

**A SURVEY OF PURCHASERS OF WHEAT MIDLINGS:  
STORAGE, FEEDING PRACTICES, AND PROBLEMS <sup>1</sup>**

*D. A. Blasi<sup>2</sup>, G. W. Warmann<sup>2</sup>, and K. C. Behnke<sup>3</sup>*

**Summary**

We surveyed 290 purchasers of wheat middlings (WM) from a single flour mill located in central Kansas to characterize the incidence of transport and storage problems and to determine intended animal use and method of feeding. Over 30% of the 106 respondents had encountered storage problems with WM; mold, spoilage, and bridging in the storage structure were the most common. Over 75% of the respondents who reported no storage problems purchased WM during the winter months and avoided WM purchases at other times, especially during the summer.

(Key Words: Wheat Middlings, Storage, Survey.)

**Introduction**

Wheat middlings (WM) is a high volume, economically important byproduct of milling wheat for flour. Often, the price of WM is lowest in the spring and early summer then increases in the fall and winter. However, users making purchases during those low price periods have reported a variety of problems, especially during extended storage. Our objectives were to: 1) profile purchasers of WM from a flour mill located in central Kansas; 2) characterize the incidence of transport and storage problems as affected by manner of storage and length of storage; and 3) determine intended animal use and manner of feeding.

**Experimental Procedures**

Questionnaires were mailed to 200 livestock producers who had purchased WM directly from a flour mill in central Kansas. This mill has been pelleting and selling WM directly to producers since 1991. A self-addressed stamped envelope was enclosed with each questionnaire to improve the response rate. Respondents were allowed 3 weeks to return the questionnaire before the data was summarized. We received 123 responses (42%), of which 17 were removed because of incomplete answers.

**Producer Profile**

Users from 23 Kansas counties returned the questionnaires. Over 72% resided within 50 miles of the flour mill. The remaining 27% were split evenly between 51 to 75 and 76 to 100 miles. Respondents learned of the availability of WM from numerous sources; 15% became aware of WM through the Kansas Cooperative Extension Service. Private consultants and the news media each informed another 24%. Cost was the most important factor in the WM purchasing decision. Nutrient content and WM availability were identified only as minor factors. Only 44% of the respondents indicated that they routinely analyze feedstuffs.

The primary use of WM was in beef cow and stocker/feedlot operations. Respondents owned or managed 12,272 beef cows and 27,496 stockers/feeders. Collectively, the

---

<sup>1</sup>Appreciation is extended to Archer Daniels Midland Milling Company; Richard Nelson, General Manager of Western Star Mill Company in Salina, KS, for cooperation; and Martha Monihen, Dept. of Extension Planning, Reporting, and Evaluation, for analyzing survey results.

<sup>2</sup>South Central Area Extension Office, Hutchinson.

<sup>3</sup>Department of Grain Science and Industry.

respondents had purchased an average of 7,639 tons of WM annually during the past 3 years.

### **Transportation and Handling Considerations**

Over 75% of the respondents transported 50% of the total WM tonnage by farm truck, whereas 14% transported over 35% of the total WM via semitrailer. Only 3% of the respondents related problems with unloading pelleted WM. According to several user comments, pellets unload easier than bulk WM, although pellet breakage can result in excessive concentrations of fines.

### **Storage Methods and Problems**

Over 48% of respondents stored WM in bulk bins. Several (16.7%) reported storing WM on their farm truck and other implements. Other means of storage included overhead bins (7.4%), wooden bins (6.5%), and hopper bins (5.6%). Approximately 2% reported flat storage and silos.

Thirty percent of the respondents encountered problems such as mold, spoilage, and bridging. They attributed the causes to

direct moisture contact, to the ability of WM to draw moisture during periods of high humidity, and to high temperature of the WM when loaded at the mill.

Over 75% of the respondents reporting no storage problems purchased WM primarily during the winter months. In contrast, respondents who experienced storage problems purchased WM during the remainder of the year, especially during the summer. Respondents indicating no storage problems stored WM for 4 weeks or fewer.

### **Feeding Practices**

Approximately 46% of respondents fed pelleted WM in bunks. Many commented that 3/16 in. pellets were not ideal for range or pasture use, especially in windy, wet, or muddy conditions, because of fines and wastage. Over 65% of the respondents were interested in buying 3/4 in. pellets.

Only 10.2% of the survey respondents experienced feeding problems with WM. Approximately 73% of stecker and 68% of cow operators fed between 2 and 6 lb per head daily. According to the summary of comments, WM has caused diarrhea when overfed (10 lb or more). Only one respondent indicated feed refusal of WM. A few respondents indicated poor feedlot performance with WM in finishing diets. Only 32% of the survey respondents indicated that they modified their mineral program to account for WM in the diet.