

Basic Nutritional Requirements - Ruminant

Samantha Graf, Extension Educator

Goal (learning objective)

Youth will:

- Learn basic vocabulary as it relates to ruminant nutrition
- Learn how to classify basic feed ingredients into nutrient groups
- Learn why different ruminant growth stages have different nutritional requirements
- Sheep: ewe, ram, lamb, lactation, gestation (See “Classifying Feed Ingredients Into Nutrient Groups” in *Sheep Resource Handbook for Market and Breeding Projects*, chapter 4, pages 50 - 51).
- Goat: doe, buck, kid, lactation, gestation (See “Feedstuffs” in *Goat Resource Handbook*, chapter 5, pages 56-57).

Supplies

Note: A matching set of cards is needed PER GROUP (each group of members and a set for activity leader)

- Member flash cards (green)
- Leader flash cards (black)
- Member matching categories (green)
- Leader matching categories (black)
- Tape

Additional supplies

- Bag of assorted candy

Pre-lesson preparation

- Be able to discuss vocabulary relative to ruminant nutrition - roughage, concentrate, salt, vitamins, fats, carbohydrates, minerals, energy, proteins and water.
- Be able to discuss specific species terms as follows:
 - Beef: heifer, cow, steer, calf, lactation, gestation (See “Classifying Feed Ingredients Into Nutrient Groups” in *Beef Resource Handbook*, chapter 7, pages 7-2 through 7-7).

- Print off sets (enough of flash and matching category cards for each group of members and a set for activity leader). Each ‘group’ should have a set of green and black cards (flash and matching category).
- Play the game with family members.

Lesson directions and outline.

Introduction

Proper nutrition for ruminants is the foundation to a healthy animal. This lesson will lead members to understand the vocabulary as it relates to ruminant nutrition. The proper vocabulary in nutrition is important due to the complicated concept of creating a balanced feed ration (discussed in later lessons).

Categorizing and a solid understanding of vocabulary allows members to build up to a level of knowledge required to utilize the Pearson square to build a complete ration, recognizing differences in nutritional requirements at various growth stages.

Conducting the activity (DO)

1. Have youth form into groups of three or four.
2. Provide each group a set of green flash cards and black matching category cards.
3. Explain how the game works:

The game is similar to black-out bingo. Black cards go across the top to make the categories (Energy, Protein, Vitamins etc.). The green cards are to be taped to it.

Organize black cards first (member and leader) before green cards are called out.

The leader shuffles their set of green cards and will randomly select and call out what is on the green card drawn.

Teams need to correctly place the called-out card in the correct category. Steps repeat until the team has completed a 3 x 3 grid of cards and calls out “Yummy”.
4. Check for understanding.
5. Play game.
6. Award candy to winning team.
7. Repeat game, beginning from start, as many times as desired.

What did we learn? (REFLECT)

- Ask: What new vocabulary terms did you learn?
- Ask: What are the 5 nutrient groups that feed can be classified into?
- Ask: BEEF (Refer to *Bite into Beef*, page 16, “Feed Word Bank” activity)
 - a. What category does corn fit into? (energy)
 - b. Where does grass hay fit? (energy)
 - c. Where does oats fit? (energy)

- Ask: SHEEP (Refer to *Rams, Lambs & You*, page 15, “Feeding Your Market Lamb” activity)
 - a. What category does cracked corn fit into? (energy)
 - b. Where does soybean meal fit? (protein)
 - c. Where does chopped alfalfa hay fit? (energy)
- Ask: GOAT (Refer to *Just Browsing*, page 24, “My Word!” activity)
 - a. What category does forage fit into? (energy)
 - b. Where does phosphorus fit? (vitamins & minerals)
 - c. Where does silage fit? (energy)

Why is that important? (APPLY)

- Ask: Why is it important for us to know this classification system? (Proper nutrition is the foundation to a healthy animal. Members will know what to feed their ruminant animal.)
- Ask: Are there any other areas where this information can be applied? (Future careers such as animal nutritionist, Extension agent, rancher, etc.; other ruminant animal nutritional needs.)

Resources

- National 4-H Council. (2005). *Bite into Beef*. (pages 6-7).
- National 4-H Council. (2003). *Just Browsing*. (page 24).
- National 4-H Council. (2003). *Rams, Lambs & You*. (page 15).
- Ohio State University Extension. (2011). Nutrition and Feeding. *Beef resource handbook*. (pages 7-1 through 7-7).
- Ohio State University Extension. (2008). Nutrition. *Goat resource handbook*. (pages 56-57).
- Ohio State University Extension. (2011). Nutrition. *Sheep resource handbook for market and breeding projects*. (pages 50-51).

Whole Grain Barely (Energy)	Whole Grain Oats (Energy)	Wheat (Energy)
Corn (Energy)	Milo (Energy)	Beet Pulp (Energy)
Molasses (Energy)	Whole Grain Rye (Energy)	Buckwheat (Energy)
Soybean Hulls (Energy)	Dried Whey (Energy)	Cottonseed Meal (Protein)

<p>Linseed Meal</p> <p>(Protein)</p>	<p>Corn Gluten Meal</p> <p>(Protein)</p>	<p>Distillers Grain</p> <p>(Protein)</p>
<p>Brewers Grain</p> <p>(Protein)</p>	<p>Blood Meal</p> <p>(Protein)</p>	<p>Fish Meal</p> <p>(Protein)</p>
<p>Dicalcium Phosphate</p> <p>(Vitamins & Minerals)</p>	<p>White Salt</p> <p>(Vitamins & Minerals)</p>	<p>Trace Mineral Salt</p> <p>(Vitamins & Minerals)</p>
<p>Ground Limestone</p> <p>(Vitamins & Minerals)</p>	<p>Vitamin Pre-Mix</p> <p>(Vitamins & Minerals)</p>	<p>Forages (hay, pasture, alfalfa cubes)</p> <p>(Energy)</p>

Corn Gluten Feed (Energy)	Whole Soybeans (Protein)	Soybean Meal (Protein)
Whole Cottonseed (Energy)	Bone Meal (Vitamins & Minerals)	Wheat Middlings (Energy)

Whole Grain Barely	Whole Grain Oats	Wheat
Corn	Milo	Beet Pulp
Molasses	Whole Grain Rye	Buckwheat
Soybean Hulls	Dried Whey	Cottonseed Meal

Linseed Meal	Corn Gluten Meal	Distillers Grain
Brewers Grain	Blood Meal	Fish Meal
Dicalcium Phosphate	White Salt	Trace Mineral Salt

Ground Limestone	Vitamin Pre-Mix	Forages (hay, pasture, alfalfa cubes)
-------------------------	------------------------	---

Wheat Middlings	Whole Cottonseed	Soybean Meal
Whole Soybeans	Bone Meal	Corn Gluten Feed

<p>Energy (Carbohydrates & Fats)</p>	<p>Energy</p>
<p>Proteins</p>	<p>Proteins</p>
<p>Vitamins & Minerals</p>	<p>Vitamins & Minerals</p>