



AN INTRODUCTION TO RELATIVE FEED VALUE' OF FORAGES AND HOW IT CAN AFFECT THE COST OF FEEDING YOUR HORSES, AS WELL AS THEIR OVERALL HEALTH

Relative Feed Value, or 'R.F.V.', is a new term for many and as with anything new, there are a lot of questions. All purchasers of hay should ask for the R.F.V. before buying it because it will provide you with its:

- 1) nutrient availability,
- 2) true 'nutritional' value per ton,
- 3) what 'class' of horse it should be fed to:
 - a. **RFV above 103:**
 - i. young growing
 - ii. reproducing
 - iii. performance horses
 - b. **RFV between 75 and 102:**
 - i. 'Special Needs' horses with IR, PSSM, Cushings, Equine Metabolic Syndrome, Laminitis, etc.
 - ii. 'easy-keeping' mature horses

For decades nutritionists have been searching for a way to measure the feeding value of forages (hay and pastures). R.F.V. is a new way to do this.

R.F.V. combines potential "digestibility" and "intake" of hay into one number. It is calculated from the analysis of ADF and NDF in the forage (hay/pasture).

- 1) **A.D.F. (Acid Detergent Fiber) and N.D.F. (Neutral Detergent Fiber)** are determined by laboratory analysis
 - a. The **A.D.F.** is used to determine **forage 'digestibility'**, or **how palatable it is and if a horse will eat it.**
 - b. The **N.D.F.** is used to determine **forage 'intake'**, or **how much a horse can eat per day.**

Visual factors such as: color, stem size and leafiness are not used in the calculation of R.F.V. Feeding forage with a higher Relative Feed Value is important to horses that need more calories to maintain desired body weight, as well as other nutrients to meet their needs. If they can eat more pounds of easily digested forage, they do not have to be fed as much of a 'grain' mixture. This is especially true for: 1) mares that are nursing foals, 2) sucklings and weanlings, and 3) the high performance horses.

When the RFV is over 103, most horses can eat more forage and maintain their ideal body weight. Using 'Diet Balancers' to compliment this quality of hay is the most cost affective way to feed horses today, while meeting all of their other nutritional needs.

Table 1: As all plants mature, the Protein, Lysine, Calories, etc. per pound will decrease, along with its RFV. Just because hay contains a legume, i.e. alfalfa or clover, does not mean it is better. The maturity of the plant when cut and harvested will determine the quality (digestibility) of all ‘types’ of forages: **Grass, Mixed and Legume.**

Protein, Lysine and Calorie Levels Based on: ‘Type’ of Forage and ‘Relative Feed Value’^d

| Quality Standard / RFV | Grass | | | Grass/Legume Mixed (50/50) | | | Legume | | |
|------------------------|-----------------|-----------------------------|---------------------------|----------------------------|-----------------------------|---------------------------|-----------------|-----------------------------|---------------------------|
| | Percent Protein | Percent Lysine ^e | MCal. DE/lb. ^f | Percent Protein | Percent Lysine ^e | MCal. DE/lb. ^f | Percent Protein | Percent Lysine ^e | MCal. DE/lb. ^f |
| Prime / >151 | >15 | >.51 | >1.05 | >18 | >.77 | >1.10 | >21 | >1.07 | >1.17 |
| 1 / 150-125 | 12-14 | .44 | .95 | 15-17 | .68 | 1.03 | 18-20 | .97 | 1.10 |
| 2 / 124-103 | 9-12 | .36 | .86 | 12-15 | .57 | .93 | 16-18 | .87 | 1.00 |
| 3 / 102-87 | 6- 9 | .26 | .80 | 10-12 | .47 | .86 | 14-16 | .77 | .94 |
| 4 / 86-75 | 4- 6 | .15 | .77 | 7-10 | .36 | .82 | 12-14 | .66 | .89 |
| 5 / <74 | <4 | <.14 | <.73 | <7 | <.30 | <.78 | <12 | <.61 | <.83 |

^d These percentages are based on forages analyzed by Holmes Laboratory from 2000-2009 (dry matter basis)

^e Percent Lysine in Crude Proteins: Grass = 3.4%; Mixed (50/50) = 4.25%; Legume = 5.1%

^f DE = Digestible Energy for horses

Table 2: The Hay Quality Standard shows the relationship between: Grade, R.F.V. and Maturity at harvest, developed by the American Forage and Grassland Council.

| <u>GRADE</u> | <u>R.F.V. (Visual Evaluation)</u> | <u>*MATURITY When Cut or Eaten Legumes / Cool Season Grasses</u> |
|--------------|-----------------------------------|--|
| Prime | >151 (Pasture Grass) | Pre-bloom / Pre-bud |
| 1 | 125-151 (Very Soft Hay) | 10% in Bloom / Head Length < 1 inch |
| 2 | 103-124 (Good Hay) | 50% in Bloom / Head Length 1-3 inches |
| 3 | 87-102 (Coarse Hay) | 100% in Bloom / Head Length 3-6 inches |
| 4 | 75- 86 (Stemmy Hay) | Mature Pods / Heads gone to seed |

***Maturity refers to:** the percentage of Alfalfa seed heads in blossom and/or the Grass seed head length in ‘cool season’, first cut grasses.

Early Harvest is essential for higher R.F.V. Delaying cutting time will lower the R.F.V. and nutrient values. This can be good if you have ‘easy-keeping / over-weight horses.

Maintain as many tender leaves in the bale because 80% of the nutrients are found in the leaves; whereas, **stems make most of the yield.** The more coarse the stems, the lower the quality, i.e. digestibility, of the hay.

***Use Relative Feed Value (RFV) when: 1) purchasing hay and 2) determining which hay to feed to horses with different calorie / nutrient needs. Those horses with the highest nutrient needs should be fed the hay with the highest RFV, and visa-versa.**

For example:

Calorie / Nutrient Need:

Best RFV to Feed

- | | |
|---|-------------------|
| 1) Highest (High Performance, Lactating, Sucklings, Weanlings) | Over 125 |
| 2) Medium (Eng. & West. Pleasure, Low Level Dressage, Yearlings) | 103 to 124 |
| 3) Lowest (Mature Idle, Lay-ups, ‘Special Needs’ horses, etc.) | 75 to 102 |

Caution: Feeding hay with a RFV below 74. It is one of the causes of ‘impaction colic’. This hay will contain an NDF over 66%, because it is ‘over-mature’ and ‘stemmy’.

PRECISE NUTRITION. VISIBLE RESULTS.