RULES OF FEEDING

Nutrition #3

Created for Canadian Pony Club Education

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THE RULES OF FEEDING

- 1. Feed little and often
- 2. Feed plenty of bulk food
- 3. Feed according to size, age, breed, temperament, condition, season and work done
- 4. Feed at regular times
- 5. Feed only clean, good quality forage
- 6. Clean, fresh water must be available at all times
- 7. Do not ride immediately after feeding
- 8. Introduce changes gradually
- 9. Feed a succulent daily

FEED LITTLE AND OFTEN

- This is closer to nature
  - The horse has a very small stomach
  - Their system is not designed for meal feeding, but rather to have a constant intake of food for 12-18 hours daily
  - By the time digesta has reached the stomach, it has doubled in volume due to addition of gastric juices
    - Overfilling the stomach leads to the risk of gastric ulcers
  - Digesta stays in the stomach approximately 20 minutes
    - if the volume of feed given is too large, it will be pushed through the stomach before being adequately broken down
  - Big, infrequent feedings can result in gastric impactions
  - Horses shouldn't be left without feed for more than 8 hours
  - Big grain meals disrupt body chemistry
    - blood glucose and insulin rise
    - free fatty acids drop
      - This leads to under-fueling

ACCESS TO PASTURE ENSURES THAT HORSES ARE EATING LITTLE AND OFTEN

-Horses at grass are eating foods with a higher moisture content
-Horses at grass are exposed to a steady diet of a broader range of plant species
-Horses at grass will be self-exercising which keeps soft tissues better toned
-Horses at grass have lower rates of respiratory illnesses and better overall health
-Horses at grass experience lower rates of digestive disturbances such as colic in part by increasing gut motility
-Horses at grass have lower rates of gastric ulcers
-Keeping horses at grass satisfies the need to chew – ponies have a higher chew rate than horses
-Horses at grass have fewer teeth problems than grain fed horses
-Horses at grass develop fewer vices
-Horses at grass typically are less likely to be hard-doers

FEED ACCORDING TO WORK DONE

Fit

Fat

…AS WELL, FEED ACCORDING TO SIZE, TEMPERAMENT, SEASON, AGE, CONDITION

- Feed according to work done to prevent horses from gaining too much weight
  - Match ‘calories in’ to ‘calories out’
  - This will help to prevent metabolic syndrome, Cushings disease, laminitis, azoturia, etc.
  - As work increases, increase feed to provide energy and increase muscle mass; decrease food if work decreases
- Underfeeding is just as bad
  - It is cruel to underfeed
    - It is unethical to severely underfeed and one could face legal complications if one is found to be doing so
  - Immunity, performance or growth may be compromised
  - Lack of forage feeding will make horses especially susceptible to health problems in winter
  - Vitamin and mineral deficiencies may cause hoof, skin or other health problems
  - It is cost inefficient to underfeed, as eventually weight will need to be put back on the horse at greater expense

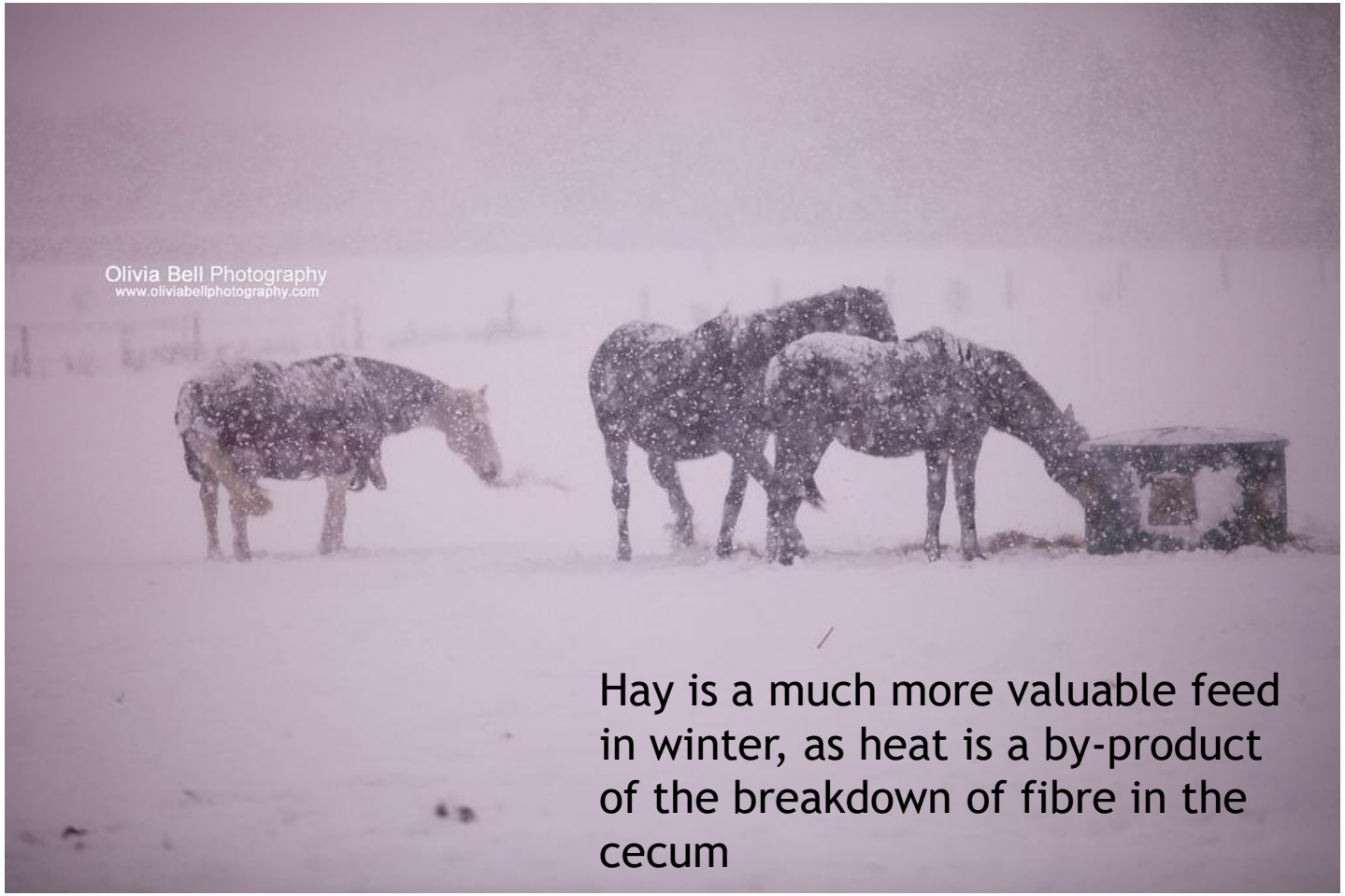
FEED ACCORDING TO SIZE OR BREED - PONIES OFTEN OVEREAT

UNDERWEIGHT HORSE

SEASONAL AND OTHER CONCERNS

- In extreme winter weather conditions, horses can burn up to 24% more carbohydrates and fats
  - This will necessitate changes from the usual feed schedule/amounts
    - Forages digested in the cecum ‘heat’ the horse up
- Specialized diets may be required for the following horses:
  - Young/growing horses
  - Mares in the last months of gestation/lactating mares
  - Horses doing intense work
  - Breeding stallions
  - Old horses (20-25+ years)
    - At this age, the small intestine starts to lose its ability to digest and absorb protein
  - Nervous horses, or horses being bullied by stable mates
  - Horses recovering from illnesses, horses with heavy worm load, or horses with teeth problems
  - Horses with certain stable vices such as weaving or stall walking

EVERY 10 DEGREE DROP IN TEMPERATURE NEEDS A 2 LB. INCREASE IN FEED



Hay is a much more valuable feed in winter, as heat is a by-product of the breakdown of fibre in the cecum

PROVIDE PLENTY OF CLEAN WATER AT ALL TIMES

WATER IS A MAJOR CONSTITUENT OF THE BODY

- 80% of a foal's body and 60-70% of a mature horse's body is comprised of water
- Water is necessary for:
  - Digestion
    - Saliva and other digestive juices mix with food to help it move through the digestive tract
    - Increased saliva also helps to act as a buffer thereby helping to prevent ulcers in the stomach
  - Excretion
  - Circulation
  - Thermoregulation, etc.
- A 20% water loss can be fatal to a mature horse
  - Horses typically drink between 27-54 L. daily but will need more in hot weather
- Horses that drink less in extreme cold weather are more susceptible to impaction colic

FEED A SUCCULENT DAILY

EVERY HORSE LIKES A TREAT!

- Succulents provide variety in the diet, stimulating appetite
- Succulents typically have a higher moisture content
- Succulents can provide a broader range of essential nutrients, especially vitamins
- This is especially important for horses that are stabled all the time

FEED PLENTY OF BULK FOOD

HAY IS FOR HORSES!

- Bulk foods stimulate peristalsis
  - This helps to reduce the rate of certain colics
- The diet should be at least 2/3 bulk foods; never drop below a 50% bulk food to grain ratio
- The more a horse chews, the more saliva is produced
  - Saliva helps to act as a buffer for stomach acids, thereby preventing ulcers
- Bulk foods help to maintain blood sugar levels
- Bulk foods require more chewing, which stimulates production of more digestive juices, thereby making digestion more efficient
  - There is also a positive correlation between a high bulk diet and lowered levels of chewing-related stable vices
- Synthesis of B vitamins in the cecum only occurs in the present of fibre
- Also occurring in the cecum is the production of by-products – gas and heat
  - The gas is moved along through the system by the presence of fibre
  - The heat helps to keep your horse warm in winter

FEED ONLY GOOD QUALITY FORAGE

FEED GOOD QUALITY FORAGE ONLY

- Poor quality food can result in:
  - poor performance
  - digestive disturbances
  - respiratory problems
- Dusty or moldy hay can cause heaves/COPD
- Moldy hay can destroy vitamin K in a horse's body, creating a deficiency.
  - If wetting moldy hay, spores can adhere more easily to the hay and be ingested by the horse, damaging the liver
- Feedstuffs contaminated by vermin can be harmful to both horses and humans
  - Feedstuffs contaminated by possums can cause EPM
- Botulism toxin, which can sometimes be found in silage and haylage (round bales), is highly fatal
- Moldy corn may contain aflatoxin and toxins produced by aspergilli, or Fusarium verticilliodes
  - These may cause degeneration of the liver and/or brain
- Vitamin E is destroyed by toxins in rancid feeds or oils
- Moldy feed 'ties up' biotin, which is necessary for metabolism
- Even good quality feed, if fed wet, can partially ferment which will produce excess gas
- Cereal grains and oil seed meals or feeds that are finely ground can also ferment, resulting in gas colic

MAKE NO SUDDEN CHANGES IN FOOD OR ROUTINE

- It takes up to 6 days for the bacteria in the hindgut to adjust to new feeds
- Problems that arise may include:
  - Diarrhea
  - Colic
    - impactions
  - Ulcers
  - Other stress related problems
  - Loss of appetite

DON'T WORK IMMEDIATELY FOLLOWING A FULL FEED

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- Horses cannot digest food during high intensity work:
  - At **rest**, 90% of circulation is devoted to **digestive process**
  - At **work**, 90% of circulation is devoted to the **muscles** and only 10% deals with digestion
- Plan pre-competitive grain meals so horses will have a complete anabolic response before starting work
  - This should occur 8 hours before work
  - High starch meals can cause a horse to be under-fueled three hours after eating.

HIGH PERFORMANCE FEEDING

- For speed sports such as racing, restrict hay intake to 1% of body weight up to 36 hours before the event
- This will reduce weight slightly, as well as lactic acid production
- Having a full intestinal tract will reduce respiratory capacity
  - May interfere with locomotor respiratory coupling

FEEDING THE WORKING HORSE

Photo credit: Totem Photographics

FEEDING AND WORKING

- The primary considerations when feeding and working simultaneously are:
  - Gut fill
  - Low plasma volume
  - High heart rate
    - Fluid is pulled from circulation to serve digestion
    - This causes plasma volume to drop by 25%
    - This results in dehydration
    - Therefore, protein levels go up, resulting in thirst
    - This affects the horse's ability to dissipate heat effectively
    - This results in an elevated heart rate

QUESTIONS

- 1. List the rules of feeding and give reasons.
- 2. Relate the rules of feeding to the horse's digestive tract.
- 3. Why is it inefficient to feed your horse before working him?
- 4. What are the benefits of feeding succulents?
- 5. What health problems can arise if a horse is not fed little and often?
- 6. List three important reasons to feed bulk foods.