

## Research helps scientists fine tune animal performance

By SUE ROESLER, Farm & Ranch Guide

Friday, August 1, 2008 10:51 AM CDT

Livestock producers in the Upper Plains are always looking for ways to produce high-quality cattle as economically as possible.

As research cattle with cannulas inserted for a study grazed in an adjacent pastures, Eric J Scholljegerdes, research animal scientist at the ARS Northern Great Plains Research Laboratory, gave an overview of studies under way during Friends & Neighbors Day 2008 in Mandan, N.D.



**Eric J Scholljegerdes, research animal science at the ARS Northern Great Plains Research Laboratory in Mandan, N.D., tells producers about the latest research.**

One of the research studies involves developing high quality forages for cows in their third trimester during the late winter.

He said the third trimester is a critical period for livestock production.

“That calf is starting to grow and the nutrient requirements of the cow really start to take off,” he added.

Scholljegerdes said scientists were rewarded with good results that “showed producers they could reduce the cost of production with annual crops compared to feeding hay in a dry lot.”

He said another research study looked at the second most critical time for livestock production - the fall.

“That's the time when our forage starts to lose its quality, and that animal is still lactating, providing nutrients to the calf,” he said.

Research focused on what annual forage options were available in the Upper Plains.

“Last year, we started our first year of the fall integrated crops and livestock project,” Scholljegerdes said. “We've got annual crops, traditional perennial pasture and an improved perennial pasture that we're comparing.”

Several scientists are taking part in the research. While Scholljegerdes looks at the livestock production aspects, others are interested in soil quality, forage and crop yields and quality, and economics.

He pointed to the pastures behind him which were set aside for the research, saying there are

three treatments in the studies, and two pastures for each treatment.

A pasture is planted with strips of such forages as oats underseeded with hairy vetch, alfalfa, sweet clover, and sorghum sudan.

“Obviously with these legumes, we're going to be adding some nitrogen to the soil,” he said.

To the north is a corn pasture and cattle involved in the study also rotate through these pastures.

In the fall, the oats and the sorghum sudan are swathed. In September or October, the corn will be harvested for grain and the cows will be turned out into the corn residue.

“We strip graze everything so we give them about 20 feet at a time to minimize any kind of waste,” Scholljegerdes said.

He added scientists will leave enough residue or cover to help build up the soil, but livestock also will be able to consume as much as they can.

Last year, researchers used a method of “creep grazing” with a single strand of polywire on the oats. The wire was set high enough so calves could go underneath and another one was set low enough so they could not go past it.

“We swathed the oats in August so we got some regrowth. Those calves got a chance at some green grass and got first shot at windrows, the best, most succulent part,” he said.

Cows came in behind them.

A second treatment was the more traditional control with brome pasture grazed to about 50 percent utilization.

“At that time we also feed chopped hay to the animals,” Scholljegerdes said.

The third and last treatment is an improved pasture of altai wildrye.

“Altai is a grass shown by the Canadians to retain its quality very well during the winter so we are trying to use that to reduce the amount of hay that we are feeding,” he said.

Last year, the calves were able to get about one and a half pounds per day on the annual crops. Calves on the control performed similarly.

Calves on the Altai wildrye fared slightly worse, with a one-half to one pound day gain, he said.

“The cows did quite well,” Scholljegerdes said. “On oats, we got about a half pound a day, They maintained average body weight.”

He said they were concerned that once the corn was harvested, the cows would not be able to support the calves so we weaned the calves before we rotated them onto the corn.

“With our analysis of the corn swath residue, we felt those calves were going to need some supplementation because we didn't feel there was a lot of corn left on the ground,” he said. “But amazingly the calves find the corn, and they beat each other up trying to run to it and scavenge those ear drops.”

Gain was two pounds a day on corn residue after weaning. On sorghum-sudan, gain was upwards of a pound and a half to two pounds, as well, he added.

“Overall within this pasture we had eight animals carried on for 143 days total,” Scholljegerdes said.

Ruminantly-cannulated cattle were also a part of the study this year.

“They are out on the same treatments, and they are grazing along with learning how to select the corn and the better parts of the plant,” he said.

The cannulated cattle are brought in to the chutes and the rumen is completely emptied out, yielding about 40 gallons of digestive material.

After they are rinsed out, the cattle are allowed to graze for an hour. Then that is collected for analysis.

“We can't separate out various grasses,” he said, although they have an interest in that for a later study. “We found that the cattle will select about a 10 percent higher quality diet than when we just clip it.”

Now they are able to fine tune animal performance because of the find. In the past, there were some discrepancies in the forage quality because of what they had found with their clippings compared with the actual animal performance.

“We are starting to be able to find tune that and really understand what those animals are selecting,” he said. “That is especially important as we underseed forages with legumes and other cover crops.”

In another study, Rebecca Phillips, environmental scientist at the lab, is working on using satellite images to predict the grazing capacity of native rangeland.

She and other scientists have developed math equations that can tell the quantity, as well as crude protein quality of that forage, Scholljegerdes said.

“As a livestock producer, it is tremendously important to me,” he said. “If I have a set number of cattle that I need to put on pasture in the summer, and I need a rotation, I need to know how long I need to have them out there so I don't overgraze my pasture.”