

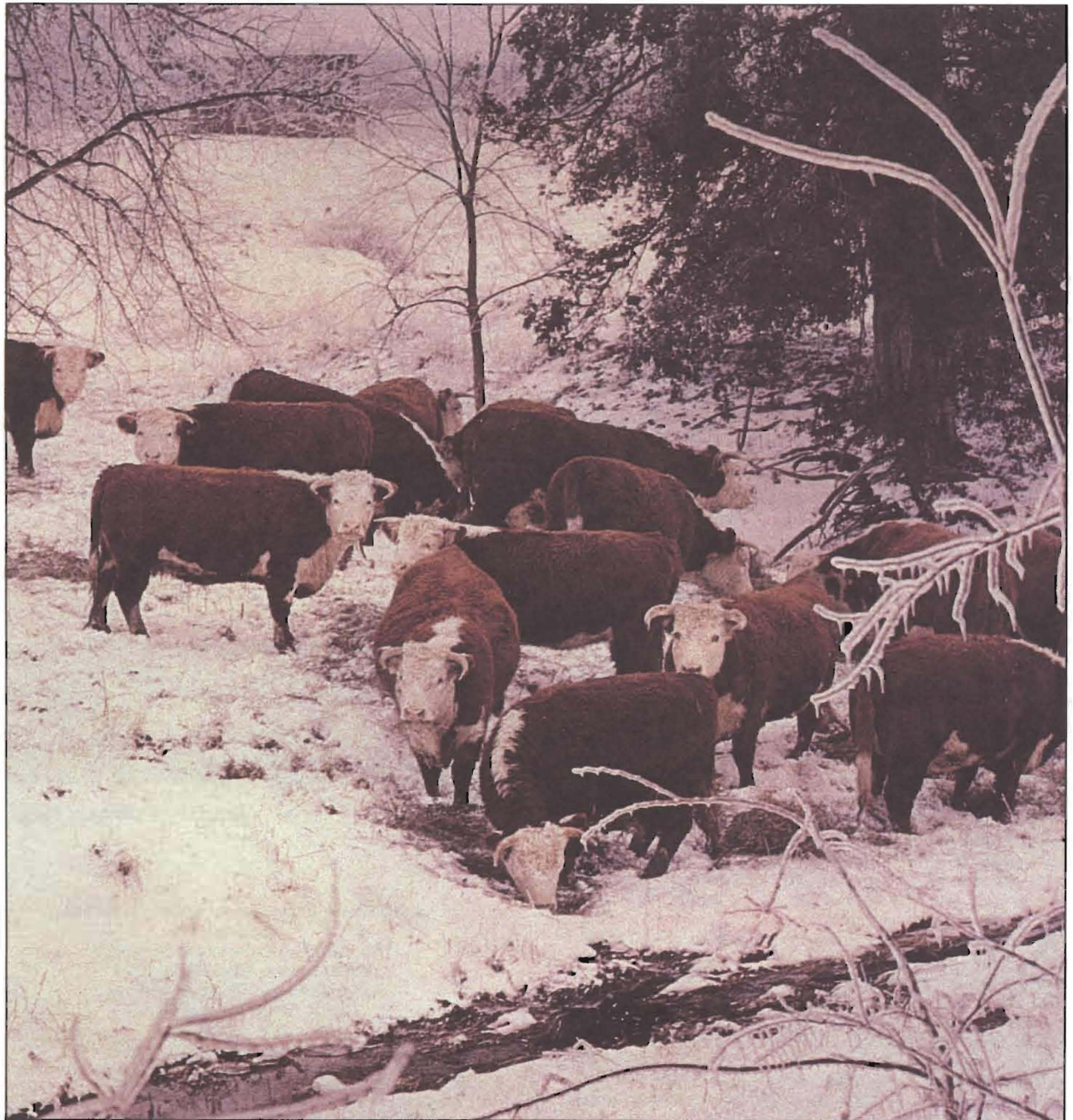


NORTH DAKOTA  
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## Guest Column

**Clayton Haugse**, Chairman  
Animal and Range Science



The Department of Animal and Range Sciences along with other departments conducting research in the Agricultural Experiment Station are highly indebted for public support of past and present research programs. The support of animal science research is much less from federal funds than from state funds or private industry when compared to biomedical research and some of the other station research programs. Outside funding is often difficult to obtain and only available for specific research objectives.

The primary role of the department in relationship to producers of various commodities (beef, pork, lamb, poultry, eggs and milk products) is to provide high quality science that allows them to better play their role in society. In the past this has meant research on the efficiency of production of animals. This research resulted in better nutrition, greater control of physiological processes and selecting animals genetically to meet the criteria of the consumers. The department has a supportive relationship with commodity groups and consider their concerns and recommendations in developing research programs. When tension does surface it is understandable. It often comes from the fact that scientists tend to look at researchable problems more long term and producer groups look at them more short term because they are faced with year-to-year survival.

Many current animal scientists grew up on the farm where production was the major emphasis, but today this is changing. Today more and more students are coming into animal agriculture from urban backgrounds. Issues in addition to production are presently moving to the forefront. Quality and safety of products are receiving more attention, in addition to efficiency of production, but in order to compete with producers in other countries, we cannot ignore efficiency and cost of the products produced.

There is concern by many about the size of all agricultural enterprises. Farms and ranches are getting larger and larger with time. When pressure exist to produce the maximum amount of food for the least price, an advantage goes to the producer who takes advantage of those economic factors which result in greater competitiveness. If consumers are willing to pay more for products produced in a certain fashion, then this type of product will be produced.

The world population reached one billion about 1830. One hundred years later we reached two billion. In 1960, the world population approximated three billion. In 18 years (1978) we reached the fourth billion and in 1987 reached the fifth billion. People have been concerned for years that the population of the world will exceed the capacity to produce food. There is hunger in the world but there is also adequate food for everybody in this world to be well fed. There presently is a distribution problem so that food is not

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**On the Cover:** Livestock provide a means of converting forage and crop by-products to products usable by humans. In this issues, Clayton Haugse discusses the value of farm animals to North Dakota agriculture. Photo by Clayton Haugse.

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*Gary Moran*

Body weight change and condition score were used to document the nutritional value of the 12 percent HPM Block and dry rolled barley as wintering supplements. When compared to control cows, which lost an average 34.7 pounds per head during the wintering period, cows supplemented with the 12 percent HPM Block lost 1.5 pounds per head. Those cows that received dry rolled barley gained 15.6 pounds per head. Cows supplemented with dry rolled barley gained more than cows receiving the control diet. However, when cow gains between the 12 percent HPM Block and dry rolled barley supplemented groups were analyzed, no statistical difference was measured. Therefore, supplementation with the 12 percent HPM Block resulted in gains that were equal to both the barley supplemented and control cows.

Condition score, measured at the start of the study and as each cow calved, fluctuated as body weight changed as shown in Table 2. External fat cover in the unsupplemented control cows was significantly less than either of the supplemented groups. Cows supplemented with barley processed slightly better condition than those cows receiving the 12 percent HPM Block but the difference was not significant, indicating that the effective change on external fat cover was similar for both supplements.

There was no difference in calf birth weight or survival between treatments.

Wintering economics was evaluated for each of the supplemental types. Feed ingredient costs used per unit of dry matter and the processing charge are shown in Table 1. Daily feed consumption and feeding economics are shown in Table 2. When compared to the control cows, supplementing with dry rolled barley cost an additional \$11.00 per cow, while supplementing with the 12 percent HPM Block cost an additional \$25.09 per cow. When compared to the barley-supplemented cows, using the 12 percent HPM Block cost an additional \$14.09 per cow.

In conclusion, supplementation with the 12 percent HPM Blocks resulted in nearly equal animal response when compared to supplementation with dry rolled barley but cost substantially more. Whether animal performance would be improved by continuous access, instead of limited access, to the 12 percent HPM Block was not addressed in this trial, but remains a question for further study.

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#### Continued from page 2

in the right place at the right time. How long will we have adequate food? Most animal scientists believe we need to continue research on the efficiency of food production.

When food is in short supply and people need more calories, then animal fat is very valuable as a source of additional calories. When people are physically very active, animal products are nutrient dense and are very important. Today our less active society in the United States consumes excess calories, but consumers are much more diet conscious. There appears to be a need for animals with different compositions. Animal scientists feel that we need the basic knowledge of how to change composition of animal products as the needs or desires of society change. Many of our current research projects focus on this need.

We are now in what some people call the age of biology, moving from the age of chemistry. This is not only true for recent research advances such as growth hormones which will be useful for more efficient meat and animal product production, but also in biopesticides and other areas of concern. Agriculture has been using biological approaches for a long time, but some of the modern biological tools allow us to be much more precise or allow us to do some things faster. Biotechnology has give us new sources of products such as insulin and growth hormones for humans. The same techniques applied to bacteria will given us new protein and peptides to cause animals to produce more protein and less fat or to change the nature of the fat in animal products. New biological products such as vaccines will allow us to

control animal diseases better. Animal scientists are also looking at genetic engineering approaches that will change the animals' genetic makeup whereby they will better serve human needs through improved products, prevention or improved treatment of diseases, and hopefully improved reproductive efficiency.

Biotechnology is a step in the continuum of learning about nature and applying it to man and animals. It is anticipated that biotechnology products will not persist in the environment as other agents have in the past. This relates to the new movement in agriculture on sustainability, calling for less emphasis on production and more on the optimization of production balanced with other concerns.

Animal research has adapted to a different approach as we look at new products for use in animal production. Areas of study are not only on how well the product works but also on product safety, economics, ethics and the impact of the technology on social parameters. I expect there will be honest differences in opinion between animal scientists and consumer activists, because of our different perspectives and the way we look at things. We need to identify these differences to each other. Dialogue will be necessary between people with different concerns and animal scientists so that the industry may use the technology available today and others which will be developed in the years ahead to better serve the animal industry in producing highly nutritious products for human consumption.

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