Interpreting Horse Hay Analysis

Normal Ranges and Comments

DM – dry matter; normal range 90 - 93%, min 87% recommended

CP – crude protein; normal ranges
Alfalfa : 14-24%
Grass: 5 -15%

ADF – acid detergent fiber: an estimate of the poorly digestible fiber portion Includes cellulose and lignin

- if ADF is in the low 20's, may be insufficient indigestible fiber (bulk) for hindgut health
- 27-35% normal for alfalfa
- 34-44% normal for grass (higher ranges in grass hay may increase risk of digestive disturbances)
- < 31% alfalfa or <35% grass = good; > 45 poor

NDF – neutral detergent fiber: includes indigestible fiber (lignin) and fermentable fibers (hemicellulose and cellulose)

- 33-44% normal for alfalfa
- 57-70% normal for grass
- > 65, voluntary consumption likely to decline

Note: As NDF and ADF increase, digestibility, palatability and voluntary intake will decrease.

RFV – relative feeding value (a calculated value based on ADF and NDF analysis)

- higher value indicates higher digestibility and expected lower amount of concentrate needed
- > 151 is prime
- 132-181 normal range for alfalfa
- 71-101 normal range for grass

Minerals – average values and normal ranges

	Alfalfa	Grass	Comments
Calcium, % (range)	1.5 (0 – 3.9)	0.49 (0.27- 0.72)	
Phosphorus, % (range)	0.27 (0.22 - 0.32)	0.24 (0.15 - 0.33)	Some fertilization strategies can result in higher phosphorus than calcium
Copper, ppm (range)	9 (3.9 – 14)	9 (0 – 17.4)	Min daily requirement is 10 ppm for most classes of horses
Zinc, ppm (range)	27 (0 – 885)	31 (0 – 1160)	Min daily requirement is 40 ppm for most classes of horses
Potassium, % (range)	2.3 (1.8 – 2.9)	1.8 (1.2-2.5)	For HYPP horses, recommended 0.6-1.1% in total diet, soaking hay will reduce by variable amounts

Soluble Carbohydrates - normal ranges

	Alfalfa	Grass	
Starch, %	0.72 - 2.6	0.36 - 3.2	
WSC, %	7.2 – 11.1	6.9 – 16.1	Includes sugars and all fructans
ESC, %	5.5 – 8.5	4.6 – 9.6	Includes sugars and short-chain fructans

Reference: Equi-Anayltical Laboratories database; accumulated crop years 05/01/200 – 04/30/2016
www.equi-analytical.com

Notes: Soaking hay, 30 min in hot water or 60 min in tepid water, will reduce nutrients including some minerals, soluble proteins and sugars.