

# 2009 Hay Production School

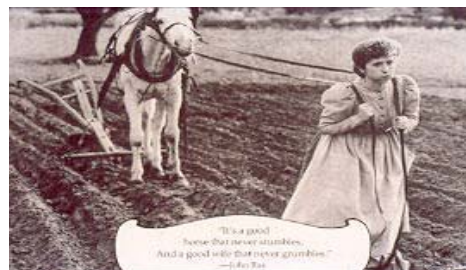
## Meeting the Requirements of the Horse Hay Market



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Dr. Gary Heusner

### PERCEPTION IS TRUTH, FACT IS IRRELEVANT



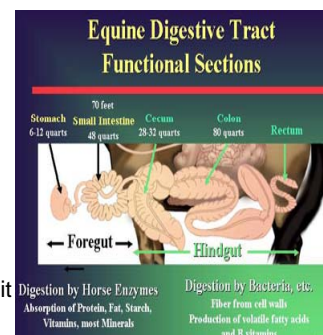
It's a good horse that never stumbles and a good wife who never grumbles.

### FACT

- What is the best quality hay for horses?
  1. Does the best job of meeting a horse's nutrient requirements (especially DE), for the least cost, and it is acceptable to the horse (maximal intake). Other parameters leafiness, texture, weeds, odor, dustiness.
  2. What is the standard?
    - Alfalfa?
    - Timothy?
    - Pasture grass?

### FACT

- NON RUMINANT HERBIVORE
  1. Gastrointestinal function
  2. Behavior
- Supplementation to forage based on forage quality and amount consumed.
- Most energy per unit cost



### Hay supplementation considerations

- How much hay is needed?
  1. Minimum of 1% in dry matter or hay as fed? Not less than 50% of total diet?
  2. Minimum of 24% NDF (13% Crude fiber) or 14% ADF?

### Forage Intake

CLASS OF HORSE	DAILY FEED INTAKE (% OF BODY WEIGHT)	RELATIVE FORAGE QUALITY (RFQ)
Maintenance	1.5-2.0%	75 or greater
Gestating mare	1.5-2.0%	80 or greater
Lactation	2.0-3.0%	90 or greater
Growing (weanlings)	2.25- 3.25%	100 or greater
Work (performing)	1.75- 3.25%	100 or greater
Stallions (non breeding)	1.5-2.0%	75 or greater
Stallions breeding	1.75-2.5%	80 or greater



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Feed and Forage Analysis Report		
<p>THE UNIVERSITY OF GEORGIA COOPERATIVE EXTENSION Feed and Environmental Water Laboratory 2300 College Station Road Athens, Georgia 30602-4356 Web site: <a href="http://feed.ars.usgs.edu">http://feed.ars.usgs.edu</a></p>		
Client Information	Lab Information	Contact
ADIS- Dr. Gary Heusner Rhodes Center	Lab: 4795 Completed: 07/02/2008 Printed: 07/02/2008	Feed and Environmental Water Lab 2300 College Station Road Athens, GA 30602 ph: 706/542-7089 e-mail: <a href="mailto:soiltest@uga.edu">soiltest@uga.edu</a>
Sample: 1 Agent:	Variety: T18 44	Relative Forage Quality (RFQ): 115.5
Crop: BERMUDAGRASS	Use: Hay	Ration Formulation: No
Species: HORSES	Class/Weight: MEDIUM WORK	
Near Infrared Reflectance (NIR) Analysis		
	As-Sampled	Dry-Matter
Crude Protein	8.9 %	9.6 %
Crude Fiber (Estimated)	27.9 %	30.2 %
Neutral Detergent Fiber	41.2 %	46.1 %
Acid Detergent Fiber	32.68 %	35.40 %
Lignin	4.62 %	5.00 %
Total Digestible Nutrients	35.8 %	38.8 %
Digestible Energy	499 KC/LB	523 KC/LB
	95.0	99.4
Moisture	7.7 %	0 %
Dry Matter	92.3 %	100 %

Mineral Analysis (by wet chemistry)					
	As-Sampled	Dry-Matter		As-Sampled	Dry-Matter
Phosphorus	24 %	26 %	Total Fat	%	%
Potassium	1.57 %	1.70 %	Nitrates	825 PPM	894 PPM
Calcium	30 %	32 %	Ash	%	%
Magnesium	21 %	23 %	Sulfur	%	%
Manganese	48 PPM	53 PPM	Bound Protein (NIR)	%	%
Iron	82 PPM	89 PPM	pH		
Aluminum	38 PPM	42 PPM	Total Aflatoxin	ppb	
Copper	9 PPM	10 PPM			
Zinc	48 PPM	52 PPM			
Sodium	445 PPM	483 PPM			
Calcium:Phosphorus Ratio	1.23				

Approximate digestible energy values of hays for horses

HAY	CRUDE PROT. %	NDF %	CRUDE FIBER %	DIGEST. ENERGY MCAL/LB	DIGEST ENERGY KCAL/LB
Alfalfa	>20	< 30	< 23	1.2	1200
Alfalfa	16-18	30-47	24-28	1.1	1100
Alfalfa	< 15	>47	>28	1.0	1000
Bermudagrass	> 12	< 65	< 30	0.9	900
Bermudagrass	8-12	66-72	31-35	0.8	800
Bermudagrass	< 7	>72	>35	0.7	700
Fescue	>12	< 65	< 26	0.95	950
Fescue	7-12	66-70	27-30	0.83	830
Fescue	< 7	>70	>30	0.75	750
Orchardgrass	>12	< 60	< 26	0.99	990
Orchardgrass	7-12	60-65	26-30	0.85	850
Orchardgrass	< 7	>65	>30	0.75	750


### Energy per unit cost

- Bermudagrass bale weighing 45 pounds for \$6.00 with 800KC/LB (.8 Mcal/LB) = 45 X .8= 36 Mcals. \$6.00/36= \$.167/Mcal
- Alfalfa bale weighing 55 pounds how much is it worth containing 1000 KC/LB (1.0Mcal/LB)? Bale contains 55 Mcal X \$.167/Mcal= \$9.19

### PERCEPTION

- Color
- Odor
- Softness
- Stem & leaf widths & amounts
- Foreign material

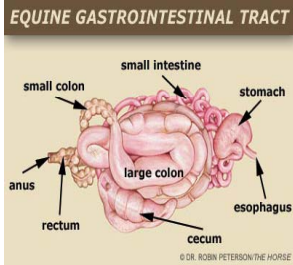
\*\*never question stage of harvest



### PERCEPTION

- Coastal hay causes impaction colics.

- Usually poor quality
- Water intake
- Sudden changes in feeding or hay varieties



Dr. Gary Heusner  
Extension Equine Specialist

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Average sugar, starch, and non-structural CHOs

FEEDSTUFF	SUGAR	STARCH	NSC
Oat hay	16.0%	6.3%	22.3%
Alfalfa hay	8.9%	2.5%	11.4%
Bermudagrass hay	7.5%	6.1%	13.6%
Grass hay	11.1%	2.9%	13.8%
Beet pulp	10.7%	1.4%	12.1%
Oats	6.3%	44.4%	50.7%
Corn	3.7%	70.3%	74.0%
Wheat middlings	10.1%	26.2%	36.3%
Soybean meal	14.3%	2.1%	16.4%

### Conclusions

- What is ideal hay?
  1. class of horse
  2. provides most nutrients, especially DE at least cost.
  3. must be acceptable to horse for maximal intake.
- How much should be fed?
- Consider bale size.

### HELP

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