

The Northwest Experiment Station **News**

The Northwest Experiment Station of the University of Minnesota ■ Crookston, MN 56716

OUTSTANDING VARIETIES AND FAVORABLE WEATHER PROMOTE EXCEPTIONAL YIELDS

by JOHN WIERSMA, RESEARCH AGRONOMIST

Nineteen ninety-two was a very good year for small grain production in Minnesota in general and northwest Minnesota in particular. A recent state summary released by the Minnesota Agricultural Statistics Service¹ reported record-setting yields for barley (75 bu/a) and near record yields for spring wheat (50 bu/a). In northwest Minnesota, producer reports of barley yields greater than 100 bu/a and wheat yields greater than 60 bu/a were common.

Record yields of wheat and barley also were obtained in several variety and management trials at the Northwest Experiment Station (NWES). Unusually high yields reported at the state, district, and local level reflect the "right" combination of several factors, including temperature, precipitation, planting date, and numerous sound management practices. These yields also reflect the impressive genetic potential of new varieties of barley and wheat developed and released by the barley and wheat breeding projects of the University of Minnesota².



Below normal temperatures (Fig. 1) and timely rainfall (Fig. 2) provided nearly ideal growing conditions during 1992, while improved varieties provided the genetic potential capable of responding to favorable conditions.

Grain yields of older, recent, and future varieties of barley grown in two trials at the NWES during 1992 are given in Table 1. These results are typical of several barley trials grown this year. They serve to underscore: (1) the overall good growing season.....high grain yields were recorded for both early and late planting dates; (2) the influence of cooler temperatures and higher precipitation associated with mid-May planting vs late-April planting.....higher grain yields occurred with mid-May planting; (3) the

large genetic potential of current varieties.....realized when these varieties are grown under highly favorable environmental conditions; and (4) the significant advances in barley productivity possible with future varieties.....selection M64 yielded substantially more than current varieties.

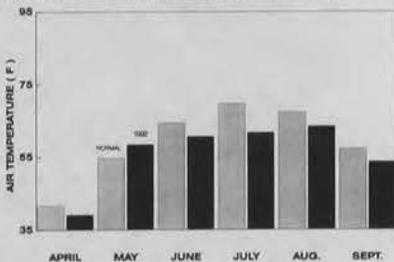


FIG. 1. NORMAL (1890-1989) AND 1992 MONTHLY AVERAGE TEMPERATURE AT THE NORTHWEST EXPERIMENT STATION, CROOKSTON, MN.

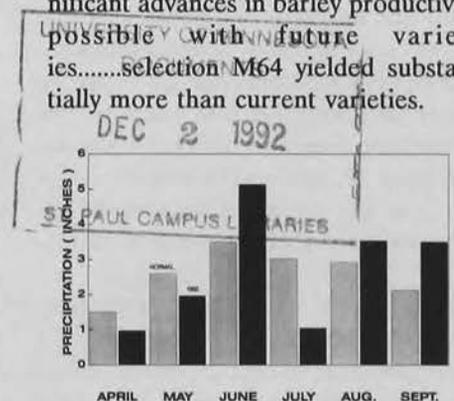


FIG. 2. NORMAL (1890-1989) AND 1992 AVERAGE MONTHLY TOTAL PRECIPITATION AT THE NWES, CROOKSTON, MN.

continued on page 6

1 Agri-View. Issue No. AV-20-92. October 13, 1992. Minnesota Agricultural Statistics Service, St. Paul, MN.
2 The barley and wheat breeding projects of the University of Minnesota are directed by D.C. Rasmusson and R.H. Busch, respectively.

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



It's not supposed to be snowing on October 19! The Station still has 120 acres of corn to combine, field preparation for the 1993 crop has barely begun and 500,000 gals of liquid fertilizer (manure) needs to be field applied. The 1992 crop season will go down in people's memories as one of pleasant surprises and as one of nightmares. At this point, the only pleasant surprises I can think of were the small grain and sugarbeet yields. The nightmares, mostly related to the weather, are much more numerous; (1) a summer frost which occurred on June 25 and severely set back the corn crop; (2) drought, hot temperatures, (some won't remember those two days!) and wind just as the small grain was heading, which killed the tillers, followed by rain and cool temperatures which initiated new tillers and gave us a two-tiered crop - ripe and green; (3) a small grain harvest that began in late July and ended in mid September due to moisture and cool summer temperatures; (4) a sugarbeet harvest where we were shut down for cold temperatures (beets too frozen to store) at 1 a.m. on October 11, followed by a shutdown at 11 a.m. the same day because of hot temperatures (beets too hot to store).

Now snow on October 19! If the odd-ball weather of 1992 continues, I'll probably have to take the heater out of my new, fully modernized deer stand and install air conditioning for the November hunt.

Visitors from 14 foreign countries toured the Station this past summer and fall. All were related to an agriculture field in one form or another.

Their major interest was in the technology available in the United States to produce, harvest, transport and process the vast number of products produced on American farms. Hopefully, this edge in agricultural technology will remain in the United States. Dr. George Marx, dairy scientist at the Station, just returned from a two-week trip to Albania. His report on agriculture production in Albania was not encouraging and will undoubtedly result in people standing in line for scarce food this winter.

An old friend and colleague, Dr. Wallace "Wally" Nelson, superintendent at the SouthWest Experiment Station at Lamberton for 27 years announced his retirement July 1. Wally's biggest task since 1983 has been trying to take the rough edges off the superintendent of the NWES. This may be the only task he has not accomplished in 39 years of dedicated service to Minnesota agriculture. We wish Arlene and Wally a long and well deserved retirement. On the opposite front, Dr. Michael Martin has accepted the position of Associate Dean in the College of Agriculture. One of Mike's responsibilities in this position is the administration of the Minnesota branch experiment stations. More on Mike in the next issue.



Ray Drellack, long time farm equipment operator at the Northwest Experiment Station, retired on June 30. Ray worked on all the farm department assignments with his primary responsibility being tillage and forage production. Ray and Dorothy plan to spend some time traveling, visiting their family, hunting and fishing. The Staff at the Northwest Experiment Station wish the Drellack's a long and happy retirement.

The Station staff looks forward to meeting with many of you during the upcoming crop and livestock seminars to be held over the next four months. A calendar with the various dates is included elsewhere in this issue.

Have a happy holiday season.

CALENDAR OF EVENTS

1992-1993

Beef Cattle Day
December 8

Dairy Day
January 12

Red River Valley Winter Shows
February 12 - 17

Small Grains Institute
March 3 - 4

International Sugarbeet Growers
Institute & Machinery Show
March 17 & 18

FALL LAMBING ENHANCED WITH THE USE OF CIDRs

by HARVEY WINDELS

Ten trials have been conducted over the last five years at the NWES on the seasonality of breeding cooperative study with Dr. Jon Wheaton, Animal Science Dept., University of Minnesota, St. Paul and Dr. Lee Johnston, WCES, Morris, MN.

CIDRs (intravaginal internal drug release devices impregnated with progesterone) continue to provide the means for successful fall lambing, but it is also important to be lambing during the right months for a successful accelerated lambing program (3 lamb crops in 2 years). Our first trial on fall lambing (Aug 1990) was very successful with 95% of CIDR treated ewes lambing with a lamb drop of 1.86 lambs/ewe. Also, the 10 non-treated (control) ewes all lambed in August with a drop of 1.80 lambs/ewe. The next step in the study was to rebreed in May the ewes that lambed in February 1991. May breeding was not nearly as successful as the previous March breeding in that only 73% of CIDR treated ewes and 60% of control ewes lambed with a lamb drop of 1.52 and 1.83 lambs per ewe respectively, in October of 1991.

The 1992 trial was conducted to further pinpoint the "best" months to lamb on an accelerated program. Eighty-seven ewes were lambed in January and were rebred in April to lamb again in late August and September, 1992. The January performance on these 87 ewes was 2.28 lambs born and 1.90 lambs weaned per ewe. In September, 94% of the 53 CIDR treated ewes lambed with a drop of 1.78 lambs per ewe compared to a 68% conception rate for the 25 control ewes with 1.71 lambs born/ewe lambed. This last trial indicated that January lambed ewes can be bred in April and achieve a high conception rate and produce an economi-

You are invited to the

25th Annual BEEF CATTLE DAY

Northwest Experiment Station
University of Minnesota
Crookston, Minnesota

Tuesday, December 8, 1992

Harvey Windels - Animal Scientist, Northwest Experiment Station, Crookston
Robbie Pritchard - Ruminant Nutritionist, South Dakota State University, Brookings
Brian Buhr - Livestock Marketing Specialist, University of Minnesota, St. Paul
Michael Schmitt, Ext. Soil Scientist, University of Minnesota, St. Paul
Brent Woodward, Ext. An. Sci., Beef Cattle Production Systems, University of Minnesota, St. Paul

- 9:30 a.m. Registration and Coffee, Ag Research Center Auditorium
Registration cost - \$8 includes Beef Cattle Research Report and handouts
- 10:00 Effect of Trenbolone Acetate (TBA) and Estradiol Implants on
Large Frame Crossbred Calves Fed Corn or Barley Diets
Dr. Harvey Windels
- 10:30 Implant Strategies for Feedlot Cattle
Dr. Robbie Pritchard
- 11:00 Market Outlook
Dr. Brian Buhr
- 11:30 Manure Management
Dr. Michael Schmitt
- 12:00 Question and Answer Period
- 12:30 Lunch - Conference Center - \$5.00
- 1:30 p.m. Genetic Influences on Feedlot Performance
Dr. Brent Woodward
- 2:00 Local Producer (to be arranged)
- 2:30 Research Summary/Update
Dr. Harvey Windels
- 3:00 Adjourn
Coffee and/or view our cattle facilities and cattle on trial

Sponsored by:
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cally acceptable number of lambs per ewe if CIDRs are used. The CIDRs need to be inserted about March 20, left in for 12 days and begin breeding April 1 with multiple sires. The right months to lamb on an accelerated

program in this latitude appears to be January, September and April. Ewes should also be synchronized with CIDRs or other methods in the August and November breeding to keep them grouped.

Meet the Staff. . .

During the past 18 years, all of the research scientists have been introduced to our readers. However, the support of the Civil Service and Bargaining Unit employees is very important to the operation of the Station. In this issue we feature the **Pesticide Management/Water Quality Department**.

This Department is composed of one research scientist, one full time employee and several summer employees.

Bobby Holder is the research scientist in charge of the Pesticide Management/Water Quality Department. Dr. Holder joined the staff of the Technical College in 1984 and accepted a joint appointment with the Northwest Experiment Station on March 1, 1988.

Jim Cameron, a senior research plot technician, was born and raised at Fisher, Minnesota. He graduated from Fisher High School. Jim was in the service from 1968-1970 and served in Vietnam. After his discharge he had several miscellaneous jobs before joining the staff of the Northwest Experiment Station in April of 1975 working in the agronomy department. He was transferred to the Pesticide Management/Water Quality Department in 1988. Jim is responsible for coordination of all work in pesticide management and water quality and the weather collection data. Jim's hobbies are farming and outdoor sports.

A new pesticide management/water quality building was completed in November 1991. It contains an office, maintenance shop, preparation lab, and storage shed for equipment and vehicles.

This department is cooperator on the following projects:

Clearwater River Project - This is a cooperative project between the Red-lake Watershed District and the Northwest Experiment Station which is fund-

ed by the Minnesota Pollution Control Agency under their clean water partnership program. The objective of this study is to delineate the major sub-watersheds affecting the Clearwater River. This study consists of 28 sampling sites along the entire 134 miles of the Clearwater River. These sites will be sampled bimonthly for inorganic and bacteriological constituents. Quarterly water and sediment samples will be taken for certain pesticide analysis.

The soil and water laboratories at the University of Minnesota Crookston and the Northwest Experiment Station have applied for certification from the MN Department of Health.

Canola - Nitrogen use efficiency varietal trials and fertility trials in canola with Drs. Dan Putnam and Mike Schmitt on the St. Paul campus.

Mechanical and Chemical Weed Control in Dry Beans with Dr. Orvin Burnside, weed scientist, St. Paul. The objective of this study is to determine

the initial and extent of yield loss in dry beans based on different durations of weed competition.

Aphid control vs. wheat yields with Dave Noetzel, Entomology Department, St. Paul. Objective of this study is to determine whether yield differences in earlier studies correlate with aphid population.

Colorado Potato Beetle study on potatoes to determine economic control - Dave Noetzel.

Biological control of Colorado Potato Beetles with Dr. Tedd Radcliffe, Entomology Department, St. Paul.

Broadleaf and grass control in wheat and barley with various weed control chemicals - Dr. Bev Durgan, weed scientist, St. Paul.

Nitrogen fertility trial at 6 off-station locations in northwest Minnesota - Drs. John Lamb and George Rehm, Soils Department, St. Paul.



Jim Cameron, senior research plot technician, and Bobby Holder, associate scientist, on the Water Quality/Pesticide Management research project.

AGRICULTURE MISSION IN ALBANIA

BY GEORGE D. MARX

On September 30 I traveled to Albania in Eastern Europe and spent twelve days with a USAID (United States Agency for International Development) team.

Albania is located on the Adriatic coast of the Balkan Peninsula and borders Yugoslavia on the north and east and Greece on the south. The republic of Albania is 11,100 square miles and has a population of 3.2 million with two-thirds of the people living in villages. The capital city of Tirana has 300,000 people. Albania is trying to restructure its government and industry after almost 50 years (since 1944) under the Soviet Communist-Totalitarian system which collapsed when the USSR fell apart. Dr. Sali Berisha, who was educated in the USA, was recently elected president and a new constitution is being drafted. Most of the people are unemployed as all the factories, most businesses, and the state farms closed when the old government collapsed. Many of the buildings were destroyed in the process and store fronts are standing empty. Land was not utilized this past year. Crops were not planted, and therefore, there is nothing to harvest this fall. Food is being shipped and trucked into the country from donors all over the world. I saw many trucks on the road from Greece bringing in relief supplies.

The present overall mission of Albania is to democratize the country and privatize the land. This is a big task as many of the pre-World War II landowners want the land back which was confiscated by the Communist government and consolidated into state collective farms. Plans and laws are being written and, if passed by the parliament, land will return to the original families to be privately owned under a free enterprise system.

The main purpose of our five-member USAID team was to begin the process of restructuring the Agriculture or Farm Schools. These institutions are set up like the former Northwest School of Agriculture with dormitories for students, several hectares of land, and farm buildings. We visited six Farm Schools in different regions of the country. The farm section of the schools is mainly used in teaching and is not nearly as sophisticated as our system. For example, none of the institutional farms had milking machines or automated feeding equipment. No research was being conducted at this period of development. The Farm Schools had some equipment - tractor, tillage, seeding and harvesting equipment - mostly from China, East Germany or Russia, but it needed repair and maintenance. Much of the farm work is still accomplished by manual labor.

We had several sessions with the Agricultural Ministry, Educational Ministry and the Agricultural University of Tirana faculty to present our suggestions and recommendations. The Ministry and University personnel were very open and anxious for our information and advice. Our final recommendation was to begin the restructuring process using two of the schools as a model for future development of the others. Two members of our team from the American Farm School in Thessaloniki Greece will continue with the development of these schools. Teaching will utilize the applied/practical approach with "hands on" training. I presented a listing of 120 different skills that one needs to learn to become a competent dairyman. Also some initial discussions were undertaken to pursue the training of adult farmers through workshops and short courses or evening classes

with on-farm visits by the instructors.

I visited one of the few remaining state farms near Korce in southern Albania and a 70-acre privately-owned farm near Tirana. The state farm had over 300 head of Holstein cows, milked by hand, with an average production of 24 lb milk/cow. They were fed primarily corn silage with some alfalfa-grass mix hay and small amounts of corn grain when available. All were fed in confinement/tie stalls. The private farm utilized pasture and stored alfalfa hay for winter time use. Very little grain and supplements are available for feed. The owner of the private farm, Mr. Sinan Ajoni, has visited the U.S., and was just elected leader of a group of farmers to form a cooperative so they can buy fertilizer and farm supplies, and try to develop markets for their milk and grains. This summer he harvested about 200 bu of soybeans, but had no place to sell them. The milk was made into homemade butter and cheese and distributed by horse and milk wagon to the neighboring village. There are no milk markets developed under the new regime. Land O'Lakes, Inc. is one of the key players in developing the dairy industry in the Balkan countries and is trying to preserve and privatize some of the larger formerly collective state run dairies as free enterprise cooperatives.

In summary, I feel fortunate to be able to help in a small part in democratizing and restructuring their agriculture and educational systems. Dairy farmers and other agricultural producers in Albania are struggling with the transformation to a market economy. Presently, farmers and the food marketing system is in chaos. A reasonably priced, adequate supply of food is needed and continued public support is very important for this new democracy to survive.

Wheat varieties also responded dramatically to favorable, as well as less favorable, environmental conditions during 1992. Four varieties (Butte-86, Grandin, Marshall and Norm) were planted every four days from April 29 to June 12 in a planting date trial at the NWES. Grain yields of Marshall and Norm are presented in Fig. 3 and yields of Butte-86 and Grandin are presented in Fig 4. These results again emphasize the relatively large differences which occurred among varieties and environments.

Small grains producers are well aware that future planting date decisions seldom are based on results obtained in one growing season and that a mid-May planting date usually is two to four weeks later than optimum. Grain yields obtained this year, however, verify that there are exceptions. There are also exceptional varieties of both barley and wheat which can effectively respond to favorable environments.

Table 1. Grain yields of four varieties of barley planted at the NWES during late-April and mid-May, 1992.

Variety	Release Date	Late-April Planting	Mid-May Planting	Mean
----- bu/a -----				
Morex	1978	104	117	112
Robust	1985	115	126	120
Excel	1990	130	135	132
Selection M64	1993†	132	152	142

† Projected for release in 1993.

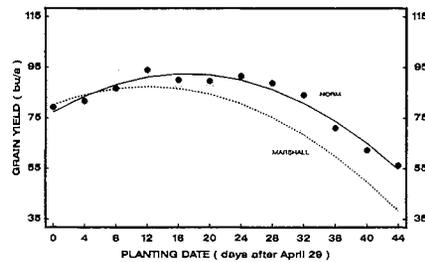


FIG. 3. GRAIN YIELDS OF MARSHALL AND NORM WHEAT PLANTED ON 12 DATES DURING 1992, NWES, CROOKSTON, MN.

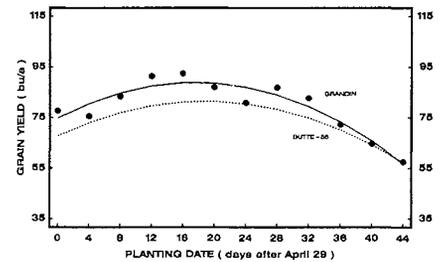


FIG. 4. GRAIN YIELDS OF BUTTE-86 AND GRANDIN WHEAT PLANTED ON 12 DATES DURING 1992, NWES, CROOKSTON, MN.



Happy Holidays!

from the Staff & Superintendent of the Northwest Experiment Station

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Crookston, MN 56716-5001

The Northwest Experiment Station News
Patti Malme, Associate Editor

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