

EXAM 3 Animal Nutrition and Feeding Review

Slide Deck 1: Equine Feedstuff

What are some factors that affect how much feed a horse needs?

- Classification of horse, Nutritional requirements, Mcals needed, Mcals provided in the feed

Explain the “rule of thumb” related to feeding forage and concentrate percentages within a horse’s diet

- No less than 1% BW in forage
- No more than 2% BW in concentrates

Between forages and grasses, which has the greatest crude protein content?

- Legumes: < 20% CP (Because of npn)
- Grasses: 7-10% CP

Which mineral is higher in legumes than it is in grasses?

- Calcium
 - o Legumes have a higher level of Calcium than grasses
 - o All forages are calcium-rich and most trace minerals than concentrates and now in phosphorus

Define the following terms

Foal: Newborn horse up to weanling age

Weanling: A Horse that has been weaned off from the mother. (3-6 months of age)

Colt: Juvenile male

Filly: Juvenile female

Stallion: Mature male; 3-4 years and older

Mare: Mature female; 3-4 years and older

Gelding: Castrated male

List the six classes of nutrients.

- Water

3309 ANSC

- Minerals
- Vitamins
- Proteins
- Carbohydrates
- Lipids

When comparing hay and grain, which substance has higher TDN?

- Grain 75%
 - o Hay 50%

True or False

Forages are high in vitamins

- True forages are high in vitamins, while grains are low

What are some factors to consider when choosing sources of roughage for horses?

- Quality
- Nutrient Value
- Time of harvest
- Type of horse receiving the feed

Complete the following forage chart:

For each forage type below, list whether it is **warm- or cool-season** and its **approximate crude protein (CP%) range**:

Forage type	Warm/Cool Season	CP% Range	Notable Characteristic

- Bahia Grass – Warm-season; 5–8% CP; drought tolerant.
- Coastal Bermuda – Warm-season; 7–18% CP; recovers well when grazed close.
- Orchard Grass – Cool-season; 8–12% CP; palatable and used for hay/silage.
- Timothy Grass – Cool-season; 8–12% CP; high palatability at early bloom.
- Alfalfa – Cool-season legume; 15–25% CP; risk of blister beetles.

Cereal grains provide _____ into the diet

- Energy

List some examples of grains:

- Ex. Corn/maize, barley, wheat, oats, sorghum

What are concentrates?

Form on feeds that are nutrient-dense, high in energy, and low in fiber, used to supplement basal diets like forages to meet an animal's specific nutritional and energy needs

Supplemental proteins are low in Fiber and _____ while having high_____.

- Low in fiber and energy
- High in protein

List examples of supplemental proteins:

- Feather meal, bone meal, cottonseed meal, fish meal, blood meal, soybean meal

What is Gossypol and why can it be a concern?

- Toxic compound found in cottonseed products can harm non-ruminants.

Water for horses should be provided_____.

- AD libitum

Horses should be fed by weight not_____.

- Volume

Slide Deck 2: Equine Requirements

Write the formula for calculating a horse's body weight:

Answer: $\text{Body Weight (lbs)} = (\text{Heart Girth in inches})^2 \times (\text{Body Length in inches}) / 330$

Calculate the estimated BW for each horse below (show work):

A measurement is taken of a mature horse. The heart girth measured 73 inches, and body length measured 68.2 inches. What is the estimated weight of this horse?

- $(73)^2 \times (68.2) / 330 = 1101.326\text{lbs}$

A measurement is taken of a mature horse. The heart girth measured 71.8 inches, and body length measured 69.6 inches. What is the estimated weight of this horse?

- $(71.8)^2 \times (69.6) / 330 = 1063.192\text{lbs}$

What are the routes through which water loss occurs within the ruminants?

- Hot environments
- Lactation
- Respiration
- Lacatation

_____ Is not a direct form of what loss from an animal but may increase water loss

- Respiration

What is the largest supplier of energy?

- Carbohydrates

True or False

Protein loss increases with sweat loss during exercise

- True

List four key functions of protein in the horse's body.

- Muscle, Enzymes, Hormones, structure

How does exercise affect protein needs, and how can those needs be met without increasing protein density?

- Exercise increases protein loss; feed more of the same diet to meet higher energy needs.

Name the three major minerals that make up electrolytes in equine nutrition.

- Sodium
- Chloride
- Potassium

Where should grains and proteins be digested and absorbed in horses?

- In the small intestine

Why can salt act as an intake limiter in feeds?

- Excess salt reduces feed palatability.

What mineral can cause toxicity in horses if oversupplemented?

- selenium

Green forges supply vitamin _____ and _____

- A&E

Sunshine supplies Vitamin _____

- D

What vitamins do microbes synthesize if the ruminants are fed an adequate diet?

- B and K Vitamins

What mineral helps with the synthesis of vitamin B12 in the rumen?

- Cobalt

Slide deck 3: Nutrients in ruminants

What are some factors that affect water loss in goats?

- Lactation, environmental temperature, water content from forage consumes, exercise, production stage, salt/ mineral content in the diet

_____ % of body water loss may be fatal in goats

- 10%

How should water be provided to goats?

- By free choice

What BCS scale are goats and sheep measured on?

- 1-5

What is the primary source of energy in ruminants?

- Carbohydrates

Goats should receive a minimum dietary protein of _____ %

- 7%

What mineral ratio imbalance can cause urinary calculi in dairy goats?

- An improper calcium-to-phosphorus (Ca:P) ratio.

What is the nitrogen ratio in sheep?

- 10:1

Which mineral deficiency may cause grass tetany in goats?

- Magnesium (Mg).

A _____ deficiency may impact the quality and growth of hair in goats

- Copper

Which mineral may be a cause of concern with hypocalcemia in goats?

- K (Potassium)

Which mineral deficiency may cause muscular dystrophy?

- Selenium (Se).

Why is iron (Fe) a concern for goat kids?

- Kids are at risk of iron deficiency, especially if affected by parasites that cause blood loss.

How do goats obtain most of their vitamins?

- Through rumen microbes and the environment.

How much water do the following ewes at different stages of production consume:

Ewe on Dry feed during the winter: 1 gallon per day

Lactating ewe: 1.5 gallons per day

Finishing lamb: 0.5 gallons per day

What body condition score do a healthy, productive ewe typically have

- Between 2- 3.5

What is the acceptable Ca:P ratio for sheep?

- As long as calcium (Ca) is greater than phosphorus (P), a wide ratio is tolerated.

How much water do beef cattle typically consume per day?

- Between 6–20 gallons per day, depending on temperature and body size.

What is the BCS range for beef cattle?

- 1 to 9.
- Healthy productive cows are between 4-6

What does FWI stand for in terms of dairy cattle nutrition ?

- Free water intake

True or False

DMI directly impacts lactation

- True DMI for high producing cattle may be up to 5%

Peak milk production for dairy cows is between _____ to _____ weeks

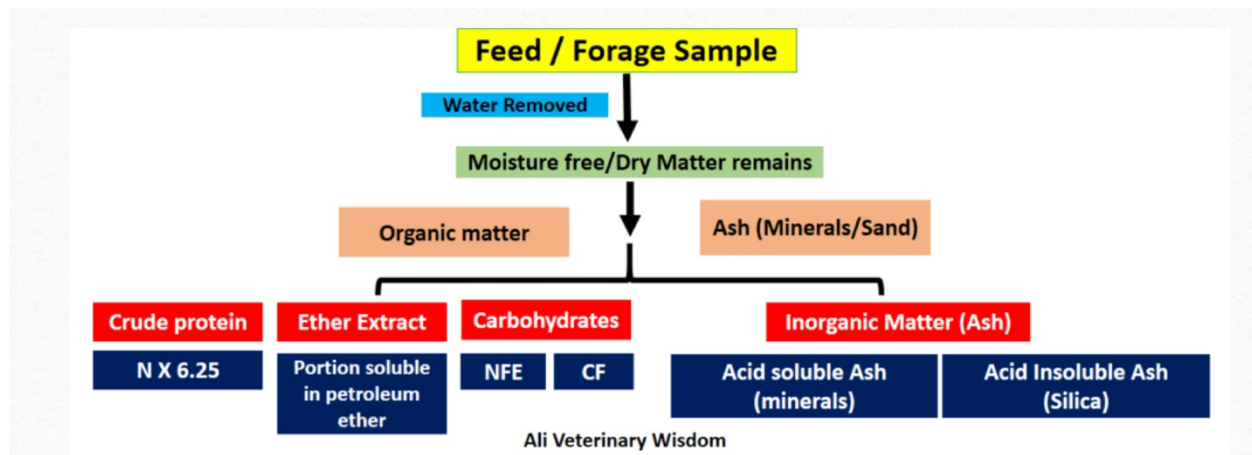
- 6-10

The higher the ADF, the higher the _____ and _____ content

- Cellulose and lignin help with the plant's structure
- Good for maintenance

Slide deck 4: Ruminant feedstuff

Draw the proximate composition flow chart below:



Label the following diagram

