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University of Nebraska–Lincoln

***Agricultural
Research
Division***

120th Annual Report

July 1, 2005 to June 30, 2006

Institute of Agriculture and Natural Resources



Agricultural Research Division scientists improve the quality of life for Nebraskans across the state. They make important contributions to the state's agriculture, food industries, environment, the well-being of families and community development. Research occurs in fields, feedlots, the natural environment, homes, yards, gardens, and cities and towns. ARD scientists provide new knowledge and seek answers to Nebraskans' problems and concerns.

It is the policy of the University of Nebraska–Lincoln not to discriminate on the basis of gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin or sexual orientation.

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Our Mission

The mission of the Agricultural Research Division in the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln is to conduct problem-solving and fundamental research that addresses priority issues facing Nebraska's agricultural and food industries; provides the knowledge base essential for managing our natural resources; promotes family well-being and community development; and educates future scientists through hands-on experiences.



Gary L. Cunningham

The 120th Annual Report of the University of Nebraska–Lincoln Agricultural Research Division (ARD) is one of the publications and other communication vehicles ARD uses to inform the citizens of Nebraska about the work it does on their behalf and with their rapport through the University of Nebraska, federal and state agencies, and industry grants. ARD faculty FY 2006 accomplishments that provide knowledge to serve agriculture, agribusiness, natural resources, and human well-being in Nebraska are highlighted. The report documents ARD’s success in developing new knowledge and technologies to improve profitability, better manage natural resources, enhance environmental quality, and improve the quality of life.

In addition to research accomplishments and impacts, this report includes a listing of faculty, research projects, faculty and student awards and honors, research outputs and the ARD financial report for the period July 1, 2005, to June 30, 2006. This report was compiled in accordance with the intent of the law of the State of Nebraska that established the Nebraska Agricultural Experiment Station on March 31, 1887.

The *Research Highlights* section outlines some of the significant accomplishments of our faculty. Some of the accomplishments include:

- Development of new formulas for mixing several dry forages with wet distillers grains makes it easier to store ethanol byproducts for feeding later to livestock.
- Enhancement of a computer program will help crop producers make better irrigation decisions in situations in which they face limited water supplies.
- A new program will set up the University’s first certified organic research plots, from which we will launch focused research and education on organic farming.
- Textiles research that already has resulted in development of fabrics made from cornhusks now is developing fabrics from more agricultural wastes, including chicken feathers and rice straw.
- UNL wheat breeders and geneticists are part of a national team working to improve U.S. wheat quality and disease resistance.
- Research now under way aims to reduce phosphorus levels in livestock manure, decreasing the potential of water pollution.
- UNL is on the leading edge of energy-related research with a partnership with Nebraska Public Power District to create the Nebraska Center for Energy Sciences Research, headed by an agronomy professor.

The above items are only a few of the many important research findings by ARD scientists. ARD research is serving both science and society, and making a difference in the economy of the state and the lives of Nebraskans.

Gary L. Cunningham
Dean and Director
Agricultural Research Division

The Agricultural Research Division is the only public entity in Nebraska charged with conducting agricultural research. It is part of a national network of state agricultural experiment stations located in land-grant universities across the United States. In 1973, the state legislature passed LB 149, which established the Institute of Agriculture and Natural Resources. The Agricultural Research Division was created as one of IANR's six divisions. The state legislation also expanded the federal mandate for agricultural research conducted by the Nebraska Experiment Station to include research in natural resources, human resources and family sciences. The ARD research portfolio represents a scientific investment in Nebraska's future. ARD research not only solves today's problems, it also defines tomorrow's opportunities.

Mixing drier feeds, wet ethanol byproducts improves storability

Wet byproducts from ethanol production are tricky to store for later use as cattle feed because of their high moisture

content and threat of spoilage, but mixing them with drier, bulkier feeds improves storability, IANR research shows.

UNL animal scientists' research resulted in formulas for mixing several widely available dry forages with wet distillers grains. Their findings could help feedlot managers and cow-calf producers purchase wet distillers grains



Compressing wet distillers grains alone into silage bags results in splitting, as shown here, but UNL researchers have found that mixing them with drier, bulkier feeds improves storability.

during the summer when their plentiful supply can mean lower prices and safely store them for use later in the season or for winter feeding.

The relatively short shelf life of wet distillers grains has been a key obstacle to their use as feed in some situations. Feedlots need to have the material delivered frequently and use it within a few days to avoid spoilage; for smaller operations, that's not economically feasible. Cow-calf operators, meantime, have greatest use for the feed during the winter, but that's when supplies tend to be lower than during the summer.

At 65 percent moisture content, wet distillers grains alone cannot be stored in silage bags or bunkers like corn silage or bulkier feeds. Compressing them in bags to push out air and prevent spoilage splits the bags, and they're too wet to be compacted by tractors in bunkers.

UNL animal scientists experimented with mixing grass hay, alfalfa hay and wheat straw with the wet distillers grains to determine how much dry material would be needed for successful storage.

When bagging silage, IANR researchers found the following minimal levels of dry material: 15 percent for grass hay; 22.5 percent, alfalfa hay; and 12.5 percent, wheat straw.

Researchers also experimented with mixing dry distillers grains and wet corn gluten feed, another ethanol byproduct, with the wet distillers grains. A 50-50 blend of dry and wet distillers grain bagged up well, while a 60-40 mixture of wet corn gluten and wet distillers grains seemed to work.

Agronomy prof heads new energy center partnership

University of Nebraska–Lincoln agronomy professor Ken Cassman heads up a new partnership for energy-related research.

Cassman heads the Nebraska Center for Energy Sciences Research, a partnership between UNL and the Nebraska Public Power District that will encourage collaboration on energy-related research among UNL faculty and with public and private energy-related organizations. The center will provide initial funding for promising research to develop renewable domestic energy resources, improve energy efficiency and create economic opportunities for Nebraska and beyond.

Cassman was head of UNL's agronomy and horticulture department from 1996 until 2004 when he returned to the faculty to concentrate on his crop production ecology research and teaching. Before joining UNL, he worked with the International Rice Research Institute in the Philippines and was on the faculty at the University of California, Davis.

Cassman's interest in the energy center is tied to his work as an agronomist, which has focused on ensuring local and global food security while improving soil and environmental quality. At UNL, his work has expanded to consider the energy efficiency and environmental impact of corn-ethanol production systems and crop yield potential to ensure adequate corn supplies.

Nebraska has several advantages in the renewable energy arena, such as wind power

and biofuels, which have the potential for long-term economic benefit for Nebraska. NPPD is providing \$5 million over five years in startup funding. This money will be leveraged to attract additional research support from agencies and foundations. The goal is to use the NPPD funding as a foundation for elevating energy science research and its impact in Nebraska.

Helping to identify ethanol co-products' potential in dairy cow, swine diets

With U.S. ethanol production expanding, the need to use the industry's growing supply of co-products continues to rise.

To help producers discover and identify corn distillers grains' potential feed value, University of Nebraska–Lincoln animal scientists are studying the nutrient composition and availability of this co-product of the ethanol industry.

UNL animal scientists hope to help producers discover and identify the potential that distillers grains have for improving herd profitability and ultimately milk production on dairy farms and the feed value of dried distillers grain in swine diets.

With feed sources being the highest cost of production on a dairy farm, there is a huge potential for distillers grains – wet and dry – as well as wet corn gluten feed.

So far, scientists have found as much as 30 percent of the dairy cow's diet dry matter can be replaced with distillers grains and still maintain milk production, fat production and milk protein production, and, in some cases, a higher milk yield.



Paul Kononoff, UNL dairy nutrition specialist, looks at feed containing distillers grains as part of research to help producers identify feed value potential.

Scientists also are studying how rations will be balanced so that forages, soybean meal and corn can be replaced with distillers grains.

Eventually, dairy nutritionists will formulate diets with high amounts of distillers grains not only in Nebraska but nationwide.

Future studies will look at nitrogen and phosphorus excretion.

The Nebraska Corn Board helps fund this research.

IANR animal scientists also are studying the feeding value of swine diets that contain 0, 5, 10 and 15 percent corn distillers grains for growing/finishing pigs. Diets will contain corn, soybean meal and corn distillers grains at those concentrations.

While there is tremendous potential in feeding corn distillers grains to swine, there also are a lot of questions as corn distillers grains are not widely used in swine diets. To help answer those questions, scientists will look at growth rate, feed intake, feed efficiency and a number of post-harvest variables, such as back fat, dressing percentage, carcass lean and other carcass composition criteria. Results also will be evaluated through economic analysis.

The Nebraska Pork Producers help fund this research.

Water Optimizer to be enhanced, expanded

A UNL computer program that helps farmers facing limited water supplies to make irrigation decisions will be expanded and enhanced under a new grant from the U.S. Department of Agriculture.

The \$885,000 grant will allow IANR researchers to refine and improve the Water Optimizer, a tool that enables producers with limited water to evaluate what crops to grow,

how many acres to irrigate and how much water to apply. Improvements will make the Water Optimizer more versatile and more widely applicable.

The first version of Water Optimizer, released by UNL in 2005, is useful but limited in scope. It covers the principal crops in Nebraska but doesn't address all of the critical risk-management issues surrounding limited water.

The project has several goals:

- improve the tool's usefulness for crops grown in the semiarid High Plains, including canola, camelina, crambe, brown mustard, chickpeas, dry beans and sunflowers
- improve the tool's geographic coverage area to additional counties in Nebraska and irrigated areas in Colorado and Kansas
- develop the capability to evaluate risk-management alternatives on a "whole-farm" basis, as well as field by field
- develop the capability to determine the best strategies for managing multi-year water allocations.



UNL's Water Optimizer is undergoing further refinement to make it a more effective, versatile tool for farmers looking to more effectively use irrigation water.

A glimpse into Sandhills' past

Nebraska's Sandhills, a region of gently rolling sand dunes blanketed with prairie grasses and wetlands that cover a quarter of the state, provide ideal habitat for wildlife and livestock. During medieval times 800 to 1,000 years ago, however, the region was a swirling desert, far worse than the Dust Bowl of the 1930s.

UNL scientists outlined their discovery of weather conditions

Sandhills southeastern edge. Scientists analyzed these young dune formations and identified the circumstances that created them. Using a computer program that calculates sand drift under differing conditions, they discovered that the modern southerly wind flow would create asymmetrical dune crests oriented southwest to northeast, not the symmetrical dunes oriented northwest to southeast as is the case with these young dunes.

By working backward from the dunes' pattern, they deter-



Nebraska's Sandhills, now a region of gently rolling sand dunes blanketed with prairie grasses and wetlands that provide ideal habitat for wildlife and livestock, once were little more than a swirling desert.

that existed the last time the dunes were on the move about 1,000 years ago in the journal Science. If those conditions return, the tranquil, verdant Sandhills could once more turn into an unlivable wasteland.

This research indicates a historically unprecedented, large-scale shift in wind direction that cut off moisture to the region during the growing season. Researchers believe dune development was part of a larger climate shift during the Medieval Warm Period that created a mega-drought in much of western North America.

The youngest dunes, about 1,000 years old, exist on the

mined that the winds that created them must have come from the southwest out of what is now west Texas and New Mexico, a desert area that would not have brought moisture to Nebraska. As the area dried, fewer plants survived, wetlands dried up and the soil retained less moisture. These conditions heated the land surface, further strengthening the southwesterly wind flow in a kind of intensifying feedback loop. As the drought worsened, grasses died off completely, allowing sand to blow in the strong wind.

The research is part of UNL's Sand Hills Biocomplexity Project.

New grant supports organic farming research

A \$750,000 grant is helping UNL expand organic farming research and education, enhance collaborations with growers and develop science-based information for organic food production.

The grant, from the U.S. Department of Agriculture's Cooperative State Research, Education and Extension Service, will fund Improving Organic Farming Systems across Nebraska Agroecoregions, which aims to lay the foundation for long-term organic farming efforts at UNL.

Goals include establishing the University's first certified organic research plots, launching focused research, incorporating organic farming concepts into UNL Extension and classroom education, and developing an ecological index of different farming methods.

One certified plot already has been established near Sidney, with others to follow near Concord, Mead and Clay Center. Scientists will use these plots to examine priority concerns for organic producers, such as weed management, crop varieties and soil fertility. Each site will focus on different aspects of organic production while the network will enable collection of statewide information.

Organic certification takes three years and researchers will use each site's transition as a learning experience. Documenting issues that arise during the conversion to organic farming should provide information for farmers looking to make the change.

Organic growers supported the grant, and local and state

organic producer advisory committees will guide research. Scientists also will conduct studies on cooperating certified organic farms.

Wildlife researchers will focus primarily on birds in extensive field studies to develop a Healthy Farm Index, a tool for landowners to measure their farm's ecological health. After identifying the birds, insects and soil factors associated with different farming scenarios, researchers will devise a preliminary index that relates different land covers to birds and biodiversity to measure farm health and sustainability.

Rural Poll reflects some reservations about newcomers

It's not easy for newcomers to settle into rural Nebraska communities, whether they're moving from a few miles away or arriving from another country.

That was the finding of the 2006 Nebraska Rural Poll, which explored respondents' views about newcomers to their communities and Latin American immigration to rural Nebraska.

Sixty-four percent of respondents said they're aware of recent Latin American immigrants living in their communities. Only 14 percent of respondents said Latin American immigration had been good for rural Nebraska, with 56 percent disagreeing. Among Latino respondents, 70 percent felt immigration had been good for communities, and 14 percent disagreed.

Ninety-four percent of respondents agreed that immigrants should learn to speak English within a reasonable

amount of time. Eighty-two percent of Latino respondents also held that view.

However, a significant split showed up on another language-related question: whether rural communities should communicate important information in Spanish as well as English. Only 20 percent of non-Latinos agreed with that statement, and 69 percent disagreed. Among Latino respondents, 76 percent felt important information should be communicated in both languages.

On the newcomer question, only 31 percent of respondents agreed that newcomers to their communities improve the quality of life. One-fourth disagreed, and 44 percent had no opinion.

About 18 percent of respondents agreed new residents have been bad for their community. Forty-six percent of respondents disagreed with that statement, and 37 percent neither agreed nor disagreed.

Results are based on 2,482 responses, from about 6,200 randomly selected households in Nebraska's 84 rural counties.

Increasing storage in Lake McConaughy may be beneficial

The long-term economic benefits of leaving more water in Lake McConaughy for recreational purposes may in some circumstances offset the costs of compensating irrigation and power interests for one year of reduced supplies, IANR research shows.

Several years of drought have left Lake McConaughy, Nebraska's largest reservoir, at historic lows.



Several years of drought have left Lake McConaughy at record low levels. UNL research has found that leaving more water in the reservoir for recreational purposes might pay off overall for the state.

A UNL agricultural economist set out to determine how declining lake levels have affected the region's recreation industry and whether short-term water management strategies to reduce that impact could be "economically justifiable." Those strategies would make less water available to irrigators or hydro power interests for one year by holding back more water in the reservoir. This one-year holdback could increase the lake's water level for recreational use for several years to come, depending on how quickly the reservoir refills.

The research found that lake-side businesses reported steady declines since the drought began in 2001 and that recreational use of McConaughy in 2004 was 32 percent below the most recent 10-year average.

The research considered several scenarios for increasing the amount of water in McConaughy for recreation, finding that reducing irrigation or hydro power releases when the reservoir is low would under some circumstances increase recreation benefits enough to offset the costs quantified in the study.

The study envisions one year of reduced releases, with the impact of more water in the lake being felt over several years with increased recreational use.

Such a "reservoir augmentation program" could take a variety of forms, including periodic purchase of water by recreation-related interests, the purchase of storage rights or the purchase of a long-term insurance policy in which McConaughy water owners would agree to a modified set of release rules in return for a periodic premium payment.

Sorghum, millet research connects UNL with U.S., global researchers

Better marketing strategies in Niger are increasing farm income, while in the U.S. farmers have access to improved hybrids, including varieties that can withstand attack by greenbugs, a major sorghum pest.

These are a few of the many agricultural improvements here and abroad made possible

by the International Sorghum and Millet Collaborative Research Support Program, or INTSORMIL, headquartered at the University of Nebraska-Lincoln. Thanks to a \$9 million, five-year cooperative agreement from the U.S. Agency for International Development, its work will continue and will continue to be based at UNL.

The cooperative agreement's official title is the Sorghum, Millet and Other Grains Collaborative Research Support Program. Because the long-standing program is internationally known as INTSORMIL, officials plan to continue using that name – its name since inception.

For nearly 30 years, INTSORMIL has provided life-sustaining aid to some of the poorest nations in the world. At the same time, it has improved sorghum and millet hybrids for U.S. farmers and has brought more than \$80 million to the University.

Having access to sorghum and millet strains from Africa and other countries has helped U.S. plant breeders develop new sorghums and millets for this country. In addition, much of the U.S.'s sorghum research is funded through INTSORMIL. INTSORMIL works in Africa, Central America, Eurasia and the U.S.

Scientists from six U.S. land-grant universities – UNL, Kansas State University, Mississippi State University, Purdue University, Texas A&M University, and West Texas A&M University – and the U.S. Department of Agriculture's Agricultural Research Service have collaborated with scientists in the INTSORMIL host countries.

Because of INTSORMIL involvement, Mali, Africa, has one of the strongest sorghum research

programs in the world today.

The center of origin for sorghum and pearl millet is in Africa so breeders are able to bring back germplasm from native types and from improved types with desirable characteristics and enter them into their breeding programs back in the U.S.

Sorghum and pearl millet are important food staples, especially in semiarid regions, because of their drought-tolerant characteristics.

In the U.S., sorghum is used mainly as livestock feed. Nebraska ranks third in sorghum production.

UNL researchers turn agricultural wastes into fabrics

Suits and dresses made of chicken feathers or rice straw might just be the norm someday.

An IANR textiles research team has found a way to turn these agricultural waste products into conventional-looking



UNL textile scientists Yiqi Yang (right) is developing fabrics made from such agricultural waste products as chicken feathers and rice straw.

fabrics. The feather-based fabric will resemble wool, while the rice straw fabric will look and feel more like linen or cotton.

While both fabrics are in early development and may not reach the market for several years, researchers hope their findings will spark interest in using agricultural byproducts as textile fibers.

This not only would add value to agricultural crops, but it would make the fiber industry more sustainable and reduce the use of petroleum-based synthetic fabrics.

With millions of tons of chicken feathers and rice straw available worldwide each year, these agricultural wastes represent an abundant, cheap and renewable alternative to petroleum-based synthetic fibers. The fibers also are biodegradable and the development could be a boon to the nation's rice and chicken farmers.

Rice fabrics, composed mostly of cellulose, are the most developed of the two and are capable of being spun into fabrics using common textile machinery.

Chicken fibers, composed mostly of keratin, offer the potential for developing fabrics that are lightweight, and offer better shock absorption and superior insulation.

The fabrics will be able to withstand normal washing and ironing and could become environmentally friendly fabrics used in carpets, automobiles, building materials and a host of other everyday applications – potentially at less cost and sometimes superior properties than their synthetic counterparts.

This research builds on earlier work turning cornhusks into fabrics with properties similar to linen or cotton.

UNL among leading research institutions in GMO trials

The University of Nebraska–Lincoln was among the leading U.S. institutions in permits for genetically modified crop field trials in 2005, according to information published in a scientific journal.

The April 2006 issue of the journal *Nature Biotechnology* featured a chart titled “Field Trial Permits by Top U.S. Institutions.” The chart featured the top 10 private companies and public institutions that obtained U.S. field trial approvals for transgenic crops in 2004 and 2005 as well as the percentage of overall U.S. trials in 2005 for each.

UNL ranked fourth overall and first among U.S. universities and public agencies with 30 field trial permit approvals, or 3 percent of all 2005 U.S. field trial approvals for genetically modified crops. Monsanto, by far the U.S. leader, accounted for 509 field trial permits or 54 percent of all U.S. trials in 2005. Syngenta was second with 37 or 4 percent of U.S. trials; ArborGen was third with 36 or 4 percent overall.

Other institutions in the top 10 for 2005 and their number of field trial permits were: fifth, Bayer CropScience, 19; sixth, Pioneer, 17; seventh, University of Arizona, 15; eighth, University of Florida, 14; ninth, U.S. Department of Agriculture, 13; and 10th, Michigan State, 12, according to the chart.

In 2004, UNL was fifth overall with 14 field trial permits behind Monsanto, ArborGen, Syngenta and USDA.

Nature Biotechnology listed the source of data featured in the chart as Cropnosis,

International Service for Acquisition of Agri-Biotech Applications. The Cropnosis Web page describes the private company as “a leading provider of market research and consultancy services in the crop protection and biotechnology sectors.”

Entomologists studying oxalic acid for control of varroa mites in bee colonies

The varroa mite is a major pest of honeybees worldwide, but its control often is difficult because the two organisms are so closely related.

While some strategies to control the mites do exist, they are labor intensive, and mites have become resistant to many available chemical treatments.



Varroa mites are a significant pest of honeybees. UNL entomologists are working on strategies to reduce their populations in bee colonies.

IANR entomologists are studying a natural product to reduce mite populations in bee colonies. Oxalic acid is a chemical found in plants, such as rhubarb, turnips and broccoli, which makes the vegetation nonpalatable to insects.

Using oxalic acid to treat varroa mites could help struggling beekeepers keep their hives healthy and stay economically profitable. In many states, insect-pollinated crops are a significant

part of agriculture. Because of the varroa mite, beekeepers have been unable to meet the bee colony demands on these farms.

Entomologists are testing oxalic acid's chemical efficacy and ways to use it. Since the mites and the bees are both arthropods, what kills the mites can kill the bees. Toxicological studies are being fine-tuned to find the dose necessary to kill mites, but not bees.

Entomologists also are looking at ways to eliminate mites in mail shipments and ways to eliminate mites in colonies in the winter when there are no broods and the mites are attacking adult bees.

Oxalic acid eventually will become a low-cost, effective and sustainable way to deal with the mite parasite. Entomologists also will teach beekeepers how to use the chemical.

These studies are funded by the EPA.

UNL scientists working to boost wheat quality, disease resistance

UNL wheat breeders and geneticists are part of a national scientific team working to harness genetic technologies to improve U.S. wheat quality and disease resistance.

A \$5 million U.S. Department of Agriculture grant is funding the collaborative research by University and government scientists in 17 states. UNL will receive \$162,750 for its portion of the study.

Results of this effort will change how wheat breeding is done and ultimately help increase U.S. wheat global competitiveness and production efficiency. The four-year



UNL agricultural scientists are part of a multistate effort to implement genetic technologies that enhance wheat breeding. Here, Ismail Dweikat (left) and Stephen Baenziger, the UNL plant breeders and geneticists working on the project, review a gel image of molecular markers for a population of wheat used in the University's wheat breeding program.

project aims to implement new molecular technologies called Marker Assisted Selection. Markers are genes or DNA segments that serve as molecular signposts, pinpointing a specific spot on wheat's genetic map.

While there are many known molecular markers for wheat chromosomes, scientists often don't know whether they are associated with a useful gene. This research will identify markers associated with specific desirable genetic traits and verify those associations. Once that's done, wheat breeders can use the markers to more quickly and precisely select wheat lines that contain specific characteristics.

Researchers will focus on developing markers for complex genetic traits, such as those influencing yield, that wheat growers and industry have identified as top priorities.

The UNL team will focus on environmentally sensitive genetic traits, such as grain yield, test weight and kernel size, as well as how drought influences certain traits. Nebraska's varied, often extreme growing conditions and its location at the north-

ern end of the nation's winter wheat growing region make it a good location for this research. Involvement in this research also will enhance Nebraska's breeding program. Nebraska's breeding lines will be analyzed for molecular markers at the USDA's genotyping laboratories. That means future breeding efforts will be much more marker-based and precise.

New technologies helping producers deal with drought

New Web-based technologies being developed at UNL are giving farmers and ranchers better tools to contend with drought.

A partnership between the UNL-based National Drought Mitigation Center and UNL's Department of Computer Science and Engineering is bringing together the expertise of climatologists and computer scientists to bring cutting-edge computer technologies to producers' age-old decision-making processes.

UNL computer scientists have created the National Agricultural Decision Support System (<http://nadss.unl.edu>) to host a variety of tools that help producers assess drought and other crop-production risks. There, producers can tap into a variety of weather data to help them make decisions about their operations.

The drought mitigation center (<http://drought.unl.edu>) also has a variety of online decision-support tools in various development stages, including:

- Drought Impact Reporter, which allows users to enter information about drought's specific impacts across the United States
- Vegetation Drought Response Index, which uses satellite and climate data for a square-mile-by-square-mile analysis of drought conditions
- Continued improvements in the U.S. Drought Monitor, a weekly national map that the drought center produces through a partnership with the U.S. Department of Agriculture and the National Oceanic and Atmospheric Administration. (Plans are to make the monitor a more interactive tool that producers and others can use to get more specific, local information.)



Drought has plagued the region for several years, but new work by the National Drought Mitigation Center and UNL computer scientists is providing new tools to producers and others for dealing with the crisis.

- Vegetation Outlook, which will provide projections of general vegetation conditions several weeks in advance
- Drought Risk Atlas, which will provide users a comprehensive picture of the history, frequency, intensity, duration and trends of droughts over the past century.

In 2005, the U.S. Department of Agriculture's Risk Management Agency provided more than \$7 million toward the UNL-based projects.

Working to reduce phosphorus levels, limit runoff

Manure phosphorus can help produce a healthy crop, but land application of excessive amounts can increase the potential for water pollution. UNL researchers are working to solve this problem.

A \$500,000 grant from the U.S. Department of

Agriculture's Cooperative State Research, Education and Extension Service to the Nebraska Corn Board is funding UNL research to reduce phosphorus in manure and in distillers grain and corn gluten feed and develop improved manure handling practices.

Phosphorus concentrations in ethanol byproducts are much higher than in corn. When the byproducts are fed to beef cattle, manure phosphorus excretion is increased. Researchers are looking at ways to remove phosphorus in distillers grain and corn gluten feed to allow animal diets with less phosphorus.

They are studying adding the enzyme phytase during ethanol production, which would remove phosphorus from the organic compounds, and may produce a value-added product such as inositol. Inositol and its phosphates are highly valued in the nutrient supplement market and pharmaceutical industry as a fat-solubilizing agent.

Researchers are looking at composting manure as a way to reduce manure mass or bulk to

decrease transport costs and allow better nutrient distribution. They also will address nitrogen loss during the composting process.

Scientists also are looking at management practices to reduce phosphorus runoff, including setback distances and vegetative filter strips for manure application near water or conduits to water. Watershed models are being used to develop criteria for improved targeting of best management practices to parts of the watershed with greater potential for runoff phosphorus loss. They also hope to reduce phosphorus runoff by educating producers and consultants on these improved practices.

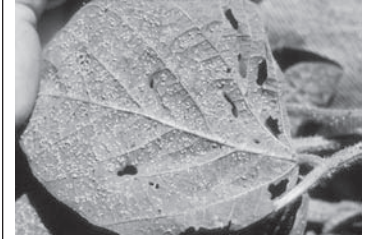
IANR entomologists provide insights into biocontrols

Severe soybean aphid infestations can easily reduce soybean yields by up to 20 percent in farmers' fields.

Since aphids can grow to economically damaging populations in a short period of time, IANR entomologists focused on the problem and have developed research-based soybean aphid management guidelines and biocontrol information specific for Nebraska.

For the aphid, science-backed economic thresholds average about 250 aphids per plant and populations on the increase.

The team of entomologists is now examining those thresholds in specific arenas, such as irrigated and early or late-planted fields. In addition, they also are looking at yield loss mechanisms, including photosynthesis changes, along with plant growth and other factors.



Soybean aphids like these can reduce yields by 20 percent. UNL entomologists continue to work on efforts to control the pest.

Providing this science-based information protects soybean yields and allows soybean growers to avoid unnecessary production expenses from unwarranted insecticide applications.

Entomologists also discovered some soybean varieties are resistant to soybean aphids. Others can negatively impact the biology of the pest. The chemical composition of the plant can cause slower reproduction and death.

Resistant soybeans could mean eliminating treatment all together, which not only would save money but would be more sustainable and better for the environment.

Entomologists also found the minute pirate bug plays an important role as a biological control agent.

Tool can help reduce impact of livestock odor

University of Nebraska-Lincoln biological systems engineers are developing tools that will help producers and communities better plan for livestock odors' indiscriminate distribution.

Institute of Agriculture and Natural Resources engineers are using odor emission and dispersion research to develop



Chemical Engineer Hossein Nouredini studies adding the enzyme phytase during ethanol production, which would remove phosphorus from the organic compounds. This is just one way UNL researchers are working to reduce phosphorus in manure and in distillers grain and corn gluten feed.

resources that assess where livestock odors will cause the most problems, which can help create buffer zones of varying sizes and shapes around livestock operations.

Such tools as odor roses, directional setback distance curves and odor footprints are being produced for six regions in Nebraska.

These resources, the result of computer modeling and other IANR research, are known collectively as the Odor Footprint Tool. The tool's resources will help livestock producers plan new or expanded livestock facilities to reduce odor impact and help county zoning officials evaluate proposed construction of livestock facilities.

The odor footprints reveal areas expected to be affected by livestock odors more often than the locally selected standard with an aerial view format.

The directional setback distances simplify the process of evaluating plans and options by considering the maximum separation distance in each of four main directions around a site. This is done to the north, south, east and west of the site, or to the northeast, southeast, northwest and southwest of the site, giving a good idea of the expected reach of odor impact in each direction.

The odor rose focuses on weather factors, such as prevailing wind direction and atmospheric conditions, that will determine the directions of greatest odor impact.

The Nebraska Department of Agriculture, U.S. Department of Agriculture National Research Initiative, Nebraska Pork Producers and the Nebraska Environmental Trust fund this research.

Improving soybean's potential for biodiesel use

UNL researchers are working to modify the fatty acid profile of soybean oil for biodiesel.

A team of researchers in UNL's Plant Transformation Core Facility within the Center for Biotechnology is investigating three fatty acid profiles in genetically modified soybeans to see how they fare as biodiesel feedstock.

The first oil they developed was from high oleic acid soybeans. These beans had 85 percent to 91 percent higher oleic acid content, compared with 15 percent to 20 percent in conventional varieties and lower saturated fatty acids.

The second is a high-oleic acid oil with elevated amounts of stearic acid, or saturated fat. This may enhance the ignition quality but will reduce the fuel's cold flow property.

The third type is a high-oleic acid, high-ricinoleic soybean oil. Collaborating with a Canadian company, the researchers are essentially making castor oil in soybean plants. Brazil already is making biodiesel out of 100 percent castor oil. The U.S. government is not in favor of castor plants since the byproduct is ricin, a potential bioterrorism agent.

UNL researchers are not yet sure if castor oil-producing soybeans will be beneficial in biodiesel production, but it is worth investigating.

glimpses at ARD research

- ◆ The School of Natural Resources' new home will help make its research, extension and teaching efforts more cohesive. SNR faculty and staff, once divided among many buildings across both City Campus and East Campus, moved into the former Clifford Hardin Nebraska Center for Continuing Education in 2006. Funded by U.S. Department of Agriculture and state money, the \$16.5 million renovation provides 150,500 square feet of office, lab and classroom space, as well as an auditorium with a new audio-visual system and a large lobby with an outreach mall and store.
- ◆ A new Water Resources Advisory Panel will share its thoughts and opinions on water resources issues and offer UNL advice and assistance in the Water Resources Research Initiative. A major goal of that initiative is strengthening the University's ties with state and federal agencies responsible for water resources in Nebraska, as well as with the natural resources districts, irrigation districts, agricultural business organizations and others with ties to Nebraska water issues. The panel includes representatives from state government, environmental organizations, agricultural groups and irrigation providers.
- ◆ An expansion of the feedlot at the Agricultural Research and Development Center near Mead provides more research space for the animal science department. The expansion increased from 100 to 150 the number of pens. The expansion will allow for both more research projects and also larger experiments.
- ◆ Nebraska counties where a Wal-Mart is located have experienced on average a slower growth in standard of living than counties without the world's largest retailer, a preliminary University of Nebraska-Lincoln study shows. The UNL study compared how growth in household income from 1979 to 2002 differed between 19 counties with Wal-Marts and 74 without, after controlling for other economic variables that determine household income. The study by a UNL agricultural economist found that the average annual growth in median household income, adjusted for inflation, in the 19 counties with a Wal-Mart was \$142.62 below the average annual growth in median household income in the 74 counties without a Wal-Mart from 1979 to 2002.

Faculty Awards and Recognitions

The impact and quality of ARD research can be assessed in many ways. One measure of excellence is the recognition researchers' work receives from peers and from those who benefit from the research. A number of ARD faculty members are widely recognized as leaders in their disciplines, and a number received international, national, regional and/or state honors.

Many ARD faculty also serve as officers or directors in their professional societies and state, regional, national and international organizations. Some are editors and associate editors of professional journals. We applaud their efforts in furthering the knowledge and professionalism of their disciplines.

Agricultural Economics

Konstantinos Giannakas received the Graduate Student Organization Faculty Award from the Graduate Student Organization.

Dennis Conley received the Grateful Appreciation for Contributions from the International Food and Agribusiness Association.

Amalia Yiannaka received the "Young" Professionals Heading South Award from the Australian Agricultural and Resource Economics Society (AARES) and the American Agricultural Economics Association to attend the AARES annual meeting in Australia; received the Outstanding Ph.D. Thesis Award at the Canadian Agricultural Economics Association annual meeting; and received the Graduate Student Organization Faculty Award from Agricultural Economics.

Agronomy and Horticulture

Jerry Eastin received the Sorghum Industry Award from the Nebraska Grain Sorghum Producers Association and the Nebraska Grain Sorghum Board.

Richard B. Ferguson received the Water Guardian of the Year Award from the Nebraska Agri-Business Association, Inc.

Roch Gaussoin received the Fellow Award from the American Society of Agronomy.

Don Lee received the Omtvedt Innovation Award.

Dale Lindgren received the Viehmeyer Award from the American Penstemon Society.

Drew Lyon received the Fellow Award from the American Society of Agronomy.

Darrell W. Nelson received the Agronomic Service Award from the American Society of Agronomy.

John Shanahan received the Fellow Award from the American Society of Agronomy.

Charles Shapiro received the Fellow Award from the American Society of Agronomy.

Charles Wortmann received the African Crop Science Society Award for Outstanding Contribution to the Society and Scientific Development in Africa from the African Crop Science Society.

Animal Science

Don Adams received the Distinguished Educational Service Award from the University of Nebraska-Lincoln.

Michael Brumm was named to the *National Hog Farmer* magazine's list of "Top 50 Men and Women Who Made a Difference in the U.S. Pork Industry."

Ronald Christenson received the Research Fellow Award from the American Society of Animal Science.

Galen Erickson received the Dinsdale Family Faculty Award from the Institute of Agriculture and Natural Resources.

Rodger Johnson received the Darrell Nelson Outstanding Graduate Student Advising Award from the Institute of Agriculture and Natural Resources.

Terry Klopfenstein received the Distinguished Teacher Award from the American Society of Animal Science.

Richard Koelsch received the G.B. Gunlogson Countryside Engineering Award from the American Society of Agricultural Engineers and received a Blue Ribbon Award from the American Society of Agricultural Engineers.

Merlyn Nielsen received the Holling Family Senior Award for Teaching Excellence from the Institute of Agriculture and Natural Resources.

L. Dale Van Vleck received the Morrison Award from the American Society of Animal Science.

John Ward received the Friend of Agriculture Award from the McPherson, Kansas Farm Forum.

Brett White received the Junior Faculty Excellence in Research Award from the Agricultural Research Division and the Holling Family Junior Faculty Award for Teaching Excellence from the Institute of Agriculture and Natural Resources.

Biochemistry

Ruma Banerjee received a Chancellor's Distinguished Series Lecturer award from the University of Nebraska.

Don Becker received the National Science Foundation Career Award.

Biological Systems Engineering

Greg Bashford received the 2005 Dinsdale Family Faculty Award for outstanding teaching, research and outreach in IANR.

Tom Franti received two Blue Ribbon Awards from the American Society of Agricultural Engineers for Educational Aids competition.

Suat Irmak received the Best Practice Paper Award from the World Water and Environmental Resources Congress, Irrigation and Drainage Council, in Anchorage Alaska and the Bureau of Reclamation Commissioner's Water Conservation Award.

Rick Koelsch received the G.B. Gunlogson Countryside Engineering Award and a Blue Ribbon Award from the American Society of Agricultural Engineers.

William Kranz received the Bureau of Reclamation Commissioner's Water Conservation Award.

Derrel Martin received the Bureau of Reclamation Commissioner's Water Conservation Award.

Jose Payero received the Bureau of Reclamation Commissioner's Water Conservation Award.

C. Dean Yonts received the Bureau of Reclamation Commissioner's Water Conservation Award.

Entomology

Frederick P. Baxendale received a Certificate of Merit from the Lincoln Police Department and 1st Place in the 15th Annual Turf and Ornamentals Communicators Association (TOCA) Communications Writing Awards Contest in the Commercial Publications Division.

John E. Foster received a 15-year service award from UNL and a 40-year Entomological Society of America (ESA) Membership Recognition.

Shripat T. Kamble was elected Executive Member-at-Large for the North Central Branch of the ESA.

Blair D. Siegfried received a 15-year service award from UNL.

Food Science and Technology

Robert Hutkins was named the Khem Shahani Professor of Food Science.

John Rupnow was elected to the Institute of Food Technologists Executive Committee.

Plant Pathology

James R. Alfano received the Syngenta Award from the American Phytopathological Society.

Loren J. Giesler received the Distinguished Extension Specialist Award from the University of Nebraska.

James R. Steadman received the International Service Award from the American Phytopathological Society, the Frederick L. Wellman Award from the Caribbean Division of the American Phytopathological Society and the Alpha Phi Chapter Award of the Phi Delta Honor Society for International Scholars.

School of Natural Resources

Mark E. Burbach was selected as a Fellow with the Center for Great Plains Studies.

Marvin P. Carlson received the "Robey H. Clark Award for Continuing Service to the Profession" from the American Association of Petroleum Geologists Mid-Continent Section.

Jozsef Szilagyi received his Doctorate of Science degree from the Hungarian Academy of Sciences.

Veterinary and Biomedical Sciences

Fernando Osorio received the Dermott Coyne Award in recognition of leadership and outstanding service to international students from the University of Nebraska-Lincoln International Affairs Office.

Gary P. Rupp received the Beef Award at the American Association of Bovine Practitioners Conference, Fort Worth, Texas.

David R. Smith received the Wendell Burgher Beef Industry Award from the University of Nebraska Foundation.

David J. Steffen received the Outstanding Contributions to Undergraduate Students Award from the University Parents Association through the College of Agricultural Sciences and Natural Resources.

Education and Human Sciences Departments

Family and Consumer Sciences

Douglas Abbott received the U.S. Fulbright Senior Scholar.

Richard Bischoff received the College of Education and Human Sciences Distinguished Teaching Award.

John DeFrain received the Family Strengthening Award from the National Association of Extension 4-H Agents and the Phi Beta Delta Honor Society for International Scholars.

Carolyn Edwards received the Outstanding Research and Creative Achievement in Social Sciences award from the College of Arts and Sciences.

Cody Hollist received the Certificate of Recognition for Contribution to Students from the University of Nebraska–Lincoln Teaching Council and the University of Nebraska–Lincoln Parents Association.

Nutrition and Health Sciences

Timothy Carr received the Excellence in Teaching Award from Gamma Sigma Delta Honor Society.

Judy Driskell received the Excellence in Research Award from Gamma Sigma Delta Honor Society.

Textiles, Clothing and Design

Patricia Crews received the Distinguished Scholar Award from the International Textile and Apparel Association.

Off-Campus Research Centers

Northeast Research and Extension Center

Terry Mader received the Wendell Burgher Industry Professorship and Honorary Professor in the School of Animal Studies, University of Queensland, Brisbane, Australia.

Charles A. Shapiro received the Fellow Award from the American Society of Agronomy.

Panhandle Research and Extension Center

David Baltensperger received the Outstanding Extension Specialist award from the Specialist Section of the Nebraska Cooperative Extension Association (NCEA).

Linda Boeckner received the Omtvedt Innovation Award from the Institute of Agriculture and Natural Resources, University of Nebraska–Lincoln.

Drew Lyon received the Fellow from the American Society of Agronomy and the Outstanding Entry in the Educational Aids Competition/Publications: Manuals and Workbooks from the American Society of Agricultural and Biological Engineers.

Ivan Rush received the American Society of Animal Science Extension Award presented by Pfizer Animal Health and the Extension Award of Merit from the Nebraska Chapter of Gamma Sigma Delta.

John Smith received the Nebraska ASABE - Engineer of the Year Award from the American Society of Agricultural and Biological Engineers.

C. Dean Yonts received the Outstanding Entry in the Educational Aids Competition/Publications: Manuals and Workbooks from the American Society of Agricultural and Biological Engineers, the Outstanding Entry in the Educational Aids Competition: Films, Satellite Conferences, Videotapes, the Electronic Presentations from the American Society of Agricultural and Biological Engineers and the Bureau of Reclamation Commissioner's Water Conservation Award from the United States Bureau of Reclamation.

West Central Research and Extension Center

Don Adams received the Distinguished Educational Service Award from the University of Nebraska.

Dale Lindgren received the Glenn Viehmeyer Award for "Developing Penstemon Hybrids of Merit" from the American Penstemon Society.

Graduate Student Awards and Recognitions

One of the primary missions of the ARD research program is to develop the scientists of tomorrow. We are committed to providing exceptional graduate students with the opportunity to work with and learn from our research faculty.

ARD is among the national leaders in research in food production and processing, natural resources management and family sciences. Approximately 812 graduate students are pursuing advanced degrees with ARD faculty. The quality of our graduate students is reflected in the recognition they receive.

Agricultural Economics

Alejandro S. Plastina received the Dr. James B. Hassler Award for Outstanding Research by a Graduate Student, Department of Agricultural Economics.

Ikrom S. Artikov received the Outstanding M.S. Student Award from the Department of Agricultural Economics.

Brahim Bouras received the Outstanding Ph.D. Student Award from the Department of Agricultural Economics.

Kyriakos Drivas received the CAFIO, Department of Agricultural Economics Graduate Student Research Travel Award and the Fellow Graduate Student Award from the Department of Agricultural Economics Graduate Student Organization.

Christopher Kerr received the Outstanding MBA Agribusiness student Award.

Marianna Khachatryan received the CAFIO and the Graduate Student Research Travel Award from the Department of Agricultural Economics.

Gibson Nene received an Officer Award from the Graduate Student Organization and the Outstanding M.S. Student award from the Department of Agricultural Economics.

Aaron Raymond received the SAMBA, UNL Fellow Graduate Student Award.

Agronomy and Horticulture

Keri L. Andersen received the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Neal Bryan received the W.R. Chapline Fellowship from the Center for Grassland Studies and the Frank and Marie Wheeler Fellowship from the Office of Graduate Studies.

Julian Chaky received the Franklin and Orinda Johnson Fellowship from the Office of Graduate Studies.

Veronica Ciganda received the Hardin Distinguished Graduate Fellowship from the Agricultural Research Division.

Douglas Felter received the Gerald O. Mott Meritorious Graduate Student Award in Crop Science.

Juan Pablo Garcia received the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Zhengxiang Ge received the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Susana Maria Grigera received the Henry M. Beachell Fellowship from the Department of Agronomy and Horticulture.

Tay Za Kyaw received the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Ty McCellan received the Shear-Miles Fellowship from the Agricultural Research Division, the Frank and Marie Wheeler Fellowship from the Office of Graduate Studies and the Watson Fellowship from the Golf Course Superintendents Association of America.

Nathan Mueller received the Cooper Sharpless Fellowship from the College of Agricultural Sciences and Natural Resources and the Bukey Memorial Graduate Fellowship from the Office of Graduate Studies.

Eric Mousel received first place in the Graduate Student Paper Contest at the Ph.D. level at the 2005 meeting of the Society for Range Management in Fort Worth, Texas.

Stephen Opiyo received the Moseman Fellowship from the Agricultural Research Division.

Michelle Parde received the Centennial Fellowship from the Office of Graduate Studies.

J. Andrés Quincke received the Widaman Trust Distinguished Graduate Assistant Award and the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division, and the DAAD scholarship from the German Academic Exchange Service.

Tri Setiyono received the Widaman Trust Distinguished Graduate Assistant Award and the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Vikas Shedge received the Milton Mohr Fellowship from the Center for Biotechnology.

Fernando Solari received the Borrlson Fellowship from the Office of Graduate Studies.

Walter Suza received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division and the Henry M. Beachell Fellowship from the Department of Agronomy and Horticulture.

Animal Science

Michelle Baltes received a Widaman Trust Distinguished Graduate Assistant Award and two William G. Whitmore Travel Grants from the Agricultural Research Division.

Benjamin Bass received a William G. Whitmore Travel Grant from the Agricultural Research Division and a V.H. Arthaud Travel Award from the Animal Science Department.

Eric Behlke received an outstanding Poster Award and represented the Animal Science Department as an Honored Speaker at the University of Nebraska–Lincoln NeInSci Symposium.

Rebecca Bott received a William G. Whitmore Travel Grant from the Agricultural Research Division, a V.H. Arthaud Travel Award from the Animal Science Department and a Fellowship from the Livestock Congress.

Virgil Bremer received a Travel Award from the International Livestock Congress, a William G. Whitmore Travel Grant from the Agricultural Research Division and a V.H. Arthaud Travel Award from the Animal Science Department.

Grant Crawford received a William G. Whitmore Travel Grant from the Agricultural Research Division.

Heidi Harris received a V.H. Arthaud Travel Award from the Animal Science Department and a William G. Whitmore Travel Grant from the Agricultural Research Division.

Jennie James received two William G. Whitmore Travel Grants from the Agricultural Research Division.

Blaine Jenschke received a William G. Whitmore Travel Grant from the Agricultural Research Division.

Matt Luebbe received a William G. Whitmore Travel Grant from the Agricultural Research Division.

Jeremy Martin received the John and Louise Skala Fellowship, two William G. Whitmore Travel Grants from the Agricultural Research Division and a Hazel V. Emley Fellowship from the Office of Graduate Studies.

James MacDonald received a William G. Whitmore Travel Grant from the Agricultural Research Division.

Emily McDonald received a William G. Whitmore Travel Grant from the Agricultural Research Division and a V.H. Arthaud Travel Award from the Animal Science Department.

Jessica Meisinger received a William G. Whitmore Travel Grant from the Agricultural Research Division and a V.H. Arthaud Travel Award from the Animal Science Department.

Roman Moreno received the Ned S. and Esther B. Raun International Graduate Fellowship from the Animal Science Department.

Sarah Morris received a V.H. Arthaud Travel Award from the Animal Science Department and a William G. Whitmore Travel Grant from the Agricultural Research Division.

Jason Scheffler received a Milton E. Mohr Fellowship from the Center for Biotechnology.

Hirako Taira received a Poster Presentation Award of Excellence from the Poultry Science Association.

Robin Ten Broeck received a Widaman Trust Distinguished Graduate Assistant Award and a William G. Whitmore Travel Grant from the Agricultural Research Division.

April Tepfer received a Widaman Trust Distinguished Graduate Assistant Award and a William G. Whitmore Travel Grant from the Agricultural Research Division along with a V.H. Arthaud Travel Award from the Animal Science Department.

Biochemistry

David Adle was awarded the Hazel Emley Fellowship and Milton Mohr Fellowship from the Center for Biotechnology.

Alamelu Bharardwaj received a Best Poster award for “Characterization of Prostate Tumor Cells Selected for Inducible Gene Expression” at the Sigma Xi Research Fair Poster Competition; received a Travel Grant Award at the NeInSci. Nebraska Symposium on Interdisciplinary Graduate Science Research from the Office of Graduate Studies; was selected as a member of the steering committee for the NeInSci 2006 symposium; and received a Nebraska Center for Cellular Signaling Fellowship from the University of Nebraska Medical Center.

Valentin Cracan received the Chancellor’s Doctoral Fellowship from the Department of Graduate Studies.

Razvan Dumitru was awarded the Widaman Trust Fellowship from the Agricultural Research Division.

Robert Galbenus was awarded Outstanding Poster and received a Travel Grant Award at the NeInSci. Nebraska Symposium on Interdisciplinary Graduate Science Research from the Office of Graduate Studies.

Carmen Gherasim was awarded the CASNR Fellowship and the Holling Family Award for Teaching Excellence from the College of Agricultural Sciences and Natural Resources.

Rama Kothpalli was awarded the Widaman Trust Fellowship from the Agricultural Research Division.

Vyacheslav Labunskyy received the Milton Mohr Graduate Fellowship in Biotechnology from

the Center for Biotechnology.

Melissa Lucas was awarded the Othmer Fellowship from the Office of Graduate Studies.

Peter Madzellan was awarded the Redox Biology Center Fellowship from the Redox Biology Center.

Amy Miller was awarded an Othmer Fellowship from the Office of Graduate Studies.

Elizabeth Pierce was awarded the Redox Biology Center Fellowship from the Redox Biology Center.

Anna Prudova was awarded the American Heart Association Fellowship.

Devis Sinani was awarded the Nutricia Foundation Fellowship from the Nutricia Foundation in the Netherlands.

Dan Su was awarded the Widaman Trust Fellowship from the Agricultural Research Division.

Olga Vitvitskaia was awarded the Chancellor’s Fellowship from the Office of Graduate Studies; her biography was published in the Chancellor’s List of Graduate Students of America.

Anna Witt received the Chancellor’s Doctoral Fellowship from the Office of Graduate Studies.

Biological Systems Engineering

Katrina Christiansen received a Mary and Charles C. Cooper/Emma I. Sharpless Fellowship from the College of Agricultural Sciences and Natural Resources and the Agricultural Research Division.

Junjie Guan received the ASAE Student of the Year Award from the American Society of Agricultural Engineers; Outstanding Graduate Student of Sigma Xi Scientific Society - University of Nebraska–Lincoln Chapter; Marvin Byer Scholar Award - Research and Development Association for Military Food and Packaging Systems, Inc.; Rheology Division Travel Award of the American Association of Cereal Chemists, San Diego, California; Graduate Fellowship of American Association of Cereal Chemists Bill Doty Memorial Fellowship Fund, San Diego, California; Phi Beta Delta Chapter Outstanding International Award; John and Louise Skala Distinguished Fellowship from the Agricultural Research Division; and a Milton E. Mohr Fellowship.

Melissa Halverson received a Nebraska Water Environment Federation scholarship.

Ajay Kumar received a John and Louise Skala Distinguished Fellowship from the Agricultural Research Division and a Milton E. Mohr Fellowship from the College of Engineering.

Luis Lagos received a Mary and Charles C. Cooper/Emma I. Sharpless Fellowship from the College of Agricultural Sciences and Natural Resources and the Agricultural Research Division.

Eric Newgard received a Mary and Charles C. Cooper/Emma I. Sharpless Fellowship from the College of Agricultural Sciences and Natural Resources and the Agricultural Research Division.

Corey Searle received a Milton E. Mohr Fellowship from the College of Agricultural Sciences and Natural Resources.

Balaji Sethuramasamyraja received the Outstanding International Graduate Student Award from the Agricultural Research Division.

Bryan Smith received a Milton E. Mohr Fellowship from the College of Agricultural Sciences and Natural Resources.

Nick Sutko received the Colonel Theodore A. Leisen Memorial Scholarship from the Nebraska Section of the American Water Works Association.

Yixiang Xu received the Franklin and Orinda Johnson Fellowship and the John and Louise Skala Distinguished Fellowship.

Entomology

Nicholas Aliano received a Hazel V. Emley Fellowship from the Office of Graduate Studies and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Analiza Alves received two Myron H. Swenk Memorial Fund Travel Awards from the Bruner Club Executive Committee.

Wyatt Anderson received a David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Tierney Brosius received a Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division, two Myron H. Swenk Memorial Fund Travel Awards from the Bruner Club Executive Committee, and was initiated into Gamma Sigma Delta.

Mathew Brust received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Laura Campbell received a Hazel V. Emley Fellowship from the Office of Graduate Studies, a Farmers National Company Fellowship from the College of Agricultural Sciences and Natural Resources, and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Pete Clark received a David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Andre Crespo received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Alex Cunningham received a Farmers National Company Fellowship from the College of Agricultural Sciences and Natural Resources and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Thomas Eickhoff received the 2005 Entomological Society of America (ESA) Student Activity Award sponsored by Monsanto Company, the 2005 ESA Foundation's Kenneth and Barbara Starks Plant Resistance to Insects Graduate Student Research Award and a Elvis Dickason Memorial Fund Travel Award from the Bruner Club Executive Committee.

Michael Fisher received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Andrea Gutsche received a Mary and Charles C. Cooper/Emma I. Sharpless Fellowship from the College of Agricultural Sciences and Natural Resources and the Agricultural Research Division.

Shauna Hawkins received the Outstanding Graduate Student Award from the British Columbia Entomological Society and a National Science and Engineering Research Council (NSERC-Canada) graduate fellowship.

Timothy Huntington received a Teaching Assistant Award from the Holling Family Award Program for Teaching Excellence.

Timothy Husen received a Ward A. and Helen W. Combs Scholarship from the Entomology Department, a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee, and was recognized for submitting an outstanding poster to the 2006 Research Fair Poster Competition at UNL.

Jeffrey Krumm received a David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Leonardo Magalhaes received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Sasi Maliphan received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Paul Nabity received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee and was initiated into Gamma Sigma Delta.

Eliseu Pereira received a fellowship from the Coordination for the Improvement of Higher Education Personnel of the Brazilian Ministry of Education, 1st Place in the Ph.D. student oral presentation competition at the National Entomological Society of America Meeting, and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Sajeewani Samarakoon received two Myron H. Swenk Memorial Fund Travel Awards from the Bruner Club Executive Committee.

Rosana Serikawa received two Myron H. Swenk Memorial Fund Travel Awards from the Bruner Club Executive Committee.

Benjawan Siriwetwivat received a David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division and a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Neil Spomer received the 2005 ESA Student Certification Award, a Ward A. and Helen W. Combs Scholarship from the Entomology Department, and two Elvis Dickason Memorial Fund Travel Awards from the Bruner Club Executive Committee.

Sheri Svehla received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.

Bamphitlhi Tiroesele received a Myron H. Swenk Memorial Fund Travel Award from the Bruner Club Executive Committee.



Zhengqing Fu, a graduate student in Plant Pathology, received the Agricultural Research Division Hardin Fellowship. He is being congratulated by benefactors Dr. and Mrs. Clifford Hardin.

Food Science and Technology

Daniela Bautista received the Luther Drake Scholarship from the College of Agricultural Sciences and Natural Resources and the Oak B. Smith Scholarship from Food Science and Technology.

Joe Baumert received the Hazel V. Emily Fellowship Award from the University of Nebraska.

Loren Gemar received the IFT Undergraduate Scholarship from the Institute of Food Technologists, the Oak B. Smith Scholarship from Food Science and Technology and the George McGinnis Scholarship from the College of Agricultural Sciences and Natural Resources.

Jun Goh received the David H. and Anna E. Larrick Travel Award from the Agricultural Research Division.

Jennifer Huebner received the IFT Graduate Fellowship Award, the Twila Herman Claybaugh Fellowship and the Widaman Distinguished Graduate Assis-

tant Award from the Agricultural Research Division.

Morgan McGowan received the IFT Undergraduate Scholarship from the Institute of Food Technologists and the Holling Memorial Award from the College of Agricultural Sciences and Natural Resources.

Kari Shoaf received the Wheeler Fellowship from the Office of Graduate Studies, the IFT Graduate Fellowship Award from the Institute of Food Technologists and the David H. and Anna E. Larrick Travel Award from the Agricultural Research Division.

R.M. Wajira Ratnayake received the Maude Hammond Fling Fellowship recognizing highest level of academic performance as a graduate student awarded by the Office of Graduate Studies, the Outstanding Paper in Cereal Chemistry Award sponsored by the Corn Refiners Association, USA, AACC International Annual Meeting, and the AACC International Graduate Fellowship sponsored by Charles Becker Endowment, AACC International.

Rachel Reuss received the Food Science Club Award from the Institute of Food Technologists and the Oak B. Smith Scholarship from the College of Agricultural Sciences and Natural Resources.

Roxana Yglesias received the Chancellor's Doctoral Fellowship awarded by the Office of Graduate Studies.

Plant Pathology

Maricelis Acevedo received the Maude Hammond Fling Fellowship and the Goss Fellowship from the Department of Plant Pathology and the David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Zhengqing Fu received the Milton E. Mohr Fellowship from the Center for Biotechnology; the Hardin Fellowship from the Agricultural Research Division and the Goss Fellowship from the Department of Plant Pathology.

Zhengxiang Ge received a David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Lindsey Otto-Hanson received the Outstanding Poster Award at the Nebraska Symposium on Interdisciplinary Graduate Science Research; and David H. and Anna E. Larrick Student Travel Award from the Agricultural Research Division.

Camile Semighini received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Giane M. Yanai received the Milton E. Mohr Fellowship from the Center for Biotechnology.

School of Natural Resources

Branden O'Hare received a \$2,000 UCARE grant for his research, "Developing a habitat model for Bailey's Eastern Woodrat in the Niobrara Valley."

Kimberly Payne received an Environmental Protection Agency STAR Fellowship for her research project, "Interactions among plants, soils and micro-organisms and their roles in stabilizing the Nebraska Sand Hills."

Heidi Puckett received the Outstanding Graduate Student Research Award from the Nebraska Statewide Arboretum.

Veterinary and Biomedical Sciences

Rohana Dassanayake received a Milton E. Mohr Scholarship from the Center for Biotechnology, the Maude Hammond Fling Fellowship for High Scholastic Performance and Accomplishments as a Student Scholar from the Office of Graduate Studies; and the William G. Whitmore Memorial Travel Fund award from the Agricultural Research Division.

Joseph Erume received the Frank and Marie Wheeler Fellowship from the Office of Graduate Studies and the Shear-Miles Fellowship from the Agricultural Research Division.

Vicki Geiser, Ph.D. Program, received from the Department of Veterinary and Biomedical Sciences the Best Seminar Award and the Kirschstein National Research Service Award from the National Institutes of Health.

Florencia Meyer received the Maude Hammond Fling Fellowship for High Scholastic Performance and Accomplishments as a Student Scholar from the Office of Graduate Studies.

Yuko Mori received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Paul Nabity, M.S. Program, received the Best Seminar Award from the Department of Veterinary and Biomedical Sciences.

Sandra Perez received the Susan Ann Smith Mills Award from a University Foundation Endowment awarded through the Department of Veterinary and Biomedical Sciences.

Yin Wang received the Othmer Fellowship from the Office of the Graduate Studies.

Education and Human Sciences Departments

Nutrition and Health Sciences

Yap-Ching Chew received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Yousef Hassan received the Centennial Fellowship from the Office of Graduate Studies.

Keyna Kobza received a NE-BRIN (Nebraska Biomedical Research Infrastructure Network) Graduate Fellowship from NE-INBRE (Nebraska IDEa Network of Biomedical Research Excellence) through the University of Nebraska Medical Center.

Shakhlo Yarbayeva received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Textiles, Clothing and Design

Jonathan Gregory received the Barbara L. Kuhlman Foundation Scholarship.

Off-Campus Research Centers

Northeast Research and Extension Center

Nick Sutko received the Colonel Theodore A. Leisen Memorial Scholarship from the Nebraska Section, American Water Works Association.

Panhandle Research and Extension Center

Douglas G. Felter took first place in the Crop Science Society of America Division C-3 Graduate Student Poster Contest at the ASA-CSSA-SSSA annual meeting in Salt Lake City.

West Central Research and Extension Center

Sarah Morris received a V.H. Arthaud Travel Award from the Animal Science Department and a William G. Whitmore Travel Grant from the Agricultural Research Division.

Undergraduate Honors Student Research Program

The purpose of this program is to allow outstanding University Honors Program students to conduct research under the direction of a faculty mentor. The program is open to junior and senior Honors Program participants proposing to work with a faculty member who has an ARD appointment. A subcommittee of the ARD Advisory Council selects awardees based on the quality of the proposal. Proposals are authored by the students with guidance from the proposed project mentors.

Animal Science

Lesha Eggers received an Undergraduate Honors Student Research Award for “Role of mGPD in Response to High and Low Heat Loss Selections” from the Agricultural Research Division. (M.K. Nielsen, Advisor)

Biochemistry

Nathan Beins received an Undergraduate Honors Student Research Award for “Characterization of the Sumoylation of C-terminal Domains Lysine Residues in Cystathionine B-Synthase.” (R. Banerjee, Advisor)

Biological Systems Engineering

Brent Hanson received an Undergraduate Honors Student Research Award for “Yogurt Powder Functional Properties as Affected by Drying Methods” from the Agricultural Research Division. (D. Schulte and C. Weller, Advisors)

Ross Havlat received an Undergraduate Honors Student Research Award for “Installation Requirements for Metering Irrigation Water.” (Dean Eisenhauer, Advisor)

Abby Luettel received an Undergraduate Honors Student Research Award for “Bioscous-tic Properties of Three-Dimensional Anthropomorphic Breast Phantoms” from the Agricultural Research Division. (G. Bashford, Advisor)

Gwen Skar received an Undergraduate Honors Student Research Award for “Dental Enamel Thickness Measurement Using Ultrasound” from the Agricultural Research Division. (G. Bashford, Advisor)

Nicholas Tomsen received an Undergraduate Honors Student Research Award for “Evaluation of Ultrasonic Images for Quantification of Tendon and Ligament Structure.” (G. Bashford, Advisor)

Variety and Germplasm Releases

ARD faculty involved in plant breeding and genetics research make important contributions to the improvement and development of agricultural and horticultural crops.

Public breeding programs such as ARD's are essential to the continued enhancement of plant germplasm. These programs provide the resources and flexibility to pursue long-term breeding programs in crops that may not have a current commercial interest. They also can address genetic, cultural and management interactions characteristic of today's agriculture, as well as the future's.

Germplasm releases provide improved genetic material that is integrated into private and public plant breeding programs. Other releases occur as new cultivars (varieties), which are increased through the Foundation Seed Division and then provided to seed companies for production of certified seed. The following releases were made in 2005-2006.

Agronomy and Horticulture

Crop:	Grain Sorghum [<i>Sorghum bicolor</i> (L.) Moench]
Germplasm Release:	N592 – N598
Scientists:	J.F. Pedersen, D.L. Funnell, J.J. Toy, A.L. Oliver, R.J. Grant, W.H. Miner
Released by:	The United States Department of Agriculture, Agricultural Research Service, Nebraska Agricultural Experiment Station, and the University of Nebraska Agricultural Research Division.
Characteristics:	These sorghum [<i>Sorghum bicolor</i> (L.) Moench] genetic stocks were developed by crossing the recurrent parents Atlas, Kansas Collier, Rox Orange, and Early Hegari-Sart to brown midrib sources N121 (<i>bmr-6</i>) and

F220 (*bmr-12*), followed by a minimum of four cycles of selfing and backcrossing. Crossing was facilitated by the use of the nuclear male-sterility gene *ms₃*. Following the last backcross, the lines were selfed and advanced head-to-row for four generations to fix the brown midrib genes in the homozygous recessive condition (*bmr-6 bmr-6* or *bmr-12 bmr-12*) and the male-sterility loci in the male-fertile condition (*Ms₃ Ms₃*). The brown midrib near-isolines were then selected for similarity to the wild-type phenotype and for male-fertility. The genetic stocks closely resemble the recurrent parent. Release of these genetic stocks makes brown midrib genes known to down-regulate two specific enzymes important in lignin synthesis, cinnamyl alcohol dehydrogenase (*bmr-6*) and O-methyltransferase (*bmr-12*) available in diverse near-isogenic forage sorghum backgrounds allowing direct comparison of gene effects across these broad backgrounds. They have immediate application for basic research involving lignin synthesis, and also may be utilized as germplasm for development of improved brown midrib forage sorghum lines and hybrids. Because of the presence of a high-tannin testa layer in seed of all but one of these lines, direct increase and use of these genetic stocks as cultivars is strongly discouraged.

Crop:	Grain Sorghum [<i>Sorghum bicolor</i> (L.) Moench]
Germplasm Release:	N599 – N610
Scientists:	J.F. Pedersen, D.L. Funnell, J.J. Toy, A.L. Oliver, R.J. Grant, W.H. Miner
Released by:	The United States Department of Agriculture, Agricultural Research Service, Nebraska Agricultural Experiment Station, and the University of Nebraska Agricultural Research Division.
Characteristics:	These sorghum [<i>Sorghum bicolor</i> (L.) Moench] genetic stocks were developed by crossing the recurrent parents Wheatland, Redlan, RTx430, BTx623, BTz630, and BTx631 to the brown midrib sources N121 (<i>bmr-6</i>) and F220 or F324 (<i>bmr-12</i>) followed by three to four cycles of selfing then backcrossing. Crossing was facilitated by the use of the nuclear male-sterility gene <i>ms₃</i> . Following

the final backcross, the lines were selfed and advanced head-to-row for four generations to fix the brown midrib genes in the homozygous recessive condition (*bmr-6 bmr-6* or *bmr-12 bmr-12*) and the male-sterility loci in the male-fertile condition ($Ms_3 Ms_3$). The brown midrib near-isolines were then selected for similarity to the wild-type phenotype and for male-fertility. Lines that maintained sterility when crossed to A_1 cytoplasmic male steriles (B-lines) were also converted to cytoplasmic male-sterile A-lines by crossing them to their A-line wild-type counterparts and recovering the brown midrib lines in A_1 cytoplasm after a minimum of 4 additional backcross generations. The genetic stocks closely resemble the recurrent parent. Release of these genetic stocks makes brown midrib genes known to down-regulate two specific enzymes important in lignin synthesis, cinnamyl alcohol dehydrogenase (*bmr-6*) and O-methyltransferase (*bmr-12*) available in diverse near-isogenic grain sorghum backgrounds. This will allow direct comparison of gene effects across these broad backgrounds. They have immediate application for basic research involving lignin synthesis, and also may be utilized as germplasm for development of improved brown midrib lines and hybrids.

Crop: Forage Sorghum [*Sorghum bicolor* (L.) Moench]

Germplasm Release: 'Atlas *bmr-12*'

Scientists: J.F. Pedersen, D.L. Funnell, J.J. Toy, A.L. Oliver, R.J. Grant, W.H. Miner

Released by: The United States Department of Agriculture, Agricultural Research Service, Nebraska Agricultural Experiment Station, and the University of Nebraska Agricultural Research Division

Characteristics: 'Atlas *bmr-12*' forage sorghum [*Sorghum bicolor* (L.) Moench] was developed by crossing Atlas to the brown midrib source F220 followed by four cycles of selfing and backcrossing. Crossing was facilitated by the use of the nuclear male-sterility gene ms_3 . Following the fourth backcross, the line was selfed and advanced head-to-row for four generations to fix the brown midrib genes in the homozygous recessive condition (*bmr-12 bmr-12*) and the male-sterility loci in the male-fertile

condition ($Ms_3 Ms_3$). The brown midrib cultivar was then selected for similarity to the wild-type Atlas phenotype and for male fertility. Atlas *bmr-12* closely resembles Atlas and is completely male-fertile in Lincoln, NE and Ithaca, NE. Atlas *bmr-12* did not restore fertility in A_1 cytoplasmic male-sterile lines under greenhouse conditions. It is three days earlier in maturity than Atlas, is equivalent in height (218 cm) to Atlas, and like Atlas has white seed with no tannin-containing testa, normal white endosperm, is awnless, has purple necrotic wound response, and juicy culms. Release of Atlas *bmr-12* makes the digestibility enhancing brown midrib gene *bmr-12* available in a currently utilized self-pollinated forage sorghum cultivar with known performance and adaptation. This cultivar is well suited for use by small and sustainable farms that rely on the ability to produce their own seed, and for small seed growers and companies specializing in the production and marketing of open-pollinating forage varieties. This release directly satisfies many of the mandates of Departmental Regulation 9700-1 Policy (b): Develop and support research, development, regulatory, and outreach programs and initiatives that focus on the special needs of small farms, especially those programs that help small farms develop alternative enterprises, value-added products, and collaborative marketing efforts, including cooperatives that enhance stewardship of biological, natural, human, and community resources.

Crop: Maize (*Zea mays* L.)

Germplasm Release: Populations N551 and N552

Scientists: M.A. Thomas-Compton, the late W.A. Compton, S. Kaeppeler, D.D. Galusha, and W.K. Russell

Released by: The United States Department of Agriculture, Agricultural Research Service, Nebraska Agricultural Experiment Station, and the University of Nebraska Agricultural Research Division

Characteristics: N551 was developed by seven generations of self-pollination from the population NCLNB_01. N552 was developed by seven generations of self-pollination from the population NS[S1]1_08. Both inbreds have been evaluated in hybrid combination on several

different testers and during at least three years. The primary attribute of both N551 and N552 hybrids is excellent grain yield. N551 hybrids are approximately the same maturity as comparable FR1064 hybrids, whereas N552 hybrids are one to two days earlier. Hybrids of both inbreds have good tolerance to root lodging compared to the checks, but a potential weakness is susceptibility to stalk lodging. In per se evaluation trials conducted in two irrigated environments, N551 had significantly less grain yield (85.1 bu/A) than the inbred check, B73 (100.0 bu/A), whereas grain yield of N552 was significantly greater (141.3 bu/A). The very high grain yield of N552 was partially attributable to prolificacy. Under irrigated nurseries in 2003 and 2004 at Lincoln, NE, neither N551 nor N552 exhibited any silk delay relative to pollen shed. Cob color of N551 is white and cob color of N552 is light red. Compared to commercial checks, hybrids of both N551 and N552 have good performance, particularly for grain yield and root strength. Both should have value as parents in breeding populations because of their unique parentage.

Crop: Hard Red Winter Wheat (*Triticum aestivum* L.)

Variety Name: 'Hallam'

Scientists: P.S. Baenziger, B.B. Beecher, R.A. Graybosch, D.D. Baltensperger, L.A. Nelson, Y. Jin, J.E. Watkins, J.H. Hatchett, and Ming-Shun Chen

Released by: Nebraska Agricultural Experiment Station, University of Nebraska, and United States Department of Agriculture, Agricultural Research Service.

Characteristics: Hallam was selected from the cross Brule/Bennett/Niobrara that was made in 1992. It was evaluated as NE98471 in Nebraska yield nurseries starting in 1999, in the Northern Regional Performance Nursery in 2001 and 2002, and in Nebraska cultivar performance trials in 2002-2004. In the Nebraska cultivar performance trials, it appears to be narrowly adapted and performs best in eastern Nebraska. In its primary area of adaptation (eastern NE), Hallam (5 environments) has yielded 4540 kg ha⁻¹, which was greater than Wesley, Millennium, Wahoo, and Alliance. Hallam is not recommended for irrigation where other

wheat cultivars with superior performance, especially with better straw strength, would be recommended. Other measurements of performance show that Hallam is moderately early in maturity, is a semi-dwarf wheat cultivar, has a moderate straw strength, and its winter hardiness is good to very good. Hallam is moderately resistant to stem rust (caused by *Puccinia graminis* Pers.:Pers.f.sp.*tritici* Eriks & E. Henn), stripe rust (caused by *P. striiformis* Westendorp f. sp. *tritici*) and Hessian fly (*Mayetiola destructor* Say). It is moderately susceptible to leaf rust (caused by *P. triticina* Eriks). It is susceptible to wheat soilborne mosaic virus and barley yellow dwarf virus, but may contain a low level of tolerance to wheat streak mosaic virus. The name Hallam was chosen to honor Hallam, NE, a town and its people rebuilding after a tornado.

Crop: Hard Red Winter Wheat (*Triticum aestivum* L.)

Variety Name: 'Infinity CL'

Scientists: P.S. Baenziger, B.B. Beecher, R.A. Graybosch, D.D. Baltensperger, L.A. Nelson, J.M. Krall, Yue Jin, J.E. Watkins, D.J. Lyon, A. Martin, and Ming-Shun Chen

Released by: Nebraska Agricultural Experiment Station, University of Nebraska, and United States Department of Agriculture, Agricultural Research Service.

Characteristics: Infinity CL was selected from the cross Windstar//Millennium sib/Above sib. Infinity CL was evaluated as NH01046 in Nebraska yield nurseries starting in 2002, and in Nebraska and Wyoming cultivar performance trials in 2003 to 2004. In the Nebraska cultivar performance trials, it has performed well throughout most of Nebraska. The average Nebraska rainfed yield of Infinity CL of 3870 kg ha⁻¹ (27 environments from 2005-2006) was lower than the yield of Wesley, but was similar to that of Millennium, and higher than Wahoo and Alliance. The average Wyoming rainfed yield of Infinity CL of 2200 kg ha⁻¹ was lower than Goodstreak, but was similar to Buckskin and higher than Above. Infinity CL has acceptable performance under irrigation, but other wheat cultivars with superior performance, especially with better straw strength, would be recommended. Other measure-

ments of performance from comparison trials show that Infinity CL is medium in maturity, is a semi-dwarf wheat cultivar, has moderate straw strength, and its winter hardiness is good to very good and comparable to other winter wheat cultivars adapted and commonly grown in Nebraska. Infinity CL is moderately resistant to stem rust (caused by *Puccinia graminis Pers.:Pers.f.sp.tritici* Eriks & E. Henn), moderately resistant to leaf rust (caused by *P. triticina* Eriks) and stripe rust (caused by *P. striiformis* Westendorp f. sp. *tritici*). It is susceptible to Hessian fly (*Mayetiola destructor* Say) and wheat soilborne mosaic virus, but may contain a low level of tolerance to wheat streak mosaic virus. Infinity CL contains a patented gene owned by BASF. BASF retains ownership of the gene. Infinity CL was released primarily for its superior adaptation to rainfed wheat production systems in Nebraska and counties in adjacent states. The name Infinity CL was chosen because it is a Clearfield™ wheat that will be used with Beyond® herbicide.

Plant Pathology

Crop: Common bean (*Phaseolus vulgaris* L.)

Variety Name or Germplasm Nomenclature: BELMINEB-RMR-8, -9, -11, -12 and -13

Scientists: J.R. Steadman, M.A. Pastor-Corrales, J.D. Kelly

Released by: United States Department of Agriculture, Agricultural Research Service, Washington, DC; University of Nebraska–Lincoln, Agricultural Research Division; Michigan Agricultural Experiment Station, East Lansing, Michigan

Characteristics: Rust and mosaic resistant, high yielding, upright, short vine, white seeded great northern dry bean germplasm.

Off-Campus Research Centers

Panhandle Research and Extension Center

Crop: Annual Ryegrass (*L. Multiflorum*)

Variety Release: ‘Stockaid’

Scientists: G. Prine and D. Baltensperger

Released by: Florida Agricultural Experiment Station and the Institute of Agriculture and Natural Resources, University of Nebraska–Lincoln

Characteristics: ‘Stockard’ has late maturity, crown-rust resistance and gray leaf spot resistance and excellent cold hardiness. It is expected to be best adapted to the northern edge of annual ryegrass production regions, but with good adaptation over the entire ryegrass production area.

ARD is one of five divisions within the Institute of Agriculture and Natural Resources (IANR) at the University of Nebraska. IANR was established by the Nebraska legislature in 1973 and has its headquarters on the University of Nebraska–Lincoln East Campus. The University of Nebraska system has four campuses: University of Nebraska–Lincoln, University of Nebraska Medical Center, University of Nebraska at Omaha and the University of Nebraska at Kearney. The University of Nebraska system is governed by an elected Board of Regents and administered by a system and campus administration.

Administrative Personnel (June 2006)

University of Nebraska Board of Regents

Randolph Ferlic, Omaha	Jim McClurg, Lincoln
Chuck Hassebrook, Walthill	Drew Miller, Papillion
Howard Hawks, Omaha	Ken Schroeder, Kearney
Bob Phares, North Platte	Charles S. Wilson, Lincoln

Student Regents

UNMC	—	Dan Connealy
UNO	—	Steve Massara
UNL	—	Matt Schaefer
UNK	—	Mike Eiberger

Administrative Officers

James B. Milliken, President, University of Nebraska

Harvey S. Perlman, Chancellor, University of Nebraska–Lincoln

John C. Owens, Harlan Vice Chancellor, Institute of Agriculture and Natural Resources, and Vice President, University of Nebraska

Agricultural Research Division

Darrell W. Nelson, Dean and Director¹

Gary L. Cunningham, Dean and Director²

Z B Mayo, Interim Associate Dean and Associate Director

Daniel J. Duncan, Assistant Director

Marjorie J. Kostelnik, Associate Director, Education and Human Sciences

Dora Dill, Secretary Specialist

Nelvie Lienemann, Administrative Technician

Diane Mohrhoff, Project Assistant¹

Karen Jackson, Programming Assistant

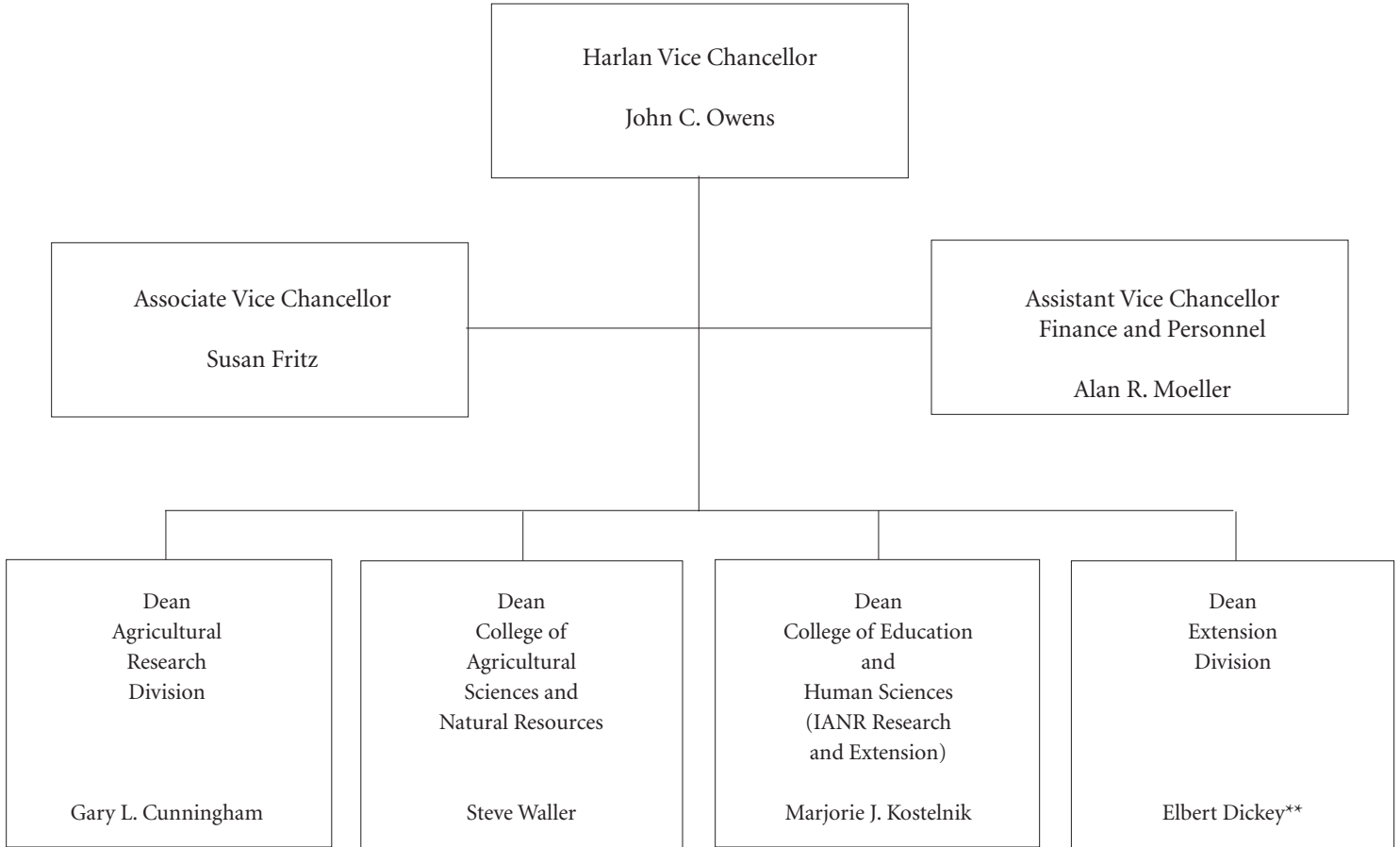
Nancy Shoemaker, Clerical III²

¹Ended appointment 2005-2006

²Began appointment 2005-2006

Organizational Chart

Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
June 2006



*Director, Nebraska Agricultural Experiment Station

**Director, University of Nebraska Extension

Administrative Units Reporting to Agricultural Research Division Institute of Agriculture and Natural Resources The University of Nebraska–Lincoln

Agricultural/ Natural Resources Units

Agricultural Economics
Alan Baquet, Head

*Agricultural Leadership,
Education and Communication*
Susan Fritz¹
Daniel Wheeler, Head²

Agronomy and Horticulture
Lowell Moser, Interim Head¹
Mark Lagrimini, Head²

Animal Science
Donald Beermann, Head

Biochemistry
Donald Weeks

Biological Systems Engineering
Ron Yoder, Head

Entomology
Fred Baxendale, Interim Head²

Food Science and Technology
David Jackson, Interim Head¹
Rolando Flores, Head²

Plant Pathology
Anne Vidaver, Head

School of Natural Resources
Mark Kuzila, Director

Statistics
Walter Stroup, Chair

*Veterinary and Biomedical
Sciences*
Rod Moxley, Interim Head¹
David Hardin, Head²

Education and Human Sciences Departments

Family and Consumer Sciences
Julie Johnson, Chair

Nutrition and Health Sciences
Marilynn Schnepf, Chair

Textiles, Clothing and Design
Michael James, Chair

Off-Campus Research Centers

*Agricultural Research and
Development Center*
Ithaca—Daniel Duncan,
Director

*Northeast Research and
Extension Center*
Concord—John Witkowski,
Director

*Panhandle Research and
Extension Center*
Scottsbluff—Charles Hibberd,
Director

*Southeast Research
and Extension Center*
Lincoln—Susan Williams,
Director

*West Central Research
and Extension Center*
North Platte—Don Adams,
Director

Interdisciplinary Centers

Biotechnology Center
Michael Fromm, Director

Food Processing Center
Steve Taylor, Director¹
Rolando Flores, Director²

Center for Grassland Studies
Martin Massengale, Director

*Great Plains Regional Center for
Global Environmental Change*
Shashi Verma, Director

*Industrial Agricultural Products
Center*
Milford Hanna, Director

*Center for Applied
Rural Innovation*
Alan Baquet, Director

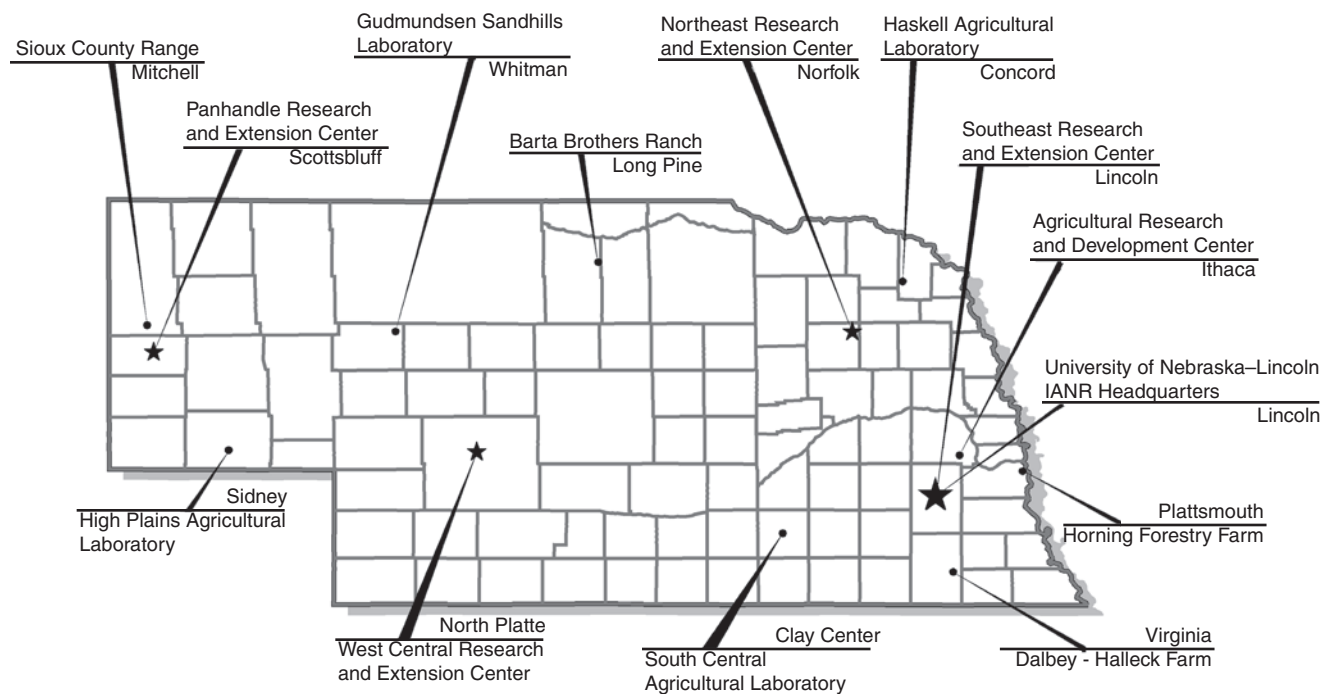
Water Center
Kyle Hoagland, Director
Mike Jess, Acting Director

*IANR Communications
and Information Technology*
Brenda Caine, Interim Director¹
Roger Terry, Interim Director²

¹Ended appointment during 2005-2006

²Began appointment during 2005-2006

IANR Research Facilities



Research by Agricultural Research Division researchers is conducted across the state. Sites include:

- Agricultural Research and Development Center — Ithaca
- Barta Brothers Ranch — Long Pine
- Dalbey-Halleck Farm — Virginia
- Gudmundsen Sandhills Laboratory — Whitman
- Haskell Agricultural Laboratory — Concord
- High Plains Agricultural Laboratory — Sidney
- Horning Forestry Farm — Plattsmouth
- Northeast Research and Extension Center — Norfolk
- Panhandle Research and Extension Center — Scottsbluff
- Sioux County Range — Mitchell
- South Central Agricultural Laboratory, Great Plains Veterinary Educational Center,
and the U.S. Meat Animal Research Center (USDA) — Clay Center
- Southeast Research and Extension Center — Lincoln
- West Central Research and Extension Center — North Platte

Approximately 302 faculty members have research appointments in ARD. Most have joint appointments, with teaching or extension responsibilities as well. Some faculty have responsibilities other than ARD research (rsch), extension (ext) or teaching (tch). Administrative appointments, as well as appointments with centers and other UNL units or with the USDA Agricultural Research Service (other), also are noted here.

ARD programs depend on many linkages and cooperative arrangements in order to make the most effective use of limited resources and to address problems of mutual interest. The USDA Agricultural Research Service (ARS) has about 40 scientists located on the UNL campus. Historically there has been a very close working relationship between these scientists, all holding adjunct faculty status, and UNL faculty. Four departments contain ARS scientists: the Departments of Agronomy and Horticulture, Entomology, Plant Pathology and Biological Systems Engineering. ARS scientists are noted as USDA in the *other* category.

UNL scientists also cooperate closely with many ARS faculty at the Roman L. Hruska Meat Animal Research Center (MARC) at Clay Center, Nebraska. There are about 60 scientists at the MARC facility, many of whom also hold UNL adjunct faculty status in the Department of Animal Science. MARC scientists are noted as USDA in the *other* category.

Another federal facility located on campus is the U.S. Forest Service National Agroforestry Center. USFS scientists also work closely with UNL faculty and hold adjunct faculty status. The Department of Entomology and School of Natural Resources have adjunct faculty noted as USDA in the *other* category.

The USDA Natural Resources Conservation Service has personnel located in UNL facilities at the West Central Research and Extension Center, North Platte. The NRCS professional personnel there as well as those at the federal center, Lincoln, work closely with ARD faculty on a number of natural resources-related activities.

The Departments of Animal Science, Biological Systems Engineering and Entomology have unique relationships with its industry supporters. Several industry representatives also hold adjunct appointments in these departments and are noted as industry in the *other* category.

The percentages listed represent the proportion of a faculty member's time assigned to each function. The primary research responsibility is identified for each. All ARD off-campus personnel who are located at Centers are associated with an on-campus department as well [Department/(Area of Responsibility)]. Faculty rank and assignment percentages are based on the fiscal year 2005-2006 departmental budgets.

Agricultural/Natural Resources Units

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Agricultural Economics						
Alan E. Baquet ²	Professor	0.07	0.72	0.21		Head
Richard T. Clark ¹	Professor	0.51	0.20	0.29		Interim Head
J. David Aiken	Professor	0.45	0.25	0.30		Agricultural and Natural Resources Law
Azzeddine Azzam	Professor	0.75	0.00	0.25		Research and Quantitative Methods, Industrial Organization of Food Processing
Dennis Conley	Professor	0.45	0.00	0.55		Agribusiness
Lilyan Fulginiti	Professor	0.75	0.00	0.25		Agricultural Policies/Production
Konstantinos Giannakas	Professor	0.75	0.00	0.25		Food and Agribusiness Marketing
Glenn A. Helmers ¹	Professor	0.60	0.00	0.40		Farm Management, Agricultural Finance Policy
Bruce B. Johnson	Professor	0.45	0.00	0.55		Resource and Community Economics
H. Douglas Jose	Professor	0.20	0.80	0.00		Farm and Ranch Management, Agricultural Finance Policy
Bradley Lubben ²	Assistant Professor	0.25	0.75			Public Policy
Gary Lynne	Professor	0.75	0.00	0.25		Natural Resource Economics
Richard Perrin	Professor	0.75	0.00	0.25		Production Economics
E. Wesley Peterson	Professor	0.65	0.00	0.35		International Trade, Development and Policy
Jeffrey S. Royer	Professor	0.75	0.00	0.25		Agricultural Marketing Systems, Agribusiness Management, Organization and Performance of Agriculture and Food Industries
Raymond J. Supalla	Professor	0.75	0.00	0.25		Natural Resource Economics
Amalia Yiannaka	Assistant Professor	0.50	0.00	0.50		Intellectual Property Rights, Industrial Organization, Agricultural Marketing, Environmental and Resource Economics

Agricultural Leadership, Education and Communication

Daniel W. Wheeler	Professor	0.25	0.25	0.50		Head, Leadership Development
John E. Barbuto Jr.	Associate Professor	0.50		0.50		Leadership Development
Susan Fritz ¹	Professor	0.37		0.54	0.09	Leadership Development
James W. King	Associate Professor	0.25		0.75		Distance Education

¹Ended research appointment during 2005-2006

²Began research appointment during 2005-2006

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Agronomy and Horticulture						
Mark Lagrimini ²	Professor	0.47	0.15	0.38		Head
Lowell E. Moser ¹	Professor	0.35		0.65		Head
Bruce E. Anderson	Professor	0.25	0.75			Forage Specialist
Timothy J. Arkebauer	Professor	0.85		0.15		Crop Environmental Physiologist
P. Stephen Baenziger	Professor	0.75		0.25		Small Grains Breeding and Genetics
Mark L. Bernards ²	Assistant Professor	0.50	0.50			Irrigated Weed Scientist
Kenneth G. Cassman	Professor	0.60	0.30	0.10		Systems Agronomist
Thomas E. Clemente	Associate Professor	0.40			0.60	Manager, Plant Transformation Core Research Facility
Achim R. Dobermann	Professor	0.70	0.30			Soil Fertility/Integrated Nutrient Management
Rhae A. Drijber	Associate Professor	0.75		0.25		Soil Microbial Ecologist
Ismail M. Dweikat	Associate Professor	0.80		0.20		Sorghum Genetics
Thomas E. Elthon	Associate Professor	0.62		0.08	0.3	Protein Researcher
Richard B. Ferguson	Professor	0.75	0.25			Soil Fertility Specialist
Charles A. Francis	Professor	0.43	0.20	0.37		Farming and Landscape Design
Roch E. Gaussoin	Professor	0.25	0.75			Turfgrass Management and Physiology
George L. Graef	Professor	0.85		0.15		Soybean Breeding and Genetics
Robert A. Graybosch	Professor				USDA	Wheat Genetics
Laurie Hodges	Associate Professor	0.35	0.65			Commercial Horticulture Production Specialist
Garald L. Horst	Professor	0.40		0.60		Turfgrass Physiology and Management
Donald J. Lee	Professor	0.25	0.15	0.60		Plant Geneticist
John L. Lindquist	Associate Professor	0.80		0.20		Crop/Weed Ecologist
Sally A. Mackenzie	Professor	0.50		0.10	0.40	Program Leader, Plant Science Initiative
Martha Mamo	Associate Professor	0.25		0.75		Soil Chemist/Biochemistry
John Markwell	Professor	0.25			0.75	Plant Biochemistry
Alexander R. Martin	Professor	0.33	0.67			Integrated Weed Management/Reduced Herbicide Input
Stephen C. Mason	Professor	0.50		0.50		Cropping Systems
Martin A. Massengale	Professor	0.36	0.27	0.12	0.25	Grassland/Forages, Director, Center for Grassland Studies
Dennis L. McCallister	Professor	0.40		0.60		Soil Chemistry
Lenis A. Nelson	Professor	0.50	0.50			Crop Variety Evaluation/New Crops
Ellen T. Paparozzi	Professor	0.50		0.50		Urban Horticulture, Floriculture and Ornamentals
Jeffrey F. Pedersen	Professor				USDA	Sorghum Genetics and Breeding
Paul E. Read	Professor	0.50	0.25	0.25		Plant Tissue Culture and Viticulture
Terrance P. Riordan	Professor	0.65	0.15	0.20		Turfgrass Plant Breeding
W. Ken Russell	Associate Professor	0.80		0.20		Plant Quantitative Genetics
Gautam Sarath	Professor				USDA	Molecular Biologist
Walter H. Schacht	Professor	0.60		0.40		Range Science
James S. Schepers	Professor				USDA	Soil Chemistry
John F. Shanahan	Assistant Professor				USDA	Crop Physiology
Robert C. Shearman	Professor	0.65	0.15	0.20		Integrated Turfgrass Management
Roy F. Spalding	Professor	0.90		0.10		Hydrochemist, Director, Water Science Laboratory
James E. Specht	Professor	0.80		0.20		Soybean Physiologist-Geneticist
Paul E. Staswick	Professor	0.85		0.15		Plant Molecular Biologist
James L. Stubbendieck	Professor	0.25		0.25	0.50	Range Ecology, Director, Center for Great Plains Studies

¹Ended research appointment during 2005-2006

²Began research appointment during 2005-2006

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Agronomy and Horticulture (continued)						
Jeanette A. Thurston	Assistant Professor				USDA	Environmental Microbiologist
Gary E. Varvel	Professor				USDA	Soil Management
Kenneth P. Vogel	Professor				USDA	Grass Breeding
Daniel T. Walters	Professor	0.65		0.35		Soil Management
Brian J. Weinhold	Assistant Professor				USDA	Soil Fertility
Wallace W. Wilhelm	Professor				USDA	Crop Physiology
Charles S. Wortmann	Associate Professor	0.30	0.70			Nutrient Management Specialist

Animal Science

Donald H. Beermann	Professor	0.35	0.34	0.31		Head
Mary M. Beck	Professor	0.70		0.30		Poultry Physiology
Gary L. Bennett	Professor				USDA	Systems
Dennis R. Brink	Professor	0.30		0.70		Ruminant Nutrition
Chris R. Calkins	Professor	0.70		0.30		Meats
Lane K. Christenson ²	Professor				Academia	Physiology
Ronald K. Christenson	Professor				USDA	Physiology
Larry V. Cundiff	Professor				USDA	Beef Genetics
Andrea S. Cupp	Assistant Professor	0.70		0.30		Beef Physiology
Robert A. Cushman ²	Professor				USDA	Physiology
Samar A. Elnagar	Professor				Academia	Physiology
Galen E. Erickson	Assistant Professor	0.50	0.40	0.10		Feedlot Nutrition
Calvin L. Ferrell	Professor				USDA	Nutrition
J. Joe Ford	Professor				USDA	Physiology
Kathryn J. Hanford	Research Assistant Professor				1.00	Statistical Genetics
Thomas G. Jenkins	Professor				USDA	Genetics
Rodger K. Johnson	Professor	0.60		0.40		Swine Genetics
Steven J. Jones	Professor	0.35		0.65		Meats
Jeffrey F. Keown	Professor	0.30	0.70			Dairy Management
Terry J. Klopfenstein	Professor	0.70		0.30		Ruminant Nutrition
Richard K. Koelsch	Associate Professor	0.09	0.21		0.70	Livestock Waste Management
Paul J. Kononoff	Assistant Professor	0.70	0.30			Dairy Nutrition
Mohammad Koohmaraie	Professor				USDA	Meats
Larry L. Larson	Associate Professor	0.40		0.60		Dairy Physiology
Kreg A. Leymaster	Professor				USDA	Genetics
Donald D. Lunstra ¹	Professor				USDA	Physiology
Roger W. Mandigo	Professor	0.60		0.40		Meats
Phillip S. Miller	Professor	0.60		0.40		Swine Nutrition
Jess L. Miner	Associate Professor	0.70		0.30		Nutritional Biochemistry
Merlyn K. Nielsen	Professor	0.60		0.40		Genetics
Rick J. Rasby	Professor	0.25	0.75			Beef Management
Thomas A. Rathje	Professor				Industry	Swine Genetics
Gary A. Rohrer	Professor				USDA	Genetics
Sheila E. Scheideler	Professor	0.45	0.50	0.05		Poultry Management
Rick A. Stock	Professor				Industry	Ruminant Nutrition
Mike T. Van Koevering	Professor				Industry	Ruminant Nutrition
L. Dale Van Vleck	Professor	0.05		0.15	USDA	Genetics
Vincent H. Varel	Professor				USDA	Bacterial Physiology
John S. Weber	Assistant Professor	0.80		0.20		Functional Geomics
Tommy L. Wheeler	Professor				USDA	Meats
Brett R. White	Assistant Professor	0.50		0.50		Swine Physiology
Jennifer R. Wood ²	Assistant Professor	0.60		0.40		Physiological Genomics

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Biochemistry						
Donald P. Weeks	Professor	0.55		0.10	0.35	Head, Plant Molecular Biology
Han H. Asard ¹	Associate Professor	0.46			0.54	Plant Biochemistry
Ruma Banerjee	Professor	0.85		0.15		Mechanistic Enzymology
Joseph J. Barycki	Assistant Professor	0.80		0.20		Protein Crystallography
Donald F. Becker	Associate Professor	0.80		0.20		Protein Electrochemistry
Raymond Chollet	Professor	0.80		0.20		Photosynthesis
Dmitri Fomenko	Research Assistant Professor				1.00	Molecular Biology
Vadim N. Gladyshev	Professor	0.80		0.20		Protein Biochemistry, Selenium
Hwa-Young Kim	Research Assistant Professor				1.00	Redox Biology, Selenium Biochemistry
Jaekwon Lee	Assistant Professor	0.80		0.20		Metal Metabolism
John P. Markwell	Professor	0.25		0.25	0.50	Plant Biochemistry
Sergey V. Novoselov	Research Assistant Professor				1.00	Molecular/Cell Biology
Stephen W. Ragsdale	Professor	0.85		0.15		Enzymes
Ashraf Raza	Assistant Research Professor				1.00	Proteomics/Metabolomics
Gautam Sarath	Adjunct Faculty				1.00	Protein Biochemistry
Javier Seravalli	Assistant Research Professor				1.00	Enzymology
Melanie Simpson	Assistant Professor	0.80		0.20		Cellular Biochemistry
Madhavan Soundararajan ²	Senior Lecturer	0.20		0.80		Carbon Acquisition Measurement
Robert Spreitzer	Professor	0.85		0.15		Plant Molecular Genetics
Julie M. Stone	Assistant Professor	0.37			0.63	Plant Molecular Biology
Mark A. Wilson ²	Assistant Professor	0.80		0.20		Structural Biology
Charles Wood	Professor	0.25			0.75	Virology
Mamoru Yamanishi ²	Assistant Research Professor				1.00	Enzymology

Biological Systems Engineering

Ronald E. Yoder	Professor	0.35	0.50	0.15	1.00	Head, Irrigation and Water Resources Engineering
Viacheslav I. Adamchuk	Assistant Professor	0.40	0.50	0.10		Precision Agriculture
Alejandro Amezcuita	Adjunct Assistant Professor				Industry	Food Safety Engineering
Gregory R. Bashford	Assistant Professor	0.50		0.50		Biomedical Engineering
David Billesbach	Adjunct Research Assistant Professor				1.00	Gaseous Emissions
Rhonda M. Brand	Adjunct Assistant Professor				Industry	Evanston Northwestern Healthcare Research Institute
Tami Brown-Brandl	Adjunct Assistant Professor				USDA	Animal, Environmental and Waste Management
Roger A. Eigenberg	Adjunct Assistant Professor				USDA	Animal, Environmental and Waste Management
Dean E. Eisenhauer	Professor	0.50		0.50		Hydrology and Irrigation
Qi Fang	Adjunct Assistant Professor				Industry	Industrial Ag Products
Sandun Fernando	Adjunct Assistant Professor				Industry	Bioenergy, Biomaterials, Biolubricants
Thomas G. Franti	Associate Professor	0.25	0.75			Surface Water Management
Girish Ganjyal	Adjunct Assistant Professor				Industry	Food and Bioprocess Engineering
Aris Gennadios	Adjunct Associate Professor				Industry	Pharmaceutical Manufacturing
Viswas Ghorpade	Adjunct Assistant Professor				Industry	Hill's Pet Nutrition, Inc.

¹Ended research appointment during 2005-2006

²Began research appointment during 2005-2006

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Biological Systems Engineering (continued)						
John E. Gilley	Adjunct Professor				USDA	Soil Erosion and Waste Management
Junjie Guan	Adjunct Assistant Professor				Industry	Food and Bioprocess Engineering
Milford A. Hanna	Professor	0.55			0.45	Food and Bioprocess Engineering
Terry A. Howell	Adjunct Professor				USDA	Irrigation Management
Keum Taek Hwang	Adjunct Assistant Professor				Industry	Food Processing
Ayse Irmak	Adjunct Research Assistant Professor				1.00	Crop Modeling
Suat Irmak	Assistant Professor	0.40	0.60			Irrigation Management and Soil and Water Engineering
Erkan Istanbuluoglu ²	Assistant Professor	0.30			0.70	Surface Hydrology
David D. Jones	Associate Professor	0.35		0.65		Engineering and Modeling of Biological Systems
Michael F. Kocher	Associate Professor	0.40		0.60		Sensors and Controls Engineering
Richard K. Koelsch	Associate Professor	0.21	0.49		0.30	Livestock Bioenvironmental Engineering
Derrel L. Martin	Professor	0.65	0.35			Irrigation and Water Resources Engineering
George E. Meyer	Professor	0.60		0.40		Sensors and Machine Vision
John A. Nienaber	Adjunct Professor				USDA	Livestock Environment
Dennis D. Schulte	Professor	0.50		0.50		Pollution Control and Energy Systems
Jeyamkondan Subbiah	Assistant Professor	0.35		0.20	0.45	Food and Bioprocess Engineering
Lijun Wang ¹	Adjunct Assistant Professor				1.00	Food and Bioprocess Engineering
Curtis L. Weller	Professor	0.60		0.20	0.20	Food and Bioprocess Engineering
Wayne Woldt	Associate Professor	0.25	0.35	0.15	0.25	Bioenvironmental Engineering
Bryan Woodbury	Adjunct Assistant Professor				USDA	Animal, Environment and Waste Management
Yiqi Yang	Professor	0.15			0.85	Textile Chemistry and

Entomology

Lisa M. Baird	Professor				U San Diego	Insect/Plant Interactions
Frederick P. Baxendale	Professor	0.25	0.75			Interim Head, Turf Insects
Dennis R. Berkebile	Assistant Professor				USDA	Livestock Entomology
John D. Burd	Professor				USDA	Insect/Plant Interactions
Michael D. Culy ²	Associate Professor				Industry	Global Regulatory Molecule
Stephen D. Danielson	Associate Professor	0.40		0.60		Field Crop Insect Ecology
Odair Fernandes	Assistant Professor				FCAV/UNESP	Insect Ecology
John E. Foster	Professor	0.50	0.50			Insect Genetics
Neal H. Haskell	Professor				St. Joseph's	Forensic Entomology
E.A. Henrichs	Professor				1.00	Insect/Plant Interactions/IPM Rice Insects
Tiffany M. Heng-Moss	Associate Professor	0.20	0.20	0.60		Plant Resistance to Insects, Insect/Plant Interaction
Leon G. Higley	Professor	0.80		0.20		Insect Ecology
W. Wyatt Hoback	Associate Professor		0.12	0.13	UNK	Insect Ecology and Physiology
Scott H. Hutchins	Professor				Industry	Integrated Pest Management
David J. Isenhour	Professor				Industry	Lead for International Trade Integration
Shripat T. Kamble	Professor	0.36	0.54		.10	Urban Pest Management
Wayne Kramer ¹	Assistant Professor				State	Medical Entomology
Lance J. Meinke	Professor	0.80		0.20		Insect Ecology and Behavior
Daniel J. Moellenbeck	Assistant Professor				Industry	Plant Resistance to Insects
Jaime Molina-Ochoa ²	Professor				Univ. de Colima	Biological Control

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Entomology (continued)						
Frank B. Peairs	Professor				CSU	Insect/Plant Interactions
Robert K. D. Peterson	Associate Professor				MSU	Integrated Pest Management
Brett C. Ratcliffe	Professor and Curator	0.80		0.20		Systematics of Scarabaeidae
Gautam Sarath	Professor				USDA	Biochemistry and Molecular Biology
Blair D. Siegfried	Professor	0.80		0.20		Insect Toxicology
Steven R. Skoda	Associate Professor				USDA	Livestock Entomology
David B. Taylor	Associate Professor				USDA	Livestock Entomology
Robert J. Wright	Professor	0.50	0.50			Field Crops Entomology, Integrated Pest Management, Biological Control

Food Science and Technology

Rolando A. Flores ²	Professor	0.40	0.34	0.26		Department Head/Center Director
Andrew K. Benson	Associate Professor	0.60		0.40		Food Microbiology
Lloyd B. Bullerman	Professor	0.75	0.10	0.15		Food Microbiology/Mycology
Susan B. Cuppett	Professor	0.40		0.60		Food Lipids
Richard Goodman	Research Professor				1.00	Food Allergy Research
Milford A. Hanna	Professor	0.20			0.80	Food and Bioprocess Engineering
Susan Hefle	Associate Professor	0.40	0.10		0.50	Food Allergy Research
Robert W. Hutkins	Professor	0.65		0.35		Food Biotechnology
David S. Jackson	Professor	0.60	0.30	0.10		Cereals/Oilseeds Processing
Vicki Schlegel	Assistant Professor	0.90		0.10		Quality Assurance
Durward A. Smith	Associate Professor	0.25	0.60	0.15		Horticultural Food Crops Processing
Jeyamkondan Subbiah	Assistant Professor	0.45			0.55	Food and Bioprocess Engineering
Steve L. Taylor	Professor	0.45	0.34	0.21		Food Toxicology, Food Allergens
Harsharvardhan Thippareddi	Assistant Professor	0.30	0.70			Food Safety/Food Microbiology
Randy L. Wehling	Professor	0.50		0.50		Food Analysis
Curtis L. Weller	Professor			0.20	0.80	Food and Bioprocess Engineering
Michael G. Zeece	Professor	0.75		0.25		Food Protein Chemistry
Chaomei Zhang	Sr. Research Associate				1.00	Food Microbiology

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²Began research appointment during 2005-2006

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Plant Pathology						
Anne K. Vidaver	Professor	0.75	0.15	0.1		Head
James Alfano	Associate Professor				1.00	PSI Genetics of Plant-Bacterial Interactions
ShaoRong Chen ¹	Research Assistant Professor				1.00	Plant Molecular Biology
Martin B. Dickman ¹	Professor	0.85		0.15		Genetics of Host/Parasite Interactions
David Dunigan	Research Assistant Professor				1.00	Algal Viruses
Roy C. French	Associate Professor				USDA	Viruses and Nucleic Acids
Deanna L. Funnell	Assistant Professor				USDA	Sorghum Pathology
Loren Giesler	Associate Professor	0.25	0.75			Soybean, Alfalfa and Landscape Ornament
Steve Harris	Assistant Professor				1.00	PSI Genetics of Fungal Morphogenesis
Tamra A. Jackson	Assistant Professor	0.25	0.75			Corn and Sorghum
Byeong-ryool Jeong ²	Research Assistant Professor				1.00	Molecular Biology
Ming Kang	Research Assistant Professor				1.00	Algal Viruses
Amit Mitra	Associate Professor	0.9		0.1		Plant Vector/Plant Transformation
James E. Partridge	Associate Professor			1.00		Host/Parasite Interactions/Stress
Thomas O. Powers	Associate Professor	0.9		0.1		Nematology
James R. Steadman	Professor	0.9		0.1		Epidemiology of Vegetable Diseases
Drake C. Stenger	Associate Professor				USDA	Wheat Virology
Karin van Dijk ¹	Research Assistant Professor				1.00	Gene Silencing
James L. Van Etten	Professor	0.9			0.1	Molecular Virology
John E. Watkins ¹	Professor	0.25	0.75			Small Grains, Turf and Alfalfa
Thomas J. Weissling ¹	Research Assistant Professor				1.00	Field Disease Surveillance
Stephen Wegulo	Assistant Professor	0.25	0.75			Small Grains, Forages, and Ornamental Plants
Gary Y. Yuen	Professor	0.85		0.15		Soilborne Diseases
Yuanzheng Zhang ¹	Research Assistant Professor				1.00	Molecular Biology

School of Natural Resources

Mark S. Kuzila	Professor and Director	0.58	0.26	0.16		Soil Science/Survey
Craig R. Allen	Adjunct Associate Professor				1.00	Unit Leader, Nebraska Cooperative Fish and Wildlife Research Unit
Tala Awada	Assistant Professor	0.8		0.2		Plant Ecophysiology
Jerry F. Ayers	Associate Professor	0.75			0.25	Environmental Geophysics, Hydrogeology
James R. Brandle	Professor	0.7		0.3		Forestry/Windbreaks
Mark Burbach	Assistant Geoscientist	0.75	0.25			Environmental Monitoring, Human Dimensions
Marvin Carlson	Professor	1.00				Geology/Stratigraphy, Tectonics
Xun-Hong Chen	Professor	1.00				Hydrogeology
Steven D. Comfort	Professor	0.75	0.15	0.1		Soil Environmental Chemist
Kenneth Dewey	Professor	0.06	0.19		0.75	Meteorology/Climatology; Climate Variations, Severe Weather
Duane Eversoll	Professor				0.5	Engineering and Environmental Geology
Patricia Freeman	Professor	0.75		0.25		Mammalian Biology; Vertebrate Zoology
Anatoly A. Gitelson	Professor	0.75			0.25	Remote Sensing
James Goeke	Professor	0.25	0.75			Groundwater Geology
David C. Gosselin	Professor	0.6	0.1	0.3		Earth Science
Paul Hanson ²	Assistant Professor	1.00				Cenozoic Stratigraphy
F. Edwin Harvey	Associate Professor	0.8		0.2		Hydrogeology
Michael J. Hayes	Research Associate Professor				1.00	Agricultural Climatology

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
School of Natural Resources (continued)						
Kyle D. Hoagland	Professor	0.35		0.15	0.5	Limnology and Director, Water Center
Aris Holz ²	Research Assistant Professor				1.00	Water Resources
John Holz	Assistant Professor	0.12	0.13	0.15	0.6	Limnology/Lake Management
Qi Hu	Associate Professor	0.55	0.2		0.25	Agricultural Climatology
Kenneth G. Hubbard	Professor	0.67	0.23	0.1		Agricultural Climatology
Scott E. Hygnstrom	Professor	0.25	0.35	0.25	0.15	Integrated Pest Management/ Wildlife Damage Management
J. Michael Jess ²	Senior Lecturer	0.15	0.65	0.2		Geology
Robert M. Joeckel	Assistant Professor	0.75	0.25			Geology/Regional Sedimentology and Stratigraphy
Ron J. Johnson	Professor	0.31	0.69			Wildlife Science
Cody L. Knutson	Assistant Geoscientist				1.00	Water Resources
Susan Lackey	Geoscientist	0.3	0.7			Groundwater Geology
John Lenters ²	Assistant Professor	0.68		0.12		Climate Modeling
Xiaomao Lin	Research Assistant Professor				1.00	Atmospheric Scientist
James W. Merchant	Professor	0.6		0.4		Geographic Information Systems
Sunil Narumalani	Associate Professor	0.4			0.6	Remote Sensing/GIS
Robert Oglesby ²	Assistant Professor	0.3			0.7	Climate Modeling
Mark Pegg ²	Assistant Professor	0.5		0.5		Fisheries Ecology
Rick Perk	Assistant Geoscientist				1.00	Remote Sensing/GIS/Earth Science Education
Kevin Pope ²	Adjunct Assistant Professor				1.00	Fish and Wildlife Research
Larkin A. Powell	Associate Professor	0.4		0.6		Conservation Biology/Animal Ecology
Karl Reinhard	Professor				1.00	Human Dimensions, Environmental Archaeology
Donald C. Rundquist	Professor	0.65		0.35		Remote Sensing
Michele M. Schoeneberger	Adjunct Assistant Professor				USDA	Forestry
Karina Schoengold ²	Assistant Professor	0.75		0.25		Environmental Economist
Patrick J. Shea	Professor	0.8	0.1	0.1		Environmental Chemistry of Xenobiotics
Steven Sibray	Associate Geoscientist	0.75	0.25			Groundwater Geology
Rachel A. Simpson	Research Assistant Professor				0.5	Natural Resources Data Specialist
Joseph M. Skopp	Associate Professor	0.5		0.5		Soil Physics
Daniel D. Snow	Research Assistant Professor				1.00	Hydrogeochemistry
Mary E. Spalding	Professor	1.00				Water Quality
Venkataramana Sridhar	Research Assistant Professor				1.00	Hydrology/Mesoscale Modeling
Scott Summerside	Associate Geoscientist	0.75	0.25			Groundwater Geology
Andrew Suyker	Research Assistant Professor				1.00	Micrometeorology
Mark Svoboda ²	Assistant Geoscientist				1.00	Climatology
James Swinehart	Professor	0.85			0.15	Geology/Stratigraphy, Sedimentology
Jozsef Szilagy	Associate Professor	1.00				Water Science/Watershed Hydrology
Tsegaye Tadesse	Assistant Geoscientist				1.00	Climatology
Steven Thomas ²	Assistant Professor	0.8		0.2		River/Stream Ecology
Richard Andrew J. Tyre	Assistant Professor	0.6		0.4		Wildlife Population Ecology
Shashi B. Verma	Professor	0.85		0.15		Micrometeorology/Carbon Dioxide and Water Vapor Exchange
Elizabeth A. Walter-Shea	Professor	0.65		0.35		Agricultural Meteorology/Solar Radiation Interactions
Brian Wardlow ²	Research Professor				1.00	Remote Sensing Science

¹Ended research appointment during 2005-2006

²Began research appointment during 2005-2006

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
School of Natural Resources (continued)						
David A. Wedin	Associate Professor	0.6		0.4		Ecology
Albert Weiss	Professor	0.85		0.15		Agricultural Meteorology
Donald A. Wilhite	Professor	0.9		0.1		Agricultural Climatology
Jinsheng You ²	Research Professor				1.00	Climatology
C. William Zanner ¹	Assistant Professor	0.6	0.1	0.3		Soil Geomorphology
Xinhua Zhou	Research Assistant Professor				1.00	Ecophysiology/Modeler

Statistics

Walter W. Stroup	Professor	0.25		0.25	0.5	Chair, Statistical Consultant
Chris Bilder	Associate Professor	0.25		0.2		Statistical Consultant
Erin Blankenship	Associate Professor	0.55		0.45		Statistical Consultant
Kent Eskridge	Professor	0.65		0.35		Statistical Consultant
Stephen D. Kachman	Professor	0.5		0.5		Statistical Consultant
David B. Marx	Professor	0.55		0.45		Statistical Consultant
Anne Parkhurst	Professor	0.55		0.45		Statistical Consultant

Veterinary and Biomedical Sciences

John A. Schmitz	Professor			0.45	0.55	Veterinary Pathology
Raul G. Barletta	Professor	0.90		0.10		Molecular Biology
Bruce W. Brodersen	Research Associate Professor				1.00	Diagnostic Pathology
Michael P. Carlson	Lecturer	0.85		0.15		Analytical Toxicology
Jeffrey D. Cirillo ¹	Associate Professor	0.85		0.15		Infectious Diseases
Alan R. Doster	Professor				1.00	Diagnostic Pathology
Gerald E. Duhamel	Professor	0.80		0.10	0.10	Diagnostic/Research Pathology
M. Rohan Fernando	Research Assistant Professor				1.00	Molecular Biology/Biochemistry
Dicky D. Griffin	Professor	0.20	0.30	0.50		Beef Cattle Medicine
Clinton J. Jones	Professor	0.90		0.10		Molecular Virology
Clayton L. Kelling	Professor	0.65		0.35		Research Virology
Marjorie F. Lou	Professor	0.50			0.50	Research Biochemistry
Rodney A. Moxley	Professor	0.90		0.10		Diagnostic/Research Pathology
Fernando A. Osorio	Professor	0.60			0.40	Diagnostic/Research Virology
Asit K. Pattnaik	Professor	1.00				Virology
Douglas G. Rogers ¹	Professor and Interim Head				1.00	Diagnostic/Research Pathology
Gary P. Rupp	Professor	0.50		0.50		Director, GPVEC, Beef Cattle Medicine
David J. Steffen	Professor				1.00	Diagnostic Research Pathology
David R. Smith	Associate Professor	0.25	0.75			Dairy and Beef Cattle Health
Greg A. Somerville	Assistant Professor	0.90		0.10		Microbiology
Yange Zhang ¹	Research Assistant Professor				1.00	Molecular Biology
Joe Y. Zhou	Research Associate Professor				1.00	Cell Biology/Bio-Imaging

Rank		Rsch	Ext	Tch	Other	Department (Area of Responsibility)
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Education and Human Sciences Departments

Family and Consumer Sciences

Julie M. Johnson	Professor	0.12	0.11		0.77	Chair
Douglas A. Abbott	Professor	0.25			0.75	Youth at Risk
Richard J. Bischoff	Associate Professor	0.25			0.75	Collaborative Health Care
Susan Churchill	Associate Professor	0.24			0.76	Families' Economic Well Being
Rochelle Dalla	Associate Professor	0.25			0.75	Migration
Maria de Guzman ¹	Assistant Professor	0.24	0.73		0.03	Adolescent Development
John D. DeFrain	Professor	0.25	0.75			Building Strong Families
Carolyn Edwards	Professor	0.25			0.75	Cultural Diversity/Early Childhood
Cody Hollist ¹	Assistant Professor	0.24			0.76	At-risk adolescents; Latino Families
Cathy Huddleston-Casas	Assistant Professor	0.25			0.75	Families' Economic Well Being
Helen Raikes ¹	Professor	0.45			0.55	Early Childhood Education Settings; Young Children's Development
Kathy Prochaska-Cue	Associate Professor	0.12	0.75		0.13	Family Financial Management
Yan Xia	Assistant Professor	0.11			0.89	Risk and Resiliency of Youth

Nutrition and Health Sciences

Marilynn Schnepf	Professor	0.40	0.10		0.50	Chair
Julie A. Albrecht	Associate Professor	0.25	0.75			Food Safety
Timothy Carr	Associate Professor	0.50			0.50	Nutritional Biochemistry
Judy Driskell	Professor	0.50			0.50	Nutrition
Nancy M. Lewis	Professor	0.44			0.56	Nutrition
Kaye Stanek-Krogstrand	Associate Professor	0.25			0.75	Nutrition
Janos Zempleni	Assistant Professor	0.50			0.50	Nutritional Biochemistry

Textiles, Clothing and Design

Michael James	Professor			0.10	0.90	Chair
Patricia Cox Crews	Professor	0.25			0.75	Textile Conservation and Science
Nancy Miller ²	Professor	0.25		0.25	0.50	Merchandising
Shirley M Niemeyer	Professor	0.25	0.75			Housing and Environment
Yiqi Yang	Professor	0.35			0.65	Textile Science

¹Ended research appointment during 2005-2006

²Began research appointment during 2005-2006

Rank		Rsch	Ext	Tch	Other	Department (Area of Responsibility)
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Off-Campus Research Centers

Northeast Research and Extension Center

John F. Witkowski	Professor	0.25	0.75			Director
Michael C. Brumm	Professor	0.50	0.50			Animal Science (Swine Production)
Thomas E. Hunt	Associate Professor	0.50	0.50			Entomology (Entomologist)
Stevan Knezevic	Associate Professor	0.50	0.50			Agronomy and Horticulture (Weed Science)
William L. Kranz	Associate Professor	0.25	0.75			Biological Systems Engineering (Water Quality)
Terry L. Mader	Professor	0.50	0.50			Animal Science (Beef Cattle)
Charles A. Shapiro	Professor	0.50	0.50			Agronomy and Horticulture (Soils and Crop Nutrition)
David P. Shelton	Professor	0.50	0.50			Biological Systems Engineering (Soil Conservation)

Panhandle Research and Extension Center

Charles A. Hibberd	Professor	0.45	0.55			Director
David D. Baltensperger	Professor	0.75	0.25			Agronomy/Horticulture (Crop Breeding)
Linda S. Boeckner	Professor	0.25	0.75			Nutrition and Health Sciences (Nutrition and Dietetics)
Dillon M. Feuz	Professor	0.50	0.50			Agricultural Economics (Farm/Ranch Management)
Robert M. Harveson	Associate Professor	0.50	0.50			Plant Pathology (Specialty Crop Disease)
Gary L. Hein	Professor	0.50	0.50			Entomology (Entomology)
Gary W. Hergert	Professor	0.50	0.50			Agronomy/Horticulture (Soils)
Drew J. Lyon	Professor	0.50	0.50			Agronomy/Horticulture (Dryland Crops)
Alexander D. Pavlista	Professor	0.25	0.75			Agronomy/Horticulture (Potatoes)
Patrick E. Reece	Professor	0.50	0.50			Agronomy/Horticulture (Range Ecology)
Ivan G. Rush	Professor	0.25	0.75			Animal Science (Beef Cattle)
John A. Smith	Professor	0.50	0.50			Biological Systems Engineering (Machinery Systems)
Carlos A. Urrea	Assistant Professor	0.75	0.25			Agronomy/Horticulture (Dry Bean Breeding)
Robert G. Wilson	Professor	0.50	0.50			Agronomy/Horticulture (Weed Science)
C. Dean Yonts	Associate Professor	0.50	0.50			Biological Systems Engineering (Irrigation)

West Central Research and Extension Center

Don C. Adams	Professor	0.46	0.47		0.07	Animal Science (Range Cattle Nutrition) Interim Director
John B. Campbell	Professor	0.25	0.25			Entomology (Livestock/Crops)
Rick N. Funston	Assistant Professor	0.40	0.60			Animal Science (Reproductive Physiology)
Dale T. Lindgren	Professor	0.50	0.50			Agronomy/Horticulture (Ornamentals)
Jose ¹ Payero	Assistant Professor	0.50	0.50			Biological Systems Engineering
Matthew C. Stockton ²	Assistant Professor	0.50	0.50			Agricultural Economics
David D. Tarkalson	Assistant Professor	0.50	0.50			Agronomy/Horticulture (Soils)
Jerry Volesky	Associate Professor	0.50	0.50			Agronomy/Horticulture (Range Management)

¹Ended research appointment during 2005-2006

²Began research appointment during 2005-2006

	Rank	Rsch	Ext	Tch	Other	Department (Area of Responsibility)
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Interdisciplinary Activities

Water Center

Kyle D. Hoagland	Professor	0.25		0.25	0.50	Director
J. Michael Jess	Lecturer				1.00	Associate Director

Plant Science Initiative

Sally Mackenzie	Professor	0.60			0.40	Director, Plant Genomics
James R. Alfano	Associate Professor	0.88	0.12			Microbial Genetics
Thomas Clemente	Assistant Professor	0.60			0.40	Plant Transformation
Michael Fromm	Professor	0.52			0.48	Biochemical Genetics
Steven Harris	Assistant Professor	1.00				Fungal Genetics
Julie M. Stone	Assistant Professor	0.63			0.37	Plant Molecular Biology

Agricultural Research Division

Gary L. Cunningham ²	Professor	1.00				Dean and Director
Z B Mayo ²	Professor	1.00				Associate Dean and Director
Daniel Duncan ²		1.00				Assistant Director
Marjorie J. Kostelnik	Professor	0.12	0.13		0.75	Associate Dean and Director

Biotechnology Center

Michael Fromm	Professor	0.48			0.52	Director
Thomas Clemente	Associate Professor	0.60			0.40	Plant Transformation

Center for Applied Rural Innovation

Alan Baquet					1.00	Director
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Industrial Agricultural Rural Innovation

Milford Hanna	Professor	0.25			0.75	Director
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Center for Grassland Studies

Martin Massengale	Professor	0.25			0.75	Director
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Visiting Scientists and Research Associates

The Agricultural Research Division hosted 67 visiting scientists and 71 research associates to the campus in 2005-2006. ARD research is complemented and enhanced by these collaborating scientists—it is through the sharing of knowledge and expertise that the field of science is advanced.

Visiting Scientists

Agronomy and Horticulture

Visiting Scientist: Adam Liska
Country: United States
Expertise/Discipline: Ecological intensification

Visiting Scientist: Ricardo Melgar
Country: Argentina
Expertise/Discipline: Corn and soybean production practices

Visiting Scientist: Anderson Machado de Mello
Country: Brazil
Expertise/Discipline: Floriculture on penstemon

Visiting Scientist: Tony Vyn
Country: Indiana
Expertise/Discipline: High-yield corn and soybean research

Biochemistry

Visiting Scientist: Shaheen Ahmed
State/Country: Bangladesh
Expertise/Discipline: Plant biochemistry/physiology

Visiting Scientist: Alajos Berczi
State/Country: Hungary
Expertise/Discipline: Biochemistry and biophysics of membrane proteins

Visiting Scientist: Veneracion Cabana
State/Country: USA
Expertise/Discipline: Immunology

Visiting Scientist: Sebastian Carballal
State/Country: Uruguay
Expertise/Discipline: Peroxynitrite biochemistry

Visiting Scientist: Chris Chastain
State/Country: USA
Expertise/Discipline: Plant physiology/molecular biology

Visiting Scientist: Gloria Esquivel
State/Country: Portugal
Expertise/Discipline: Plant biochemistry/molecular biology

Visiting Scientist: Danielle MacDonald
State/Country: Nova Scotia
Expertise/Discipline: Plant molecular biology

Visiting Scientist: Hwa Young Son
State/Country: Korea
Expertise/Discipline: Animal medicine

Visiting Scientist: Kai Tittmann
State/Country: Germany
Expertise/Discipline: Enzymology

Visiting Scientist: Victor Vitvitsky
State/Country: Russia
Expertise/Discipline: Sulfa biochemistry

Entomology

Visiting Scientist: David Carter
State/Country: Kansas
Expertise/Discipline: Molecular assessment

Visiting Scientist: Graciela Godoy-Lutz
State/Country: Dominican Republic
Expertise/Discipline: Plant pathology

Visiting Scientist: Jigang Han
State/Country: China
Expertise/Discipline: Gene silencing

Visiting Scientist: Teodora Kolarova-Kancheva
State/Country: Bulgaria
Expertise/Discipline: Plant molecular biology

Visiting Scientist: Govindappa Melappa
State/Country: India
Expertise/Discipline: Genetic engineering

Visiting Scientist: Ji-Young Min
State/Country: Korea
Expertise/Discipline: Fungal biochemistry

Visiting Scientist: Hyoun-Hyang Park
State/Country: South Korea
Expertise/Discipline: Plant molecular biology

Visiting Scientist: Varvara Yashchenko
State/Country: Russia
Expertise/Discipline: Chlorella viruses

Plant Pathology

Visiting Scientist: David Carter
State/Country: Kansas
Expertise/Discipline: Molecular assessment

Visiting Scientist: Graciela Godoy-Lutz
State/Country: Dominican Republic
Expertise/Discipline: Plant pathology

Visiting Scientist: Jigang Han
State/Country: China
Expertise/Discipline: Gene silencing

Visiting Scientist: Teodora Kolarova-Kancheva
State/Country: Bulgaria
Expertise/Discipline: Plant molecular biology

Visiting Scientist: Govindappa Melappa
State/Country: India
Expertise/Discipline: Genetic engineering

Visiting Scientist: Ji-Young Min
State/Country: Korea
Expertise/Discipline: Fungal biochemistry

Visiting Scientist: Hyoun-Hyang Park
State/Country: South Korea
Expertise/Discipline: Plant molecular biology

Visiting Scientist: Varvara Yashchenko
State/Country: Russia
Expertise/Discipline: Chlorella viruses

School of Natural Resources

Visiting Scientist: Mohd Zaki Bin M. Amin
State/Country: Malaysia
Expertise/Discipline: Water resources management

Visiting Scientist: Wanga Chakanika
State/Country: Zambia
Expertise/Discipline: Education

Research Associate: Xi Chen
State/Country: China
Expertise/Discipline: Surface and ground water hydrology

Visiting Scientist: David Cobon
State/Country: Australia
Expertise/Discipline: Climatology, drought management

Visiting Scientist: Heidi Cullen
State/Country: Georgia/USA
Expertise/Discipline: Climatology and ocean-atmosphere dynamics, engineering

Visiting Scientist: Robert G. Dick
State/Country: Australia
Expertise/Discipline: Water management and use

Visiting Scientist: Martin Dubrovsky
State/Country: Czech Republic
Expertise/Discipline: Atmospheric physics

Visiting Scientist: Michelle Enseby
State/Country: Australia
Expertise/Discipline: Statistical ecology and bird ecology

Visiting Scientist: Ginny Forrest
State/Country: Australia
Expertise/Discipline: Forest management and farm forestry

Visiting Scientist: Sandra Garcia Galiano
State/Country: Spain
Expertise/Discipline: Water resources engineering

Research Associate: Fensquig Jiang
State/Country: China
Expertise/Discipline: Ecosystems in semiarid environments

Visiting Scientist: Chipepo Kankasa
State/Country: Zambia
Expertise/Discipline: Education

Visiting Scientist: Shamitiba Kanyanga
State/Country: Zambia
Expertise/Discipline: Research and graduate education

Visiting Scientist: Judith Lungu
State/Country: Zambia
Expertise/Discipline: Agriculture

Visiting Scientist: Yakub Mulla
State/Country: Zambia
Expertise/Discipline: Medicine

Visiting Scientist: Afonso do Ó Pinto Alho
State/Country: Portugal
Expertise/Discipline: Drought management

Visiting Scientist: Boureima de Salam OUEDRAOGO
State/Country: Burkina Faso
Expertise/Discipline: Crises and disaster management

Visiting Scientist: Y.V. Malla Reddy
State/Country: India
Expertise/Discipline: Agronomy

Visiting Scientist: Tunlawit Satapanajaru
State/Country: Thailand
Expertise/Discipline: Environmental chemistry

Visiting Scientist: Robert Serpell
State/Country: Zambia
Expertise/Discipline: Education

Visiting Scientist: Haji Ahmad Jamalluddin Shaaban
State/Country: Malaysia
Expertise/Discipline: Water resources management

Research Associate: Yi Shi
State/Country: China
Expertise/Discipline: Human and society

Visiting Scientist: Miroslav Trnka
State/Country: Czech Republic
Expertise/Discipline: Agricultural meteorology

Visiting Scientist: Gary Woodard
State/Country: Arizona
Expertise/Discipline: Conservation, economics, K-12 education, information transfer, institutions/policy planning and law

Visiting Scientist: Liguita Yaya Mahamat
State/Country: Chad
Expertise/Discipline: Chadian Red Cross organization

Visiting Scientist: Ayhan Yildirim
State/Country: Turkey
Expertise/Discipline: Fisheries ecology

Visiting Scientist: Zdenek Zalud
State/Country: Czech Republic
Expertise/Discipline: Agricultural meteorology

Veterinary and Biomedical Sciences

Visiting Scientist: Ayala Livneh
State/Country: Israel
Expertise/Discipline: *Mycobacterium paratuberculosis*

Visiting Scientist: Sebastian Aguirre
State/Country: Argentina
Expertise/Discipline: Porcine reproductive respiratory syndrome virus (PRRSV)

Visiting Scientist: Marcelo de Lima
State/Country: Brazil
Expertise/Discipline: Veterinary virology

Visiting Scientist: Esther Alvarez Garcia
State/Country: Spain
Expertise/Discipline: Porcine respiratory and reproductive syndrome

Visiting Scientist: Stefan Löfgren
State/Country: Sweden
Expertise/Discipline: Effects of ultraviolet radiation on ocular tissues

Education and Human Sciences Departments

Family and Consumer Sciences

Visiting Scientist: Ishonova Sarvarkhon
State/Country: Tajikistan
Expertise/Discipline: Economist

Textiles, Clothing and Design

Visiting Scientist: Taejung Kim
State/Country: South Korea
Expertise/Discipline: Textile/polymer modeling

Visiting Scientist: Daesik Yun
State/Country: South Korea
Expertise/Discipline: Textile chemistry

Off-Campus Research Centers

Northeast Research and Extension Center

Visiting Scientist: Radivoj Jevtic
State/Country: Serbia
Expertise/Discipline: Plant pathology and weeds

Panhandle Research and Extension Center

Visiting Scientist: Sean Keenan
State/Country: Oklahoma
Expertise/Discipline: Biologically intensive area-wide integrated pest management of the Russian wheat aphid and greenbug project

Research Associates

Agronomy and Horticulture

<i>Research Associate:</i>	Liakat Ali
<i>State/Country:</i>	Canada
<i>Expertise/Discipline:</i>	Genetic and molecular basis of agronomic performance
<i>Research Associate:</i>	Brigid Amos
<i>State/Country:</i>	Nebraska
<i>Expertise/Discipline:</i>	Soil carbon sequestration in maize-based cropping systems
<i>Research Associate:</i>	Minyoung Kim
<i>State/Country:</i>	South Korea
<i>Expertise/Discipline:</i>	Bioaerosol transport
<i>Research Associate:</i>	Fanming Kong
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Gene expression in transgenic soybeans
<i>Research Associate:</i>	Indra Sandall
<i>State/Country:</i>	India
<i>Expertise/Discipline:</i>	Gene expression in transgenic soybeans and wheat
<i>Research Associate:</i>	Peter Skelton
<i>State/Country:</i>	Nebraska
<i>Expertise/Discipline:</i>	Farming system performance
<i>Research Associate:</i>	Scott Tubbs
<i>State/Country:</i>	Florida
<i>Expertise/Discipline:</i>	Nitrous Oxide emissions in relay cropping systems

Biochemistry

<i>Research Associate:</i>	Natalia Agisheva
<i>State/Country:</i>	Russia
<i>Expertise/Discipline:</i>	Redox biology
<i>Research Associate:</i>	Mingxiao Cao
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Plant molecular biology
<i>Research Associate:</i>	Qi Cheng
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Molecular biology
<i>Research Associate:</i>	Bekir Col
<i>State/Country:</i>	Turkey
<i>Expertise/Discipline:</i>	Molecular biology

<i>Research Associate:</i>	Mishtu Dey
<i>State/Country:</i>	India
<i>Expertise/Discipline:</i>	Inorganic chemistry/metallobiochemistry
<i>Research Associate:</i>	Razvan Dumitru
<i>State/Country:</i>	Romania
<i>Expertise/Discipline:</i>	Biochemistry
<i>Research Associate:</i>	Dmitri Fomenko
<i>State/Country:</i>	Russia
<i>Expertise/Discipline:</i>	Redox biology
<i>Research Associate:</i>	Sanjay Garg
<i>State/Country:</i>	India
<i>Expertise/Discipline:</i>	Immunology
<i>Research Associate:</i>	Todor Genkov
<i>State/Country:</i>	Bulgaria
<i>Expertise/Discipline:</i>	Plant biochemistry/molecular biology
<i>Research Associate:</i>	Wen Zhi Jiang
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Plant molecular biology
<i>Research Associate:</i>	Omer Kabil
<i>State/Country:</i>	Turkey
<i>Expertise/Discipline:</i>	Enzymology
<i>Research Associate:</i>	Mikhail Khoretonenko
<i>State/Country:</i>	Russia
<i>Expertise/Discipline:</i>	Virology
<i>Research Associate:</i>	Heejeong Kim
<i>State/Country:</i>	Korea
<i>Expertise/Discipline:</i>	Electrophysiology
<i>Research Associate:</i>	Hwa-Young Kim
<i>State/Country:</i>	Korea
<i>Expertise/Discipline:</i>	Methionine sulfoxide reduction
<i>Research Associate:</i>	Dung Le
<i>State/Country:</i>	Vietnam
<i>Expertise/Discipline:</i>	Biochemistry
<i>Research Associate:</i>	Kwang Hong Lee
<i>State/Country:</i>	Korea
<i>Expertise/Discipline:</i>	Plant molecular biology
<i>Research Associate:</i>	Jiusheng Lin
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Plant molecular biology
<i>Research Associate:</i>	Alexei Lobanov
<i>State/Country:</i>	Russia
<i>Expertise/Discipline:</i>	Bioinformatics
<i>Research Associate:</i>	Heiko Mix
<i>State/Country:</i>	Germany
<i>Expertise/Discipline:</i>	Selenoproteins

Research Associate: Sergey Novoselov
State/Country: Russia
Expertise/Discipline: Selenoproteins

Research Associate: Yexin Ouyang
State/Country: China
Expertise/Discipline: Plant molecular biology and biochemistry

Research Associate: Dominique Padovani
State/Country: France
Expertise/Discipline: Enzymology

Research Associate: Ashraf Raza
State/Country: Pakistan
Expertise/Discipline: Mass spectrometry

Research Associate: Javier Seravalli
State/Country: Costa Rica
Expertise/Discipline: Enzymology

Research Associate: Valentina Shchedrina
State/Country: Russia
Expertise/Discipline: Selenoproteins

Research Associate: Chris Spedaliere
State/Country: New Jersey
Expertise/Discipline: Enzymology

Research Associate: Jay Stasser
State/Country: Ohio
Expertise/Discipline: Biophysics

Research Associate: Dan Su
State/Country: China
Expertise/Discipline: Thioredoxin reductase

Research Associate: Vekalet Tek
State/Country: Turkey
Expertise/Discipline: Biochemistry

Research Associate: Srimevan Wanduragala
State/Country: Sri-Lanka
Expertise/Discipline: Biophysical chemistry

Research Associate: Qin Wei
State/Country: China
Expertise/Discipline: Biochemistry-cell signaling

Research Associate: Mamoru Yamanishi
State/Country: Japan
Expertise/Discipline: Enzymology

Research Associate: Wenxin Yu
State/Country: China
Expertise/Discipline: Plant molecular biology

Research Associate: Deliang Zhang
State/Country: China
Expertise/Discipline: Animal physiology

Research Associate: Weimin Zhang
State/Country: China
Expertise/Discipline: Bioanalytical chemistry

Research Associate: Yan Zhang
State/Country: China
Expertise/Discipline: Bioinformatics

Research Associate: Weidong Zhu
State/Country: China
Expertise/Discipline: Enzymology

Entomology

Research Associate: Christopher J. DeHeer
State/Country: Nebraska/USA
Expertise/Discipline: Molecular biology of social insects

Research Associate: Haichuan Want
State/Country: Canada
Expertise/Discipline: Insect biochemistry/molecular biology

Plant Pathology

Research Associate: Irina Agarkova
State/Country: Uzbekistan
Expertise/Discipline: Molecular biology of plant pathogenic bacteria

Research Associate: Marco Buenrostro-Nava
State/Country: Mexico
Expertise/Discipline: Molecular biology

Research Associate: Lisa Fitzgerald
State/Country: Nebraska
Expertise/Discipline: Chlorella viruses

Research Associate: Ming Guo
State/Country: China
Expertise/Discipline: Molecular biology of plant pathogenic bacteria

Research Associate: Alexander Ignatov
State/Country: Russia
Expertise/Discipline: Plant pathology

Research Associate: Peter Mullin
State/Country: Nebraska
Expertise/Discipline: Nematology

Research Associate: Paola Valbuzzi
State/Country: Italy
Expertise/Discipline: Chlorella viruses

Research Associate: Esther van der Zalm
State/Country: Netherlands
Expertise/Discipline: Plant redox biology

Research Associate: David Van Winkle
State/Country: Illinois
Expertise/Discipline: Biological sciences

Research Associate: Aleksandra Virag
State/Country: Canada
Expertise/Discipline: Fungal biology

School of Natural Resources

Research Associate: Ya Ding
State/Country: Nebraska
Expertise/Discipline: Natural resource economists

Research Associate: Song Feng
State/Country: China
Expertise/Discipline: Diagnostics of climate variations

Research Associate: Jae H. Ryu
State/Country: Nebraska
Expertise/Discipline: Hydrologist

Textiles, Clothing and Design

Research Associate: Abdus Salam
State/Country: Bangladesh
Expertise/Discipline: Coloration and textile chemistry

Veterinary and Biomedical Sciences

Research Associate: Ofelia Cha on-Barletta
State/Country: Columbia
Expertise/Discipline: Microbiology

Research Associate: Subash C. Das
State/Country: India
Expertise/Discipline: Veterinary molecular virology

Research Associate: Shuanghu Liu
State/Country: China
Expertise/Discipline: Hepatology and infectious diseases

Research Associate: Weiping Peng
State/Country: China
Expertise/Discipline: Silkworm genetics and breeding

Research Associate: Yunquan Jiang
State/Country: People's Republic of China
Expertise/Discipline: Genetics

Research Associate: Bonggoo Park
State/Country: South Korea
Expertise/Discipline: Biochemistry and molecular biology

Research Associate: Mustapha Moulay Samrakandi
State/Country: Morocco
Expertise/Discipline: Microbiology

Research Associate: Christina Topliff
State/Country: Nebraska
Expertise/Discipline: Virologist/molecular biologist

Research Associate: Amit Kumar Pandey
State/Country: India
Expertise/Discipline: Animal biotechnology

Research Associate: Selvakumar Subbian
State/Country: India
Expertise/Discipline: Basic medical sciences

Research Associate: Kuiyi Xing
State/Country: People's Republic of China
Expertise/Discipline: Biochemistry

Research Projects

Each faculty member with an ARD appointment has a federally-approved research project. A number of faculty have multiple projects. There are 338 research projects that were active for all or part of the 2005-2006 fiscal year in agriculture, natural resources and family sciences. Projects are generally three to five years in duration. Faculty also are part of a national network of Agricultural Experiment Station scientists located at land-grant universities across the United States. ARD researchers currently are involved with about 58 Multistate research

projects in which they conduct cooperative research with scientists at other universities, addressing problems of regional and national importance. They also participate in approximately 68 multistate coordinating committees, which serve to exchange information and coordinate cooperative research/extension activities among institutions.

Research projects are listed by departments. An asterisk (*) indicates that the project was terminated in fiscal year 2005-2006. Following are different types of projects and their funding source.

Type	Funding Source	Type	Funding Source
Hatch	Federal and State Funds	Competitive Grant	Federal Funds/USDA
Hatch Multistate	Federal Funds	Animal Health	Federal Funds
State	State Funds	Cooperative Agreement	
McIntire-Stennis	Federal Funds	Other Grant	
Special Grant	Federal, State, Public and Private		

Project Type Description:

Hatch: research on all aspects of agriculture, including soil and water conservation and use; plant and animal production, protection, and health; processing, distributing, marketing and utilization of food and agricultural products; forestry, including range products, multiple use of forest and rangelands, and urban forestry; aquaculture; family sciences, including human nutrition and family life; and rural and community development.

Multistate: research in agriculture, natural resources and family sciences with regional importance and Nebraska application. Research is a collaborative effort with scientists from other land-grant institutions and federal agencies.

State: research on all aspects of agriculture, natural resources, family sciences, and rural development that is supported entirely by state funds.

McIntire-Stennis: research relating to: 1) reforestation and management of land for the production of timber and other related products of the forest; 2) management of forest and related watershed lands to improve conditions of water flow and to protect resources against floods and erosion; 3) management of forest and related rangeland for production of forage for domestic livestock and game and improvement of food and habitat for wildlife; 4) management of forest lands for outdoor recreation; 5) protection of forest land and resources against fire, insects, diseases, or other destructive agents; 6) utilization of wood and other forest products; 7) development of sound policies for the management of forest lands and the harvesting and marketing of forest products; and 8) such other studies as may be necessary to obtain the fullest and most effective use of forest resources.

Special Grants: targeted research projects to address special needs for family sciences, agriculture, and the management of natural resources for Nebraska.

Competitive Grants: includes research in USDA national priority areas.

Animal Health: research to promote the general welfare through improved health and productivity of domestic livestock, poultry, aquatic animals, and other income-producing animals that are essential to the nation's food supply and the welfare of producers and consumers of animal products.

Cooperative Agreement: Funds from USDA agencies other than CSREES.

Agricultural/ Natural Resources Units

Agricultural Economics

10-138 Hatch
Measurement of competitiveness of U.S. beef, soybean, wheat, and corn production (L.E. Fulginiti)

10-141 Hatch
Legal aspects of Nebraska agricultural and natural resources policy (J.D. Aiken)

10-145 Hatch
Finding motivations and mechanisms for profitable conservation (G.D. Lynne)

10-146 Hatch
Enforcement issues and efficiency in the agri-food marketing system: genetic modification, organic agriculture, and government intervention (K. Giannakas)

10-148 Multistate
NC-1003, Impact analysis and decision strategies for agricultural research (R.K. Perrin)

10-149 Hatch
Enhancing public understanding of the U.S. beef market through industrial organization research and education (A.M. Azzam)

10-150 Hatch
Economic analysis of Nebraska cropping systems (G.A. Helmers)

10-151* Hatch
Economic impacts of changes in trade arrangements, bioterrorism threats and renewable fuels requirements on U.S. grain and oilseed sector (D.M. Conley)

10-152 Hatch
Strategic behavior and optimal regulation in industrialized agricultural markets: patents, biotechnology and organic agriculture (A.Yiannaka)

10-153 Hatch
Analysis of agricultural real estate market dynamics in Nebraska (B.B. Johnson)

10-154 Multistate
NC-1016, Economic assessment of changes in trade arrangements, bioterrorism threats and renewable fuels requirements on U.S. grain and oilseed sector (D.M. Conley)

10-155 Hatch
Vertical integration, contract coordination and market power in agricultural raw product market (J. Royer)

10-156 Hatch
Economic analysis of international agricultural trade issues before the World Trade Organization (E.W. Peterson)

10-157 Multistate
W-1190, Interfacing technological, economic, and institutional principles for managing inter-sector mobilization of water (R. Supalla, D. Martin)

Agricultural Leadership, Education and Communication

24-034 State
Predictors of leader and follower behavior and the impact of leadership development interventions and programs (J.E. Barbuto Jr., S.M. Fritz)

24-035 State
Surveying and characterizing distance education interventions in Nebraska rural communities (J.W. King)

24-036 State
Relationship of servant leadership to other leadership theories and role in explaining follower behavior and organizational effectiveness in NE (D.W. Wheeler)

Agronomy and Horticulture

12-002 Hatch
Genetics, breeding and evaluation of winter small grains crops for Nebraska (P.S. Baenziger, B.E. Beecher)

12-181 Hatch
Development of profitable reduced herbicide weed management systems through integration of management practices (A.R. Martin)

12-194 Hatch
Novel methods for soybean genetic improvement and genomic analysis (J.E. Specht)

12-201 State
Maintenance, increase, and distribution of elite germ plasm (J. Noel)

12-204* Multistate
NC-202, Characterizing weed population variability for improved weed management decision support systems to reduce herbicide use (J.L. Lindquist, S.Z. Knezevic)

12-209 Hatch
Procedures for assessing impacts of nonpoint agricultural chemicals on ground water (R.F. Spalding)

12-241 Hatch
Ecological studies of Nebraska rangeland vegetation (J. Stubbendieck)

12-252 Hatch
Biosolids application and soil chemical properties: changes in phosphorus and carbon pools (D.L. McCallister)

12-254 Hatch
Community structure and functional diversity of soil microbial communities in natural and agroecosystems (R.A. Drijber)

12-255 Hatch
Soybean breeding and genetic studies (G.L. Graef)

12-260 Hatch
Resource-efficient management of summer annual dryland cereal crops in Nebraska (S.C. Mason)

12-261 State
Cropping systems to optimize yield, water and nutrient use efficiency of pearl millet and grain sorghum (S.C. Mason)

12-267 Hatch
Ecophysiology of corn - velvetleaf competition (J.L. Lindquist)

12-268 Hatch
Sustainable farms, landscapes and rural communities in Nebraska: an agricultural systems team approach (C.A. Francis)

12-274* Hatch
Physiological bases of environmental constraints on plant growth and productivity (T.J. Arkebauer)

12-275 Multistate
NC-213, Marketing and delivery of quality cereals and oilseeds (B. Beecher)

12-281 Hatch
Enhancing crop diversity by understanding genotype by environment interactions (L.A. Nelson)

12-282 Hatch
Grazingland response to seasonal grazing strategies (W.H. Schacht)

12-283* Hatch
Utilizing biotechnology for sorghum and pearl millet improvement (I.M. Dweikat)

12-286 Other Grant
Application of geospatial and precision technologies (A. Dobermann, R.M. Caldwell, V.I. Adamchuk, R.B. Ferguson)

12-288 Hatch
Identification and analysis of jasmonic acid signal transduction components in plants (P.E. Staswick)

12-289 Hatch
Precise nutrient management in corn-based systems (A.R. Dobermann)

12-290 Hatch
Relationship of organic phosphorus bioavailability and PH to plant growth, phosphorus uptake, and mycorrhizal establishment (M. Mamo)

12-291 Hatch
Improved soil productivity and environmental quality on non-irrigated land in southeastern Nebraska (C.S. Wortmann)

12-292* Competitive Grant
Characterization of Ds transposition in the soybean genome (T.E. Clemente)

12-293 Multistate
NC-218, Assessing nitrogen mineralization and other diagnostic criteria to refine nitrogen rates for crops and minimize losses (D.T. Walters)

12-294 Hatch
Detection and assessment of genetic variation in economically important weed species (D.J. Lee)

12-295 State
Soil and water management for improving sorghum production in eastern Africa (C.S. Wortmann, M. Mamo)

12-296 Hatch
Cultural practices to minimize environmental stress on horticultural crop production (L. Hodges)

12-297 Hatch
Improving the end-use performance characteristics of wheat and other cereal grains (B. Beecher)

12-298 Hatch
Development of a transposon tagging system for soybean (*Glycine max* Merr) (T.E. Clemente)

12-299* Hatch
Development of stress resistant/high yield sorghum germplasm for release and use in investigation of contributing physiological mechanisms (J.D. Eastin)

12-301 Competitive Grant
Pollution and economic decision support tool for impaired watershed management plans in Eastern Nebraska (D. Ginting, G.A. Helmers, M. Mamo, C. Wortmann, B. Eghball)

12-302 Hatch
Proteomic dissection of the mitochondrial DNA metabolism apparatus in arabidopsis (S.A. Mackenzie)

12-303 Hatch
Investigating the relationship between leaf re-greening and leaf senescence in a novel model system (E.T. Paparozzi)

12-304* Hatch
Development of a transformation system for sorghum (*Sorghum bicolor* L.) (I. Dweikat, T. Clemente)

12-305 Competitive Grant
The genetic basis of agronomic traits controlled by chromosome 3A in wheat (S. Baenziger, K. Eskridge, I. Dweikat)

12-306 State
A phenological network for ecological viticulture (P. Read, F. Baxendale, J. Hruskoci, J. Peake, J. Schold, B. Ramamurthy, J. Watkins, C. Zanner)

12-307 Hatch
Seasonal dynamics of annual forage crops to enhance grazing livestock systems (B. Anderson)

12-308 Hatch
Turfgrass landscape biosensing (G. Horst)

12-309 Hatch
Improving efficiency of corn breeding and developing alternative breeding methods (K. Russell)

12-310 Multistate
NC-1026, Characterize weed population dynamics for improved long-term weed management decision-making (J. Lindquist, S. Knezevic)

12-311 Hatch
Improved understanding of crop yield potential and irrigation tactics for water-limited irrigated systems (K. Cassman)

20-056* Hatch
Integrated turfgrass management practices (R.C. Shearman)

20-057 Hatch
Application of micropropagation and biotechnology to improvement and multiplication of horticultural crops (P.E. Read)

20-060 Hatch
Breeding and development of buffalograss for the central Great Plains (T.P. Riordan, R.C. Shearman)

20-063 Hatch
Grow-in and cultural practice impacts on USGA putting greens and their microbial communities (R.E. Gaussoin)

22-312 Hatch
Ecology of Nebraska grassland irrigation (J. Stubbendieck)

22-313 Competitive Grant
Contribution of *Fusarium Lateritum* to weed suppressive soils and weed abundance (J. Lindquist)

22-314 Hatch
Soybean breeding and genetic studies (G. Graef)

48-026 Hatch
Site-specific nutrient management strategies for irrigated and non-irrigated maize (R.B. Ferguson)

48-029* Hatch
Resource-efficient cropping systems research for south central Nebraska's irrigated agro-ecological zone (R.W. Elmore)

Animal Science

13-110* Multistate
NC-131, Molecular mechanisms regulating skeletal muscle growth and differentiation (S.J. Jones)

13-130 Hatch
Physiological and nutritional aspects of improving reproduction in dairy cattle (L.L. Larson)

13-144* Hatch
Utilization of phosphorus in cool- and warm-season grass hay by ruminants (D.R. Brink)

13-153 Hatch
Measuring and improving the quality, consistency, and uniformity of traits that influence meat value (C.R. Calkins, R.W. Mandigo)

13-154 Animal Health
Role of paracrine growth factors in bovine ovarian follicular development (A.S. Cupp)

13-156 Multistate
W-112, Reproductive performance in domestic ruminants (A.S. Cupp)

13-157 Multistate
NC-1119, Management system to improve the economic and environmental sustainability of dairy enterprises (H.D. Jose, T.J. Klopfenstein)

13-158 Multistate
S-1008, Genetic selection and cross-breeding to enhance reproduction and survival of dairy cattle (J.F. Keown)

13-159 Hatch
Transcriptional regulation of the porcine gonadotropin releasing hormone (GnRH) receptor gene (B.R. White)

13-161 Hatch
Genetic variation in feed energy utilization (M.K. Nielsen)

13-162 Multistate
NC-1004, Genetic and functional genomic approaches to improve production and quality of pork (R.K. Johnson, D. Pomp, J.S. Weber)

13-163 Hatch
Improving profitability and sustainability of beef feedlot production through nutrient management and corn milling co-product utilization (G.E. Erickson)

13-164 Hatch
Alternative growing-finishing beef systems (T.J. Klopfenstein)

13-165* State
Role of hyaluronan during the ovulatory process in the beef cow (A.S. Cupp, M.A. Simpson)

13-166 Competitive Grant
Transcriptional regulation of the porcine GnRH receptor gene (B.R. White)

13-167 Hatch
A genetic approach to uncovering mammalian genes important in sepsis-induced multiple organ failure (J.S. Weber)

13-168 Other Grant
Validating and implementing listeria monocytogenes controls in ready-to-eat meat products produced by rural meat plants in the Great Plains (D. Burson, H. Thippareddi)

13-170* Hatch
Expression analysis of GnRH stimulated pituitary genes in lines of swine divergent for ovulation rate (B.R. White)

13-171 Multistate
NE-1022, Poultry production systems: Optimization of production and welfare using physiological, behavioral and physical assessments (M. Beck)

13-172 Animal Health
Metabolic bone disease in laying hens: Etiology and genomics (M. Beck)

13-173 Hatch
Management systems to increase profit potential in the cow-calf enterprise using forages and grain co-products (R. Rasby)

13-174 Hatch
Impact of animal welfare guidelines for laying hen cage space allowance on laying hen in a cage system (S. Scheideler)

13-175 State
Impact of biotin supplementation on early embryonic development (B. White, J. Zemleni)

13-176 Hatch
Physiological responses of growing calves to stable fly bites (D. Brink)

31-006* Special Grant
Integrated crop/livestock/agroforestry research for sustainable systems in Nebraska (T.J. Klopfenstein, J.R. Brandle, C.A. Francis, D.T. Walters)

Biochemistry

15-091* Hatch
Strategies for developing herbicide-tolerant crops (D.P. Weeks)

15-096* Competitive Grant
Rubisco selection and correction (R.J. Spreitzer)

15-098 Hatch
Genetic modification of chloroplast rubisco (R.J. Spreitzer)

15-099 State
Engineering plants for increased photosynthetic efficiency: introduction of the CO₂ concentration mechanism from C₄ plants into C₃ plants (D.P. Weeks, T. Clemente)

15-100 Multistate
NC-1142, Regulation of photosynthetic processes (R. Chollet, J. Markwell, R.J. Spreitzer)

15-101 Hatch
Variation C metabolism in plants: biochemical and physiological characterization of cytochromes b561 (H. Asard)

15-102 Hatch
Transcriptional regulation of programmed cell death (PCD) in plant development and response to pathogens (J.M. Stone)

15-103 Hatch
Biochemistry of anaerobic CO₂ fixation and chlorophenol metabolism (S.W. Ragsdale)

15-104 Hatch
Regulation of the multifunctional proline utilization A (Put A) flavoprotein and proline metabolism in bacteria (D.F. Becker)

15-105 Hatch
Directed evolution of plant foremate dehydrogenase (J.P. Markwell)

15-106 State
Role of hyaluronan matrix in prostate cancer progression (M.A. Simpson)

15-107 Hatch
Evolution of animal lentiviruses/HIV (C. Wood)

15-108 Hatch
Regulatory mechanisms of glutathione metabolic enzymes (J. Barycki)

15-109 Hatch
Mammalian copper transporters and systemic copper homeostasis (J. Lee)

30-110 Hatch
Inorganic carbon transporters and photosynthetic efficiency (D. Weeks)

30-111 Grant
Rubisco phylogenetic engineering (R. Spreitzer)

Biological Systems Engineering

11-001 State
Evaluation of performance of new tractors (L.L. Bashford)

11-044* Multistate
Improvement of thermal and alternative processes for food (M.A. Hanna)

11-115 Hatch
Improved anaerobic lagoon design and management for odor control (D.D. Schulte)

11-117 Hatch
Application of fuzzy systems analysis in biological systems engineering (D.D. Jones)

11-121* Hatch
Fuzzy crop/weed image/signal analysis for variable-rate water and chemical application (G.E. Meyer)

11-122* Other Grant
Control of agrichemical loading to streams using grassed buffers in Great Plains watersheds (D.E. Eisenhauer, R.F. Spalding, T.G. Franti, D.D. Snow, M.G. Dosskey)

11-123 Hatch
Improved acquisition of thematic soil maps (V.I. Adamchuk)

11-124 Hatch
Storm runoff simulator to evaluate conservation buffers (T.G. Franti, D.P. Shelton, D.E. Eisenhauer, J.E. Gilley)

11-125 Multistate
S-1007, The science and engineering for a biobased industry and economy (D. Jones, Y. Yang, M.A. Hanna, C.L. Weller)

11-126 Hatch
Integrated research and extension education program addressing livestock air quality issues (R.M. Koelsch)

11-127 Competitive Grant
Purification process influences on structural and nutritional function of grain sorghum lipids (C. Weller, T. Carr, V. Schlegel, S. Cuppett, K. Hwang, L. Wang)

11-128 Hatch
Adaptive management of groundwater supply systems using soft computing approaches (W. Woltd)

11-129 Multistate
NE 1017, Developing and integrating components for commercial greenhouse production system (G. Meyer)

11-130 Hatch
Improved prediction and measurement of crop evapotranspiration (S. Irmak)

11-131 Other Grant
A national learning center for animal agricultural water quality issues (R. Koelsch, J. Harrison, M. Risse, F. Hammerik)

11-132 Hatch
Three-dimensional volume blood flow measurements by ultrasonic feature tracking (G. Bashford)

21-133 Hatch
A machine vision system for plant species identification and mapping for precision crop management (G. Meyer)

Entomology

17-054* Hatch
Biochemistry and physiology of lipids, prostaglandins and related eicosanoids in insects (D.W. Stanley)

17-062 Hatch
Arthropods associated with buffalograss and other turfgrasses in Nebraska (F.P. Baxendale)

17-071 Hatch
Development of resistance management techniques for corn insect pests in Nebraska (B.D. Siegfried)

17-078 Hatch
Plant resistance to sap-feeding insects (T.M. Heng-Moss)

17-079 Multistate
S-1010, Dynamic soybean pest management for evolving agricultural technologies and cropping systems (L.G. Higley, T.E. Hunt)

17-080 Hatch
Mechanisms and management of arthropod injury to plants (L.G. Higley)

17-081 Hatch
Conservation of insect predators of alfalfa insect pests using harvest management, vegetative landscape features, and artificial honeydew (S.D. Danielson)

17-082 Hatch
Management of subterranean termites in urban/rural environments (S.T. Kamble)

17-083* State
Synchronizing habitat enhancement practices with predator mobility for control of alfalfa insect pests (S.D. Danielson, J.R. Brandle, T.E. Hunt, E.E. Blankenship)

17-084 Hatch
Host-plant resistance, insect-plant interactions, and insect genetics (J.E. Foster)

17-086* Other Grant
Development and delivery of user friendly IPM tools for use with PC and PDA (L.G. Higley, T.E. Hunt, W.W. Hoback, D.A. Golick)

48-028 Hatch
Spatial distribution and sampling of field crop insects (R.J. Wright)

28-087 Other Grant
Quantifying risk factor for evolution of European Corn Borer resistance to Cry1F expressing corn hybrids (B. Siegfried)

Food Science and Technology

16-044* Multistate
NC-131, Molecular mechanisms regulating skeletal muscle growth and differentiation (M.G. Zeece)

16-051 Hatch
Starch technology: Production, characterization, and utilization (D.S. Jackson)

16-082 Multistate
NC-213, Management of grain quality and security in world markets (D.S. Jackson)

16-083 Multistate
NC-213, Marketing and delivery of quality cereals and oilseeds (L.B. Bullerman)

16-090 Multistate
S-295, Enhancing food safety through control of foodborne disease agents (C.L. Weller)

16-095 Competitive Grant
HACCP training and research to assist meat processors with process deviations for lethality and stabilization (H. Thippareddi, D.E. Burson)

16-096 Competitive Grant
Population genomics of *Listeria monocytogenes* (A.K. Benson and M. Wiedmann)

16-097 Hatch
Physical, chemical and biological control of molds and mycotoxins in foods and the environment (L.B. Bullerman)

16-098 Hatch
Near infrared spectroscopic applications for food quality measurement and process control (R.L. Wehling)

16-099 Competitive Grant
Stability and functional activity of prebiotic oligosaccharides in foods (R.W. Hutkins, R.L. Wehling)

16-100 Other Grant
Food safety: life-long learning through teacher training (R.W. Hutkins, J.H. Rupnow, G. Whipple, H. Thippareddi, L. Durso)

16-102 Hatch
Development of predictive models for the growth of foodborne pathogens in meat and poultry products (H. Thippareddi)

16-103 Hatch
Development of metabolic profiling and metabolic fingerprinting as analytical tool for educating food safety and quality (H. Thippareddi, L. Wang, V.K. Juneja, C.L. Weller, C.N. Cutter, D.E. Burson)

16-104 Other Grant
HACCP assistance to small and very small processors with development and validation of safe meat chilling processes (H. Thippareddi, L. Wang, V.K. Juneja, C. Weller, C.N. Cutter, D. Burson)

16-105 Hatch
Evaluation of natural compounds, nutraceuticals, bioavailability and antioxidant activity in the CACO-2 cell model system (S. Cuppett)

16-106 Competitive Grant
Functional consequences of genome evolution in *Listeria monocytogenes* (A. Benson)

16-107 Hatch
Development of protein microarray technology for agricultural applications: implementation of lectin chip (M. Zeece)

19-003 State
Development and evaluation of food products, processes and markets (S. Taylor, D. Smith)

19-016* Special Grant
Midwest Advanced Food Manufacturing Alliance (S. Taylor)

19-017* Special Grant
Alliance for Food Protection (S. Hefle)

19-019 Special Grant
Midwest Advanced Food Manufacturing Alliance (S. Taylor)

19-020 Special Grant
Midwest Advanced Food Manufacturing Alliance (S. Taylor)

31-109 Special Grant
Alliance for Food Protection (S. Hefle)

31-110 Other Grant
Improving safety of shell eggs and egg products by addressing critical research needs for Salmonella (H. Thippareddi)

Plant Pathology

21-069* Hatch
Characterization of wheat leaf rust virulence in Nebraska and its implication for breeding for resistance (J.E. Watkins)

21-070 Hatch
Mitigation of diseases of dry edible bean and stem rot of soybean by managed plant resistance (J.R. Steadman)

21-076 Hatch
Pathogenic determinants of phytopathogenic fungi (M.B. Dickman)

21-079 Hatch
Characterization of soybean diseases in Nebraska and development of plant disease management strategies in soybean and landscape plants (L.J. Giesler)

21-081 Hatch
Characterization and use of bacterial endophytes from cereals (A.K. Vidaver)

21-082 Hatch
Detection and properties of Nebraska plant viruses with emphasis on soybean viruses (L.C. Lane)

21-083 Hatch
Biological control of grass and cereal diseases in Nebraska (G.Y. Yuen)

21-084* Competitive Grant
Utilization of direct repeat induced gene silencing in plant functional genomics (A. Mitra)

21-085 Hatch
The fungal response to genotoxic stress (S.D. Harris)

21-086* Competitive Grant
Chaperones of the type III protein secretion system of *Pseudomonas syringae* tomato DC 3000 (J.R. Alfano)

21-088 State
The type 111 protein secretion system of *Pseudomonas syringae* tomato DC 3000 (J.R. Alfano)

21-089* Hatch
Development of allergen free wheat using gene silencing (A. Mitra, S. Baenziger, T. Powers)

21-090 Multistate
W-1186, Genetic variability in the cyst and root-knot nematodes (T.O. Powers)

21-091 Hatch
Characterization of large algal viruses and their genes (J.L. VanEtten)

21-100 State
Evaluation airborne remote sensing and the advanced vegetation index suite for crop disease detection: The case of dry bean rust (J.R. Steadman)

21-101 Competitive Grant
Genomics of the necrotrophic fungal phytopathogen *Sclerotinia sclerotiorum* (M. Dickman)

21-102 Hatch
Development of direct repeat induced gene (A. Mitra)

21-103 Multistate
W-1150, Exotic germplasm conversion and breeding common bean (*Phaseolus vulgaris* L.) for resistance to abiotic and biotic stresses and for enhanced nutritional value (J. Steadman)

School of Natural Resources

27-003 Hatch
Exchange of carbon dioxide and other atmospheric trace gases in vegetated ecosystems (S.B. Verma)

27-007* Hatch
Drought: response and policy implications (D.A. Wilhite, M.J. Hayes)

27-012 Multistate
NRSP-3, The national atmospheric deposition program (NADP) (S.B. Verma)

40-002 Hatch
Remediating organic contaminants in soil and water through natural and accelerated destruction (S.D. Comfort)

40-007* McIntire-Stennis
Ecosystem consequences of woody species establishment in the Great Plains (D.A. Wedin)

40-011 McIntire-Stennis
Windbreak shelter effects (J.R. Brandle, L. Hodges, S.J. Josiah)

40-013* Hatch
Rapid estimation of soil hydraulic properties (J.M. Skopp)

40-017 McIntire-Stennis
Impacts of *Pinus ponderosa* establishment on ecosystem functions in the Sandhills of Nebraska (T.N. Awada, D. Wedin)

40-018 Hatch
Agrochemicals in Nebraska groundwater: occurrence, trends, and health associations (M. Exner-Spalding)

40-019 Hatch
Evaluation and remediation of chemically compromised soil environments (P.J. Shea)

40-020 Hatch
Development of an optimal conjunctive use plan during irrigation seasons for a Nebraska river valley (X. Chen)

40-023 Hatch
Determining time of recharge (AGE) of groundwater resources in Nebraska using water chemistry and environmental isotopes (F.E. Harvey)

40-024 State
State-wide groundwater resource assessment: focus on arsenic (D.C. Gosselin)

40-025 State
Remote sensing of the biophysical characteristics of agricultural vegetation (R.C. Rundquist, A. Gitelson)

40-026 Hatch
Landscape-level mechanisms influencing population dynamics of birds (L.A. Powell)

40-027 Hatch
Radiative transfer in vegetative canopies with emphasis on canopy structure (E.A. Walter-Shea)

40-028 Hatch
Improving the simulation of winter wheat (*Triticum aestivum* L.) responses to the environment (A. Weiss)

40-031* State
Woody species expansion in the Nebraska Sandhills: Ecological and Socio-Economic consequences (T.N. Awada, A. Yiannaka, F.E. Harvey, X. Zhou, W. Schacht, S.J. Josiah)

40-032* Multistate
NC-1005, Landscape ecology of white tailed deer in agroforest ecosystems: A cooperative approach to support management (S.E. Hygnstrom)

40-033* Competitive Grant
Drought monitoring, planning, and mitigation (D. Wilhite)

40-034 Hatch
Characterization of land cover for improved numerical weather prediction modeling (J. Merchant, G. Henebry)

40-035 Multistate
NC-1018, Impact of climate and soils on crop selection and management (K. Hubbard, S. Hu)

40-036 Other Grant
Drought monitoring planning and mitigation (D. Wilhite)

40-037 Hatch
Identification of the triggering mechanisms of increased flood risk in the lower Missouri River (J. Szilagyi)

40-038 Hatch
Decision-making for wildlife under severe uncertainty (A. Tyre)

40-039 Hatch
Integrating biological diversity into managed land-use systems (R. Johnson)

40-040 Hatch
Multidecadal alternation of sources affecting interannual summer rainfall variations in the central U.S. (S. Hu)

40-041 State
Evolution, biomechanics and function in the teeth, jaws and skulls of insectivorous mammals (P. Freeman)

40-042 State
Delineation of the physical framework and tectonic features controlling the occurrences of natural resources and natural hazards (M. Carlson)

40-043 State
Nebraska landslides (D. Eversoll)

40-044 McIntire-Stennis
Trees, shrubs, grasses and the Nebraska sandhills: Experimental ecophysiology and below ground ecology (D. Wedin)

40-045 Hatch
Groundwater resource sustainability in SE and South Central Nebraska: Focus on hydrogeology of the Little Blue River Basin (S. Summerside)

38-046 State
Environmental stewardship of cattle wastes: Do growth promoting steroids alter toxicity? (D. Snow, A. Kolok, G. Erickson)

38-047 State
Determination of appropriate lake water quality expectation in agricultural ecosystems (J. Holz)

38-048 Other Grant
Targeting watershed vulnerability and behaviors leading to adoption of conservation management practices (P. Shea)

38-049 Multistate
W-1082, Evaluating the physical and biological availability of pesticides and pharmaceuticals in agricultural context (P. Shea)

Statistics

23-001 State
Applications of statistics to research in agriculture (D.B. Marx, W.W. Stroup, A.M. Parkhurst, K.M. Eskridge)

23-003 Multistate
W-173, Stress factors of farm animals and their effects on performance (A.M. Parkhurst)

Veterinary and Biomedical Sciences

14-039 State
VBMS research laboratories and animal care facility (J.A. Schmitz)

14-059 State
Veterinary diagnostic lab system: diagnostic surveillance and disease investigation in Nebraska livestock and poultry (J.A. Schmitz, A.R. Doster)

14-103* Animal Health
Pathogenic mechanisms of bacterial respiratory pathogens (J.D. Cirillo)

14-109* Hatch
Epidemiology of *Escherichia coli* O157:H7 and *salmonella* in feedlot beef cattle (D.R. Smith, R.A. Moxley, T.J. Klopfenstein)

14-115 Multistate
NC-229, Porcine reproductive and respiratory syndrome (PRRS) (F.A. Osorio, A. Pattnaik, R. Johnson, J. Weber)

14-117* Competitive Grant
Role of A/E proteins in *E. coli* O157:H7 intestinal colonization of adult cattle (R.A. Moxley)

14-118 Animal Health
Pathobiology of porcine colonic spirochetosis caused by *Brachyspira pilosicoli* (G.E. Duhamel)

14-119* Competitive Grant
Functional genomic analysis of bovine viral diarrhea (R.O. Donis)

14-120* Competitive Grant
Mapping of *Mannheimia (pasteurella) haemolytica* leukotoxin binding site(s) on bovine CD18 (S. Srikumaran)

14-121 Multistate
NC-107, Evolving pathogens, targeted sequences, and strategies for control of bovine respiratory disease (S. Srikumaran)

14-122* Competitive Grant
Functional analysis of bICPO, a bovine herpesvirus 1 gene that is a promiscuous trans-activator (C.J. Jones, Y. Zhang)

14-123 Other Grant
Develop pre-harvest version of the USDA-FSIS fast antibiotic screening test and antibiotic residue avoidance education (D.D. Griffin)

14-124* Competitive Grant
Immunity against porcine reproductive and respiratory syndrome virus infections (F.A. Osorio, O.J. Lopez)

14-125 Multistate
NC-1007, Enteric diseases of swine and cattle: prevention, control and food safety (R.A. Moxley, G.E. Duhamel, D.R. Smith)

14-126 Animal Health
Pathogenesis of bovine viral diarrhea virus and bovine respiratory syncytial virus infections (C.L. Kelling)

14-127 Competitive Grant
Intervention strategies to reduce *Escherichia coli* 0157:H7 in beef feedyards (D.R. Smith, G.E. Erickson, R.A. Moxley, T.J. Klopfenstein, S. Hinkley)

14-128 Competitive Grant
Regulation of the latency-reactivation cycle by the bovine herpesvirus (BHV-1) latency related gene (C.J. Jones, A.R. Doster)

14-129 Competitive Grant
Molecular analysis of a mycobacterium paratuberculosis colony-morphology attenuated mutant (R.G. Barletta)

14-130 Animal Health
Regulation of the latency reactivation cycle by the bovine herpesvirus 1 (BHV-1) latency related (LR) gene (C.J. Jones)

14-131 State
Veterinary field disease research program (D.R. Smith)

14-132 Hatch
Examination of attenuation and virulence determinants of porcine reproductive and respiratory syndrome virus (A. Pattnaik, F. Osorio)

14-133 Competitive Grant
Analyses of virulence and attenuation determinants of porcine reproductive and respiratory syndrome virus using reverse genetics approach (A. Pattnaik, F. Osorio)

14-134* Competitive Grant
Influence of enterotoxins on virulence and colonization of the porcine intestine by *Escherichia coli* (R. Moxley)

14-136 Hatch
Tricarboxylic acid cycle mediated regulation of staphylococcus aureus virulence factors (G. Somerville)

14-137 State
Genetic basis of resistance to food-borne bacterial pathogen (G. Duhamel, J. Weber)

14-138 Competitive Grant
Functional analysis of bICPO, the major transcriptional regulatory gene of bovine herpesvirus (C. Jones)

14-139 Competitive Grant
Use of an eGFP-expressing strain of FRRSU for the study of viral pathogenesis and tropins (F. Osorio, A. Pattnaik)

14-140 Special Grant
Stimulating the development of veterinarians to service rural America (D. Griffin)

14-141 Animal Health
Molecular genetic analysis of mycobacterium avium subsp. paratuberculosis (MAP) and related mycobacterial pathogens (R. Barletta)

39-142 State
Development of broad-spectrum antibiotics against bacterial pathogens (R. Barletta)

39-143 Competitive Grant
Functional analysis of proteins encoded by the bovine herpesvirus/latency related gene (C. Jones)

Education and Human Sciences Departments

Family and Consumer Sciences

92-036* Hatch
Outcomes in the collaborative management of mental health treatment within a primary care medical setting (R.J. Bischoff, C.W. Smith)

92-038 Hatch
Great marriages: a qualitative study (J.D. DeFrain)

92-039 Hatch
Risk and resiliency for substance abuse and behavioral health among immigrant adolescents in Nebraska (Y. Xia)

92-040 Hatch
Redefining working poor: factors associated with the concurrence of work and unmet basic needs (C.A. Huddleston)

92-041 Multistate
NC-1011, Rural low income families: tracking their well-being function in an era of welfare reform (K. Prochaska-Cue, S.L. Churchill)

92-042 Hatch
Individual, familial and community factors impacting the psycho-social well-being of rural immigrant Latinos and their non-Hispanic peers (R.L. Dalla)

92-043 Hatch
Parent engagement and child learning birth to five (C.P. Edwards)

92-058 State
Attitudinal and behavior factors related to adolescent sexual abstinence (D.A. Abbott)

Nutrition and Health Sciences

36-062 Competitive Grant
Biotin affect cytokine metabolism (J. Zempleni)

36-063 Hatch
Mechanisms of biotin homeostasis (J. Zempleni)

91-045 Multistate
NC-219, Using stages of change model to promote consumption of grains, vegetables and fruits by young adults (N.M. Betts)

91-052 Competitive Grant
Using the stages of change model to increase fruit and vegetable intake (J. Ruud)

91-053 Hatch
The essential role of biotin in cell proliferation (J. Zempleni)

91-056 Multistate
W-1002, Nutrient bioavailability — phytonutrients and beyond (J.A. Driskell)

91-057 Hatch
Regulatory mechanisms of intestinal cholesterol absorption (T.P. Carr)

91-058 Multistate
NC-1167, N-3 polyunsaturated fatty acids and human health and diseases (N.M. Lewis)

91-059 Hatch
Dietary quality and BMI and the influence of the parent-child relationship and ethnicity of young children on these variables (K.L. Stanek-Krogstrand)

91-060* Hatch
Identification and characterization of grain sorghum, lipid compounds responsible for lowering cholesterol levels in hamsters (T.P. Carr, V.L. Schlegel, C.L. Weller, S.L. Cuppett)

91-061 Hatch
The use of inulin as a functional food ingredient (M. Schnepf)

Textiles, Clothing and Design

94-024* Hatch
Impacts of environmental disclosure policies and constraints on housing transaction practices (S.M. Niemeyer)

94-028 Hatch
Process and property investigations of fibers synthesized from Nebraska's agricultural products and by-products (Y. Yang)

94-029 Multistate
S-1002, New technologies for the utilization of textile materials (P. Crews)

94-030 Multistate
S-1002, New technologies for the utilization of textile materials (Y. Yang)

94-031 Hatch
Housing issues in Nebraska communities: Older population needs (S. Niemeyer)

37-032 Grant
Building research collaborations to enhance rural economic development (N. Miller)

Off-Campus Research Centers

Northeast Research and Extension Center

41-032 Multistate
NC-205, Ecology and management of European corn borer and other lepidopteran pest of corn (T. Hunt)

42-007 Hatch
Management considerations for feedlot cattle exposed to environmental stressors (T.L. Mader)

42-024 Hatch
Environmentally sound utilization of animal manures and fertilizers in cropping systems for northeast Nebraska (C.A. Shapiro)

42-025 Hatch
Integrated weed management (IWM) for eastern Nebraska (S.Z. Knezevic)

42-026 Hatch
Developing economic thresholds for insect pests of conventional and value-added crops in northeast Nebraska (T.E. Hunt)

42-027 Hatch
Developing operational criteria for application of swine lagoon water via center pivot (W.L. Kranz)

42-028* Multistate
NC-205, Ecology and management of European corn borer and other stalk-boring lepidoptera (T.E. Hunt)

42-029 Hatch
Conservation buffer designs, establishment, growth, and performance (D.P. Shelton)

42-030 Hatch
Management causes of variation in the wean-to-finish growth process of pigs (M. Brumm)

42-031 Grant
Improving organic farming systems across Nebraska agroecoregions (C. Shapiro)

Panhandle Research and Extension Center

44-004 State
Fertilizer and manure application for production of continuous corn (D.D. Baltensperger, G. Hergert)

44-016 Hatch
Weed control systems for western Nebraska irrigated crops and rangeland (R.G. Wilson)

44-042 Hatch
Agricultural enhancement of potato production and utilization (A.D. Pavlista)

44-052 Hatch
The economics of alternative beef cattle marketing and feeding strategies (D.M. Feuz)

44-055 Hatch
Intensification of winter wheat based dryland cropping systems for western Nebraska (D.J. Lyon)

44-058 Hatch
Integrated management systems for arthropod pests in wheat and other crops in western Nebraska (G.L. Hein)

44-060* Hatch
The ecology, etiology, and management of crop diseases important to western Nebraska (R.M. Harveson)

44-062 Hatch
Improvement of proso millet and other crops for adaptation to western Nebraska (D.D. Baltensperger)

44-063 Hatch
Irrigation management with limited water supplies (C.D. Yonts)

44-064 Multistate
W-1177, Enhancing the competitiveness of U.S. meats (D.M. Feuz, C.R. Calkins)

44-065 Multistate
NC-007, Conservation, management, enhancement and utilization of plant genetic resources (D.D. Baltensperger, K.P. Vogel)

44-066* State
Interactions among life-forms in secondary succession on restored wetlands (P.E. Reece, J. Johnson, R.A. Tyre, E.E. Blankenship, A.E. Koehler, A. Cariveau, C. Carnine, G. Steinauer)

44-067 Hatch
Planting and harvesting systems for sugarbeets, dry edible beans and chicory (J. Smith, M. Kocher)

44-068 Hatch
Improving fertilizer management and recommendations for precision agriculture (G. Hergert)

44-069 Hatch
Ecology, restoration, and management of semi-arid prairies in the northern Great Plains (P. Reece)

43-075 Special Grant
Genetic variability of field populations of wheat curl mite and the impact on virus epidemiology (G.L. Hein)

43-101 Hatch
The ecology, etiology, and management of crop diseases important to western Nebraska (R.M. Harveson)

Roman L. Hruska U.S. Meat Animal Research Center

46-001 State
Development and operation of the U.S. Meat Animal Research Center (S. Kappes)

West Central Research and Extension Center

43-066 Hatch
Selection, development and propagation of native herbaceous landscape plants (D.T. Lindgren)

43-070 Multistate
S-1005, Sources, dispersal and management of stable flies on grazing cattle and dairy cattle (J.B. Campbell)

43-071 Hatch
Improving irrigation management to conserve water resources in west central Nebraska (J.O. Payero)

43-072 Hatch
Soil nutrient and manure management for crop production in west central Nebraska (D.D. Tarkalson)

43-073 Hatch
Enhancing reproductive efficiency in beef cattle (R.N. Funsten)

43-074 Hatch
Nutritional management systems for grazing beef cattle (D.C. Adams)

43-076 Hatch
Grazing management strategies and forage systems for western Nebraska (J.D. Volesky)

42-100 Multistate
NC-1006, Methods to increase reproductive efficiency in cattle (R. Funston)

Interdisciplinary Activities

Administration

32-009* Other Grant
Soil science and forest health management research-natural resources facility (D. Vanderholm)

Agricultural Research and Development Center

45-001 State
Field laboratory development (D.J. Duncan)

Center for Biotechnology

34-001 Hatch
Mechanisms of plant cell signaling (M.E. Fromm)

Center for Grassland Studies

33-001 State
Center for Grassland Studies
(M.A. Massengale)

33-003 Multistate
NC-1020, Beef cattle grazing systems that improve production and profitability while minimizing risk and environment impacts (T. Klopfenstein)

33-004 Multistate
NC-1021, Nitrogen cycling, loading and use efficiency in forage-based livestock (W. Schacht, T. Klopfenstein)

Industrial Agricultural Products Center

29-013* Other Grant
Post award management of biomass r & d initiative projects (M.A. Hanna)

Plant Science Initiative

35-001* Competitive Grant
Mitochondria and Chloroplasts Gordon Conference (S.A. Mackenzie)

35-002 Competitive Grant
Training graduate students in plant breeding using crop drought tolerance improvement as a model (S. Mackenzie)

Sustainable Agriculture Research and Education (SARE) Program

32-008* Special Grant
North Central Region Sustainable Agriculture Research and Education Program (W. Wilcke)

32-010 Special Grant
FY02 NCR SARE Plan of Work (W. Wilcke)

32-011 Special Grant
North Central Region Sustainable Agriculture Research and Education Program (W. Wilcke)

32-012 Special Grant
North Central Region Sustainable Agriculture Research and Education Program (W. Wilcke)

32-013 Cooperative Agreement
North Central Sustainable Ag Research and Education Program (W. Wilcke)

Plant Science Initiative

35-001* Competitive Grant
Mitochondria and Chloroplasts Gordon Conference (S. Mackenzie)

Nebraska Rural Initiative

03-101 Competitive Grant
Relocation to the Buffalo Commons using a marketing approach (R. Cantrell)

While serving the needs of Nebraska's agricultural producers, agribusinesses, industries, communities and citizens, the ARD places a high priority on being accountable for its resources and documenting impacts of its programs. As in all research institutions, ARD scientists are charged to actively disseminate results of research in scientific journals and technical publications. The division sets optimistic, but reachable, annual goals for scientific publication, theses and dissertations, and other measures of research output. In each of the last six years the goals have been exceeded.

Publications in refereed (peer reviewed) scientific journals represent professional acknowledgment of

the value of a research finding to the discipline. ARD scientists have published in a number of different scientific journals during 2005-2006. Faculty also have written books, edited books or contributed chapters for books.

Another major contribution of the ARD research faculty is the education of graduate students pursuing a Master of Science (M.S.) or Doctor of Philosophy (Ph.D.) degree. One responsibility of a graduate degree is the completion of a thesis (M.S.) or a dissertation (Ph.D.).

Publications in refereed journals, books, book chapters, refereed proceedings, theses and dissertations are listed for calendar year 2005.

Journals in which faculty have published during 2005

Agricultural Economics

American Journal of Agricultural Economics
American Journal of Farm Managers and Rural Appraisers
Canadian Water Resources Journal
Crop Science
Environment and Behavior
Great Plains Research
Journal of American Society for Horticultural Science
Journal of Productivity Analysis
Journal of North African Studies
Land Economics
Nebraska Law Review
Small-Scale Forest Economics, Management, and Policy

Agricultural Leadership, Education and Communication

Academic Exchange Quarterly
Interdisciplinary Journal of Knowledge and Learning Objectives
Journal of Sustainable Agriculture
Journal of Leadership and Organizational Studies
Psychological Reports

Agronomy and Horticulture

Agricultural and Forest Meteorology
Agricultural Systems
Agronomy Journal
Antimicrobial Agents Chemotherapy
Applied and Environmental Microbiology
Applied Engineering in Agriculture
Australian Journal of Agricultural Research
Computers and Electronics in Agriculture
Crop Management
Crop Science
Euphytica
Federation of European Biochemical Societies and Blackwell Publishing Journal
Forage and Grazinglands
Genome
Geophysical Research Letters
HortScience
HortTechnology
Human Ecology Review
In Vitro Cellular Development Biology-Plant
International Turfgrass Society Research Journal
Journal of Animal Science
Journal of Nutrition
Journal of Soil and Water Conservation
Journal of Environmental Quality
Journal of Natural Resources and Life Sciences Education
Journal of Nutrition
Journal of Plant Biochemistry and Biotechnology
Journal of Small-Scale Forest Economic, Management and Policy
Journal of Water and Health
Journal of the American Society for Horticultural Science

Journal of Nutritional Biochemistry
Physiological and Molecular Plant Pathology
Planta
Precision Agriculture
Rangelands
Renewable Agriculture and Food Systems
Science in China Series C Life Science
Soil Science
Theoretical and Applied Genetics
Transactions of the American Society of Agricultural Engineering
Water Research
Weed Science

Animal Science

Animal Genetics
Applied Engineering in Agriculture
Biochemical and Biophysical Research Communications
Crop Science
Dairy Science
Foodborne Pathogens and Disease
Genetics
Genetics, Selection, Evolution
International Journal of Food Microbiology
International Journal of Biometeorology
International Journal of Poultry Science
Journal of Environmental Quality
Journal of Food Protection
Journal of Applied Poultry Research
Journal of Animal Science
Meat Science
Microbiology
Physiological Genomics
Poultry Science
Rangelands
Science
Small Ruminant Research
Thailand Journal of Agricultural Science
The Professional Animal Scientist

Biochemistry

Archives of Biochemical Biophysics
Biochemical and Biophysical Research Communications
Biochemical Biophysical Acta
Biochemistry
Bioinformatics
Canadian Journal of Botany
Cancer Research

Genome Biology
Journal of the American Chemical Society
Journal of Biological Chemistry
Journal of Physiology
Molecular Plant-Microbe Interactions
Nucleic Acids Research
Oncogene
Proceedings of the National Academy of Science
Public Library of Science-Biology
Redox Signal
The Plant Journal
Trends in Biochemical Science

Biological Systems Engineering

Advances in Polymer Technology
Applied Engineering in Agriculture
Computers and Electronics in Agriculture
Biosystems Engineering
Industrial Crops and Products
International Journal of Food Microbiology
International Journal of Remote Sensing
Irrigation Science
Journal of Environmental Quality
Journal of Soil and Water Conservation
Journal of Water and Health
Transactions of the American Society of Agricultural Engineers
Water Resources Research

Entomology

Archives of Insect Biochemistry and Physiology
Bulletin of Environmental Contamination Toxicology
Coleopterists Bulletin
Crop Science
Federation of American Societies for Experimental Biology Journal
HortScience
Insect Molecular Biology
Insect Biochemistry and Molecular Biology
Journal of Economic Entomology
Journal of Insect Science
Journal of Nutrition
Online Journal of Distance Learning Administration
Sociobiology

Food Science and Technology

Cereal Chemistry
Crop Science
Expert Opinion Immunology
Food and Chemical Toxicology
Foodborne Pathology Diagnosis
International Archives Allergy Immunology
International Journal of Food Microbiology
Journal of Cereal Science
Journal of Food Protection
Journal of Nutrition
Journal of Bacteriology
Journal of Agricultural and Food Chemistry
Molecular Nutrition and Food Research

Plant Pathology

Applied and Environmental Microbiology
Archives of Virology
Biochemistry
Canadian Journal of Microbiology
Crop Science
Eukaryotic Cell
European Journal of Agronomy
Genetics
Journal of Bacteriology
Journal of General Virology
Journal of Virology
Journal of Structural Biology
Journal of Nematology
Molecular Plant Pathology
Molecular Plant-Microbe Interaction
Mycologia
Nature
Nematology
Phytopathology
Plant Health Progress
Plant Disease
Plant Pathology Journal
Systematic and Applied Microbiology
Virology

School of Natural Resources

Agricultural and Forest Meteorology
Agroforestry Systems
Agricultural Systems
American Geophysical Union
Applied Optics
Arid Ecosystems
Bioremediation Journal

Canadian Water Resources Journal
Canadian Journal of Forest Research
Comparative Biochemistry and Physiology
Ecology Letters
Environmental Management
Environmental Geology
Environmental Modeling and Assessment
Environmental Science and Technology
Evolution
Fisheries Management and Ecology
Gap Analysis Program Bulletin
Geophysical Research Letters
Great Plains Research
Ground Water
IEEE Transactions in Geoscience and Remote Sensing
Information Sciences
International Journal of Climatology
ISPRS Journal of Photogrammetry and Remote Sensing
Journal of Plant Physiology
Journal of Climate
Journal of Field Ornithology
Journal of Agricultural and Food Chemistry
Journal of Small-Scale Forest Economics, Management and Policy
Journal of Hydrology
Journal of Wildlife Management
Land Cover of Nebraska
Museum Notes
Natural Resources Research
New Phytologist
OIKOS
Practice Periodical of Hazardous, Toxic, and Radioactive Waste
Management
Remote Sensing of Environment
Scientia Horticulturae
Wildlife Research

Statistics

Agricultural Systems
Computer and Electronics in Agriculture Crop Management
Journal
Crops and Products
Euphytica
European Journal of Agronomy
Industrial Crops and Products
International Journal of Biometeorology
Journal of Agronomy
Journal of Dental Research
Journal of Animal Science
Journal of Food Protection
Journal of the American Dietetic Association
Journal of Dairy Science
Plant Disease
Soil Science

Veterinary and Biomedical Sciences

American Journal of Veterinary Research
American Journal of Physiology Heart Circulation Physiology
Antimicrobial Agents and Chemotherapy
Applied and Environmental Microbiology
Bovine Practitioner
Cornea
Current Eye Research
FEMS Microbiology Letters
Foodborne Pathogens and Disease
Investigative Ophthalmology and Visual Science
Journal of Animal Science
Journal of Clinical Microbiology
Journal of Virology
Journal of Bacteriology
Journal of General Virology
Journal of Clinical Microbiology
Veterinary Immunology and Immunopathology
Virology

Education and Human Sciences Departments

Family and Consumer Sciences

American Journal of Maternal Child Nursing
College Student Journal
Community Work and Family
Family Relations
Great Plains Research
Hispanic Journal of Behavioral Sciences
International Journal of Sociology of the Family
Journal of Psychological and Social Issues
Journal of Bacteriology
Journal of Applied Developmental Psychology
Journal of Early Childhood Teacher Education
Korean Journal of Psychological Social Issues
Marriage and Family Review
MCN The American Journal of Maternal Child Nursing
Personality and Individual Differences
Young Children

Nutrition and Health Sciences

Annual Review of Nutrition
Environmental Science and Technology
Federation of American Societies for Experimental Biology Journal
Journal of Nutritional Biochemistry
Journal of The American Dietetic Association
Journal of Sensory Studies
Journal of Nutrition Biochemistry
Journal of Nutrition
Journal of Food Quality
Nutrition Research
Nutrition Today
Pakistan Journal of Nutrition
The American Dietetic Association Journal of Soil and Water Conservation

Textiles, Clothing and Design

American Association of Textile Chemists Colorists Review
Business and Society
Dyes and Pigments
Green Chemistry
Journal of Developmental Entrepreneurship
Journal of Fashion Management and Marketing
Journal of the American Institute for Conservation
Journal of Applied Polymer Science
Journal of Cotton Science
Polymer
Textiles Research Journal
Trends in Biotechnology

Off-Campus Research Centers

Northeast Research and Extension Center

Agronomy Journal
Applied Engineering in Agriculture
Crop Management Journal
International Journal of Biometeorology
Journal of Soil and Water Conservation
The Professional Animal Scientist
Transactions of the American Society of Agricultural Engineers
Weed Technology
Weed Science

Panhandle Research and Extension Center

Agronomy Journal
Crop Science
Crop Management Journal
Journal of Animal Science
Journal of Virology
Journal of Natural Resources and Life Sciences Education
Journal of Aging and Physical Activity
Journal of The American Dietetic Association
Plant Disease
Rangeland Ecology and Management
Soil Science
Weed Science
Weed Technology
Women's Health Issues

West Central Research and Extension Center

Agricultural Food Chemistry
Agronomy Journal
Crop Science
Crop Management Journal
HortScience
International Journal of Remote Sensing
Journal of Animal Science
Journal of Natural Resources and Life Sciences Education
Rangeland Ecology and Management
Soil Science
Transactions of the American Society of Agricultural Engineers

Water Center

Agricultural Food Chemistry

Research Publications (2005)

Agricultural/Natural Resources Units

Agricultural Economics

Journal Articles

- Aiken, J.D. 2005. The western common law of tributary ground water: Implications for Nebraska. *Nebraska Law Review* 83:541-95. (J. Series No. 14662)
- Azzam, A.M. and K. Sekkat. 2005. Measuring total-factor agricultural productivity growth under drought conditions: The case of Morocco. *The Journal of North African Studies* 10:19-32.
- Fulginiti, L.E. and R.K. Perrin. 2005. Productivity and welfare. *The Journal of Productivity Analysis* 49:133-155.
- Giannakas, K. and M. Fulton. 2005. Process innovation activity in a mixed oligopoly: The role of co-operatives. *American Journal of Agricultural Economics* 87:406-422. (J. Series No. 14477)
- Giannakas, K. and J. Kaplan. 2005. Policy design and conservation compliance on highly erodible lands. *Land Economics* 81:20-33. (J. Series No. 14478)
- Helmerts, G.A. and J.R. Brandle. 2005. Optimum windbreak spacing in Great Plains agriculture. *Great Plains Research* 4:179-198.
- Helmerts, G.A., S. Shaik, and B.B. Johnson. 2005. Forecasting agricultural land values in the Midwest states. *American Journal of Farm Managers and Rural Appraisers* 77-84. (J. Series No. 14875)
- Kalinowski, C.M., G.D. Lynne, and B.B. Johnson. 2005. Recycling as a reflection of balanced self-interest: A test of the meta-economics approach. *Environment and Behavior* 38:333-355. (J. Series No. 14661)

- Oliver, A.L., J.F. Pedersen, R.J. Grant, T.J. Klopfenstein, and H.D. Jose. 2005. Comparative effects of the sorghum bmr-6 and bmr-12 genes I: Forage sorghum yield and quality. *Crop Science* 45:2234-2239.
- Oliver, A.L., J.F. Pedersen, R.J. Grant, T.J. Klopfenstein, and H.D. Jose. 2005. Comparative effects of the sorghum bmr-6 and bmr-12 genes. II. Grain sorghum grain yield, stover yield and stover quality. *Crop Science* 45:2240-2245. (J. Series No. 14830)
- Paparozzi, E.T., W.W. Stroup, and M.E. Conley. 2005. How to investigate four-way nutrient interactions in plants: A new look at response surface methods. *Journal of the American Society for Horticultural Science* 130:459-468.
- Schmer, M.R., K.P. Vogel, R.B. Mitchell, L.E. Moser, K.M. Eskridge, and R.K. Perrin. 2005. Establishment stand thresholds for switchgrass grown as a bioenergy crop. *Crop Science* 46:157-161.
- Schoengold, K. and D. Zilberman. 2005. The use of pricing and markets for water allocation. *Canadian Water Resources Journal* 30:47-54.
- Shaik, S., G.A. Helmerts, and J. Atwood. 2005. The evolution of farm programs and their contribution to agricultural land values. *American Journal of Agricultural Economics* 87:1190-1197.
- Skelton, P., S.J. Josiah, J.W. Kings, J.R. Brandle, G.A. Helmerts, and C.A. Francis. 2005. Adoption of riparian forest buffers on private lands in Nebraska, U.S.A. *Small-Scale Forest Economics, Management, and Policy* 4:185-203.

Refereed Proceedings

- Adamchuk, V.I., R.K. Perrin, C. Wang, D.B. Marx, and A. Dobermann. 2005. Assessment of soil mapping value: Part II. Potential profitability. *In: D.J. Mulla (ed.), Proceedings of the Seventh International Conference on Precision Agriculture*. (CD publication)
- Conley, D.M., M. Woolverton, and F. Declerck. 2005. Undergraduate and graduate teaching of courses on price risk management. *In: Academic Symposium of the International Food and Agribusiness Management Association (IFAMA), Chicago, IL. URL: <http://www.ifama.org/conferences/2005Conference/default.htm>*
- Conley, D.M. 2005. Economic assessment of selected terrorism acts on the U.S. and world corn markets. *In: Academic Symposium of the International Food and Agribusiness Management Association (IFAMA), Chicago, IL. URL: <http://www.ifama.org/conferences/2005Conference/default.htm>*
- Eberspacher, B. and H.D. Jose. 2005. Determining educational needs: A focus group approach. *In: 15th International Farm Management Congress, Campinas, Brazil. URL: http://ifmaonline.org/pages/con_articles.php?article=3*
- Fulginiti, L.E. and A. Onofri. 2005. Public inputs and dynamic producer behavior: Endogenous growth in U.S. agriculture. *In: IX European Workshop of Efficiency and Productivity Analysis, Brussels, Belgium. URL: <http://www.ewepa.org/sessions/pdf/sessiond/006d/06d1.onofri.PDF>*
- Helmerts, G.A. 2005. Reexamination of the income capitalization approach to agricultural land valuation. *In: Proceedings of the Southeast Decision Sciences Institute, Raleigh, NC.* (CD publication)
- Helmerts, G.A. 2005. Role of managed futures in safe withdrawal choices. *In: Proceedings of the Southeast Decision Sciences Institute, Raleigh, NC.* (CD publication)
- Helmerts, G.A. 2005. Reconciliation of the capital recovery and traditional methods of costing depreciable assets. *In: Proceedings of the Southeast Decision Sciences Institute, Raleigh, NC.* (CD publication)
- Hu, Q., G. Lynne, L. PhtlikZillig, A. Tomkins, K. Hubbard, M. Hayes, B. Waltmann, I. Artikov, and S. Hoffman. 2005. Improve farmers' forecast use from understanding their beliefs, social norms, and perceived controls. *In: Proceedings of Third Climate Prediction Applications Science Workshop, Columbia University, Palisades, NY.*
- Mark, D.R., R. Smith, D.M. Feuz, and A.L. Prosch. 2005. Comparing basis risk in futures hedging and livestock risk protection insurance: Implications for use of livestock insurance. *In: S. Koontz (ed.), Proceedings of the NCR-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management, St. Louis, MO.* (CD publication)

M.S. Theses

- Artikov, I. 2005. Understanding farmers' decision making under the influence of weather and climate information and forecasts. (G.D. Lynne, Advisor)
- Nene, G. 2005. The effect of Wal-Mart on the economic growth of Nebraska counties. (A.M. Azzam and A. Yiannaka, Advisors)
- Zhang, Z. 2005. Vertical scale and scope economies in the U.S. hog production. (A.M. Azzam, Advisor)

Ph.D. Dissertation

- Yu, B. 2005. Agricultural productivity and institutions in Sub-Saharan Africa. (R.K. Perrin, Advisor)

Agricultural Leadership, Education and Communication

Journal Articles

- Barbuto, J.E., S. Cundall, and S.M. Fritz. 2005. Motivation, charismatic and transformational leadership: A test of antecedents. *Journal of Leadership and Organizational Studies* 11:26-40. (J. Series No. 14764)
- Lan, L., J.W. King, and M. Kutscher. 2005. Multimedia integration in online courses. *Academic Exchange Quarterly* 9:214-219.
- Moss, J.A., J.E. Barbuto, G.S. Matkin, and T. Chin. 2005. Influence of sex differences in leaders' behavior. *Psychological Reports* 96:499-510. (J. Series No. 14864)
- Namuth, D., S. Fritz, J. King, and A. Boren. 2005. Principles of sustainable learning object libraries. *Interdisciplinary Journal of Knowledge and Learning Objects* 1:181-196.

Reimers-Hild, C., J.W. King, J.E. Foster, S.M. Fritz, S.S. Waller and D.W. Wheeler. 2005.
A framework for the “entrepreneurial” learner of the 21st century. Online Journal of Distance Learning Administration, Summer 2005, Volume VIII, Number II. <http://www.westg.edu/~distance/okdla/summer82/hild82.htm>

Trout, S.K., C.A. Francis, and J.E. Barbuto. 2005.
Evaluation and perceived impacts of the North-Central Region SARE grants, 1988-2002. Journal of Sustainable Agriculture 27:117-137. (J. Series No. 14598)

Refereed Proceedings

Barbuto, J.E. and J.A. Moss. 2005.
More than just a mirage: Testing dispositional effects in intraorganizational influence tactics. International Eastern Academy of Management, Cape Town, South Africa.

Barbuto, J.E. and G. Parsons. 2005.
The underlying sources of motivation in historical and contemporary theories of ethics. Eastern Academy of Management, Springfield, MA.

Barbuto, J.E. and X.Ye. 2005.
Motivation, interpersonal conflict management, and leadership effectiveness: A structural model. International Eastern Academy of Management, Cape Town, South Africa.

Burbach, M.E. and J.E. Barbuto Jr. 2005.
Exploring the relationship between emotional intelligence and transformational leadership as moderated by cognitive style and self-concept. In: Proceedings of the Institute of Behavioral and Applied Management 13th Annual Conference, Scottsdale, AZ.

M.S. Theses

Casten, J.N. 2005.
An exploratory study of power and influence in young adults. (D.W. Wheeler, Advisor)

Lennon, C.S. 2005.
Collaboration and communication: Examining a team approach within an S.O.S. treatment group home. (S.K. Rockwell, Advisor)

Ph.D. Dissertations

Gage, A.J. 2005.
A phenomenological study of the leadership perceptions of the G.I. and millennial generations. (D.W. Wheeler, Advisor)

Gomez, Alvarez L. 2005.
Seven principles of good teaching practice: predictors of perceived learning and satisfaction with online courses. (J.W. King, Advisor)

Kalkowski, K.L. 2005.
Exploring leader-member exchange and organizational citizenship behavior in a college setting: The influence of the fraternity house-mother. (S.M. Fritz, Advisor)

Matkin, G.S. 2005.
Demographic similarity/difference, intercultural sensitivity, and leader-member exchange: A multilevel analysis. (J.E. Barbuto Jr., Advisor)

Reimers-Hild, C.I. 2005.
Locus of control, need for achievement and risk taking propensity: a framework for the “entrepreneurial learner” of the 21st century. (J.W. King, Advisor)

Smith, K.K. 2005.
Exploring alumnae long-term perceptions of an undergraduate leadership course: a case study. (S.M. Fritz, Advisor)

Williams, S.N. 2005.
Testing the relationships between personality, motivation, leadership and process to success of self-directed work teams. (S.M. Fritz, Advisor)

Agronomy and Horticulture

Journal Articles

Adamchuk, V.I., E. Lund, B. Sethuramasamyraja, M.T. Morgan, A. Dobermann, and D.B. Marx. 2005.
Direct measurement of soil chemical properties on-the-go using ionselective electrodes. Computers and Electronics in Agriculture 48:272-294.

Akhtar, M., D.L. McCallister, D.D. Francis, and J.S. Schepers. 2005.
Manure course effects on soil phosphorus fractions and their distribution. Soil Science 170:183-190.

Amos, B., T.J. Arkebauer, and J. Doran. 2005.
Soil surface fluxes of greenhouse gases in an irrigated maize-based agroecosystem. Soil Science 69:387-395.

Baenziger, P.S., J. Jannink, and L.R. Gibson. 2005.
Registration of ‘NE426GT’ winter tricale. Crop Science 45:796-797.

Bonifas, K.D., D.T. Walters, K.G. Cassman, and J.L. Lindquist. 2005.
Nitrogen supply affects root:shoot ratio on corn and velvetleaf (*Abutilon theophrasti*). Weed Science 53:670-675.

Budak, H., R. Sheaman, and I. Dweikat. 2005.
Evolution of *Bochloe dactyloides* based on cloning and sequencing of matK, rbcL, and cob genes from plastid and mitochondrial genomes. Genome 48:411-416.

Budak, H., R. Shearman, O. Gulsen, and I. Dweikat. 2005.
Understanding ploidy complex and geographic origin of the *Buchloe dactyloides* genome using cytoplasmic and nuclear marker systems. Theoretical and Applied Genetics 111:1545-1552.

Chew, Y.C., G. Camporeale, N. Kothapalli, G. Sarth, and J. Zemleni. 2005.
Lysine residues in – and C-terminal regions of human histone H2A. Journal of Nutritional Biochemistry electronic publication ahead of print.

Davis, A.S., J. Cardina, F. Forcella, G.A. Johnson, G. Kegode, J.L. Lindquist, E.C. Luschei, K.A. Renner, C.L. Sprague, and M.M. Williams II. 2005.
Environmental factors affecting seed persistence of annual weeds across the U.S. corn belt. Weed Science 53:860-868.

Dassanayake, R., G. Sarth, and G.E. Duhamel. 2005.
Penicillin-binding proteins in the pathogenic intestinal spirochete *Brachyspira pilosicoli*. Antimicrobial Agents Chemotherapy 4:1561-1563.

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Northeast Research and Extension Center

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ARD receives funding from federal formula funds, industry grants, federal grants and state appropriations. During fiscal year 2005-2006, ARD obtained external grant, contract and research support funds that totaled \$37,715,479. This amount represents 36% percent of all research grant and contract funds received by UNL. The extramural funds coming to ARD faculty to address problems of importance to Nebraska have a significant direct impact on the state's economy.

Report of Research Expenditures The University of Nebraska Agricultural Research Division July 1, 2005 through June 30, 2006

Federal Formula Funds:

Hatch Formula	\$ 2,266,490
Multi-State Research	\$ 864,548
McIntire-Stennis	\$ 202,400
Animal Health	<u>\$ 145,203</u>

Total Federal Formula Funds\$ 3,478,641

State-Appropriated Funds\$33,076,458

Nebraska Research Initiative Funds\$ 3,284,838

Contracts and Grants:

USDA Cooperative Agreements	\$ 1,091,881
USDA Special and Competitive Grants	\$ 5,197,492
Federal Grants - (NSF, NIH, USEPA, AID, DOE)	\$ 9,111,588
Industry Grants and Gifts.....	<u>\$11,785,956</u>

Total Grants and Contracts\$27,186,917

Product Sales\$12,931,367

Total Expenditures\$79,958,221

Agricultural Research Division
Research Investments by Category and Funding Source FY 2005

<i>Expenditure Category</i>	<i>State Appropriated and Hatch Funds</i>	<i>Federal Grants</i>	<i>Industry Grants</i>	<i>Revolving Funds</i>	<i>All Funds</i>
	————— % of total within source —————				
Salaries, Wages and Benefits					
Administrative/Faculty	41.1	12.1	10.0	1.8	23.4
Managerial/Professional	13.1	7.5	8.8	5.5	9.9
Office/Service	9.8	3.4	7.9	14.3	8.9
Hourly Wages	0.3	1.9	3.5	3.3	1.7
GRA Stipends	5.5	11.4	11.7	1.6	7.1
Benefits	16.1	8.7	9.8	6.6	11.9
Subtotal:	85.9	45.0	51.8	33.1	62.9
Operating					
Supplies and Expenses	9.5	50.1	40.9	53.7	30.6
Travel	1.0	2.4	5.0	3.1	2.3
Equipment	3.6	2.5	10.1	10.1	4.3
Subtotal:	14.1	55.0	48.2	66.9	37.1
Total:	100.0	100.0	100.0	100.0	100.0

Agricultural Research Division Selected Research Program Information

Category	FY 2004	FY 2005	FY 2006
Project Information:			
Projects at beginning of year	371	330	371
Projects terminating	81	41	54
Projects revised	13	3	4
New projects	40	20	21
Projects at the end of the year	330	309	338
Faculty full-time equivalents (FTE)	126.5 ¹	131.9 ²	145.2 ²
Expenditures for budgeted research faculty:			
Federal formula and state approp., \$/FTE ³	\$297,557	\$301,956	\$274,380
Grant and contracts, \$/FTE	\$211,728	\$217,849	\$187,238
Product sales, \$/FTE	\$ 76,147	\$ 86,447	\$ 89,059
Outputs from research programs⁴:			
Refereed journal articles	304	401	490
Research bulletins	3	5	2
Books and book chapters	69	88	62
M.S. and Ph.D. theses	120	145	125
Cultivars and germplasm released	15	30	8
Patents obtained	2	1	0

¹Includes research FTE in Plant Science Initiative.

²Includes Former Conservation and Survey Faculty Transferred to ARD Appropriated Account.

³Includes cost of administration and expenditures from the Nebraska Research Initiative by ARD-affiliated faculty.

⁴A large number of abstracts, technical reports, and other non-refereed articles also are published by faculty each year.

