

WHEAT MIDLINGS

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Characteristics

Some common energy by-products available to us in Ohio are corn gluten feed, soyhulls, wheat midds, and others. These by-products are high in digestible fiber and have energy values similar to corn when supplemented to forage-fed cattle and approximately 80 to 85% the energy value of corn in a concentrate diet. Wheat midds contain higher levels of fiber, protein, and minerals than wheat grain but less starch.

A co-product of milling wheat for flour is mill feed or mill run commonly marketed as wheat middlings wheat midds. Wheat midds generally include screenings, bran, germ, and flour remnants.

Wheat midds in quality due such factors grain source, milling plant and milling method. What middlings protein quantity can vary from fourteen to eighteen percent protein on a dry matter basis. The protein in wheat midds is considered to be high in rumen degradability with a bypass value of twenty-three percent.

Although high fiber levels are associated with low energy values, the fiber in wheat midds is highly digestible by ruminants. The energy value to wheat midds is less than oats but higher than legume hay. The fiber in the particle size of the fiber is extremely small, the fiber in wheat midds is less effective in rumen stimulation and can not be considered a complete replacement for forage.

Wheat midds are high in phosphorous, near 1%, and potassium. In addition, they are a good source of several trace minerals including copper, zinc, magnesium and selenium. Like most grains, wheat midds are low in calcium. Pay attention to calcium levels when high levels of wheat midds are fed. For example, calcium can be supplemented with the addition of ground limestone or a high calcium commercial feedlot mineral.

Handling

Wheat midds can be purchased as a loose meal or pellets. The meal is fine, dusty, and can be difficult to handle. Pelleting wheat midds greatly increases the density, which improves handling with transportation and feed mixing equipment. Pelleting doubles bulk density to about 40 pounds per cubic foot. As with any pellet, minimize, augering to decrease the accumulation of fines.

Pelleted wheat midds do not always "behave" like normal storage grains. Extended storage in warm, moist weather can result in bridging and spoilage. The moisture content of pelleted wheat midds is typically about 13 to 14 percent (Dhuyvetter et al., 1999). Wheat midd pellets readily take on moisture, swell, soften, and lose their ability to flow when exposed to high humidity.

Bin-stored wheat midd pellets placed in storage at 14 percent moisture and 85 degrees F have been shown to lose flowability after a period of several weeks. Aerating the bin with cool evening, high humid air hastened the deterioration. In contrast, using an aeration fan to move low relative humidity dry air through the bin and dry it to a desired 11 percent moisture reduced deterioration. Level the surface, because a steep peak will contain fines which interfere with moisture movement. Aerate the bin to dry, not just cool, the pellets. Drying should be done within the first month of storage.

Use for Cattle

Wheat midds are generally very palatable and are readily consumed by all classes of cattle. Feed manufacturers often include wheat midds as an ingredient in commercial feeds and supplements. Wheat midds require no additional processing. Pelleted wheat midds can be fed on dry sod or frozen ground. Waste is further reduced with larger pellets, cake, or cubes.

Since wheat midds contain higher levels of fiber and reduced levels of starch when compared common grain sources, digestive disturbances are less of a concern. However, the finely processed starch that remains (ranging from 17 to 45 percent by weight) and the small particle size of fiber would indicate gradually increasing the amount of wheat midds to be fed. Do not give unadapted cattle free access to wheat midds. Generally feeding up to 1 percent of body weight as wheat midds will not cause digestive problems if adequate roughage is available.

Supplementing Cows

Several trials at Oklahoma State University were done to evaluate the use of wheat midds for cows grazing dormant range grasses (Ovenell et al., 1990 and 1991). Cows fed wheat midds or a corn soybean meal mixture (both about 8 lbs/hd daily) gained more weight pre-calving than those supplemented with soybean meal (3 lbs/hd daily). The wheat midds appeared to be equal to a mixture of corn and soybean meal equivalent in protein content. North Dakota researchers have used diets of 16.7 pounds of wheat midds, 10.5 pounds of straw and 5.5 pounds of alfalfa/grass hay daily along with a vitamin/mineral supplement for lactating cows.

Finishing Cattle

Dalke et al (1993) at Kansas State University found that replacing concentrates with 5, 10, and 15% wheat middlings increased intake, slightly decreased feed conversion, and increased marbling score. Depending on the actual quality of the wheat middling, replacing 10-20% of the concentrate should not seriously harm performance.

Summary

There are several commercial and local feeds that can be used to stretch forage supplies. Pelleted wheat midds are available. Producers need to include shipping cost when comparing various feed sources. Like other feeds there is probably a difference in price between bulk and bagged products. Wheat midds are one possible supplemental feed to stretch hay or standing forage supplies.

Literature Cited

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