Winter Horse Management Webinar Series

Feeding Hay

12.16.20

NDSU | EXTENSION

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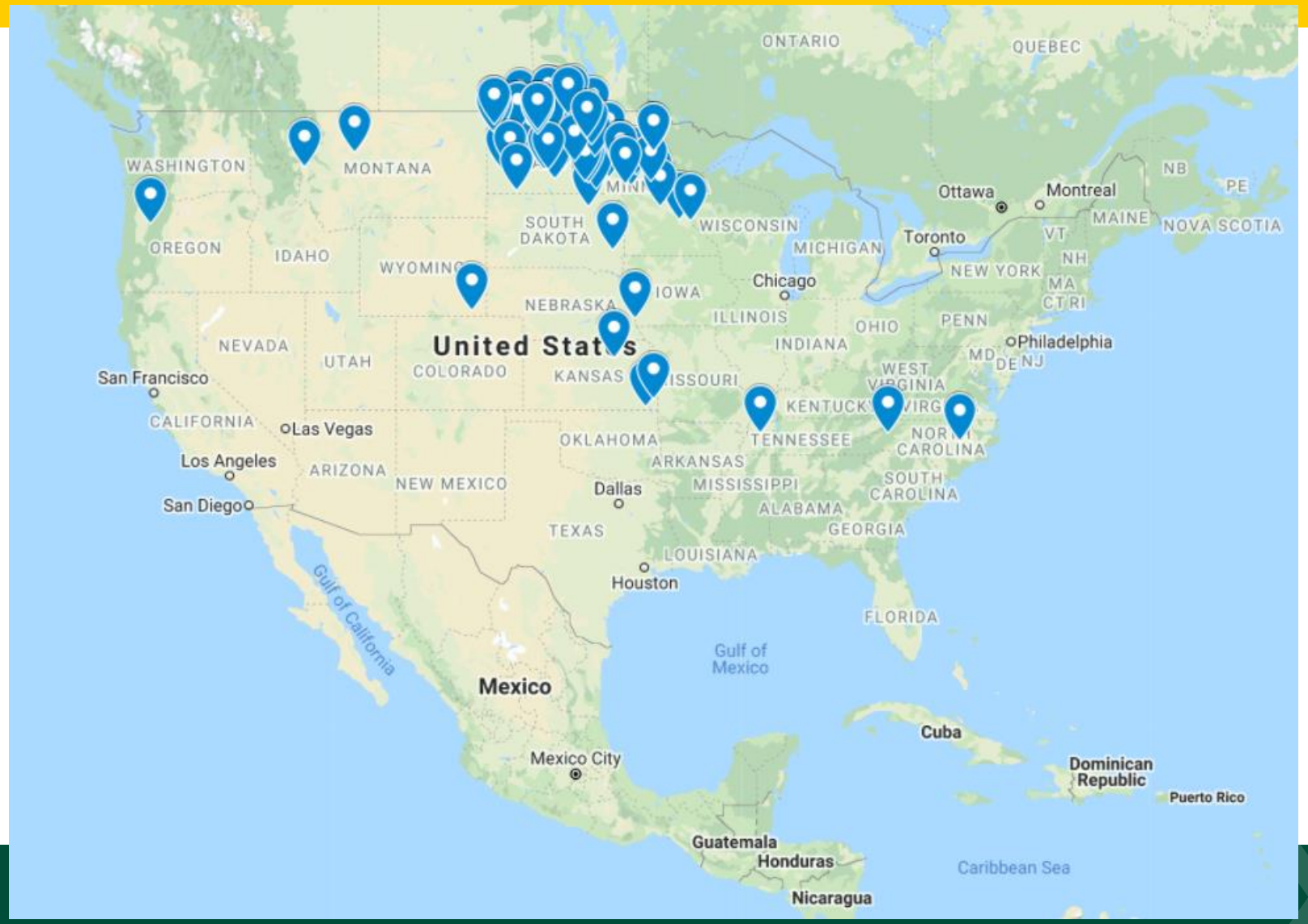
Locations and Numbers

- Germany
- Italy

- 1-5
- 25-50
- 75-150

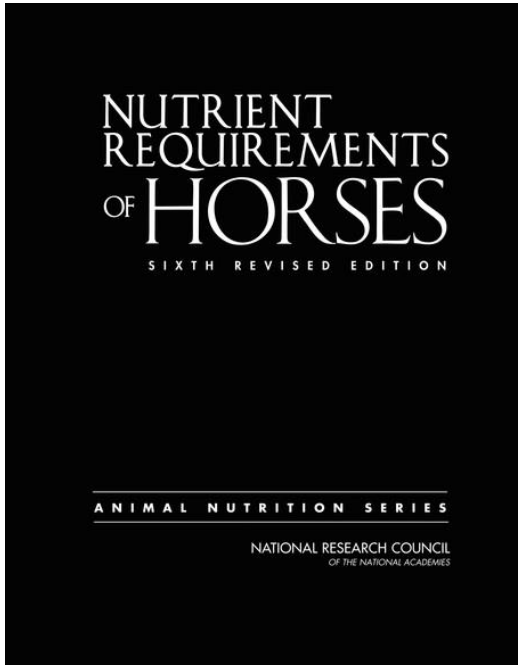


Speakers

- **Leigh Ann Skurupey, Ph. D.**, leighann.skurupey@ndsu.edu
  - Nutrient requirements
  - Digestive system basics
- **Paige Brummund**, paige.f.brummund@ndsu.edu
  - Hays available in ND
  - Feeding during the winter
- **Rachel Wald**, r.wald@ndsu.edu
  - Determining hay quality

2007 Nutrient Requirements of Horses (NRC)

- Contains a combination of requirements and allowances
- Requirements are based on:
  - Data collected from horses
  - Extrapolation of research in other livestock
  - “Professional judgment”



<u>Bottom Line:</u> values in the 2007 NRC represent requirements of the “average” horse (*works well for most, but not all horses*)

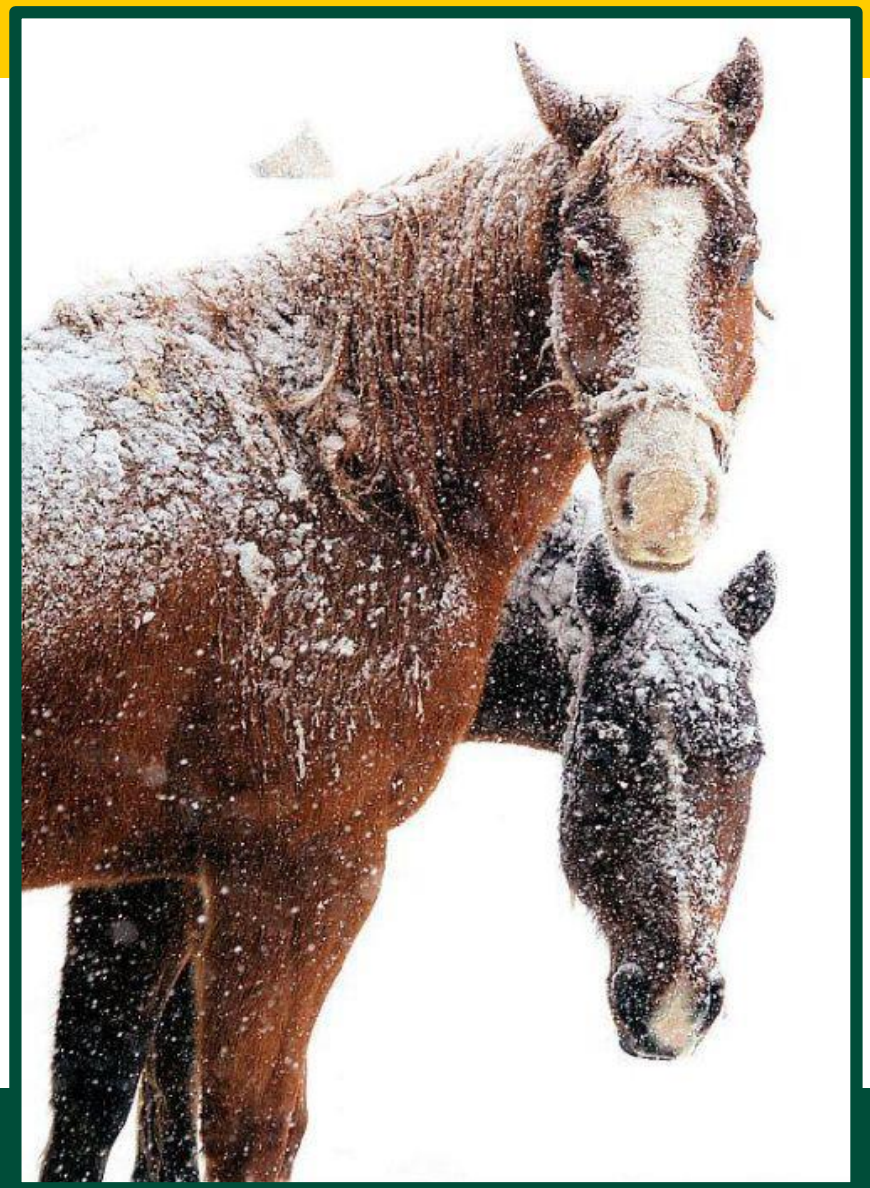
Nutritional Requirements – Influences

ADDRESSED BY NRC "Classes"	OTHER FACTORS
• Body weight • Age • Growth rate • Milk Production • Pregnancy • Level of activity	• Climate & environment • Digestive and metabolic differences between horses • Variation in production, performance capabilities • Health status • Previous nutrition status • Variation in digestibility • Interrelationships among nutrients

Horses should be fed as individuals

Key Nutrients:

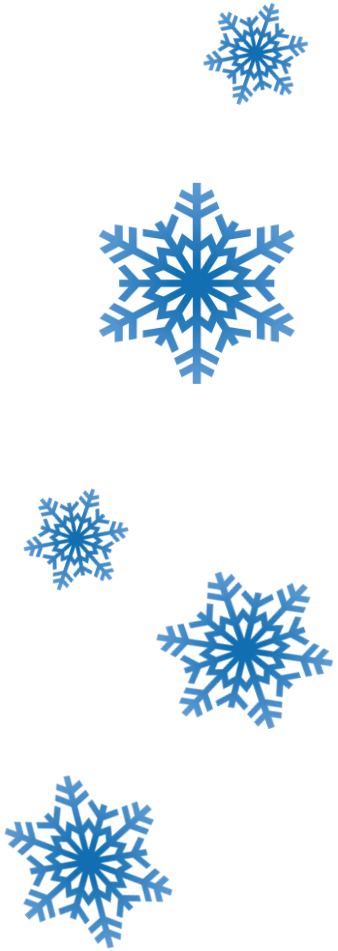
1. Water
2. Energy
    a. Carbohydrates
    b. Fats
3. Protein
4. Vitamins
5. Minerals



Critical Winter Nutrient:

Water

- Decreased consumption --> risk of impaction colic
- Access to water
  - Break ice often!
- Decreased consumption during winter
  - Salt



Critical Winter Nutrient:

Energy

- ~ 25% higher
- Lower critical temperature (LCT)
  - Horse starts to use more energy to maintain body warmth
  - Dependent on:
    - Hair coat
      - Piloerection – hair erector muscles change hair direction
    - Body fat
    - Provided shelters
      - Type of blanket

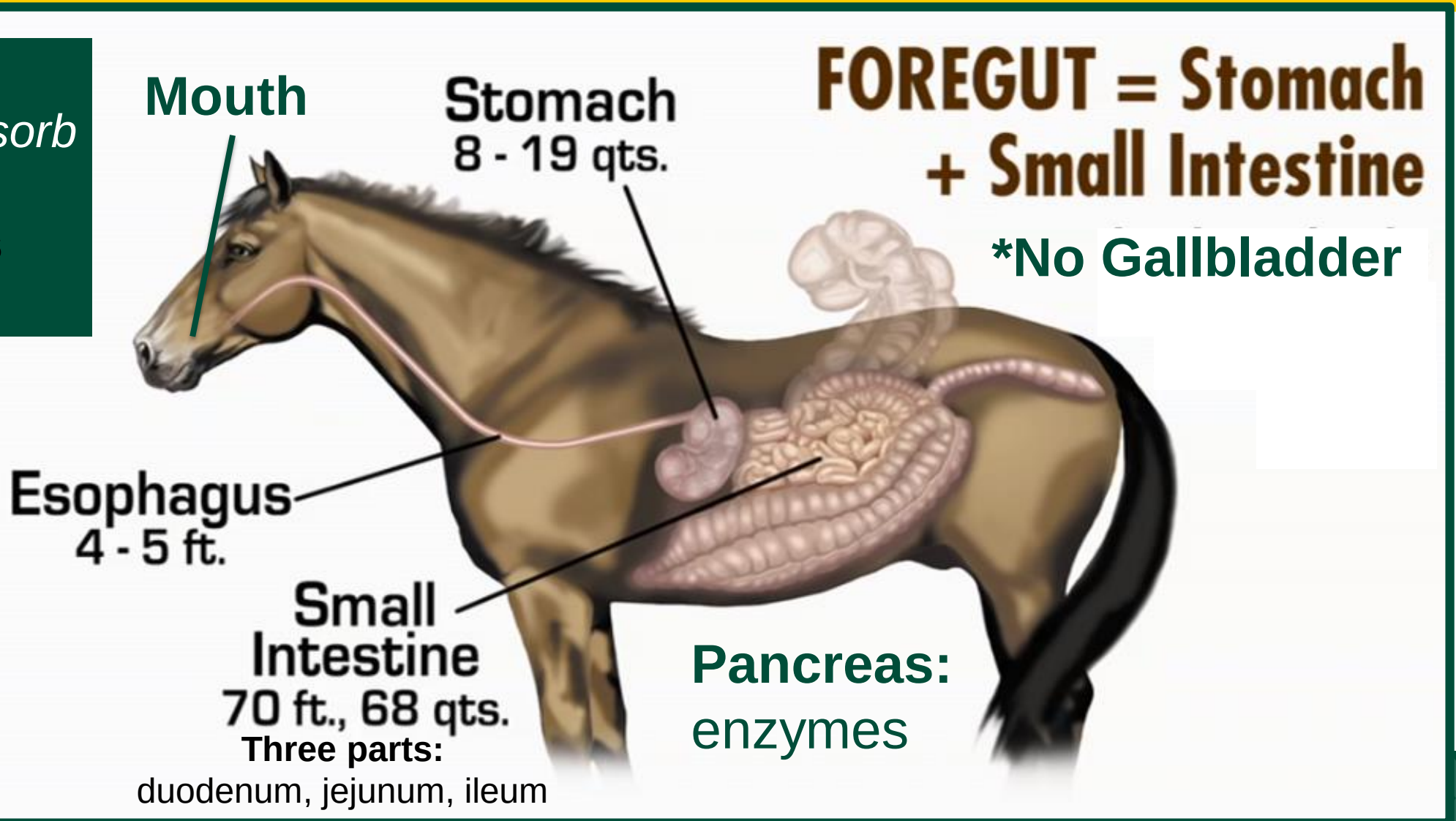
Lower Critical Temperature (LCT)

Fiber is Critical to a Horses Diet

- Roughages – Feeds with min of 18% crude fiber
  - Fiber is needed to maintain the motility & digestive function of the GIT
- Roughages should make up the majority of the diet for **ALL** horses
  - Forages are key to producing heat
    - The hindgut is your horse's furnace!
  - Winter months: 1.5 to 3% of BW
  - Body Condition Score (BCS)

Basic Equine Digestive System

Foregut's job:
Break down & absorb
- **Protein**
- **Carbohydrates**
- **Fats**

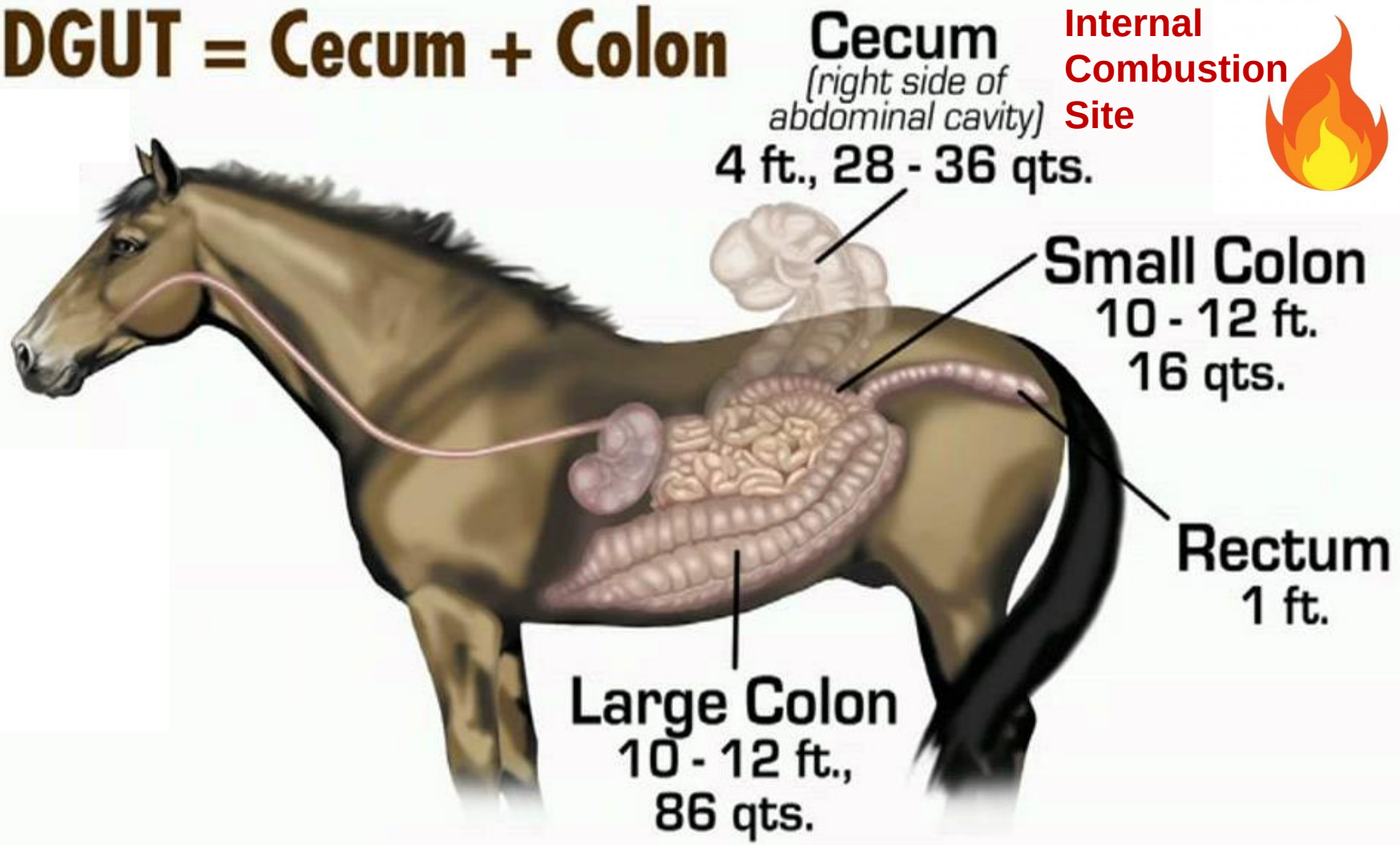


Basic Equine Digestive System

Hindgut's job:

Break down & absorb

- **Fiber**
- **Microbial population secretes:**
  - **B Vitamins**
  - **Vitamin K**
- **Water absorption**



TAKE HOME MESSAGE

The major nutritional concerns for winter:

- Adequate **calories** (***energy***) to maintain good body condition
- Adequate **fiber** to increase/maintain internal body heat
- Adequate **water** intake to prevent impaction colic
- Every situation is different
  - Analyze your horse's workload, housing and body condition to determine if a change in feed is necessary.

Common Types of Hay Available in ND

- Grass
  - Cool season
  - Warm season
  - Annual forages
- Legume: alfalfa
- Mixed Hay
  - Smaller amounts of alfalfa, test closer to grass
- Buy the type of hay that matches your horses diet needs
  - Immature hay more nutrient dense than mature hay

Common Types of Bales Available in ND

- Large Rounds
  - Soft or solid core
- Large Squares
- Small Squares

- Bale Wrap/Twine
  - Sisal twine
  - Plastic twine
  - Net Wrap
    - B-Wrap

Pricing Hay in ND: Bale vs. Ton

- Purchase by weight
- Comparison Formula

  (2000 lbs ÷ bale weight) x bale price

  = Cost per ton
- Which bale costs less?

  a.) $55/bale, weight is 800 lbs

  b.) $85/bale, weight is 1400 lbs

Sourcing Hay in ND

- Where to find hay
  - Local connections
  - Online/Web Listings
  - Feed Stores
  - National Hay Suppliers
  - Hay Auctions
- Trucking hay
  - Around $4 +/- per mile
  - Typically delivered by a "full truckload"
  - Load size will vary depending on size of trailer
- Consider safety, experience, and available equipment if hauling yourself

Storing Hay in ND

- Storing Hay
  - Covering
  - Stacking
    - Do not stack higher than your equipment can safely reach
    - Do not stack in low areas
    - Sturdy stacks
  - Moisture
    - Ideal 10-16%
      - Mold above 18%
    - Heat damage and fire risk over 25%

Feeding Hay in ND Winters

- Increase forage intake by 2lb for every 10 degrees below the LCT
  - Free choice access during extreme cold
- Lower Critical Temperature:
  - Healthy adult horses: 5*F
  - Young, old, thin: 12*-32*F
  - Dry hair coat vs. wet hair coat
- Feed placement:
  - behind windbreaks, close to shelter and water sources
  - away from snow drifts, away from buildings, gates, doors, and low spots

Stretching Your Hay Resources

- Replace with a pelleted, cubed, or vacuum-packed forage

- Replace with a complete feed
- Supplement hay with a concentrated feed
- Feed older hay
- Feed lower quality hay free choice, portion out higher quality hay
- Reduce waste
  - Limit feeding
  - Using a feeder or net
- Resist the urge to turn horses out to pasture early

Determining Hay Quality

- Moisture content
- Palatability
- Foreign objects
- Noxious weeds, unpalatable weeds
- Smell
- Color

https://www.google.com/url?sa=i&url=http%3A%2F%2Fwww.hayinabale.com%2FWhat-is-a-Flake.html&psig=AOvVaw2Rzx_MkSXn_D71-YyKaqVc&ust=1608132453459000&source=images&cd=vfe&ved=2ahUKEwiNjbKuptDtAhVJYM0KHc0-DWkQr4kDegUIARC0AQ

Testing Hay for Nutritional Value

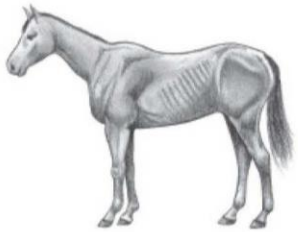
- How to Take a Sample
  - Check out probe from Extension office
- Where to send a sample
  - Cost
- Results
  - Sampling Feed for Analysis (AS1064, Reviewed Dec. 2018)

Feeding Hay

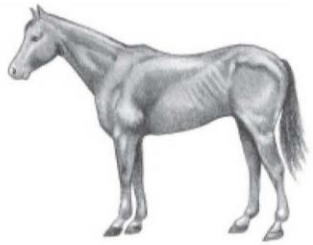
- How much
  - Free choice vs portioned out
- Feeders
- Reducing Waste

Monitoring Body Condition

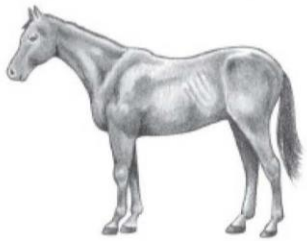
1 Poor
Animal extremely emaciated; spine, ribs, tailhead, points of hip and buttock projecting prominently; bone structure of withers, shoulders, and neck easily noticeable; no fatty tissue can be felt.



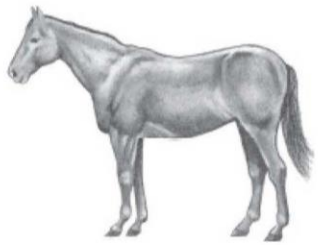
2 Very Thin
Animal emaciated; slight fat covering over base of spine, ribs, tailhead, points of hip and buttock prominent; withers, shoulders, and neck structure faintly discernible.



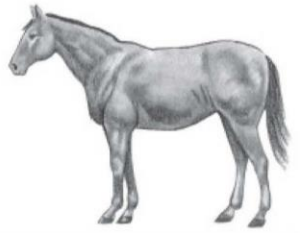
3 Thin
Fat buildup about halfway on spine, slight fat cover over ribs; spine and ribs easily discernible; tailhead prominent but individual vertebrae cannot be identified visually; points of hip appear rounded but easily discernible; points of buttock not distinguishable; withers, shoulders, and neck accentuated.



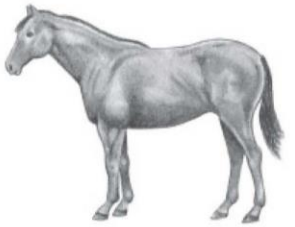
4 Moderately Thin
Slight ridge along back; faint outline of ribs discernible; tailhead prominence depends on conformation, fat can be felt around it; points of hip not discernible; withers, shoulders, and neck not obviously thin.



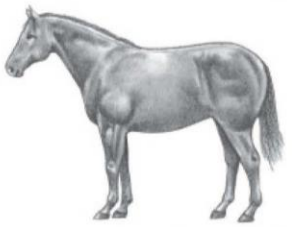
5 Moderate
Back is flat (no crease or ridge); ribs not visually distinguishable but easily felt; fat around tailhead beginning to feel spongy; withers appear rounded over spine; shoulders and neck blend smoothly into body.



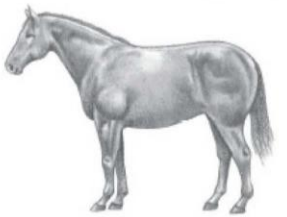
6 Moderately Fleshy
May have slight crease down back; fat over ribs fleshy/spongy; fat around tailhead soft; fat beginning to be deposited along sides of withers, behind shoulders, and along side of neck.



7 Fleshy
May have crease down back; individual ribs can be felt; but not noticeable filing between ribs with fat; fat around tailhead soft; fat deposited along withers, behind shoulders, and along neck.



8 Fat
Crease down back, difficult to feel ribs; fat around tailhead very soft; area along withers filled with fat; area behind shoulders filled with fat; noticeable thickening of neck; fat deposited along inner thighs.



9 Extremely Fat
Obvious crease down back; patchy fat appearing.

Body Condition Score Chart from Kentucky Equine Research ker.com

Resources

- Determine Horse Nutrient Requirements
  - https://nrc88.nas.edu/nrh/
- Hay probe
  - Contact your local NDSU Extension agent: https://www.ag.ndsu.edu/extension/directory/counties
- Sampling Feed for Analysis
  - https://www.ag.ndsu.edu/publications/livestock/sampling-feed-for-analysis
- Quality Forage Series: Interpreting Composition and Determining Market Value
  - https://www.ag.ndsu.edu/publications/livestock/quality-forage-series-interpreting-composition-and-determining-market-value