

Hay is for Horses!

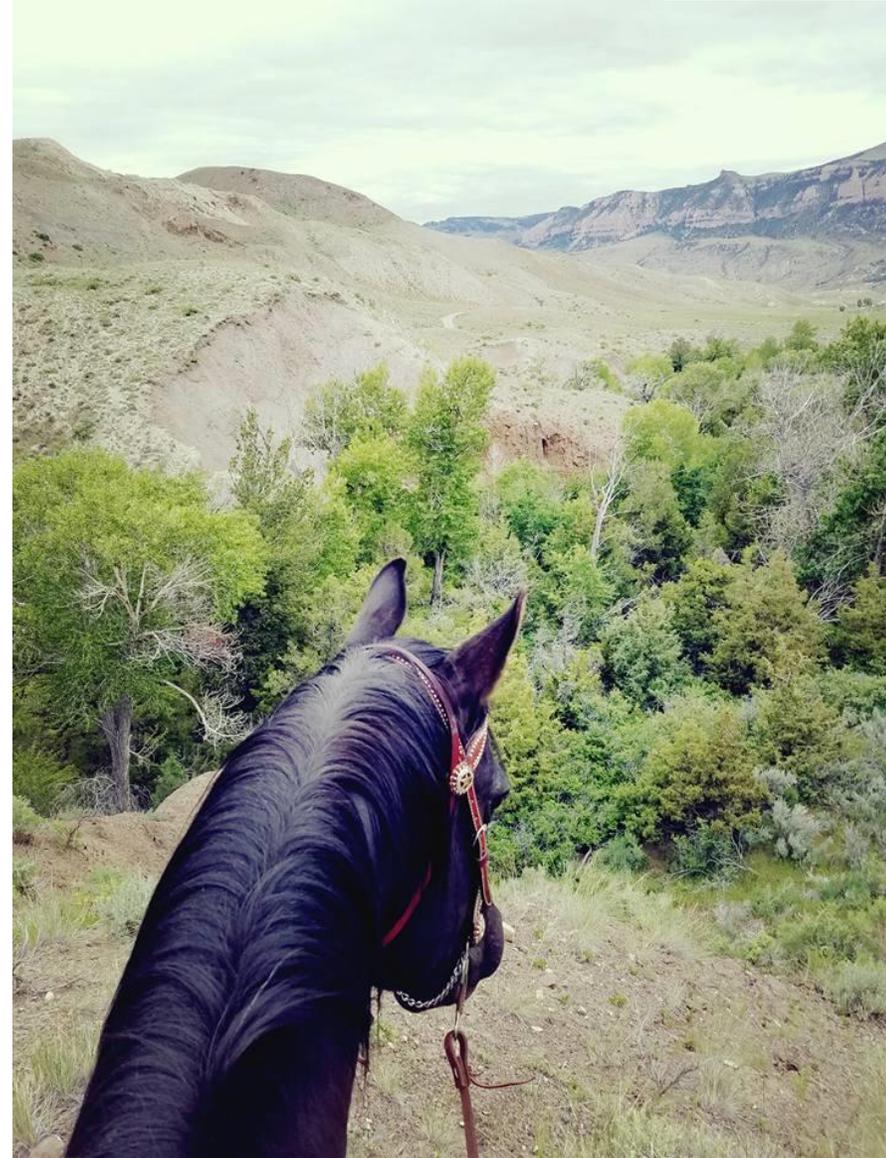


PUEBLO COUNTY
COLORADO STATE UNIVERSITY
EXTENSION

By: Beth Hayes
Pueblo 4-H Coordinator

Today's Outline

- ▶ Reading a Feed Label
- ▶ How Much Feed is Enough?
- ▶ Body Condition Score
- ▶ Nutrition Health Issues
- ▶ Types of hay
- ▶ Types of grain
- ▶ Poisonous Plants
- ▶ Jeopardy Ending!



Survey's

- ▶ Before and After section
- ▶ In the next few minutes while we have time to do the first worksheet feel free to answer the before section of the survey

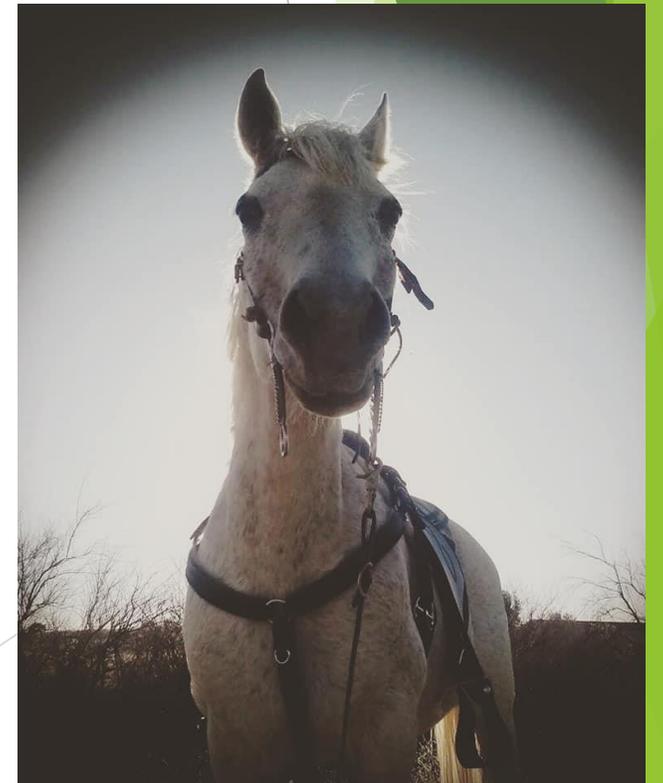
Horse Worksheet

- ▶ Pick a horse that you help take care of
- ▶ Write down what they eat and how much food you give them
- ▶ Write down their age, breed, gender and how much you exercise them!
- ▶ Couple minutes to write your horse story and then we will share them!

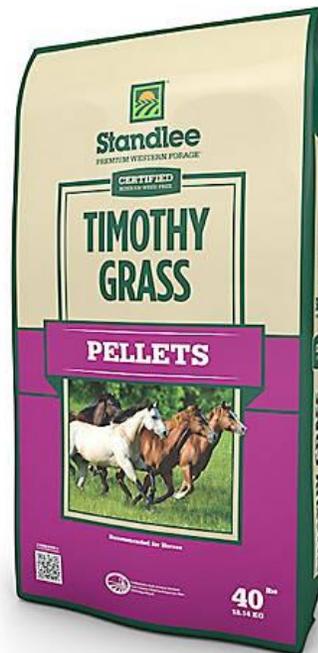
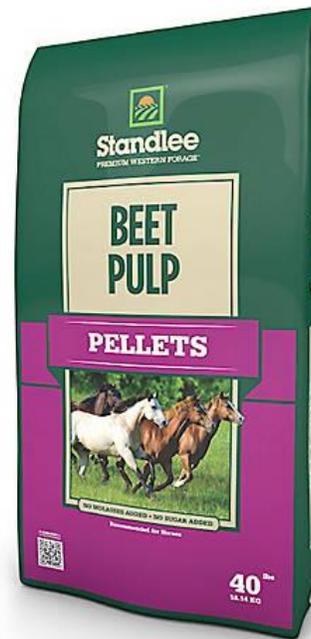
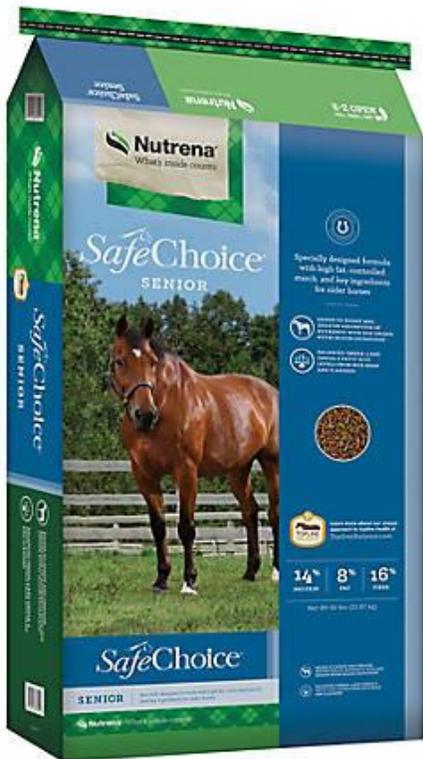


Meet My Horse!

- ▶ Dotty
- ▶ Half Arab/Half Quarter Horse
- ▶ Mare, ~25 yrs old, Flea Bitten Grey
- ▶ Mostly Retired so limited activity



What Does She Eat?



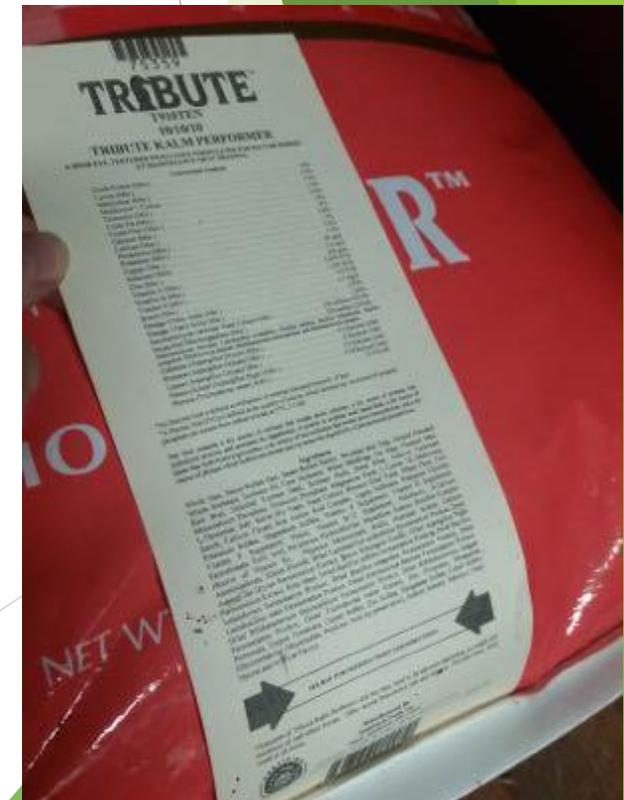
Tell Me About Your Horse!



- ▶ Stand up
- ▶ Introduce yourself
- ▶ Tell us all about your horse and what they eat 😊

Feed Label

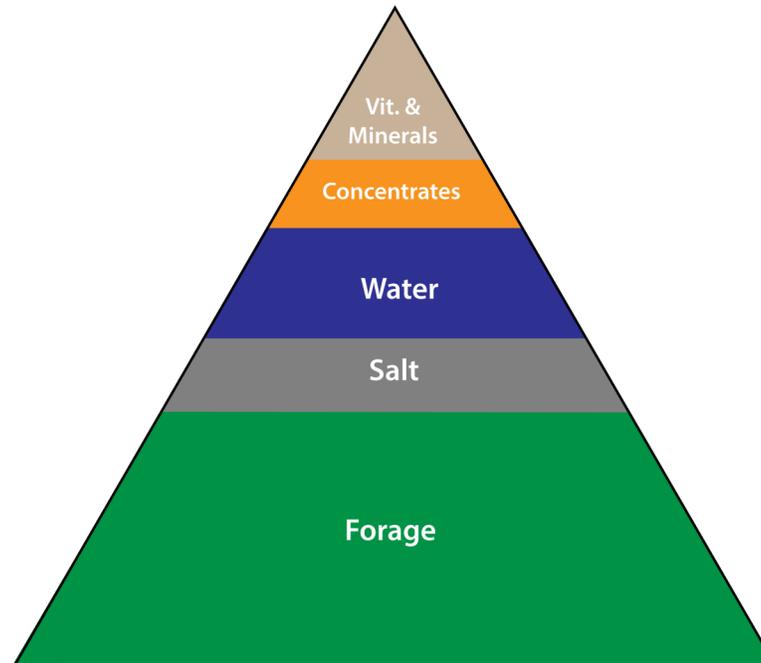
- ▶ How many of you go to Big R, Tractor Supply or somewhere else and buy grain?
- ▶ How many of you read the tag on it?
- ▶ Why is reading the tag important when picking out the feed bag you want for your horse?
- ▶ What brands do you feed your horse?



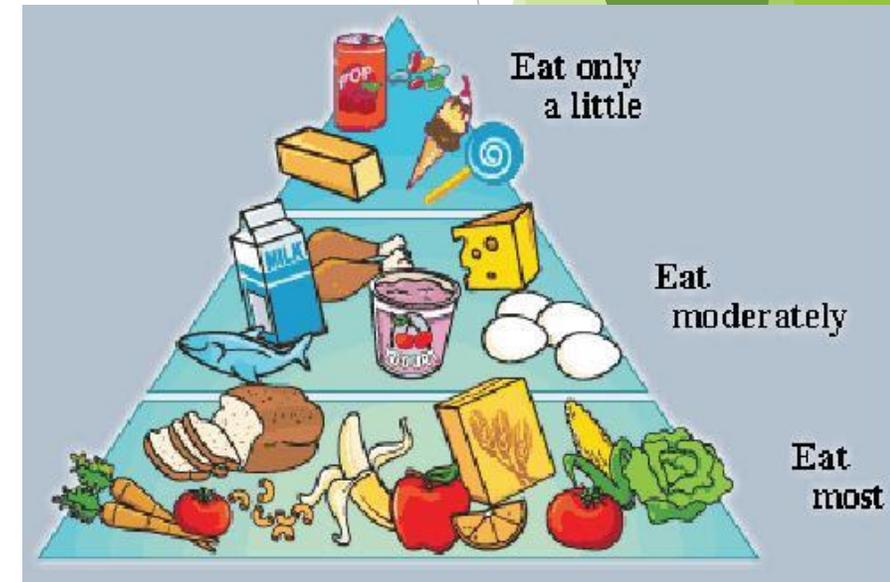
What Does a Label Say?

What condition do we like to see our horses in?

- ▶ Crude Protein
 - ▶ Energy!
 - ▶ Crude -> not all of it gets digested
- ▶ Crude Fat
 - ▶ Energy
- ▶ Crude Fiber
 - ▶ Holds onto water
 - ▶ Energy source
- ▶ Lysine
 - ▶ Amino Acid
 - ▶ Building Block of Protein
 - ▶ Muscle building
- ▶ Vitamin A,D,E
 - ▶ A = vision, immune system
 - ▶ D = helps with bone growth
 - ▶ E = help with muscle strength



EQUINE FOOD PYRAMID



Human Food Pyramid

HAY!



A lot of your horse's daily protein comes from their hay intake.

How much protein are you feeding?

It looks a lot more complicated than it is...

$$\frac{(\text{LBS HAY} \times \text{PROTEIN IN HAY}^*)}{(\text{LBS GRAIN} \times \text{PROTEIN IN GRAIN})}$$

$$\frac{\text{TOTAL LBS FED}}{\text{PROTEIN IN TOTAL DIET}}$$

*To get an accurate estimate of protein in your hay, have it tested. Ask at your local feed store.



More resources, including the horse curriculum for parents can be found on the National 4-H website:
<https://4-h.org/parents/curriculum/horse/>

Amino Acids

3 Most Limiting Essential Amino Acids: Lysine, Methionine and Threonine

If a horse runs out of these from their feed, they can't benefit from any other amino acids they've eaten.



2 Kinds of Amino Acids:

ESSENTIAL = Horses can't make them and need them provided in their feed.

NON- ESSENTIAL = Horses naturally make enough of them

Total Protein Needed in Diet

Foals	16-18%
Weanlings	14-16%
Yearlings	12-14%
Mature Horse	10-12%
Lactating Horses	12-14%



Look for specific amino acid listings on any bag of feed you buy, not just crude protein levels.



A SENIOR FEED'S GUARANTEED ANALYSIS

Crude Protein, Min.	12.00%	Potassium (K), Min.	0.80%
Lysine, Min.	0.60%	Magnesium (Mg), Min.	0.30%
Methionine, Min.	0.18%	Copper (Cu), Min.	40 ppm
Threonine, Min.	0.41%	Selenium (Se), Min.	0.60 ppm
Crude Fat, Min.	5.00%	Zinc (Zn), Min.	120 ppm
Crude Fiber, Max.	15.00%	Vitamin A, Min.	4000 IU/lb
*NSC, Targeted	22.50%	Vitamin D, Min.	400 IU/lb
Calcium (Ca), Min.	0.80%	Vitamin E, Min.	200 IU/lb
Calcium (Ca), Max.	1.30%	Omega 6 Fatty Acids, Min.	2.40%
Phosphorus (P), Min.	0.65%	Omega 3 Fatty Acids, Min.	0.34%

* Not recognized by AAFCO as an essential nutrient

INGREDIENTS: Wheat Middlings, Soybean Hulls, Oat Mill Byproduct, Whole Oats, Steamed Crimped Barley, Heat-Processed Soybeans, Dehulled Soybean Meal, Dried Beet Pulp, Dehydrated Alfalfa Meal, Heat-Processed Flaxseed, Cane Molasses, Soybean Oil, Calcium Carbonate, Calcium Phosphate, Salt, Potassium Chloride, Potassium Sulfate, Magnesium Sulfate, Magnesium Oxide, Manganous Oxide, Ferrous Sulfate, Copper Sulfate, Zinc Sulfate, Manganese Proteinates, Iron Proteinates, Copper Proteinates, Zinc Proteinates, Cobalt Sulfate, Ethylenediamine Dihydrochloride, Calcium Iodate, Selenium Yeast, Sodium Selenite, Yeast Culture, Vegetable Fat Product (Feed Grade), Lecithin, Glycerin, Phosphoric Acid, Propionic Acid, Sodium Benzoate, Sulfuric Acid, Vitamin A Supplement, Vitamin D Supplement, Vitamin E Supplement, Thiamine Mononitrate, Riboflavin, Niacin, Pyridoxine Hydrochloride, Folic Acid, Biotin, d-Calcium Pantothenate, Vitamin B-12, Choline Chloride, Ascorbyl-2-Polyphosphate, Natural and Artificial Flavor.

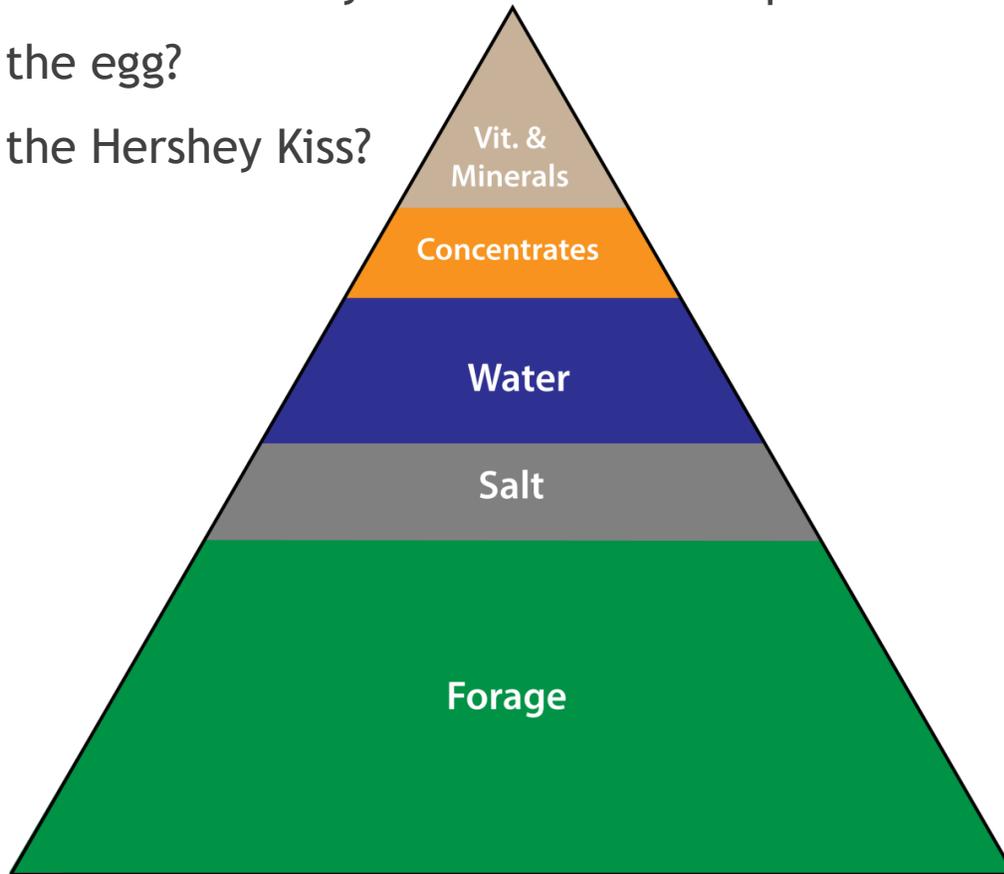
COURTESY BUCKEYE NUTRITION

GUARANTEED ANALYSIS

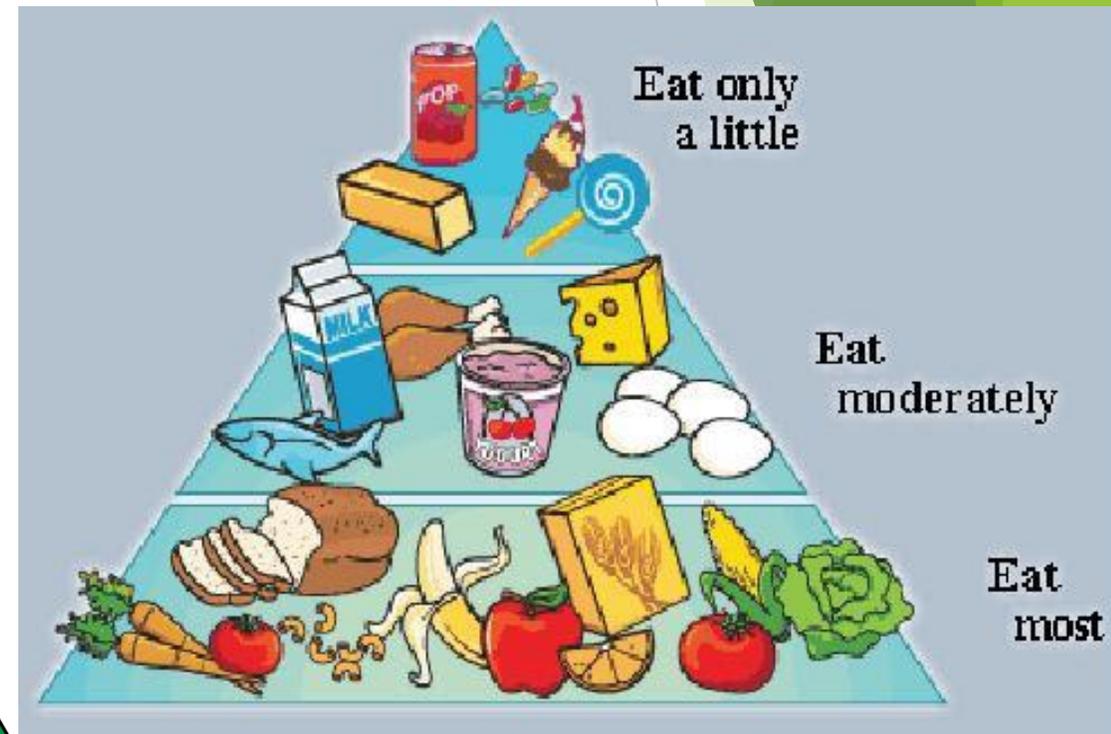
Crude Protein, Min.	15.0 %
Lysine, Min.	0.8 %
Methionine, Min.	0.2 %
Threonine, Min.	0.5 %
Crude Fat, Min.	20.0 %
Crude Fiber, Max.	11.0 %
Calcium, Min.	0.65 %
Phosphorus, Min.	0.7 %
Salt, Min.	0.3 %
Copper, Min.	20 ppm
Selenium, Min.	0.3 ppm
Zinc, Min.	100 ppm
Vitamin A, Min.	9,000 IU/lb
Vitamin D ₃ , Min.	2,000 IU/lb
Vitamin E, Min.	200 IU/lb
Biotin, Min.	0.5 mg/lb

Food Pyramid Activity Time!

- ▶ In your cups you will find a celery stick, a hard boiled egg and a Hershey kiss
- ▶ What do you think the celery stick is for us compared to horses?
- ▶ What about the egg?
- ▶ What about the Hershey Kiss?



EQUINE FOOD PYRAMID



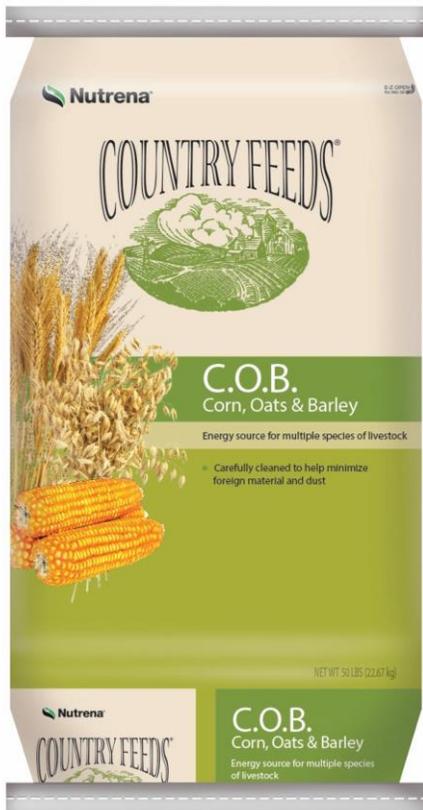
Human Food Pyramid

Grain Types

▶ What are cereal grains?

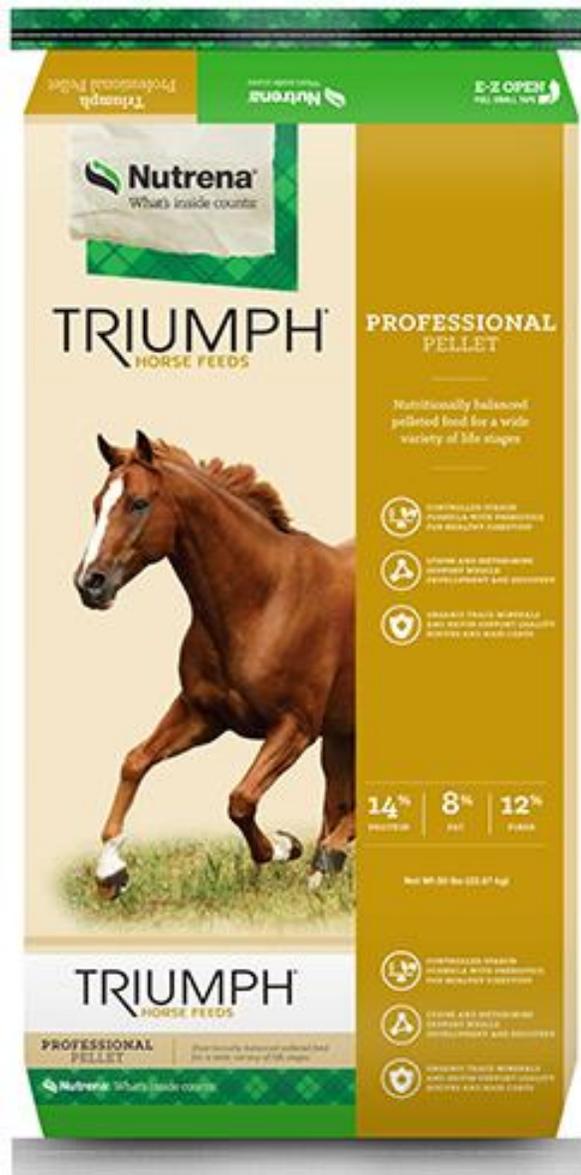
▶ 3 Main Grain Types:

1. **Formulated**: feeds made up of cereal grains, grain-by products, forage-based products or a blend of all of the above
2. **Concentrated**: Cereal grains with supplements or pellets added to balance the nutrient content
3. **Complete**: Grain mix that is high in fiber because it contains forage or high-fiber by-products such as soy hulls or beet pulp

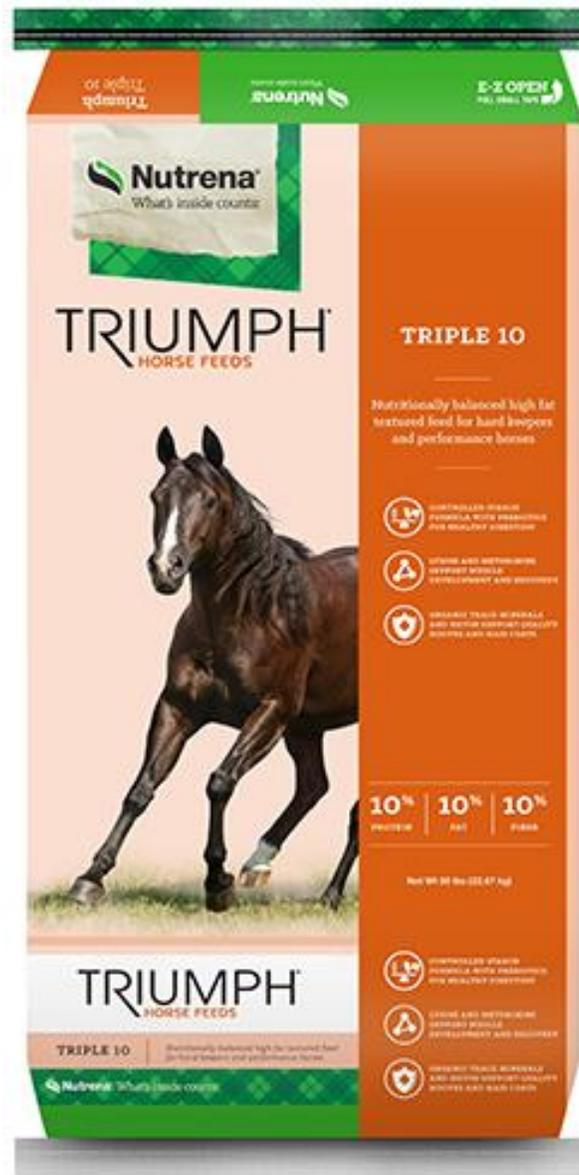


3 Grain Types

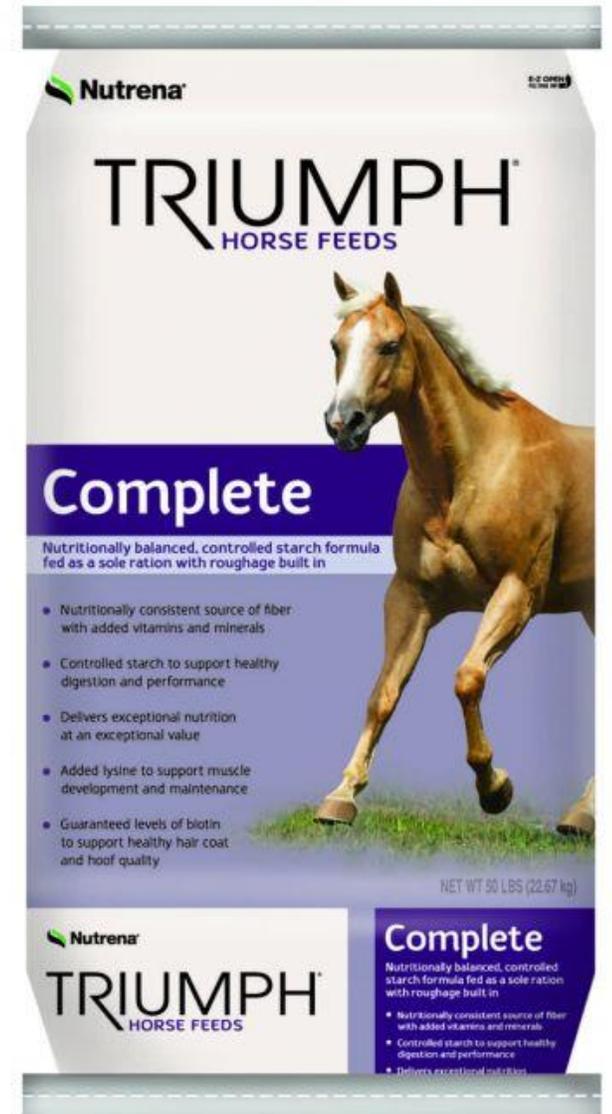
1. Formulated
2. Concentrated
3. Complete



14% Crude Protein
12% Crude Fiber
8% Crude Fat



10% Crude Protein
10% Crude Fiber
10% Crude Fat
Trace Minerals



12% Crude Protein
25% Crude Fiber
3.5% Crude Fat

SafeChoice® Feeding Rates:

Calorie Level	+++
Sugar & Starch Levels	++
Amino Acid Levels	+++
Crude Protein %	14
Fat %	6.5
Fiber %	15
Chelated Minerals	yes
Pre- and Pro-biotics	yes
Increased Omega-3 & -6 levels	yes
Added Biotin	yes

Life Stage & Activity - KG of Feed / 100 KG Bodyweight

Maintenance Horse	0.25-0.5
Stallions	0.75-1.25
Performance Horse:	
Light	0.5-0.75
Moderate	0.75-1.0
Heavy	1.0-1.5
2yr-olds in training	0.5-1.25
Senior: Maintenance/Light Work	
No hay or pasture - maintenance	
- light work	
With Hay or pasture - maintenance	0.25-1.0
- light work	
Broodmares:	
First 2 trimesters	0.25-0.5
Last trimester/ Late Lactation	0.5-0.75
Early Lactation	1.0-1.5
Young, Growing Horses	
Foals	creep feed
Weanling	1.5-2.0
Yearlings	0.75-1.5



Original



Senior



Perform



Special Care



Mare & Foal



Maintenance

Calorie Level	+++++	++++	+++	+++	++
Sugar & Starch Levels	+++	++	+	+++	+++
Amino Acid Levels	+++++	+++	+++	+++++	++
Crude Protein %	14	15	14	16	13
Fat %	9	8	7	7	5
Fiber %	15	16	15	15	18
Chelated Minerals	yes	yes	yes	yes	yes
Pre- and Pro-biotics	yes	yes	yes	yes	yes
Increased Omega-3 & -6 levels	yes	yes			
Added Biotin	yes	yes	yes	yes	yes
Life Stage & Activity - KG of Feed / 100 KG Bodyweight					
Maintenance Horse	0.2-0.45		0.25-0.5		0.3-0.5
Stallions	0.65-1.25			0.5-0.75	
Performance Horse:					
Light	0.4-0.65		0.5-0.75	0.5-0.75	0.6-0.75
Moderate	0.65-0.90		0.75-1.0	0.75-1.0	
Heavy	0.90-1.5			1.0-1.5	
2yr-olds in training	0.5-1.25			0.5-1.0	
Senior: Maintenance/Light Work					
No hay or pasture - maintenance		1.2-1.4			
- light work		1.4-1.6			
With Hay or pasture - maintenance		0.5-0.75			
- light work		0.75-1.0			
Broodmares:					
First 2 trimesters	0.2-0.45		0.25-0.5	0.25-0.5	0.25-0.5
Last trimester/ Late Lactation	0.4-0.65		0.5-0.75	0.5-0.75	
Early Lactation	0.75-1.5		1.0-1.5	1.0-1.5	
Young, Growing Horses					
Foals	creep feed			creep feed	
Weanling	1.3-1.8			1.5-1.75	
Yearlings	0.65-1.3			0.75-1.5	



TRIPLE CROWN SENIOR

A high fat, grain free, beet pulp based feed. Ideal for older horses with metabolic issues, mature horses, hard keepers, rescue/starved horses, horses with ulcers and those with COPD/heaves. May also be used as a complete diet.

Developed specifically for older horses, Triple Crown Senior features a beet pulp-based formula with a higher nutrient and fat content to provide older horses with the digestive assistance and energy they need. Plus, Triple Crown Senior is a softer feed that can be mixed with water to form a mash for horses that have difficulty chewing and swallowing.

Triple Crown Senior includes enough bulk fiber to be used as a sole ration for horses unable to eat hay or pasture. Senior also works well for horses of any age where you want to maximize fiber and keep starch and sugar low. Consider senior for horses with compromised digestive systems or teeth issues.



TRIPLE CROWN COMPLETE

A high fiber, beet pulp-based feed. Ideal for hard keepers, performance horses and horses with COPD/heaves or gastric ulcers. May also be used as a complete diet.

A textured feed designed to provide mature performance horses with a complete diet that includes fiber, Triple Crown Complete features a beet pulp-based formula that provides 12% protein, 12% fat, and all the calories, vitamins and minerals of a grain-based feed without the potentially harmful soluble carbohydrates. Complete is the perfect choice for horses with limited access to hay or poor quality hay.



TRIPLE CROWN LOW STARCH

A grain, alfalfa and molasses free diet. Ideal for horses with insulin resistance, Cushing's, EPSM and PSSM, requiring additional calories or tend to have allergies. Also ideal for HYPP horses.

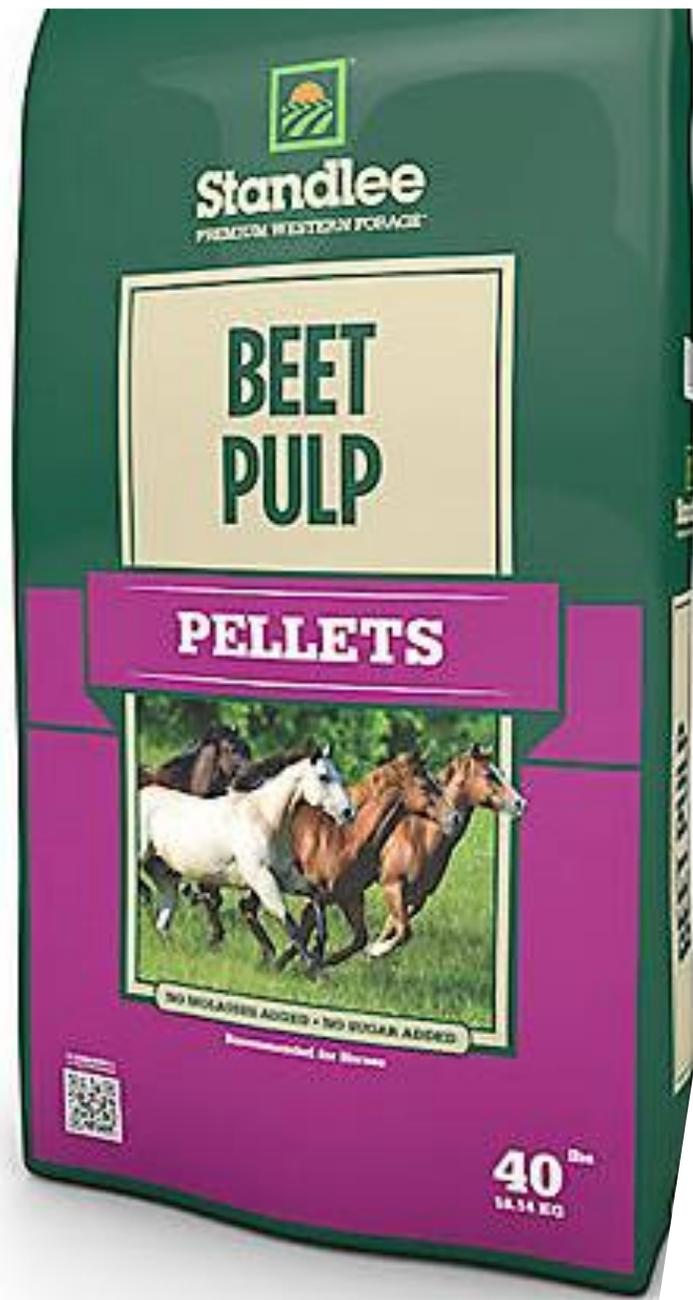
Formulated specifically for mature horses, Triple Crown Low Starch is a pelleted low starch and sugar (NSC) feed for horses requiring a lower diet for metabolic reasons or for horse owners seeking calmer behavior from horses. Featuring fewer carbohydrates than hay and pasture, Triple Crown Low Starch can be used as a complete feed to replace all or part of the forage portion of the diet.

This feed is also suited for those who tend to have allergies, ideal for HYPP horses as the feed contains a low potassium level and works well for senior horses in winter in order to avoid the bricking of textured feeds.

Grain Activity Time!

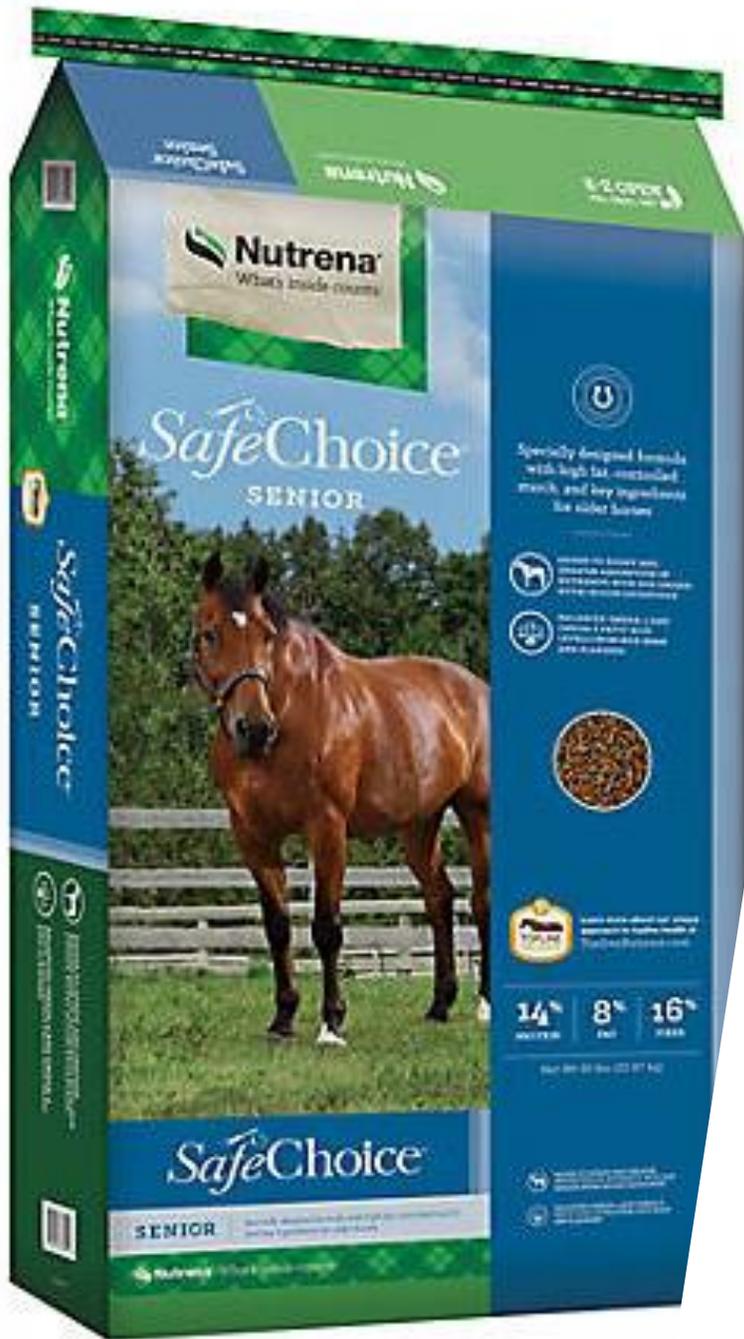
- ▶ Come up to the three different containers of feed I have and try to identify them in your groups
- ▶ Have 15 mins for this activity
- ▶ Smell it!
- ▶ Feel it!
- ▶ Observe!
 - ▶ Color/Shape/Size
 - ▶ No smell? Sweet?
 - ▶ Hard feel/Soft feel





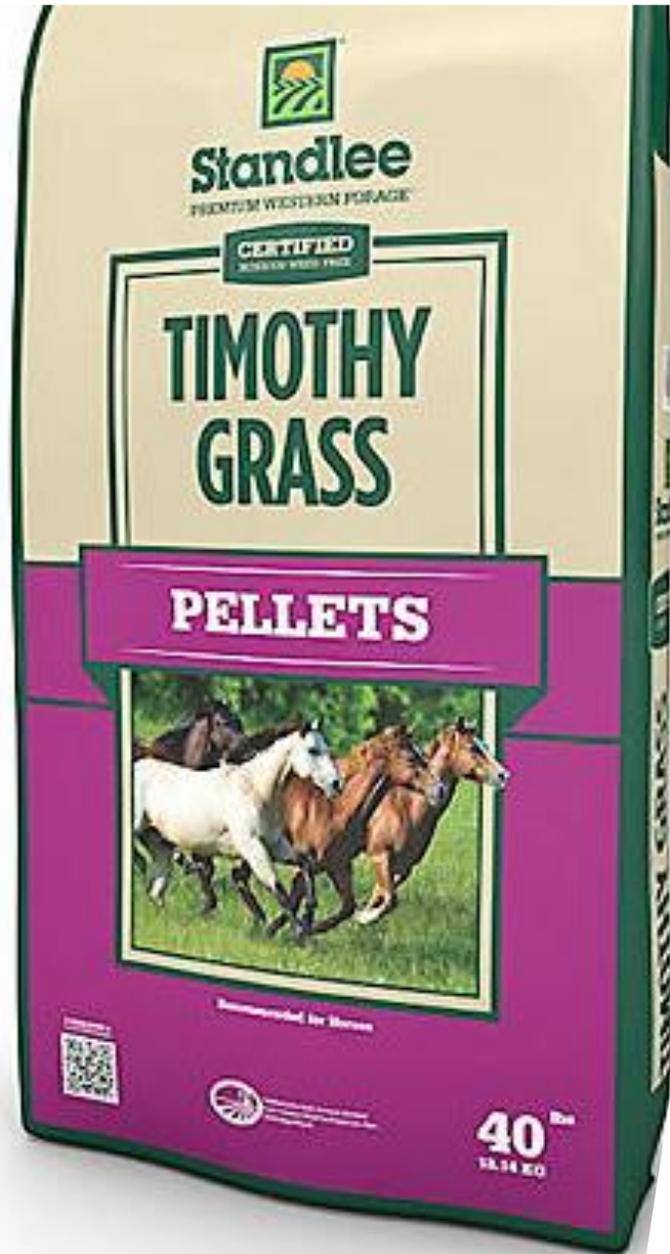
Station #1

Beet Pulp Pellets



Station #2

- ▶ Safe Choice Senior Grain



Station #3

Timothy Hay Pellets

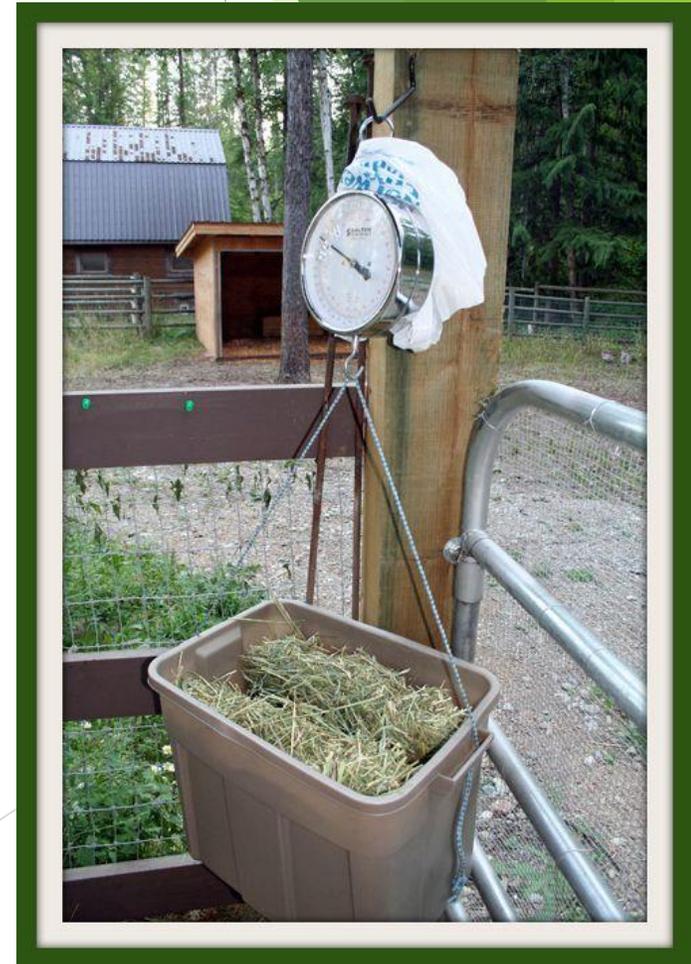
How Much is Enough?

- ▶ Winter Feeding vs. Summer Feeding
 - ▶ What season do most horses usually need more energy for?
 - ▶ Should you feed more hay or grain?



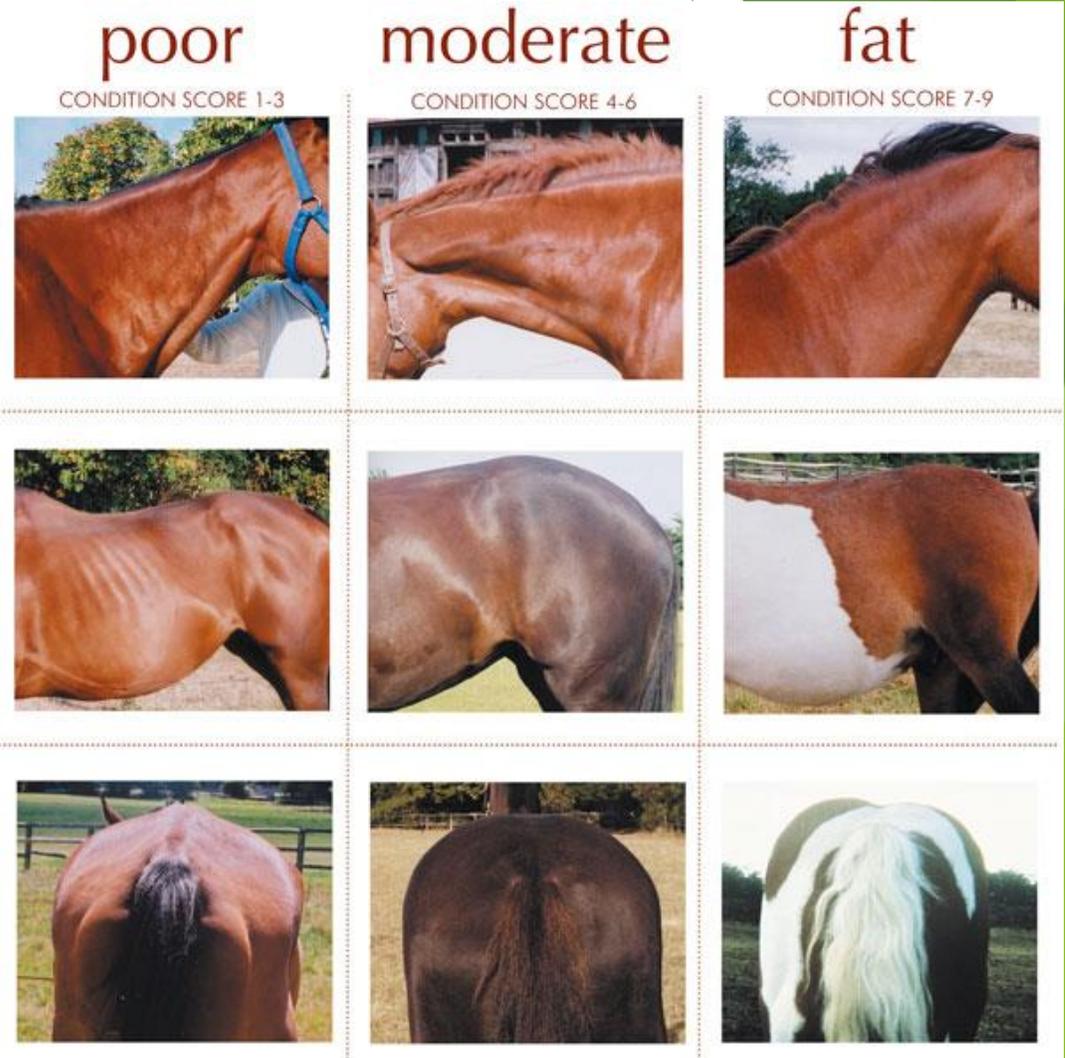
Measuring Feed

- ▶ Coffee can/Scoop/Bucket
- ▶ How do we weigh our feed?
- ▶ Why is this important?



How do we judge BCS?

- ▶ Where do we look to check BCS?
 - ▶ Main areas: Neck, rib and back area, tail-head region
- ▶ Does age matter?
 - ▶ Old vs. Young
- ▶ Does breed matter?
 - ▶ Thoroughbred vs. Quarter Horse

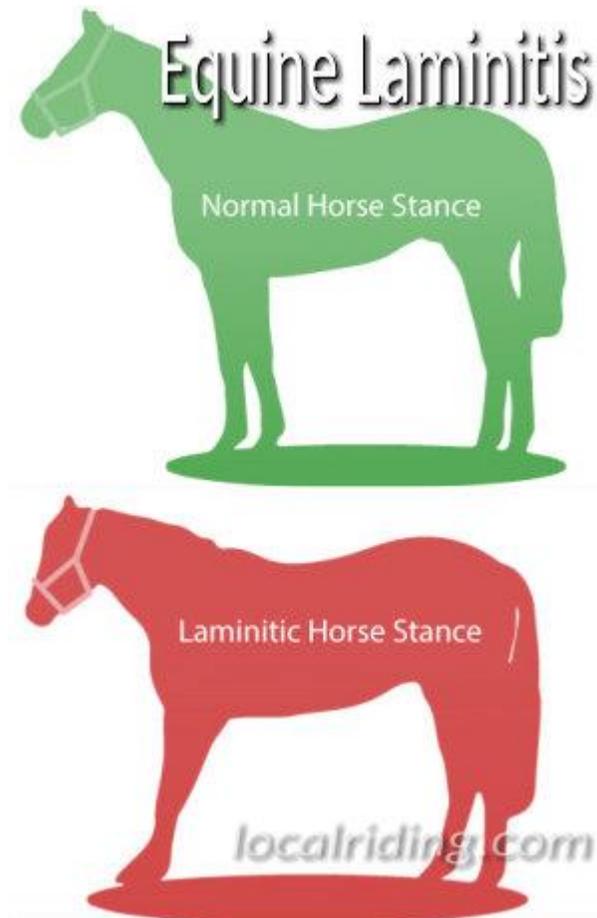
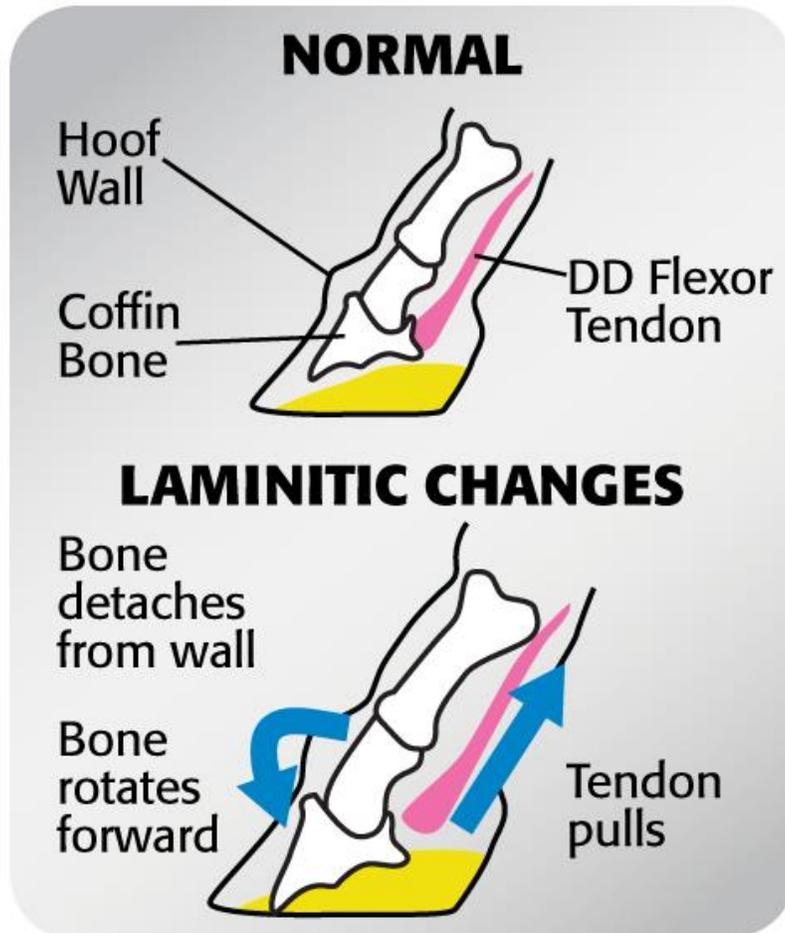


Why is Feed Amount Important?



Health Issues with Feed

- ▶ Laminitis & Colic are the biggest issues



- Founder refers to long-term condition of rotation of the coffin bone
- Laminitis refers to symptoms that are sudden

Laminitis/Founder

- ▶ Nutritional Causes:
 - ▶ Excessive intake of lush grass
 - ▶ Highly molasses covered feed
 - ▶ Frost damaged forages have more sugar
- ▶ Obesity
 - ▶ How should we feed?
 - ▶ Feed a low sugar, low starch, high fiber diet
- ▶ Treatment:
 - ▶ Farrier work/Pour-in Pads
 - ▶ Medication
 - ▶ Changing diet
 - ▶ Wait a week before grazing frost killed pastures
- ▶ They can recover from it but it all depends on when you catch it!



Colic

- ▶ Feed causes:
 - ▶ High grain based/low forage diets
 - ▶ Moldy feed
 - ▶ Abrupt change in feed
 - ▶ Lack of water
- ▶ Signs:
 - ▶ Pawing/Rolling/ Sweating/ Nipping at Sides
- ▶ Treatment:
 - ▶ Call the Vet and Keep Them Moving
 - ▶ Vet will usually tube stomach and give medications
- ▶ Prevention:
 - ▶ No sudden feed changes
 - ▶ Keep feed free of mold and dust
 - ▶ Keep diet 50% as forage



Types of Hay

- ▶ Legumes vs. Grasses:
 - ▶ Example of both?
- ▶ Common types of hay:
 - ▶ Alfalfa, Timothy, Smooth Brome, Orchard Grass
- ▶ What do you look for when judging bales?
 - ▶ Mold/dust
 - ▶ Leaf amount
 - ▶ Smell/Color



Hay Activity!

- ▶ Get with your group and go through the stations
- ▶ List some of the characteristics you notice about each station
- ▶ Big seed head or little?
- ▶ Does the hay in the bucket break easy?
- ▶ Write your observations and what you think it is on your fact sheet!





Station 1

Sorghum/Sudan Grass



Station 2

Alfalfa



Station 3

Smooth Brome Grass

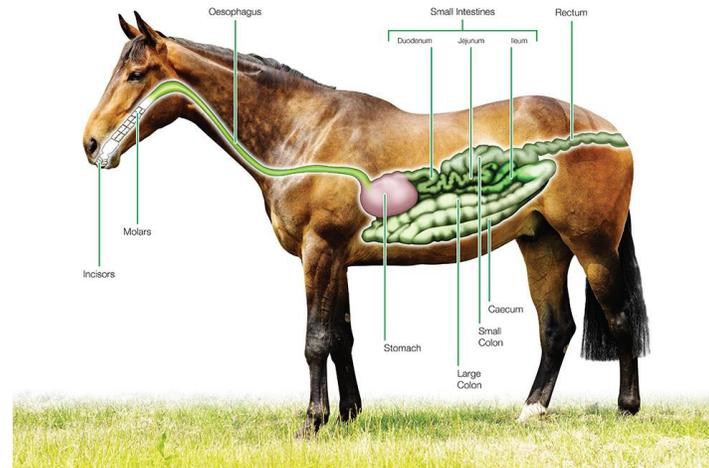
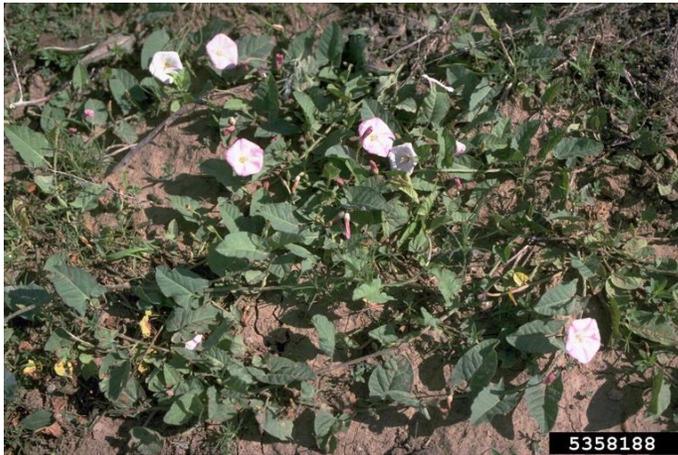


Poisonous Plants

- Should horses be allowed to eat everything they come in contact with?
- How do wild horses survive?
- Can any type of organism on this planet eat whatever it wants without consequences?



Negative Feedback Loop



Time to ID!

- ▶ Get with your teams and go around the 3 stations again
- ▶ Smell and touch the plants to try and ID them
- ▶ Give an answer as to what issues you think they may cause for horses



Station 1

- ▶ Describe it to me
- ▶ Guesses?
- ▶ What did you notice about it?



Station 1: Answer

Mint

- ▶ Peppermint & Spearmint are ok but stay away from Perilla Mint (Beefsteak Mint)
- ▶ Green leaves with purple leaf edges
- ▶ Signs of distress: Labored breathing and high temperature



Station 2:

- ▶ Describe what you noticed
- ▶ What issues do you think this plant can cause for horses?



Station 2: Answer

Devil's Ivy/Pothos

- ▶ Vining plant with heart shaped leaves, large and waxy leaves
- ▶ Symptoms: mouth irritation, excessive drooling and difficulty swallowing



Station 3

- ▶ Describe it!
- ▶ Symptom ideas



Station 3: Answer

Coleus (Defiance Plants)

- ▶ Issues: Diarrhea, Anorexia
- ▶ Usually ornamental plants but can be deadly if eaten



How to Protect Horses from Poisonous Plants

▶ 3 Main Steps

1. ID
2. Control
3. Observe

▶ If you are unsure about a plant ask someone who can ID it or have your area scouted

▶ Online sources & Extension help



Jeopardy!

Types of Grains	Types of Hay	Nutrition Illness	Poisonous Plants	Reading a Label
<u>20 Points</u>	<u>20 Points</u>	<u>20 Points</u>	<u>20 Points</u>	<u>20 Points</u>
<u>40 Points</u>	<u>40 Points</u>	<u>40 Points</u>	<u>40 Points</u>	<u>40 Points</u>
<u>60 Points</u>	<u>60 Points</u>	<u>60 Points</u>	<u>60 Points</u>	<u>60 Points</u>
<u>80 Points</u>	<u>80 Points</u>	<u>80 Points</u>	<u>80 Points</u>	<u>80 Points</u>

Reading a Label 80 Points

What are two examples of vitamins on a feed label?

Answer

Answer

Vitamin A

Vitamin D

Vitamin E



Reading a Label

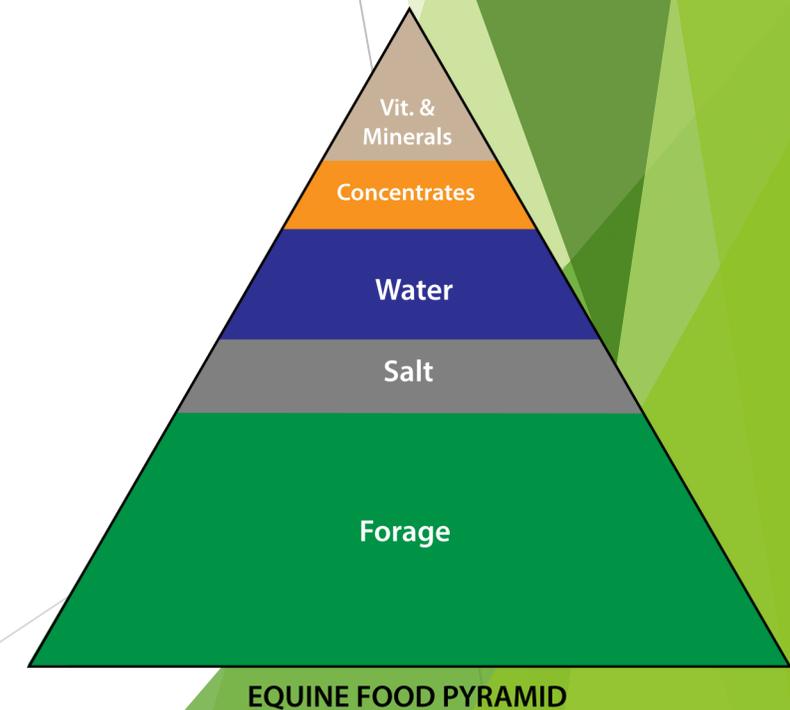
60 Points

What section of the food pyramid for horses did the egg match up to?

Answer

Answer

The water & salt area
Something that should be eaten moderately



Reading a Label 40 Points

What does lysine help build?

Answer

Answer

Muscles



Reading a Label 20 Points

What is crude protein?

Answer

Answer

**Amount of energy in the feed
Measures nitrogen not protein**



Nutrition Illness 80 Points

True or False:

Peppermint is a poisonous plant to horses

Answer

Answer

False!

Beefsteak mint is poisonous but peppermint is not due to the different ketones expressed



Poisonous Plants

60 Points

What symptoms are connected to eating the Devil's Ivy/
Pothos plant?

Answer

Answer

Mouth Irritation
Excessive Drooling
Difficulty Swallowing



Poisonous Plants

40 Points

What are three steps you can take to protect your horse from poisonous plants?

Answer

Answer

1. Plant ID
2. Plant Control
3. Observation of your horse



Poisonous Plants

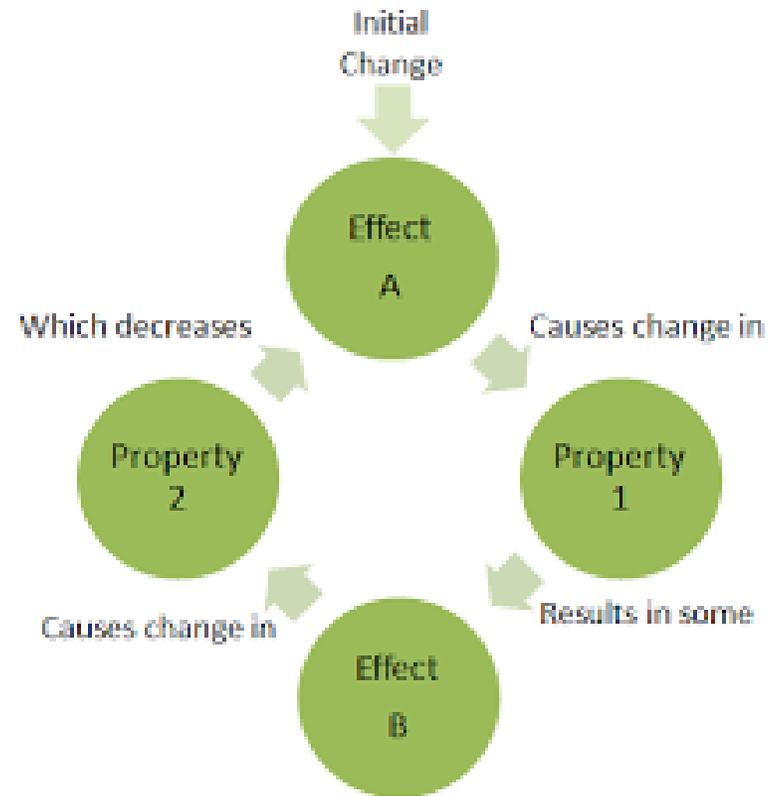
20 Points

What mechanism stops wild horses from eating poisonous plants?

Answer

Answer

Negative Feedback Loop



Nutrition Illness

80 points

What are 3 main areas to judge BCS or Body Condition Score?

Answer

Answer

Neck

Ribs/Back

Tail-Head



Nutrition Illness 60 Points

What can cause colic?

Answer

Answer

Moldy Feed
Abrupt Change in Feed
High Grain & Low Forage Diet



Nutrition Illness 40 Points

What is one major cause of laminitis?

Answer

Answer

Lush Pastures/ To Much Sugar



Nutrition Illness 20 Points

What happens in a horses foot when they get laminitis?

Answer

Answer

The coffin bone rotates forward and detaches from the hoof wall



Types of Hay 80 Points

What type of hay is usually the highest in energy?

Answer

Answer

Alfa



Types of Hay 60 Points

Out of the 3 types of hay from today which one has the biggest seed head?

Answer

Answer

Orchard Grass



Types of Hay 40 Points

What is one major factor to look for when judging hay quality?

Answer

Answer

Mold/Dust



Types of Hay 20 Points

What type of hay is alfalfa?

Answer

Answer

Legume



Types of Grains

80 Points

How much of your horse's diet should be grain?

Answer

Answer

Very little unless have specific diet needs



Types of Grains 60 Points

What type of grain needs to be soaked prior to feeding?

Answer

Answer

Beet Pulp/Expanding Feeds



Types of Grains

20 Points

What makes a grain smell sweet?

Answer

Answer

Molasses



Types of Grain

40 Points

What type of grain is in cubed/shredded or pelleted form?

Answer

Answer

Hay/Forage





Survey & Questions

- ▶ Do the after portion of the survey
- ▶ Any questions or comments you would like to say before we end tonight?

Picture Sources

- ▶ Fat horse source: <https://www.meme-arsenal.com/en/create/template/31727>
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