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FNE00-298: Sorghum as a Finishing Grain for Bison

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At the time this study began, we had approximately 60 bison which were raised primarily for meat. Our farm consisted of 250 acres of which 70 were dedicated to pasture, 20 to grains and the remainder was in hay fields. Bison bulls were generally separated from the herd at from 16 to 27 months of age and finished on a diet of hay and grain for 3 to 4 months before slaughter. The grain ration consisted of as a mixture of corn, wheat, soybeans, dry molasses and trace minerals. The ration consisted of approximately 2/3 by weight of corn. The corn had been grown on the farm and the rest of the ingredients were purchased locally. Drought conditions and extensive crop damage from deer resulted in very poor yields of corn for two successive years. It was suggested that grain sorghum might be a suitable substitute for corn in the grain ration and may be more economical overall since it is more drought resistant and suffers less form deer damage. Sorghum has been used as a feed ingredient for beef cattle, but our experience with the feeding habits of the bison indicated that it could not be taken for granted that they would do as well as beef cattle on a grain ration where sorghum was a major ingredient.

An experiment was designed to determine if sorghum could be substituted for corn in the grain ration used for finishing bison bulls. A group of bison bulls of approximately the same age and weight would be divided into two

groups. One group would be fed the usual grain ration consisting mainly of corn, while the other group would be fed the same ration except that sorghum would be substituted for the corn. The animals would be weighed before and after a set time period and the weight gains from the two groups compared.

In order to carry out this experiment, our existing feed lot required modification. A partition was constructed and an automatic waterer was installed along with an additional hay rack. Each group of bison (test and control group) had access to a self-feeder for the grain making the overall environment very similar for each group. Although crude, we hoped that this experiment would provide some insight as to the suitability of sorghum as a feed for finishing bison.

Approximately 10 acres of sorghum were planted and was harvested in late fall of 2000, yielding 50 bushels per acre. The grain was harvested at a moisture content of 14% and was stored in a grain bin without additional drying. The feed mixtures were ground in 6500 lb. batches and placed in the self-feeders.

Although it was intended to continue the study until a statistically significant number of bison were tested, the experiment was concluded after 13 months and only 16 animals were tested (Another 16 bison were in a control group).

The reason for not completing the study was primarily an economic one. Our business required that we increase the number of animals in our herd. Therefore, in order to increase the efficiency of our operation, we greatly

expanded the size of our breeding herd. This required more land for pasture and hayfields...land that had been previously dedicated for raising sorghum or corn. We now have 140 head of bison in 100 acres of pasture. We have also leased an additional 50 acres for making hay. Since we no longer had sufficient land for sorghum production and we could not find sources of sorghum at reasonable prices, it was decided that we would feed only corn-based grain rations for finishing. Shell corn was purchased locally for $2.00/bu. or about ½ the price of sorghum (if it was available at all).

Although based on a very small sample, it would appear that sorghum that sorghum was quite palatable to the bison. The amount of sorghum-based feed that was consumed was approximately the same as the sorghum-based ration that was consumed by the control group. Both groups ate approximately 20lb. /day of the grain ration. Data was not taken for individual animals since all the bison in each group were fed from the same feeder and only the total amount of feed was measured.

The daily weight gain per animal varied over a wide range for both the control and the test group. The daily weight gains ranged from just over zero to 2.5lb./day. The average weight gain was 2.0 lb. /day for the test group and 2.1 lb. /day for the control group. With such a small sample, however, no inferences can be made as to the comparable efficiencies of the two feed rations. Due to the semi-wild nature of the bison, some animals do not adapt well to being in a confined feed lot. These animals never "settle in" and have erratic eating habits which result in little or no weight gain.

Although the results of this experiment are not statistically significant, it would seem that there would be no rationale to exclude sorghum as a feed ingredient for bison. Obviously, a more extensive study would be needed to confirm these preliminary results in a form suitable for publication. We have informally discussed this experiment with members of the Eastern Bison Association. If it is found that there is sufficient interest, it may be worthwhile to run the experiment on a larger scale and over a longer period of time.

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