Extended Visions, January/February 2005

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Welcome 2005!

It is with great pleasure and anticipation we welcome a new year at the ARDC. During 2004 faculty and employees working at the ARDC made several improvements to facilities, successfully started and completed/continued research projects, and hosted many visitors in educational activities. All in all we had a successful year due to the efforts of nearly 400 faculty, staff and students that worked on the ARDC.

As much as we accomplished in 2004, I am even more excited about what may transpire in 2005. Completion of the feedlot expansion is one of the exciting additions for the New Year. This addition will enable faculty to obtain grants and contracts that were turned down in the past due to space limitations. In conjunction with the feedlot construction, a small center pivot will be erected immediately east of the feedlot holding pen. This will enable easy dispersal of the runoff effluent through the center pivot. The pivot will cover existing row crop and pasture areas. The pasture area under the new pivot will be converted to row crop production, and some of the row crop expansion immediately south of the feedlot expansion will be converted to pasture as part of the overall plan.

Other major projects that should occur during 2005 include enhanced communication (data and voice) capabilities, installation of a RTK base station and related equipment, and construction of a new shop and office building to replace current activities in the Load Line #2 area.

In the coming months, I will be able to share with you other exciting news and happenings at one of the most unique agricultural research facilities in the nation...the ARDC! Happy New Year!
wood in 2003 and 2004. Data collection began in August and ended in December, with stem color being assessed initially and on a weekly basis for 10 weeks. Optimal harvest time for 10 dogwood species tested varied from early late fall. 'Scarlet Curls' and 'Flame' willow stems attained the darkest color (red or red-orange) at an early stage and were harvestable in early November. 'Yellowtwig' dogwood stems had the most brilliant color (bright yellow) in late November. 'Cardinal' dogwood stems attained a darker color (salmon) value more quickly than other dogwoods, and were harvestable from early October until early December. Beginning in mid-November was the best time to harvest 'Bailey' dogwood stems. Most stems can be harvested periodically throughout the winter season and sold, however the late fall harvest of all species prevents winter damage and frequent visits to the same field. Mid to late winter or spring harvests have shown tip die-back and wildlife damage. 

Markets for woody flowers can be far round, but stem lifespan in storage is limited. To address this issue, storage experiments were conducted to determine the best way to prolong the window of availability of high quality cut branches. Six cultivars, 'Scarlet Curls' willow, early willow, 'Bailey', and 'Cardinal' Redosier dogwood, and yellowtwig dogwood were selected for cold storage and harvested at the beginning of December. The stems were placed in buckets for each of three treatments; storage in water, storage in a water/floral preservative solution, and storage in a water/beetle solution. Branches were stored in a walk-in cooler and in an outdoor shed at ambient conditions. Stems were monitored for change in stem color, flexibility, tip die-back, and dormancy from January through June, on a weekly basis. Optimum storage conditions were found to be placing the branches in the cooler, upright in a 1:10 water/beetle solution. Stems do best in this environment if used within 3-4 months. After this period, the upper 5-10 cm of each cultivar begins to appear to show die-back, fade in color intensity, and decreased flexibility, and thus can not be used in the floral industry. 

Four Decades of Windbreak Research at the ARDC 

By Jim Brandle, Professor University of Nebraska School of Natural Resources

For almost 40 years, the main objective of forestry research at ARDC has been to determine the benefits of shelterbelts or windbreaks on crop production. Over the years, researchers and graduate students have focused on the impacts of shelter on crop yield and understanding how yields increase.

For winter wheat, the average yield increase is about 15% due mainly to protection of wheat from winter damage. The incidence of winter kill in protected areas is sharply reduced, resulting in higher stand densities and greater yields. In the case of soybeans, the structure of the soybean canopy is changed. Plants are taller with longer internode lengths resulting in more light reaching the lower levels of the canopy. With more light, photosynthetic increases in the lower levels of the canopy, and when yields are collected by layer, yields in the lower 6 inches of the canopy of sheltered soybeans increase. Over the years, soybean yields showed a 15-20% increase in yield as a result of windbreaks. The case of corn, average yield increase are about 10-15%. So far our research has not identified the direct cause of corn yield increases but we suspect that more rapid plant development, earlier tassel emergence and fertilization, and the reduced chance of water stress during the grain filling period may be among the factors involved in the increase in corn yields.

Our attention has shifted in the last five years to quantifying the other values of windbreaks to the agricultural ecosystem. A recently completed study identified over 20 different tree and shrub species that have become established in the windbreaks at ARDC. This added diversity increases the habitat value of windbreaks by providing a variety of food resources to wildlife.

We have conducted studies on bird use of windbreaks (with Ron Johnson, a wildlife specialist at the School of Natural Resources) and determined that windbreaks provide significant habitat for many of our native species. We have looked at the distribution and over-wintering of bean leaf beetles (with Steve Danielson of Entomology) and found no significant difference between sheltered and unsheltered fields. In contrast, a positive correlation has been found between the presence of predatory insects such as lady beetles and the presence of windbreaks. Windbreaks with deciduous trees such as aspen provide good over wintering habitat in the leaf litter while windbreaks with eastern redbud or pine offer little protection to the over-wintering insects. This type of research is designed to test the hypothesis that 4-6 years for cultivation, and around windbreaks in an effort to determine just how much woody cover is required for various types of bird species.

Cooperative efforts with Terry Klopflenstein, University of Nebraska Animal Science Department, have focused on the production of livestock and timber under a silvopastoral system. Taking into account both timber and livestock returns, the silvopastoral system is more productive than either timber or livestock alone. While not a common practice in Nebraska, silvopastoral systems are very economical in the Nebraska Pine Ridge area. This type of windbreaks for carrying livestock, the role of mulch, and silvopastoral systems have an advantage over other carbon storage practices in that not only is carbon stored in the wood of trees, but there are significant reductions in carbon dioxide emissions as a result of the installation of a windbreak. The land upon which a field windbreak is planted is removed

Consider the Natural Resources for Your College Education!!!

Undergraduate major programs in the University of Nebraska-Lincoln's School of Natural Resources are designed to help students understand the interactions among natural resource systems and evaluate the impacts of humans as stewards and managers of these systems.

Programs include:
- Environmental Soil Science
- Environmental Studies with a specialization in Natural Resources
- Fisheries and Wildlife
- Natural Resources & Environmental Economics
- Rangeland Ecosystems
- Water Science

Pre-degree programs include:
- Pre-Forestry (2-year program for transfer, administered through SNR)
- Pre-Natural Resources Program (for undeclared students preparing for a major in natural resources)

To learn if this experience is for you, hear from someone who works in natural resources. Students can tell you about their time in the School of Natural Resources and what they like best. Visit the following website...

http://snrs.unl.edu/prospective_students/meet_our_students
**AG-RELATED EDUCATION - Cont. from P 1**

**NITROGEN MANAGEMENT TRAINING**
- March 15 * 7 pm and March 16 * 9:30 am * ARDC Research & Education Building
All producers using fertilizer in the LPN-NRD must attend nitrogen certification at least once every three years. The training cost is $15 per person and will be held at the ARDC Research & Education Building.

**PRIVATE PESTICIDE APPLICATOR TRAINING**
- January 18 * 1:00-3:00 pm
- January 19 * 6:30-9:30 pm
- January 22 * 9:00-Noon
Private pesticide applicators with expiring certification and those seeking first-time certification will need to attend certification training sessions in 2005. The training cost is $15 per person and will be held at the ARDC Research & Education Building.

**WINDBREAK RESEARCH**
- Cont. from P 2

from production, resulting in fuel savings from those acres not farmed.

Windbreaks are advantageous even though there is some loss in production from acres planted to trees and some loss in yield in the area immediately adjacent to the windbreak. The yield increase in the area sheltered by the windbreak more than make up the lost bushels from these two areas. Thus, total crop yield is increased because of the windbreak protection.

There is also a decrease in input costs due to fewer acres farmed, an increase in carbon storage in the wood of the windbreak trees and a reduction in carbon dioxide emissions because we are using less fuel.

If we consider other types of windbreaks such as those around farmlands, the energy savings are even greater. Research from the region indicates that a good four or five row farmland windbreak will save as much as 20 to 30 percent of the energy needed to heat the home. With today's energy prices, this magnitude of savings can be significant. Furthermore, a savings in energy use means a reduction in carbon dioxide emissions and thus an environmental benefit.

Learn about the scientific principles of integrated weed management (IWM) and how to apply them in practical field situations. Five CCA credits or one graduate college credit will be granted.

Study the fundamentals of IWM using practical examples from Nebraska, as well as current issues in weed science, such as weed management strategies to reduce weed resistance to Roundup. This class will deliver information on the need for and timing of weed control, as well as money-saving strategies ($5-20/acre) that provide for the environmentally sound use of herbicides.

Topics include: importance of weed biology and ecology; critical period of weed control - pros and cons; weed thresholds; weed shifts and weed resistance - why do they occur, biologically effective dose - ecotoxicology and environment; benefits and concerns with herbicide-tolerant crops, and IWM - basic rules of thumb. $65 by Feb. 10/$75 after Feb. 10.

Digital Agronomy for Increased Yields and Profits
8:45 am - 4:30 pm.
February 25 * University of Nebraska West Central Research and Extension Center, North Platte
March 1 * University of Nebraska ARDC
March 3 * Lifelong Learning Center, Norfolk
REGISTER EARLY: MAXIMUM ENROLLMENT FOR THIS WORKSHOP IS 30 PARTICIPANTS PER SITE TO ENSURE HANDS-ON TRAINING! Registration will be on a first-come, first-serve basis. Although a limited number of computers will be available (first to register have priority on available computers), participants are encouraged to bring their own laptops for the hands-on training sessions.

7 total CCA Credits applied for. Learn about trends and emerging opportunities in use of advanced information technologies for improving crop management decisions to increase yields and profit. Learn how to use Hybrid-Maize - a computer simulation model that can: (1) estimate field-specific yield potential of dryland and irrigated corn, (2) help identify optimal hybrid selection, plant population, and irrigation regime, and (3) perform in-season, real-time yield forecasts. Course also includes hands-on training in use of WeedSOFT, a computer decision-support system that identifies weed management options in terms of impact on yield, profit, or water quality.

$65 by Feb. 15/$75 after Feb. 15. Software not includ-
ed, but can be purchased at $35 each for Hybrid-Maize and WeedSOFT.

Further training is offered through the UNL Department of Agronomy and Horticulture. The department provides CEE credit, college credit or stand alone non-credit course options. Courses are designed for the working professional in the agronomic and horticultural sciences, and postgraduate students seeking in-depth knowledge of emerging issues and new approaches in many areas of agricultural technology. Delivery approaches vary. Some classes are presented as 1 or 2 day workshops with the option of continued projects for credit. Some are delivered via internet and video-streaming. A complete listing can be found at http://agronomy.unl.edu/distance_ed/. For more information, call (402) 472-2811.

Caryl Carstensen Retires
Caryl Carstensen, an Ag Research Technician with Swine Research Unit at the ARDC, retired in December. Caryl was responsible for various maintenance, electric, heating and AC, mechanical, carpentry, and Masonry projects. He started with Swine Unit in 1989. Caryl is pictured receiving a certificate of appreciation from Dan Duncan, ARDC Director, and Matt Anderson, Swine Unit Manager.

Winter Programs Offer Crop Management Education
University of Nebraska Cooperative Extension begins its annual Crop Management Winter Programs in November and December with two precision agriculture workshops. The training sessions include indepth information from the university’s Institute of Agriculture and Natural Resources faculty and staff. Continuing education credits for the Certified Crop Advisor program are being sought. Fees include lunch, refreshment breaks, workshop materials and an instruction manual.

For more information or to register, call University of Nebraska Cooperative Extension at (402) 624-8000, e-mail kglwen1@unl.edu. Descriptions of the workshops follow.

- **Soil Fertility - Basics** * January 14 * 8:30 am - 4:30 pm. * University of Nebraska ARDC. Non-credit (No CCA credits). Good preparation for taking the CCA exam, gets refresher for the experienced professional. $65 by Jan. 7/$75 after Jan. 7.

- **Corn Rootworm Distance Education Workshop** * February 4 & 11 * University of Nebraska ARDC and University of Nebraska Northeast Research and Extension Center at the Lifelong Learning Center in Norfolk Day 1: 8:30 a.m. - 1:00 p.m./Day 2: 8:30 a.m. - 12:30 p.m.

This distance education workshop will be delivered on two consecutive Fridays. Each day will differ in content.

Both include a question/answer session. Call for pricing.
Day 1 includes: corn rootworm fundamentals-biology; corn rootworm fundamentals-effects of weather on corn rootworm biology and performance of rootworm-control products; corn rootworm situation in 2004 in Illinois, Indiana, Iowa, Minnesota, Nebraska, and other states, and results from 2004 corn rootworm control efficacy trials.

Day 2 includes: a recap of first workshop; issues associated with corn rootworm management including soil insecticides and seed treatments, YieldGard Rootworm corn, and adult corn rootworm suppression, variant western corn rootworm, extended diapause, and management of corn rootworms in 2005.

- **Integrated Weed Management** * February 17 * 8:30 am - 5:00 pm. * University of Nebraska ARDC

Topics include: importance of weed biology and ecology; critical period of weed control - pros and cons; weed thresholds; weed shifts and weed resistance - why do they occur, biologically effective dose - ecotoxicology and environment; benefits and concerns with herbicide-tolerant crops, and IWM - basic rules of thumb. $65 by Feb. 10/$75 after Feb. 10.

![Image](https://example.com/image1.png)
Mark Your Calendar for These 4-H Events

* 4-H LEADERS TRAINING AND BANQUET
If you haven’t registered for the 4-H Leaders’ Training Banquet, do so TODAY!!!! It will be held on Wednesday, January 12th, at the Saunders County Extension Office located at the ARDC Research and Education Building. Registration begins at 6:15 p.m. with the meal starting at 6:30 p.m. This is a good time to interact with other leaders and learn new ideas. Leader training is open to any leader, parent or adult interested in helping with and learning more about the 4-H program for the upcoming year. Please sign up by January 10 so that adequate preparations can be made.

* MARKET BEEF WEIGHT-IN DATES - JANUARY 22 & MARCH 26
Weigh-ins for 4-H Market Beef weigh-in will be on January 22 and March 26 at the Wahoo Sale Barn from 1:00 p.m. to 3:00 p.m. Your animals do not need to be broke to lead at this time.

* QUALITY ASSURANCE TRAINING
Quality Assurance is again required for all 4-Hers showing beef, sheep, swine, goats, dairy, poultry and rabbits. This training is required annually unless a written test is passed.

General training sessions will be held on February 2, March 9, June 7 and June 9.

Get Your Green Thumb Ready!
Please contact Sarah Browning, University of Nebraska Cooperative Extension at (402) 727-2775 or by e-mail at sbrowning2@unl.edu for information or to register for any of the below workshops. Programs are free and include lunch. Please call by January 30 to reserve your space.

Commercial Field Vegetable Production Clinic
January 29, 9:00 a.m.-3:30 p.m. * ARDC Research & Education Building
This workshop features Dr. Charles Marr, Kansas State University Extension Horticulturist for Vegetable Crops. Dr. Marr’s focus, through extension programming and research, includes commercial vegetable production, management and handling.

Program highlights include what’s new in field tomato production in 2005, integrated pest management, and weed control in melons. There will also be a question and answer session, giving growers a chance to get answers to their individual production problems.

The cost is $30 per person, or $50 per couple (includes lunch and an information packet). Programs coming in late February/March as part of the “Creating A Horticulture Paradise” program series that will be held at the Cuming County Courthouse in West Point and the Dodge Extension office in Fremont include:

* March 1, Mushrooms: Collecting and Growing
* March 8, Designing and Growing Beautiful Container Plantings
* March 15, Great Perennial Plants for Nebraska Gardens
* March 22, Weed Identification & Control in the Lawn and Landscape

Assistant the Community
Each year the employees of the ARDC and Cooperative Extension in Saunders County partner with Saunders County Head Start to locate a family who could benefit from assistance during the holidays. This year a family of five was “adopted” and gifts were provided through employee donations. A monetary donation was also made to the VFW Christmas Fund.

Record Turnout at 2004 Soybean Day
Soybean growers turned out in record numbers at the 2004 Nebraska Soybean Day and Machinery Expo held at the Saunders County Fairgrounds in Wahoo. Over 400 producer from 28 Nebraska counties and two states attended the event.

Producers also visited with various commercial exhibitors, viewed new farm equipment, and learned about soybean rust at a special exhibit. Sue Martin of the popular ag marketing show Market to Market was the featured speaker. She discussed the outlook on the corn and soybean futures for the next 6 months. Live demonstrations were presented on grain truck mechanical compliance and tracation using a mechanical sled and tractor.

Other presenters included NU researchers and specialists, Nebraska Soybean Board representa-tives, soybean grower and the Nebraska State Patrol Carrier Enforcement.

Master Gardener Training
Training for 2005 will be held on Thursdays from March 3 through April 14, 9 a.m. - 4 p.m. at the Dodge County Extension Office 1206 W. 23rd Street in Fremont. Through the Master Gardener training sessions and workshops, you’ll become a more knowledgeable gardener and will have the opportunity to share this knowledge with your community. You will have access to a wealth of information that can make you a better gardener and you will also meet lots of interesting people who share your love of gardening.

National FFA Convention
by Trisha Larson, Mead FFA Student
On the evening of October 26, 2004, seven members of the Mead FFA Chapter departed from Lincoln and headed for the 77th National FFA Convention. Our charter bus traveled 12 hours and put on 740 miles before reaching our destination of Louisville, Kentucky.

Adley Janecek, Cody Moravec, Josh Sladky, Trisha Larson, Brittany Nelson, Dan Parsons, and Duane Campbell represented the Mead FFA Chapter. We were just a small number of the 48,000 students that made up the “Sea of Blues.” There was much to do in order to achieve by attending the National Convention, such as - it helped us develop leadership skills, explore career opportunities, and it challenged us to set high goals for our future, just as the theme of the special event suggested: Learn, Lead, Succeed.

We learned much from motivational speakers such as Joe Theissmann, a former pro football player, and Linda Larson who spoke on power, passion, and pizzazz. It was also a special treat to see and hear from National Officer Amy Rasmussen, a graduate of Mead. Adam Rasmussen flew out to be with his sister as she delivered her retiring address. Amy held the national office of Central Region Vice President during the 2003-2004 year.

There was a career show that had exhibits in the hundreds that represented agriculture industry professionals and numerous colleges from across the nation. The FFA band and choir provided entertainment. We also attended two dances.

Our sponsor and escort for the week, advisor Mr. Rutt, lined up a tour of the Louisville Slugger Museum, a haunted morgue, and dinner at Joe’s Crab Shack for our enjoyment.

Meeting new people form different states was my favorite part about National Convention,” replied Josh Sladky. “Everywhere I looked there was a different state represented!”

We took advantage of the experiences and all that the week had to offer. We realized that the National Convention is something we will always remember. It gave us the unique opportunity to appreciate the many aspects of FFA and agriculture.

Forestry Research Articles
Provided by Scott Josiah, Christine Meyers and Jim Brandle of the University of Nebraska-Lincoln School of Natural Resources

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