in pregnancy, the higher its nutritional needs.
- The more milk produced, the higher its nutritional needs.
- The more hair produced, the higher its nutritional needs.

The animal with the highest nutritional needs is the first-pregnancy doe in late pregnancy and early lactation. Why? Because she is still growing herself, plus has to have enough nutrients to grow her kids and then produce enough milk to feed those kids after they are born.

Production Situations to Evaluate

Animals in each of these production situations can be characterized as having high, medium, or low nutritional requirements. You can use these situations in your evaluation activity or you can make up your own.

Level of Nutrition Required	Production Situation
High	Set of brand new triplet kids
High	Mother of brand new triplet kids
Low	Mature buck in pasture by himself
Medium	Mature buck during breeding season
Medium	Mature doe in early gestation
High	Mature doe in late gestation
Low	Open mature doe
High	Doe being milked to produce cheese
Medium	Growing kid gaining an ounce a day
Medium	Growing kid gaining three ounces a day
High	Growing kid gaining six ounces a day
Low	Open young does kept and fed in a barn
Medium	Short-bred does in intensive grazing system
Medium	Short-bred does on hilly pasture
Medium	Short-bred does grazing desert rangeland
High	Does in late pregnancy on hilly pasture
High	Does in late pregnancy grazing desert rangeland
Medium	Open does in a hot, humid summer
High	Growing kids in a very cold, rainy winter
Medium	Nearly grown kids on a 70° day
Low	Pair of yearling bucks hand-fed in a stall

Goat Feed Tag Activity Sheet - Clover

Using two of the goat feed tags from Burkmann Feeds (#561, #562) in the KLVCR Kit, answer the following questions and discuss your answers.

1. The name of one of the feeds has a number in it. What does the number stand for?
2. There are five subtitles under the names of the feeds. They are listed in the right hand column below. Match each subject on the left with the subtitle you would look under to answer the following questions.

A. Medicated Grain Concentrate for Goats	_____	What animals should this feed be given to?
B. Active Drug Ingredient	_____	What disease does this feed help control?
C. Guaranteed Analysis	_____	What is the name of the medication is included in this feed?
D. Ingredients	_____	Does this feed contain molasses?
E. Feeding Directions	_____	How much salt is in the feed?
3. In the section titled “Ingredients”, which ingredient makes up the biggest part of this diet? Which ingredient makes up the smallest part?
4. Read the “Feeding Directions” on both tags. What should be fed to goats along with these feeds?
5. There are some “Caution” and “Warning” statements on these tags. These usually tell you that it is dangerous to feed this feed to some animals. Name one species or kind of goat that you should not feed these feeds to because it is dangerous to the animal or to others consuming something from the animal.

Goat Feed Tag Activity Sheet - Clover

Answer Key

Using two of the goat feed tags from Burkmann Feeds (#561, #562) in the KLVCR Kit, answer the following questions and discuss your answers.

1. The name of one of the feeds has a number in it. What does the number stand for?

The percentage of crude protein in the feed.

2. There are five subtitles under the names of the feeds. They are listed in the right hand column below. Match each subject on the left with the subtitle you would look under to answer the following questions.

- | | | |
|--|------------------|--|
| A. Medicated Grain Concentrate for Goats | <u> E </u> | What animals should this feed be given to? |
| B. Active Drug Ingredient | <u> A </u> | What disease does this feed help control? |
| C. Guaranteed Analysis | <u> B </u> | What is the name of the medication is included in this feed? |
| D. Ingredients | <u> D </u> | Does this feed contain molasses? |
| E. Feeding Directions | <u> C </u> | How much salt is in the feed? |

3. In the section titled “Ingredients”, which ingredient makes up the biggest part of this diet? Which ingredient makes up the smallest part?

Grain products are the primary ingredient because they are listed first. Yeast culture would be the ingredient included in the smallest amounts because it is listed last. Ingredients are listed in descending order from most to least.

4. Read the “Feeding Directions” on both tags. What should be fed to goats along with these feeds?

High quality grass or grass-legume hay and free-choice, fresh, clean water.

5. There are some “Caution” and “Warning” statements on these tags. These usually tell you that it is dangerous to feed this feed to some animals. Name one species or kind of goat that you should not feed these feeds to because it is dangerous to the animal or to others consuming something from the animal.

Neither feed should be fed to sheep or lactating goats. The feed containing Monensin (#561) should not be ingested by horses, donkeys, or mules (equines).

Goat Feed Tag Activity Sheet - Intermediate

Using the two goat feed tags from Burkmann Feeds (#561, #562) in the KLVCR Kit, answer the following questions and discuss your answers.

1. Answer the following question for each feed tag:
Is #561 a (circle one) grain supplement protein supplement?
Is #562 a (circle one) grain supplement protein supplement?
2. What kind (age) of goats should be fed these rations?
#561 =
#562 =
3. What is the crude protein content of these feeds?
#561 =
#562 =
4. Which of these feeds contains medicine?
5. What are the medicines?
6. The tags tell you not to allow some species to eat these feeds. Which species should not consume each feed and what may happen if they do?
#561 =
#562 =
7. What is the primary ingredient in each of these feeds?
8. Both of these feeds should be fed along with “roughages.” Name some roughages you might feed to your goats along with these feeds.
9. Why do some of the items in the Guaranteed Analysis on each tag have a “minimum” amount listed and others have a “maximum?”
10. Each of these tags would be attached to a bag of feed. How much would such a bag of feed weigh?

Goat Feed Tag Activity Sheet – Intermediate

Answer Key

Using the two goat feed tags from Burkmann Feeds (#561, #562) in the KLVCR Kit, answer the following questions and discuss your answers.

- Answer the following question for each feed tag:
Is #561 a (circle one) **grain supplement** protein supplement?
Is #562 a (circle one) **grain supplement** protein supplement?
- What kind (age) of goats should be fed these rations?
#561 = **Growing goats**
#562 = **Growing kids (a creep ration, so usually fed to kids that are still nursing)**
- What is the crude protein content of these feeds?
#561 = **16% CP**
#562 = **18% CP**
- Which of these feeds contains medicine?
Both
- What are the medicines?
#561 contains Monensin, and #562 contains Decoquinatate
- The tags tell you not to allow some species to eat these feeds. Which species should not consume each feed and what may happen if they do?
#561 = **Monensin can be fatal to horses (also to cattle and goats if overfed). Extra copper in the feed can be toxic (and fatal) to sheep.**
#562 = **Extra copper in the feed can be toxic (and fatal) to sheep**
- What is the primary ingredient in each of these feeds?
Grain products
- Both of these feeds should be fed along with “roughages.” Name some roughages you might feed to your goats along with these feeds.
High quality hay, corn silage, high quality pasture
- Why do some of the items in the Guaranteed Analysis on each tag have a “minimum” amount listed and others have a “maximum?”
Some items, such as crude fiber, are considered “fillers,” sort of like iceberg lettuce in a salad for us. They don’t have much nutritive value and they take up space in the diet that could be filled by other, more nutritious foods. Items like that need to have “maximum” values to show they’re not being overused as fillers.
Some items, such as minerals and vitamins, can actually be toxic if overfed. These also need to have “maximum” values so there is no risk of toxicity.
The rest of the items on a feed tag have “minimum” values to ensure that they have at least the amount of nutrition written on the tag. Sometimes, replacing one feed (e.g., corn) with another (e.g., wheat) because one has become less expensive than the other, can actually result in a higher nutritive level than is shown on the tag. For these items, higher is not harmful in any way and can even be beneficial to animal performance.
- Each of these tags would be attached to a bag of feed. How much would such a bag of feed weigh?
50 lbs (written just above tag # on each tag)

Goat Feed Tag Activity Sheet - Senior

Using the two goat feed tags from Burkmann Feeds (#561, #562) in the KLVCR Kit, answer the following questions and discuss your answers.

1. Answer the following question for each feed tag:
Is #561 a (circle one) grain supplement protein supplement?
Is #562 a (circle one) grain supplement protein supplement?
2. What is the percentage protein listed for each? Why do they vary?
#561 =
#562 =
3. What is the primary ingredient in each feed?
#561 =
#562 =
4. List any medications included in these feeds and describe the purposes of the medications. What are the genus and species names of the organisms this medication treats?
5. Do either of these feeds have a withdrawal period?
6. Both of these feeds list the same minerals in the guaranteed analysis portions of the tags. What are those minerals?
7. Both of these feeds include vitamin supplements. What are they?
8. What species should not have access to these feeds? Why?
9. The feeding directions on both tags specifically rule out feeding these feeds to one particular group of goats. What group? Why?
10. The feeding directions on #561 state "For hand feeding, insure that adequate trough space is provided for all goats to eat at once." Why is that statement there?

Goat Feed Tag Activity Sheet – Senior

Answer Key

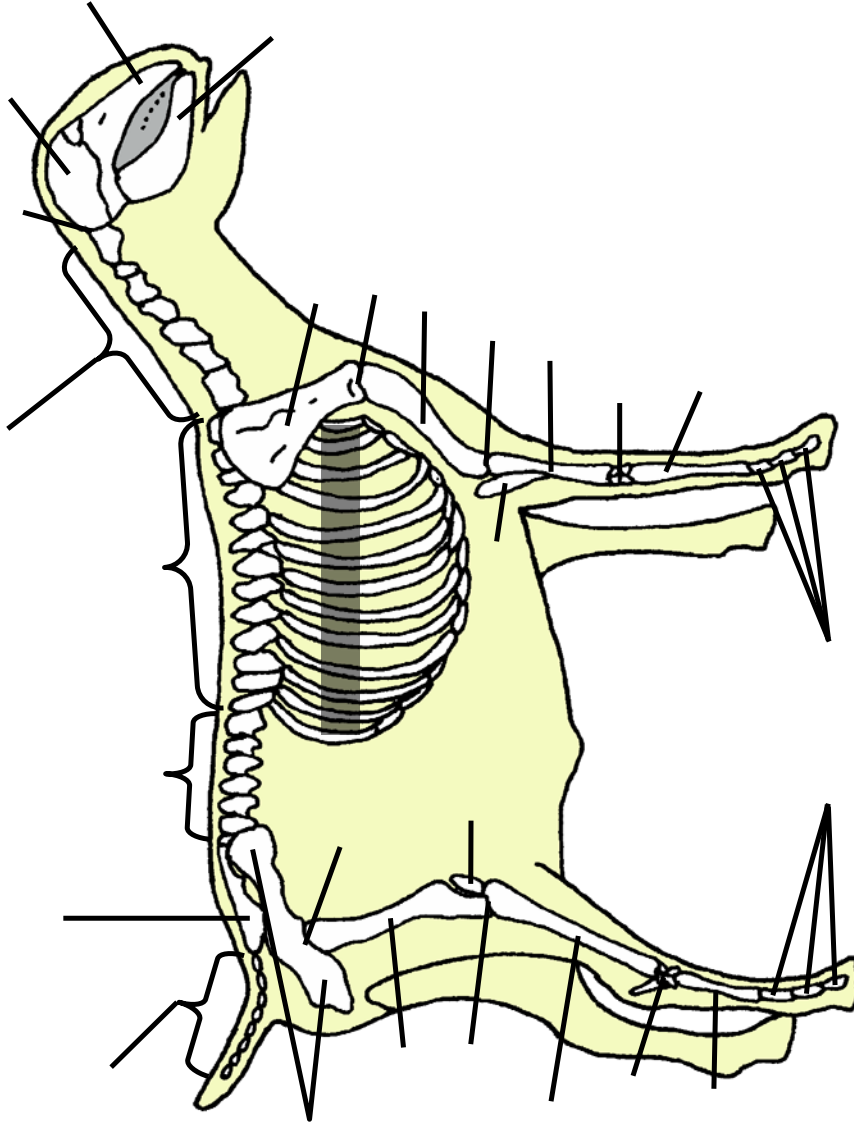
Using the two goat feed tags from Burkmann Feeds (#561, #562) in the KLVCR Kit, answer the following questions and discuss your answers.

- Answer the following question for each feed tag:
Is #561 a (circle one) **grain supplement** protein supplement?
Is #562 a (circle one) **grain supplement** protein supplement?
- What is the percentage protein listed for each? Why do they vary?
#561 = **16% CP**
#562 = **18% CP**
Crude protein percentages vary among grain supplements because the level of protein needed by animals varies. In this case, kids that are still nursing have a higher protein requirement than kids that are weaned, but still growing. Crude protein percentages may also vary because feeds can be made and sold less expensively with lower protein levels. Some producers may have alternative feed sources that supply additional protein needs and so can buy a lower percentage protein grain supplement.
- What is the primary ingredient in each feed?
#561 = **Grain products**
#562 = **Grain products**
- List any medications included in these feeds and describe the purposes of the medications. What are the genus and species names of the organisms this medication treats?
#561 = Monensin included to prevent coccidiosis caused by Eimeria crandallis, Eimeria christenseni, and Eimeria ninakohlyakimovae.
#562 = Decoquinatate included to prevent coccidiosis caused by Eimeria christenseni and Eimeria ninakohlyakimovae.
- Do either of these feeds have a withdrawal period?
No
- Both of these feeds list the same minerals in the guaranteed analysis portions of the tags. What are those minerals?
Calcium, phosphorus, salt (sodium and chloride), copper, and selenium.
- Both of these feeds include vitamin supplements. What are they?
Vitamin A, vitamin D₃, and vitamin E supplements. Yeast culture can also provide some vitamins.
- What species should not have access to these feeds? Why?
Neither should be fed to sheep because they contain additional copper and sheep are susceptible to copper toxicity.
Horses, mules, and donkeys (equine) should not ingest #561 because it contains Monensin which is toxic to these species.
- The feeding directions on both tags specifically rule out feeding these feeds to one particular group of goats. What group? Why?
Both say not to feed the diets to lactating goats. #562 specifically says not to feed it to goats producing milk for food. Although the tag does not state why, the medications included must be the source of the problem. Medications frequently appear in the milk of females ingesting them (and thus can be ingested in turn by either her kids or by humans consuming that milk).
- The feeding directions on #561 state “For hand feeding, insure that adequate trough space is provided for all goats to eat at once.” Why is that statement there?
If there is not enough trough space for all kids to eat at one time, more dominant kids will eat more than they should and less dominant kids will not eat as much as they should. Consequently, some will get too much Monensin and, probably more importantly, some will not get enough, making the latter susceptible to coccidia infection, even though their feed is medicated.
Additionally, goats are susceptible to overeating disease (enterotoxemia). To prevent onset of this often fatal disease, no kid should be allowed to eat more than the recommended daily amount of a grain feed.

Feed Tag Questions

1. What is the protein level of this feed?
2. What is the primary ingredient in this feed?
3. Does this feed contain any medications? If so, which ones?
4. What is the fat level in this feed?
5. For which species of livestock is this feed formulated?
6. For which phase of the life cycle is this feed designed?
7. What is the minimum fiber level in this feed?
8. How should this feed be stored?
9. Is this a complete feed, a supplement or a premix?
10. Does this feed have a withdrawal period? If so, how long is it?
11. Is this feed toxic to any species of animals in any amount?
12. Which vitamins are included in this feed?
13. Which minerals are included in this feed?
14. How much salt does this feed contain?
15. Is this feed higher in protein or energy?

Skeletal Anatomy of Goats



Skeletal Anatomy of Goats

