WHEAT AS A GRAIN SOURCE FOR THE MATURE, EXERCISING EQUINE

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Wheat has recently received considerable attention as a feed grain for livestock. Recently conducted research on many species of livestock at Oklahoma State University has refined recommendations on the use of wheat in rations, and there appear to be several opportunities for promoting wheat as a feed grain for swine, dairy and beef cattle. While there is a small amount of research available on feeding wheat bran and wheat straw to horses, a review of literature reveals that research information concerning the use of wheat grain in rations for horses is virtually nonexistent. Research conducted by French investigators using ponies fed different grain sources at one percent of body weight per day suggest comparable dry matter digestibility and slightly lower protein digestibility of wheat as compared with oats.

Many horse producers and trainers believe that wheat grain cannot be utilized because of the consistency of the grain as it is passed through the digestive tract. It is thought that wheat grain will develop a doughy consistency to the extreme of being undigestible and blocking the flow of nutrients through the digestive tract. This belief combined with unfavorable economic situations until recently has caused wheat to not be extensively included in rations for horses. Controlled research on feeding wheat to horses is necessary so recommendations on its use can be established.

Eight mature geldings will be used in two simultaneous 4 X 4 Latin square experiments designed to test the effect of wheat in the concentrate portion of the diet on the health and performance of mature horses. Diets fed in this experiment will consist of 0, 33, 66 and 100 percent wheat as a grain source with the balance as oats so as to compare not only wheat and oats but two combinations as well. All diets will be isonitrogenous, have the same calcium and phosphorus concentrations and be fed in a 60:40 ratio with native prairie grass hay.

Geldings will be individually stalled and fed in equal feedings at 12-hour intervals. Additionally, an exercise program consisting of 30 minutes of trotting on a mechanical walker will be imposed to increase the digestible energy (DE) requirement and facilitate feeding higher amounts of feed so information obtained will be applicable to situations other than maintenance. Horses will be weighed daily with feed allowances made to maintain constant body weight.

Each period of the Latin square will be 14 days in length, consisting of a 10-day adjustment period and a 4-day collection period during which fecal and blood samples will be taken. Samples will be composited and analyzed for content of dry matter nitrogen, energy, starch and neutral detergent fiber. Similar analyses will be performed on concentrate and hay samples and digestibility coefficients calculated for each. Additionally, blood samples for determination of plasma glucose and free fatty acids will be taken randomly over the same period such that each 30-minute interval out to 4 hours and each hour thereafter post feeding is represented.

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