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## Looking Ahead

by John Lamb

Being new to the northwestern corner of Minnesota, I have been observing the crop production practices which are considerably different from the winter wheat-fallow production of the Panhandle of Nebraska.

The goal of my research is to investigate more efficient use of fertilizers and management systems which would promote soil conservation. Some of the current research ideas I have at this time include:

1. Tillage systems
2. Soybean production - iron chlorosis nodulation problems
3. Fertilizer placement on small grains
4. Nitrogen management on sugarbeets
5. Soil test calibration recommendation on potatoes

### Tillage Systems

The area of reduced or no-till seems to have considerable interest. I think tillage needs to be investigated as a systems approach including crop rotation, weed, and disease control. A study involving a sugarbeet, spring wheat and barley rotation with plow, disk, and no-till tillage systems has been established at the Northwest Experiment Station.

### Soybean Production

Some of the questions about soybean production that have occurred over the summer are about iron chlorosis and the lack of formation of nitrogen fixing nodules. The iron chlorosis occurs on higher pH soils.

Currently, the best cures are 1) selection of a variety which isn't as likely to be chlorotic and 2) planting soybeans in rows so they can be cultivated to dry and warm the soil. Some research is needed to find other solutions to this problem.



*John Lamb, soil scientist at the Station, began his duties July 1st.*

The problem of non-nodulation is perplexing. The cause could be from poor inoculation of the seed, poor soil environment for the Rhizobium to survive, or because soybeans are fairly new to the region, a lack of build-up of Rhizobium in the soil. This problem is currently being investigated with experiments at 4 locations in the northwest corner of Minnesota.

### Fertilizer Placement on Small Grains

Some of the areas I'm concerned with in wheat and barley production are with deep band placement of P and K, spacing of the bands for the most efficient use of fertilizer, and use of nitrogen. Another interesting new area is the use of chloride to improve osmotic conditions and disease in small grains.

### Nitrogen Management on Sugarbeets

Nitrogen management is an important quality and yield consideration in sugar-

beets. More work is needed to refine the management aspects. In Europe, sugar companies and farmers start to manage the soil nitrogen a year in advance of growing the crop. I'm planning on investigating ways of improving nitrogen management on sugarbeets in the Red River Valley.

### Soil Test Calibration on Potatoes

Fertilizer recommendations for potatoes from NDSU and the University of Minnesota do not agree. There is a need to refine these recommendations. Another aspect that needs attention is the placement of fertilizer on potatoes.

These are just some of my ideas for research areas in the northwest area of Minnesota. I'm sure as time passes these ideas will change as more information becomes available.

This archival publication may not reflect current scientific knowledge or recommendations.  
Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>.

# Smith's Comments



The fall season has once again arrived, and as in years past, one wonders how the summer season went by so fast. The harvest of the corn and sugarbeet crops has begun at the Station. After the above-average wheat and barley yields that were experienced this summer, anticipation was high for continued bumper yields of row crops. Sugarbeet yield has been below expectations thus far, but the high quality of the crop will help offset the reduction in yield. Severe corn borer infestations are resulting in ear drop and lodging in the corn. Hopefully, the moisture in the corn grain will drop

rapidly to enable harvest before additional loss occurs.

The remodeling and renovation plans for the Agricultural Research Center are now complete. Construction bids should go out in the next week or so. We still hope to complete the project this fall and early winter. To those of you who have scheduled meetings in the building previously, we are sorry for the inconvenience this remodeling has caused.

Plans are also being developed to remodel the existing dairy facilities. If funds are appropriated, we hope to begin construction in 1986.

Interest income from the Northwest Experiment Station Research Endowment Fund helped purchase laboratory equipment needed when Dr. Carol Windels joined our staff to start a research program in plant pathology. The availability of such funds allow for the expansion of new programs and the undergirding of existing programs. The staff of the Station thank all who have contributed to the fund which enables us to expand our research capabilities to serve you better.

## 1984 Was A Good Year For Pests

*By Carlyle Holen*

This was an excellent year for small grain producers with record yields for many growers. This occurred in spite of excessive rains in early June and very hot temperatures in July that had many concerned that these conditions would reduce yields.

From a pest viewpoint, 1984 was a year when area crop producers needed to keep a close watch on their fields as pest problems, particularly insects, were abundant.

Armyworms were at very high levels in counties bordering the Valley and according to Dave Noetzel, extension entomologist, approximately 350,000 were infested in northwest Minnesota. Fortunately, the impact of this insect was small due to early warning by extension agents and crop consultants and timely insecticide application by growers.

The banded sunflower moth emerged in unprecedented numbers in counties such as Mahnomen and in some fields yield loss was severe. This insect has increased in severity the past several years and in most areas of Minnesota is the main yield reducing insect.

Corn acreage has increased in the region for the past several years, but in the last two years losses from European corn borer have been at economic levels. Lodged corn and dropped ears are only a part of the reduction in yield that occurs if the infestation is severe.

Plant diseases were occasionally severe in the area depending on the environmental conditions. In sunflower, Sclerotinia or white mold was at higher than normal levels in many fields. In cereal grains, leaf diseases were quite

## Calendar of Events

Beef Cattlemen's Institute  
October 25, 1984

Sheep Day  
November 15, 1984

Beef Cattle Day  
December 12, 1984

### 1985

Dairy Day  
January 8

Sugarbeet Growers Meeting  
Grand Forks  
January 23

Sugarbeet Growers Meeting  
Grafton  
January 29

Sugarbeet Growers Meeting  
Fargo  
January 31

Southern Minnesota SBG  
Meeting Willmar  
February 13

Red River Valley Winter Shows  
February 13 - 24

American Association of  
Sugarbeet Technologists - San  
Diego  
February 24 - 28

Sugarbeet Growers Institute  
March 20 & 21

evident early in the season especially on nonrotated minimum tillage fields and powdery mildew was more severe than in past years. Fortunately, dry weather in late June and July stopped the progress of these pathogens and the effects on yield were generally small. Downy mildew and Septoria brown spot were present on soybean fields in the area. While not at economic levels, the plant diseases were more common than in the past couple of years.



*Carlyle Holen, Ken Ostlie, Joe Courneya and Paul Gregor talk about plant pests during Crops and Soils Day.*

# Search For Better Wheat Varieties Continues

New wheat varieties are the result of 9 to 10 years of development using the most rapid technology we can develop. A continuous stream of new materials are evaluated each year. The most expensive and time consuming process of wheat variety development is the testing process which requires growing new selections at many sites for a series of years. At Minnesota, wheats are tested a minimum of 6 years in the state in up to 7 locations per year and 3 years in a Uniform Regional Nursery which is grown from Wisconsin to Washington. Certain locations, such as Crookston, receive more emphasis than others in evaluating performance. This type of testing exposes the new wheats to widely differing environments and allows the breeder to choose the better wheats. Of course, the final test of new wheat is when producers grow it and either keep or discard it.

--Bob Busch  
Research Geneticist



# Barley Research Roundup

by Don Rasmuson  
Barley Breeder



Morex barley was seeded on 37% of Minnesota's barley acreage in 1984 and continues to be No. 1 in the U.S. in number of acres seeded. Robust jumped from 2% of Minnesota's barley acreage in 1983 to 29% of the state's acreage in 1984. Robust appears to be doing very well. Yields in the 80 - 100 bushel range are common. It will likely be the No. 1 variety in 1985 as maltsters are paying equally as well for Robust as for Morex.

New ideas being developed are semi-dwarf barley, low protein barley and bright grain color barley.

# Weed Control Study Needed For Profitable Production

Chemical weed control is now essential in the profitable production of many agronomic crops. With greater use of reduced or minimum tillage in the future, heavier weed infestations are expected to develop with the greatest increases in perennial weeds. It will be necessary for farmers to strive for the maximum effectiveness from herbicides to obtain satisfactory weed control. This will require careful selection of the proper herbicides which must be accurately applied at the proper time. The University of Minnesota can aid by providing the educational programs, weed control demonstrations and written materials to inform farmers on the effective, safe usage of herbicides.

--Richard Behrens  
Extension Agronomist - Weeds



# Sheep Flock Management Project Update

By Harvey Windels

The three new sheep research trials proposed for 1983-84 were initiated as scheduled. The first trial started was shearing twice yearly (fall-spring) versus once yearly in January. The main objective of this trial will be to determine if there is sufficient cold stress during late gestation and early lactation to curtail milk production when ewes lambing in the winter are shorn two to three weeks before lambing. Secondary objectives are to determine if shearing in the fall will offer a suitable alternative to shearing two to three weeks before lambing and if late spring shearing will improve reproductive performance.

Some changes in facilities and sheep were required for the new project. The large mound with windbreak fence lot was replaced with two additional lots with pole shed housing identical to the previous four lots to separately handle

three breed groups and two shearing treatments. The Targhee flock was replaced with 80 yearling Targhee ewes from Montana for a broader genetic base. Another sheep change was the switch from the 1/4 Finn - 3/4 Targhee breed group to the 1/2 Suffolk - 1/4 Finn - 1/4 Targhee to evaluate its potential for lamb production compared to the 1/2 Finn. The results from one lamb crop using mostly two year old ewes are preliminary, however, the 80 head of 1/2 Suffolk ewes broke the 200% barrier with a 210% lamb crop weaned. Ewes shorn November 1 tolerated the winter quite well although the November weather was ideal in that there were no storms and it cooled off gradually. More detailed results of the first year of this two-year trial will be presented at the Northwest Experiment Station Sheep Day on November 15.

The replacement ewe lamb trial comparing rapid versus moderate rate of

growth to 105-110 lb. was initiated this spring with Targhee, 1/2 Finn and 1/2 Suffolk breed groups of 40 head each. The main objectives are to determine if a high-energy diet in life is detrimental to udder development and the ability to rear lambs at first and subsequent lambings and to determine if a moderate energy diet is detrimental to reproductive performance, particularly for the first lambing. Breeding of these February-born ewe lambs will begin October 20. Another set of 120 head will be started on this trial in the spring of 1985. Each set will be evaluated for production for three years.

The second year of a lamb feedlot trial comparing alfalfa hay - whole corn, alfalfa pellets - whole corn and complete mixed rations of alfalfa haylage with ground or whole corn was recently completed. The results of this trial and the ewe lamb trial will also be reported at Sheep Day on November 15.



*This 1/2 Finn ewe has given birth to 35 lambs in 9 years and is still going strong.*

# Dairy Herd Attains 20,000 LBS. Milk/Cow

by G.D. Marx

A goal set a number of years ago of having a 20,000 pound production dairy herd has been reached by the University of Minnesota, Northwest Experiment Station, Crookston. Actual production this past month, based on a 12-month rolling herd average, was 20,100 lbs. of milk, testing 3.53% milk fat (butterfat) with 710 lbs. of milk fat per cow. Presently this is the top producing institutional herd in the State of Minnesota. The mature equivalent or 305 lactation average on official DHIR (Dairy Herd Improvement Registry) was 21,124 lbs. milk and 778 lbs. of milk fat. To show the progress over the past 50 years, milk production data for the Northwest Experiment Station is listed below.

Years Ago	Lbs. Milk	Percent Fat	Lbs. Fat
50	8,534	3.0	256
40	No testing due to World War II		
30	11,267	3.4	380
20	14,747	3.5	510
10	16,345	3.7	612
Today	20,100	3.5	710

Today the average cow is producing 2.5 times the milk produced in the 1930's which represents a lot of progress in just 10 dairy cow generations. The progress is primarily due to better management, feeding and breeding. Much of the credit for the advancement of the Northwest Experiment Station herd goes to the excellent dairy crew who take extreme pride in each individual cow and follow recommended procedures and good husbandry practices. The herd today consists of 65 cows whereas only 18 cows were in the herd 50 years ago. All of the cows in the herd are registered Holsteins, accredited, and officially classified by the Holstein-Friesian Association of America.

The University herd at Crookston is a closed herd on the female side and has been for over 20 years. This means that no cows or replacement females are purchased or brought into the herd. All of the progress in production has come through application of research findings in good breeding, feeding and management, and not through the purchase of high-production females from outside herds. The breeding has been improved by using genetically tested high P.D. (predicted difference) sires through arti-

ficial insemination. In the future the herd may incorporate embryo transplantation and cloning techniques to speed up the genetic potential of the cow and further improve production capability.

On occasion some of the studies particularly nutritional trials, have depressed production rather than increased production, but that is why we exist, trying to find which rations and under which type of management will produce the most milk with the greatest efficiency. Dairy-men are interested in the applied or practical research at the Northwest Experiment Station and utilize these beneficial findings obtained from this high-producing herd. Research here has helped them through the years and we

will continue to achieve this objective while setting even higher production goals.

## Beef Cattlemen's Institute

Beef Cattlemen's Institute will be held Thursday, October 25, 1984 beginning at 5:00 p.m. in the Winter Shows Building, Crookston.

Topics on the program include "Green Tag Calves", "Production Testing" and the familiar Feeder Cattle Demonstration.

Watch the newspapers for further details.

## Alex Johnson Retires



Alex and Audrey Johnson were honored at a coffee party on June 29th on the occasion of Alex's retirement. Alex was a senior farm animal technician in the dairy department. Alex joined the dairy crew in August of 1966 and worked at various duties from milking cows and taking data in the early morning hours to checking the herd at night. The Northwest Experiment Station will miss Alex and his ready and willing attitude.

We wish Alex and Audrey the best of luck in their retirement.



# Lambert Honored At Range Naming Ceremony



Larry Smith, Superintendent speaking at Jean Lambert Range Naming Ceremony.

Dr. Jean W. Lambert, recently retired from the University of Minnesota, Department of Agronomy and Plant Genetics, was honored by the University and staff of the Northwest Experiment Station on June 30, 1984, at a range-naming ceremony. One of the research ranges at the Station plot area was named for Dr. Lambert.

A research range denotes a measured space, an appropriate place, a permanent allocation of soil for experimental field plots. All land at the University of Minnesota, Northwest Experiment Station, has been analyzed for soil type and is then appropriately organized into a comprehensive research range plan.

Lambert received educational degrees from the University of Nebraska and Ohio State University. He completed his Ph. D. in agronomy at Ohio in 1945. Previous honors and awards are many, including Notable Nebraskan Award, presented during their Centennial year of Statehood, 1967. Professionally, he has progressed from an instructor at Ohio State University in 1945 to Professor Emeritus, University of Minnesota.

His many professional contributions in the Department of Agronomy and Plant Genetics, University of Minnesota, include 18 superior soybean cultivars that he developed and released. These are being grown extensively in Minnesota and neighboring states.

Lambert has a long record of teaching in the areas of plant genetics and plant breeding. Further, he served as advisor for many graduate students in both MS and Ph. D. programs.

Beyond all this, and possibly the highest consideration in selecting Lambert for Range Honors, is that Jean Lambert extended a steady and never-ending influence in the State by his presence and timely advice. Soybeans in northwest Minnesota would have had to wait another generation without Dr. Jean W. Lambert.

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