

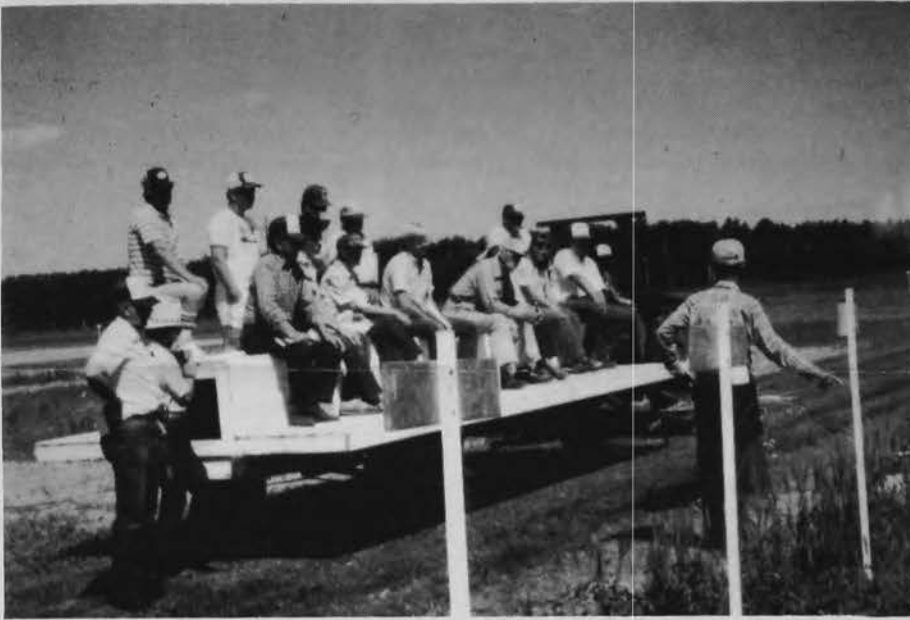
The North Central Quarterly

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Visitors Day at North Central Experiment Station July 18

The annual Visitors Day at the North Central Experiment Station will be held on Thursday, July 18. Research in agronomy, forestry, horticulture and wild rice will be featured on the morning program. Special interest tours and open houses will be featured in the afternoon. Visitors are also invited to tour the livestock projects and facilities and visit various exhibits and clinics between tours to the research plots.

Morning tours begin at 9:00 a.m. and continue to 11:00. Visitors can choose from individual tours lasting about one and one-half hours in either agronomy, forestry, horticulture or wild rice. Visitors who arrive before 10:00 a.m. should have an opportunity to tour two areas. In each of the morning tours selected research projects will be discussed by University of Minnesota staff members from the North Central and St. Paul campuses.

Special interest tours in agronomy, horticulture, forestry and animal science will begin at 1:15 in the afternoon.

Agronomy

The morning agronomy tour will feature small grain variety selection, winter grain crops and forage legume-grass mixtures. New small grain varieties which can be seen on the morning tour include Azure and Hazen barley, Guard and Stoa spring wheat and Centennial, Pierce, Dumont and Proat oats. Visitors will have an opportunity to

compare and discuss winter wheat, rye and triticale for grain and forage. Lupine questions can also be discussed at the winter grain tour stop.

The forage legume-grass mixture tour stop includes mixtures and pure stands of reed canarygrass, orchardgrass, smooth bromegrass, red clover and alfalfa. Visitors may be particularly interested in the new reed canarygrass varieties, Venture and Palatin.

The afternoon agronomy tour will feature some of the current research being conducted on alfalfa and birdsfoot trefoil seed coating, production of alfalfa on acid soils, alfalfa variety development and tall fescue management. The tour will stop at a new alfalfa variety trial where forty-eight alfalfa varieties including two new experimental lines developed in the alfalfa breeding program from plant material selected in northern Minnesota.

At other stops on the afternoon forage tour research and extension specialists will discuss legume seed coating with fungicides, insecticides and lime. Visitors will have an opportunity to discuss current research efforts to produce alfalfa on unlimed acid soils.

Visitors to the agronomy area will also have an opportunity to view a number of crop species including flax, soybean, corn, buckwheat, peas, lupine, lentil and several forage species.

North Central School of Agriculture Reunion-July 20

Have you made your reservations for the North Central School of Agriculture All-Class Reunion to be held at the Station and the Grand Rapids Holiday Inn on Saturday, July 20? If you plan to attend the banquet we need your reservation by July 12. Call Bob Frick (218-326-4594) or the Experiment Station (218-327-1790).

The reunion activities start with registration at the Experiment Station on Saturday afternoon, July 20, at 1:30 p.m. A wagon tour of the Experiment Station will be from 2:00 to 4:00 p.m. The dinner and meeting are at the Holiday Inn at 7:00 p.m., preceded by a social hour from 5:30 to 7:00 p.m.

A large number of alumni from various classes have already pre-registered. We hope you can be with us.

Horticulture

Tour stops during the morning tour will highlight some of the studies visitors can see in the horticulture area. During the morning and early afternoon, the Horticulture Clinic, located in front of the Administration Building will be open to answer questions on commercial and home horticulture. The afternoon tour will feature the potato research program at the station. Throughout the day visitors are invited to walk through the horticulture plots and greenhouse on their own. North Central Experiment Station and horticulture research and extension staff from St. Paul will be available to answer questions.

Several studies in this year's horticulture plantings should be of interest to visitors. The lack of adequate snow cover resulted in considerable winter damage to commercial strawberry plantings around northern Minnesota this past winter. Fortunately, there appears to be excellent separation of cultivars in our plots and the hardier cultivars will produce a good stand and an excellent crop of fruit. Similar production patterns seem to also be true in the blueberry observation planting. Continuing the interest started last year with the day neutral strawberries, we have two new cultural studies aimed at helping to understand their fertility requirements and to determine the effect of planting date on earliness and amount of cropping with these cultivars.

The objective of the vegetable plantings is to help the expanding commercial vegetable industry in northern Minnesota. Last year we evaluated about

(Continued On Page 2)

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Current information available from University of Minnesota Extension: <http://www.extension.umn.edu>.

Visitors Day July 18th

(Continued From Page 1)

thirty celery cultivars. This year we are evaluating the better cultivars and also have a nutrition study in which we are evaluating the effect of nitrogen fertilization on potential celery yield. Interest in the super sweet sweet corn cultivars has increased recently. These cultivars often do not germinate as well or perform as well under cooler growing situations. We are evaluating these super sweet cultivars, the sugary enhancer types and regular sweet corn cultivars in three different plantings this year.

The potato breeding program has released 5 new cultivars in the last three years. There have also been dramatic changes in potato seed certification approaches recently with tissue culture leading toward disease-free tuber development. Much of this research will be explained during the afternoon tour.

Flower plantings will highlight the 1985 All American winners and feature several other new cultivars. The newest chrysanthemum cultivars will be in this year's planting along with three potential seed lines from the University chrysanthemum breeding program. The breeder is trying to develop a seed line that will have uniform plant type, flower type and color.

You are also invited to North Central Experiment Station Horticulture Night on Wednesday, August 28. Walking tours of the horticulture area will be conducted from 4:00 p.m. until 7:00 p.m.

Wild Rice

The morning tour of the wild rice research plots will include discussions on production practices, weed control, genetics, plant diseases and soil fertility. Dr. Erv Oelke is conducting research on burreed control, the effect of shade and Cerone, a dwarfing compound. Dr. Bob Stucker will be showing and discussing the preliminary yield trials with current new and experimental varieties of wild rice and a tiller synchrony study. Plant pathologist, Dr. Jim Percich will be showing his work with the use of Tilt and Dithain and several new fungicides. He is testing a compound to prevent stock rot and also conducting a study on Tilt fungicide residue. Dr. John Grava will discuss his research on nitrogen source comparison.

Forestry

The morning wagon tours will permit visitors to see and ask questions about our tree improvement nursery. This nursery is where a great deal of our genetic tree improvement research starts. The planting stock for many of our long term tree improvement field studies originate in this nursery.

The nursery provides a means of evaluating both conifer and hardwood sources for hardiness, growth, survival and disease and insect problems. We also do considerable selection in the nursery. This prevents many undesirable sources from being included in our long

term field research plantings.

Currently much of the south nursery is being used to propagate poplar material. You will see a large block of poplar cuttings that are being propagated in order to expand on some existing research. This particular block contains 54 poplar sources. These cuttings were made in March 1985 and planted in May 1985.

A small planting of European alder are located on the tour route. This material is part of a follow-up on a 1981 study and will be discussed.

Eastern Gall Rust

The tour will include a discussion and display concerning a rust that attacks primarily jack pine but is also found on scotch in this area. This disease cycle includes a host plant, primarily red oak in our area. Techniques for carrying out the genetic research such as screening and inoculation will be covered.

Shiitake Mushroom Project

The wagon will move from the nursery stop to an entirely new project located just north of the Itasca Community College science building. This project is a study of the feasibility of raising the Shiitake mushroom (She-ta-key) from native Minnesota tree species. Shiitake is a well-known food in the far east in countries like China, Japan and Korea. The objective of this pilot project is to explore the possibility of growing the Shiitake on our native species and under our climate conditions.

The project is coordinated by the Itasca Development Corporation, funded by Charles K. Blandin Foundation and advisors are the University of Minnesota, North Central Experiment Station, the U.S. Forest Service North Central Forest Experiment Station, Itasca Community College, University of Minnesota Department of Forest Products, United Wild Rice, Gourmet, Inc., and the S.E. Minnesota Forest Research Center.

We want you to visit this study. Five Minnesota species are being used; white birch, aspen, ash, red and white oak. Research personnel will be at this stop to answer your questions and a general information sheet will be available.

Forestry Afternoon Tour

The afternoon wagon tour will once again give you the opportunity to visit primarily forest management studies. The tour will move along only three of our tree improvement studies; a 1962 Norway spruce planting that includes sources from Poland, Russia and Latvia; two 1970 plantings, one using 71 Ponderosa pine sources and a balsam fir planting consisting of 30 sources.

We will pass by established fully stocked plantings of all ages. We have future sites in different stages of preparation using both mechanical and herbicides to ready them for planting.

A recently established project involving thinning and release in a natural young mixed hardwood stand will be visited. This hardwood project may

Update on GCRD Blueberry Project

David K. Wildung

In the February 1985 *North Central Quarterly* I described the project "Developing Blueberry Potential in Northeastern Minnesota" which was funded by the Governor's Council on Rural Development (GCRD). An update on this project would be appropriate at this time.

During March, several Northeast District County Extension Agents held county meetings for potential blueberry growers. Interested growers were then given the opportunity to submit an application to obtain additional information and the opportunity to purchase plants through Itasca Greenhouse which was growing plants for 1985 and 1986 planting. Over 50 applications were received.

On April 25, a meeting of those applicants was held at the Blandin Foundation headquarters in Grand Rapids. Over 90 percent of those applying attended this meeting. Potential growers were given additional information on site selection, land preparation, soil fertility and pH modification, windbreak utilization and a timetable schedule for a preparation and establishment years of their operation. A visit to a one-acre blueberry site was included. Each applicant also visited Itasca Greenhouse and had an opportunity to purchase blueberry plants for 1985 or 1986 delivery.

During May and June, I have had an opportunity to visit with many of you concerning your individual plans for blueberry growing. I know many of you are proceeding with land preparation, have or are in the process of purchasing plants and are planning for future plantings.

It is our hope that this project can continue and additional commercial blueberry planting will occur in Minnesota. I hope to be developing a newsletter that can be used to keep interested growers informed. I also hope to have a summer tour in early August to give interested blueberry growers an opportunity to visit the station blueberry plots and one of our blueberry cooperator sites.

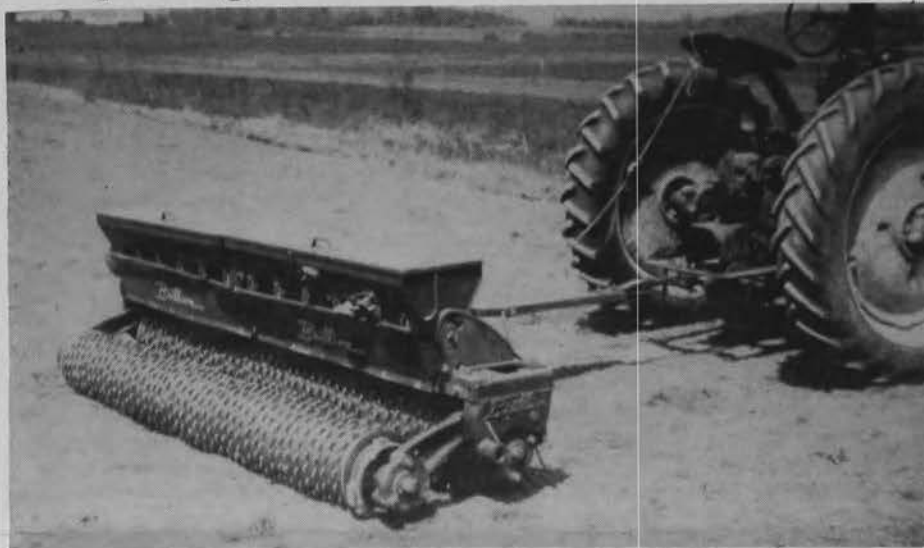
While the immediate goals of the GCRD grant have been met, it is our long range goal to see a viable commercial blueberry industry developed in Minnesota. If you are interested in further information on commercial blueberry growing contact your County Extension Office or the North Central Experiment Station.

serve as a method for growing fuelwood and other timber products.

Once again we will be passing by the red pine Chapman planting established in 1900. If time permits we will return on a woods trail that wanders along a virgin pine stand.

Other stops can be made at your request.

Preparing a Seedbed for Perennial Forage Crops



Cultipacker seeders firm soil and control seeding depth.

David L. Rabas

Getting a good forage legume or grass stand is not easy. Weather, time, equipment and other elements often seem to work against successful stand establishment. Stands which are established under reasonably good weather conditions are often thinner than desired for maximum forage production.

Poorly established forage stands are costly. Inadequate stands produce less than optimum yields for the three or four or more years of the stand's life. Weeds easily invade poorly established stands resulting in reduced forage quality and creating long term weed problems in certain fields.

Proper seedbed preparation and competition management are the two most critical factors which affect the successful establishment of a thick, vigorous, productive perennial forage stand. Eliminating or removing the companion crop or weed competition early enough to allow healthy vigorous forage seedling growth prior to fall frost is an extremely important management practice. Even if enough seeds germinate and grow to provide a good stand, many of the new seedlings can be lost due to poor competition management.

Getting the seeds to germinate and establish adequate seedling populations is primarily a function of seed quality, seeding rate and seedbed preparation. One of the most common problems in forage seedling establishment is poor seedbed preparation.

Perennial legume and grass seeds are very small. Seeding depth and soil surface moisture conditions are much more critical for small seeded legumes and grasses than for larger seeded species such as corn, soybeans or small grains. Many perennial forage seedlings are made in seedbeds which are much too loose to provide adequate control of seeding depth and to maintain soil

moisture near the surface. Even those seeds which remain at a more optimum depth in the upper one-half inch of the soil do not have a good chance of surviving in a loose seedbed. Loose soil dries out rapidly. Unless rainfall is optimum in the two weeks following seeding many seeds which germinate will be lost when the loose soil surrounding the seed or seedling dries out. Many small seedlings may appear to establish and later die before their root systems develop well enough to obtain moisture below the dry surface layer of soil.

Preparing a seedbed firm enough to provide continuous moisture to the seeds germinating and growing in the upper one inch of soil is not easy. Time and depth of plowing and field preparation and the use of some system of firming or packing the soil are important factors in perennial forage seedbed preparation.

Fall plowing is best. Spring plowing or disking results in seedbeds which are difficult to firm and often lack adequate time for weed control. Legume seeding should be delayed until late spring or early summer in spring prepared seed beds. Fall plowing permits packing of the seedbed by winter snow and other factors. Fall plowing alone is not adequate. Successful forage seedbed preparation depends on getting the seedbed into a condition which will permit limited and shallow preparation the following spring prior to seeding. Good seedbeds for forage establishment are largely determined by what occurred the previous fall. If the previous fall's field preparation was adequate enough to permit seeding following one or two shallow spring cultivations the seedbed will be in condition to maintain surface moisture. One of the most frequent problems with seedbed preparation is the need to disk or cultivate deep in the spring in order to smooth the seedbed. Most farmers till too deep in the spring to permit adequate seedbed firmness without additional effort.

How do you get a firm seedbed. In loose soil the answer is probably more frequent dragging or shallow tillage. Time is often a factor. It is better management to delay seeding in order to allow time to prepare a good seedbed than to seed early and hope for the best. A poor stand which we are forced to live with for a number of years is often the result of a need to be the first person done seeding in the spring.

A packing rain is often a good seedbed preparer. Shallow tillage following a packing rain can produce a good seedbed.

Equipment is also available for packing soil. Many farmers have made packers from culverts or large steel pipe. Packing the soil before and/or after seeding is a good method of insuring adequate surface soil moisture. A cultipacker seeder such as the one pictured in the article does a good job of firming the soil and controlling seeding depth. It is also easier to control seeding rate and to seed lighter seeds such as bromegrass with a cultipacker seeder.

Whichever system is used, a firm seedbed will result in better control of seeding depth, improved surface soil moisture and more consistently successful stand establishment.

C. L. Cole

Dr. Clarence L. Cole passed away on May 25, 1985 at East Lansing, Michigan. C. L. (Stub) Cole was the seventh superintendent of North Central from 1950 to 1956. He had served here as animal husbandman from 1929 until 1938 when he went to Michigan State and later to serve as a farm manager in Michigan. On October 1, 1956 he was named head of the Dairy Husbandry Department on the St. Paul Campus of the University of Minnesota.

Later he became head of the Department of Animal Science when the Departments of Dairy Husbandry, Animal Husbandry and Poultry were combined. He retired from the University in the early 1970s. His wife, Kathleen, died a few years ago. He is survived by his four children, Richard, Kay, David and Helen.

Address Corrections Requested

If your address is wrong on our label, we would appreciate it if you would correct it on the label and return it to us.

The post office has forms to use if you are moving and want to continue receiving the *Quarterly*.

Do you know anyone who would be interested in receiving the *Quarterly*? Send us their mailing address and we will add them to our circulation list.

This is Your Invitation to:

VISITORS DAY THURSDAY, JULY 18, 1985

**UNIVERSITY OF MINNESOTA
NORTH CENTRAL EXPERIMENT STATION
GRAND RAPIDS, MINNESOTA**

9:00 - 11:00 WAGON TOURS OF YOUR CHOICE:

Agronomy Research Plots
Horticulture Research Plots
Tree Improvement Nursery and Shiitake Mushrooms
Wild Rice Research Plots

11:00 - 1:00 Noon Lunch Available on Campus. Use this period to visit livestock areas and look at exhibits and facilities

1:15 - 3:00 AFTERNOON PROGRAM — Choose One:

Forage Establishment and Variety Selection
Forestry Management Research
Animal Science Research — Swine, Beef, Dairy
Potato Research

ALL DAY EXHIBITS AND CLINICS — bring your questions:

Weed - Disease - Insect Clinic
Horticulture Clinic
Livestock Area Open House
University of Minnesota College of Agriculture information
Itasca Community College information

Robert Nyvall, Supt.

Since I have been Superintendent of the Station for about a week as this bulletin goes to print, my written contributions will not be very great. However, I would like to take this opportunity to encourage anyone who has an interest in the development of north central and northeastern Minnesota to stop by my office, give me a phone call or write me a letter. I am seeking thoughts and ideas on how our Experiment Station can better serve northern Minnesota. An Experiment Station is a unique institution. It is composed not only of the people that are physically present, but also the brain power of the entire University is part of our resource. Therefore I would encourage anyone who has an idea to share it with me. Limited resources forbid us from partaking of all but perhaps one idea may be the germ for research that may ultimately benefit our area.

This is why we have Experiment Stations, to do experimentation utilizing the resources of that area. Ideally, we would like all research to reach fruition and be of benefit. This will not always happen but the resources are here to try. In the meantime, share your ideas with me or simply stop by to say hello, either at our Visitors Day or some other time.

Coming Events

Visitors Day
Thursday, July 18, 1985

North Central School of
Agriculture All-Class
Reunion, Saturday,
July 20, 1985

Horticulture Night,
Wednesday, Aug. 28, 1985

Dairyman's Day,
Wednesday, Jan. 15, 1986

The North Central Quarterly

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Superintendent

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