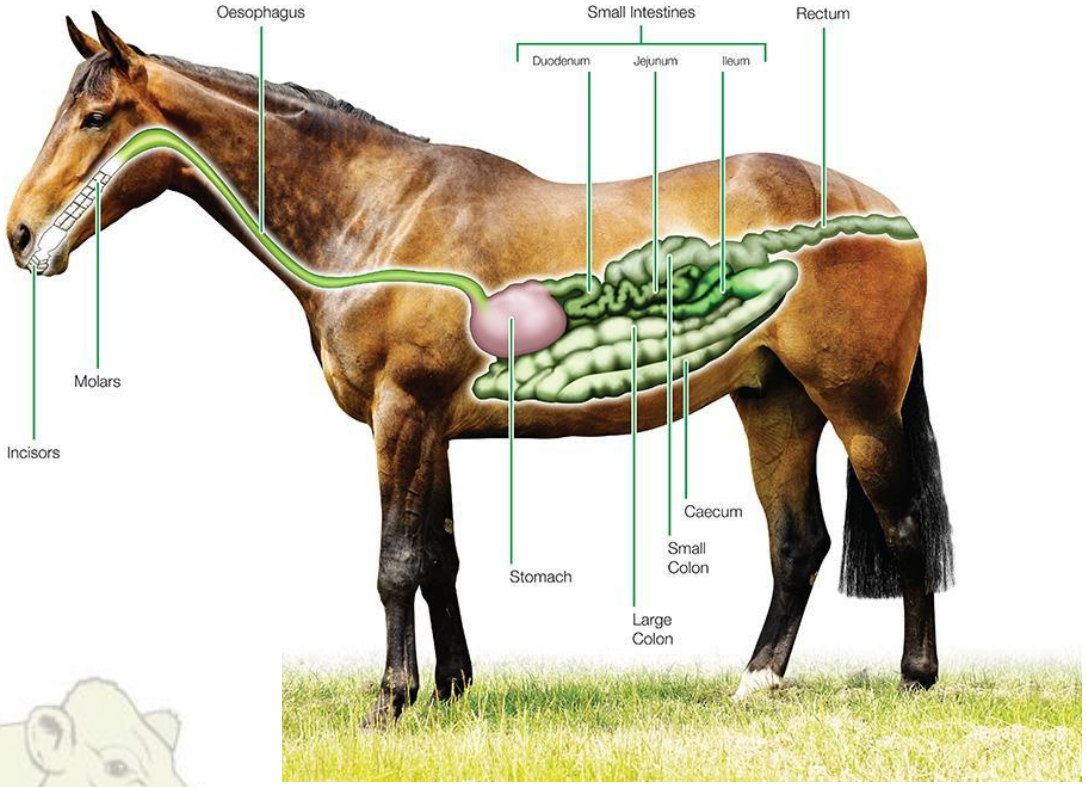
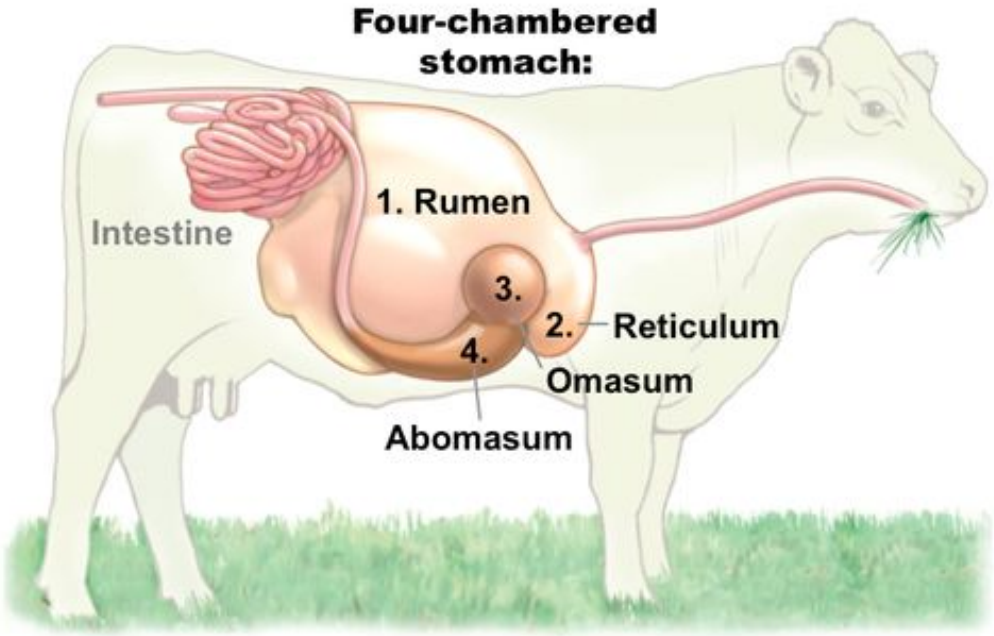
EQUINE
NUTRITION

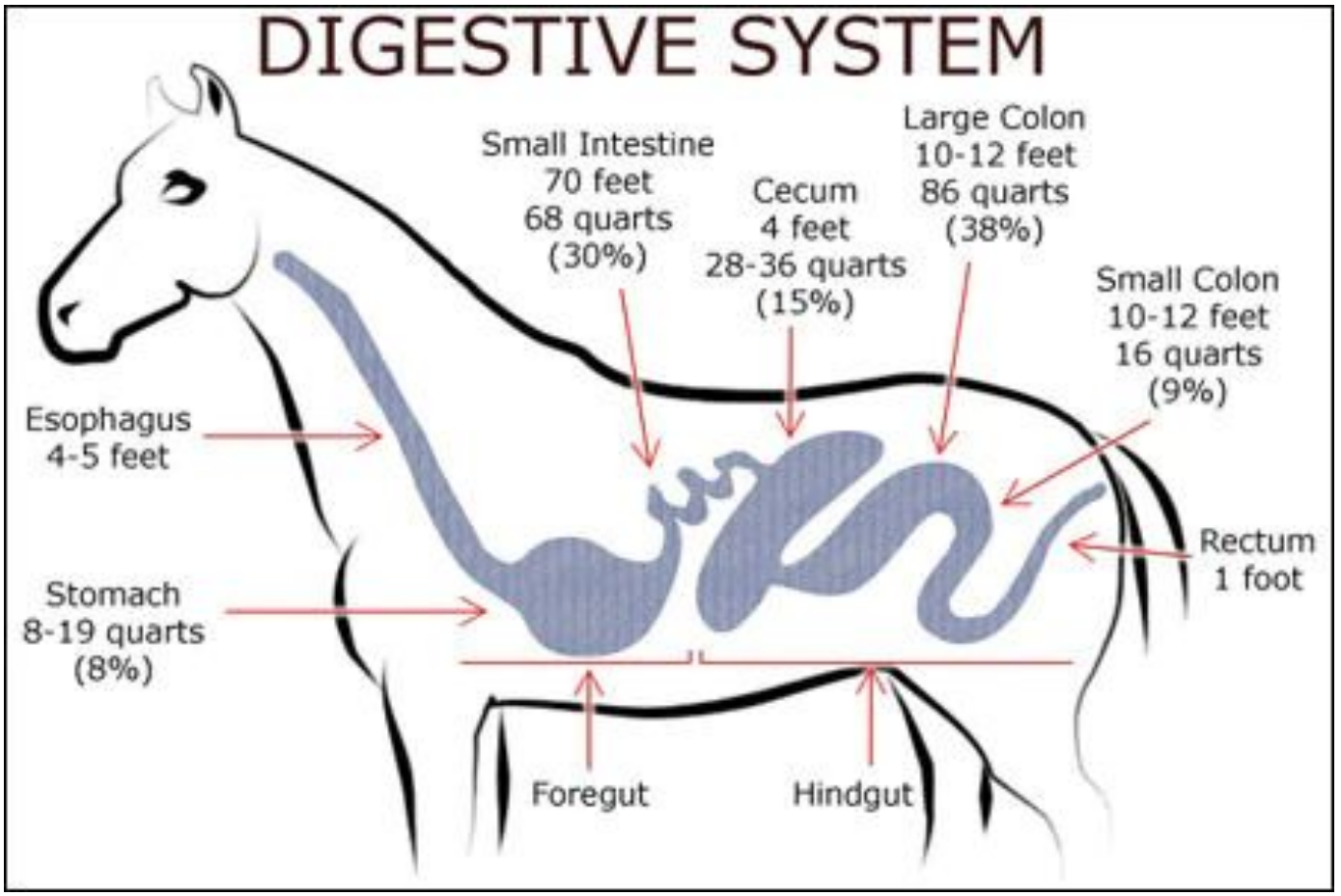
Part 1
Digestive Anatomy

HORSE = NON-RUMINANT "Hindgut Fermenter"

animals that have little or no ability to digest and absorb fiber and cannot sustain an adequate level of production on forage diets







Foregut - Enzymatic Digestion

~ 50% of the crude protein digestion

~ 100% carbohydrate digestion

Hindgut - Microbial Digestion

~ 100% fiber digestion

~ Vitamins/Minerals/Water absorbed

FOREGUT

Duration in the Foregut= 1.5 hours

HINDGUT

Duration in the Hind-Gut= 2-3 days

To digest feed efficiently, the horse needs healthy teeth to grind feed and allow enzymes and bacteria to attack the plant cell walls.

Teeth should be examined during the annual health check to ensure that they are wearing normally and are effectively grinding the feed.

The emptying time of the stomach after filling - 12 minutes

Moving through to Small Intestine - 1 ft/min or about 1.5 Hours (**FOREGUT TO HINDGUT= 1.5 hours**)

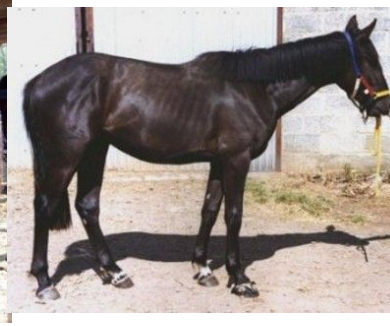
Horses need to eat *almost continuously*, thus the nickname…….

“HAY BURNERS”

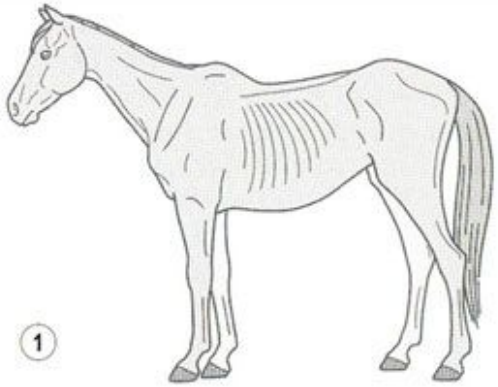
Part 2
Nutrition

Body Condition Scoring

HENNEKE SYSTEM (US SYSTEM)
* Scale of 1-9
* Ideal of 5.0



Score	Description
1. Poor	Extremely emaciated; no fatty tissue; vertebrae, ribs, tail head, and bones of withers, shoulder, and neck are visible
2. Very Thin	Emaciated; slight tissue cover over bones; vertebrae, ribs, tail head, and bones of withers, shoulder, and neck are visible
3. Thin	Slight fat cover over body; individual vertebrae and ribs no longer visibly discernible; withers, shoulders, and neck do not appear overly thin
4. Moderately Thin	Ridge of spine and outline of ribs are visible; tail head may or may not be visible depending on the breed; withers, shoulders, and neck do not appear overly thin
5. Moderate	Spine and ribs cannot be seen however ribs can be felt; tail head is spongy; withers, shoulders, and neck are rounded and smooth
6. Moderately Fleshy	Slight crease down spine; ribs and tail head feel spongy; fat deposits along withers and neck and behind shoulders
7. Fleshy	Crease down spine; ribs have fat filling between them; tail head spongy; fat deposits along withers and neck and behind shoulders
8. Fat	Apparent crease down spine; ribs difficult to feel; soft fat surrounding tail head; fat deposits along withers, behind shoulders, and on inner thighs; neck is large
9. Extremely Fat	Obvious crease down spine; patchy fat on ribs; bulging fat on tail head, withers, behind shoulders, and on neck; fat fills in flank and on inner thighs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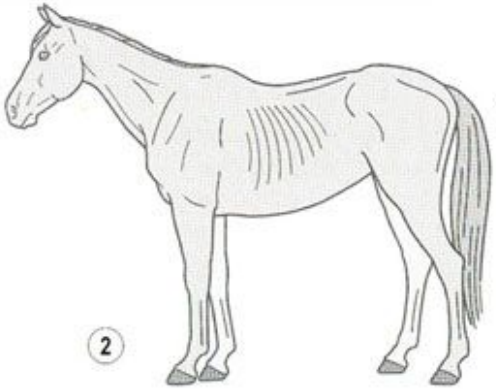
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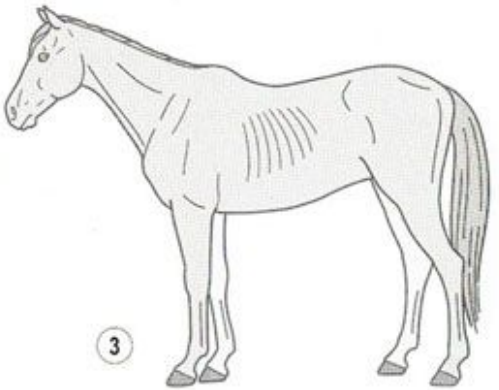
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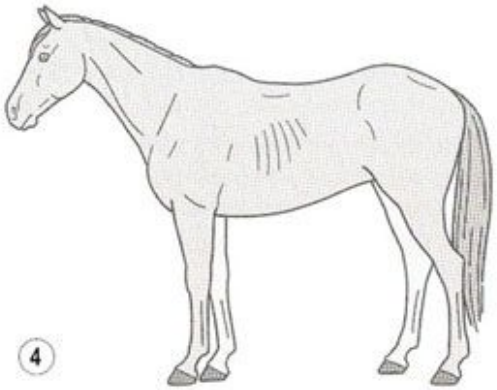
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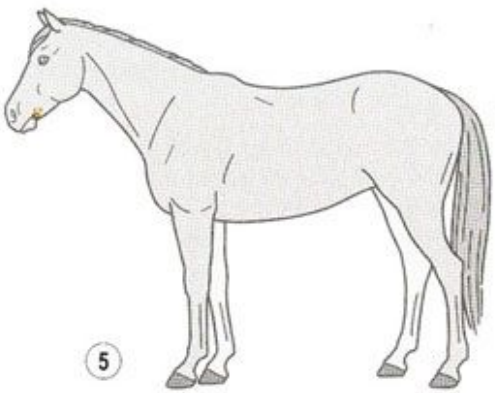
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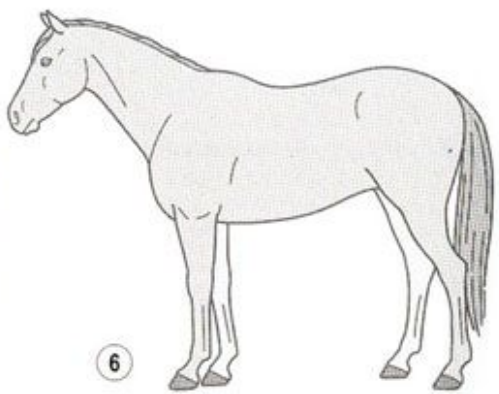
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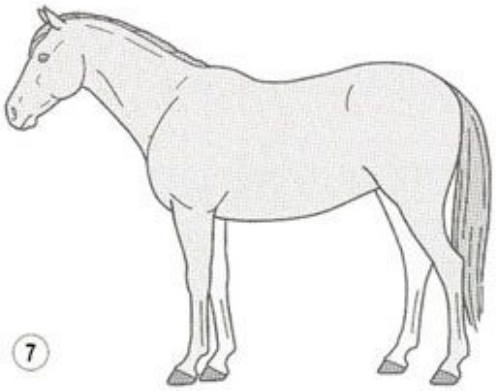
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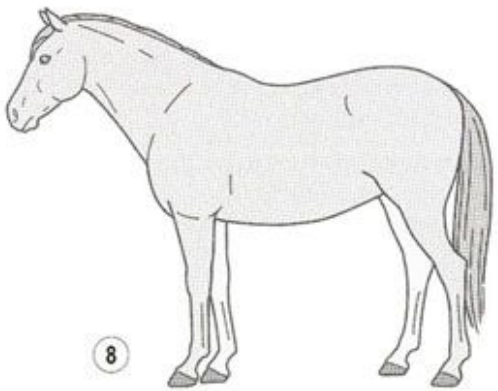
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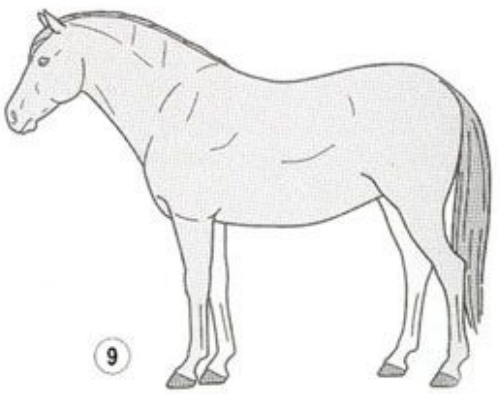
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Food- and feed pyramid

FORAGE

Timothy

Orchard

Alfalfa

Alfalfa/Grass Mix

Brome

CONCENTRATES

What a feed tag tells you:

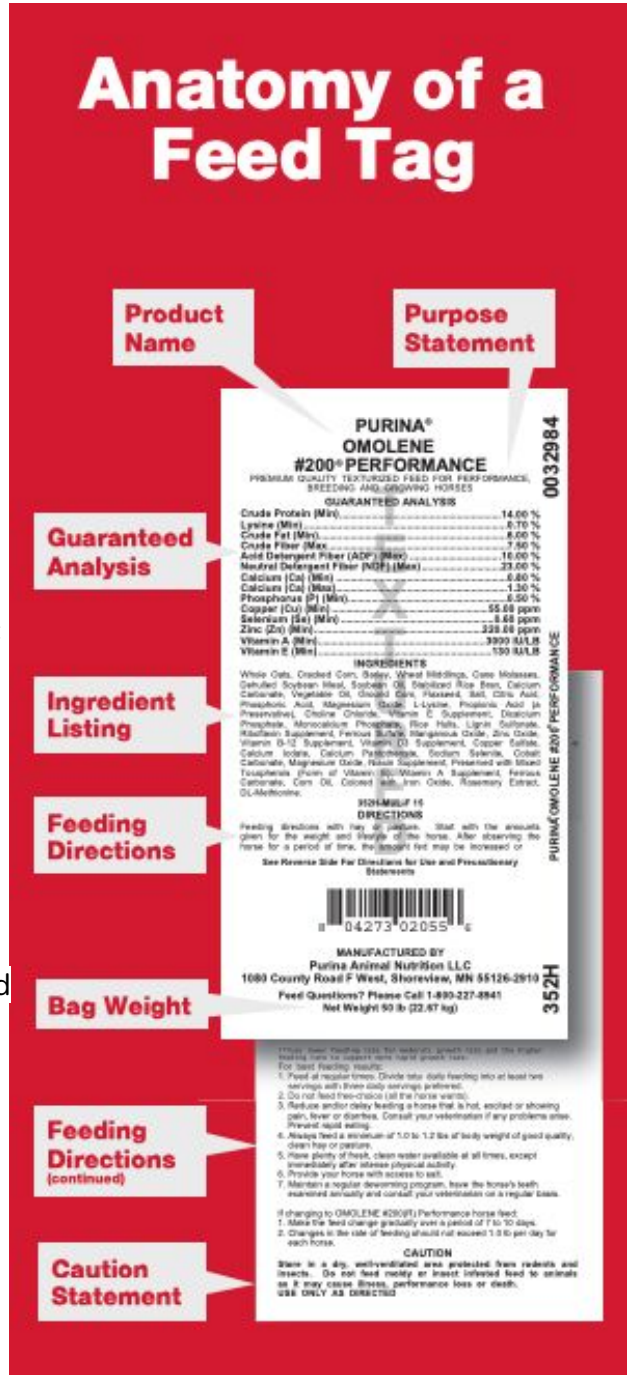
1. **Product name and weight**
2. **Purpose statement -** Identifying the type of horse intended to be fed
3. **Guaranteed analysis of certain nutrients** – AAFCO dictates that the following nutrient guarantees be listed for all fortified horse feeds:

Crude Protein (min)	Crude Fat (min)
Crude Fiber (max)	Acid Detergent Fiber (ADF) (max)
Neutral Detergent Fiber (NDF) (max)	
Calcium (min & max)	Phosphorus (min)
Copper (min)(if added)	Selenium (min)
Zinc (min)	Vitamin A (min)(if added)
*Sugar (max) & Starch (max)	

1. **Ingredient list** – may include individual ingredients (e.g. oats, rice bran, etc.) and/or collective terms (e.g. grain products or processed grain by-products).
2. **Feeding directions** – Horse feed manufacturers formulate feeds to be fed at a specific range of feeding rates, and when a product is not fed according to directions, the full nutritional benefits of that feed may not be realized and the feed will not perform as intended.

What a feed tag does not tell you:

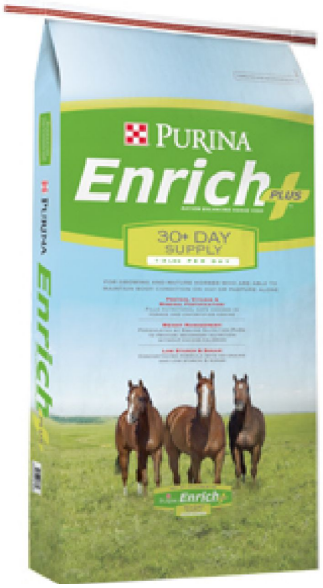
1. Additional nutrients needed by the horse that aren't required to be guaranteed on the tag
2. Nutrient and ingredient quality or bioavailability – just because a tag states that a feed is 14% crude protein, that tells you nothing about the quality of that protein (i.e. the amino acid composition)
3. The "feed recipe" – the ingredient list isn't a recipe, but simply a list of the ingredients used to make that product.
4. Whether or not the guaranteed levels of nutrients are appropriate
5. Quality control – Feed manufactures have widely differing quality control standards.
6. Research behind the feed



HAY BALANCERS/ RATION BALANCERS

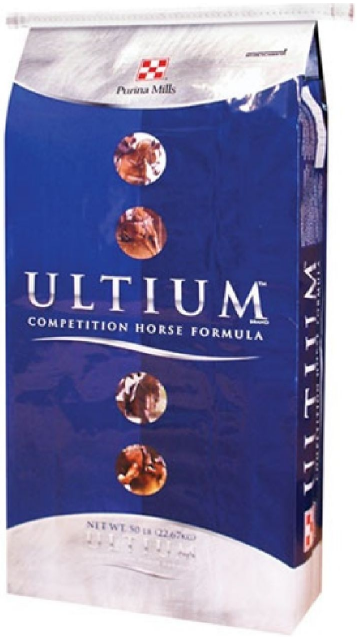
Horses who eat mainly forage - This will provide required vitamins and minerals

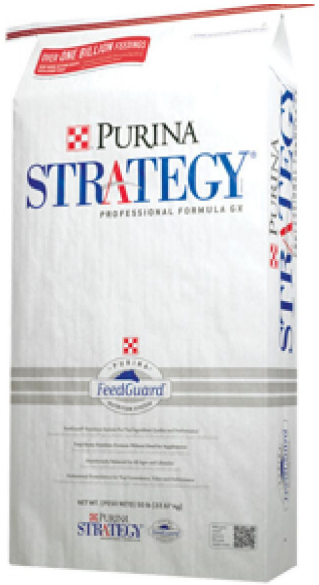
***The longer the hay has been stored the lower the nutritional content will be**.*

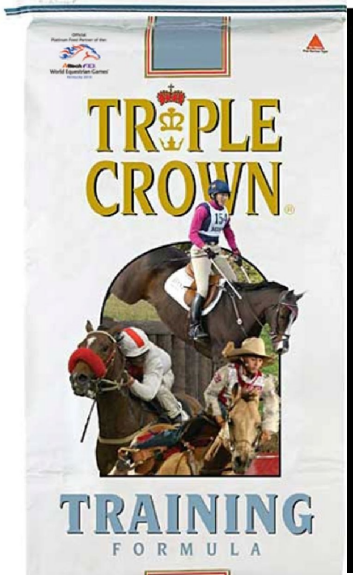


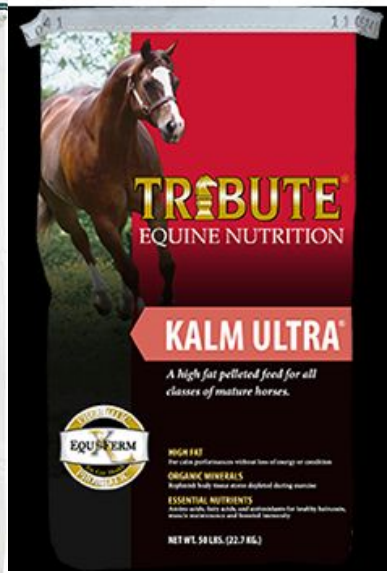
Working Horses

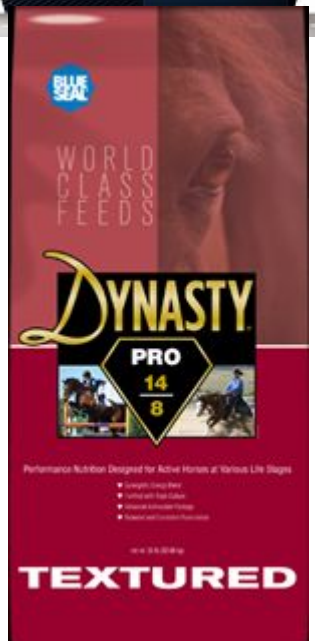
If your horse needs added fat and/or calories a performance feed can be added. Generally the fat ranges from 5%-12%. Feed according to activity level.





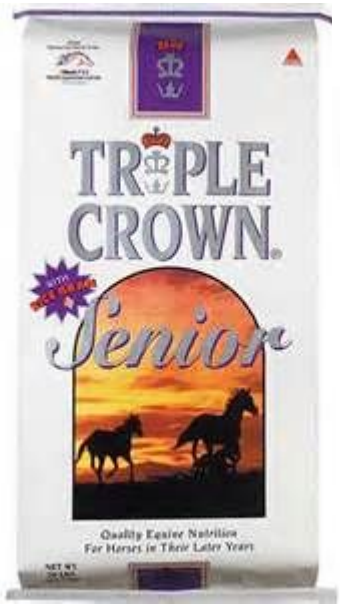


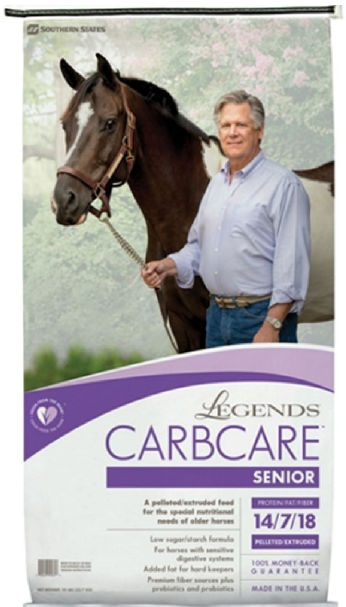




Senior/Rescue Horses

Senior horses have special needs. Many senior horses have difficulty chewing and digesting forage. This is where complete feeds can help. A complete feed is designed to be fed in LARGE quantities because it is replacing a portion if not all of the horses forage needs.

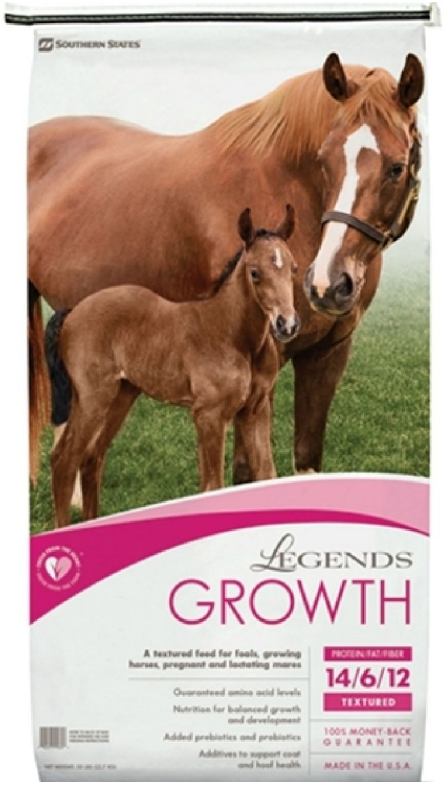


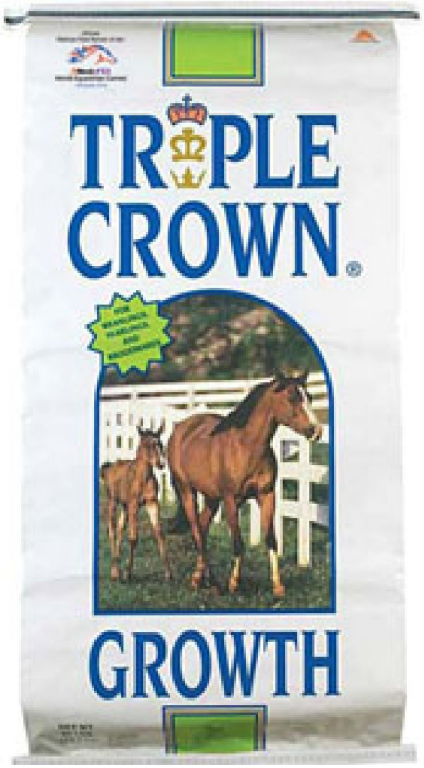


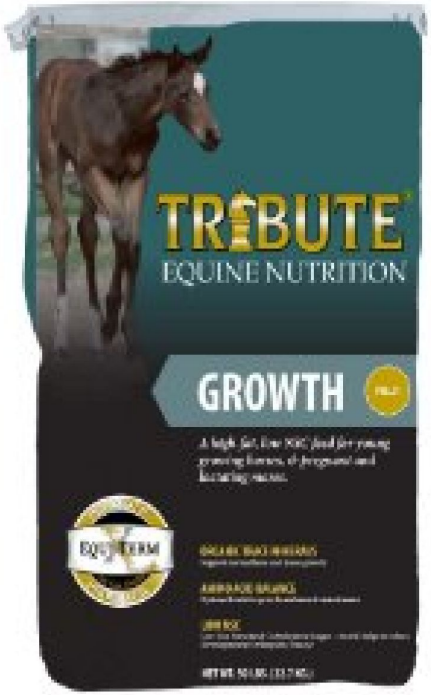
NUTRITION FOR FOALS

The foal and growing horse have undeveloped digestion as compared to the adult horse.

Therefore, the foal requires a diet low in fiber and easily digested in the foregut.



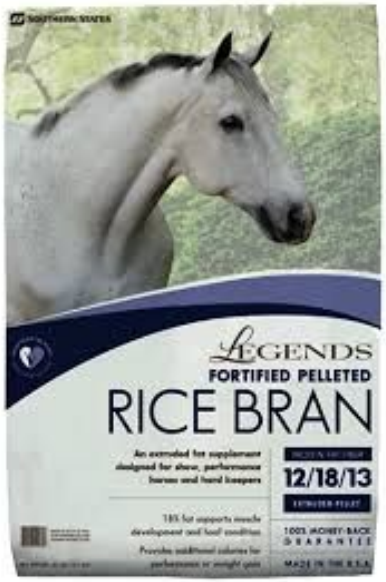


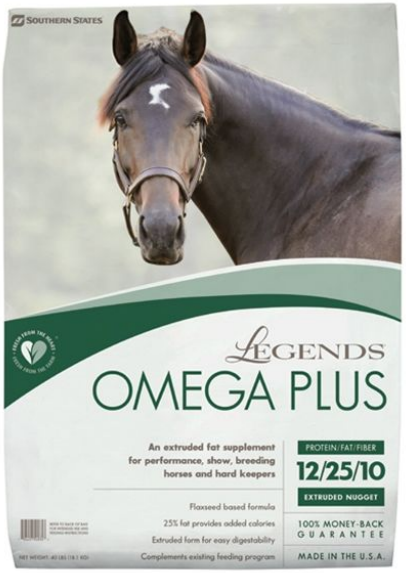


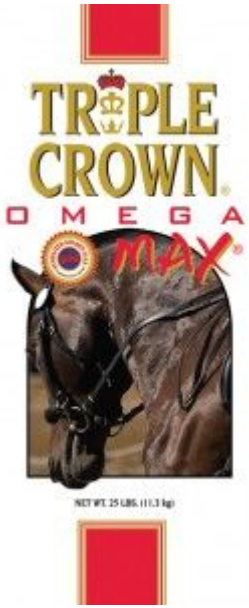
Added Fat/Calories

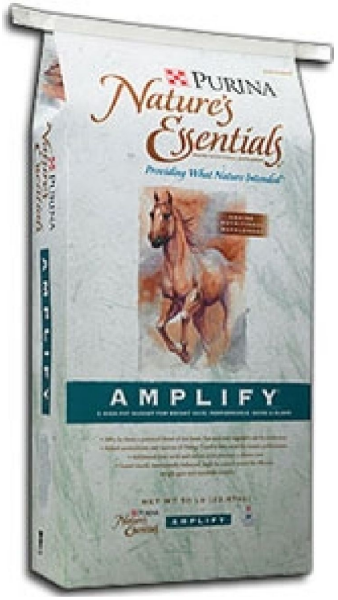
If your horse needs added fat and/or calories beyond the performance feed to keep weight there are good options to add to your ration. **OILS Should be used sparingly!**

These feed supplements are generally rice bran, beet pulp or alfalfa based. The do not replace your feed, just an additive.









YOUR HORSE'S CHECKLIST

Clean Water	To maintain proper hydration levels To protect from ingestion of mycotoxins
Balanced Vitamins / Minerals	For absorption / utilization of nutrients
Enzymes	To allow for digestion of feed/ forage
Active Probiotics	To Promote/ Maintain gut health
Electrolytes	To Maintain proper hydration levels
Protein	To Promote / maintain optimal body condition
Fiber	To optimize Fermentation
Fat	To provide "cool" energy/ optimal body condition
Carbohydrates (Non-structural)	To control Starch/ Sugar
Supplements	To address specific health-related concerns
Worming Program	To protect your horse from internal damage
Annual Dental Check	To promote proper digestion

PURINA®
STRATEGY® AX

FOR PERFORMANCE AND BREEDING HORSES

CAUTION: USE ONLY AS DIRECTED

GUARANTEED ANALYSIS

Crude Protein (Min)	11.0000%
Crude Fat (Min)	6.0000%
Crude Fiber (Max)	8.0000%
Calcium (Ca) (Min)	0.4000%
Calcium (Ca) (Max)	0.8000%
Phosphorus (P) (Min)	0.8000%
Copper (Cu) (Min)	55.0000ppm
Selenium (Se) (Min)	0.6000ppm
Zinc (Zn) (Min)	220.0000ppm
Vitamin A (Min)	3000.00IU/lb

INGREDIENTS

Processed Grain By-Products, Grain Products, Forage Products, Molasses Products, Soybean Oil, Plant Protein Products, Monocalcium Phosphate, Dicalcium Phosphate, Salt, Calcium Lignin Sulfonate, Calcium Carbonate, Vitamin E Supplement, Vitamin B12 Supplement, Calcium Pantothenate, Riboflavin Supplement, Zinc Oxide, Copper Sulfate, Niacin Supplement, DL-Methionine, Choline Chloride, Vitamin A Supplement, Calcium Iodate, Magnesium Oxide, Cobalt Carbonate, Ferrous Carbonate, Vitamin D3 Supplement, Manganous Oxide, Artificial Flavoring, Fenugreek Flavor, Sodium Selenite.

PURINA® STRATEGY® AX 0034211

Central Feed Service Inc.

13% Performance Plus Horse Feed

★ Contains NO corn

★ Contains NO molasses

Guaranteed Analysis:

Crude Protein minimum.....13%
Crude Fat minimum.....8%
Crude Fiber maximum.....7%

Ingredients:

crimped oats, rolled barley, soybean meal, wheat middlings, distillers dried grains with solubles, flax, monocalcium phosphate, dicalcium phosphate, calcium carbonate, salt, vegetable oil, yeast culture, lignin sulfonate, vitamin A acetate, vitamin D3 supplement, vitamin E supplement, menadione dimethylpyrimidinol, bisulfite (sorce of vitamin K), riboflavin supplement, niacin supplement, thiamine mononitrate, zinc amino acid complex, copper amino acid complex, maganese amino acid complex, cobalt glucoheptonate, calcium pantothanate, vitamin B12 supplement, choline chloride, folic acid, biotin, pyridoxine hydrochloride, ascorbic acid (vitamin C), manganese sulfate, zinc sulfate, calcium iodate, ferrous sulfate, copper sulfate, magnesium oxide, zinc oxide selinium, yeast, natural and artificial flavors, natural mixed tocopherols, citric acid and rosemary extracts, flax, natural and artificial flavors.

PURINA® OMOLENE #200® PERFORMANCE (F)

A PREMIUM QUALITY TEXTURIZED FEED FOR PERFORMANCE, BREEDING AND GROWING HORSES

CAUTION: USE ONLY AS DIRECTED

GUARANTEED ANALYSIS

Crude Protein (Min)	14.0000%
Lysine (Min)	0.7000%
Crude Fat (Min)	6.0000%
Crude Fiber (Max)	7.5000%
Calcium (Ca) (Min)	0.9000%
Calcium (Ca) (Max)	1.2000%
Phosphorus (P) (Min)	0.5000%
Copper (Cu) (Min)	55.0000PPM
Selenium (Se) (Min)	0.6000PPM
Zinc (Zn) (Min)	220.0000PPM
Vitamin A (Min)	3000.00IU/LB
Vitamin E (Min)	130.00IU/LB

INGREDIENTS

Whole Oats, Cracked Corn, Wheat Middlings, Dehulled Soybean Meal, Coarse Barley, Cane Molasses, Calcium Carbonate, Stabilized Rice Bran, Soybean Oil, Vegetable Oil, Ground Corn, Flaxseed, Salt, Citric Acid, Magnesium Oxide, Choline Chloride, L-lysine, Vitamin E Supplement, Monocalcium Phosphate, Dicalcium Phosphate, Propionic Acid (A Preservative), Iron Oxide, Vitamin D3 Supplement, Riboflavin Supplement, Vitamin B-12 Supplement, Calcium Pantothenate, Zinc Oxide, Copper Sulfate, Niacin Supplement, Vitamin A Supplement, Calcium Iodate, Cobalt Carbonate, Ferrous Carbonate, Manganous Oxide, Dl-methionine, Natural Mixed Tocopherols (A Preservative), Citric Acid (A Preservative), Ascorbic Acid, Rosemary Extract, Lecithin, Sodium Selenite.

RUMINANT MEAT AND BONE MEAL FREE
07NS-F-352H

See Reverse Side For Directions For Use and Precautionary

8 04273 02055 6

PURINA MILLS, LLC
PO Box 66812
St. Louis MO 63166-6812
Feed Questions? Please Call 1-800-227-8941

TEXT 50# 1/8

NET WT. 50 LBS. (22.67 KG.)

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