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North Central Research & Outreach Center

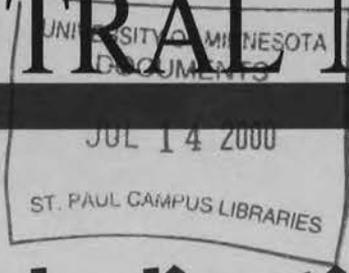


NORTH CENTRAL NEWS

GRAND RAPIDS, MINNESOTA

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Building addition dedication

The University of Minnesota, North Central Research and Outreach Center (NCROC) dedicated a new addition to its Administration Building on Thursday January 20, 2000. In addition to NCROC, the new building provides office and meeting room space for the University of Minnesota Extension Service - Itasca County. Pictured are some of the participants in our dedication ceremony

The 4,200 square foot addition contains seven offices, a reception area, handicapped accessible restrooms, a conference room which seats 24 and a multipurpose room that seats 72. The multipurpose room has facilities for interactive television/video conferencing, satellite downlink internet, and other telecommunication capabilities.

The addition was funded largely from a legislative appropriation and supplemental funding provided by the University of

Minnesota. Additional funding for the Extension Service office space was provided by an appropriation from Itasca County. Funding for the



L-R: Paul Olson, President of the Blandin Foundation; Dr. Charles Muscoplat, Dean of the College of Agricultural, Food, and Environmental Sciences, Dr. Charles Casey, Director of the University of Minnesota Extension Service; Lori Hendrickson, Extension Educator, University of Minnesota Extension Service - Itasca County; Dr. David L. Rabas, Head of the North Central Research and Outreach Center, and Representative Loren Solberg.

interactive television/video conferencing equipment was obtained from a grant from the

Blandin Foundation, membership in NEAT (Northeast Minnesota Alliance for Technology) and UM supplemental funds. The Center is grateful to Representative Solberg and the Blandin Foundation for their assistance in securing financial support for the facility and to Steve Acheson, NEAT Director and his staff for providing technical assistance and support to get the interactive television/telecommunication equipment up and running.

The meeting rooms and interactive television/video conferencing facilities found immediate use. Video conferencing has already saved travel miles for extension and area government agency staff. Bemidji State University is using the facility to provide graduate training for teachers. Beef Cow/Calf Day and Small Fruit Conference presentations have been delivered to several distant locations throughout northern Minnesota. We look forward to developing opportunities to send and receive University of Minnesota credit and not for credit classes as well as providing training and licensing programs for area professionals.

The new building addition and facilities and our new partnership with the University of Minnesota Extension Service - Itasca County should assist in improving the delivery of University of Minnesota information and services to the residents of our area. It helps NCROC expand its commitment to serve as a front door to the University of Minnesota and bring the full services of the University to northeastern and north central Minnesota.

THANKS FOR CARING

We want to say "thanks" and show our appreciation to those who have contributed to the University of Minnesota Foundation North Central Research Fund. Many private individuals and businesses have realized the important of the North Central Research and Outreach Center to the economy and quality of life for northern Minnesota. Currently the endowment fund totals over \$200,000, which is invested for future research at the Center.

Gifts to the University of Minnesota Foundation are tax deductible and can be made with cash, appreciated securities as in the form of bequests. Gifts can be designated for specified areas of research if you desire. Currently we are emphasizing a campaign for funds to support horticulture research at the Center. Thus far \$18,000 has been raised from 92 donors toward our goal of \$50,000 in the Horticulture Campaign.

For more information about the fund, you may contact Dr. David Wildung about the Horticulture Campaign or Dr. David Rabas about the general fund.

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



Agriculture Engineering

James J. Boedicker, *Agriculture Engineer*

Beef Mortality Composting
Project: Disposal of mortalities is an important concern for livestock producers everywhere. Min-

nesota regulations on carcass disposal are intended to prevent transmission of animal diseases and to protect air and water quality. Approved methods include rendering, incineration, burial, use by fur farmers, and processing for pet food.

Compliance with regulations on mortality disposal is difficult for beef cow/calf producers. Contributing factors include the many small, part-time operations; the seasonal (spring) and otherwise sporadic nature of mortality occurrences; severe wintertime conditions; unavailability of approved disposal services; and low "profitability". Instead, many carcasses are simply "relocated" to allow nature to take its course.

Another method for carcass disposal gaining acceptance in Minnesota and elsewhere is composting. Composting is a biological oxidation process in which organic materials are converted by microbial action into a stable humus-like material. Mortality composting requires a carbon (C) source (straw, manure, sawdust, etc), a nitrogen (N) source (carcasses), an acceptable C:N ratio, and adequate moisture and oxygen. In the process, heat is produced with temperatures reaching 150°F or more. Composting is currently approved in Minnesota for poultry, swine, sheep, and goats. Current rules on "composting facilities" call for bins of rot resistant materials constructed on an impervious weight bearing pad. A roof is recommended for better control of moisture in the "pile". Rules also call for at least two heat cycles, the composting mass being mixed and repiled between cycles.

In mid 1999, we submitted a proposal to the MN Department of Agriculture (MDA) to investigate single-stage composting of beef mortalities in an uncovered pile of sawdust placed directly on the ground. Sawdust repels water and is a preferred material for uncovered piles. Another factor is its general availability in beef cow/calf production regions. The proposed process, if effective, was considered low enough in cost to have

some chance of adoption by producers.

With MDA approval, the study began in late August at this Center's Beef and Forage Research Farm south of Grand Rapids. A site was prepared and a 40+ cw. yd. load of fresh birch sawdust (37% M.C., wet basis) was delivered from a nearby sawmill. Site preparation included grading to promote surface drainage and construction of a sloped swale on the uphill side to divert runoff from an adjacent pasture. Actual composting began in mid September following the loss of a 400 lb calf (Animal 1). With the abdomen and internal organs punctured to relieve/reduce bloating, the carcass was placed on its side on a 16-inch thick bed of sawdust and covered with additional sawdust to form a crowned pile. Minimum carcass coverage perpendicular to the pile face was one foot. No water was added to limit the risk of leachate loss from the pile. Temperature was monitored in the pile with a dial type thermometer (36" probe) was monitored on nearly a daily basis until the end of 1999. In late October, the pile was extended for two more 400 to 500 lb calves (Animals 2 and 3), and temperatures were continually monitored for them as well. Spacing between carcasses, excluding legs, was at least one foot.

For Animal 1, temperatures peaked at or near 150°F about 14 days after burial and then gradually dropped to about 60°F in early January when freezing of the exterior of the pile made temperature measurement difficult. As temperatures peaked, the sawdust above the animal settled and more was added to recrown the pile. Also as temperatures rose, a "muffled" odor became increasingly more noticeable downwind of the pile but subsided as temperatures decline. Temperatures took somewhat longer to peak for Animals 2 and 3, but reached levels similar to Animal 1. The piles have not yet been sampled or otherwise disturbed to access current conditions, but hard bones can still be felt within the piles with the temperature probe. Experience elsewhere indicates adequate composting by a single stage method may require one year or longer.

Disturbance of the pile consisted only of shallow holes occasionally found scratched in the surface and, in early December, a network of mole tunnels immediately below the surface. The extent of any mole penetration deeper into the pile

is not known. Present intentions are to install a multi-strand fence around the site for protection from larger animals, particularly black bears. Insect larva (maggots) were discovered in early November in the outer 3 to 4 inches of the pile, but remained for only a few days.

In mid-March of this year, a new pile was formed for a stillborn calf and extended a few days later for a mature cow with unborn calf. The mature cow is expected to provide a critical test for the process. Burial of these consumed the remainder of the first load of sawdust, some of which was frozen and difficult to handle. Finished compost is typically land applied as a nutrient source for crop production, although mortality composting guidelines indicate it can provide up to fifty percent of the mix for new mortalities, thus reducing ongoing sawdust needs. Look for future reports on this project.

Upcoming Events

Wild Rice Research Field Day

Thur., July 20, 2000 Time: TBA
Location: NCROC - Wild Rice Patties

Horticulture Day

Wed., Aug. 30, 2000 Time: 2-6:00pm
Location: NCROC - Horticulture area

Beef/Forage Day

Thur., Aug. 31, 2000 Time: TBA
Location: NCROC - Beef/Forage Research Farm. 4 miles south from Grand Rapids on Hwy 169, then 1/4 mile east on the Harris Town Road.

Grand Rapids Garden Club Tour

Tues., Sep. 5, 2000 Time: 6:00pm
Location: NCROC - Horticulture area

Beneficial Use of By-Products as Soil Amendments Workshop

Thur., Oct. 5, 2000
Time: 10:00am - Noon
Location: NCROC - Administration Building



Agronomy

Mr. Russell D. Mathison, *Agronomist*

A major focus of agronomy research beginning in spring 2000 will be co-application of industrial by-products. Many

of you may recall our extensive research effort on the agricultural use of wood ashes produced by co-generation plants from several wood based industries in Northeast Minnesota. As a result of that research and the on-going organizational efforts of the Minnesota Extension Service in coordinating land-application programs, agricultural producers and wood-based industries are operating more profitably and sustainably. Other types of industries, such as municipal waste treatment facilities, are interested in land application programs as well. Because

the potential exists for two or more types of industrial by-products to be applied on the same land, research is needed to verify the resulting effects on this co-application on plant productivity and the environment.

A group representing several industries, municipalities, the Minnesota Extension Service and U of M research faculty jointly applied for and received a grant from the Legislative Commission on Minnesota Resources (LCMR). Proceeds of the grant will be used to conduct research and educational programs on the co-application of industrial by-products to agricultural, forest and minelands. Specific agronomy work at the North Central Research and Outreach Center will be measuring the agronomic and environmental impacts of the co-application of ash from Blandin Paper Company and municipal biosolids from the city of Grand Rapids on alfalfa, barley and corn silage.

Prior to these field studies, greenhouse and laboratory studies are characterizing these two industrial by-products to estimate the rate of release of plant nutrients (called mineralization rate), which will then be used along with soil test information to formulate field application rates. Soil, plant tissue, water quality and plant response data will be collected in the 2000 growing season. Another grant request is currently under consideration by the LCMR to extend data collection for two additional growing seasons.

Hopefully data from the North Central Research and Outreach Center, combined with data from several other locations, will contribute to the development of successful co-application programs with benefits similar to those of the wood ash programs currently in place.



Animal Science

Dr. G. Cliff Lamb, *Animal Scientist*

Calving season has started and we are just beginning to notice the rewards of our research program from last summer.

Two weeks into calving and we have had almost half of our pregnant cows calve. Even though calves have been coming at an alarming rate, it appears that the majority of our calving will be complete in a little over a month, with a few stragglers later on!! The short calving season was created by introducing a new estrous synchronization protocol to the herd. Using a few products such as GnRH, PGF, and a progesterone implant we were able to time inseminate all our cows on a single day with no heat detection. This resulted in more than half our cows becoming pregnant to AI in a single day!! We are certain to see other benefits, such as greater weaning weights, better performance, and

our bulls will be more marketable.

Even though we have healthy calves now, we are holding our thumbs that the weather remains mild through the remainder of calving, and hopefully we will have a calf crop of almost 100% live healthy calves. Our success at calving time is certainly due in part to the dedicated work of our animal attendants, Ray Steffen, Terry Hansen, and Jim Schmidt.

Our embryo transfer lab is fully operational now, with only a few minor modifications required here and there. The lab provides an opportunity for us to perform some of the latest reproductive technology available to beef producers. Our goal is to figure out how this technology can fit into production systems and then encourage producers to utilize the technology to enhance their own operations.

Additional work planned for 2000 is to continue our intensive rotational grazing research, where we will begin the fourth year of that experiment. Next year we should have sufficient evidence to make sound rec-

ommendations to producers on cattle and pasture performance. We also plan to continue our estrous synchronization work to figure out systems that are not labor intensive, require no heat detection, and are cost effective. In this way, AI can be used in herds to improve genetics without excessive additional work. With an increase in value based marketing throughout the beef industry, genetic selection may be the single most critical factor in determining the value of an animal's value. Therefore, bull selection becomes critical.

With the increase in use and awareness of biotechnology, such as cloning, in agriculture, we have embarked on a program to utilize this biotechnology in our herd to determine whether there are any detrimental effects noticed in animals produced from some biotechnological process. Our endeavor here is to fully understand any biotechnology process before it is used extensively by producers, and to eliminate instances where the technology

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Aspen/Larch Genetics & MN Tree Improvement

Dr. Andy David, *Forest Geneticist*

Greetings! This is my first article for the North Central News and for those of you who don't know me I am

the tree breeder at the North Central Research and Outreach Center. As the Director for two tree improvement cooperatives, (Aspen/Larch Genetics Cooperative and the Minnesota Tree Improvement Cooperative), I am responsible for coordinating the breeding and planting efforts for six different species, aspen, larch, jack pine, red pine, white pine, and white spruce.

Although the mild winter may be enjoyable for some, it can confound breeding efforts in tree species. Normally we breed aspen in late January by bringing male and female branches into the greenhouse to make controlled crosses. However, this year the flowers were not ready for breeding until early March, which has really compressed our aspen breeding season.

In addition to the aspen breeding work going on in the greenhouse, we are vegeta-

tively propagating aspen hybrids to begin our first clonal test. These 55 aspen hybrids were selected based on performance at six years in the field and represent individuals from our Warba, MN plantation in the top 10% of the plantation for both height and diameter. They will be tested against each other on contrasting sites for volume growth, disease resistance, and wood quality traits such as color and specific gravity.

This spring we will be planting a European larch provenance test of Sudaten sources. Prior tests have identified the Sudaten variety as one that affords superior growth coupled with resistance to needlecast disease but a higher incidence of poor stem form. This provenance test will help identify sources that have good growth and stem form, as well as allow us to add superior individuals to the breeding population.

This year marks a milestone in our white spruce program as we embark on our second generation of breeding. Creating second generation material may not seem significant to breeders of agronomic crops who create a new generation each year, but because it may take a decade or longer to reach sexual maturity in tree species it is a mile-

stone worth celebrating. Our white spruce breeding population has been archived at the Department of Natural Resource's General Andrews nursery near Willow River, MN. We will be making crosses among those trees from the first generation that produced exceptional progeny. Height gain for seedlings derived from trees in our first generation is approximately 8% over wild seedlings, and gains in our second generation should add an additional 8-10% over the first generation.

Our white pine breeding program is relatively new and consists of grafted selections chosen either for growth and form or putative tolerance to white pine blister rust. These grafted trees are not producing flowers, but stem injections of gibberellic acid and cultural practices such as pruning the top leader may induce flowering. This spring we are starting an experiment to determine if applications of gibberellic acid alone and/or in combination with top pruning of the seedling leader can induce flowers in white pine. This information will tell us how to manage our white pine on our breeding arboretum for early flowering and allow us to begin breeding our white pine selections.



Forest Management

Dr. Howard Hoganson, *Forester*

Current work is focused on developing new computer modeling techniques to support the USDA Forest Service in their

effort to revise forest management plans for both the Chippewa and Superior National Forests. The Forest Service plans to utilize two new forest management scheduling models developed at the North Central Research and Outreach Center (NCROC). Emphasis is on better integrating environmental and economic facets of management and better understanding the trade-offs associated with a

broad range of forest management strategies. On July 20 The College of Natural Resources Institute for Sustainable Natural Resources is sponsoring a 1-day workshop on the new NCROC forest modeling methods. For more information contact Howard Hoganson (218) 327-4362 or Mary Ann Hellman (612) 624-7222. Howard will also present a paper on the modeling methods as an invited speaker at the forestry session of the annual meeting of the Institute for Operations Research and Management Sciences in Utah in May. Joshua Bixby and Wei Yu, two forest management graduate students, will be in Grand Rapids for most of the summer to help with the Forest Service modeling work. This will be Josh's third summer at the Center.

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reaches producers before sufficient research has been completed.

For a detailed summary of research performed by the University of Minnesota beef group, you can obtain a copy of the 2000 Cow/Calf Day report by contacting us. Please feel free stop by and visit our facilities and animals or if you need questions answered. I can be contacted at (218) 327-4490.



Horticulture

Dr. David K. Wildung, *Horticulturist*

As March begins the big concern among growers and gardeners is what affect our unusually warm winter

temperatures and lack of snow cover will have on plant winter survival. Certainly many of our perennial plants are still susceptible to cold soil temperatures and potential sunscold injury. It could be an interesting summer to evaluate strawberry plant survival and fruit characteristics. It should be a good test for our new strawberry cultivar releases 'Mesabi' and 'Winona'. 'Mesabi' is noted for its winter hardiness so I will be looking for good fruit production on it. Several additional strawberry breeding lines will be evaluated for the first time this summer. In addition, strawberry burn renovation studies to reduce herbicide and cultural practices will continue on NCROC plots and grower-cooperator sites.

In 1999 the use of colored plastic mulches to speed maturity of vegetable crops was evaluated using clear, black, green, red, and blue plastic with muskmelon, to-

matoes, and pepper. All plastic colors increased production and speeded maturity with melons and tomatoes. The plastic color didn't matter. Pepper results were very erratic. This study will be repeated this summer. Also this summer we will be looking at a great selection of annual flowers in sun, shade and hanging baskets. Seeded types as well as plugs will be grown. During the last two years, great progress has been made with the seed companies to evaluate their newest varieties. There will be some wonderful new varieties for gardeners to see. Results from the 1999 Annual Flower Trials are available through the Center. The 1999 chrysanthemum plots were mulched and overwintered so we could compare first and second year plantings. Hopefully, winter survival will allow that! Over the next three years several of the popular maximum breeding selections will be named and released to the public.

I would like to welcome Keith Mann as our new horticulture plot coordinator. Keith joined us last July and I look forward to good things from him in the years ahead. I would also like to mention our on-going horticulture campaign to assist horticulture plot research at NCROC. Your financial support can certainly assist us in this effort.

Won't you consider a contribution as we "grow into the 21st Century?"

Tourism

Dr. Dan Erkkila, *Extension Educator*



For the first time since he started with the University in 1991, Dan Erkkila is on a semester study leave until May 15. The University of Minnesota grants

study leaves and sabbaticals for faculty and staff to provide opportunities for such things as exploring new research opportunities, guided self-study, and professional development. Dr. Erkkila's leave is allowing him to work on new research proposals, complete a research paper for journal submission, and review popular and new tourism textbooks that may be applicable to a new graduate program in tourism that is scheduled to begin this year on the Twin Cities campus of the University.



Shoreland Vegetation and Landscape

Ms. Mary Blickenderfer, *Extension Educator*

Efforts during this past year have focused on working cooperatively with other agencies and organizations to promote shoreland education, establishment of shoreland demonstration sites, and commercial availability of native shoreland plants. With initial interest in shoreland landscaping generated through presentations to local lake associations, shoreland owners in several counties have followed through by establishing native buffer areas along their shoreline

properties. Funded in part through the local county water plan, lake association, or a DNR grant, these projects demonstrate to others the "shoreline of the future" that protects the lake or river environment.

In response to the great interest in shoreland landscaping, Extension is presenting a series of two workshops, titled Shoreland Design and Shoreland Revegetation Techniques, this year in Itasca, St. Louis, Chisago, Isanti, Pine, Sherburne, and Morrison Counties. Targeting Master Gardeners, Lake Association representatives, natural resource professionals, and nursery and landscape professionals, the goal of these workshops is to build a resource network of

individuals in each county that can assist shoreland property owners in making appropriate management decisions for their property. This may include designing and implementing shoreland revegetation projects. These workshops are supported/sponsored by local county water plans, lake associations, county Extension, Community Education, SWCD, CWP grant, Conservation Partners grant, EQIP challenge grant, and a grant from the NE Region Sustainable Development Partnership. These workshops will be offered in additional counties in 2001.

Thanks to those at North Central Research and Outreach Center that have provided valuable support for this program.



Plant Pathology

Dr. Robert F. Nyvall, Plant Pathologist

Robert Nyvall and wife Sandra, have returned from Australia. The Nyvall's went to Australia in January. Dr. Nyvall participated in a semester faculty improvement leave in the laboratory of Dr. Ric Cother, New South Wales Department of Agriculture. Dr. Nyvall studied the biocontrol of water plaintain by a fungus called *Rhynchosporium alismathis* and mutual diseases of white rice and cultivated wild rice. The fungus is commonly found in both Minnesota and Australia and has been demonstrated by Dr. Cother to control water plaintain. Water plantain is a weed problem in both Australian white rice fields and in Minnesota cultivated wild rice fields. Additionally, several diseases caused by fungi oc-

cur on white rice that is also thought to occur on cultivated wild rice. Dr. Nyvall studied the symptomology of these diseases and learned isolation techniques on white rice to identify similar organisms that may occur on cultivated wild rice. The Nyvall's returned after a brief stop in Hawaii for R&R.

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Silviculture

Dr. Daniel W. Gilmore, Silviculturist

Silviculture systems are designed to create and maintain the kind of forest that will best fulfill the objectives of

the forest owner and governing society. The production of timber, though a common objective, is not the necessarily the most important objective. Forest management objectives that may be more important than timber production to individual forest landowners, or society at large include wildlife, grazing, recreation, or aesthetics. One of the greatest challenges in silviculture is getting forest landowners and society to clearly define their management objectives.

In recent years, silviculture has been defined as applied forest ecology. This definition is fitting as silviculture is to forestry as agronomy is to agriculture in that it is concerned with the science and technology of growing vegetation. Currently, I have three projects underway to enhance our understanding of tree regeneration in growth under natural conditions and in response to human-caused environmental manipulations.

Regeneration dynamics of aspen and birch: Seedling growth and morphological development under ideal conditions and competition within a greenhouse -

Funded by the Blandin Foundation

The differences in the regeneration ecology of these two species has practical importance because greater understanding of how they grow together could lead to a reduction or refinement of costly silviculture treatments implemented to establish these species following timber harvesting. Specific results that will be obtained from this study include equations to describe the maximum biological growth potential of aspen and birch which can be used to assess the economic feasibility of various silviculture treatments to promote aspen and birch regeneration following timber harvesting. Kathy Haiby, Egon Humenberger, and Tim O'Brien have been doing an excellent job in managing the logistics for this project in the aspen/larch greenhouse.

Modeling early regeneration processes in mixed-species boreal forests of Alberta - Funded by Manning Diversified Forest Products Research Trust, Canadian Forest Products, and Daishowa-Marubeni

Working with colleagues at the University of Alberta and the Canadian Forest Service, fundamental base-line data will be collected in the initiation of a project to monitor natural regeneration process of boreal forests. A total of 53 seed collection traps were established in aspen dominated, mixed-wood and conifer dominated sites during mid-July 1999 I have a masters student, Carrie Becker, quantifying seed fall density and

conducting germination tests on seeds collected during the first year of this project. Across the Boreal Region, many people noted that this was a particularly good crop year for spruce cones; therefore the timing of this project could not have been better. Personnel from Minnesota helping with this project include Kathy Haiby, Cindy Buschena in St Paul, and John Zasada from the USDA Forest Service.

By-product Application to Agricultural, Mineland, and Forest Soils - Funded by the Legislative Commission on Minnesota Resources - LCMR project ML 1999, Chap 231, Sec. 16 Subd. 10(g)

Field installations will be established this spring on forest sites on the NCROC Experimental Forest and the Cloquet Forestry Center. The objectives of this project are to examine and report on the effects of co-application of biosolids, wood ash and/or paper mill residuals on seedling germination, survival, and growth. I am collaborating with Carl Rosen, Tom Halbach, and Morteza Mozaffari of the Department of Soil, Water, and Climate in St Paul and Russ Mathison of NCROC on this project. Peace Corp Masters International student Molly Matysik is conducting a literature review and is establishing a germination test in the greenhouse. We will anticipate conducting a workshop to present our early results in early-October at the Cloquet Forestry Center.



Wild Rice

Dr. Raymie Porter, *Wild Rice Geneticist*

Wild Rice Breeding and Germplasm Improvement: The breeding population PBR-C4 has been officially

Moderately high Fungal Brown Spot disease resistance and yield. High shattering resistance and lodging resistance. Fungal Brown Spot lesions cover less of leaf surface than other varieties. Yield averages 16% higher than Franklin. Shattering loss averages one-third less than Franklin. Consists of heterogeneous panicle types, most of which have some degree of purple at full flowering. Medium plant height. Medium maturity, flowering 1 to 2 days after K2 and Petrowske Bottlebrush.

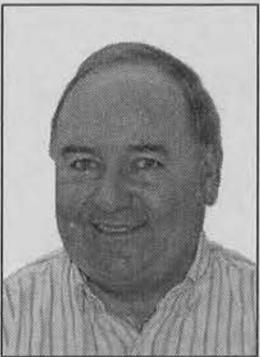
released by the Minnesota Agricultural Experiment Station (MAES). Pending final approval of the name, it will be called 'Petrowske Purple' in recognition of the Minnesota wild rice grower (Kelly Petrowske) whose variety was the beginning material we used to develop this new cultivar. If the final increase goes well this summer, we expect there to be 20,000 to 40,000 lb. of seed available to Minnesota growers. Plant Variety Protection is being sought for this variety, which permits it to be bought and sold only as certified seed. The description of Petrowske Purple is as follows:

Last August, 15,000 lb. of the cultivar Franklin was re-distributed as certified seed to Minnesota growers. Paul Imle, a grower north of Gully, MN, grew the seed on behalf of Minnesota Crop Improvement Association, who oversaw the re-distribution. Franklin, named in memory of pioneering wild rice grower Franklin Kosbau, was first released by MAES in 1992.

Last July, I participated in a conference organized by Great Lakes Indian Fish and Wild-

life Commission (GLIFWC) on research and management of wild rice. I presented "A Genetic Overview of Wild Rice From Three Decades of Breeding" to the participants of that meeting, which consisted of researchers and other individuals interested in wild rice, mostly the kind found in natural stands.

Our collaborators in the Department of Agronomy and Plant Genetics, Dr. Ron Phillips, Dr. Scott Jackson, and Peter Imle, are making progress in refining the molecular genetic map of wild rice using RFLP markers. There has been some confusion about the nature of this work. It does not involve genetic engineering, or the transfer of genes from other species into wild rice. It does involve using modern genetic tools to better understand traits of wild rice such as shattering and disease resistance; so that we can more efficiently and effectively breed for these and other traits.



News from North Central

Dr. David L. Rabas, *Center Head, Professor*

As the front page article indicates, the new building addition is open and busy and our partnership with the Uni-

versity of Minnesota Extension Service - Itasca County has gotten off to a good start. I want to take this opportunity to invite all our readers who have not visited our Center recently to come and tour the new facilities. They were designed by Architectural Resources of Hibbing and with the help of John Rashid from UM Facilities Management Duluth as Project Manager and our Center engineer Dr. Jim Boedicker, they were well designed and completed within budget.

concern about drought will disappear. This is a summer of a big reunion for our North Central School of Agriculture Alumni and friends. Tom Carpenter and his committee are planning an exciting reunion with many activities. I want to personally invite our alumni and friends to stop by and visit when you attend the reunion. You are always welcome.

As I write, our Plant Pathologist, Bob Nyvall is in Australia studying fungal diseases; Raymie Porter, our Wild Rice Breeder, is in Honduras, helping people there. Cliff Lamb, our Animal Scientist has just returned from an extended visit to France and England. Howard Hoganson, our Forester, has recently welcomed a graduate student from the Peoples Republic of China. The student will be spending the summer with us at NCROC.

By the time our readers received this newsletter the legislature will have made a decision on the Capital Bonding Bill. The house and governors proposal at this point don't

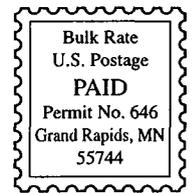
look too promising for the University. It would seem reasonable that in a time of surplus the legislature would invest more in the University to strengthen the institution that is often referred to as the "economic engine of the state". Minnesota's outstanding economic position in the health, technology, mining, food, and forest industries is closely related to technology and information developed by its research University and by strong MNSCU and K-12 institutions.

NCROC has a capital-bonding request to replace our energy and work inefficient 1915-era farm shop. Our campus partners the UM Aspen/Larch Genetics Cooperative has a request to expand its office and laboratory facilities. Both projects are badly needed. Any support our readers can provide for the University bonding request now and in future years will be greatly appreciated.

The approach of spring (at least as I write this article in late March) is early and comes with some concern for drought. Hopefully we will have good April and May rains and the

I look forward to seeing many of our readers at our summer field days and tours. Best wishes for an enjoyable and safe summer.

UNIVERSITY OF MINNESOTA
North Central News



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UNIVERSITY OF MINNESOTA
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Alumni News
All class reunion July 22, 2000

A belated Merry Christmas and Happy New Year to everyone. With the North Central Quarterly gone and being replaced with the North Central News, we won't be able to keep in touch as often. So I am sending out this letter to tell you about our class reunion on July 22, 2000 at the Sawmill Inn.

First of all, we have seen a lot of changes to our campus since the last Class of '65 reunion. The name has been changed to North Central Research and Outreach Center. The Itasca County Extension Service has moved onto the campus. That move will help the University of Minnesota Research and the County Extension work together on research and extension projects.

Have you seen the plaque that was placed on BERGH HALL, or the stone monument that stands by our flag pole down by the Horticulture Green House (my past home away from home)? I am very excited about the monument, it can be seen from Hwy 169. We also added a yellow brick to the Yellow Brick Road at Central School downtown.

I feel like we have some very fun and exciting activities scheduled for the reunion on the 22nd of July. The committee has put together a good day with all activities starting at 9:30 A.M, including some tours around town and a social hour and dinner in the evening. We will all meet at the Sawmill Inn, then buses have been lined up to take you on the tour of your choice.

- 1) POTLATCH- a wafer board plant**
- 2) ASV - a track vehicle plant**
- 3) Judy Garland's Home/Garden Center**
- 4) North Central Research/Outreach Center**

If you are attending, please return the registration form and a check to: Tom Carpenter 34331 S. Shoal Lake Rd., Grand Rapids, MN 55744. All alumni, employees and their guests are invited to attend. We are looking forward to seeing each and every one of you for an enjoyable get together on July 22nd, 2000.

----- Detach and Return Bottom Portion -----

Registration For North Central School Of Agriculture Alumni Reunion – July 22nd 2000

Name _____ Class year _____

Address _____

No. persons attending _____ (X \$1 4.00 per person) \$ _____

Alumni Dues \$ **\$2.00**

Total Amount enclosed \$ _____

Will you be taking a tour? _____ How many persons? _____