

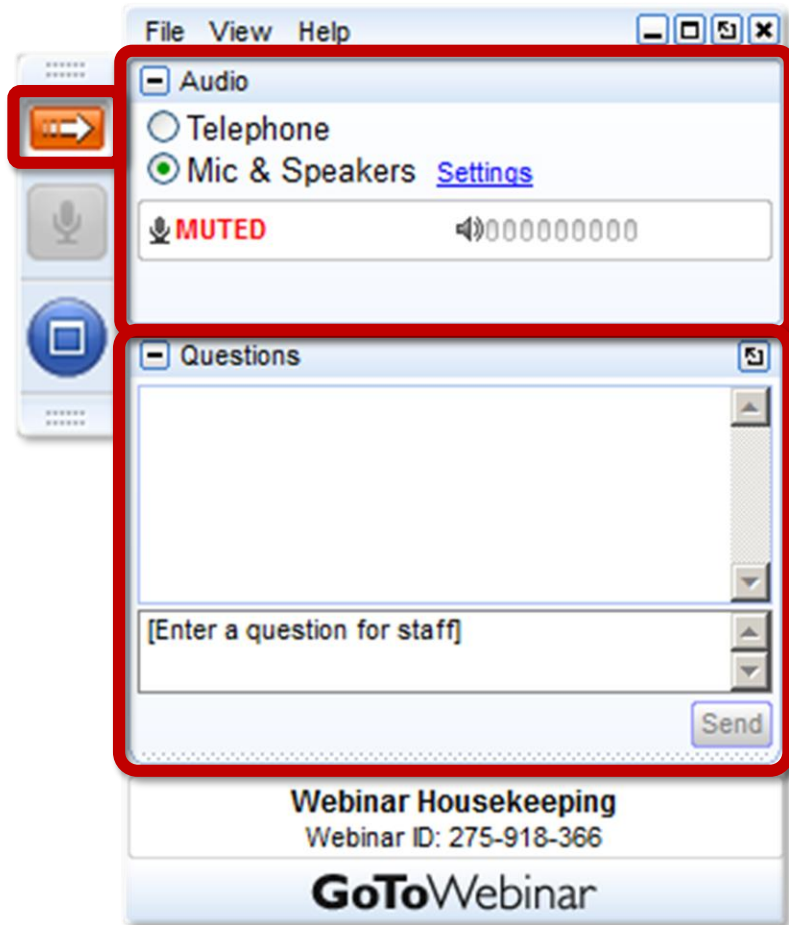
# Should I Be Concerned About Feeding Alfalfa?

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## Facts and Misconceptions



“Nutrition is the key to success”



## Your Participation

Open and close your control panel

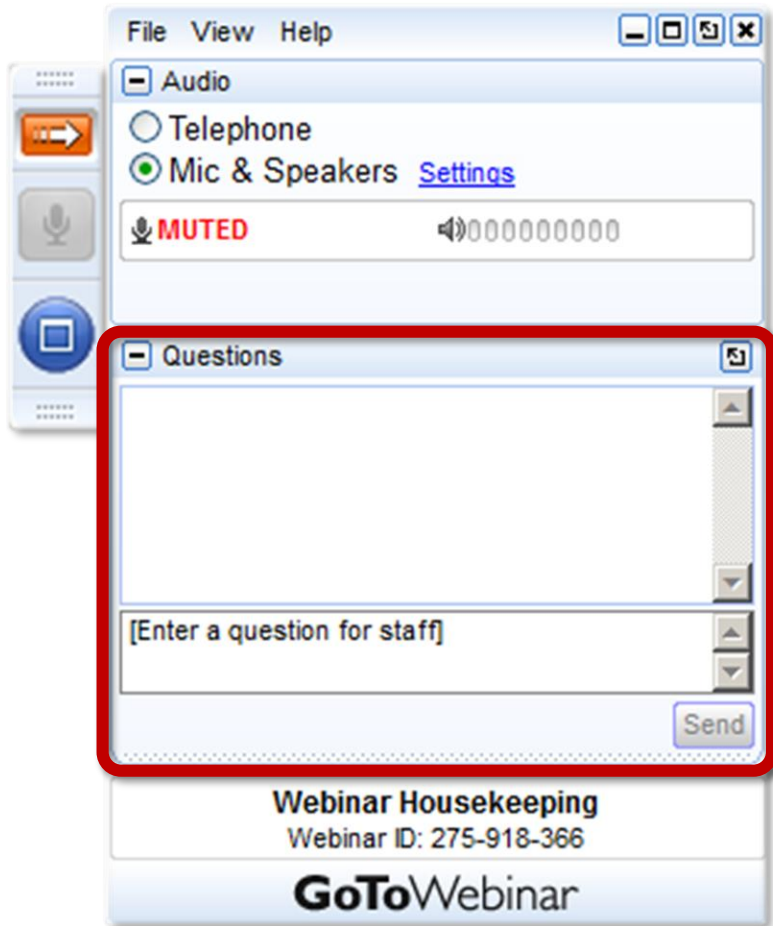
Join audio:

- Choose **Mic & Speakers** to use VoIP
- Choose **Telephone** and dial using the information provided

Submit questions and comments via the Questions panel

**Note:** Today's presentation is being recorded and will be provided within 48 hours.

“Nutrition is the key to success”



## Your Participation

- Please continue to submit your text questions and comments using the Questions panel

For more information, please contact [kstarr@standleeforage.com](mailto:kstarr@standleeforage.com).

**Note:** Today's presentation is being recorded and will be provided within 48 hours.

# Should I Be Concerned About Feeding Alfalfa? – Facts and Misconceptions

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DR TANIA CUBITT  
PERFORMANCE HORSE NUTRITION



# OUTLINE

“Nutrition is the key to success”

- History
- Facts
- Benefits
- Myths
- Diets
- Questions





# ALFALFA HISTORY



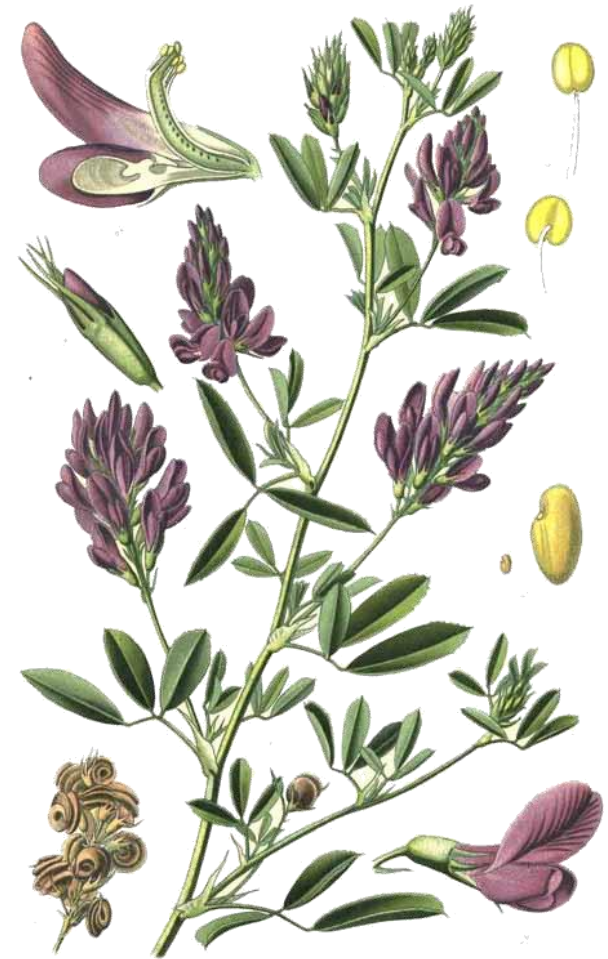
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PREMIUM WESTERN FORAGE®

# HISTORY

“Nutrition is the key to success”

- Medicago sativa
- Introduced into US 1736
- Oldest cultivated forage crop
- Rich in protein, vitamins, and minerals
- Very high yield
- Consumers
  - Dairy = 60%
  - Meat Animals = 25%
  - Horses = 15%



Pl. 75. Luzerne cultivée. Medicago sativa L.

# ALFALFA FACTS



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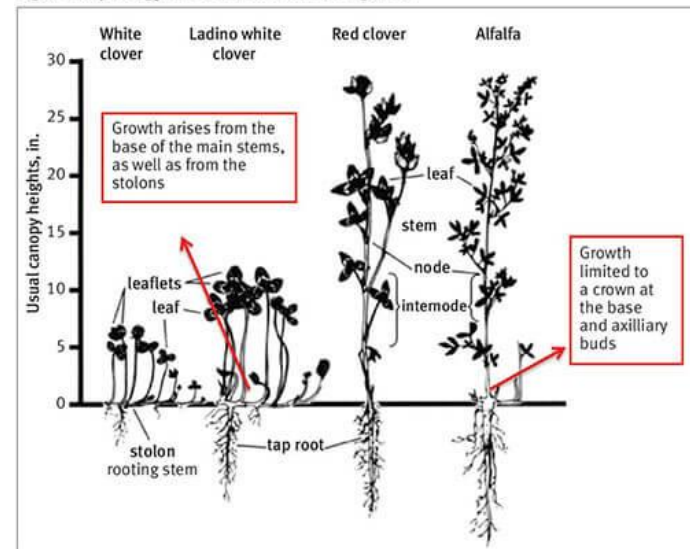


# BIOLOGY

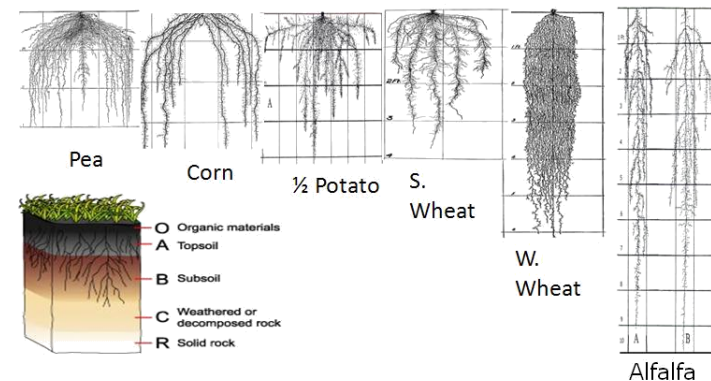
“Nutrition is the key to success”

- Alfalfa is a legume
- Grow about 3 ft high & compound leaves
- Stems grow from buds on crown (base)
- Alfalfa roots 25-30 ft or more under favorable conditions

Fig. 1: Morphology of several cool-season legumes



Relative rooting depth of some crop plants



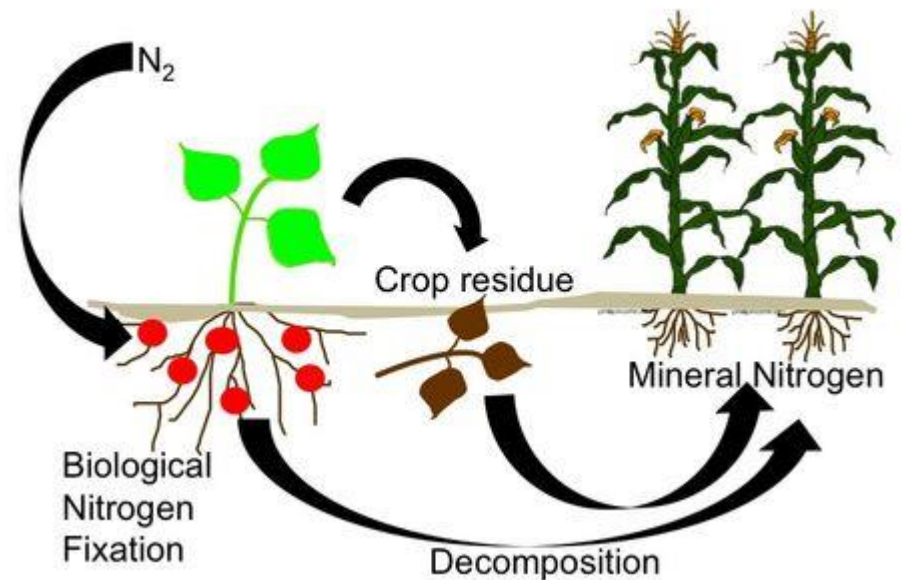
# ENVIRONMENTAL BENEFITS

“Nutrition is the key to success”

- Beneficial insects
- Attracts wildlife
- Nitrogen fixation
- Alfalfa replaces high N-requiring crops
- Alfalfa provides N to a subsequent crop
- Improves soil tilth



Legume based cropping system



# ALFALFA

“Nutrition is the key to success”

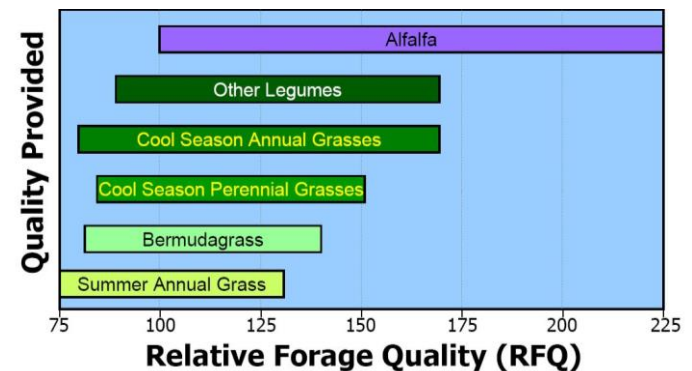
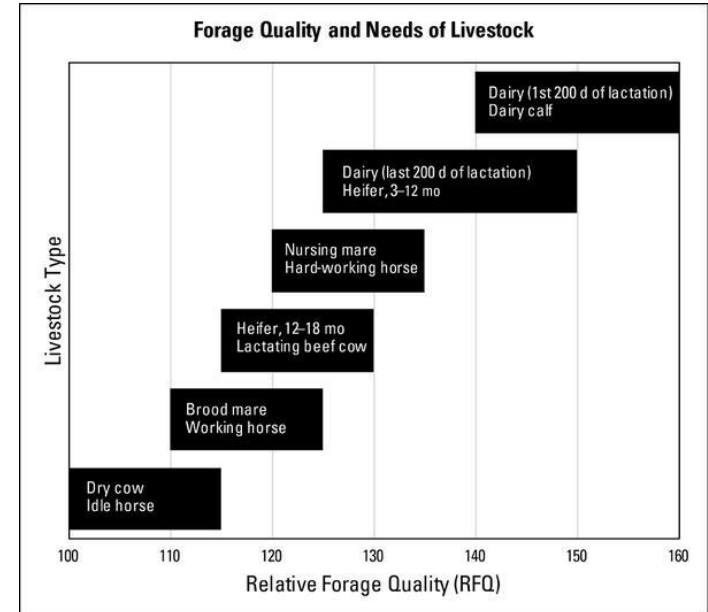
- Typical Alfalfa Forage
  - High Protein
  - High Energy
  - High Ca
  - Moderate P
  - Moderate Fiber
  - Low Starch
  - Low WSC
  - Low ESC
  - High RFV/RFQ



# VARIABLES

“Nutrition is the key to success”

- Relative Feed Value (RFV)
  - Index for ranking forages based on digestibility and intake potential
  - The higher the RFV, the better the quality
  - Primarily used for Alfalfa
  - Relative feed quality (RFQ) very similar, but an updated concept to (RFV)
  - NOT USED FOR HORSES







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**Where growing forage  
is a science**



# ALFALFA BENEFITS



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# POLL QUESTION

“Nutrition is the key to success”

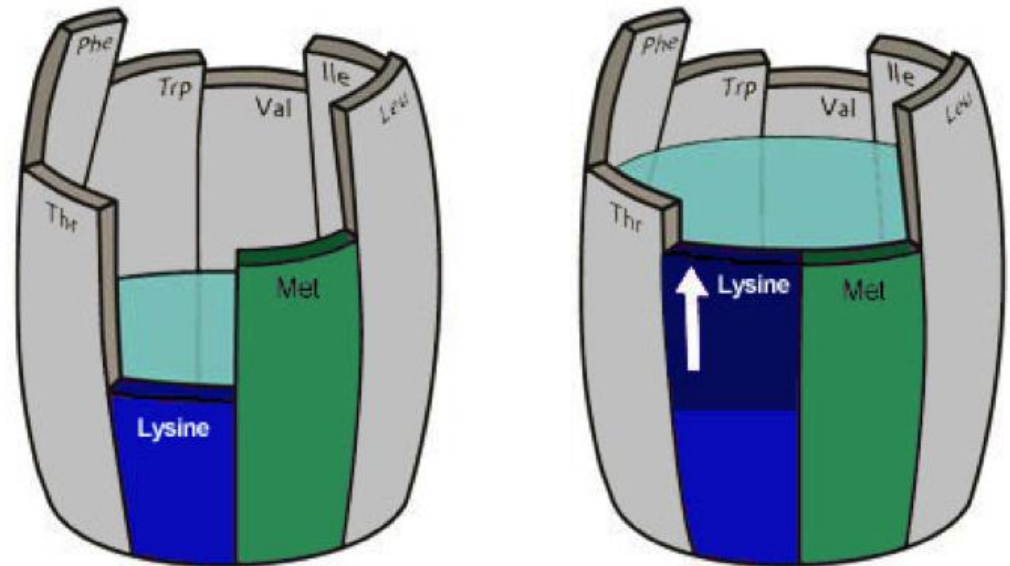




# NUTRIENTS

“Nutrition is the key to success”

- Calories
- Protein
  - Essential amino acid lysine
    - Single most important amino acid for growing horses and broodmares

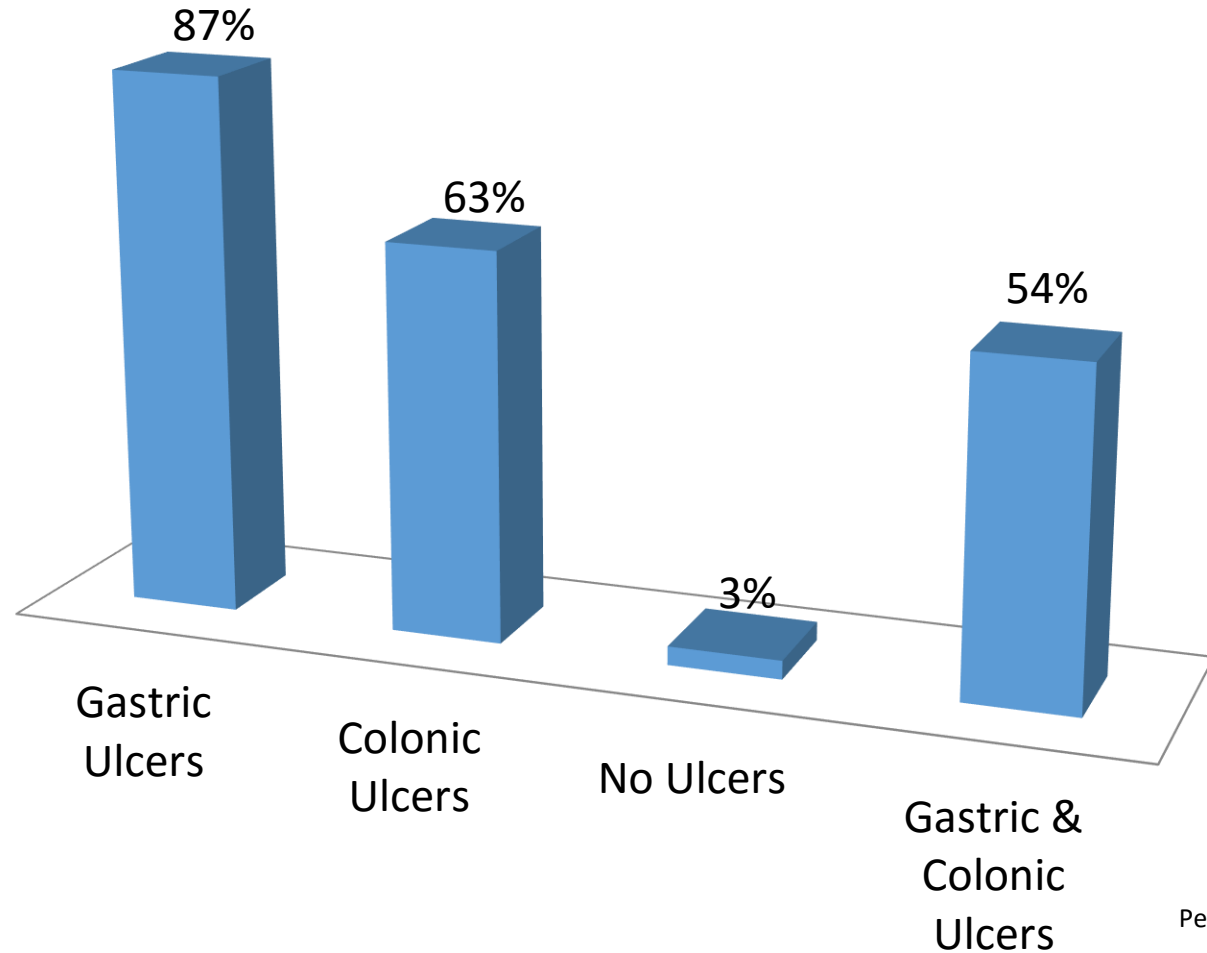




# ULCERS – PERFORMANCE HORSES



“Nutrition is the key to success”



Pellegrini, 2005

# CAUSES OF GASTRIC ULCERS

“Nutrition is the key to success”

- Fasting
- Meal feeding
- High grain diet
- Low roughage diet
- Stress
  - Transport
  - Stabling
  - Intense Exercise
- Long term use of NSAID's



# GASTRIC ULCERS - SYMPTOMS

“Nutrition is the key to success”

- Acute or recurrent colic
- Poor appetite or ‘picky eating’
- Weight loss
- Hair coat changes or poor coat condition
- Chronic diarrhea
- Poor performance
- Behavioral changes (including aggressive or nervous disposition)
- Teeth grinding/jaw clenching
- Pain/distress on tightening girth



# SOLUTIONS - ALFALFA

“Nutrition is the key to success”

- Alfalfa hay
- Research Texas A&M University, USA, (Lybbert et al., 2007)
- Alfalfa was a natural buffer to acidity in the stomach (Calcium)
- Feeding alfalfa was more effective at reducing the incidence of gastric ulcers than Bermuda grass hay
- Preferably provide alfalfa at regular 5 – 6 hour intervals (Nadeau 2000)
- Saliva production that results from chewing also serves to buffer stomach acid and stomach contents for horses that have free choice access to forage throughout the day





# **ALFALFA MYTHS**

- 1. Is it high in carbs?**
- 2. Will it make my horse hot, too much energy?**
- 3. Will it cause growth issues for my young horse?**
- 4. Does it cause bloat/colic?**
- 5. Does it cause kidney damage?**
- 6. Will it make my horse cough?**



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# POLL QUESTION

“Nutrition is the key to success”



## Is it high in carbs?

# NSC IN FORAGES AND FEEDS

“Nutrition is the key to success”

## Starches

Cereal Grains

Legumes

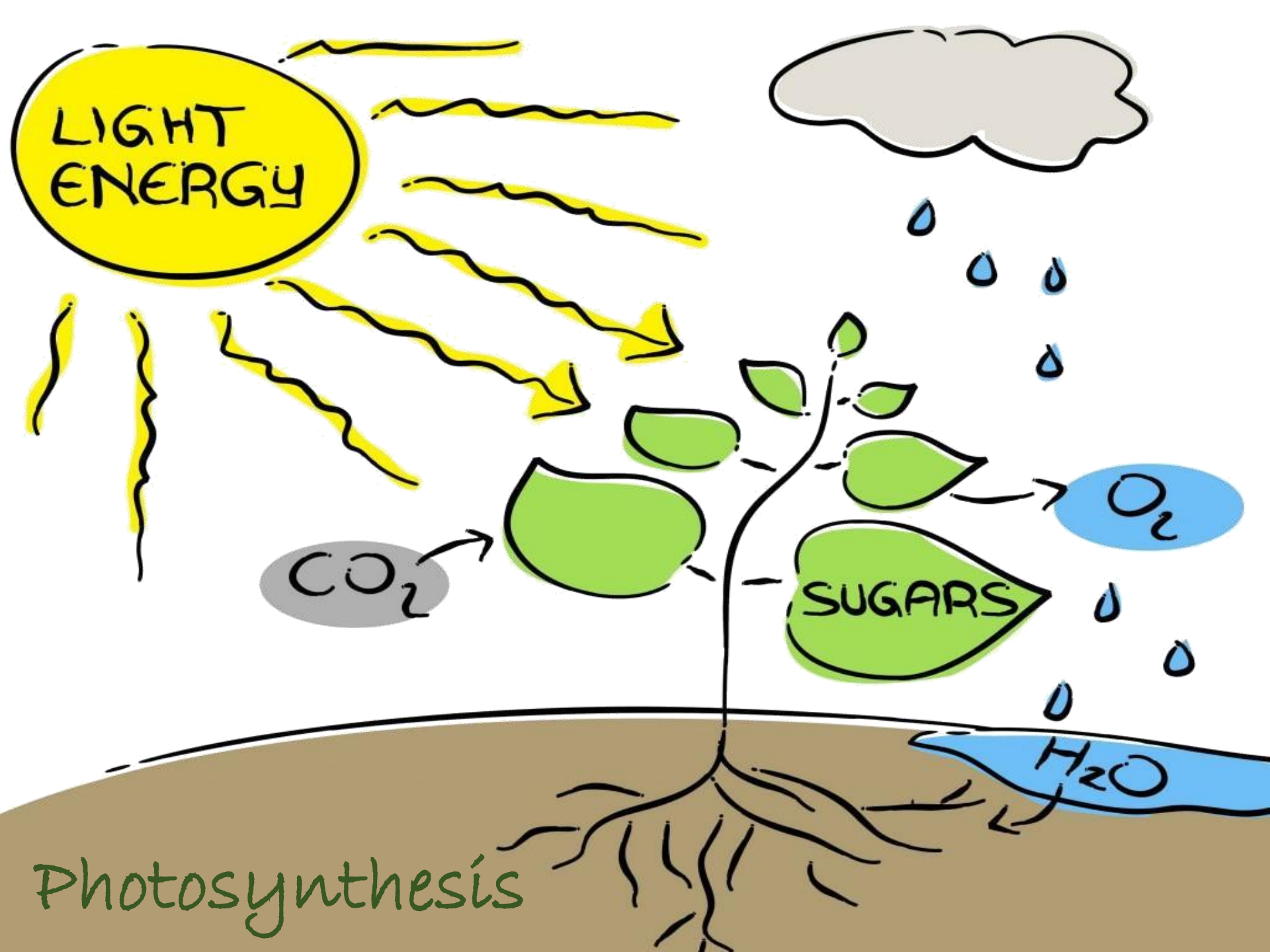


## Sugars and Fructan

Cool Season Grasses







LIGHT  
ENERGY

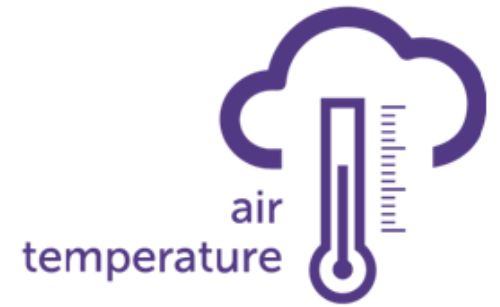
CO<sub>2</sub>

O<sub>2</sub>

SUGARS

H<sub>2</sub>O

Photosynthesis



# Plant Growth

Photosynthesis

+

Slow Growth

=

NSC



Concentration

Photosynthesis

+

Fast Growth

=

NSC



Concentration





# HAY & PASTURE NSC



“Nutrition is the key to success”

Forage Type	Avg. NSC (% DM)	Low NCS (%DM)	High NSC (%DM)
Grass Hay	13.1	8.2	18.0
Alfalfa Hay	11.1	8.8	13.4
Grass Pasture	12.8	7.1	18.0

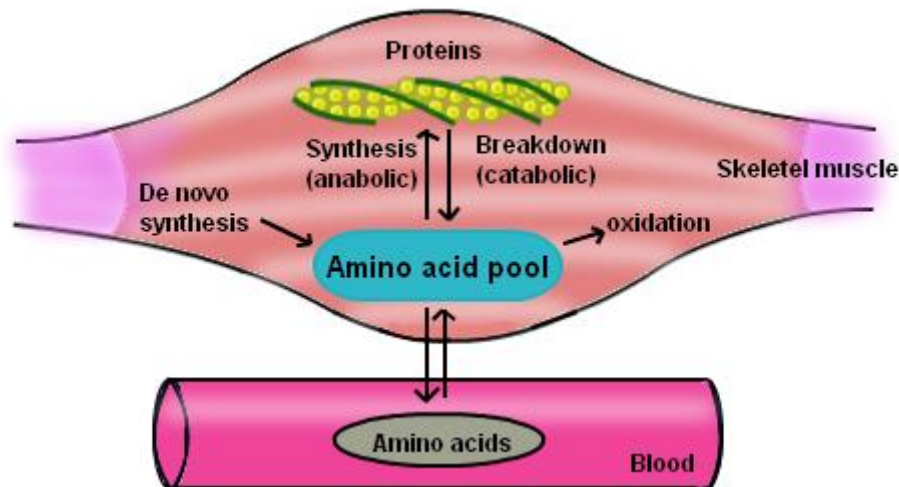


Will alfalfa make my horse hot, too much energy, fizzy behavior?

# MYTHS

“Nutrition is the key to success”

- Alfalfa does provide a significant amount of calories, however, excess calories in any form, whether from alfalfa, grain or oil, without the exercise to burn them, can result in an excessively energetic horse.
- Protein is not an efficient energy source. When given a choice, the body would rather use other nutrients for energy such as carbohydrates and fats. In an energy-deficient diet, the body will breakdown muscle tissue to use the protein for energy to fuel the body.

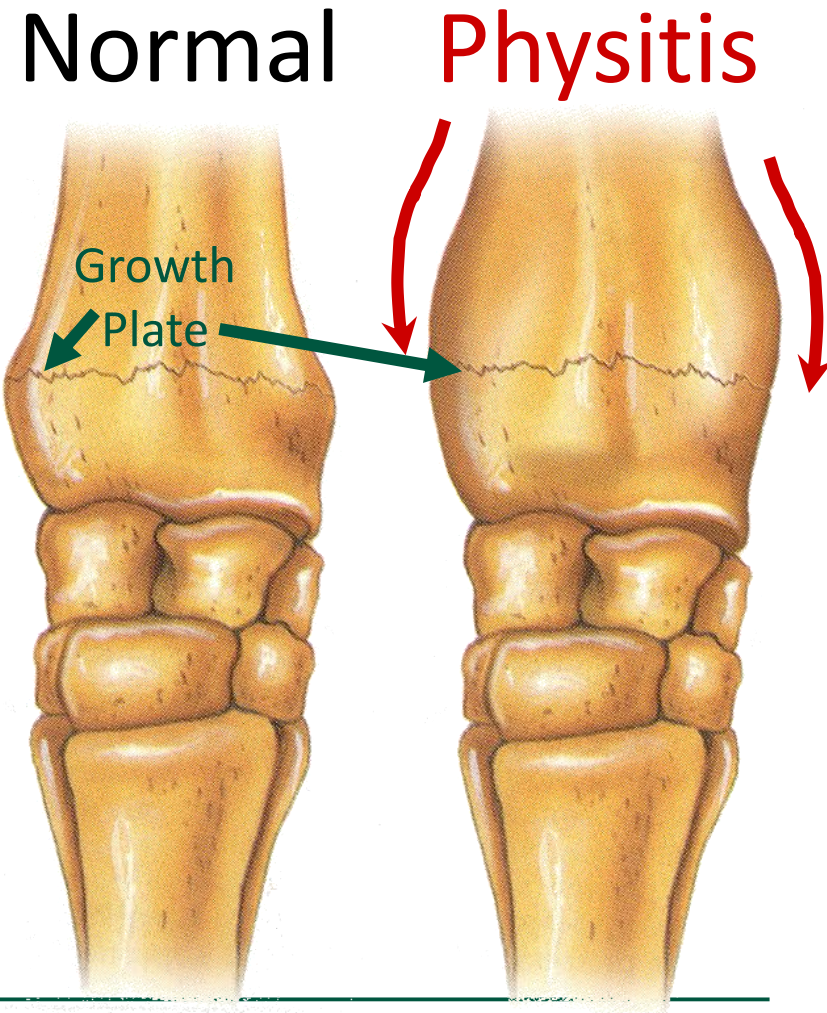


## Will alfalfa cause growth issues for my young horse?

# MYTHS

“Nutrition is the key to success”

- Excess protein
  - Often implicated, but not supported by research
  - A high protein diet does NOT make foal grow faster than a diet that just meets NRC minimum protein requirements
  - No effect of increasing protein on the incidence of DOD (Schryver et al., 1987; Savage et al., 1993a)
- Low protein (quality)
  - Impairs growth; could lead to DOD
  - Protein component of bone & cartilage





## Does it cause bloat or colic?

# MYTHS

“Nutrition is the key to success”

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- Rapid diet changes are associated with colic, so it's possible that if you change from grass hay to alfalfa hay all of a sudden, or you introduce alfalfa hay abruptly, you could increase the risk of colic.
- Alfalfa can cause bloat in cattle due to the layout of their intestinal tract. In cattle, micro-organisms in their rumen, or paunch, produce gas as they digest forages. Horses, on the other hand, don't have the same intestinal layout, so it doesn't cause bloat.

# Does it cause kidney damage?

# MYTHS

“Nutrition is the key to success”

- Normal, healthy horses can metabolize and excrete the extra protein in alfalfa hay without damaging their kidneys. However, horses consuming high-protein diets may drink more water and produce more urine as a part of the normal excretion process.





# Will it make my horse cough?

# MYTHS

“Nutrition is the key to success”

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- Some horses tend to cough more when fed alfalfa, but this is due to irritants such as dust and mold rather than the alfalfa itself. Alfalfa can be dustier than grass hay when moisture conditions at baling are less-than-ideal. Alfalfa leaves also tend to shatter when too dry, creating more dust particles.
- Standlee® has strict protocols for cutting alfalfa to avoid leaf shatter and their products are exceptionally clean.
- Mold on any hay, grass or alfalfa will be a respiratory irritant to horses.

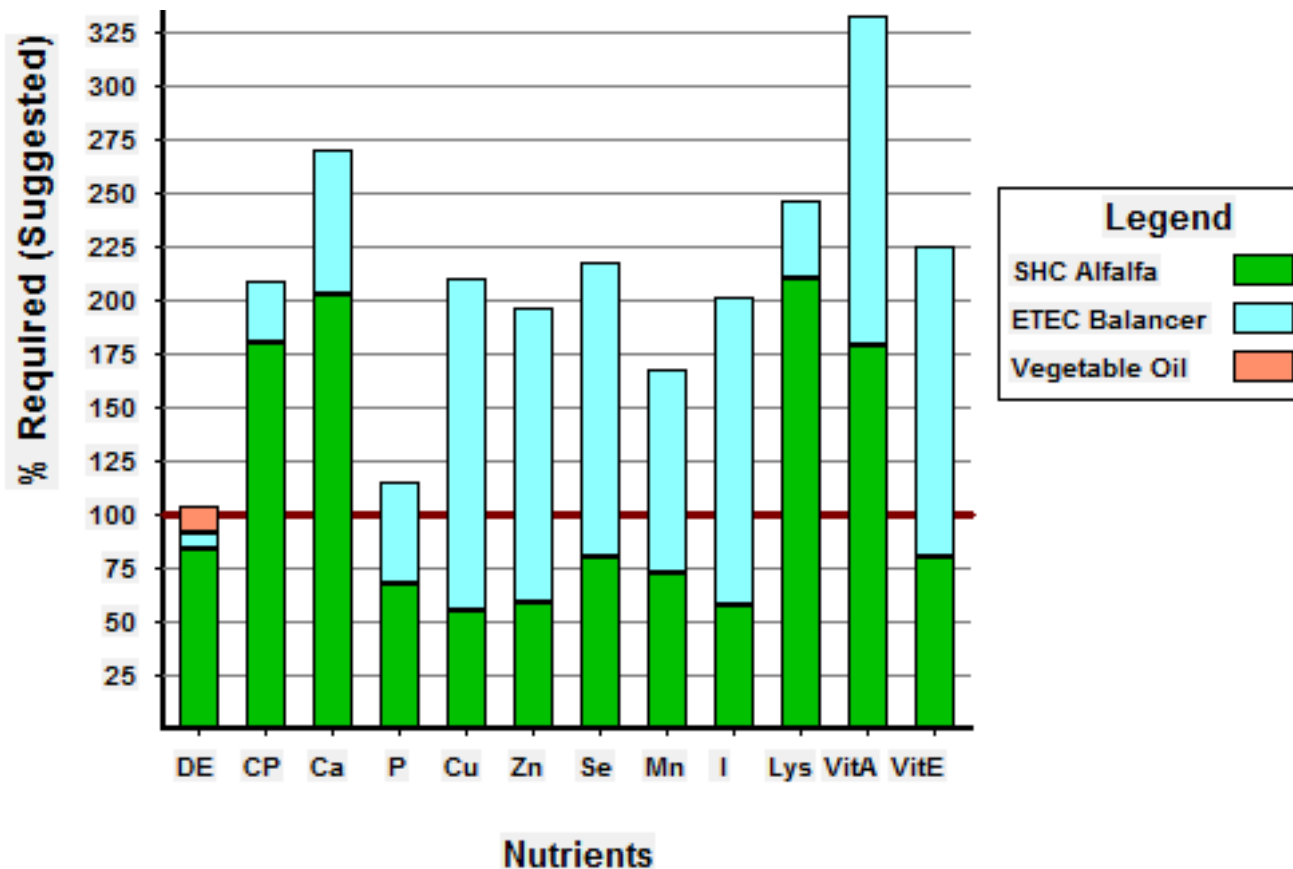
# ALFALFA DIET



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# SAMPLE DIET

“Nutrition is the key to success”



## Standardbred

Body Weight 1100lbs

Intense Exercise –  
exercise done at high  
speed

Premium Alfalfa (DE  
1.3Mcal/lb; 18% CP) –  
22lbs

ETEC Balancer - 2.5lbs

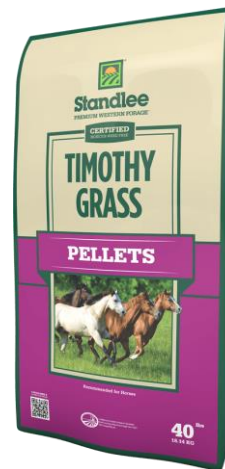
2 cups Vegetable Oil

~200g total starch

# WHEN NOT TO USE ALFALFA

“Nutrition is the key to success”

- Obesity
  - Too many calories
  - Try Timothy Grass
- Hyperkalemic Periodic Paralysis (HYPP)
  - Genetic condition where horses need a low potassium diet
  - Try Timothy Grass products

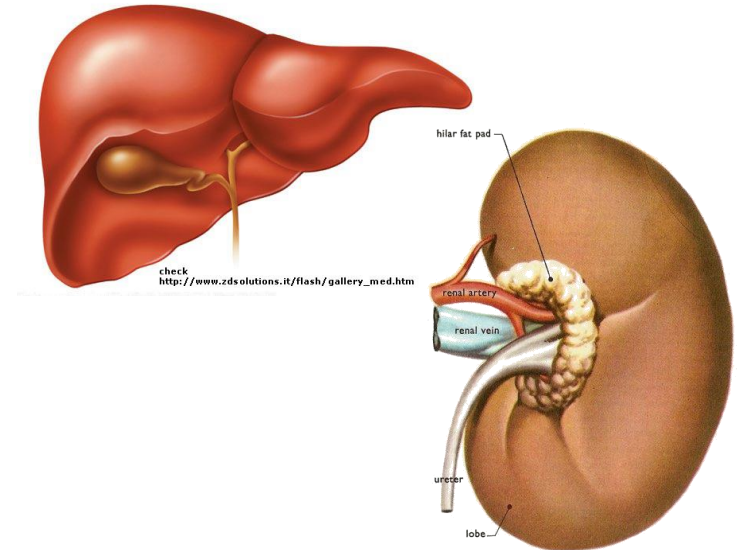




# WHEN NOT TO USE ALFALFA

“Nutrition is the key to success”

- Kidney dysfunction
  - Need low protein
  - Try Orchard Grass or Timothy Grass products
- Liver dysfunction
  - Too many aromatic amino acids
  - Try Orchard Grass, Timothy Grass products or Beet Pulp



**QUESTIONS?**



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# Thank you for joining us!

**For follow-up questions, please contact our customer relations:**

1-800-398-0819

[customerservice@standleeforage.com](mailto:customerservice@standleeforage.com)

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