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How real is the threat of crop disease bioterrorism?

The recent acts of terrorism that exposed humans to anthrax have fostered concern over the potential to use plant pathogens as bioterrorism agents. Could one or more plant pathogens be spread over a wide area in Nebraska, causing catastrophic disease losses in our major field, forage or food crops?

Yes, it is possible to induce a plant disease by artificial inoculation of a susceptible plant host. It's done routinely in greenhouse experiments on plant diseases. Having success in the field, however, presents a greater challenge and the success rate of field-induced plant diseases is much less than that for greenhouse-induced plant diseases. Why? One must only look at one of the basic principles of plant pathology -- the plant disease triangle -- to understand how difficult it is to create an artificial plant disease epidemic under field conditions.

For any plant disease to occur and then become epidemic, the three essential components -- a virulent pathogen, susceptible host, and favorable environment -- have to be in balance, and this doesn’t occur often in nature. This doesn’t imply that natural plant disease epidemics are rare because every year some of our food, feed and fiber crops are attacked by plant pathogens. This year in Nebraska, certain varieties of winter wheat, for example, suffered significant losses to stripe rust; however, statewide losses to stripe rust were probably less than 1%. Our losses to stripe rust were less than those of other states because most of our winter wheat acreage was planted to varieties resistant to stripe rust. Only those fields with susceptible varieties were significantly affected.

Another example of natural disease control this year was illustrated in gray leaf spot of corn. Given that gray leaf spot is the most common and most serious corn disease in the Midwest; why wasn’t it a more significant factor in statewide corn production this year in Nebraska. The answer relates to two of the corners of the disease triangle, host and environment. More resistant corn hybrids are being grown and weather conditions were not favorable for early development of gray leaf spot. Dry weather early delayed initial disease development so that when gray leaf spot began to cause damage in most fields, yields had essentially already been determined by plant development and the effect on crop production was minimal.

These two examples illustrate why it would be difficult to artificially create a large scale plant disease epidemic that would devastate a crop over a wide geographic area even with a highly virulent pathogen. The wide genetic diversity in our food, feed and fiber crops; an environment that is variable and generally discourages disease development, and the fact that most crops are only susceptible to infection during a few months of the year -- as opposed to humans and livestock who are susceptible all year -- reduces the potential for plant pathogens to be used as bioterrorism agents.

John E. Watkins
Extension Plant Pathologist
Dear reader:

This issue and the next issue of Crop Watch will feature information on a variety of Extension meetings and distance education classes scheduled for this winter and early spring.

Consider the topics and check your calendars for the dates and locations that work best for you. From marketing to pest management to crop production and genetics, Extension offices across the state will be sponsoring workshops and seminars addressing current issues in agriculture.

UNL web sites, such as cropwatch.unl.edu, also provide information 24 hours a day to those with web access. Visit the Institute of Agriculture and Natural Resources web site at http://ianrhome.unl.edu/ and link out to a variety of NU sites or the IANR search engine at http://ianrhome.unl.edu/search.shtml can be used to search for a specific topic on a number of IANR web sites.

Crop update

Corn harvest progressed to 43% complete, about one week behind average. This compares with 87% last year and 59% average. Corn harvest was over 50% complete in east central counties, while north central and Panhandle areas were only 25% harvested.

Soybean harvest progressed to 84% complete, compared to 92% last year and 88% average.

Sorghum harvest continued last week with 50% complete, compared to 90% last year and 58% average. Wheat was 94% emerged, compared with 88% last year and 92% average.

Fourth cutting alfalfa was 92% complete, compared to 98% last year and 92% average. Condition rated 4% very poor, 12% poor, 31% fair, 42% good, and 11% excellent.

Nebraska Ag Statistics Service

Winter wheat ‘looking good’ in southeast and south central Nebraska

Planting conditions in southeast and south central Nebraska have been good for seeding winter wheat. Two surveys, conducted the week of October 15 from Auburn in the southeast to Alma in the south central, showed winter wheat stands to be in good shape. Generally, the stands were uniform with few skips or bare areas in fields. Periodic examination of wheat in some of these stands showed the plants to be healthy with no evidence of root diseases and very little evidence of leaf spotting. Wheat planted after soybeans, although smaller than earlier planted wheat, was also in good condition.

From mid-September through mid-October environmental conditions for seeding winter wheat have been the best they’ve been for several years. Dry enough to get the fields planted with enough moisture to firm the seedbed and get the crop up and growing. In the areas surveyed, the winter wheat should go into winter in relatively good condition. This is critical because unhealthy, stressed seedlings are much more prone to winter injury and crown and root disease than are healthy seedlings. If we can avoid a sudden drop in temperature like the one in mid-October 2000, and can cool down gradually as winter approaches, plants should remain healthy going into dormancy.

John E. Watkins
Extension Plant Pathologist
Consider fall conditions before applying fertilizer

With harvest rapidly proceeding across Nebraska, it won’t be long before producers begin preparing for next season. For some growers one of the first steps will be applying nitrogen fertilizer this fall. In some situations, however, this may not be a wise practice. Before applying nitrogen this fall, ask yourself the following questions and consider how they apply to your field operation.

- **Is it the right soil?**
  Nitrogen should be applied in the fall only to silt loam or heavier textured soils, not to sandy textured soils susceptible to leaching.

- **Is it the right fertilizer source?**
  Only anhydrous ammonia should be applied in the fall. It contains only ammoniacal nitrogen, which is protected from leaching immediately after application since it is held by cation exchange sites on soil clays and organic matter. Ammonium-N will gradually convert to nitrate-N through the microbial process of nitrification, but this process is quite slow if soils are cool.

 Occasionally producers ask about the efficacy of broadcasting nitrogen solution, urea or ammonium nitrate in the fall for row crops the next year. This is not an acceptable practice. The risk of severe loss processes is just too high. Fertilizer broadcast on the surface may be lost in runoff water if soil is frozen. Also, the ammonia in fertilizers containing urea, such as nitrogen solution and dry urea, can volatilize to the atmosphere. The likelihood of nitrogen being immobilized in crop residue is much higher, since fertilizer is broadcast on top of residue from the recent harvest. Finally, the immediate leaching potential is greater for most nitrogen fertilizers other than anhydrous ammonia since most contain nitrate and/or urea as well as ammonium.

- **Is it the right temperature?**
  At soil temperatures of 50°F or cooler, the process of nitrification is slowed significantly, and stops completely somewhat below freezing. Once the soil temperature reaches 50°F and stays there for several days, soils will become gradually even cooler, and very little ammonium-N will be converted to nitrate-N over the winter.

- **Is it legal?**
  In several areas of Nebraska designated groundwater management areas (GWMAs) restrict how nitrogen fertilizers are used in order to protect groundwater quality. In the most restrictive areas, fall nitrogen application is not allowed.

In others, fall nitrogen application is not allowed prior to a certain date, usually November 1, when historically soils are cool enough in central Nebraska that fall application of anhydrous ammonia is acceptable. If we have a warm fall, however, producers are encouraged to delay application until soils have cooled below 50°F, even if it is after November 1.

**How much do you need?**

Before applying nitrogen fertilizer, whether in the fall or spring, it is a good idea to have taken soil samples for residual nitrate-N. Collecting deep soil samples (2 feet or greater) in the root zone is the best way to know how much fertilizer nitrogen you need for next year.

**What about nitrification inhibitors?**

The use of a nitrification inhibitor, such as nitrapyrin (N-Serve) or dicyandiamide (DCD), can help protect against loss of ammoniacal nitrogen applied in the fall to silt loam soils. However, use of nitrification inhibitors should only be viewed as an ‘insurance policy’ – in most years they will have no impact on yield because climatic and soil conditions are not conducive to

(Continued on page 219)
Clean, winterize farm equipment to extend its life

Proper cleanup and storage procedures for farm equipment can add life, increase reliability and performance, reduce start-up time next season and improve resale value.

When putting away tractors and combines for the winter, take engine and hydraulic oil samples and submit for oil analysis. This oil analysis will provide clues to any deteriorating engine, power train or hydraulic conditions. Be sure to change the oil and perform regular service. Clean engine oil will reduce internal engine corrosion during storage.

Fill the fuel tank to reduce water accumulation and tank corrosion, inflate tires to recommended pressure to reduce sidewall damage and check antifreeze for correct freezing temperature.

Make sure combines are clean. Be sure all grain and plant material left in the grain tank and augers is removed. This will reduce rusting and make it less attractive to mice and other pests which can damage electrical wiring. Reduce tension on belts to reduce stretch and increase belt life.

Before storing tillage implements, remove soil and apply appropriate rust preventive material, then store with soil engaging components raised or on blocks to prevent rust. Hydraulic cylinders should not be stored fully extended. If temperatures increase, hydraulic oil will be confined and high pressure may cause damage to the hydraulic system.

All planters, drills and air seeders need to be cleaned out. Be sure to follow storage instructions in the operator’s manual for removing seed plates and other components to relieve pressure on seals, brushes, and seed plates. This will minimize warping and misshaped air seals and seed plates. Remove soil from all furrow openers to reduce rust and improve performance next season.

Balers need to have any partial bales and all plant material removed to minimize rusting. Follow the operator’s manual for instructions on reducing pressure on baler belts or other components.

Cleaning farm equipment with a power washer is great for removing dust and soil. Also check all fluid levels and lubricate as instructed in equipment’s operator’s manual before storage.

Where possible store equipment in a building – particularly tractors, combines, planters, drills, and balers – to improve equipment performance and resale value.

For more information on ways to extend the life of your farm machinery, check these NU Cooperative Extension publications:


John A. Smith
Machinery Systems Engineer

Bt corn registration extended

The EPA last week granted approval for corn genetically modified with Bacillus thuringiensis (Bt) for an additional seven years.

“Scientific studies and a history of successful use have demonstrated that Bt is not toxic to humans or other animals,” according to the EPA news release. “A careful review of scientific information confirms previous findings that these Bt corn varieties show no evidence of allergenicity.”

“Bt corn has been evaluated thoroughly by EPA, and we are confident that it does not pose risks to human health or to the environment,” said Stephen L. Johnson, Assistant Administrator of EPA’s Office of Prevention, Pesticides, and Toxic Substances. “The safeguards incorporated into these registrations will ensure that farmers can continue to use an effective, low-risk pest control alternative, which helps to protect the environment by reducing the amount of conventional pesticides used.”

The renewed registrations of the five Bt corn products continue to include specific requirements for companies to routinely monitor and collect data to ensure that product use does not lead to insect resistance or unexpected human health or environmental effects. EPA also mandated several provisions to strengthen insect resistance management, to increase research data on potential environmental effects, and to improve grower education and stewardship.

In extending the use of Bt corn, EPA has increased environmental and compliance monitoring requirements. According to the EPA news release, companies marketing Bt corn seed will be required to monitor for the development of insect resistance, provide annual reports on the efficacy of resistance management plans, and implement remedial action plans in the event that resistance is detected among pest populations. The companies must also educate growers about the best methods of planting Bt corn to minimize any potential development of insect resistance. Growers will continue to be required to sign a contract.

Detailed information on EPA’s decision is available at: www.epa.gov/pesticides/biopesticides.
Balance benefits and risks when selecting corn and soybean seed

Seed selection is a critical first step to a successful harvest next fall. Information about various hybrids and varieties is available from many sources. The University of Nebraska Corn Hybrid Tests (EC-105) and Soybean Variety Tests (EC-104) provide objective, field-tested data and are a good starting place for Nebraska producers. These publications will be available in print from Cooperative Extension offices and on the World Wide Web at http://varietytest.unl.edu/index.htm. Results from 2001 trials continue to be added to the site as they become available. (Producers living near state borders also may be interested in viewing variety test results from neighboring states. These can be accessed from the North Central Crop Evaluation Committee Web site at http://www.ksu.edu/kscpt/nccec/)

The UNL variety test results allow for unbiased comparisons of entries from many companies at numerous locations across the state. Information includes yield, moisture, bushel weight, disease reaction when differences were noted, and other characteristics. Soybean data also includes height, maturity date, oil and protein content, and lodging data. This information also is summarized over multiple locations and years. After identifying some superior varieties from these tests, consult crop literature or representatives from the companies marketing the seed for further information about other strengths and weaknesses of each variety. When introducing a new variety, limit it to less than 20% of your acres the first year. If it performs better than your current varieties, increase the acreage next year.

Balancing characteristics

Choosing more than one variety of each crop provides many benefits and can help spread the risk of susceptibility of a particular hybrid or variety to seed or pesticide problems, planting or climatic conditions. One method of obtaining diversity is to select varieties from the top yielding group which differ in harvest moisture or other traits. Another advantage of growing several varieties is spreading the maturity date. Some agronomists advise planting the earliest maturing varieties first to further spread the harvest schedule and the pollination period. Another advantage of growing several varieties is the difference in disease and insect resistance that each provides. Overall, including several diverse varieties spreads the risk and the workload. If a late spring frost damages an early planted hybrid, an early maturing hybrid can be replanted later in the season without changing hybrids.

Many characteristics may be considered when selecting a variety. Generally yield and then maturity are the first factors to be considered. In the case of corn, maturity will influence planting date, determine harvest date, harvest moisture, and the chances of getting caught with immature corn in case of an early fall frost. With soybean, the maturity will be more closely related to the area of adaptation. A maturity group that is inappropriate will not perform well regardless of planting date or harvest date. Also consider disease, insect, and herbicide resistance, quality, and in some cases, price of seed.

Another major characteristics to consider is whether you want to plant a genetically modified variety or hybrid. Biotechnology has enabled breeders to incorporate genes from other species to provide specific characteristics, such as those available in Bt or Roundup Ready varieties. Consider the requirements of your farm, your management practices and potential changes afforded with this seed, as well as refuge, contract and other requirements. Selecting for this characteristic will create a new pool of potential hybrids or varieties from which you can select those with the characteristics which best fit your needs.

(See the Oct. 12, 2001 Crop Watch for further information on ordering seed-applied insecticides for corn or seed-applied fungicides for soybeans.)

Len Nelson, Extension Crop Variety and Seed Production Specialist

Agronomy Highlights to be Dec. 4 in Lincoln

This year’s Agronomy Highlights will be Tuesday, Dec. 4 from 8:30 to 3 p.m. The annual conference, hosted by the NU Department of Agronomy and Horticulture, will include presentations on the department’s research, teaching and extension activities. It will be held at the Cornhusker Hotel in Lincoln and include a complimentary meal for all those preregistering by Nov. 26.

Poster sessions exploring current research projects also will be available. To preregister, call JoAnn at (402) 472-2811 in the Department of Agronomy and Horticulture by Nov. 26.
Dry July hard on early-planted soybeans; September rains aid pod-fill in late beans

Producers have long realized that planting after a certain date means declining yield potential and have started planting earlier to avoid the penalties associated with late planting. With the traditional corn/soybean rotation, producers plant corn before soybeans for maximum corn yields. Their soybean yields are then greatly affected by how much rainfall is received later in the season during pod fill or potentially reduced by early frosts on late planted soybeans. As a machinery management decision and to spread production risks, some producers are planting some of their soybeans before their corn.

Research was conducted again in 2001 at the Rogers Memorial Farm, 10 miles east of Lincoln, to evaluate the potential of early planted soybeans. A planter was used to no-till soybeans into soybean residue at about a 2-inch depth. Three varieties, a 2.4 maturity, a 3.0 maturity, and a 3.4 maturity, with fungicide-treated seed were used. In addition, the same 3.0 variety was planted without fungicide treatment. The yields from the five planting dates, shown in the table, showed a slight yield penalty for late planting in 2001 for the later maturity soybeans, similar to the 1999 and 2000 results. (See stories in previous issues of Crop Watch with those results: http://cropwatch.unl.edu/archives/2000/crop00-03.htm and http://cropwatch.unl.edu/archives/2000/crop00-25.htm.)

Unlike 2000, the later planted, early maturity soybeans had higher yields. In 2000, there was good rainfall in July when the early soybeans were trying to fill their pods. Rains in early September aided the pod fill of any of the later planting dates and greatly increased yields for the late planted, early maturing soybeans. In addition, cool weather in May 2001 slowed the growth of the early planted soybeans, resulting in very short plants for the early maturing variety (see photo of harvest of the early soybeans).

While early planting looks promising, producers should not plant soybeans too early. Early planted soybeans still have risks involved with late spring frosts and replanting may be necessary. In addition, the potential for bean leaf beetle feeding must be considered as later planting dates are a cultural practice to avoid seedling damage. For machinery management purposes, planting some soybeans a week or two before corn makes sense for producers who typically finish planting soybeans in June or for those who want to spread their workload and risks.

Paul Jasa
Extension Engineer

2001 yields from three soybean varieties (one with and without fungicide) with five planting dates, NU Rogers Memorial Farm near Lincoln.

<table>
<thead>
<tr>
<th>Planting Date</th>
<th>2.4 Maturity</th>
<th>3.0 Untreated</th>
<th>3.0 Treated</th>
<th>3.4 Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 19</td>
<td>25.6</td>
<td>40.8</td>
<td>na</td>
<td>46.3</td>
</tr>
<tr>
<td>April 10</td>
<td>27.7</td>
<td>41.9</td>
<td>41.1</td>
<td>43.9</td>
</tr>
<tr>
<td>April 30</td>
<td>30.8</td>
<td>41.0</td>
<td>44.0</td>
<td>45.3</td>
</tr>
<tr>
<td>May 23</td>
<td>33.1</td>
<td>48.8</td>
<td>45.6</td>
<td>49.3</td>
</tr>
<tr>
<td>June 12</td>
<td>38.5</td>
<td>45.3</td>
<td>44.2</td>
<td>45.0</td>
</tr>
</tbody>
</table>

All seed, except the "3.0 untreated" was treated with a four-way fungicide.
Raising dairy alfalfa not a walk in the hay

With the increasing number of dairy cows in Nebraska, this may look like a good opportunity to sell alfalfa locally. Maybe, but learn more about what these producers want before raising your expectations and changing your cropping plans.

Nebraska is not a dairy state. We have nearly 25 times more beef cows than dairy cows; however, the number of dairy cows is increasing. Some people have planted extra alfalfa to supply this market. Raising dairy alfalfa, however, is more complicated than just planting, cutting, baling and selling. It takes much more management than raising row crops.

Harvest timing is critical for dairy alfalfa. Mature plants will not produce as much milk as young plants, but cutting too young too often lowers yield and shortens stand life. To raise the best crop, growers have to find that delicate balance between the two extremes. Getting hay dry with little leaf loss and then baling with enough moisture to limit leaf shatter is as much an art as a science. Alfalfa baled too wet doesn’t have the luxury of a dryer to make it safe to store. It also requires more extensive marketing, including competing with dozens of other growers to sell your hay at a desirable price.

Tillage trial yields favor no-till

The 2001 yields for a long-term tillage system study on the University of Nebraska Rogers Memorial Farm (10 miles east of Lincoln) are given in the table below. The research plots, established in 1981 in a dryland soybean/grain sorghum rotation, are showing that long-term no-till builds soil structure and usually has the highest yield.

Unlike last year, there were adequate rains this spring to fill the soil profile, replacing the soil moisture lost to preplant tillage, and contributing to minimal yield differences. (See Crop Watch on the web for previous yield results at http://cropwatch.unl.edu/archives/2000/crop00-28.htm#no-tilLyields for the 2000 yields.) However, it has been observed that the no-till treatments have better soil structure, more residue cover, and less surface crusting. These conditions are improving the water infiltration rate and decreasing runoff, making rainfall more effective with the long-term no-till. With no tillage operations, better soil structure, and higher yields, no-till is the most profitable tillage system.

Paul Jasa
Extension Engineer

<table>
<thead>
<tr>
<th>Tillage system</th>
<th>Soybeans</th>
<th>Grain sorghum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall plow, disk, disk</td>
<td>44.6</td>
<td>120.0</td>
</tr>
<tr>
<td>Fall chisel, disk</td>
<td>44.7</td>
<td>115.8</td>
</tr>
<tr>
<td>Disk</td>
<td>44.8</td>
<td>120.1</td>
</tr>
<tr>
<td>Disk</td>
<td>44.2</td>
<td>116.2</td>
</tr>
<tr>
<td>No-till with cultivation</td>
<td>42.5</td>
<td>121.2</td>
</tr>
<tr>
<td>No-till without cultivation</td>
<td>50.0</td>
<td>124.1</td>
</tr>
</tbody>
</table>

*Full plot harvest with a combine and weigh wagon; corrected for moisture.

With dairy alfalfa, you can’t just haul it to the co-op.

Growers of dairy alfalfa make good profits without government subsidies, but it takes a special person to manage all production, marketing, and business aspects. The grass, or alfalfa in this case, may always look greener on the other side of the fence, but before you commit resources and establish new alfalfa stands, consider the level of management required as well as the potential increase in the local market.

Bruce Anderson
Extension Forage Specialist

Fall nitrogen
(Continued from page 215)

Often fertilizer dealers will provide price incentives for nitrogen fertilizer applied in the fall to spread out their workload and take advantage of reduced wholesale prices. If the above conditions are met, fall nitrogen application can allow producers to do the same – spread out their workload and save some money. Also, soils are typically dryer in the fall than in the spring, resulting in less potential for soil compaction from fertilizer application.

The recently published book, Nutrient Management for Agronomic Crops in Nebraska, UNL Cooperative Extension EC 01-155, contains more detailed information on recommended fertilizer practices for various crops. Chapters on nitrogen and corn are available on-line (http://cropwatch.unl.edu/nitrogenissue/ec155.htm). Copies of the book can be ordered through your local Extension office, or from Extension Publications, IANR Communications and Information Technology, Box 830918, Lincoln, NE 68583-0918.

Richard Ferguson
Extension Soils Specialist
South Central REC
Entomology offers distance degree, non-credit classes

Whether you’re interested in honing your understanding of the development and management of the state’s insect pests or pursuing an advanced degree for professional advancement, the NU Department of Entomology offers classes and a distance M.S. degree that can fit your educational needs. The distance degree program is in addition to conventional M.S. and Ph.D. programs in entomology offered on campus.

The distance M.S. option was developed for students who cannot participate in an on-campus degree program. The distance M.S. in entomology emphasizes course work and practical application of graduate training.

Intended audiences for this degree are individuals actively involved in jobs or professions where advanced training in entomology is desirable, as well as those seeking such positions. Examples include crop consultants, pest control operators, workers in various ag-related industries (such as co-ops, chemical companies, and seed companies), and high school science teachers. This is a non-research, non-thesis degree option.

The distance option emphasizes course work in entomology and flexibility in non-entomological training specific to individual student needs and interests. Additionally, the demonstrated ability to apply this training in practice is an important feature of the degree. Following are a few highlights of the program:

- The degree requires 36 credit hours (all of which can be obtained in distance courses), including 18 in entomology
- The degree requires at least 18 hours in courses open exclusively to graduate students
- Specific course requirements are determined between the student and an advisor
- Distance courses for the degree are taught by the Department of Entomology via video and web-based (internet) materials; some credits from other institutions may be applied to the degree (with permission)
- The degree can be completed in as few as two years, but it typically takes three years
- Admission requirements include an undergraduate degree from an accredited college or university and course work in biology, chemistry and mathematics.

Non-degree entomology courses

All of the entomology distance courses can be taken noncredit. If you do not want to pursue a degree, feel free to take a class and increase your knowledge and understanding of entomology and related issues. To register for any of our classes as a non-degree seeking student, please call Betty in Lincoln at (402) 472-3035 or toll-free at 1-800-755-7765.

Following is a list of entomology

(Continued on page 221)
December seminar:

Combine financial objectives in a winning strategy

Learn how to tie your financial management, marketing plan, and crop insurance together with today’s market outlook and Washington farm policy at an upcoming seminar hosted by UNL’s Nebraska Farm Business Association.

"Managing Today for Tomorrow’s Opportunities” will be held Dec. 4-5 in York and Dec. 6-7 in North Platte. Seminar speakers will include: Glen Ring, a market analyst and former producer and broker; Jerry Carlson, cofounder of ProFarmer; Paul Machle, Nebraska Claims Supervisor for American Agrinsurance for the past 15 years; and Dave Thorell, KRVN broadcaster and evening speaker; and representatives of the Nebraska Farm Business Association.

Gary Bredensteiner, director of the Nebraska Farm Business Association, said the seminar will help producers identify developing trends in government policies and the ag market and how to collect and use their financial records to develop a targeted management plan.

The meeting in York will begin at 1 p.m. Dec. 4, and end at 5 p.m. Dec. 5. The meeting at North Platte will begin at 8 a.m. Dec. 6 and end at noon Dec. 7.

Registration is $105 if received by Nov. 15 and $125 after that date. Additional family members attending the same seminar can register for $85. For more information contact the Nebraska Farm Business Association, UNL, 110 Mussehl Hall, Lincoln, NE 68583-0719; phone: (402) 472-1399; Fax: (402) 472-3858; or email jrosecrans1@unl.edu

For more information about the services offered by NFBA, visit their website at http://southeast.unl.edu/nfba/Homepage.htm

Global pressures on Nebraska ag

A Nov. 1 UNL conference will address the implications of the increasingly competitive global agricultural market on Nebraska agriculture. The 11th Agriculture at the Crossroads conference, “Globalization: Implications for Nebraska Agriculture,” will be held from 8 a.m. to 5 p.m. at the UNL East Campus Union.

“Participants will learn about globalization, why it is happening and what it might mean,” said Ray Supalla, NU agricultural economist and planning committee chairman. “Secondly, participants will learn what they might do as individuals, or as a matter of public policy in response to the changes taking place.”

The conference will focus on global competition, entrepreneurship and policy needs related to globalization, Supalla said.

Conference registration begins at 7:30 a.m.

Speakers include experts and specialists from USDA and the...
South Central REC researcher focuses on site specific management and nutrient efficiencies

This is one of a series of articles about the research responsibilities of Crop Watch contributors.

Richard Ferguson is a professor of soil fertility in the Department of Agronomy and Horticulture, and an Extension soils specialist based at the South Central Research and Extension Center near Clay Center.

Ferguson received a B.S. degree in biology in 1976 from Friends University in Wichita Kansas then worked for two years as a fertilizer advisor and grain elevator manager in southeast Kansas. He received an M.S. degree in agronomy from Kansas State University in 1981, and a Ph.D. degree in soil fertility from Kansas State University in 1985. Ferguson joined the University of Nebraska faculty in March, 1985.

Ferguson’s research and extension efforts focus on site-specific nutrient management, with an emphasis on practices that increase nutrient use efficiency and reduce potential for nitrogen loss to the environment. Current research projects and some of the UNL faculty he’s working with include:

- Site-specific nitrification inhibitor management
- Variable hybrid system for improved corn yield on high pH soils (collaborating with Roger Elmore and Gary Hergert, UNL)
- Long-term application of composted beef feedlot manure impacts on nitrogen and phosphorus accumulation and movement in soil (collaborating with Jack Nienaber and Roger Eigenberg, USDA-ARS)
- Harnessing breakthroughs in nutrient management in corn and soybeans for increased profitability and environmental quality (collaborating with Achim Dobermann, Jürg Blumenthal, Charles Shapiro, David Tarkalson, and Charles Wortmann)
- Thematic soil mapping and crop-based strategies for site-specific management (collaborating with Achim Dobermann, Bob Caldwell and Slava Adamchuk, UNL)
- Improving water and nutrient management with subsurface drip irrigation

Ferguson spent eight months in 2000-2001 on faculty development leave at the Silsoe Research Institute in the United Kingdom, becoming familiar with fuzzy cluster analysis and other techniques for spatial data analysis, as well as learning about the adoption of precision agricultural practices in Europe. He serves as project leader along with Dave Varner for the IANR Precision Agriculture Initiative, and represents Nebraska on two regional research committees: NCR-180, Site-Specific Management, and NCR-103, Non-Traditional Products.

Richard Ferguson can be contacted at the UNL South Central Research and Extension Center (402-762-3535) or through the IANR Precision Agriculture Web site (http://precisionagriculture.unl.edu/).

UNL joins ‘high tunnel’ study

For years producers on the Great Plains have wondered how successful their operation would be if only they could control or moderate the most variable factor affecting production -- Mother Nature. High tunnel crop production may be a step in that direction for some of the state’s speciality producers.

To learn more about its potential, NU has been awarded $193,000 for its work in a three-state study of high tunnel crop production. High tunnels are greenhouse-like structures designed to shelter crops from wind, temperature, and moisture extremes.

Laurie Hodges, NU Extension commercial vegetable specialist, joins researchers at Kansas State University, the University of Missouri at Columbia; and the Kansas Rural Center. Hodges will coordinate the high tunnel research at UNL and the NU Agricultural Research Development Center.

The project aims to provide Midwest producers with information about the technologies and techniques required to make high tunnel agriculture a viable option.

For more on this story and how a Denton farmer is using this technology, visit the Crop Watch website at cropwatch.unl.edu or visit the NU Market Journal site at http://marketjournal.unl.edu for a full story and video.

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USDA Economic Research Service, the NU Institute of Agriculture and Natural Resources, individual producers and representatives of private industry.

Cost is $30 for AgRelations Council members and $35 for nonmembers made payable to the Nebraska AgRelations Council. For more information, contact the NAC at 104 Agricultural Communications Building, P.O. Box 830918, University of Nebraska, Lincoln, Neb. 68583-0918, call (402)472-2821 or fax (402) 472-0025. Registration deadline is 5 p.m. Oct. 30.

Sandi Alsawger
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