

Advances in Equine Nutrition

Volume II

Edited by

J.D. Pagan



RELATIONSHIP BETWEEN NDF AND HAY INTAKE IN HORSES: A REVIEW OF PUBLISHED STUDIES

A. ST. LAWRENCE, R.J. COLEMAN AND L.M. LAWRENCE

University of Kentucky, Lexington, KY

Forage is an important part of any horse feeding program, and accordingly it is important to be able to accurately predict the amount of forage a horse will consume. A review of the literature was undertaken to determine if a relationship exists between forage chemical composition and voluntary dry matter intake (VDMI) in mature horses. Six studies representing VDMI of 21 different forages (4 alfalfa and 17 grass hays) were used. Grass hays included both cool and warm season varieties. The only forage chemical components that were consistently reported across all studies were crude protein (CP) and neutral detergent fiber (NDF). Because of this, the relationships of CP to VDMI and NDF to VDMI were examined. The CP content of the grass hays ranged from 8.0 to 17.5% while the legume hays ranged from 14.8 to 20.9%. The NDF content of the grass hays ranged from 59.5 to 74.9% while the legume hays ranged from 40.9 to 56.3%. All studies used mature horses that were allowed ad libitum access to long hay. Only studies that reported animal weights specific to each trial and measured intake over a minimum of 4 d were used. All reported VDMI values were converted to g/kg bodyweight/d. Crude protein was not strongly related to VDMI ($r^2 = .14$, grass hays; $r^2 = .34$, grass and legume hays combined). The relationship of NDF to VDMI for grass hays alone is expressed by the equation $y = 124.55 + .0155x^2 - 2.5742x$ ($r^2 = .67$) where $x = \% \text{ NDF}$ and $y = \text{g/kg bodyweight/d VDMI}$. The relationship for grass and legume hays combined is expressed by the equation $y = 18.377 - .0051x^2 + .3895x$ ($r^2 = .53$). No equation was calculated for alfalfa hays alone because only four VDMI values were available. The lower correlation between NDF and VDMI when both grass and legume hays were analyzed may be related to differences in the structure and digestibility of grasses and legumes. The data reviewed from these papers suggest that, when compared to CP, NDF values will provide a better prediction of the dry matter intake of mature horses fed long stem hay.

