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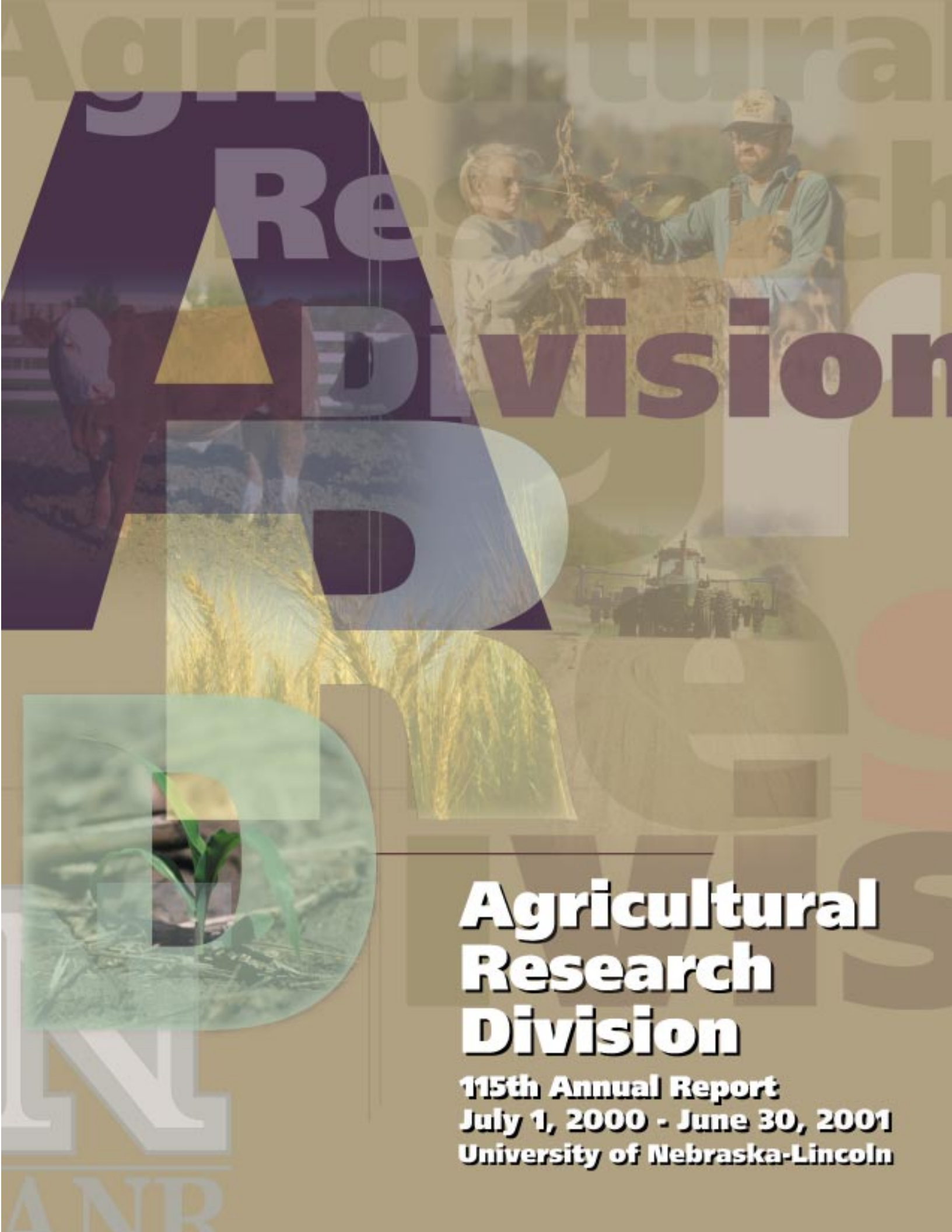


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Agricultural Research Division

**115th Annual Report
July 1, 2000 - June 30, 2001
University of Nebraska-Lincoln**

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.



Darrell W. Nelson

It is a pleasure to provide you with a copy of the 115th Annual Report of the University of Nebraska Agricultural Research Division (ARD). This report is our opportunity to inform you about our research programs and accomplishments and to allow us to assess the progress and effectiveness of our collective efforts to develop new knowledge. After examining this report, we hope that you will agree with our assessment that ARD research has provided new technology and knowledge for Nebraskans that will improve the profitability of our enterprises, better manage our natural resources, enhance environmental quality, and improve our quality of life.

This report provides some highlights of research accomplishments, a listing of scientists and research associates, awards and honors received by our faculty and graduate students, outputs from our research projects, and the ARD financial report for the period July 1, 2000, to June 30, 2001. This report was compiled in compliance with the intent of the law of the State of Nebraska that established the Nebraska Agricultural Experiment Station on March 31, 1887.

Outlined in the Research Highlights section are some of the significant accomplishments of our faculty during the past few years. A few of these include: (I) development of management strategies to reduce heat-stress related deaths in beef feedlots; (II) an understanding of the cultural changes and community stresses resulting from the opening of meatpacking plants in rural communities; (III) development of the first comprehensive map of all 20 soybean chromosomes and resultant identification of genes controlling yield and drought tolerance; (IV) introduction of woody plants in shelterbelts that could be used for decorative florals and wood products in addition to their protective benefits; (V) decontamination of soil polluted with high concentrations of pesticides using a simple, inexpensive process; (VI) development of soybeans with oil that contains up to 90 percent oleic acid — a healthier component; and (VII) a finding that risky lifestyle habits — smoking, excessive alcohol consumption and poor diet — cluster, indicating that new health campaigns will need to target multiple habits.

We continue to be excited about our research programs and the scientists who work diligently to solve today's problems and help provide the knowledge necessary to address the issues that will arise in the future. The ARD was created to serve the people of Nebraska and the nation. We welcome your input on our current research efforts and on your needs for research information.

Darrell W. Nelson
Dean and Director
Agricultural Research Division

Research Highlights

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.

New management strategies help feeder cattle beat the heat

Hot, still, humid days are potential killers in feedlots. A single, severe heat wave in 1999

cost Nebraska producers more than \$20 million in cattle deaths and performance losses.

Management strategies developed through multistate research coordinated by an IANR animal scientist should significantly reduce heat-related losses. Researchers from



IANR Animal Scientist Terry Mader checks cattle as part of his research to find ways to reduce heat-related deaths and performance losses in feedlot cattle.

Nebraska, Missouri, Purdue and USDA's Meat Animal Research Center teamed up on this three-year project to better understand, predict, plan for and prevent heat stress.

Eliminating all environmental stress is impractical and costly, but this research shows that easing heat stress greatly reduces death and performance losses.

Combining feedlot and laboratory findings, the team devised recommendations for making cattle comfortable without sacrificing overall performance. They focused on altering feeding routines and the lot's microclimate during hot spells. For example, changing feed schedules and intake during extreme heat keeps cattle cooler, avoids digestive problems and doesn't hurt overall performance.

In the past, severe heat literally forced some Nebraska feeders out of business when they couldn't recover financially from heavy losses. Researchers are confident that implementing these recommendations will keep cattle comfortable and minimize potentially devastating death losses as well as minimize performance losses.

Meatpacking changing rural Nebraska towns

When a meatpacking plant opens in a rural community, change quickly follows.

IANR researchers studied three Nebraska towns where meat processing is a major employer to understand how meatpacking is changing rural

communities and how it affects newcomers and longtime residents. They'll use these findings to help other communities facing rapid changes.

They found longtime residents and newcomers share similar concerns about rapid demographic changes altering their communities. Language barriers, drug use, teen alcohol use, housing and youth education are the most common shared concerns.

While longtime and new residents share many concerns, their perspectives are quite different. For example, some longtime residents worry that too many people are living in local houses, while some immigrants complain they live in poor-quality housing.

The study found newcomers reported significantly greater economic strain and greater concern with community issues such as ethnic relations, adult education, drugs, domestic violence, childhood education and alcohol use than longtime residents. Immigrants also reported poorer diets and problems accessing community services such as medical care, food assistance, affordable housing and police protection.

The NU College of Human Resources and Family Sciences researcher who heads this work says communication stands out as a barrier to intercultural collaboration.

The latest U.S. Census shows Nebraska's growing diversity. Findings could influence policy, education and social services to help other communities as they become more diverse.



Soybean Geneticist Jim Specht examines soybean DNA patterns in his lab. Specht and some of his colleagues recently created the first comprehensive genetic map of all 20 soybean chromosomes.

IANR soybean team helps devise genetic map

The first comprehensive genetic map for all 20 soybean chromosomes, created by an IANR soybean geneticist and his colleagues, is an invaluable resource for soybean genomics researchers.

It's already leading to exciting discoveries, such as NU research on the genes controlling soybean yield and drought tolerance.

The IANR lab developed one of three soybean populations used to construct the map, which locates genes to certain segments of the individual chromosomes. Once the researchers had located spe-

cific segments, they flanked these with genetic markers. Genetic markers are either genes that code for readily identifiable plant traits or special DNA segments used for easy identification. More than 1,800 genetic markers now serve as "landmarks" on the soybean map.

The genome map is especially useful to plant breeders because it allows a more targeted approach to developing improved soybeans. A breeder with a genetic marker linked to a specific trait in a parent can see which offspring have the marker; if it's there, so is the desirable gene. This is especially useful for complex traits, such as yield, controlled by many genes.

Team eyes potential impacts of MTBE, ethanol contamination

A new method for detecting minute traces of MTBE and ethanol in water is helping IANR researchers better understand potential environmental and health impacts of these gasoline additives.

Nebraska researchers enhanced an existing lab technique to create an extremely sensitive test for these gasoline oxygenates in groundwater or surface water. This detects MTBE at the low parts per billion levels and ethanol at the low parts per trillion. IANR researchers are working on ways to enhance its accuracy and efficiency.

Researchers are using this test to better assess the environmental impact of vehicle emissions and gasoline spills on groundwater quality. They're studying the occurrence of ethanol and MTBE in groundwater along the Interstate 80 corridor in Nebraska and Colorado as well as checking natural levels of these oxygenates in isolated rural areas.

This study was prompted by concerns about MTBE's adverse health impacts on drinking water, including the need to assess the extent of the problem and find ways to clean it up. Less is known about ethanol's potential health risks. Some scientists worry that it could hamper the ability of naturally occurring microbes to degrade toxic contaminants in gasoline spills.

The IANR-developed detection method could help stop fuel spills or leaks and could be used to devise ways to clean contamination before it becomes widespread.

Turning eggshell waste into dietary supplements

Where others see waste, NU poultry scientists see raw material for a dietary phosphorus supplement for poultry, pigs and pets.

IANR researchers developed a process that turns eggshells into a supplement equivalent to monocalcium or dicalcium phosphate, the most common phosphorus supplements for livestock. The university has filed a patent on this process.

U.S. egg processors and hatcheries generate nearly 190,000 tons of shells annually. Nebraska is among the nation's leading egg processing states. Shells from plants at Bloomfield, David City and Wakefield are spread on land as calcium fertilizer or reprocessed as a calcium source for poultry. In states with less ag land, shell disposal in landfills runs \$20 to \$40 per ton.

Researchers estimate eggshell-derived phosphorus supplements could be worth \$250 or more per ton compared with \$40 per ton as a



calcium source in chicken feed.

Typically, limestone and phosphoric acid are mixed to produce monocalcium and dicalcium phosphate. The IANR researchers use eggshells instead of limestone and mix it with phosphoric acid to create a product containing the same amount of phosphorous as conventional supplements.

Research shows shell-based supplements perform as well or better than dicalcium phosphate in chicks and laying hens. They also could be used in pet and swine feed. Researchers are exploring the potential for commercialization.

Lots more trees would significantly impact Sandhills

Across the Great Plains, as in grasslands worldwide, trees and shrubs are encroaching or growing denser.

While some trees are added for good reason, such as shelterbelts, trees are expanding on their own in many areas with significant implications.

The world's largest planted forest, in the midst of the Sandhills, gives NU scientists a unique laboratory to study implications for grassland ecosystems when trees and shrubs encroach.

The Nebraska National Forest near Halsey was once treeless prairie. Comparing plots ranging from dense pine forest to native prairie, an IANR forest ecologist and UNL School



Graduate student Xiaoping Ding (right) and Forest Ecologist David Wedin plant tree seedlings in a test plot. Their preliminary findings indicate tree encroachment or planting could reduce Sandhills' groundwater supplies by using water that now recharges the aquifer.

of Natural Resource Sciences colleagues are exploring what happens to grass production, soil moisture, groundwater recharge and carbon storage as tree density increases. Findings could be useful to other grasslands across the West and perhaps worldwide.

This research shows dense forest holds about four times more carbon than Sandhills prairie, while scattered, open forest stores twice as much. However, large-scale tree planting would likely threaten the Sandhills' most valuable resources — grass and groundwater.

Preliminary findings indicate large-scale tree encroachment or planting could reduce groundwater supplies by using water that now recharges the aquifer.

Eventually, scientists will use remote sensing and computer modeling to predict what tree planting or encroachment on different scales would mean to water, forage production and carbon storage.

Faster winter gains more profitable in the long run

Overwintering calves on low-cost forage to gain slowly may save feed costs but isn't the most profitable in the long run.

IANR animal science research found slow winter gainers don't fully compensate by gaining more weight while grazing summer grass and never catch up with calves fed for faster winter gains. Faster winter gains lead to heavier weights when yearlings enter feedlots in the fall and more profit at slaughter.

This research shows that winter gains deserve more attention because summer compensatory gain may not be as significant in overall weight gain as earlier studies indicated.

Compensatory gain for slow winter gainers runs 20 percent to 30 percent. Steers fed for faster winter gains maintain up to 80 percent of their weight

advantage entering the feedlot after summer grazing.

This four-year study was part of ongoing research on economical, sustainable beef growing and finishing systems that maximize forage and minimize grain use. The idea behind the forage-based yearling growing/finishing system is to add value to calves using resources readily available on Nebraska farms and ranches by growing calves after weaning on grass, crop residues, forages and byproducts. Yearling system calves are wintered mainly on cornstalks or other forages and graze grass in summer before finishing on grain in a feedlot instead of being placed in feedlots soon after weaning.

One-of-a-kind program aids cattle breeders

An IANR program helps cattle breeders catch genetic problems before they devastate herds.

NU's Cattle Congenital Disease Program identifies cattle carrying abnormal recessive genes that cause deformity and death. When a producer reports a suspected genetic problem, a veterinary pathologist at IANR's Veterinary Diagnostic Center begins the genetic detective work: discovering similar cases, collecting data on symptoms, gathering blood samples for DNA testing and analyzing pedigrees. The center tackles as many as 80 genetic disease cases annually.

It's difficult for producers to identify cattle that are carrying

and passing on the recessive genes. When a mutation occurs, it can be carried silently along for generations, showing up only when a sire and a dam both carry the abnormal recessive genes. Then, one-quarter of their calves will be affected and have deformities.

When this happens, producers are counseled to take the expensive step of destroying the carriers of the gene. It's tough, but necessary. Identifying, reporting and removing confirmed carriers help keep genetic diseases in check.

Breeders and breed associations heavily use the program. They learned the importance of catching genetic abnormalities in the 1950s when dwarfism became a major problem in the Hereford and Angus breeds.



Smoking, drinking, poor diet — bad habits cluster

Cigarette smoking, excessive alcohol use and poor eating habits tend to reinforce each other, Nebraska research shows.

An IANR nutrition science team found that bad habits tend to cluster. People with

one tend to have the others, too. Compared with non-smokers, smokers tend to eat fewer foods rich in protective antioxidants, eat more high-fat foods and drink more alcohol.

This research also showed that smokers who drink more heavily tend to make unhealthy food choices, too. The study defined liberal drinking as more than two alcoholic drinks daily for men and more than one drink daily for women. Alcohol substitutes for food among smokers who drink heavily.

Analyzing health habit diaries of nearly 7,000 American adults, researchers found that the more participants smoked or drank each day, the fewer nutritious foods they ate. Smokers ate fewer fruits and vegetables and more fatty foods than the non-smokers studied.

These behaviors are so interconnected that people have trouble kicking one habit as long as they're continuing the others. However, many public health campaigns target one bad habit at a time and have met with limited success.

Findings from this College of Human Resources and Family Sciences research could help design more new health campaigns to target multiple lifestyle habits.

Timing is key to effective weed control

When it comes to post-emergent weed control, timing is everything, according to IANR research. Applying

weed control measures at the right moment can save time and money.

IANR weed scientists found that each crop has a critical period during which weeds must be controlled to prevent yield losses. Weeds that emerge before or after the critical period may not present a threat to yields.

In corn, researchers found that applied nitrogen significantly influences the timing and duration of the critical period. Less nitrogen means longer critical periods and less crop tolerance for weeds. When no nitrogen was applied, weed control was necessary from eight to 45 days after crop emergence. With 210 pounds of applied nitrogen, the window is shortened to 20 to 39 days after emergence.

The team concluded that increases in nitrogen reduced the competition between corn and weeds for nutrients, allow-

ing corn to tolerate weed presence longer.

In soybeans, row spacing influences the critical period. The wider the row spacing, the earlier weed control is needed, this research showed. Farmers can gain eight to 12 more days to control weeds by planting in 7.5-inch rows instead of 30-inch rows.

Findings will help farmers maximize their weed control dollars and apply fewer chemicals to their fields.

Tortilla-making process reduces wastewater concerns

An IANR food scientist has devised a way to make corn tortillas that's kinder to the environment and still produces the high-quality flour the market demands.



Graduate student Sean Evans counts weeds and compares their size to the soybeans in a test plot. IANR research shows that each crop has a critical period during which weeds must be controlled to avoid yield losses.

The traditional process for making corn tortillas requires steeping and cooking corn in a lime solution. This creates highly alkaline wastewater that must be treated to avoid environmental problems.

The IANR researcher developed a novel process, using naturally-occurring enzymes, that reduces the amount of alkaline wastewater and requires less lime, energy and water for cooking and steeping corn. It does all of this without requiring processors to invest in new equipment. NU has applied for a patent on the process.

The enzyme system used is a low-cost, food-grade, commercially-available product that works by shortening the cooking process, the step that requires excess water. The new process not only reduces waste generation at its source, minimizing the need for investment in expensive waste treatment systems, it also produces more corn product because less corn is lost in the waste.

Research helps explain strong rural work ethic

Different factors motivate different people. Understanding those motivational differences can help create a better workplace.

An IANR leadership researcher is helping explain what motivates different people in the workplace. He developed the Motivational Sources Inventory to reveal workers' primary sources of motivation. Since joining NU, he uses this tool in his IANR research.

His inventory identifies five main motivational sources. Everyone is motivated to some extent by each of the five, but most people have a prime motivation.

He found that nearly 40 percent of Nebraska agriculture workers are predominantly self-concept internally motivated. A desire to meet personal standards characterizes this motivation. People primarily motivated in this way seek the most difficult, important tasks and perform them with little instruction.

The dominance of self-concept internal workers in leadership and management positions in Nebraska agricultural operations explains why working hard to produce quality results is considered status quo. An abundance of self-concept internal workers also may spark conflict because these people expect employees or co-workers to exhibit similar dedication.

Supervisors can motivate self-concept internals by assigning challenging work requiring expertise, cultivating skills and not assigning menial or mundane tasks.



Forest scientist Scott Josiah checks a shrub in a test plot. He's exploring the income potential of trees and shrubs in conservation plantings.

Conservation plantings: protection and income, too

Shelterbelts, buffer strips and living snow fences could be a source of income as well as protection.

An IANR forest scientist is exploring the income-producing potential of various trees and shrubs that are or could be grown in Nebraska windbreaks, conservation buffer strips along streams that protect water quality or in living snow fences.

While such plantings' environmental benefits are well-documented, landowners sometimes view these areas as unprofitable. They might be more willing to use such plantings if the plants provided some income.

Woody plants could do double-duty. Besides traditional protective benefits, they could be harvested for decoration, food production, medicinal or specialty wood uses to supplement income.

In field trials around Nebraska, researchers are testing about 45 woody plant species for yield, production costs, revenues and markets. While many woody plants will grow in Nebraska, researchers are concentrating on the ones that produce marketable products.

Preliminary research indicates woody plants for decorative florals and food products look most promising.

Recommendations for Panhandle dryland corn

When dryland corn acreage boomed in the Panhandle following a string of wet summers and a change in the federal farm program, agronomists at NU's Panhandle Research and Extension Center saw a need for data on recommended plant populations and fertility levels.

Dryland corn acreage in the Panhandle grew from 5,000 acres in 1995 to more than 100,000 in 2000.

The Panhandle is wheat country. The only available dryland corn recommendations were developed at NU's West Central Research and Extension Center in North Platte, where conditions are much different.

The IANR researchers ran a two-year study looking at the effects of plant population and nitrogen fertilizer on dryland corn in Banner, Cheyenne, Kimball and Box Butte counties. They found applying 60 pounds of nitrogen per acre at planting was optimal at all sites. They recommend a population ranging between 15,000 and 19,000 plants per acre. Growers with sites that usually yield 50 bushels or better can benefit most from the higher population, the study showed.

Eyeing potential of transgenic high-oil soybeans

Soybean lines with high oleic acid content developed by an IANR team could be the basis for future biodiesel fuels, healthier cooking oils and more stable commodity oils.

IANR soybean researchers, plant scientists and biotechnologists are collaborating to produce and evaluate genetically modified, high-oleic acid soybean lines. The modified plants, containing a gene that revs up oleic acid production, have 80 percent to 90 percent oleic acid content, compared with 15 percent to 20 percent in conventional soybeans.

NU is seeking a patent on the technique used to produce the plants, involving a patented gene from the DuPont Corp.,

that turns off two genes in soybean cells, allowing cells to increase oleic acid content.

The genetically modified cells are grown into whole plants using tissue culture techniques, then screened to determine which have the most oleic acid at the Plant Transformation Core Facility in UNL's Center for Biotechnology. UNL is one of the few facilities worldwide with the expertise to successfully perform this complex process.

Seeds from these transgenic lines are packed with oleic acid. But real economic potential lies in their ability to become high-yielding, well-adapted varieties. IANR soybean breeders are evaluating the lines for stability, seed traits and plant characteristics. They then cross them with high-oil producing, high-yielding conventional soybean

lines and evaluate the offspring. Researchers now are concentrating on producing enough oil for larger-scale testing.

Simple treatment decontaminates soil inexpensively

Cleaning soil contaminated with pesticide typically is a complex and expensive process. Nebraska researchers think they have a better approach.

IANR environmental chemists are perfecting a method of mixing iron and water into pesticide-contaminated soil. They've successfully field tested this less expensive, simple cleanup system.

Research indicates their technique reduced pesticide concentrations in soil by up to 95 percent, which allows soil to be returned to the ground. The technique is readily adaptable to different contamination situations, is environmentally safe and requires minimal personnel training or special equipment.

Treating soil on-site with the NU-developed method can cost as little as 2.5 cents per pound of soil compared with \$1 per pound or more for methods that remove, transport and incinerate contaminated soil.

The technique involves windrowing soil with earth-moving equipment and then mixing it with a high-speed soil mixing and fracturing implement. Iron particles and water are added in the mixing operation. Windrows are covered with plastic sheeting and kept



IANR scientists have teamed up to produce and evaluate genetically modified soybeans that are high in oleic acid. Here, Soybean Breeder George Graef checks soybeans in a greenhouse.

moist for three months. Within 42 days of treatment, soil metolachlor concentrations at one site decreased by as much as 95 percent.

Researchers continue testing the technique. They want to be able to predict how well iron will work on a variety of compounds, based on the chemical structure of the contaminant.

Assessing, classifying water quality in Nebraska lakes

NU scientists are classifying Nebraska lakes based on water quality in research that could lead to a model lake ranking system useful in agricultural areas nationwide.

Water scientists, engineers, remote sensing experts and geoscientists are sampling lakes across the state to collect information that will help them develop a lake classification procedure. Eventually, they'll build their findings into software to rank lakes according to quality.

Among other things, they're identifying how to assess the impact of human activities, such as farming, on different Nebraska lakes. They'll also group lakes based on similar water quality and study how to maintain or improve quality.

Remote sensing and global information system technologies to monitor lake conditions and improvements are key to the project. They want to find ways to check lake conditions from aircraft or satellites.



Research Technician Mary Shipman removes a test loaf of bread from the oven at NU's Nebraska Wheat Quality Laboratory. As part of a five-year study, Shipman tested milling and baking qualities of wheat grown using different amounts of fertilizer.

They're exploring biological indicators of water quality, such as certain algae or plankton, that could be detected using remote sensing technologies.

Eventually, this lake classification procedure could be useful nationwide, especially in agricultural areas. The U.S. Environmental Protection Agency, which funds this research, hopes this classification system will help provide a framework for making decisions about how best to protect or restore lakes.

Fertilizing dryland wheat boosts yields, grain quality

Boosting nitrogen fertilizer rates on dryland wheat not only increases yields, it improves grain end-use quality and protein content, which can mean premium prices for growers.

These are among the findings of a comprehensive five-year IANR study of nitrogen fertilization's effects on wheat quality, yield and protein content.

Results are being used to formulate fertility recommendations for growers interested in producing high protein wheat, which fetches premium prices in export markets.

To study the effects of nitrogen nutrition on wheat quality characteristics, such as protein, dough-mixing time and dough strength, a team of NU agronomists applied nitrogen rates of 0 to 100 pounds per acre to top winter wheat varieties. Grain tests showed that increased nitrogen fertilization boosted yields, grain protein content and dough strength, and reduced dough-mixing time.

Rural residents not big on cybershopping

Rural residents prefer bricks-and-mortar stores to cybershopping, IANR research shows.

Less than 20 percent of rural people surveyed in 11 states, including Nebraska, use the Internet or television shopping channels to buy food or clothing, according to the IANR merchandise management researcher who studied rural buying habits.

Rural residents shop mostly at retail stores and travel an average of about 17 miles to the nearest shopping area. Nebraska's responses were similar to the larger sample.

This College of Human Resources and Family Sciences research is part of an 11-state examination of technology's impact on rural consumer access to food and fiber products. To detect changes over time, they'll survey the same people again in winter 2002-2003.

Survey respondents were more satisfied with traditional retail shopping than other forms. They were lukewarm toward Internet and television shopping. Credit card security and Internet access are key to their reluctance.

More than half of those surveyed had Internet access, although more than 52 percent didn't have a personal computer at home. More than 60 percent reported using the Internet once within the last year, while nearly half don't use it at all.

Findings may help decision makers develop electronic commerce policies and help rural businesses and communities adjust to potential changes in consumers' buying habits.

a few more glimpses at ARD research ...

- ▶ Switching weed control efforts from spring to fall can significantly improve perennial weed control. IANR weed science research shows that applying herbicides after the first fall frost provides the best control by disrupting the plants' overwintering ability. Traditionally, farmers apply herbicides in the spring when weeds emerge, killing about half of the weeds. Applying herbicides in the fall after the first frost can kill up to 90 percent of the weeds.
- ▶ The latest Nebraska Rural Poll showed that nearly two-thirds of rural Nebraskans say their income hasn't kept pace with the cost of living and 61 percent faced at least one economic hardship in the past year. For the past six years, IANR researchers in the university's Center for Applied Rural Innovation have surveyed rural Nebraskans about quality of life and policy issues. These and other poll results provide a rural perspective for decision makers, lawmakers and others making public policy choices and planning for the state's future.
- ▶ An entomology graduate student's discovery is helping beekeepers check their hives for potentially devastating varroa mites. Her IANR research found that dusting caged honey bees with powdered sugar and shaking them in a canning jar with a screened lid is a fast, inexpensive way to detect the mites.

She came up with the idea while seeking an easier way to gather mites from bees for lab tests. Commercial beekeepers now use her technique for early detection, which is key to preventing mite infestations from destroying honey bee colonies.

- ▶ Lake Ogallala is a well-known Nebraska trout fishing spot, but low dissolved oxygen levels sometimes contribute to fish kills. NU, state and private researchers are teaming to determine what causes this periodic problem and to find ways to solve it. They've extensively studied and sampled the lake. They've also constructed a scale model to reproduce the lake's water flow patterns and characteristics and experiment on how to improve conditions for fish. The team will use findings to develop recommendations on what should be done to protect the lake's water quality.
- ▶ An IANR climatologist's study of 111 years of Nebraska rainfall indicates we may be entering a dry decade. Highly sophisticated data analyses and advanced computer modeling data revealed a 20-year precipitation cycle of alternating wet and dry decades. The 1990s were a wet period. Farmers shouldn't worry yet, though. The study also showed "less organized precipitation patterns" emerging in the last 20 years. That may mean a changing cycle or could be an oddity that disappears when data is analyzed 10 years from now.

- ▶ IANR research on nematodes may lead to recommendations about ways to manage agricultural ecosystems using fewer or no pesticides. As part of a multiuniversity research project, NU plant pathologists are documenting all nematodes at undisturbed sites in the Konza Prairie in Kansas. The Nebraska team is a leader in developing molecular techniques for nematode identification. About 10 percent of the species identified so far appear to be previously unidentified. The researchers also study nematodes in Nebraska at Nine-Mile Prairie and Homestead National Monument.
- ▶ Raccoons living in residential areas can impact public health. An IANR veterinary epidemiologist teamed with colleagues from across the country to study raccoons in Illinois suburbs and parks. They found that 50 percent of the raccoons tested positive for leptospirosis, a bacterial disease that can affect humans and animals. A high percentage of the raccoons also tested positive for canine distemper.
- ▶ Spring-born heifers developed for slower weight gain before first breeding had pregnancy rates and calf weaning weights similar to heifers developed for higher weight gain in a three-year study at NU's Gudmundsen Sandhills Laboratory. Animal scientists found feed costs were 20 percent less for developing the slower gaining heifers. That means producers might be able to reduce heifer development costs.

- ▶ Two new prairie clover selections publicly released by NU will soon find their way into home gardens. A purple-flowered selection, called Stephanie, features dark green foliage and upright stems. The other, a light pink-flowered variety called Sandhills Satin, has silky foliage and stems that bend gracefully. It is best-suited for sandy soils and is named for its nativeness to the Nebraska Sandhills.
- ▶ An IANR textiles chemist's research is helping the textiles industry add color to new biodegradable fabrics derived from corn. She developed a formula for dyeing fabrics made with polylactic acid, or PLA, a water-resistant biodegradable resin made from cornstarch. She and a graduate student tested dyes and identified two that held up to sunlight and launderings. Industry has expanded this IANR research, identifying ways to produce a wide range of colorfast shades on PLA fabrics.
- ▶ NU's Veterinary Diagnostic Center took on nearly 12,000 cases in 2000, about 986 per month. The IANR center processes animal disease cases from Nebraska and across the nation, helping to diagnose, respond to and prevent disease outbreaks. Cases come from traditional livestock producers, veterinarians, zoos, parks and family homes.

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

Sam Cordes received the Graduate Alumni Achievement Award from the Graduate School of Washington State University.

Azzeddine Azzam was named research fellow of the Economic Research Forum.

Agricultural Leadership, Education and Communication

John E. Barbuto Jr. received the Junior Faculty Excellence in Research Award from the Agricultural Research Division.

Agronomy and Horticulture Department

P. Stephen Baenziger received the Crop Science Research Award from the Crop Science Society of America.

Kenneth G. Cassman received the Robert E. Wagner Award, Senior Scientist category, from the Potash and Phosphate Institute.

Achim R. Dobermann received the Plaque of Appreciation from the Department of Agriculture, Government of the Philippines.

John W. Doran received the Onassis Prize for the Environment for his research in the development of soil-quality indicators from the Onassis Foundation in Athens, Greece.

Roger W. Elmore was elected Board Representative of the North Central Branch of the American Society of Agronomy.

Charles A. Francis received the Seventh Generation Research Award in Agriculture from the Center for Rural Affairs and the Consortium for Sustainable Agriculture Research and Education.

Kulvinder S. Gill received the Junior Faculty Excellence in Research Award from the Agricultural Research Division.

Stevan Z. Knezevic received the Novartis Crop Protection Recognition Award from the American Society of Agronomy.

Dennis L. McCallister was elected Faculty Chair, Subdivision A-1a (Student Activities) of the American Society of Agronomy.

Martin A. Massengale received the Exemplary Service to Agriculture Award from the Nebraska AgRelations Council.

Massengale served on the National Advisory Board and its Executive Committee to the U.S. Secretary of Agriculture for Research, Extension, Education and Economics (NAREEE); serves on the Board of Directors and Executive Committee for the Council of Agriculture Science and Technology (CAST); serves as Chairman of the Board of the Agronomic Science Foundation; serves as the Secretariat for the Filippo Maseri Florio World Prize for Distinguished Research in Agriculture; serves as a member of the National Advisory Board for TreesAmerica; serves as a member of the Board of Directors and Executive Committee of the University of Nebraska Technology Park; and serves as a member of the Board of Directors for the Center for Human Nutrition.



Darrell W. Nelson (left), Dean and Director, Agricultural Research Division, presents John (Jay) Barbuto, Jr. Agricultural Leadership, Education and Communication Department, with the Junior Faculty Excellence in Research Award.

Animal Science

Donald Beermann served as President of the American Society of Animal Science.

Chris Calkins received the Prime Promoter Award from the Nebraska Beef Council, received the Research Award from the Nebraska Chapter of Gamma Sigma Delta, and was selected Chair of the Meat Science Program of the American Society of Animal Science Annual Meeting.

Thomas Jenkins received the Animal Management Award from the American Society of Animal Science.

Jeff Keown was inducted into membership by the Alpha Phi Chapter of Phi Beta Delta, the Honor Society for International Scholars.

Terry Klopfenstein served as Past President of the American Society of Animal Science and was named President-Elect of the Federation of Animal Science Societies.

Rick Koelsch was inducted into membership by the Nebraska Chapter of Gamma Sigma Delta.

Roger Mandigo received the R.C. Pollock Award from the American Meat Science Association and received a Special Recognition Award from the American Meat Science Association.

Irv Omtvedt received the Louise Pound-George Howard Distinguished Career Award from the University of Nebraska-Lincoln and an Agriculture Achievement Award from the Nebraska Poultry Industries.

Sheila Scheideler received the American Feed Industry Association Nutrition Research Award from the Poultry Science Association.

Dale Van Vleck received the Award of Merit from the Nebraska Chapter of Gamma Sigma Delta.

Biochemistry

Ruma Banerjee received a Pfizer Award from the American Chemical Society and was honored as an Established Investigator by the American Heart Association. She served as a regular member in an NIH Study Section (Biochemistry) and was invited to join the editorial board of Chemical Reviews.

Raymond Chollet served as an invited peer-review panelist for the U.S. National Science Foundation's Molecular and Cellular Biosciences Division in Arlington, VA, and was re-appointed for a fourth consecutive, three-year term on the Editorial Committee of Archives of Biochemistry and Biophysics.

Stephen Ragsdale served on a peer review panel (Metallo-biochemistry) for the National Institutes of Health and on the editorial boards of The Journal of Biological Chemistry, Journal of Bacteriology, Archives of Biochemistry and Biophysics and Biofactors.

Robert J. Spreitzer was elected Chair of the Minisymposium on Enzymology, Annual Meeting of the American Society of Plant Physiologists, San Diego, CA, and serves on the editorial board of Plant Physiology.



Darrell W. Nelson (left), Dean and Director, Agricultural Research Division, presents Kulvinder S. Gill, Agronomy and Horticulture Department, with the Junior Faculty Excellence in Research Award.

Biological Systems Engineering

Brian Benham was selected as the recipient of the Dinsdale Family Faculty Award from IANR.

Richard Koelsch was inducted into University of Nebraska Gamma Sigma Delta.

Jack Schinstock received the Superior Academic Advising Award from the College of Agricultural Sciences and Natural Resources.

Dennis Schulte received the Holling Distinguished Teaching Award from the College of Engineering and Technology.

William Splinter received the Distinguished Service Award from the NU Alumni Association.

LaVerne E. Stetson received the Evelyn E. Rosentreter Standards Award from the American Society of Agricultural Engineers.

Entomology

Fred Baxendale was named an Honorary Admiral in the Great Nebraska Navy as a panelist on Backyard Farmer.

Leon Higley received the Distinguished Achievement in Teaching Award from the Entomological Society of America, Certificate of Recognition for Contributions to Students from the University of Nebraska-Lincoln Teaching Council and Parents Association, and the R1edu.org Distance Education Award from the R1edu, a consortium of 30 R1 universities, and served as secretary of the Crop and Urban Pest Management Section of the Entomological Society of America.

David Stanley was selected to serve as the Executive Editor of Archives of Insect Biochemistry and Physiology.

Food Science and Technology

Susan Hefle received the 2000 Samuel Cate Prescott Award from the Institute of Food Technologists.

Veterinary and Biomedical Sciences

Jeffrey Cirillo received the Dinsdale Family Faculty Award for outstanding teaching, research and outreach from the Institute of Agriculture and Natural Resources.

D. Dee Griffin received the Nebraska Veterinary Medical Association President's Award.

Dale Grotelueschen received a Distinguished Service Award for contributing to outstanding service to the advancement of veterinary medicine in all aspects of the profession by the Nebraska Veterinary Medical Association.

Family and Consumer Sciences

Sheran Cramer received the Leader of the Year Award from the Nebraska Association of Family and Consumer Sciences and the Diamond Professor Award from the University of Nebraska at Omaha.

Carolyn Edwards was appointed Institute Faculty Member of the National Head Start Child Development Institute, Washington, D.C.

Julie Johnson received the American Association for Family and Consumer Sciences Leader Award.

Textiles, Clothing and Design

Shirley Niemeyer, Carol Welte, and Rebecca Versch received the Outstanding Community Contributions Regional Team Award for Environmental Education from the National Association of Family and Consumer Sciences.

Northeast Research and Extension Center

Stevan Knezevic received the Novartis Crop Protection Award from the American Society of Agronomy and the Layman Research Award from the Institute of Agriculture and Natural Resources.

William L. Kranz received the State Team Award for the Conservation Reserve Program to Crops Team from Epsilon Sigma Phi in recognition of "an outstanding effort of producing useful research and transferring the findings to clientele."

Charles A. Shapiro received the State Team Award for the Conservation Reserve Program to Crops Team from Epsilon Sigma Phi in recognition of "an outstanding effort of producing useful research and transferring the findings to clientele."

David P. Shelton received the State Team Award for the Conservation Reserve Program to Crops Team from Epsilon Sigma Phi in recognition of "an outstanding effort of producing useful research and transferring the findings to clientele."

John F. Witkowski received the State Team Award for the Conservation Reserve Program to Crops Team from Epsilon Sigma Phi in recognition of "an outstanding effort of producing useful research and transferring the findings to clientele."

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 733 graduate students are pursuing advanced degrees with ARD faculty. The quality of our graduate students is reflected in the recognition they receive.

Agricultural Economics

Wendy Umberger received the Dr. James B. Hassler Award for Outstanding Research from the Department of Agricultural Economics.

Agronomy and Horticulture Department

Brigid Amos received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Hikmet Budak received the Milton E. Mohr Fellowship from the Center for Biotechnology.

Mike Burton received the Irvin A. and Agnes E. Nelson Memorial Fellowship from the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources.

B. Todd Campbell received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division, the Milton E. Mohr Fellowship from the Center for Biotechnology, and the John W. McDonald Fellowship from the Office of Graduate Studies.

Andrea Ebmeier received the Pioneer Fellowship from Pioneer Hybrid International.

Sean Evans received the Henry M. Beachell Fellowship from the Department of Agronomy and Horticulture.

Neil Heckman received the 2000 Watson Fellowship at the Golf Course Superintendent's Association of America (GCSAA) 72nd International Golf Course Conference and Show from the Toro Company and the GCSAA Foundation, the Hazel V. Emley Fellowship, and the Shear-Miles Fellowship from the Agricultural Research Division.

Kara Hilgenfeld received 1st Place in the Graduate Student Paper Contest at the North Central Weed Science Society.

Adam Johnson received 2nd Place in the Graduate Student Paper Contest at the North Central Weed Science Society.

Alex Moreno-Sotomayer received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Justin Morris received a Mary and Charles Cooper/Emma Sharpless Fellowship from the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources.

Eric Mousel received the Arthur William Sampson Fellowship in Nebraska Pasture and/or Range Management from the Center for Grassland Studies, the W.R. Chapline Fellowship from the Department of Agronomy and Horticulture, and a grant-in-aid from the Center for Great Plains Studies.

Nedim Mutlu received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Kimberly Pavelka received the David H. and Annie E. Larrick Memorial Fellowship from the College of Agricultural Sciences and Natural Resources.

Iskender Tiryaki was the alternate for the Henry M. Beachell Fellowship in the Department of Agronomy and Horticulture.

Aaron Waltz received the Henry M. Beachell Fellowship from the Department of Agronomy and Horticulture and 1st Place in the Graduate Student Poster Contest at the North Central Weed Science Society.

Brandon Wardyn received the Mary and Charles Cooper/Emma Sharpless Fellowship from the Agricultural Research Division and the College of Agricultural Sciences and Natural Resources.

Yi Zhang received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Animal Science

Kelly Creighton received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Bruce DeGroot received a V.H. Arthaud Travel Award from the Department of Animal Science.

Brad Edeal received a V.H. Arthaud Travel Award from the Department of Animal Science.

Kim Franzen received a Graduate Student Award for Outstanding Poster Presentation from the Poultry Science Association.

Dana Hanson received the John Hallman Memorial Award from the Department of Animal Science.

Simone Holt (Mader co-supervised student from UQG) received the Junior Science Award from the Australian Society of Animal Production.

Karen Killinger received the Second Place Award in the American Meat Science Association M.S. Poster Paper Competition.

Gonzalo Martinez received the Ned S. and Esther B. Raun International Graduate Fellowship from the Department of Animal Science.

Ryan Mass received a V.H. Arthaud Travel Award from the Department of Animal Science.

Curtis Novak received the Mussehl Graduate Scholarship from the University of Nebraska.

Uaichai Puthponsiriporn received a Graduate Scholarship from Continental Grain.

Janice Rumph received a V.H. Arthaud Travel Award from the Department of Animal Science and the Milton E. Mohr Fellowship from the College of Agricultural Sciences and Natural Resources.

Biochemistry

Horatiu Olteanu received the Bukey Memorial Award and the Milton Mohr Fellowship from the Center for Biotechnology.

Sebastian Oltean received the Milton Mohr Fellowship from the Center for Biotechnology.

Emily Ross received the Hardin Graduate Research Fellowship from the Agricultural Research Division and a Warren F. and Edith R. Day Student Aid Fund Award from the Dean of Graduate Studies, University of Nebraska.

Biological Systems Engineering

Alejandro Amezquita received an Othmer Fellowship from the University of Nebraska Foundation.

Jeff Ehrhardt received the Milton E. Mohr Fellowship from the College of Engineering and Technology.

Matt Helmers received the Milton E. Mohr Fellowship from the College of Engineering and Technology.

Sandun Fernando received the Milton E. Mohr Fellowship from the College of Engineering and Technology.

Xiodan Song received the Milton E. Mohr Fellowship from the College of Engineering and Technology.

Entomology

Nor Aliza Abdul Rahim received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Leela Alamalakala received the Milton E. Mohr Scholarship from the Center for Biotechnology, the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division, First Place President's Prize for Ph.D. Student Poster Competition at the Entomological Society of America meetings, and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Jon Bedick received First Place President's Prize for Ph.D. Student Poster Competition at the Entomological Society of America meetings, the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee, and was a member of the Linnaean Team, which was Runner-up at the North Central Branch Entomological Society of America meetings.

Brian Clark received the Lady Bird Scholarship at the Midwest Institute for Biological Control Insect Pathology Workshop.

Peter Clark received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Tom Clark received First Place in the Ph.D. Student Poster Competition at the North Central Branch Entomological Society of America meetings, the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee, and was a member of the Linnaean Team which was Runner-up at the North Central Branch Entomological Society of America meetings.

Kevin Delaney received the Shear-Miles Fellowship Award from the Agricultural Research Division; the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee; and was a member of the Linnaean Team, which was Runner-up at the North Central Branch Entomological Society of America meetings.

Tom Eickhoff received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Tiffany Heng-Moss received the Watson Fellowship from the Golf Course Superintendent's Association of America, the Outstanding Graduate Student Award from the Nebraska Chapter of Sigma Xi and Graduate Research Assistant Award from the Nebraska Alumni Association.

Paula Macedo received First Place in the M.S. Student Oral Competition at the North Central Branch Entomological Society of America meetings and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Tulio Macedo received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Rodney Madsen received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Federico Ocampo received the Graduate Teaching Assistant Award from the Nebraska Alumni Association and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Isaac Oyediran received an Entomology Graduate Student Training Program Internship from Dow AgroSciences and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Srinivas Parimi received Second Place in the Ph.D. Student Poster Competition at the North Central Branch Entomological Society of America meetings.

Aura Paucar received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee and the Travel Grant Award from the Ecology and Evolutionary Biology Initiative.

Connie Reimers-Hild received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Lilian Saldanha received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Raj Kumar Saran received the Jeffrey P. LaFage Graduate Student Research Award from the Entomological Society of America and the Ward A. and Helen W. Combs Scholarship from the Presto-X Company.

Andrew Smith received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division; the Warren F. and Edith R. Day Student Aid Fund Scholarship from the Dean of Graduate Studies; the Travel Grant Award from the Ecology and Evolutionary Biology Initiative, and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Jenny Stebbing received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

John Thomas received Second Place in the M.S. Student Poster Competition at the North Central Branch Entomological Society of America meetings.

Hasan Tunaz received the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee and was a member of the Linnaean Team, which was Runner-up at the North Central Branch Entomological Society of America meetings.

Karla Villatoro received the Travel Grant Award from the Ecology and Evolutionary Biology Initiative and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

Amelia Zoerb received Second Place in the M.S. Student Oral Competition at the North Central Branch Entomological Society of America meetings and the Myron H. Swenk Fund Travel Award from the Bruner Club Executive Committee.

School of Natural Resource Sciences

Alex Moreno-Sotomayor received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Veterinary and Biomedical Sciences

Aruna Ambagala received the Bukey Memorial Fellowship in recognition of scholastic performance and accomplishments as a student scholar from the University of Nebraska-Lincoln Graduate Fellowship Committee, Office of the Dean of Graduate Studies; the Milton E. Mohr Fellowship from the Center for Biotechnology; and an award for Best Poster Presentation from the Conference of Research Workers in Animal Diseases.

Marilyn J. Buhman received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Shar H. El-Etr received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Zhengyu Feng received the Major Fellowship Award from the Office of the Dean of Graduate Studies.

Melissa A. Inman received the Milton E. Mohr Fellowship from the Center for Biotechnology and the Susan Ann Smith Mills Award provided by endowment funds through the University of Nebraska Foundation by Ms. Elizabeth Wilson.

Gary Stevens received the Best Seminar Award from the Department of Veterinary and Biomedical Sciences.

Spring Younts received the Student Assistantship in Research and Scholarship (STARS) Award, summer funding for student research from the Office of the Dean of Graduate Studies.

Douglas S. Zatechka Jr., received the Best Seminar Award from the Department of Veterinary and Biomedical Sciences and the Excellence Award in a demonstrated presentation at the Midwest Student Biomedical Research Forum from Pfizer Animal Health, Inc.

Family and Consumer Sciences

Matthew Barkdull received the Bill McAdams Scholarship sponsored by the Hemophilia Foundation of Michigan and the National Kidney Foundation Scholarship from the Utah National Kidney Foundation.

Wenli Liu received the Human Rights and Human Diversity Fellowship from the University of Nebraska-Lincoln.

Wenli Liu received the Founders Fellowship from Phi Upsilon Omicron.

Lois Mberengwa received the Outstanding Dissertation Research Award from the American Association for Family and Consumer Sciences.

Ayana Reed received the Minority Fellowship Award from the American Association for Marriage and Family Therapy sponsored by the AAMFT Research and Education Foundation and the AAMFT Awards Committee.

Rose Suggett received the Student/New Professional Award from the National Council of Family Relations.

Nutritional Science and Dietetics

Ji-Young Lee received the Widaman Trust Distinguished Graduate Assistant Award from the Agricultural Research Division.

Jun Ma received a major fellowship from the UNL Graduate Fellowship Committee.

Ahmad Sulaeman was selected to compete for the Institute of Food Technologists' International Division Graduate Student Award.

Northeast Research and Extension Center

Sean Evans received the J. Fielding Reed Memorial Fellowship from Potash and Phosphate Institute; the Henry M. Beachell Fellowship from the University of Nebraska; the Li-Cor travel grant from Li-Cor, Inc.; and the IANR Issues Symposium Outstanding Poster from the Institute of Agriculture and Natural Resources.

South Central Research and Extension Center

Aaron Waltz received a Henry B. Beachell Fellowship from the University of Nebraska and a first place in his section of the North Central Weed Science Society poster contest.

Adam Johnson received second place in his section of the North Central Weed Science Society poster contest.

Undergraduate Honors Student Research Program

The purpose of this new 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.

Agricultural Economics

Jessica Harrison received an Honors Award for “An Analysis of Incentives and Barriers Facing CASNR Students Contemplating the Return to the Family Farm” from the Agricultural Research Division. (J. Allen, Advisor)

Mark Hassebrook received an Honors Award for “Evaluating the Effectiveness and Methodologies of Agricultural Interest Groups in the Nebraska Legislature” from the Agricultural Research Division. (G. Pfeiffer, J. Comer, J. Schinstock, Advisors)

Catherine Kalinowski received an Honors Award for “An Ex-Post Economic Analysis of Material Recovery Programs Sponsored by the Nebraska Environmental Trust” from the Agricultural Research Division. (B. Johnson, Advisor)

Melissa Van Winkle received an Honors Award for “An Analysis of Nebraska’s Rural Development” from the Agricultural Research Division. (R. Perrin, Advisor)

Agricultural Leadership, Education and Communication

Caleb J. Harms received an Honors Award for “Differing Perspectives on the Future of Rural Education in Nebraska” from the Agricultural Research Division. (S. Fritz, Advisor)

Animal Science

Jamie W. Poskochil received an Honors Award for “Fine Mapping of *jrc* Cataract Mutation in Mice” from the Agricultural Research Division. (M. Nielsen, Advisor)

Biochemistry

Erick Kinyungu received an Honors Award for “Molecular Basis of Rubisco Transcription” from the Agricultural Research Division. (R. Spreitzer, Advisor)

Brett Meyer received an Honors Award for “CLA, Body Fat, and Apoptosis” from the Agricultural Research Division. (R. Klucas and J.L. Miner, Advisors)

Amy Miller received an Honors Award for “An Attempt to Isolate an Acetamidase cDNA from *Chlamydomonas reinhardtii*” from the Agricultural Research Division. (D. Weeks, Advisor)

Troy Munson received an Honors Award for “Biochemical Studies of Human Methionine Synthase Reductase” from the Agricultural Research Division. (R. Banerjee, Advisor)

Dana Novak received an Honors Award for “Localization Studies on a Soybean Acid Phosphatase in Yeast” from the Agricultural Research Division. (G. Sarath, Advisor)

Biological Systems Engineering

Jeffrey E. Nicolaisen received an Honors Award for “Phosphorus and Nitrogen in Runoff as Affected by Crop Residue” from the Agricultural Research Division. (J. Gilley, Advisor)

Entomology

Paul Nabity received an Honors Award for “*Calliphoridae* Larval Development Responses to Temperature Variances” from the Agricultural Research Division. (L. Higley, Advisor)

Plant Pathology

Chad Zimmerman received an Honors Award for “Chemical Phophylaxis for Control of GrayLeaf Spot on Corn” from the Agricultural Research Division. (J. Partridge, Advisor)

Veterinary and Biomedical Sciences

Nathan Erdmann received an Honors Award for “Identification and Manipulation of *Legionella pneumonihila* Genes Actively Involved in Entry” from the Agricultural Research Division. (J. Cirillo, Advisor)

Leah Lemale received an Honors Award for “Significance of Antibodies in Protecting Against Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) Infections” from the Agricultural Research Division. (F. Osorio, Advisor)

Water Center

Brian Dietz received an Honors Award for “Effects of Avian and Wandering Spider Predation on Grasshopper Populations in an Eastern Nebraska Grassland” from the Agricultural Research Division. (A. Joern, 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 2000.

Agronomy/Horticulture

<i>Crop:</i>	Grain Sorghum [<i>Sorghum bicolor</i> (L.) Moench]
<i>Germplasm Release:</i>	44 Pairs of Grain Sorghum Seed parent (A-Line) and their Respective Maintainers (B-Lines) (N341 A + B to N384 A + B)
<i>Scientists:</i>	D.J. Andrews and J.F. Rajewski
<i>Characteristics:</i>	These seed parents are in the medium to full season maturity class for SE Nebraska and similar environments which are male sterile in the A ₁ cms system (milo cytoplasm). The germplasm were developed in the program to introgress tropically adapted food quality grain sorghums into sorghum seed parents adapted to the U.S. high plains. These lines resulted from emasculation crosses made from 1988 to 1992. Generally pedigree selection was followed from F ₂ to F ₆ at ARDC Mead experimental farm including 3-4 generation advances in winter nurseries. Where test crosses included completely male sterile plants, 4-6 generations of plant to plant backcrosses

were made concurrently while selecting only within those B-lines that continued to perfectly maintain male sterility. All A lines have consistently shown good male sterility over years. Days to bloom average from 70 to 84 days. In general, these seed parents are average to short in height and medium early to medium late in maturity. All but 4 have white or pale yellow grain and 16 have tan plant color. Pest and disease reactions of these lines have not been determined. Because of their parentage these seed parent germplasms contribute new genetic diversity for sorghum hybrid development.

<i>Crop:</i>	Grain Sorghum [<i>Sorghum bicolor</i> (L.) Moench]
<i>Germplasm Release:</i>	49 Grain Sorghum Male Fertility Restorer Germplasms (R Lines) (N385R - N433R)
<i>Scientists:</i>	D.J. Andrews and J.F. Rajewski
<i>Characteristics:</i>	These germplasms restore male fertility in hybrids made with A ₁ cms (milo cytoplasm) seed parents. The restorer lines were developed to introgress grain sorghum food quality germplasm from tropical breeding programs into parental lines adapted to the high plains region of the USA. Emasculation crosses were made between 1987 and 1994 and pedigree selection continued from F ₂ to between F ₇ and F ₁₂ at the ARDC experimental farm at Mead, NE, and in winter nurseries in Mexico. These germplasms are average to short in height and medium early to medium late in maturity. Days to bloom range from 66 to 88 days. All but 4 have white or pale yellow grain and 16 have tan plant color. Pest and disease reactions of these lines have not been determined. Because of their parentage and ability to make good male fertile hybrids, these restorer germplasms offer new genetic diversity for the development of new hybrids.
<i>Crop:</i>	Grain Sorghum [<i>Sorghum bicolor</i> (L.) Moench]
<i>Germplasm Release:</i>	27 Grain Sorghum Maintainer (B-Line) (N433B - N457B) or Restorer (R Line) Germplasms (N458R - N460R)
<i>Scientists:</i>	D.J. Andrews, J.F. Rajewski, and P.J. Bramel-Cox
<i>Released by:</i>	University of Nebraska Agricultural Research Division and the Kansas State University Sorghum Research Program

Characteristics: These grain sorghum germplasms will either completely maintain male sterility (B lines) or will restore male fertility (R lines) in the A₁ cms system (milo cytoplasm). These germplasms were selected in Nebraska from segregating S₃ and S₄ families provided by the Kansas State program to the UNL program in 1996. Days to bloom range from 65 to 97 days, and plant height ranges from 82 cm to 130 cm. Sixteen germplasms have tan plant color, and grain color in all but two are strong white to yellow endosperm. The pest and disease reactions of these germplasms have not been determined. Because of their unique parentage, these germplasms contribute new genetic diversity for the development on new hybrids.

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

Germplasm Release: 28 Grain Sorghum F₄ to F₆ Germplasm Families (N461-N488)

Scientists: D.J. Andrews and J.F. Rajewski

Characteristics: These families are in the medium to full season maturity class for southeast Nebraska and similar environments. They were developed to introgress tropically adapted food quality grain sorghums into sorghum seed parents adapted to the U.S. high plains. These germplasms resulted from emasculation crosses made from 1992 to 1995 between introductions from tropical sorghum breeding programs and UNL lines. Pedigree selection was followed with emphasis on white or yellow endosperm grain, and tan plant color. The germplasms are generally short to medium height and medium to full season in maturity in Eastern Nebraska. Many have white or yellow endosperm grain, and tan plant color. Pest and disease reactions of these germplasms have not been determined. Because of their parentage these germplasm families provide new genetic diversity for the selection of new parental lines for hybrid development.

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

Germplasm Release: 15 Early Maturing Grain Sorghum Maintainer Parent (B-Line) Germplasms (N489B - N503B) and Partially Backcrossed Seed Parents (A-Lines)

Scientists: D.J. Andrews, J.F. Rajewski, D. Baltensperger, and G. Frickel

Characteristics: These B line germplasms were developed in the program conducted at the High Plains Agricultural Laboratory, Sidney, NE, to produce early maturing seed parents for western Nebraska. Generally pedigree selection from F₂ to F₅ or F₆ was conducted at Sidney with alternate generations in the winter nurseries in Mexico. In general, these lines are average to short in height and early in maturity. Days to bloom range from 66 to 81 days. All but 2 have tan plant color, and all but 3 have light red colored grain. Pest and disease reactions of these lines have not been determined. Because of their parentage these seed parents contribute new genetic diversity for the development of very early maturing hybrids. The tan plant red grain lines will permit the development of attractive bronze grain hybrids.

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

Germplasm Release: 48 Early Maturing Grain Sorghum Male Fertility Restorer Germplasms (R-Lines) N504R - N551R)

Scientists: D.J. Andrews, J.F. Rajewski, D. Baltensperger, and G. Frickel

Characteristics: These early maturing grain sorghum R-lines germplasms restore male fertility in the A₁ cms system (milo cytoplasm). The lines were developed in the program conducted at the High Plains Agricultural Laboratory, Sidney, Nebraska, to produce early maturing hybrid parents for western Nebraska. They resulted from emasculation crosses made in 1992 to 1994 between early maturing restorer lines under development and some tropical food quality introductions. In general, these germplasms are average to short in height, and early to bloom. Days to bloom range from 56 to 84 days. Grain color of all but 3 pale red grain germplasms is white or pale yellow endosperm. Twenty-nine germplasms have tan plant color, and 19 purple. Pest and disease reactions of these lines have not been determined. These restorer germplasms offer new genetic diversity for the development of very early maturing hybrids.

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

Germplasm Release: 7 Late Maturing Grain Sorghum Seed Parent (A-B Lines) (N552 A + B - N558 A + B) and 20 Tall Restorer (R Line) Germplasms (N559R - N579R)

Scientists: D.J. Andrews and J.F. Rajewski

Characteristics: The grain sorghum seed parents provide new genetic diversity for late grain hybrids, or for forage hybrids. The restorer parents provide new diversity for forage hybrids. Days to bloom range from 74 to 99 days. All but five have tan plant color and all but 2 have food quality grain, white or pale yellow in color. Most are late to very late in maturity in respect to southeast Nebraska conditions. The pest and disease reactions of these germplasms have not been determined.

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

Variety Name: Millennium

Scientists: P.S. Baenziger, B. Moreno-Sevilla, C.J. Peterson, D.R. Shelton, R.W. Elmore, P.T. Nordquist, R.N. Klein, D.D. Baltensperger, L.A. Nelson, D.V. McVey, J.E. Watkins, and J.H. Hatchett

Released By: University of Nebraska Agricultural Experiment Station, the South Dakota Agricultural Experiment Station, South Dakota State University, and the United States Department of Agriculture Agricultural Research Service

Characteristics: ‘Millennium’ was released primarily for its superior adaptation to dryland wheat production systems in Nebraska (except southeastern Nebraska) and similar growing areas in South Dakota and adjacent states. Millennium is an awned, white-glumed cultivar. Its field appearance is most similar to ‘Arapahoe’. After heading, the canopy is moderately open and upright. The flag leaf is erect and twisted at the boot stage. The foliage is green with waxy bloom at anthesis. The leaves are glabrous. The spike is tapering in shape, long, and middense. The glume is short to midlong and midwide, and the glume shoulder is square to rounded. The beak is medium in length with an acuminate tip. The spike is usually nodding at maturity. Kernels are red colored, hard textured, midlong, and elliptical in shape. The kernel has no collar, a midsize brush of medium length, rounded cheeks, midsize germ, and a narrow and shallow crease. The main

advantage Millennium has when compared to most other available wheat cultivars, within its area of adaptation, is its high grain yield, ability to yield well under favorable production conditions, and broad adaptation in dryland production systems. It is medium in maturity and has a shorter length coleoptile. It has good strong straw strength, and good to very good winter-hardiness similar to Abilene and comparable to other winter wheat cultivars adapted and commonly grown in Nebraska. Millennium is moderately resistant to stem rust, leaf rust, and Hessian fly (*Mayetiola destructor* Say), and susceptible to wheat soilborne mosaic virus, and barley yellow dwarf virus. The overall end-use quality characteristics for Millennium should be acceptable to the milling and baking industries.

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

Variety Name: Cougar

Scientists: P.S. Baenziger, B. Moreno-Sevilla, C.J. Peterson, D.R. Shelton, R.W. Elmore, P.T. Nordquist, R.N. Klein, D.D. Baltensperger, L.A. Nelson, D.V. McVey, J.E. Watkins, J.H. Hatchett, and R. Graybosch

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

Characteristics: ‘Cougar’ was released primarily for its having very long coleoptile (similar to Scout 66) with exceptional straw strength (superior to 2137 and Wesley). Similar to Thunderbird its yield level is lower except where its coleoptile length and standability are needed. It has excellent test weight and kernel size. Cougar is an awned, white-glumed cultivar. Its field appearance is most similar to ‘Thunderbird’ and ‘Big Dawg’. After heading, the canopy is open and upright. The flag leaf is erect and twisted at the boot stage. The foliage is green with a slight blue cast and a waxy bloom at anthesis. The leaves are glabrous. The spike is tapering in shape, moderately long to long, and middense. The glume is short and wide, and the glume shoulder is square. The beak is moderately short in length with an acuminate tip. The spike is usually erect to inclined at maturity. Kernels are red colored, hard textured, midlong, and elliptical to ovate in shape. The kernel has no collar, a midsize

large brush of medium length, rounded cheeks, midsize germ, and a midwide and shallow crease. The main advantage Cougar has when compared to most other available wheat cultivars, within its area of adaptation, is its long coleoptile, exceptional straw strength, good grain volume weight and kernel size, and comparative grain yields. Cougar is moderately resistant to stem rust, moderately susceptible to leaf rust, and susceptible to wheat soilborne mosaic virus, Hessian fly (*Mayetiola destructor* Say), barley yellow dwarf virus, and wheat streak mosaic virus. The overall end-use quality characteristics for Cougar should be acceptable to the milling and baking industries.

<i>Crop:</i>	Hard White Winter Wheat (<i>Triticum aestivum</i> L.)
<i>Variety Name:</i>	Nuplains
<i>Scientists:</i>	C.J. Peterson, R.A. Graybosch, D.R. Shelton, D.D. Baltensperger, P.S. Baenziger, L.A. Nelson, D.V. McVey, J.E. Watkins, and J. Krall
<i>Released By:</i>	United States Department of Agriculture Agricultural Research Service, the University of Nebraska Agricultural Experiment Station, the South Dakota State University Agricultural Experiment Station, and the University of Wyoming Agricultural Experiment Station
<i>Characteristics:</i>	‘Nuplains’ was released for its breadmaking quality and white grain color combined with adaptation, grain yield potential, and disease resistance for production in the north central Great Plains. Nuplains appears to be best suited for dryland production areas in south central and southwest Nebraska and to similar areas in adjacent states. It also has shown promise for use in irrigated production systems in southwest and western Nebraska. Nuplains is an awned, white-glumed, semi-dwarf cultivar with straw strength superior to ‘Arapahoe’. Plant height of Nuplains has averaged 3 cm shorter than ‘2137’ and 10 cm shorter than Arapahoe. It has a short coleoptile. Winterhardiness is adequate for Nebraska growing conditions. It is a medium maturing cultivar under Nebraska conditions, with heading date averaging 2 to 3 days earlier than Arapahoe. Nuplains has exhibited adult-plant and seedling resistance to stem rust. It is moderately susceptible to current races of leaf rust, and is susceptible to soil-

borne mosaic virus, wheat streak mosaic virus, the Great Plains biotype of Hessian fly (*Mayetiola destructor* Say), and the Russian wheat aphid (*Diuraphia noxia* Mordvilko). Nuplains has mellow dough mixing properties with acceptable mixing tolerance. It was found to have acceptable end-use quality for commercial bread applications. Nuplains was evaluated for use in Asian noodle products by the Wheat Marketing Center, Portland, OR. In Taiwanese raw and Hokkien style noodle evaluations, Nuplains has received acceptable ratings for dough handling, machining properties, and noodle texture. Noodle color ratings varied, but were generally considered as less than desirable due to discoloration after 24 hours of storage. Grain samples were provided to the USDA-GIPSA for classification purposes. Grain color of Nuplains was considered as acceptable for the hard white wheat class.

Animal Science

Swine Release

<i>Germplasm Release:</i>	NE Index Line
<i>Scientist:</i>	Rodger Johnson
<i>Released by:</i>	University of Nebraska Animal Science Department, Nebraska Agricultural Research Division, and University of Nebraska Office of Research Grants and Services.
<i>Characteristics:</i>	The Nebraska Index Line is a novel line with superior reproduction that was developed during a 20-year selection experiment. Traits selected for include ovulation rate, uterine capacity and litter size. Crosses of the NE line with other commercially available lines have had 35% greater production per breeding female than other commercially available lines.

Plant Pathology

<i>Crop:</i>	Dry Bean (<i>Phaseolus vulgaris</i> L.)
<i>Variety:</i>	‘Anacaona’ White Bean
<i>Scientists:</i>	J.C. Nin, E. Arnaud-Santana, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman

Released By: Centro de Investigacion Agricola del Suroeste, Ministry of Agriculture, Dominican Republic in cooperation with the University of Nebraska and the University of Puerto Rico

Characteristics: Anacaona has resistance to isolates of AG-1-1B and AG-2-2 of the web blight pathogen and to prevailing strains of *Xanthomonas campestris* pv. *phaseoli* in the DR and Puerto Rico. It was resistant to 10 Dominican pathotypes of rust in a greenhouse inoculation test. Anacaona is susceptible to bean golden mosaic virus. It has an indeterminate growth habit (Type II) with a short vine (75 cm). Physiological maturity is reached at about 70 d after planting. The small white seeds are elliptically shaped and range in size from 18-20 g 100⁻¹ seeds. It is well adapted to low and intermediate altitudes with mean yields ranging from 2500-2800 kg ha⁻¹. It exceeded the yield of the standard Arroya Loro at five locations (1989-1993).

Crop: Dry Bean (*Phaseolus vulgaris* L.)

Variety: ‘Arroyo Loro Negro’ black bean

Scientists: E. Arnaud-Santana, J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver and J.R. Steadman

Released By: Centro de Investigacion Agrícolas del Suroeste, Ministry of Agriculture, Dominican Republic in cooperation with the University of Nebraska and the University of Puerto Rico

Characteristics: Arroyo Loro Negro is well adapted to a wide range of altitudes (100 to 1500 m) with mean yields ranging from 1046 to 1825 kg ha⁻¹ (1993-1997) exceeding the yield of ICTA- JU-90-7 (822-1200 kg ha⁻¹) over three locations in the DR (1993-1996). Arroyo Loro Negro produced a mean yield of 1702 kg ha⁻¹ in regional field trials conducted in the DR, Panama, Puerto Rico, and Cuba (1993-1994). Arroyo Loro Negro is more tolerant to drought, high temperature, and low soil fertility than traditional black cultivars such as ‘Venezuela 44’. Arroyo Loro Negro has an indeterminate, short vine Type II growth habit and reaches physiological maturity about 70 d after planting. The seed is opaque black, elliptically shaped, and ranges in size from 19 to 21 g 100⁻¹ seeds. It has resistance to the web blight, rust, and common blight pathogens while bean golden mosaic causes a susceptible reaction.

Crop: Dry Bean (*Phaseolus vulgaris* L.)

Variety: ‘CIAS-95’ red mottled bean

Scientists: E. Arnaud-Santana, J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver and J.R. Steadman

Released By: Centro de Investigacion Agricola del Suroeste, Ministry of Agriculture, Dominican Republic in cooperation with the University of Nebraska and the University of Puerto Rico

Characteristics: CIAS-95 possesses field resistance to strains of *Xanthomonas campestris* pv. *phaseoli* and rust pathotypes present in the resistance to five out of nine DR rust pathotypes. It is susceptible to bean golden mosaic virus, resistance to bean common mosaic virus NY-15, but susceptible to bean common mosaic necrotic virus-NL3 strain. CIAS-95 has a Type I determinant bush growth habit and flowers early (30-33 d). Physiological maturity is reached about 75-80 d after planting. Seeds are dark red mottled, elliptically shaped and medium sized (40-45 g 100⁻¹ seeds). The number of pods per plant is between 10 and 15 with about 3-4 seeds per pod. The mean yields of CIAS-95 ranged from 1167 to 2000 kg ha⁻¹ (1993-1995), and exceeded the yield of the standard PC-50 in four out of six locations.

Crop: Dry Bean (*Phaseolus vulgaris* L.)

Variety: ‘Saladin-97’ red mottled bean

Scientists: J.C. Nin, E. Arnaud-Santana, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman

Released By: Centro de Investigacion Agricola del Suroeste, Ministry of Agriculture, Dominican Republic in cooperation with the University of Nebraska and the University of Puerto Rico

Characteristics: Saladin-97 has field resistance to strains of the common blight pathogen. It is susceptible to Type II of the bean golden mosaic virus, resistant to bean common mosaic virus NY-15 strain, and susceptible to bean common mosaic necrotic virus-NL3 strain. Saladin-97 exhibited partial resistance to rust in the field, but was resistant to only 3 out of 10 DR rust pathotypes in a greenhouse inoculation test. Yields ranged from 1309 to 2073 kg ha⁻¹, and exceeded the standard cultivar PC-50 in five out of six locations in the DR (1993-1995). Saladin-97 has a determinant type I growth habit and matures in about 60

<p>d after planting. The seeds are light red mottled, elliptically shaped, and medium sized (42-44 g 100⁻¹ seeds). The number of pods per plant is between 13 and 15 with 3-4 seeds per pod.</p> <p><i>Crop:</i> Dry Bean (<i>Phaseolus vulgaris</i> L.)</p> <p><i>Variety:</i> ‘JB-178’ red mottled bean</p> <p><i>Scientists:</i> E. Arnaud-Santana, J.C. Nin, F. Saladin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne and J.R. Steadman</p>	<p><i>Characteristics:</i> PC-50 has a Type I determinate growth habit and reaches physiological maturity 55-60 d after planting. The seed is medium sized (40-42 g 100⁻¹ seeds), elliptically shaped and red mottled. Cooking quality was regarded as excellent by local people following use of their traditional pot cooking methods. PC-50 is well adapted to low to intermediate altitudes (100-1500 m). PC-50 possesses the Ur-4 and Ur-9 genes for resistance to rust. It shows partial resistance to the DR rust pathotypes, but was susceptible to 6 out of 10 rust pathotypes in greenhouse tests. PC-50 is susceptible to Type II bean golden mosaic, common bacterial blight, to isolates of AG-1-1B and AG-2-2 of the web blight pathogen, and to bean common mosaic.</p>
<p><i>Released By:</i> Centro de Investigacion Agricola del Suroeste, Ministry of Agriculture, Dominican Republic, in cooperation with the University of Puerto Rico and the University of Nebraska</p>	
<p><i>Characteristics:</i> JB-178 has partial resistance (smaller and fewer uredinia) to rust in the field in the DR but was susceptible to eight out of nine DR rust pathotypes in a greenhouse test. It is susceptible to bean golden mosaic virus, resistant to bean common mosaic virus NY-15 strain, and susceptible to bean common mosaic necrotic virus-NL3 strain. JB-178 is well adapted to low and intermediate altitudes (100 to 1000 m). Seed yields of JB-178 ranged from 1091 to 2131 kg ha⁻¹ and was similar to ‘PC-50’ in trials in the DR (1993-1995). JB-178 has a determinant (Type I) growth habit generally reaching a height of at least 50 cm. It reaches physiological maturity from 55 to 60 d after planting. Seeds are light red mottled, elliptically shaped and range from 46-47 g 100⁻¹ seeds.</p>	<p><i>Crop:</i> Dry Bean (<i>Phaseolus vulgaris</i> L.)</p> <p><i>Variety:</i> WeiHING</p> <p><i>Scientists:</i> D.P. Coyne, D.S. Nuland, D.T. Lindgren, J.R. Steadman, D.W. Smith, J. Gonzales, J. Schild, J. Reiser, L. Sutton, C. Carlson, J.R. Staveland and P. Miklas</p>
<p><i>Crop:</i> Dry Bean (<i>Phaseolus vulgaris</i> L.)</p> <p><i>Variety:</i> ‘PC-50’ red mottled bean</p> <p><i>Scientists:</i> F. Saladin, E. Arnaud-Santana, J.C. Nin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J.R. Steadman</p>	<p><i>Released By:</i> University of Nebraska Agricultural Experiment Station and United States Department of Agriculture, Agricultural Research Service</p>
<p><i>Released By:</i> Centro de Investigacion Agricola del Suroeste, Ministry of Agriculture, Dominican Republic in cooperation with the University of Nebraska and the University of Puerto Rico</p>	<p><i>Characteristics:</i> Great northern ‘WeiHING’ was released for its resistance to prevalent races of the rust pathogen and strains of the common blight and halo blight pathogens in Nebraska combined with moderate avoidance to white mold because of an upright and open plant canopy. Seed can be produced in Idaho because of bean common mosaic resistance. The multiple disease resistance lowers production costs and the upright plant habit facilitates furrow irrigation and cultivation. WeiHING has large white seeds, and yields were similar to standard great northern cultivars Harris and Beryl.</p>

Copyrights and Patents

Copyright and patent protection is an important parameter in research. It is especially important for discoveries and innovations that have a potential commercial application. Therefore, from time to time, the ARD (and the University) may determine that the public good is best served with regard to technology transfer by entering into an agreement with a public or private institution that provides the institution with proprietary interests in specific research. The research of ARD scientists often can lead to a patent. Most of the patents that have been awarded to ARD scientists have been for equipment developments and specialized processes. These patents often are licensed by private industry, with royalties being reinvested in future ARD research. The following copyright and patents were awarded in 2000.

Patent Title	Nucleotide Sequences and Method for Detection of <i>Serpulina hyodysenteriae</i>
Patent Numbers	American Type Culture Collection Deposit No. 75826; United States Patents 5,698,394; 5,869,630 and 6,068,843
Scientists	G.E. Duhamel and R.O. Elder
Description	This invention provides an improved method for detecting the presence of <i>Serpulina hyodysenteriae</i> in a biological sample, an oligonucleotide primer and an <i>S. hyodysenteriae</i> specific oligonucleotide probe useful in that method, as well as an article of manufacture that contains the primers and/ or probe. In addition, this invention provides a 2.3 kb DNA fragment derived from genomic DNA of <i>S. hyodysenteriae</i> and encoding for a 56 kDa polypeptide, a recombinant expression vector containing the DNA fragment, the 56 kDa polypeptide and a monoclonal antibody reactive with the peptide, and a method of assaying for antibodies reactive with the 56 kDa peptide.

Veterinary and Biomedical Sciences

Patent Title	Identification of Novel Loci Involved in Entry by <i>Legionella pneumophila</i>
Patent Number	U.S. Patent Application, serial number: 09/628,871
Scientists	J.D. Cirillo
Description	We have developed a novel strategy for the identification of genes involved in the ability to cause disease from nearly any bacterial pathogen of animals and humans. This approach will allow the development of novel methods for the prevention and treatment of infections.

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 2001)

University of Nebraska Board of Regents

Don S. Blank, McCook	Drew Miller, Papillion
Randolph Ferlic, Omaha	Nancy O'Brien, Waterloo
Chuck Hassebrook, Walthill	Kent Schroeder, Kearney
Jay Matzke, Seward	Charles S. Wilson, Lincoln

Student Regents

UNMC	—	Javine Winterboer
UNO	—	Mallory Prucha
UNL	—	Nathan Fuerst
UNK	—	Ryan Samuelson

Administrative Officers

L. Dennis Smith, 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 Director

Dale H. Vanderholm, Associate Dean and Director

Marjorie J. Kostelnik, Human Resources and Family Sciences

Dora Dill, Administrative Technician

Nelvie Lienemann, Staff Assistant

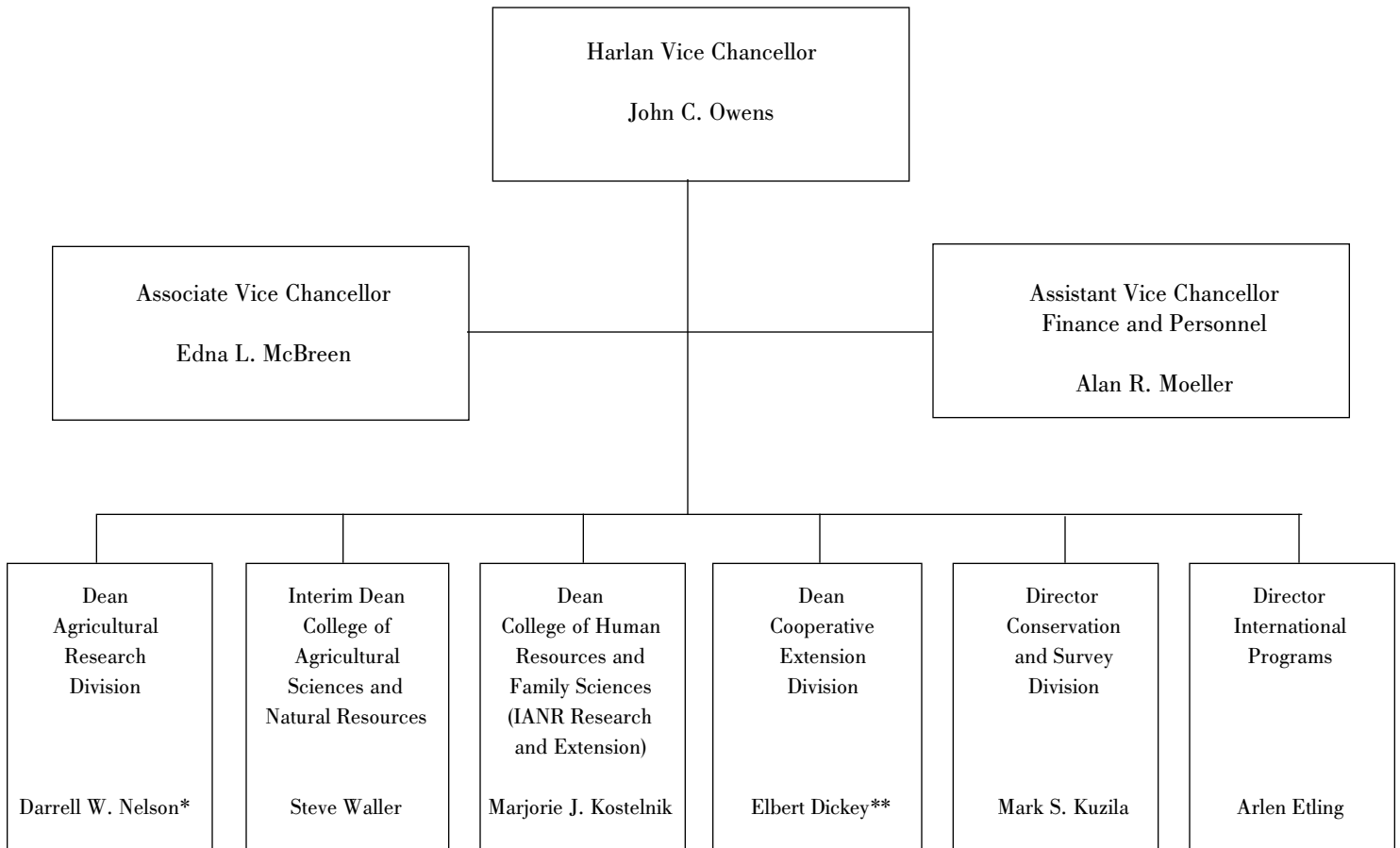
Diane Mohrhoff, Project Assistant

Shirley McCain¹, Temporary/On Call

¹Temporary appointment

Organizational Chart

Institute of Agriculture and Natural Resources University of Nebraska-Lincoln June 2001



*Director, Nebraska Agricultural Experiment Station

**Director, University of Nebraska Cooperative Extension

**Administrative Units Reporting to Agricultural Research Division
Institute of Agriculture and Natural Resources
The University of Nebraska-Lincoln
June 2001**

Agricultural/Natural Resources Units

Agricultural Economics
Jeffrey Royer, Head

Agricultural Leadership, Education and Communication
Earl Russell, Head¹
Susan Fritz, Head²

Agronomy/Horticulture
Kenneth Cassman, Head

Animal Science
Donald Beermann, Head

Biochemistry
Robert Klucas, Head

Biological Systems Engineering
Glenn Hoffman, Head

Biometry
David Marx, Chair

Entomology
Z B Mayo, Head

Food Science and Technology
Steve Taylor, Head

Plant Pathology
Anne Vidaver, Head
Jim Steadman, Acting Head

School of Natural Resource Sciences
Ted Elliott, Director

Veterinary and Biomedical Sciences
Jack Schmitz, Head

Human Resources and Family Sciences Departments

Family and Consumer Sciences
Julie Johnson, Chair

Nutritional Science and Dietetics
Marilynn Schnepf, Chair

Textiles, Clothing and Design
Rita Kean, Chair
Pat Crews, Acting Chair¹

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

South Central Research and Extension Center
Clay Center—Alan Baquet, Director

Southeast Research and Extension Center
Lincoln—Randy Cantrell, Director

West Central Research and Extension Center
North Platte—Gary Hergert, Director

Interdisciplinary Centers

Biotechnology Center
Anne Vidaver, Director¹
Ruben Donis, Acting Director²

Food Processing Center
Steve Taylor, Director

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 Rural Community Revitalization and Development
John Allen, Director

Center for Sustainable Agricultural Systems
Chuck Francis, Director¹

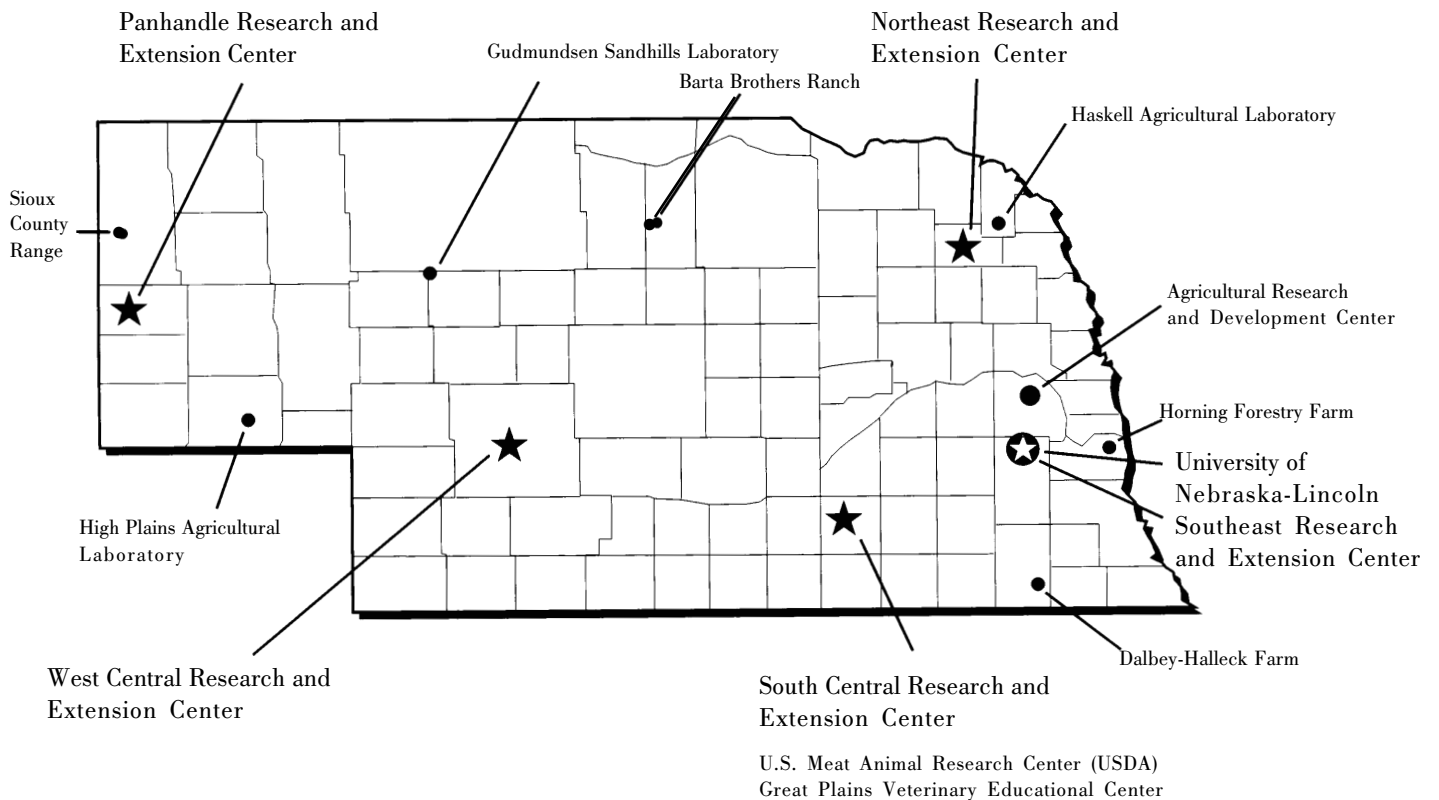
Water Center/ Environmental Programs
Edward Vitzthum, Interim Director¹
Kyle Hoagland, Director²

IANR Communications and Information Technology
Dan Cotton, Director

¹Ended appointment during 2000-2001

²Began appointment during 2000-2001

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 Research and Extension Center, 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 312 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.

The School of Natural Resource Sciences was formed in August 1997. The School was formed from the merger of the Department of Agricultural Meteorology, Department of Forestry, Fisheries and Wildlife and the Water Center/Environmental Programs. In addition, several faculty from other units within the University transferred all or part of their appointment to the School.

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 25 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 55 scientists at the MARC facility, many of whom also hold UNL 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 Departments of Entomology and Forestry, Fisheries and Wildlife 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 Department of Animal Science has a unique relationship with its industry supporters. Several industry representatives also hold adjunct appointments in the department 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 2000-2001 departmental budgets.

Agricultural/Natural Resources Units

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Agricultural Economics						
Jeffrey S. Royer	Professor	0.52	0.18	0.30		Head
John C. Allen	Professor	0.35	0.50	0.08	0.07	Director, Center for Rural Community, Revitalization and and Development; Rural Sociology
J. David Aiken	Professor	0.45	0.25	0.30		Agricultural and Natural Resources Law
Azzeddine Azzam	Professor	0.70		0.30		Research and Quantitative Methods, Industrial Organization of Food Processing
Oscar Burt	Adjunct Professor					Agricultural Production Economics, Natural Resources, Econometrics and Dynamic Optimization
Dennis Conley	Professor	0.45		0.55		Agribusiness
Sam M. Cordes	Professor	0.40	0.60			Rural Health Policy
Lilyan Fulginiti	Professor	0.75		0.25		Agricultural Policies/Production
Konstantinos Giannakas	Assistant Professor	0.75		0.25		Food and Agribusiness Marketing
Glenn A. Helmers	Professor	0.60		0.40		Farm Management, Agricultural Finance Policy
Bruce B. Johnson	Professor	0.45		0.55		Resource and Community Economics
H. Douglas Jose	Professor	0.20	0.80			Farm and Ranch Management, Agricultural Finance Policy
Bettina Klaus	Assistant Professor	0.25			0.75	Microeconomic Theory
Gary Lynne	Professor	0.75		0.25		Natural Resource Economics
Richard Perrin	Professor	0.75		0.25		Production Economics
E. Wesley F. Peterson	Professor	0.75		0.25		International Trade, Development and Policy
George H. Pfeiffer ¹	Associate Professor	0.25		0.75		Farm and Ranch Management
Raymond J. Supalla	Professor	0.75		0.25		Natural Resource Economics

Agricultural Leadership, Education and Communication

Susan Fritz	Associate Professor	0.25		0.75		Leadership Development
John E. Barburto Jr.	Assistant Professor	0.25	0.25	0.50		Leadership Development
James W. King	Associate Professor	0.25		0.75		Distance Education
S. Kay Rockwell	Professor	0.25	0.60	0.08	0.07	Distance Education Policy

¹ Ended research appointment during 2000-2001

² Began research appointment during 2000-2001

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Agronomy and Horticulture						
Kenneth G. Cassman	Professor	0.55	0.25	0.20		Head
Bruce E. Anderson	Professor	0.25	0.75			Forage Management
Timothy J. Arkebauer	Associate Professor	0.85		0.15		Crop Environmental Physiology
P. Stephen Baenziger	Professor	0.75		0.25		Small Grains Breeding and Genetics
Robert M. Caldwell	Assistant Professor	0.40	0.60			Cropping Systems Specialist
Max Clegg ¹	Associate Professor	0.75		0.25		Crop Physiology/K-12 Coordinator
Dermot P. Coyne ¹	Professor	0.96		0.04		Vegetable Breeding
Thomas Clemente	Assistant Professor	0.50		0.10	0.40	Plant Transformation Specialist
Achim Dobermann	Associate Professor	0.70	0.30			Soil Fertility/Nutrient Management
John W. Doran	Professor				USDA	Soil Biochemistry
Rhae A. Drijber	Associate Professor	0.60		0.40		Soil Microbiology Ecology
Ismail Dweikat	Assistant Professor	0.80		0.20		Sorghum Geneticist
Jerry D. Eastin	Professor	0.85		0.15		Crop Physiology
Charles A. Francis	Professor	0.43	0.35	0.22		Farming and Landscape Design
Roch E. Gaussoin	Associate Professor	0.25	0.75			Turfgrass Management and Physiology
Kulvinder Gill	Assistant Professor	0.80		0.20		Plant Molecular Cytogeneticist
George L. Graef	Professor	0.85		0.15		Soybean Breeding and Genetics
Robert Graybosch	Professor				USDA	Wheat Genetics
Laurie Hodges	Associate Professor	0.25	0.75			Vegetable Production and Development
Garald L. Horst	Professor	0.40		0.60		Turfgrass Physiology and Management
Donald J. Lee	Associate Professor	0.40		0.60		Plant Genetics
John Lindquist	Assistant Professor	0.80		0.20		Weed Ecophysiology
Sally Mackenzie	Professor	0.50		0.10	0.40	Plant Geneticist/Program Leader, Plant Science Initiative
Martha Mamo	Assistant Professor	0.25		0.75		Soil Chemistry/Biochemistry
Jerry Maranville ¹	Professor	0.85		0.15		Sorghum Physiology
John P. Markwell	Professor	0.10			0.90	Plant Biochemist
Alexander Martin	Professor	0.33	0.67			Weed Science, Extension Coordinator
Stephen C. Mason	Professor	0.50		0.50		Crop Production
Martin A. Massengale	Professor	0.37	0.26	0.12	0.25	Grassland Forages/Director of the Center for Grassland Studies
Robert A. Masters	Professor				USDA	Range Weed Control
Dennis McCallister	Associate Professor	0.40		0.60		Soil Chemistry
David A. Mortensen ¹	Professor	0.75		0.25		Weed Science
Lowell E. Moser	Professor	0.35		0.65		Forage Physiology
Lenis A. Nelson	Professor	0.50	0.50			Crop Variety Evaluation/New Crops
Ellen T. Pappozzi	Professor	0.50		0.50		Ornamentals
Jeffrey Pedersen	Professor				USDA	Sorghum Genetics and Breeding
William L. Powers ¹	Professor	0.88		0.12		Soil Physics
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		Turf Breeding
W. Ken Russell	Assistant Professor	0.80		0.20		Plant Quantitative Genetics/Statistical Genomics
Walter H. Schacht	Associate Professor	0.60		0.40		Range Science
James S. Schepers	Professor				USDA	Soil Chemistry
John Shanahan	Assistant Professor				USDA	Crop Physiology
Robert C. Shearman	Professor	0.70	0.30			Sustainable Turf Systems
James E. Specht	Professor	0.80		0.20		Soybean Physiology and Breeding
Paul E. Staswick	Professor	0.85		0.15		Molecular Genetics
James Stubbendieck	Professor	0.25		0.25	0.50	Range Ecology/Management/Director of the Center for Great Plains Studies
Gary E. Varvel	Associate Professor				USDA	Soil Management
Kenneth P. Vogel	Professor				USDA	Grass Breeding
Daniel T. Walters	Professor	0.65		0.35		Soil Management
J. Troy Weeks	Assistant Professor				USDA	Sorghum Molecular Biology
Brian Wienhold	Assistant Professor				USDA	Soil Fertility
Wallace W. Wilhelm	Professor				USDA	Crop Physiology

Animal Science

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
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
Ronald K. Christenson	Professor				USDA	Physiology
Edgar T. Clemens ¹	Professor	0.50		0.50		Gastroenteric Physiology
L. Davis Clements ¹	Professor	0.18	0.07		0.75	Meat and Poultry By-products
Larry V. Cundiff	Professor				Acad	Beef Genetics
Andrea S. Cupp ²	Assistant Professor	0.70		0.30		Beef Physiology
Michael J. D'Occhio	Professor				USDA	Physiology
Galen E. Erickson ²	Assistant Professor	0.50	0.40	0.10		Feedlot Nutrition
Calvin L. Ferrell	Professor				USDA	Nutrition
J. Joe Ford	Professor				USDA	Physiology
Richard J. Grant	Associate Professor	0.70	0.30			Dairy Nutrition
Thomas G. Jenkins	Professor				USDA	Genetics
Rodger K. Johnson	Professor	0.60		0.40		Swine Genetics
Steven J. Jones	Associate Professor	0.35		0.65		Meats
Jeffrey F. Keown	Professor	0.30	0.70			Dairy Management
Roger J. Kittok	Associate Professor	0.85		0.15		Reproductive Physiology
Terry J. Klopfenstein	Professor	0.70		0.30		Ruminant Nutrition
Richard K. Koelsch	Assistant Professor	0.09	0.21		0.70	Livestock Waste Management
Mohammad Koochmaraie	Associate Professor				USDA	Meats
Larry L. Larson	Associate Professor	0.40		0.60		Dairy Physiology
Austin J. Lewis	Professor	0.70		0.30		Swine Nutrition
Kreg A. Leymaster	Professor				USDA	Genetics
Donald D. Lunstra	Professor				USDA	Physiology
Roger W. Mandigo	Professor	0.60		0.40		Meats
Phillip S. Miller	Associate Professor	0.60		0.40		Swine Nutrition
C. Todd Milton	Assistant Professor				Industry	Feedlot Nutrition
Jess L. Miner	Assistant Professor	0.70		0.30		Nutritional Biochemistry
Merlyn K. Nielsen	Professor	0.60		0.40		Genetics
J. Calvin Parrott, III	Professor				Industry	Ruminant Nutrition
Jerome C. Pekas	Associate Professor				USDA	Nutrition
Daniel H. Pomp	Associate Professor	0.75		0.25		Genetics
Rick J. Rasby	Professor	0.25	0.75			Beef Management
Thomas A. Rathje	Assistant Professor				Industry	Swine Genetics
Andrew J. Roberts	Assistant Professor				USDA	Physiology
Gary A. Rohrer	Assistant Professor				USDA	Genetics
Sheila E. Scheideler	Professor	0.45	0.50	0.05		Poultry Management
Rick A. Stock	Professor				Industry	Ruminant Nutrition
L. Dale Van Vleck	Professor	0.05		0.15	USDA	Genetics
Vincent H. Varel	Associate Professor				USDA	Bacterial Physiology
John S. Weber ²	Assistant Professor	0.80		0.20		Functional Geomics
Brett R. White ²	Assistant Professor	0.50		0.50		Swine Physiology
Jong-Tseng Yen	Professor				USDA	Nutrition

¹Ended research appointment during 2000-2001

²Began research appointment during 2000-2001

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Biochemistry						
Robert V. Klucas	Professor	0.75		0.25		Head, Nitrogen Fixation
Lori A. Allison	Assistant Professor	0.80		0.20		Plant Molecular Genetics
Ruma V. Banerjee	Professor	0.85		0.15		Mechanistic Enzymology
Xin Bi	Assistant Professor	0.80		0.20		Regulating Gene Expressions
Raymond Chollet	Professor	0.80		0.20		Photosynthesis
Vadim N. Gladyshev	Assistant Professor	0.80		0.20		Protein Biochemistry, Selenium
Herman W. Knoche ¹	Professor	0.40		0.40		Lipid Biochemistry
John P. Markwell	Professor	0.60		0.20	0.20	Plant Biochemistry
Carolyn Price ¹	Associate Professor	0.25			0.75	Biochemistry
Stephen W. Ragsdale	Professor	0.85		0.15		Enzymes
Gautam Sarath	Associate Professor	0.80		0.20		Protein Biochemistry
Javier Seravalli	Assistant Professor				1.00	Enzymology
Robert J. Spreitzer	Professor	0.85		0.15		Plant Molecular Genetics
Shinichi Taoka	Assistant Professor				1.00	Protein Biochemistry
Donald P. Weeks	Professor	0.55		0.10	0.35	Plant Molecular Biology
Charles Wood	Professor	0.25			0.75	Virology
Biological Systems Engineering						
Glenn J. Hoffman	Professor	0.35	0.50	0.15		Head
Viacheslav I. Adamchuk	Assistant Professor	0.40	0.50	0.10		Precision Agriculture
Greg Bashford	Assistant Professor				Industry	Biomedical Engineering
Leonard L. Bashford	Professor	0.41		0.30	0.29	Tractors and Design Engineering
David Billesbach	Assistant Professor	0.05			0.50	Gaseous Emissions
Rhonda M. Brand	Assistant Professor	0.50		0.50		Environmental Health Engineer
Tami Brown-Brandl	Assistant Professor				USDA	Animal Environmental and Waste Management
L. Davis Clements	Professor				Industry	RPDL Company
Roger Eigenberg	Assistant Professor				USDA	Animal Environmental and Waste Management
Dean E. Eisenhauer	Professor	0.50		0.50		Hydrologic and Irrigation
Qi Fang	Assistant Professor	1.00			Industry	Bioprocessing Engineer
Thomas G. Franti	Associate Professor	0.25	0.75			Surface Water Management
Aris Gennadios	Associate Professor				Industry	Pharmaceutical Manufacturing
John E. Gilley	Professor				USDA	Soil Erosion
Robert D. Grisso ¹	Professor	0.25	0.35	0.40		Agricultural Machinery
Milford A. Hanna	Professor	0.45		0.10	0.45	Food and Bioprocess Engineering
Terry A. Howell	Professor				USDA	Irrigation Scheduling
David D. Jones	Associate Professor	0.35		0.65		Product Handling and Storage
Michael F. Kocher	Professor	0.40		0.55	0.05	Controls Engineer
Richard Koelsch	Associate Professor	0.21	0.49		0.30	Livestock Bioenvironmental Engineering
Derrel L. Martin	Associate Professor	0.65		0.35		Sprinkler Irrigation
Michael M. Meagher ¹	Associate Professor			0.20	0.80	Bioprocess Engineering
George E. Meyer	Professor	0.60		0.40		Plant Growth Modeling
Jack A. Nienaber	Professor				USDA	Animal Calorimetry
Dennis D. Schulte	Professor	0.50		0.50		Pollution Control and Energy Systems
LaVerne Stetson ¹	Professor				USDA	Agricultural Electricity
Mark Schrock ¹	Professor				USDA	Agricultural Machinery
Darrell Watts ¹	Professor	0.50	0.30			Water Quality/Irrigation
Curtis L. Weller	Professor	0.60		0.20	0.20	Food and Bioprocess Engineering
Wayne Woldt	Associate Professor	0.25	0.50		0.25	Bioenvironmental Engineering
Brian Woodbury	Assistant Professor				USDA	Animal Environmental and Waste Management

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Biometry						
David B. Marx	Professor	0.50		0.50		Head, Statistical Consultant
Erin Blankenship	Assistant Professor	0.55		0.44		Statistical Consultant
Kent Eskridge	Professor	0.60		0.40		Statistical Consultant
Stephen D. Kachman	Associate Professor	0.75		0.25		Statistical Consultant
Anne Parkhurst	Professor	0.50		0.50		Statistical Consultant
Walter W. Stroup	Professor	0.50		0.50		Statistical Consultant
Linda J. Young	Professor	0.75		0.25		Statistical Consultant

Entomology

Z B Mayo	Professor	0.62	0.29	0.09		Head, Aphid Genetics
Frederick P. Baxendale	Professor	0.25	0.75			Turf Insects
Dennis R. Berkebile	Assistant Professor				USDA	Livestock Entomology
John D. Burd ²	Professor				USDA	Insect Plant Interactions
Stephen D. Danielson	Associate Professor	0.75		0.25		Field Crop Insect Ecology
Mary Ellen Dix	Associate Professor				USDA	Shelterbelt Insects
John E. Foster	Professor	0.50	0.50			Insect Genetics
E.A. Heinrichs	Professor				1.00	Insect-Plant Interactions
Leon G. Higley	Professor	0.80		0.20		Insect Ecology
W. Wyatt Hoback	Assistant Professor				1.00	Insect Ecology and Physiology
Scott Hutchins	Professor				1.00	Integrated Pest Management
Shripat T. Kamble ²	Professor	0.36	0.54		0.10	Urban Pest Management
Wayne L. Kramer	Assistant Professor				1.00	Medical Entomology
Lance J. Meinke	Professor	0.80		0.20		Soil Insects
Daniel Mollenbeck	Assistant Professor				1.00	Plant Resistance to Insects
Frank Peairs	Professor				1.00	Insect-Plant Interactions
Richard D. Peterson	Assistant Professor				USDA	Livestock Entomology
Robert K. Peterson	Associate Professor				1.00	Integrated Pest Management
Philip J. Scholl ²	Professor				USDA	Veterinary Entomology
Blair D. Siegfried	Professor	0.80		0.20		Insect Toxicology
Steven R. Skoda	Associate Professor				USDA	Livestock Entomology
C. Michael Smith	Professor				1.00	Plant/Insect Interactions
David W. Stanley	Professor	0.78		0.22		Insect Physiology
David B. Taylor	Associate Professor				USDA	Livestock Entomology

¹Ended research appointment during 2000-2001

²Began research appointment during 2000-2001

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Food Science and Technology						
Steve L. Taylor	Professor	0.40	0.34	0.26		Head, Food Toxicology
Andrew K. Benson	Assistant Professor	0.60		0.40		Food Microbiology
Mindy M. Brashears ¹	Assistant Professor	0.30	0.70			Food Microbiology
Lloyd B. Bullerman	Professor	0.70	0.10	0.20		Food Microbiology/Mycology
Susan B. Cuppett	Professor	0.60		0.40		Food Lipids
Milford A. Hanna	Professor	0.20			0.80	Food and Bioprocess Engineering
Susan Hefle	Assistant Professor	0.80			0.20	Food Allergy Research
Robert W. Hutkins	Professor	0.65		0.35		Food Biotechnology
David S. Jackson	Professor	0.70	0.30			Cereals/Oilseeds Processing
Shelly McKee-Hensarling	Assistant Professor	0.70	0.15	0.15		Egg and Egg Products
Vicki Schlegel	Assistant Professor	0.25		0.10	0.65	Quality Assurance
Durward A. Smith	Associate Professor	0.25	0.60	0.15		Horticultural Food Crops Processing
Curtis L. Weller	Professor			0.20	0.80	Food and Bioprocess Engineering
Randy L. Wehling	Professor	0.50		0.50		Food Analysis
Michael G. Zeece	Professor	0.75		0.25		Food Protein Chemistry

Plant Pathology

Anne K. Vidaver	Professor	0.75	0.15	0.10		Head
James Alfano ²	Assistant Professor				1.00	PSI Genetics of Plant-Bacterial Interactions
Martin B. Dickman	Professor	0.85		0.15		Genetics of Host/Parasite Interactions
David Dunigan ¹	Assistant Professor				1.00	Plant Programmed Cell Death
Roy C. French	Professor				USDA	Viruses and Nucleic Acids
Loren Giesler ²	Assistant Professor	0.25	0.75			Soybean, Alfalfa & Landscape Ornamentals
Leslie C. Lane	Associate Professor	0.85		0.15		Virus Diseases
Amit Mitra	Associate Professor	0.85		0.15		Plant Vector/Plant Transformation
James E. Partridge	Associate Professor	0.50		0.50		Host/Parasite Interactions/Stress
Thomas O. Powers	Associate Professor	0.80		0.10		Nematology
James R. Steadman	Professor	0.90		0.10		Epidemiology of Vegetable Diseases
Drake C. Stenger	Assistant Professor				USDA	Wheat Virology
Allen Szalanski ¹	Assistant Professor				1.00	Molecular Diagnostics
James L. Van Etten	Professor	1.00				Molecular Virology
John E. Watkins	Professor	0.25	0.75			Small Grains, Turf and Alfalfa
Gary Y. Yuen	Associate Professor	0.85		0.15		Soilborne Diseases

¹Ended research appointment during 2000-2001

²Began research appointment during 2000-2001

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
School of Natural Resource Sciences						
Edward T. Elliott	Professor	0.42	0.33	0.25		Director
Tala Awada ²	Assistant Professor	0.80		0.20		Plant Ecophysiology
Jerry F. Ayers	Associate Professor	0.15		0.25	0.60	Environmental Geophysics, Hydrogeology
Blaine L. Blad ¹	Professor	0.75		0.25		Director
James R. Brandle	Professor	0.70		0.30		Forestry\Windbreaks
Ronald M. Case ¹	Professor	0.25		0.75		Wildlife
Xun-Hong Chen	Associate Professor	0.25		0.08	0.67	Hydrogeology
Steven D. Comfort	Associate Professor	0.75	0.25			Soil Environmental Chemist
Anatoly A. Gitelson	Professor	0.50			0.50	Remote Sensing
David C. Gosselin	Associate Professor	0.65		0.10	0.25	Earth Science
Mark O. Harrell	Professor	0.25			0.75	Forest Entomology
F. Edward Harvey	Assistant Professor	0.55		0.20	0.25	Hydrogeology
Michael J. Hayes	Assistant Professor	1.00				Agricultural Climatology
Geoffrey M. Henebry ²	Associate Professor				1.00	Landscape Ecology/Remote Sensing
Gary L. Hergenrader	Professor	0.10	0.10	0.10	0.70	State Forester
Kyle D. Hoagland	Professor	0.75		0.25		Limnology
John Holtz	Assistant Professor	0.12			0.88	Limnology/Lake Management
Qi Hu	Assistant Professor	0.55	0.35	0.10		Agricultural Climatology
Kenneth G. Hubbard	Professor	0.70	0.20	0.10		Agricultural Climatology
Ron J. Johnson	Professor	0.31	0.69			Wildlife Management
Scott J. Josiah	Assistant Professor	0.25	0.75			Forestry
Robert D. Kuzelka	Associate Professor	0.30	0.35	0.35		Assistant Director, Water Center/ Environmental Programs
Glen E. Martin	Assistant Professor				1.00	Water Science
James W. Merchant	Professor	0.15		0.25	0.60	Geographic Information Systems
Steve J. Meyer	Associate Professor		0.50	0.25	0.25	Agricultural Climatology
Edward J. Peters	Professor	0.25		0.75		Fisheries
Donald C. Rundquist	Professor	0.25		0.35	0.40	Remote Sensing
Joseph M. Skopp	Associate Professor	0.50		0.50		Soil Physics
Daniel D. Snow	Assistant Professor				1.00	Hydrogeochemistry
Michele M. Schoeneberger	Assistant Professor				USDA	Forestry
Patrick J. Shea	Professor	0.55		0.20	0.25	Environmental Chemistry of Xenobiotics
Mary E. Spalding	Professor	1.00				Water Quality
Roy F. Spalding ¹	Professor	0.80		0.10	0.10	Hydrochemistry/Associate Director, Water Center/Environmental Programs
Shashi B. Verma	Professor	0.60		0.15	0.25	Agricultural Meteorology
Edward F. Vitzthum	Associate Professor	0.20	0.65	0.15		Associate Director, Water Center
Elizabeth A. Walter-Shea	Associate Professor	0.85		0.15		Agricultural Meteorology/Solar Radiation
David A. Wedin	Associate Professor	0.40		0.60		Ecology
Albert Weiss	Professor	0.70	0.15	0.15		Agricultural Meteorology
Donald A. Wilhite	Professor	0.85		0.15		Agricultural Climatology
C. William Zanner ²	Assistant Professor	0.60		0.30	0.10	Soil Geomorphology

	Rank	Rsch	Ext	Tch	Other	Area of Responsibility
Veterinary and Biomedical Sciences						
John A. Schmitz	Professor	0.65	0.15	0.20		Head
Raul Barletta	Associate Professor	0.90		0.10		Molecular Biology
Jeffrey Cirillo	Assistant Professor	0.85		0.15		Infectious Diseases
Ruben O. Donis	Associate Professor	0.85		0.15		Molecular Virology
Alan R. Doster	Professor				1.00	Diagnostic Pathology
Gerald E. Duhamel	Professor	0.80		0.10	0.10	Diagnostic/Research Pathology
Steve M. Ensley ²	Assistant Professor		0.50		0.50	Veterinary Toxicology and Diagnostic
Dee Griffin	Professor		0.30	0.50	0.20	Beef Cattle Medicine
Clinton J. Jones	Professor	0.90		0.10		Molecular Virology
Laura Hungerford	Associate Professor	0.60		0.40		Physiology
Clayton L. Kelling	Professor	0.85		0.15		Research Virology
Marjorie F. Lou	Professor	0.50			0.50	Research Biochemistry
Rodney A. Moxley	Professor	0.90		0.10		Diagnostic/Research Pathology
Fernando Osorio	Professor	0.60			0.40	Diagnostic/Research Virology
Douglas G. Rogers	Associate Professor				1.00	Diagnostic/Research Pathology
Gary P. Rupp	Professor	0.50		0.50		Director, GPVEC, Beef Cattle Medicine
Norman Schneider	Associate Professor		0.25	0.50	0.25	Toxicology
Gary Sherman	Assistant Professor	0.60		0.40		Veterinary Epidemiology
David Smith	Assistant Professor	0.25	0.75			Dairy and Beef Cattle Health
S. Srikumaran	Professor	0.85		0.15		Immunology
David Steffen	Associate Professor				1.00	Diagnostic Research Pathology
Eva Wallner-Pendleton ¹	Associate Professor		0.60		0.40	Avian Pathology
Robert Wills ¹	Assistant Professor	0.30	0.70			Swine Diseases

Rank	Rsch	Ext	Teh	Other	Area of Responsibility
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Human Resources and Family Sciences Departments

Family and Consumer Sciences

Julie M. Johnson	Professor			1.00	Interim Chair
Douglas A. Abbott	Professor	0.25		0.75	Youth at Risk
Rosalie Bakken ²	Assistant Professor	0.25	0.75		Adolescent Development
Richard Bischoff	Associate Professor	0.25		0.75	Collaborative Health Care
E. Raedene Combs ¹	Professor	0.25		0.75	Housing, Aged
Sheran Cramer	Associate Professor	0.25		0.75	Women/Economic Security
Rochelle Dalla	Assistant Professor	0.25		0.75	Migration
Elizabeth Davis	Associate Professor	0.25		0.75	Family Economics
John D. DeFrain	Professor	0.25	0.75		Youth at Risk
Carolyn Edwards	Professor	0.25		0.75	Cultural Diversity/Early Childhood
Li-Wen Lin ²	Assistant Professor	0.25		0.75	Intergenerational Cultural Diversity
Kathy Prochaska-Cue	Associate Professor	0.25	0.75		Family Management
Mary Ellen Rider	Assistant Professor	0.25	0.75		Consumer Health Policy
Pauline Davey Zeece	Professor	0.25		0.75	Child Care

Nutritional Science and Dietetics

Marilynn Schnepf	Associate 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. Betts	Professor	0.50		0.50	Nutrition
Fayrene Hamouz	Associate Professor	0.30	0.25	0.45	Restaurant Management
Nancy M. Lewis	Associate Professor	0.44		0.56	Nutrition
Kaye Stanek-Krogstrand	Associate Professor	0.25		0.75	Nutrition
Janos Zempleni ²	Assistant Professor	0.50		0.50	Molecular Nutrition

Textiles, Clothing and Design

Rita C. Kean	Professor	0.32	0.08	0.60	Chair, Merchandising
Patricia Cox Crews	Professor	0.25		0.75	Interim Chair, Textile Conservation and Science
Joan Laughlin ¹	Professor	0.07		0.93	Textile Sciences
Shirley M. Niemeyer	Professor	0.25	0.75		Environmental Issues
Lois Scheyer ¹	Assistant Professor	0.50		0.50	Industrial Use of Agricultural Products

¹Ended research appointment during 2000-2001

²Began research appointment during 2000-2001

	Rank	Rsch	Ext	Tch	Other	Department (Area of Responsibility)
Off-Campus Research Centers						
Northeast Research and Extension Center						
John F. Witkowski	Professor	0.23	0.69		0.08	Director
Michael C. Brumm	Professor	0.50	0.50			Animal Science (Swine Production)
Thomas E. Hunt	Assistant Professor	0.50	0.50			Entomology (Entomologist)
Stevan Knezevic	Assistant Professor	0.50	0.50			Agronomy/Horticulture (Weed Science)
William L. Kranz	Assistant 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	Associate Professor	0.50	0.50			Agronomy/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	0.42	0.50		0.08	Director
Burton A. Weichenthal ¹	Professor	0.50	0.50			Animal Science (Beef Cattle)
David D. Baltensperger	Professor	0.30	0.20		0.50	Agronomy/Horticulture (Crop Breeding)
Jurg M. Blumenthal	Assistant Professor	0.50	0.50			Agronomy/Horticulture (Soil Fertility)
Dillon M. Feuz	Associate Professor	0.50	0.50			Agricultural Economics (Farm/Ranch Management)
Dale M. Grotelueschen	Professor	0.10	0.50		0.40	Veterinary and Biomedical Sciences (Diagnostic)
Bob Harveson	Assistant Professor	0.50	0.50			Plant Pathology
Gary L. Hein	Professor	0.50	0.50			Entomology (Entomology)
Drew J. Lyon	Associate Professor	0.50	0.50			Agronomy/Horticulture (Dryland Crops)
Alexander D. Pavlista	Associate Professor	0.25	0.75			Agronomy/Horticulture (Potatoes)
Patrick E. Reece	Associate Professor	0.50	0.50			Agronomy (Range and Forage)
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)
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)
South Central Research and Extension Center						
Alan Baquet	Professor	0.14	0.78		0.08	Director
Brian Benham	Assistant Professor	0.50	0.50			Biological Systems Engineering (Water Quality Management)
Roger Elmore	Professor	0.50	0.50			Agronomy/Horticulture (Crop Production)
Richard Ferguson	Professor	0.50	0.50			Agronomy/Horticulture (Soil Fertility)
Fred W. Roeth	Professor	0.50	0.50			Agronomy/Horticulture (Weed Control/ Water Quality)
Roger Selley	Associate Professor	0.25	0.75			Agricultural Economics (Farm Management)
James Stack	Assistant Professor	0.50	0.50			Plant Pathology (Diseases)
Robert Wright	Professor	0.50	0.50			Entomology (Biological Control)

	Rank	Rsch	Ext	Tch	Other	Department (Area of Responsibility)
Southeast Research and Extension Center						
Randy Cantrell	Professor	0.05	0.87		0.08	Director
West Central Research and Extension Center						
Gary W. Hergert	Professor	0.44	0.45		0.07	Director
Richard T. Clark	Professor	0.43	0.57			Interim Associate Director, Agricultural Economics (Farm and Ranch Management)
Don C. Adams	Professor	0.50	0.50			Animal Science (Range Cattle Nutrition)
John B. Campbell	Professor	0.50	0.50			Entomology (Livestock/Crops)
Gene H. Deutscher ¹	Professor	0.28	0.72			Animal Science (Beef Cattle Reproduction)
Steve Ensley ²	Assistant Professor		0.50		0.50	Veterinary and Biomedical Sciences (Veterinary Toxicology and Diagnostic)
Dale T. Lindgren	Professor	0.50	0.50			Horticulture (Ornamentals)
Nancy Norton ¹	Instructor	0.50	0.50			Agricultural Economics (Farm/Ranch Management)
José Payero ²	Assistant Professor	0.50	0.50			Biological Systems Engineering (Irrigation and Evapo Transporation)
Jerry Volesky	Assistant Professor	0.50	0.50			Agronomy/Horticulture (Range Management)
Gail A. Wicks	Professor	0.50	0.50			Agronomy/Horticulture (Ecofarming/Weeds)

Interdisciplinary Activities

Water Center/Environmental Programs

Edward F. Vitzthum	Associate Professor	0.20	0.65	0.15		Interim Director, Coordinator, Environmental Programs
Shripat T. Kamble ¹	Professor	0.25	0.75			Pesticide Impact Assessment
Robert D. Kuzelka	Associate Professor	0.35	0.35	0.30		Assistant Director
Roy F. Spalding ¹	Professor	0.10			0.90	Associate Director

Agricultural Research Division

Darrell W. Nelson	Professor	1.00				Dean and Director
Dale H. Vanderholm	Professor	0.75			0.25	Associate Dean and Director
Marjorie J. Kostelnik ²	Professor	0.12	0.13		0.75	Assistant Director
Steven S. Waller	Professor	0.50		0.50		Assistant Dean and Director; NCSARE Coordinator

¹Ended research appointment during 2000-2001

²Began research appointment during 2000-2001

Visiting Scientists and Research Associates

The Agricultural Research Division hosted 47 visiting scientists and 67 research associates to the campus in 2000-2001. 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

<i>Visiting Scientist:</i>	Galal El-Sherbeny
<i>Country:</i>	Egypt
<i>Expertise/Discipline:</i>	Crosses in wheat breeding
<i>Visiting Scientist:</i>	Mahnaz Jabeen
<i>Country:</i>	Pakistan
<i>Expertise/Discipline:</i>	Wheat breeding and genetics
<i>Visiting Scientist:</i>	Ariovaldo Luchiar Jr.
<i>Country:</i>	Brazil
<i>Expertise/Discipline:</i>	Precision agriculture, crop stress detection, and remote sensing
<i>Visiting Scientist:</i>	Michael Mogorosi
<i>Country:</i>	Botswana
<i>Expertise/Discipline:</i>	Practical training in Pearl Millet Breeding — sponsorship with INTSORMIL
<i>Visiting Scientist:</i>	Sebahaattin Ozcan
<i>Country:</i>	Turkey
<i>Expertise/Discipline:</i>	mRNA display techniques and molecular marker techniques
<i>Visiting Scientist:</i>	Zhang Rui
<i>Country:</i>	P.R. China
<i>Expertise/Discipline:</i>	Nitrogen-use efficiency
<i>Visiting Scientist:</i>	Christos Tsadilas
<i>Country:</i>	Greece
<i>Expertise/Discipline:</i>	Influence of municipal wastes application on soil quality
<i>Visiting Scientist:</i>	Mario Urbani
<i>Country:</i>	Argentina
<i>Expertise/Discipline:</i>	Breeding sexual perennial grasses for improved nutritive value for cattle
<i>Visiting Scientist:</i>	Ye Xingguo
<i>Country:</i>	China
<i>Expertise/Discipline:</i>	Wheat tissue culture and transformation research

<i>Visiting Scientist:</i>	Guan Yanan
<i>Country:</i>	China
<i>Expertise/Discipline:</i>	Plant breeding and molecular markers in wheat

Animal Science

<i>Visiting Scientist:</i>	Arianna Bolla
<i>Country:</i>	Italy
<i>Expertise/Discipline:</i>	Animal genetics
<i>Visiting Scientist:</i>	Clendro Diaz
<i>Country:</i>	Brazil
<i>Expertise/Discipline:</i>	Swine reproduction
<i>Visiting Scientist:</i>	Helen Fairweather
<i>Country:</i>	Canada
<i>Expertise/Discipline:</i>	Ruminant nutrition
<i>Visiting Scientist:</i>	Manuel Gomez Gill
<i>Country:</i>	Venezuela
<i>Expertise/Discipline:</i>	Animal genetics
<i>Visiting Scientist:</i>	Joao Luis Lopes da Costa Rocha
<i>Country:</i>	United States/Texas
<i>Expertise/Discipline:</i>	Animal genetics
<i>Visiting Scientist:</i>	Ji-Woong Lee
<i>Country:</i>	Korea
<i>Expertise/Discipline:</i>	Animal genetics
<i>Visiting Scientist:</i>	Xuehong Liu
<i>Country:</i>	China
<i>Expertise/Discipline:</i>	Animal genetics
<i>Visiting Scientist:</i>	Namburi Singari
<i>Country:</i>	India
<i>Expertise/Discipline:</i>	Ruminant nutrition
<i>Visiting Scientist:</i>	Gary Snowder
<i>Country:</i>	United States/Idaho
<i>Expertise/Discipline:</i>	Animal genetics
<i>Visiting Scientist:</i>	Panwadee Sopannarath
<i>Country:</i>	Thailand
<i>Expertise/Discipline:</i>	Animal genetics

Biochemistry

<i>Visiting Scientist:</i>	Fazoil Ataulakhanov
<i>Country:</i>	Russia
<i>Expertise/Discipline:</i>	Biophysics and computational biology
<i>Visiting Scientist:</i>	Chris Chastain
<i>Country:</i>	United States/Minnesota
<i>Expertise/Discipline:</i>	Plant molecular biology and biochemistry

Visiting Scientist: Gloria Esquivel
Country: Portugal
Expertise/Discipline: Biochemistry

Visiting Scientist: Loli Galvez
Country: Spain
Expertise/Discipline: Plant physiology and biochemistry

Visiting Scientist: Piotr Paneth
Country: Poland
Expertise/Discipline: Isotope fractionation studies in chemistry and biochemistry

Visiting Scientist: A. Raman
Country: Australia
Expertise/Discipline: Application of isotope ratio mass spectrometry in plant-insect interaction studies

Visiting Scientist: Valerie Terwilliger
Country: United States/Kansas
Expertise/Discipline: Isotope ratio mass spectrometry in geological and ecological studies

Visiting Scientist: Victor Vitvitsky
Country: Russia
Expertise/Discipline: Metabolic biochemistry

Visiting Scientist: Barbara Vokel
Country: Slovenia
Expertise/Discipline: Isotope fractionation studies in chemistry and geology

Entomology

Visiting Scientist: Mahmoud Ali
State/Country: Egypt
Expertise/Discipline: Apiculture

Visiting Scientist: Kemal Buyukguzel
State/Country: Turkey
Expertise/Discipline: Insect physiology

Visiting Scientist: Juan Cibrian
State/Country: Mexico
Expertise/Discipline: Insect physiology

Visiting Scientist: Samira S. El Shall
State/Country: Egypt
Expertise/Discipline: Radiation sterility

Visiting Scientist: Jaime Molina-Ochoa
State/Country: Mexico
Expertise/Discipline: Insect physiology

Visiting Scientist: Youngjin Park
State/Country: Korea
Expertise/Discipline: Insect physiology

Visiting Scientist: José Waquil
State/Country: Brazil
Expertise/Discipline: Host plant resistance, integrated pest management

Plant Pathology

Visiting Scientist: Mario Mehmel
Country: Germany
Expertise/Discipline: Potassium ion channel specialist

Visiting Scientist: Graciela Godoy-Lutz
Country: Dominican Republic
Expertise/Discipline: Disease management

Visiting Scientist: Frank Rabenstein
Country: Germany
Expertise/Discipline: Plant virology

Visiting Scientist: Jefferson Costa
Country: Brazil
Expertise/Discipline: Bean disease management

School of Natural Resource Sciences

Visiting Scientist: Robert Jefferies
Country: Canada
Expertise/Discipline: Ecosystem ecology

Visiting Scientist: Clarence Lehman
Country: United States/Minnesota
Expertise/Discipline: Theoretical ecology

Visiting Scientist: Stamatis Stamatiadis
Country: Greece
Discipline: Denitrification and laboratory management

Visiting Scientist: Jae Yang
Country: South Korea
Expertise/Discipline: Soil chemistry

Veterinary and Biomedical Sciences

Visiting Scientist: Seetharaman Gopinath
Country: India
Expertise/Discipline: Molecular biology/virology

Visiting Scientist: Reginaldo Bastos
Country: Brazil
Expertise/Discipline: Molecular biology

Visiting Scientist: Li-Mei Chen
Country: Taiwan
Expertise/Discipline: Bacteria pathogenesis

Post-Doctoral Research Associates

Agronomy and Horticulture

<i>Research Associate:</i>	Usha Bishnoi
<i>State/Country:</i>	India
<i>Expertise/Discipline:</i>	Turfgrass transformation
<i>Research Associate:</i>	John Brejda
<i>State/Country:</i>	Nebraska/USA
<i>Expertise/Discipline:</i>	Collection and evaluation of native legumes and forbs
<i>Research Associate:</i>	Tony Buhr
<i>State/Country:</i>	Nebraska/USA
<i>Expertise/Discipline:</i>	Gene expression in transgenic soybean
<i>Research Associate:</i>	Michael Burton
<i>State/Country:</i>	Nebraska/USA
<i>Expertise/Discipline:</i>	Models of patch dynamics with geo-spatial resources using geographic information systems
<i>Research Associate:</i>	Shui-Zhang Fei
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Buffalograss transformation
<i>Research Associate:</i>	Daniel Ginting
<i>State/Country:</i>	Minnesota/USA
<i>Expertise/Discipline:</i>	Site-specific manure application
<i>Research Associate:</i>	Delkin Orlando Gonzalez
<i>State/Country:</i>	Colombia
<i>Expertise/Discipline:</i>	Genetic dissection of mitochondrial export involving the ORF239 protein in a yeast model system
<i>Research Associate:</i>	Julie Huddle
<i>State/Country:</i>	Texas/USA
<i>Expertise/Discipline:</i>	Long-term vegetation in the Nebraska Sandhills; blowout penstemon
<i>Research Associate:</i>	Gopal Krishnan
<i>State/Country:</i>	Nebraska/USA
<i>Expertise/Discipline:</i>	Weed management in corn and soybeans
<i>Research Associate:</i>	Lijia Li
<i>State/Country:</i>	China
<i>Expertise/Discipline:</i>	Maize chromosome-specific libraries and probes
<i>Research Associate:</i>	Gilbert Meyer-Gauen
<i>State/Country:</i>	Germany
<i>Expertise/Discipline:</i>	Nuclear-mitochondrial genetic interactions

Research Associate: Devinder Sandhu
State/Country: Nebraska/USA
Expertise/Discipline: Wheat molecular cytogenetics

Research Associate: Mohammad Maroof Shah
State/Country: Nebraska/USA
Expertise/Discipline: Wheat molecular cytogenetics

Research Associate: Haishun Yang
State/Country: Philippines
Expertise/Discipline: C Sequestration in Irrigated Maize Systems

Research Associate: Xingguo Ye
State/Country: China
Expertise/Discipline: Wheat tissue culture and transformation research

Research Associate: Fengang Yu
State/Country: Israel
Expertise/Discipline: Gene expression in transgenic soybeans

Animal Science

Research Associate: Alexandre Caetano
State/Country: California/USA
Expertise/Discipline: Animal genetics

Research Associate: Kari Elo
State/Country: Finland
Expertise/Discipline: Animal genetics

Biochemistry

Research Associate: Mohammad Mainul Ahsan
State/Country: Bangladesh
Expertise/Discipline: Molecular biology

Research Associate: Tom Beardslee
State/Country: Nebraska/USA
Expertise/Discipline: Biochemistry

Research Associate: Sarbani Chakraborty
State/Country: Nebraska/USA
Expertise/Discipline: Molecular biologist/biochemist

Research Associate: Sanchita Roy Chowdhury
State/Country: West Bengal/India
Expertise/Discipline: Plant molecular biology

Research Associate: Shantanu Chowdhury
State/Country: India
Expertise/Discipline: Metallobiochemistry

Research Associate: Yu-Chun Du
State/Country: Japan
Expertise/Discipline: Biochemistry

Research Associate: Natalia V. Ermolova
State/Country: Russia
Expertise/Discipline: Plant Biochemistry

Research Associate: Nisso Fazliddinova
State/Country: Russia
Expertise/Discipline: Organic chemistry

Research Associate: Olga Komina
State/Country: Russia
Expertise/Discipline: Plant biochemistry

Research Associate: Boris Kornilaev
State/Country: Russia
Expertise/Discipline: Biochemistry

Research Associate: Julya Krasotkina
State/Country: Russia
Expertise/Discipline: Enzymology

Research Associate: Tapan Kundu
State/Country: India
Expertise/Discipline: EPR spectroscopy

Research Associate: Weihua Li
State/Country: China
Expertise/Discipline: Biochemistry

Research Associate: Eugene Mosharov
State/Country: Russia
Expertise/Discipline: Metabolic biochemistry

Research Associate: Devendra Naidu
State/Country: India
Expertise/Discipline: Bacteriology

Research Associate: Kuljeet Singh
State/Country: India
Expertise/Discipline: Inorganic chemistry

Research Associate: Allan Tsang
State/Country: Hong Kong
Expertise/Discipline: Molecular genetics

Research Associate: Jianmen Wu
State/Country: China
Expertise/Discipline: Molecular medicine

Research Associate: Youbin Xiang
State/Country: China
Expertise/Discipline: Plant molecular biologist

Research Associate: Wenxin Xu
State/Country: Japan
Expertise/Discipline: Plant molecular

Biological Systems Engineering

Research Associate: Lineau Rodrigues
State/Country: Brazil
Expertise/Discipline: Irrigation management

Research Associate: Ki Myong Kim
State/Country: Korea
Expertise/Discipline: Food processing

Research Associate: Keum Hwang
State/Country: Choubuk/Korea
Expertise/Discipline: Lipid chemistry, food processing

Entomology

Research Associate: Samira A. El Shall
State/Country: Egypt
Expertise/Discipline: Radiation sterility

Research Associate: Srinivas Parimi
State/Country: India
Expertise/Discipline: Insecticide toxicology

Plant Pathology

Research Associate: Dr. Angela Alleyne
State/Country: Barbados/West Indies
Expertise/Discipline: Plant pathology – pathogen variability

Research Associate: Dr. Shao-rong Chen, Ph.D.
State/Country: China
Expertise/Discipline: Plant molecular genetics

Research Associate: Dr. Ming Guo
State/Country: China
Expertise/Discipline: Bacterial genetics and plant biology

Research Associate: Dr. Kempton Horken
State/Country: Ohio/USA
Expertise/Discipline: Biochemistry

Research Associate: Dr. Zarir Vaghchipawala
State/Country: India
Expertise/Discipline: Plant genetics

School of Natural Resource Sciences

Research Associate: Tala Awada
Country: Canada
Expertise/Discipline: Plant water stress

Research Associate: Xi Chen
Country: China
Expertise/Discipline: Hydrology/groundwater modeling

Research Associate: Song Feng
Country: China
Expertise/Discipline: Diagnostics of regional and global climate variations/meteorology and climatology

Research Associate: Imtiyaz Khan
Country: Nebraska/USA
Expertise/Discipline: *In situ* denitrification

Research Associate: Longcang Shu
Country: China
Expertise/Discipline: Hydrology/groundwater modeling

Research Associate: Andrew E. Suyker
Country: Nebraska/USA
Expertise/Discipline: Micrometeorology

Research Associate: Xinhua Zhou
Country: Nebraska/USA
Expertise/Discipline: Windbreak technology/modeling

Research Associate: Junhua Zhu
Country: China
Expertise/Discipline: Mass spectrometry

Research Associate: Delin Liang
State/Country: Putian, People's Republic of China
Expertise/Discipline: Virology

Research Associate: Israrul Ansari
State/Country: India
Expertise/Discipline: Virology

Research Associate: Svitlana P. Yegorova
State/Country: Ukraine
Expertise/Discipline: Molecular biology

Research Associate: Ventzislav B. Vassilev
State/Country: Kavarna, Bulgaria
Expertise/Discipline: Molecular biology

Research Associate: Guillermo Roberto Risatti
State/Country: Rio Cuarto, Province of Cordoba, Argentina
Expertise/Discipline: Virology

Research Associate: Yunquan Jiang
State/Country: WuXi City, Jianqsu Province, People's Republic of China
Expertise/Discipline: Biochemistry

Research Associate: Yange Zhang
State/Country: People's Republic of China
Expertise/Discipline: Molecular endocrinology

Veterinary and Biomedical Sciences

Research Associate: Parmod K. Mehta
State/Country: Nangal (Panjab)/India
Expertise/Discipline: Immunology

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

Research Associate: Kostyantyn Krysan
State/Country: Ukraine
Expertise/Discipline: Molecular biology

Research Associate: Emil M. Berberov
State/Country: Sofia, Bulgaria
Expertise/Discipline: Genetics

Research Projects

Each faculty member with an ARD appointment has a federally-approved research project. A number of faculty have multiple projects. There are 383 research projects that were active for all or part of the 2000-2001 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 50 regional projects in which they conduct cooperative research with

scientists at other universities, addressing problems of regional and national importance. They also participate in approximately 60 regional research committees which serve to exchange information and coordinate cooperative research activities among institutions.

Research projects are listed by departments. An asterisk (*) indicates that the project was discontinued in fiscal year 2000-2001.

You will note codes following the project number. The codes reveal the type of project.

Type	Funding Source	Code
Hatch	Federal and State Funds	ha
Regional Research	Federal Funds	rr
State	State Funds	st
McIntire-Stennis	Federal Funds	ms
Special Grant	Federal, State, Public and Private	sg
Competitive Grant	Federal Funds/USDA	cg
Animal Health	Federal Funds	ah

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.

Regional Research: 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.

Agricultural/ Natural Resources Units

Agricultural Economics

10-106 rr
Private strategies, public policies, and food system performance (A.M. Azzam)

10-117 ha
Factors affecting the evolution of world agricultural markets: implications for U.S. policy (E.W.F. Peterson)

***10-125 ha**
Impacts of policies related to water, commodity programs, and energy based inputs on Nebraska farms (G.A. Helmers, D.M. Conley, M.E. Baker)

10-126 rr
Impact analyses and decision strategies for agricultural research (R.K. Perrin)

***10-130 ha**
Technical efficiency analysis for livestock and dairy operations in Nebraska (A.M. Azzam, S.M. Azzam)

***10-131 ha**
Selected input markets in agriculture: fuels price risk and tractor demand (D.M. Conley)

10-132 rr
Water conservation, competition and quality in western irrigated agriculture (R.J. Supalla)

***10-133 sg**
Partnership for rural Nebraska (J.C. Allen, S.M. Cordes)

10-135 ha
Monitoring and analysis of farm real estate market developments in Nebraska (B.B. Johnson)

10-137 cg
Evaluation of the productivity environment tradeoff: a Great Plains case study (R.K. Perrin)

10-138 ha
Measurement and explanation of the competitiveness of the United States in the markets for beef, soy (L.E. Fulginiti)

10-139 ha
Rural sustainability: the relationship between community structure, agricultural structure and social class (J.C. Allen)

10-140 ha
The measurement of efficiency in resource use in rural areas: a stochastic frontier analysis (S.M. Cordes, A.M. Azzam, J.C. Allen)

10-142 rr
Competitiveness and value added in the U.S. grain and oilseed industry (D. Conley)

10-143 cg
People, place and policy in the new millennium (S.M. Cordes)

10-144 cg
Social capital: enhancing measurement, while also contributing to improved understanding and policy (S.M. Cordes, G.D. Lynne, J.C. Allen)

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

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

Agricultural Leadership, Education and Communication

24-033 st
Distance education policy research: organization and administration (J.W. King, S.K. Rockwell, E.B. Russell)

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

Agronomy

12-002 ha
Improvement and evaluation of oats and barley (P.S. Baenziger)

12-055 ha
Genetics, breeding and evaluation of common wheat and triticale for Nebraska (P.S. Baenziger)

***12-149 st**
Breeding sorghum and pearl millet for USA and developing countries (D.J. Andrews)

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

***12-193 ha**
Investigating alternative grain and oil crops for Nebraska (L.A. Nelson)

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

***12-197 ha**
Tissue and cell physiology of sorghum (M.D. Clegg)

12-198 ha
Jasmonate regulated gene expression in soybean (P.E. Staswick)

12-201 st
Maintenance, increase and distribution of elite germplasm (J. Cross)

12-202 st
Winter wheat germplasm enhancement and performance evaluation (R.A. Graybosch)

12-204 rr
Biological and ecological basis for a weed management model to reduce herbicide use in corn (J.L. Lindquist)

12-209 ha
Procedures for assessing impacts of nonpoint agrichemicals on ground water (R.F. Spalding)

12-215 st
Development of integrated weed management strategies to improve Great Plains and Midwest grasslands (R.A. Masters)

12-225 ha
Studies on the mechanisms found in corn, sorghum and pearl millet which improve N uptake and use (J.W. Maranville)

12-227 st
Perennial forage grass breeding for Nebraska (K.P. Vogel)

***12-238 ha**
Management for sustained production of perennial warm-season grasses (W.H. Schacht)

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

12-242 st
Defining and assessing basic indicators of soil quality and erodibility (J.W. Doran, J.E. Gilley, J.R. Ellis, G.E. Varvel)

12-243 ha
Weed distribution and demography: elucidating pest management principles for reducing herbicide use (D.A. Mortensen)

12-244 ha
Soil physical relationships for best management practices to protect water quality (W.L. Powers)

12-245 st
Development and assessment of integrated soil, water and crop management systems to control nitrate loading (J.S. Schepers, G.E. Varvel)

***12-249 st**
Integrated crop and soil management to improve nitrogen-use efficiency (W.W. Wilhelm, J.W. Doran, J.R. Ellis, G.E. Varvel, J.S. Schepers)

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

12-253 rr
Characterizing nitrogen mineralization and availability in crop systems to protect water resources (D.H. Sander, D.T. Walters)

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

12-255 ha
Soybean breeding and genetic studies (G.E. Graef)

***12-256 cg**
Stability of soil microbial communities under different agroecosystems (R.A. Drijber)

12-258 st
Nutrient management for maximizing nutrient use efficiency in sorghum (J.W. Maranville)

12-259 ha
Assessment of genetic variation for end-use quality traits in soybean (D. Lee)

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

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

***12-262 sg**
The relevance of field-specific weed populations to performance of integrated weed management systems (D.A. Mortensen, J.A. Dieleman, A.R. Martin)

***12-263 cg**
Why weed patches persist: dynamics of edges and density (D.A. Mortensen, J.A. Dieleman)

12-264 ha
Herbage and livestock production from legume/grass pastures (B.E. Anderson)

12-265 ha
Molecular characterization and manipulation of the wheat genome for crop improvement (K.S. Gill)

12-266 cg
Effective use of carbon and nutrients in manure using site-specific application (B. Eghball, J.S. Schepers, C.A. Shapiro, R.B. Ferguson)

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

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

12-269 ha
Cropping systems for uncertain environments: decision aids for managing soil and weather variability (R.M. Caldwell)

12-270 cg
Molecular characterization of a major gene cluster of wheat (K.S. Gill)

***12-271 sg**
IPM implementation in a corn/soybean/cotton/wheat system (D.A. Mortensen)

12-272 ha
Germination, growth, and development of selected perennial forage grasses (L.E. Moser)

12-273 ha
Selecting wheat and other cereal grains for enhanced end-use performance characteristics (P.S. Baenziger, R.A. Graybosch)

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

12-275 rr
Marketing and delivery of quality cereals and oilseeds (P.S. Baenziger)

***12-276 st**
Gene chips for economically important plants and animals (K. Gill, D. Pomp, K. Arumuganathan, P. Staswick)

12-277 ha
Quantitative genetics with focus on corn breeding and corn germplasm improvement (W.K. Russell)

12-278 ha
Dynamic nitrogen management strategies for optimizing maize yield and N use efficiency (D.T. Walters)

12-279 cg
The genetic basis of agronomic traits controlled by chromosome 3A in wheat (P.S. Baenziger, K. Gill, K. Eskridge)

12-280 cg
Spatial distribution of weed patches: the influence of habitat heterogeneity (D.A. Mortensen)

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

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

Animal Science

13-036 rr
Management systems for improved decision making and profitability of dairy herds (R.J. Grant, H.D. Jose)

13-055 rr
Biophysical models for poultry production systems (M.M. Beck)

13-086 ha
Sustainable beef growing-finishing systems (T.J. Klopfenstein, T. Milton)

***13-087 ah**
Relationship of subfunctional corpora lutea to frequency of LH pulses during the periovulatory period of cattle (J.E. Kinder)

13-096 rr
Forage protein characterization and utilization for cattle (T.J. Klopfenstein, L.E. Moser, W.H. Schacht)

13-101 ha
Genetic variation for reproduction and energy utilization (M.K. Nielsen)

13-104 ha
Optimizing the utilization of dietary fiber and lipids by dairy cows (R.J. Grant)

***13-105 ha**
Nutrition of prolific sows (A.J. Lewis, P.S. Miller)

13-110 rr
Molecular mechanisms regulating skeletal muscle growth and differentiation (S.J. Jones)

13-115 ha
Evaluation of cow/calf weaning management systems to improve economic efficiency (R.J. Rasby, T.J. Klopfenstein, T. Milton, C.R. Calkins)

***13-122 ha**
Gastrointestinal structure and function as related to nutrition and body metabolism (E.T. Clemens)

***13-126 ha**
Physiological and management aspects of expression of estrus and ovulation rate in swine (D.R. Zimmerman)

13-127 ha
Measurement and manipulation of carcass traits and influencing fresh meat value (C.R. Calkins)

***13-128 ah**
Transfer of antibiotic resistance genes between bacteroides and Prevotella species (M. Morrison)

13-129 rr
Positional and functional identification of economically important genes in the pig (D. Pomp)

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

***13-131 cg**
Screening the pig genome for QTL controlling reproduction (D. Pomp, R.K. Johnson)

13-134 rr
Integration of quantitative and molecular technologies for genetic improvement of pigs (R.K. Johnson, D. Pomp)

***13-135 ha**
Recombinant bovine and equine gonadotropins (H.E. Grotjan)

***13-136 cg**
Synthesis and assembly of cellulose binding proteins by *Ruminococcus albus* (M. Morrison)

***13-137 cg**
Recombinant bovine gonadotropins (H.E. Grotjan, J.E. Kinder)

***13-138 cg**
Molecular biology of protein degradation and utilization by *Prevotella ruminicola* (M. Morrison)

***13-139 ha**
Regulation of gonadotropin synthesis and secretion, ovarian follicular development and testicular function pre- and postpuberty (J.E. Kinder)

13-140 ha
Role of adipose tissue in determining energy utilization in cattle (J.L. Miner)

13-141 ha
Nutritional management strategies for sustainable feedlot cattle production (T. Milton, T.J. Klopfenstein, T.L. Mader)

13-142 ha
Value-added processed and manufactured meat products (R.W. Mandigo)

13-143 rr
Enhancing the global competitiveness of U.S. red meat (C.R. Calkins, D.M. Feuz)

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

13-145 rr
Genetic enhancement of health and survival for dairy cattle (J.F. Keown)

13-146 ha
Factors affecting calcium utilization in the avian and egg shell quality (S.E. Scheideler)

13-147 ha
Interrelationships among liver metabolism, nutrient intake, and growth criteria in growing-finishing barrows and gilts (P.S. Miller, A.J. Lewis)

13-148 ha
Improving the efficiency of nitrogen and amino acid utilization by pigs (A.J. Lewis, P.S. Miller)

13-150 ha
Control of luteinizing hormone secretion in male sheep (R.J. Kittok)

13-151 ah
Estrogen-calcium relationships during onset of metabolic bone disease in the aging hen (M.M. Beck)

Biochemistry

***15-073 rr**
Diversity and interaction of beneficial bacteria and fungi in the rhizosphere (R.V. Klucas)

15-076 ha
Hemoglobins in higher plants (R.V. Klucas)

15-078 ha
Genetic modification of chloroplast rubisco (R.J. Spreitzer)

15-080 ha
Characterization of human telomerase (C.M. Price)

15-081 ha
Symbiosome proteins from soybean root nodules (G. Sarath)

***15-082 cg**
Rubisco phylogenetic correction (R.J. Spreitzer)

***15-083 cg**
The role of a family of nuclear-encoded sigma factors in plastid transcription regulation (L.A. Allison)

15-085 ha
Regulation of transcription in plastids of higher plants (L.A. Allison)

15-086 ha
B₁₂ enzymes and hyperhomocysteinemia (R. Banerjee)

15-087 rr
Regulation of photosynthetic processes (R. Chollet, J.P. Markwell, R.J. Spreitzer)

15-088 ha
Enzymology of anaerobic CO₂ fixation and bioremediation (S. Ragsdale)

15-089 cg
Rubisco phylogenetic correction (R.J. Spreitzer)

15-090 ha
Selenium-containing proteins (V.N. Gladyshev)

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

15-092 st
Plant Proteomics (J.P. Markwell)

15-093 cg
The role of nuclear-encoded sigma factors in maize chloroplast development (L.A. Allison)

15-094 st
Inhibition of methane synthesis in ruminants (S.W. Ragsdale, J. Takacs, J. Miner)

Biological Systems Engineering

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

11-044 rr
Improvement of thermal processes for food (M.A. Hanna)

11-079 ha
Agricultural tractor testing board: policies and procedures (L.L. Bashford, M.F. Kocher, R.D. Grisso)

***11-097 ha**
Protein film production and evaluation (C.L. Weller)

***11-099 ha**
Improving field productivity and predicting energy requirements of soil-engaging equipment (R.D. Grisso, M.F. Kocher, L.L. Bashford)

***11-102 ha**
Identification, modeling, and design of plant sensor systems for variable-rate chemical application (G.E. Meyer)

***11-103 ha**
Managing atrazine runoff losses to improve surface water quality (T.G. Franti)

***11-105 st**
Safe and efficient use of electrical energy for irrigation, livestock, and poultry facilities (L. Stetson)

11-107 ha
Bovine rumen contents as a source of industrial enzymes and chemicals (L.D. Clements)

11-109 ha
Whole farm nutrient balance for livestock production systems (R.K. Koelsch)

11-110 ha
Variability in metering devices used in site specific crop management schemes (L.L. Bashford)

11-112 ha
Hydrologic modeling and engineering for enhancement of vegetative riparian buffers (D.E. Eisenhauer)

11-113 ha
Uptake and metabolic effects of pesticide combinations on mammalian systems (R.M. Brand)

11-114 ha
Consideration of imprecision in pollution prevention system engineering (W.E. Woldt)

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

11-116 ha
Engineering problems of flow measurement and control in agricultural industries (M.F. Kocher)

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

11-118 ha
Development of simulation and optimization models for watershed management (D.L. Martin)

11-119 ha
Analysis of sorghum wax quantity and quality (C.L. Weller)

11-120 st
Development and testing of field techniques for estimating the effectiveness of vegetative filter strips (D. Eisenhauer, M. Dosskey, T. Franti, K. Hoagland, D. Marx)

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

Biometry

23-001 st
Applications of statistics to research in agriculture (D.B. Marx, W.W. Stroup, A.M. Parkhurst, K. Eskridge)

23-002 rr
Stress factors of farm animals and their effects on performance (A.M. Parkhurst)

***23-003 st**
Innovative design and analysis of agricultural experiments (W.W. Stroup, E.T. Paparozzi)

Entomology

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

17-061 st
Management of fly population densities in cattle feedlots to reduce adverse impacts (P. Scholl, S.R. Skoda)

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

17-064 ha
Host-plant resistance, insect genetics, and biological studies of cereal insects (J.E. Foster)

17-067 ha
The influence of shelterbelts and alfalfa on natural enemies of the bean leaf beetle, *Cerotoma trifurcata* (Forster) in soybeans (S.D. Danielson)

17-068 ha
Mechanisms and management of arthropod injury to plants (L.G. Higley)

17-070 ha
Bio-intensive pest management of the greenbug (Z B Mayo)

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

17-072 ha
Ecology and management of *Diabrotica* species (L.J. Meinke)

17-073 rr
Dynamic soybean insect management for emerging agricultural technologies and variable environments (L.G. Higley)

17-074 st
Characterization of protein changes in plants challenged by sap-feeding insects (F.P. Baxendale, T.M. Heng-Moss, R.V. Klucas, T.P. Riordan, G. Sarath)

17-075 st
Using trace elements for labeling corn tissues and insect pests for mark-recapture experiments (B.D. Siegfried, L.J. Meinke, D.C. Gosselin, T.E. Hunt, F.E. Harvey)

17-076 og
Population genetics and molecular mechanisms of resistant western corn rootworm (B.D. Siegfried, L.J. Meinke, R.J. Wright)

17-077 rr
Development of pest management strategies for forage alfalfa persistence (L.G. Higley)

Food Science and Technology

***16-044 rr**
Molecular mechanisms regulating skeletal muscle growth and differentiation (M.G. Zeece)

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

16-054 ha
Chemical and physical quality characteristics of horticultural crops and their products (D.A. Smith)

16-055 ha
Food allergies and sensitivities (S.L. Taylor, S.L. Hefle)

16-056 ha
Mold and mycotoxin hazards in foods, feeds and the environment (L.B. Bullerman)

***16-065 ha**
Genetics and physiology of *Streptococcus thermophilus* and other lactic acid bacteria (R.W. Hutkins)

16-066 ha
Analytical methods for food process control and measurement of processing induced changes (R.L. Wehling)

16-069 ha
Role of proteolysis in myofibrillar/cytoskeleton structure and integrity (M.G. Zeece, S.L. Taylor)

***16-071 rr**
Enhancing food safety through control of foodborne disease agents (C.L. Weller)

16-076 cg
Detecting internal insect infestation in wheat by near-infrared spectroscopy (R.L. Wehling)

16-077 ha
Genetics and biochemistry of stress-response systems in gram-positive bacteria and foodborne pathogens (A.K. Benson)

16-078 ha
Evaluation and characterization of antioxidants from plant sources (S.L. Cuppett)

***16-079 st**
Mapping and site-directed mutagenesis of IgE epitopes in a food allergen from soybean (Gly m Bd 30k) (M.G. Zeece, J.P. Markwell, G. Sarath, D.E. Wylie)

16-080 ha
Competitive inhibition of food-borne pathogens in meat and poultry products and in cattle (M.M. Brashears)

16-081 cg
Genomic analysis of *E. coli* O157:H7 populations from cattle and humans (A.K. Benson, R.W. Hutkins)

16-082 rr
Marketing and delivery of quality cereals and oilseeds (D.S. Jackson)

16-083 rr
Marketing and delivery of quality cereals and oilseeds (L.B. Bullerman)

16-084 cg
Extrusion processing as a means of reducing *fusarium* mycotoxins in cereal foods (L.B. Bullerman, M.A. Hanna, M.M. Castelo)

16-085 sg
CCP identification and validation during poultry production and processing (M.M. Brashears, S.R. McKee, E.A. Wallner-Pendleton)

16-086 ha
Genetics and physiology of lactic acid bacteria (R.W. Hutkins)

Horticulture

20-040 rr

Genetic improvement of beans (*Phaseolus vulgaris* L.) and nutritional value for yield, pest resistance and nutritional value (D.P. Coyne, J.R. Steadman)

*20-048 ha

Influence of sulfur and nitrogen on the growth and development of ornamental plants (E.T. Paparozzi)

20-050 ha

Cultural practices to minimize environmental stress on vegetable crop production and physiology (L. Hodges, J.R. Brandle)

20-055 ha

Genetics and breeding of dry edible beans (*Phaseolus vulgaris* L.) with emphasis on multiple disease resistance (D.P. Coyne)

20-056 ha

Integrated turfgrass management practices (R.C. Shearman)

20-057 ha

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

20-058 ha

Exudate physiology of grasses grown under stress environments (G.A. Horst)

20-059 ha

Factors affecting prairie forb and grass establishment: interference in sustainable landscape management (G.L. Davis)

20-060 ha

Breeding and development of buffalograss for the central Great Plains (T.P. Riordan)

*20-061 st

Development of glyphosate resistant buffalograss (T.P. Riordan, T.E. Clemente, S. Fei, R.V. Klucas)

20-062 ha

Exploring plant nutrient interactions in floricultural and ornamental crops (E.T. Paparozzi)

20-063 ha

Growing and cultural practice impacts on USGA putting greens and their microbial communities (R.E. Gaussoin)

Plant Pathology

21-012 st

Electron microscopy in agricultural research (E.M. Ball)

21-022 rr

Biocontrol of soil and residue-borne plant pathogens (G. Yuen)

21-040 ha

DNA replication and gene expression of Chlorella viruses (J.L. VanEtten)

*21-056 ha

Detection of seedborne bacteria and characterization of bacterial endophytes (A.K. Vidaver)

21-057 rr

Genetic variability in the cyst and root-knot nematodes (T.O. Powers)

21-058 rr

Overwinter survival of *Heterodera pratylenchus* and associated nematodes in the North Central Region (T.O. Powers, E.D. Kerr)

*21-061 ha

Detection and properties of plant viruses of Nebraska with emphasis on sugar beet viruses (L.C. Lane)

21-063 ha

Biological control of soilborne diseases of legumes and turfgrass with antagonistic bacteria (G.Y. Yuen)

21-064 rr

Fusarium mycotoxins in cereal grains (M.B. Dickman)

21-069 ha

Leaf rust virulence in Nebraska and management systems for turfgrass diseases (J.E. Watkins)

21-070 ha

Mitigation of diseases of dry edible bean stem rot of soybean by managed plant resistance (J.R. Steadman)

21-071 cg

Entomopathogenic nematodes for biological control of filth flies in feedlots (T.O. Powers, A.L. Szalanski)

21-072 cg

Molecular analysis of sclerotial development in *Sclerotinia sclerotiorum* (J.A. Rollins)

21-073 ha

Environmental effects on plant host-parasite interactions (J.E. Partridge)

21-074 st

Broad-spectrum virus resistance in transgenic plants (A. Mitra)

21-075 ha

Application of PCR based approaches for nematode identification and epidemiology (T.O. Powers)

21-076 ha

Pathogenic determinants of phytopathogenic fungi (M.B. Dickman)

21-078 cg

Secretion properties of the type III secretion system of *Pseudomonas syringae* (J.R. Alfano)

21-079 ha

Characterization of soybean diseases in Nebraska and development of plant disease management strategies in soybean and landscape plants (L. Giesler)

School of Natural Resource Sciences

12-239 ha

Processes associated with long-term fate and detoxification of organonitrogen contaminants in soil (P.J. Shea)

26-025 ms

Biological and tree-injection methods for controlling tree pests (M.O. Harrell)

26-027 ha

Integrating biological diversity into managed land-use systems (R.J. Johnson)

27-003 ha

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

*27-004 ha

Remotely sensed estimates of productivity, energy exchange processes and water stress in vegetation (B.L. Blad, E.A. Walter-Shea)

27-007 ha

Drought: response and policy implications (D.A. Wilhite)

*27-008 rr

Climate and agricultural landscape productivity analysis and assessment in the North Central Region (K.G. Hubbard)

27-011 ha

Relationships between remotely-sensed spectral properties of vegetated surfaces and biophysical properties (E.A. Walter-Shea)

27-012 rr

NADP - A long term monitoring program in support of research on the effects of atmospheric chemical deposition (S.B. Verma)

27-016 ha

Climate change and the winter wheat agroecosystem: experiments and modeling (A. Weiss)

27-017 ha

Remodeling the surface energy budgets with a universal crop coefficient and natural variability specifications (K.G. Hubbard)

*40-001 sg

Developing drought mitigation and preparedness technologies for the U.S. (D.A. Wilhite)

40-002 ha

Remediating organic contaminants in soil and water through natural and accelerated attenuation (S.D. Comfort)

40-003 ha

Effects of atrazine on algal communities in aquatic ecosystems in the midwest (K.D. Hoagland)

*40-004 ha

Nebraska participation in the national agricultural pesticide impact assessment program (S.T. Kamble)

40-005 ha

Ecology of pallid sturgeon and associated fishes in the Platte River, Nebraska (E.J. Peters)

40-006 ms

Linking special forest products, markets and sustainable agroforestry systems (S.J. Josiah, J.R. Brandle)

40-007 ms

Consequences of woody species establishment in the Great Plains (D. Wedin)

40-008 ha

Interannual and interdecadal variation of precipitation and temperature in Nebraska and surrounding states (Qi "Steve" Hu)

40-010 sg

Developing drought mitigation and preparedness technologies for the U.S. (D.A. Wilhite)

40-011 ms

Windbreak shelter effects (J.R. Brandle, L. Hodges, S. Josiah)

40-012 rr

Impact climate and soils on crop selection and management (K. Hubbard)

40-013 ha

Rapid estimation of soil hydraulic properties (J. Skopp)

Veterinary and Biomedical Sciences

- 14-009 rr**
Prevention and control of enteric diseases of swine (R.A. Moxley)
- 14-014 rr**
Bovine respiratory disease (S. Srikumaran)
- 14-039 st**
Research laboratory and animal care facility (J.A. Schmitz, A. Hogg, T.E. Socha)
- 14-059 st**
Veterinary diagnostic lab system: diagnostic surveillance and disease investigation in Nebraska livestock and poultry (J.A. Schmitz, A.R. Doster, J.L. Johnson, D.M. Grotelueschen)
- *14-085 rr**
Research in support of a national eradication program for pseudorabies (F.A. Osorio)
- *14-086 cg**
Molecular characterization of *Pasteurella haemolytica* leukotoxin-receptor interactions (S. Srikumaran)
- *14-091 cg**
Molecular characterization of MHC class I down-regulation by bovine herpesvirus I (S. Srikumaran)
- 14-093 ah**
Bovine respiratory syncytial virus glycoprotein interactions in a homologous host cell receptor (C. Kelling)
- 14-094 ah**
Molecular characterization of animal RNA viruses and their interactions with the host (R.O. Donis)
- 14-095 ah**
Interaction of porcine reproductive and respiratory syndrome virus and *Salmonella choleraesuis* (R.W. Wills, F.A. Osorio)
- 14-096 ah**
Functional analysis of the BHV-1 latency related gene (C. Jones)
- 14-097 cg**
Functional analysis of bovine herpes virus I latency related gene products (C. Jones)
- 14-098 st**
Monitoring individual animal performance to evaluate beef cattle production and economics (G.P. Rupp, D.D. Griffin)

- 14-099 cg**
Cis-acting elements in the replication of the bovine viral diarrhoea virus genome (R.O. Donis)
- 14-100 cg**
Analysis of apoptosis and pathogenesis by bovine herpes virus and BICPO (C. Jones, A.R. Doster)
- 14-101 cg**
Role of *E. coli* heat-labile enterotoxin-I in diarrhoea and septicemia in swine (R.A. Moxley, R.G. Barletta)
- 14-102 ha**
Strategic plan for an IANR field disease research program at the Department of Veterinary and Biomedical Sciences (D.R. Smith)
- 14-103 ah**
Pathogenic mechanisms of bacterial respiratory pathogens (J.D. Cirillo)
- 14-104 cg**
Identification of mycobacterium paratuberculosis virulence determinants (R.G. Barletta)
- 14-105 cg**
The effect of PRRSV on the immune system during acute and persistent infection (F.A. Osorio, F. Zuckerman, A.R. Doster)
- 14-107 ha**
Theoretical and applied molecular biology or porcine gonadotropins (G.B. Shearman)
- 14-108 ah**
Molecular genetic analysis of *Mycobacterium paratuberculosis* and related mycobacterial pathogens (R.G. Barletta)
- 14-109 ha**
Epidemiology of *Escherichia coli* O157:H7 and *salmonella* in feedlot beef cattle (D.R. Smith, R.A. Moxley, L.L. Hungerford, J.T. Gray, T.J. Klopfenstein)
- 14-110 cg**
Inhibition of apoptosis by the bovine herpes virus I latency related gene (C. Jones, A. Doster)
- 14-111 cg**
A novel strategy to test and monitor beef feedlot food-safety control points (D. Smith, L. Hungerford, J. Gray, R. Moxley, T. Klopfenstein)
- 14-112 cg**
GP 96 as molecular chaperone for antigen delivery in viral systems (S. Srikumaran)
- 14-113 sg**
A workshop on epidemiologic methods and approaches to food safety (R. Wills)

- 14-114 cg**
Role of macrophages in the pathogenesis of porcine colonic spirochetosis (G. Duhamel, J. Cirillo)
- 14-115 rr**
Porcine reproductive and respiratory syndrome (PRRS) (F.A. Osorio, R. Wills)
- 14-116 ha**
Geospatial analysis and animal health (L. Hungerford)

Human Resources and Family Sciences Departments

Family and Consumer Sciences

- *92-020 rr**
The role of housing in rural community vitality (E.R. Combs)
- 92-021 ha**
Impact of Head Start on rural children, families, and communities (P.D. Zeece)
- 92-022 ha**
Retirement economic well-being for women in Nebraska and cross-culturally (S.L. Cramer)
- 92-023 ha**
Economic well-being of Nebraska household: a comparison of alternative measures (E.P. Davis)
- *92-025 ha**
Family functioning of interracially constituted families (S. Baugher)
- 92-026 ha**
Surviving and transcending a traumatic childhood (J. DeFrain)
- 92-028 ha**
High hopes and bright futures: successful teens in Nebraska (D.A. Abbott, W.H. Meredith)
- *92-029 ha**
The impact of welfare reform on women's lives: education, job placement/retention, and resource management (K. Prochaska-Cue, B. Sparks)

- 92-031 ha**
Economic impact of HIV/AIDS on Nebraskans (M.E. Rider)
- 92-032 ha**
The new relational perspective in developmental psychology and its applications to education and child care (C.P. Edwards)
- 92-033 ha**
Into the heartland: a contextual examination of migration and its impacts on rural Nebraskan meat-packing communities (R.L. Dalla)
- 92-035 rr**
Rural low-income families: monitoring their well-being and functioning in the context of welfare reform (K. Prochaska-Cue)
- 92-036 ha**
Outcomes in the collaborative management of mental health treatment within a primary care medical setting (R.J. Bischoff)

Nutritional Science and Dietetics

- 91-042 rr**
Bioavailability of nutrients: a key to human nutrition (J.A. Driskell)
- 91-043 rr**
Health maintenance aspects of dietary recommendations designed to modify lipid metabolism (N.M. Lewis)
- 91-045 rr**
Using stages of change model to promote consumption of grains, vegetables and fruits by young adults (N.M. Betts)
- 91-046 ha**
Exercise dependence and disordered eating behaviors: instrument development validation and testing (N.M. Betts)
- 91-047 ha**
The metabolic basis of atherosclerosis (T.P. Carr)
- 91-048 ha**
The use of edible films and natural antioxidants to control warmed-over flavor in meats (M. Schnepf)
- 91-049 ha**
Nutritional knowledge, practices, beliefs of caregivers and practices of physicians for young children (K.L. Stanek)
- 91-050 ha**
Health implications of folate and homocysteine as it relates to fruit and vegetable consumption (J.A. Albrecht)

91-051 ha
Assessing managerial and work force development in foodservice management (F. Hamouz)

91-052 cg
Using the stages of change model to increase fruit and vegetable intake (N. Betts)

Textiles, Clothing and Design

94-022 ha
Development of textile end-uses for wheat gluten and other farm commodity derived materials (L.E. Hamilton)

94-023 rr
Development of textile materials for environmental compatibility and human health and safety (P.C. Crews)

94-024 ha
Impacts of environmental disclosure policies and constraints on housing transaction practices (S. Niemeyer)

94-025 rr
Development of textile materials for environmental compatibility and human health and safety (L. Scheyer)

94-026 cg
Film properties of chemically modified wheat gluten binders for pigment printing (L. Scheyer)

94-027 rr
Impact of technology on rural consumer access to food and fiber products (R. Kean)

Off-Campus Research Centers

Northeast Research and Extension Center

42-007 ha
Management considerations for feedlot cattle exposed to environmental stressors (T.L. Mader, C.T. Milton)

***42-014 ha**
Biology and control of the European corn borer bean leaf beetle and other selected insects in northeast Nebraska (J.F. Witkowski)

42-017 ha
Determination of crop residue cover using electronic image analysis (D.P. Shelton)

42-018 rr
Integrated crop management effects on stalk-boring Lepidoptera (J.F. Witkowski)

42-022 cg
Dynamic responses of feedlot cattle exposed to heat stress (T.L. Mader, D.E. Spiers, J.A. Nienaber, J.L. Morrow-Tesch, A.M. Parkhurst)

42-023 ha
Modifying pig performance through facility and diet management (M.C. Brumm)

42-024 ha
Utilizing animal manures and fertilizers in cropping systems for northeast Nebraska (C.A. Shapiro)

42-025 ha
Integrated weed management (IWM) for eastern Nebraska (S.Z. Knezevic)

42-026 ha
Developing economic thresholds for insect pests of conventional and value-added crops in northeast Nebraska (T.E. Hunt)

42-027 ha
Developing operational criteria for application of swine lagoon water via center pivot (W.L. Kranz)

Panhandle Research and Extension Center

44-004 st
Fertilizer and manure application for production of continuous corn (D.D. Baltensperger)

44-016 ha
Weed control systems for western Nebraska irrigated crops and rangeland (R.G. Wilson)

44-035 ha
Feed resources and beef production systems in western Nebraska to optimize total efficiency (I.G. Rush, B.A. Weichenthal)

44-042 ha
Agricultural enhancement of potato production and utilization (A.D. Pavlista)

44-051 ha
Agrichemical control in irrigation runoff water from surface irrigated fields (C.D. Yonts, R.G. Wilson)

44-052 ha
The economics of alternative beef cattle marketing and feeding strategies (D.M. Feuz)

44-053 ha
Machinery systems management for sugarbeets, dry edible beans, and chicory (J.A. Smith, R.G. Wilson)

44-054 rr
Plant germplasm and information management and utilization (D.D. Baltensperger)

44-055 ha
Intensification of winter wheat based dryland cropping systems for western Nebraska (D.J. Lyon)

44-057 ha
Studies of drought and defoliation effects on range grasses needed to optimize future grazing research (P.E. Reece, W.H. Schacht, J.D. Volesky, L.E. Moser)

44-058 ha
Integrated management systems for arthropod pests of wheat and other crops in western Nebraska (G.L. Hein)

44-059 ha
Dynamic nitrogen management for crops grown in the high plains of Nebraska (J. Blumenthal)

44-060 ha
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 st
Development and operation of the U.S. Meat Animal Research Center (D. Laster)

South Central Research and Extension Center

48-016 ha
Soybean production practices and alternative crops within resource-efficient cropping systems for south central Nebraska (R.W. Elmore)

48-019 ha
Managing weeds and herbicides for profitable crop production and reduced environmental risks (F.W. Roeth)

***48-022 ha**
Crop insect pest management in Nebraska: biological control and sampling (R.J. Wright)

***48-023 ha**
Formulation of nitrogen fertilization recommendations to maximize economic and environmental goals (R.A. Selley)

48-024 cg
Epidemiology and life history of *Claviceps africana* in the Great Plains (J.P. Stack)

48-025 ha
Subsurface drip irrigation: Integrated water and nitrogen BMPs for corn and assessing irrigation uniformity in situ (B.L. Benham)

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

48-027 ha
Microbial management of plant diseases in sustainable production systems: microbial diversity, habitat receptivity, and pathogen populations (J.P. Stack)

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

West Central Research and Extension Center

43-057 ha
Improving the profitability and sustainability of Sandhills beef cattle operations (R.T. Clark)

43-058 ha
Biology, ecology, economics and control of major insects affecting cattle in Nebraska (J.B. Campbell)

43-059 ha
Production systems and nutrition for Sandhills and Northern Great Plains range (D.C. Adams)

43-060 rr
Management of arthropod pests of livestock and poultry (J.B. Campbell, G.D. Thomas)

43-061 ha
Management practices to improve reproduction of beef heifers (G.H. Deutscher)

***43-062 ha**

Genotype by environment interactions for sow productivity and early piglet growth (T.E. Long)

43-063 ha

Grazing management strategies and systems for Sandhills meadows (J.D. Volesky)

43-065 ha

Integrated weed management in reduced tillage systems in low rainfall environments (G.A. Wicks)

43-066 ha

Selection, development and propagation of native herbaceous landscape plants (D.T. Lindgren)

43-067 ha

Economic and nitrate leaching implications of water conservation in Nebraska irrigated agriculture (N.A. Norton, R.T. Clark)

43-068 ha

Improving fertilizer management and recommendations for precision agriculture (G.W. Hergert)

Interdisciplinary Activities

Administration

01-001

General administration of federal fund research (D.W. Nelson)

01-004

Regional research coordination, North Central Region (D.W. Nelson)

Agricultural Research and Development Center

45-001 st

Field laboratory development (D. Duncan)

Center for Grassland Studies

33-001 st

Center for grassland studies (M.A. Massengale)

33-002 rr

Improved grazing systems for beef cattle production (R. Clark, T.J. Klopfenstein)

Center for Sustainable Agriculture Systems

31-002 st

Center for sustainable agricultural systems (C.A. Francis)

***31-004 sg**

Integrated crop/livestock research for sustainable systems (C.A. Francis, T.J. Klopfenstein, J. Brandle)

31-005 sg

Integrated crop/livestock/agroforestry research for sustainable systems in Nebraska (T.J. Klopfenstein, J.R. Brandle, C.A. Francis)

Food Processing Center

19-003 st

Development and evaluation of food products, processes and markets (S.L. Taylor)

***19-004 sg**

Midwest food manufacturing alliance (S.L. Taylor)

19-008 sg

Development and quality/safety enhancement of specialty food products (S.L. Taylor)

19-009 sg

Midwest advanced food manufacturing alliance (S.L. Taylor)

19-010 sg

Development and quality/safety enhancement of speciality food products (S. Taylor)

19-011 sg

Alliance for food protection (S. Hefle)

Industrial Agricultural Products Center

***29-007 sg**

Industrial agricultural products center (M.A. Hanna)

***29-008 st**

Biodegradable plastics from corn starch and soybean oil (M.A. Hanna, V. Miladinov)

29-010 sg

Industrial Agricultural Products Center (M.A. Hanna)

Publications

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 three 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 2000. 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 2000.

Journals in which faculty have published in 2000

Agricultural Economics

Agricultural Economics
International Journal of Water Resources Development
Journal of Agricultural Economics
Review of Agricultural Economics
Rural America
Rural Sociology
Southern Economic Journal

Agricultural Leadership, Education and Communication

Educational Technology
Journal of Agricultural Education
Journal of Psychological Type
Leadership Quarterly
Online Journal of Distance Learning Administration
Psychological Reports

Agronomy and Horticulture

African Crop Science Journal
Agriculture, Ecosystems and Environment
Agriculture Systems
Agronomy Journal
American Journal of Alternative Agriculture
American Journal of Potato Research
Analytical Chemistry
Archives of Biochemistry and Biophysics
Cereal Chemistry
Compost Science and Utilization
Crop Science
Environmental Pollution
Environmental Toxicology and Chemistry
Euphytica
HortScience
International Archives of Allergy Immunology
Journal of the American Society for Horticultural Science
Journal of Entomological Science
Journal of Environmental Quality
Journal of Family and Consumer Sciences
Journal of Hydrology
Journal of Phytoremediation
Journal of Plant, Cell, Tissue and Organ Culture
Journal of Range Management
Journal of Soil and Water Conservation
Journal of Sustainable Agriculture
Journal of Range Management
Mycologia
Online Journal of Animal Science
Plant Science

Plant and Soil
Soil Biology and Biochemistry
Soil Science
Soil Science Society of America Journal
The Prairie Naturalist
Transactions of the American Society of Agricultural Engineers
Weed Science
Weed Technology

Animal Science

American Journal of Physiology
Animal Feed Science and Technology
Asian-Australian Journal of Animal Science
Cell and Tissue Research
Crop Science
FEMS Microbiology Letters
Journal of the American Dietetic Association
Journal of Animal Science
Journal of Applied Poultry Research
Journal of Dairy Science
Journal of Range Management
Journal of Swine Health and Production
Nutrition Research
Official Journal of Japanese Society of Zootechnical Science
Online Journal of Animal Science
Physiological Genomics
Poultry Science
Theoretical and Applied Genetics

Biochemistry

Archives of Biochemistry and Biophysics
Biochemistry
Biochimie
Genes and Cells
International Archives of Allergy and Immunology
Journal of American Chemical Society
Journal of Biological Chemistry
Journal of Microbiology Methods
Journal of Theoretical Biology
Phytopathology
Plant Physiology
Plant Science
Proceedings of the National Academy of Science
Structure

Biological Systems Engineering

Agricultural Systems
Annals of Biomedical Engineering
Applied Engineering in Agriculture
Cereal Foods World
Computers and Electronics in Agriculture
Food Science Biotechnology
Industrial Crops and Products
Industrial Crops Production
International Journal of Food Properties
Journal of Agricultural Engineering Research
Journal of Agricultural and Food Chemistry
Journal of Food Science

Entomology

Annals of Entomological Society of America
Bulletin of Environmental Contamination and Toxicology
Chemosphere
Crop Science
Entomologia Experimentalis et Applicata
Environmental Entomology
Florida Entomologist
Great Plains Research
Journal of Economic Entomology
Journal of Entomological Science
Journal of Insect Physiology
Journal of Medical Entomology
Journal of Nematology
Molecular Phylogenetics and Evolution
Pest Management Science
Pesticide Biochemistry and Physiology
Pharmaceutical Science
Transactions of the American Society of Agricultural Engineers

Food Science and Technology

Allergy
Applied and Environmental Microbiology
Cereal Chemistry
Czech Journal Food Science
HortScience
International Archives of Allergy and Immunology
Journal of Agricultural Engineering Research
Journal of Bacteriology
Journal of Chromatography
Journal of Food Protection
Poultry Science

Plant Pathology

Archives of Virology
Biological Control
Crop Science
Horticultural Science
Journal of the American Society of Horticultural Science
Journal of Biological Chemistry
Journal of Molecular Evolution
Molecular Phylogenetics and Evolution
Mycologia
Nature Structural Biology
Physiological and Molecular Plant Pathology
Phytopathology
Plant Cell Reports
Science
The Plant Cell
The Plant Journal
Transactions of the Nebraska Academy of Sciences
Virology

School of Natural Resource Sciences

Agricultural and Forest Meteorology
Agricultural Systems
Agriculture, Ecosystems and Environment
Analytical Chemistry
Bioremediation Journal
International Journal of Phytoremediation
Journal of Contingencies and Crisis Management
Journal of Entomological Science
Journal of Climate
Journal of Microbiological Methods
Journal of the American Water Resources Association
Remote Sensing of Environment
Wildlife Society Bulletin

Veterinary and Biomedical Sciences

Archives of Virology
Infection and Immunity
Journal of Biological Chemistry
Journal of General Virology
Journal of Immunology
Journal of Virology
Molecular and Cellular Probes
Vaccine
Veterinary Microbiology
Veterinary Pathology
Veterinary Record

Family and Consumer Sciences

Cross Cultural Research
Early Childhood Education Journal
Journal of Family and Consumer Sciences
Journal of Family Issues
Journal of Sex Research

Nutritional Science and Dietetics

Dairy, Food and Environmental Sanitation
International Journal of Vitamin and Nutritional Research
Journal of American Dietetic Association
Journal of Animal Science
Journal of Family and Consumer Sciences
Journal of Food Quality
Journal of Food Sciences
Journal of Nutrition
Journal of Poultry Science
Nutrition Research
Proceedings of the Society for Experimental Biological Medicine

Textiles, Clothing and Design

Applied Engineering in Agriculture
Journal of Family and Consumer Sciences
Starch/Starke
Textile Chemist and Colorist and American Dyestuff Reporter

Northeast Research and Extension Center

Agriculture Ecosystems and Environment
Asian-Australian Animal Science
Bulletin of Environmental Contamination and Toxicology
Journal of Animal Science
Journal of Entomological Science
Journal of Swine Health Production
Transactions of the American Society of Agricultural Engineers

Panhandle Research and Extension Center

American Journal of Potato Research
Applied Engineering in Agriculture
Crop Science
Journal of Plant Growth Regulation
Journal of Sugar Beet Research
Soil Biology and Biochemistry
Soil Science Society of America Journal
The Bovine Practitioner
Weed Science

South Central Research and Extension Center

Crop Science

Journal of Economic Entomology

Journal of Environmental Quality

Journal of Kansas Entomological Society

Journal of Weed Science

Pesticide Biochemistry and Physiology

West Central Research and Extension Center

Australian Journal of Experimental Agriculture

Online Journal of Animal Science

Journal of Animal Science

HortScience

Journal of Range Management

Nebraska Agricultural Research Division Journal

The Prairie Nature

Weed Science

Weed Technology

Research Publications (2000)

Agricultural/Natural Resources Units

Agricultural Economics

Journal Articles

- Filkins, R., J.C. Allen, and S. Cordes. 2000. Predicting community satisfaction among rural residents: An integrative model. *Rural Sociology* 65:72-86. (J. Series No. 12451)
- Giannakas K. and M. Fulton. 2000. The economics of coupled farm subsidies under costly and imperfect enforcement. *Agricultural Economics* 22:75-90. (J. Series No. 13328)
- Leistriz, F.L., S. Cordes, R.S. Sell, J.C. Allen, and R. Filkins. 2000. Immigrants to the Northern Great Plains: Survey results from Nebraska and North Dakota. *Rural America* 15:8-15. (J. Series No. 13166)
- Peterson, E.W.F. 2000. The design of supranational organizations for the provision of international public goods: Global environmental protection. *Review of Agricultural Economics* 22:355-369. (J. Series No. 10797)
- Peterson, E.W.F. and S.R.K. Valluru. 2000. Agricultural comparative advantage and government policy interventions. *Journal of Agricultural Economics* 51:371-387. (J. Series No. 12679)
- Schroeter, J., A. Azzam, and M. Zhang. 2000. Measuring market power in bilateral oligopoly: The wholesale market for beef. *Southern Economic Journal* 60:526-547. (J. Series No. 12676)

- Supalla, R.J. 2000. A game theoretic critique of institutional arrangements for Platte River management. *International Journal of Water Resources Development* 16:253-265. (J. Series No. 12841)

Refereed Proceedings

- Conley, D. 2000. Multi-year hedging analysis, 1973-98. *In: Proceedings from the International Food and Agribusiness Management Association.* http://tamu.edu/iama/2000Congress/2000_forum_papers.htm.
- Dias, W. and G.A. Helmers. 2000. Nonparametric efficiency analysis of public safety production, p. 79-82. *In: Art Gowan (ed.), Proceedings of the Southeast Decision Sciences Institute, Wilmington, NC.*
- Helmers, G.A. and S. Shaik. 2000. The use of the nonparametric approach in risk-return analysis, p. 58-61. *In: Art Gowan (ed.), Proceedings of the Southeast Decision Sciences Institute, Wilmington, NC.*

- Wade, M. and D. Conley. 2000. Assessing informational bias and food safety: A matrix method approach. *In: Internal Food and Agribusiness Management Association Proceedings.* http://tamu.edu/iama/2000Congress/2000_forum_papers.htm

Book Chapter

- Perrin, R.K. 2000. Economic opportunities for new genetic products, chapter 2. *In: Designing Crops for Added Value, Agronomy Monograph. ASA, CSSA and SSSA, Madison, WI.*

Research Bulletins

- Perrin, R.K. and T. Klopfenstein. 2000. Economic impact of feeding wet grain processors' byproducts in Nebraska. *Research Bulletin* 337. University of Nebraska Agricultural Research Division.
- Perrin, R.K., J. Poor, and D. Coyne. 2000. Economic impact of the Chase variety of pinto bean. *Research Bulletin* 338. University of Nebraska Agricultural Research Division.

Ph.D. Dissertations

- Cole, J.D. 2000. An economic analysis of agricultural land leasing with an emphasis on the interface of leasing and conservation practices in Nebraska and South Dakota. (B.B. Johnson, Advisor)
- Matthey, H. 2000. Testing the impact of corporate farming restrictions on the Nebraska hog industry. (J.S. Royer, Advisor)
- Suksamai, A. 2000. International agricultural efficiency and productivity: A nonparametric malmquist index approach. (G.A. Helmers, Advisor)
- Roeber, R.L. 2000. A time series analysis of European wheat export refunds and world wheat prices. (E.W.F. Peterson, Advisor)

Agricultural Leadership, Education and Communication

Journal Articles

- Barbuto, J.E. 2000. Influence triggers: A framework for understanding follower compliance. *Leadership Quarterly* 11:365-387. (J. Series No. 2160)
- Barbuto, J.E. 2000. Comparing leaders' ratings to targets' self-reported resistance to task assignments: An extension of Chester Barnard's zones of indifference. *Psychological Reports* 86:611-621. (J. Series No. 12944)
- Barbuto, J.E. and B. Plummer. 2000. Mental boundaries and Jung's psychological types: A profile analysis. *Journal of Psychological Type* 54:17-21. (J. Series No. 12507)
- Barbuto, J.E., S. Fritz, and D.B. Marx. 2000. A field study of two measures of work motivation for predicting leader's transformational behaviors. *Psychological Reports* 86:295-300. (J. Series No. 12807)

- Frantz, G.L. and J.W. King. 2000. The distance education learning systems model (DEL). *Education Technology* 40: 41-45. (J. Series No. 12680)
- King, J.W., G.C. Nugent, J.J. Eich, D.L. Mlinek, and E.B. Russell. 2000. A policy framework for distance education: A case study and model. *The Distance Education Online Symposium (DEOSNEWS)*. 10.10. (J. Series No. 12874) http://www.ed.psu.edu/acsd/deos/deosnews/deosnew10_10.asp
- Fritz, S., J.E. Barbuto, D.B. Marx, A. Eting, and S. Burrow. 2000. Motivation and recognition preferences of 4-H volunteers. *Journal of Agricultural Education* 41:40-49. (J. Series No. 12823)
- Rockwell, S.K., J.W. Furgason, and D.B. Marx. 2000. Research and evaluation needs for distance education: a delphi study. *Online Journal of Distance Learning Administration*. (J. Series No. 13083) <http://www.westga.edu/~distance/jmain11.html>

- Rockwell, S.K., J. Schauer, S. Fritz, and D.B. Marx. 2000. Faculty education, assistance and support needed to deliver education via distance. *Online Journal of Distance Learning Administration*. (J. Series No. 12965) <http://www.westga.edu/~distance/jmain11.html>

Refereed Proceedings

- Barbuto, J.E. 2000. What triggers compliance? A follower-based framework for understanding the influence process, p. 193-194. *In: M. Wollan (ed.), Proceedings of the Institute for Behavioral and Applied Management, San Diego, CA.*
- Brown, L., J.E. Barbuto, M.S. Wilhite, and D.H. Wheeler. 2000. A field study testing the relationship between employees' sources of motivation and their supervisors' ratings of their uses of organizational citizenship behaviors, p. 34-39. *In: M.Wollan (ed.), Proceedings of the Institute for Behavioral and Applied Management, San Diego, CA.*

Fritz, S., S. Burrow, A. Etling, and J.E. Barbuto. 2000.

Motivation and recognition preferences of 4-H volunteers, p. 187-198. *In*: J. Harper (ed.), Proceedings of the Central States Agricultural Education Regional Research Conference, St. Louis, MO.

M.S. Theses

Brown, L.L. 2000.

The relationship between employees' sources of motivation and their supervisors' ratings of their uses of organizational citizenship behaviors. (J.E. Barbuto, Advisor)

Agronomy and Horticulture

Journal Articles

Adams, D.C., M.K. Nielsen, W.H. Schacht, and R.T. Clark. 2000.

Designing and conducting experiments for range beef cattle. *Online Journal of Animal Science* (J. Series No. 12760) <http://www.asas.org/jas/0947.pdf>

Al-Faraj, A., G.E. Meyer, G.R. Schade, and G.L. Horst. 2000.

Dynamic analysis of moisture stress in tall fescue (*Festuca arundinacea*) using canopy temperature, irradiation, and vapor deficit. *Transactions of the American Society of Agricultural Engineers* 43:101-109. (J. Series No. 12526)

Al-Faraj, A., G.E. Meyer, and G.L. Horst. 2000.

A crop water stress index for tall fescue (*Festuca arundinacea* Schreb.) irrigation decision-making — A traditional method. *Computers and Electronics in Agriculture* (Elsevier) 31:107-124. (J. Series No. 12949)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000a.

Registration of 'Arroyo Loro Negro' black bean. *Crop Science* 40:857-858. (J. Series No. 12669)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000b.

Registration of 'CIAS-95' red mottled bean. *Crop Science* 40:857. (J. Series No. 12666)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J.R. Steadman. 2000c.

Registration of 'JB-178' red mottled bean. *Crop Science* 40:857-858. (J. Series No. 12668)

Baenziger, P.S., B. Moreno-Sevilla, C.J. Peterson, D.R. Shelton, R.W. Elmore, R.N. Klein, D.D. Baltensperger, L.A. Nelson, D.V. McVey, J.E. Watkins, and J.H. Hatchett. 2000.

Registration of 'Culver' wheat. *Crop Science* 40:862-863. (J. Series No. 12612)

Beardslee, T.A., M.G. Zeece, G. Sarath, and J.P. Markwell. 2000.

Soybean glycinin G1 acidic chain shares IgE epitopes with peanut allergen Ara h 3. *International Archives of Allergy Immunology* 123:299-307. (J. Series No. 13045)

Binder, D., D.H. Sander, and D.T. Walters. 2000.

Maize response to time of nitrogen application as affected by level of nitrogen deficiency. *Agriculture, Ecosystems and Environment* 80:113-120. (J. Series No. 12548)

Browleit, R.C., W.H. Schacht, B.E. Anderson, and A.J. Smart. 2000.

Forage removal and grazing time of cattle on small paddocks. *Journal of Range Management* 53:282-286. (J. Series No. 12311)

Campbell, B.T., P.S. Baenziger, A. Mitra, S. Sato, and T. Clemente. 2000.

Inheritance of multiple transgenes in wheat. *Crop Science* 40:1133-1141. (J. Series No. 12806)

Cassada, D.A., Y. Zhang, D.D. Snow, and R.F. Spalding. 2000.

Trace analysis of ethanol and MTBE in water using solid phase micro-extraction and gas chromatography/mass spectrometry. *Analytical Chemistry* 72:4654-4658. (J. Series No. 12979)

Coulibaly, A., M. Bagayoko, S. Traore, and S.C. Mason. 2000.

Crop residue management and cropping system influence on pearl millet and cowpea yield. *African Crop Science Journal* 8:1-8. (J. Series No. 12490)

Coyne, D.P., D.S. Nuland, D.T. Lindgren, J.R. Steadman, D.W. Smith, J. Gonzales, J. Schild, J. Reiser, L. Sutton, and C. Carlson. 2000.

'Weihing' Great Northern disease resistant dry bean. *HortScience* 35:310-312. (J. Series No. 12639)

Coyne, D.P., J.M. Reiser, D.A. Smith, A.L. Ibrahim, L. Sutton, and D.T. Lindgren. 2000.

'Butterbowl' squash, a novel, flat shouldered global butternut. *HortScience* 35:776-777. (J. Series No. 12638)

Danielson, S.D., J.R. Brandle, L. Hodges, and P. Srinivas. 2000.

Bean leaf beetle (*Coleoptera: Chrysomelidae*) abundance in soybean fields protected and unprotected by shelterbelts. *Journal of Entomological Science* 35:385-390. (J. Series No. 12711)

Dielman, J.A., D.A. Mortensen, D.D. Buhler, and R.B. Ferguson. 2000.

Identifying associations among site properties and weed species abundance, II Hypothesis generation. *Journal of Weed Science* 48:576-587. (J. Series No. 12555).

Drijber, R.A., J.W. Doran, A.M. Parkhurst, and D.J. Lyon. 2000.

Changes in soil microbial community structure with tillage under long-term wheat-fallow management. *Soil Biology and Biochemistry* 32:1419-1430. (J. Series No. 12934)

Eghball, B. 2000.

Nitrogen mineralization from field-applied beef cattle feedlot manure or compost. *Soil Science Society of America Journal* 64:2024-2030. (J. Series No. 12863)

Eghball, B., J.E. Gilley, L.A. Kramer, and T.B. Moorman. 2000.

Narrow grass hedge effects on phosphorus and nitrogen in runoff following manure and fertilizer application. *Journal of Soil and Water Conservation* 55:172-176. (J. Series No. 12712)

Eghball, B. and G.W. Lesoing. 2000.

Viability of weed seeds following manure windrow composting. *Compost Science and Utilization* 8:46-53. (J. Series No. 12498)

Eskridge, K.M., M.M. Shah, P.S. Baenziger, and D.A. Travniccek. 2000.

Correcting for classification errors when estimating the number of genes using recombinant inbred chromosome lines. *Crop Science* 40:398-403. (J. Series No. 12525)

Fei, S., P.E. Read, and T.P. Riordan. 2000.

Improvement of embryogenic callus induction and shoot regeneration of buffalograss (*Buchbe dactyloides* nutt. engelm.) by AGN)3. *Journal of Plant, Cell, Tissue and Organ Culture* 60:197-203. (J. Series No. 13051)

Francis, C.A. 2000.

Designing a durable and positive future for agriculture. *American Journal of Alternative Agriculture* 15:44-47. (J. Series No. 12625)

Francis, C.A. and H.C. Carter. 2000.

Participatory education for sustainable agriculture: everyone a teacher, everyone a learner. *Journal of Sustainable Agriculture* 18:71-83. (J. Series. No. 12860)

Giesler, L.J., G.Y. Yuen, and G.L. Horst. 2000.

Canopy microenvironments and applied bacteria population dynamics in shaded tall fescue. *Crop Science* 40:1325-1332. (J. Series No. 12773)

Gilley, J.E., B. Eghball, L.A. Kramer, and T.B. Moorman. 2000.

Narrow grass hedge effects on runoff and soil loss. *Journal of Soil and Water Conservation* 55:910-196. (J. Series No. 12280)

Graef, G.L., L.L. Korte, and D.M. White. 2000.

Registration of 'NE3399' soybean. *Crop Science* 40:575. (J. Series No. 12557)

Graef, G.L., D.M. White, and L.L. Korte. 2000.

Registration of 'NE3297' soybean. *Crop Science* 40:575. (J. Series No. 12556)

Graybosch, R.A., G. Guo, and D.R. Shelton. 2000.

Aberrant falling numbers of waxy wheats independent of alpha-amylase activity. *Cereal Chemistry* 77:1-3. (J. Series. No. 12692)

Hendrickson, J.R., L.E. Moser, and P.E. Reece. 2000.

Tiller recruitment patterns and biennial tiller production in prairie sandreed. *Journal of Range Management* 53:537-543. (J. Series 12350)

Johnson, P.C., T.P. Riordan, J. Johnson-Cicalese, F.P. Baxendale, R.E. Gaussoin, R.C. Shearman, and R.V. Klucas. 2000.

Registration of '61' buffalograss. *Crop Science* 40:569-570. (J. Series No. 12361)

Johnson-Cicalese, J.M., P.G. Johnson, T.P. Riordan, F.P. Baxendale, R.E. Gaussoin, J.E. Watkins, and R.V. Klucas. 2000.

Registration of '120' Buffalograss. *Crop Science* 40:571-572. (J. Series No. 12362)

- Kefi, S., A.D. Pavlista, M.M. Meagher, and P.E. Read. 2000.
Invertase activity during tuberization *in vitro* as influenced by cytokinin-like compounds. *American Journal of Potato Research* 77:57-61. (J. Series No. 12226)
- Kefi, S., A.D. Pavlista, P.E. Read, and S.D. Kachman. 2000.
Comparison of thidiazuron and two nitroguanidines to kinetin on potato microtuberization *in vitro* under long and short days. *Journal of Plant Growth Regulation* 19:429-436. (J. Series No. 12884)
- Kettler, T.A., D.J. Lyon, J.W. Doran, W.L. Powers, and W.W. Stroup. 2000.
Soil quality assessment after weed-control tillage in a no-till wheat-fallow cropping system. *Soil Science Society of America Journal* 64:339-346. (J. Series No. 12494)
- Kim, H.S., G.L. Hartman, J.B. Manandhar, G.L. Graef, J.R. Steadman, and B.W. Diers. 2000.
Reaction of soybean cultivars to sclerotinia stem rot in field, greenhouse, and laboratory evaluations. *Crop Science* 40:665-669. (J. Series No. 12824)
- Kim, M.-S., N.B. Klopfenstein, G.I. McDonald, K. Arumuganathan, and A.K. Vidaver. 2000.
Characterization of North American *Armillaria* species by DNA content and RFLP analysis. *Mycologia* 92:874-883. (J. Series No. 12652)
- Krishnan, G., G.L. Horst, S. Darnell, and W.L. Powers. 2000.
Growth and development of smooth bromegrass and tall fescue in TNT-contaminated soil. *Environmental Pollution* 107:109-116. (J. Series No. 12190)
- Krishnan, G., G.L. Horst, and P.J. Shea. 2000.
Differential tolerance of cool- and warm-season grasses to TNT-contaminated soil. *International Journal of Phytoremediation* 2:369-382. (J. Series No. 12936)
- Maman, N., S.C. Mason, and S. Sirifi. 2000.
Variety and management level influence on pearl millet production in Niger: I. N and P concentration and accumulation. *African Crop Science Journal* 8:35-47. (J. Series No. 12305)
- Neigebauer, A.L., G.L. Horst, D.H. Steinegger, and G.L. Davis. 2000.
Shoot and root characterization of *Rudbeckia hirta* L. mowed at different heights. *HortScience* 35:1247-1248. (J. Series No. 12832)
- Nesser, C., A.R. Martin, P. Juroszek, and D.A. Mortensen. 2000.
A comparison of visual and photographic estimates of weed biomass and weed control. *Weed Technology* 14:586-590. (J. Series No. 12710)
- Niemeier, S. and C.A. Francis. 2000.
Beyond green: from issues to initiatives. *Journal of Family and Consumer Sciences* 92:48-54. (J. Series No. 13121)
- Nin, J.C., E. Arnaud-Santana, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000a.
Registration of 'Anacaona' white bean. *Crop Science* 40:856. (J. Series No. 12670)
- Nin, J.C., E. Arnaud-Santana, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000b.
Registration of 'Saladin-97' red mottled bean. *Crop Science* 40:858-859 (J. Series No. 12665)
- Oh, B.-T., G. Sarath, P.J. Shea, R.A. Drijber, and S.D. Comfort. 2000.
Rapid spectrophotometric determination of 2,4,6-trinitrotoluene and application in enzyme studies. *Journal of Microbiology Methods* 42:149-158. (J. Series No. 12803)
- Olson, B.J.S.C., M. Skavdahl, H. Ramberg, J.C. Osterman, and J.P. Markwell. 2000.
Formate, dehydrogenase in *Arabidopsis thaliana*: Characterization and possible targeting to the chloroplast. *Plant Science* 159:205-212. (J. Series No. 12243)
- Park, S.O., D.P. Coyne, G. Jung, P. Skroch, E. Arnaud-Santana, J.R. Steadman, H.M. Ariyaratne, and J. Nienhuis. 2000.
Mapping of QTL for seed size and shape traits in common bean. *Journal of the American Society for Horticultural Science* 125:466-475. (J. Series No. 12166)
- Pedersen, J.R., C.T. Milton, and R.A. Mass. 2000.
A 12 hour *in vitro* procedure for sorghum grain feed quality assessment. *Crop Science* 40:204-208. (J. Series No. 12506)
- Privette, J.L., G.P. Asner, J. Conel, K.F. Huemrich, R. Olson, A. Rango, A.F. Rahman, K. Thome, and E.A. Walter-Shea. 2000.
The EOS Prototype Validation Exercise (PROVE) at the Jornada: Overview and lessons learned. *Remote Sensing of Environment* 74:1-12. (J. Series No. 13167)
- Rife, C.L., D.L. Auld, W.D. Stegmeier, H.D. Sunderman, W.F. Heer, D.D. Baltensperger, L.A. Nelson, D.L. Johnson, D. Bordovsky, and H.C. Minor. 2000.
Registration of 'Plainsman' Winter Rapeseed. *Crop Science* 40:262-293. (J. Series No. 12541)
- Riordan, T.P., P.G. Johnson, J.M. Johnson-Cicalese, R.E. Gaussoin, F.P. Baxendale, R.C. Shearman, and R.V. Klucas. 2000.
Registration of '118' buffalograss. *Crop Science* 40:570-571. (J. Series No. 12363)
- Roggenkamp, G.J., S.C. Mason, and A.R. Martin. 2000.
Velvetleaf (*Abutilon theophrasti*) and green foxtail (*Setaria viridis*) response to corn (*Zea mays*) hybrid. *Weed Technology* 14:304-311. (J. Series No. 12247)
- Saladin, F., E. Arnaud-Santana, J.C. Nin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J.R. Steadman. 2000.
Registration of 'PC-50' red mottled bean. *Crop Science* 40:858. (J. Series No. 12667)
- Schacht, W.H., J.D. Volesky, D.E. Bauer, A.J. Smart, and E.M. Mousel. 2000.
Plant community patterns on upland prairie in the eastern Nebraska sandhills. *The Prairie Naturalist* 32:43-58. (J. Series No. 13089)
- Schepers, J.S., M.R. Schlemmer, and R.B. Ferguson. 2000.
Site-specific consideration for managing phosphorus. *Journal of Environmental Quality* 29:125-130. (J. Series No. 12637)
- Shah, M.M., Y. Yen, K.S. Gill, and P.S. Baenziger. 2000.
Comparisons of RFLP and PCR-based molecular marker systems to detect polymorphism in wheat. *Euphytica* 114-135:142. (J. Series No. 12340)
- Staswick, P. 2000.
Two expressed soybean genes with high sequence identity to tomato pti 1 kinase lack autophosphorylation activity. *Archives of Biochemistry and Biophysics* 383:233-237. (J. Series No. 12983)
- Sun, W.H., G.L. Horst, R.A. Drijber, and T.E. Elthon. 2000.
Fate of 2,4,6-trinitrotoluene in axenic sand culture systems containing smooth bromegrass. *Environmental Toxicology and Chemistry* 19:2038-2046. (J. Series No. 12155)
- Swartzendruber, D. 2000.
Derivation of a two-term infiltration equation from the Green-Ampt model. *Journal of Hydrology* 236:247-251. (J. Series No. 12613)
- Teo-Sherrell, C.P.A. and D.A. Mortensen. 2000.
Fates of buried *Sorghum bicolor* ssp. *Drummondii* seed. *Weed Science* 48:549-554. (J. Series No. 12710)
- Varvel, G.E. 2000.
Crop rotation and nitrogen effects on normalized grain yields in a long-term study. *Agronomy Journal* 92:938-941. (J. Series No. 12880)
- Vasilyeva, G.K., B.-T. Oh, P.J. Shea, R.A. Drijber, V.D. Kreslavski, B. Minard, and J.-M. Bollag. 2000.
Aerobic TNT reduction via 2-hydroxylamino-4,6-dinitrotoluene by *Pseudomonas aeruginosa* strain MX isolated from munitions-contaminated soil. *Bioremediation Journal* 4:111-124. (J. Series No. 12566)
- Weeks, J.T., K.Y. Koshiyama, U. Maier-Greiner, T. Schaeffner, and O.D. Anderson. 2000.
Wheat transformation using cyanamide as a new selective agent. *Crop Science* 40:1749-1754. (J. Series No. 12304)
- Weiss, A., T.J. Arkebauer, and E.A. Walter-Shea. 2000.
Evaluation of an algorithm for predicting albedo in heliotropic crops. *Agricultural Systems* 68:137-150. (J. Series No. 12767)

- Wienhold, B.J., J.F. Power, and J.W. Doran. 2000. Agricultural accomplishments and impending concerns. *Soil Science* 165:13-30. (J. Series No. 12779)
- Wienhold, B.J. and D.L. Tanaka. 2000. Haying, tillage, and nitrogen fertilization influences on infiltration rates at a conservation reserve program site. *Soil Science Society of America Journal* 64:379-381. (J. Series No. 12413)
- Wilhelm, W.W., S.L. Arnold, and J.S. Schepers. 2000. Nitrate electrode analysis of corn stalk samples. *Agronomy Journal* 92:186-189. (J. Series No. 12603)
- Wilhelm, W.W., K. Kuwe, and M.R. Schlemmer. 2000. Comparison of three leaf area index meters in a corn canopy. *Crop Science* 40:1179-1183. (J. Series No. 12586)
- Williams, M.M., D.A. Mortensen, and J.W. Doran. 2000. No-tillage soybean performance in cover crops for weed management in the western cornbelt. *Journal of Soil and Water Conservation* 55:79-84. (J. Series No. 12043)
- Witt, C., K.G. Cassman, D.C. Olk, U. Biker, S.P. Liboon, M.I. Samson, and J.C.G. Ottow. 2000. Crop rotation and residue management effects on carbon sequestration, nitrogen cycling and productivity of irrigated rice system. *Plant and Soil* 225:263-278. (J. Series No. 12689)
- Yamoah, C.F., D.T. Walters, C.A. Shapiro, C.A. Francis, and M.J. Hayes. 2000. Standardized precipitation index and nitrogen rate effects on crop yields and risk distribution of maize. *Agriculture Ecosystems and Environment* 80:113-120. (J. Series No. 12548)

Refereed Proceedings

- Arumuganathan, K. and K.S. Gill. 2000. Sorting individual chromosomes of corn and wheat, p. 223-224. *In: J.P. Gustafson (ed.), GENOMES. Proceedings of the 22nd Stadler Genetics Symposium.* Kluwer Academic/Plenum Publishers, New York City, NY.

- Arumuganathan, K., L. Li, K.S. Gill, and Y. Zhou. 2000. Sorting maize chromosomes from oat maize addition lines, p. 20-25. *In: Proceedings of the XX Congress of the International Society for Analytical Cytology, May 2000, Le Corum, Montpellier, France.*
- Arumuganathan, K., L. Li, K.S. Gill, and Y. Zhou. 2000. Sorting maize chromosomes from oat maize addition lines, p. 64-65. *In: Cytometry (supplement 10), May 2000, Le Corum, Montpellier, France.*
- Davilla, M., D.P. Coyne, and S.P. Singh. 2000. Inheritance of a dwarf pale yellow mutant in common beans, p. 429-433. *In: Proceedings of International American Society of Tropical Horticulture* 42.
- Durborow, T.E., N.J. Barnes, S.Z. Cohen, G.L. Horst, and A.E. Smith. 2000. Calibration and validation of runoff and leaching models for turf pesticides, and comparison with monitoring results, p. 195-227. *In: N.N. Ragsdale and J.N. Sieber (eds.), Pesticides: Managing Risks and Optimizing benefits, ACS Symposium Series 734, American Chemical Society, Washington, D.C.*

- Eghball, B. 2000. Nitrogen- and phosphorus-based beef cattle feedlot manure or compost application: Soil properties, p. 127-134. *In: A. Schlegel (ed.), Proceedings of the Great Plains Soil Fertility Conference, March 7-8, 2000, Denver, CO.*
- Eghball, B. and J.E. Gilley. 2000. Nitrogen and phosphorus-based manure or compost application: Corn production, soil properties, and nitrogen and phosphorus transport in runoff, p. 127-135. *In: M. Vigil and L. Pieper (eds.), Proceedings of Innovative Technologies for Planning Animal Waste Operations, December 4-6, 2000, Denver, CO.*
- Knezevic, S.Z., S.P. Evans, C.A. Shapiro, and J.L. Lindquist. 2000. Effect of nitrogen on the critical period of weed control in corn, p. 113-136. *In: Proceedings of the 3rd International Weed Science Society, Iguassu Falls, Brazil.*

- Paschold, J.S., B.J. Wienhold, J.E. Gilley, R.B. Ferguson, and P.S. Miller. 2000. Crop utilization and environmental fate of N and P from soils receiving manure from swine fed diets containing traditional or highly available phosphorus corn, p. 425-432. *In: P.A. Moore (ed.), Proceedings of the 8th International Symposium on Animal, Agricultural, and Food Processing Wastes, American Society of Agricultural Engineers, St. Joseph, MI.*
- Watts, D.G., D. Fekersillasse, J.S. Schepers, D.E. Eisenhauer, R.F. Spalding, and N.L. Klocke. 2000. Integrated management of irrigation and nitrogen for groundwater quality improvement, p. 144-152. *In: R.G. Evans, B.L. Benham, and T.P. Trooien (eds.), National Irrigation Symposium, Proceedings of the 4th Decennial Symposium, Phoenix, AZ.*

- Weichenthal, B.A., D.D. Baltsenberger, K.P. Vogel, S.D. Masterson, J.M. Blumenthal, and J.M. Krall. 2000. Annual forages for the Central High Plains, p. 180-184. *In: M. Phillips, T. Terrill, D. Belesky, J. Berdahl, K. Cassida, J. Williams, and M. Wiedenhoef (eds.), American Forage and Grassland Council Proceedings, July 16-19, 2000, Madison, WI.*

Books

- Francis, C.A. and D.A. Mortensen. 2000. Urbanization of rural landscapes II: Second syllabus and teaching materials from a university course. *Extension and Teaching Materials for Sustainable Agriculture, Volume 12, Center for Sustainable Agricultural Systems, University of Nebraska, Lincoln, NE.*
- Moore, K.J. and B.E. Anderson. 2000. Native warm-season grasses: research trends and issues. *Crop Science Society of America Special Publication 30. Crop Science Society of America and American Society of Agronomy, Madison, WI.*

Research Bulletin

- Perrin, R.K., J. Poor, and D.P. Coyne. 2000. Economic impact of the Chase variety of pinto bean. *Research Bulletin* 338. University of Nebraska Agricultural Research Division.

Book Chapters

- Anderson, B.E. 2000. Use of warm-season grasses by grazing livestock, p. 147-157. *In: K.J. Moore and B.E. Anderson (eds.), Native Warm-Season Grasses: Research Trends and Issues. CSSA Special Publication 30. Crop Science Society of America and American Society of Agronomy, Madison, WI.*
- Baenziger, P.S., A. Mitra, and I.B. Edwards. 2000. Protecting the value in value added crops: intellectual property rights, p. 239-248. *In: C.F. Murphy and D.M. Peterson (eds.), Designing Crops for Added Value. American Society of Agronomy, Madison, WI.*
- Brandle, J.R., L. Hodges, and B.C. Wight. 2000. Windbreak Practices, p. 79-118. *In: H.E. Garrett, W.J. Rietveld, and R.F. Fisher (eds.), North American Agroforestry: An Integrated Science and Practice. American Society of Agronomy, Madison, WI.*
- Eghball, B., G.W. Hergert., C.W. Lesoing, and R.B. Ferguson. 2000. Fractal analysis of spatial and temporal variability, p. 259-272. *In: Y.A. Pachepsky, J.W. Crawford, and W.J. Rawls (eds.), Fractals in Soil Science. Elsevier Sciences B.V., Amsterdam.*
- Flora, C.B. and C.A. Francis. 2000. Farming systems extension in the USA, p. 139-144. *In: M. Collinson (ed.), A History of Farming Systems Research. CABI Publishing, Cambridge, UK.*
- Mitchell, R.B. and L.E. Moser. 2000. Developmental morphology and tiller dynamics of warm-season grass swards, p. 49-65. *In: K.J. Moore and B.E. Anderson (eds.), Native Warm-Season Grasses: Research Trends and Issues. Crop Science Society of America Special Publication 30. Crop Science Society of America, Madison, WI.*
- Moser, L.E. 2000. Morphology of germinating and emerging warm-season grass seedlings, p. 35-47. *In: K.J. Moore and B.E. Anderson (eds.), Native Warm-Season Grasses: Research Trends and Issues. Crop Science Society of America Special Publication 30. Crop Science Society of America, Madison, WI.*

- Pedersen, J.F. and J.O. Fritz. 2000. Forage and fodder, p. 797-810. *In*: C.W. Smith and R.A. Frederiksen (eds.), *Sorghum Evolution, History, Production, and Technology*. John Wiley Publishers, New York City, NY.
- Rietveld, W.J. and C.A. Francis. 2000. The future of agroforestry in the United States, p. 387-402. *In*: E. Garrett, W. Rietveld, and R.F. Fisher (eds.), *North American Agroforestry: An Integrated Science and Practice*. American Society of Agronomy, Madison, WI.
- Schepers, J.S., J.F. Shanahan, and A. Luchiaro Jr. 2000. Precision agriculture as a tool for sustainability, p. 129-135. *In*: E. Balaz et al. (eds.), *Biological Resource Management, Connecting Science and Policy*. Springer, Inc., Paris, France.
- Spalding, R.F. 2000. Emerging technologies for enhanced in situ bioremediation (EISBD) of nitrate-contaminated ground water, p. 24-32. *In*: Interstate Technology and Regulatory Cooperation Work Group Enhanced in Situ Bioremediation Work Team. Interstate Technology and Regulatory Cooperative.
- Zhang, Z., Z. Guo, H. Shou, S.E. Pegg, T.E. Clemente, P.E. Staswick, and K. Wang. 2000. Assessment of condition affecting Agrobacterium-mediated soybean transformation and routine recovery of transgenic soybean, p. 88-94. *In*: A.D. Arencibia (ed.), *Plant Genetic Engineering: Towards the Third Millennium*. Elsevier Science, The Netherlands.
- M.S. Theses**
- Artikov, I.S. 2000. Maize hybrids and growth stage effects on leaf nitrogen status and the prediction of N sufficiency using the SPAD 502 chlorophyll meter. (D.T. Walters, Advisor)
- Bahadir, M.A. 2000. Changes in phosphorus status during the fallow year of soils cropped to wheat. (D.L. McCallister, Advisor)
- Bauer, C.J. 2000. Site-specific manure application for improving crop productivity and total N uptake. (B. Eghball, Advisor)
- Bondareva, S.N. 2000. Extent of recombination and its detection using F2 vs. backcross population. (K.S. Gill, Advisor)
- Cullan, A.P. 2000. Grazing date by stocking rate effects on prairie sandreed. (P.E. Reece and W.H. Schacht, Advisors)
- Heckman, N.L. 2000. Trinexapac-ethyl influences plant metabolism and development (G.L. Horst, Advisor)
- Herron, A.E. 2000. Sandhills vegetation response to summer and fall grazing interactions. (P.E. Reece and W.H. Schacht, Advisors)
- Ikten, H. 2000. The effects of growth regulators on *in vitro* regeneration of grapevine (vitis SpP). Cultivars and optimization of factors affecting a biolistic transformation gene delivery system for grapevine leaf disks. (P.E. Read, Advisor)
- Kottas, K.L. 2000. Floristic composition and characterizations of Spring Creek Prairie, Nebraska. (R.B. Kaul, Advisor)
- Larson, J.A. 2000. Soil phosphorus partitioning and retention as affected by manure application and tillage. (D.L. McCallister, Advisor)
- Najarian, P.A. 2000. An analysis of state drought plans: a model drought plan proposal. (D.A. Wilhite, Advisor)
- Neugebauer, A.L. 2000. A model system for evaluating wildflower sod establishment. (G.L. Davis and G.L. Horst, Advisors)
- O'Brian, T.R. 2000. Morphological development and winter survival of switchgrass and big bluestem seedlings. (L.E. Moser, Advisor)
- Pensick, E.M. 2000. Vacuum infusion with a-naphthalenecetic acid and commercial insecticidal soap on the development of Poinsettia "Freedom Red". (J.B. Fitzgerald, Advisor)
- Renken, R.R. 2000. Retardation of potassium in porous media as influenced by velocity. (J.M. Skopp, Advisor)
- Richardson, D.M. 2000. Vegetation Response to Stocking Rate and Grazing Frequency on Sandhills Meadows. J.D. Volesky and W.H. Schacht, Advisors)
- Spotanski, J.J. 2000. Duration of weed interference in corn (*Zea mays*). (A.R. Martin, Advisor)
- Tichota, G.R. 2000. The germination, propagation, and establishment of *Carex fillifolia* (Threadleaf Sedge). (J. Stubbendieck, Advisor)
- Trompke, M.L. 2000. Spatial characterization of soil physical properties in irrigation furrows. (W.L. Powers, Advisor)
- Ph.D. Dissertations**
- Abeyo, B.G. 2000. Temperature, planting depth, and genotype effects on seedling characteristics and seeding rate effects on agronomic and quality performance of winter wheat (*Triticum aestivum* L.). (P.S. Baenziger, Advisor)
- Coelho, A.M. 2000. Irrigated corn yield as related to spatial variability of selected soil properties in silty clay loam and sandy soils. (J.W. Doran and D.G. Watts, Advisors)
- Echavarria-Chairez, F.G. 2000. Alternate irrigation and fertilization to reduce leaching of nitrates. (C.A. Shapiro and D.T. Walters, Advisors)
- Frank, K.W. 2000. Nitrogen allocation of three turfgrass species and turf-type buffalograss management. (R.E. Gaussoin and T.P. Riordan, Advisors)
- Franks, C.D. 2000. The effect of soil porosity and plant root biomass on the hydrologic characteristic of rangeland plant communities. (D.T. Lewis, Advisor)
- Guillen Portal, F.R. 2000. Maize hybrid adaptability to drought stress assessed with combining ability and genotype-by-environment effects. (D.D. Baltensperger and L.A. Nelson, Advisors)
- Haliloglu, K. 2000. Agrobacterium tumefaciens mediated wheat transformation. (P.S. Baenziger, Advisor)
- Heng-Moss, T.M. 2000. Buffalograss resistance to the chinch bug, *Blissus occiduus*: an investigation of tolerance and antixenosis. (F.P. Baxendale and T.P. Riordan, Advisors)
- Khan, I.A. 2000. In-situ aquifer denitrification using a daisy well system. (R.F. Spalding, Advisor)
- Sandhu, D. 2000. Molecular characterization of major gene-rich region in wheat (*Triticum aestivum* L.). (K.S. Gill, Advisor)
- Suyker, A.E. 2000. Carbon dioxide and methane exchange in a boreal wetland. (S.B. Verma, Advisor)
- Tuna, M. 2000. Molecular cytogenetic characterization of bromegrasses. (K.P. Vogel and K.S. Gill, Advisors)
- Williams II, M.M. 2000. Development and evaluation of site-specific recommendations for weed management in *Zea mays* L. (D.A. Mortensen, Advisor)
- Xue, Q. 2000. Phenology and gas exchange in winter wheat (*Triticum aestivum* L.). (A. Weiss, Advisor)

Animal Science

Journal Articles

- Adams, D.C., M.K. Nielsen, W.H. Schacht, and R.T. Clark. 2000. Designing and conducting experiments for range beef cattle. *Online Journal of Animal Science* <http://www.asas.org/jas/0947.pdf>. (J. Series No. 12760)
- Allan, M.F., M.K. Nielsen, and D.H. Pomp. 2000. Gene expression in hypothalamus and brown adipose tissue of mice divergently selected for heat loss. *Physiological Genomics* 3:149-156. (J. Series No. 12954)
- Allen, D.M. and R.J. Grant. 2000. Interactions between forage and wet corn gluten feed as sources of fiber in diets for lactating dairy cows. *Journal of Dairy Science* 83:322-331. (J. Series No. 12592)

- Bromley, C.M., G.D. Snowder, and L.D. Van Vleck. 2000. Genetic parameters among weight, prolificacy, and wool traits of Columbia, Polypay, Rambouillet, and Targhee sheep. *Journal of Animal Science* 78:846-858. (J. Series No. 12568)
- Bromley, C.M., L.D. Van Vleck, B.E. Johnson, and O.S. Smith. 2000. Estimation of variance components due to line effects from F1 performance with and without pedigree relationships among lines. *Crop Science* 40:651-655. (J. Series No. 12345)
- Brumm, M.C., J.M. Dahlquist, and J.M. Heemstra. 2000. Impact of feeders and drinker devices on pig performance, water use, and manure volume. *Journal of Swine Health and Production* 8:51-57. (J. Series No. 12448)
- Bueno, A.R., T.G. Cappel, G.D. Sunvold, R.A. Moxley, G.A. Reinhart, and E.T. Clemens. 2000. Feline colonic microbes and fatty acid transport: Effects of feeding cellulose, beet pulp and pectin/gum arabic fibers. *Nutrition Research* 20:1319-1328. (J. Series No. 12733)
- Bueno, A.R., T.G. Cappel, G.D. Sunvold, G.A. Reinhart, and E.T. Clemens. 2000. Feline colonic morphology and mucosal tissue energetics as influenced via the source of dietary fiber. *Nutrition Research* 20:985-993. (J. Series No. 12714)
- Cassady, J.P., R.K. Johnson, and J.J. Ford. 2000. Comparison of plasma FSH concentration in boars and gilts from lines selected for ovulation rate and embryonal survival, and litter size and estimation of (co)variance components for FSH and ovulation rate. *Journal of Animal Science* 78:1430-1435. (J. Series No. 12674)
- Choi, S.B., J.W. Lee, N.S. Kim, S.H. Na, J.F. Keown, and L.D. Van Vleck. 2000. Estimation of genetic parameters for direct, maternal, and grandmaternal genetic effects for birth, weaning, and six month weights of Hanwoo (Korean native cattle). *Asian-Australian Journal of Animal Science* 13:149-154. (J. Series No. 12697)
- Cline, T.R., G.L. Cromwell, T.D. Crenshaw, R.C. Ewan, C.R. Hamilton, A.J. Lewis, D.C. Mahan, and L.L. Southern. 2000. Further assessment of the dietary lysine requirement of finishing gilts. *Journal of Animal Science* 78:987-992. (J. Series No. 13046)
- Cromwell, G.L., T.R. Cline, J.D. Crenshaw, T.D. Crenshaw, R.A. Easter, R.C. Ewan, C.R. Hamilton, G.M. Hill, A.J. Lewis, D.C. Mahan, J.L. Nelssen, J.E. Pettigrew, T.L. Veum, and J.T. Yen. 2000. Variability among sources and laboratories in analyses of wheat middlings. *Journal of Animal Science* 78:2652-2658. (J. Series No. 13159)
- Edel, J.B., J.M. Rumph, R. Mass, K. Killinger, N. Jerez, S. Elnagar, T. McDaniel, R. Aljumaah, U. Puthongsiriporn, K. Nephawe, G. Martinez, C.D. Gladney, M.F. Allan, and D. Pomp. 2000. Rapid communication: Linkage mapping of the Mahogany (attractin) locus in cattle and pigs. *Journal of Animal Science* 78:2479-2480. (J. Series No. 12911)
- Elston, J.J., M.M. Beck, M.A. Alodan, and V. Vega-Murillo. 2000. Laying hen behavior. 2. Cage type preference and heterophil to lymphocyte ratios. *Poultry Science* 79:477-482. (J. Series No. 12529)
- Elston, J.J., M.M. Beck, S.D. Kachman, and S.E. Scheideler. 2000. Laying hen behavior. 1. Effects of cage type and startle stimuli. *Poultry Science* 79:471-476. (J. Series No. 12499)
- Gaughan, J.B., S.M. Holt, G.L. Hahn, T.L. Mader, and R.A. Eigenberg. 2000. Respiration rate — is it a good measure of heat stress in cattle? *Asian-Australian Animal Science* 13:329-332. (J. Series No. 12903)
- Gilley, J.E., D.P. Spare, R.K. Koelsch, D.D. Schulte, P.S. Miller, and A.M. Parkhurst. 2000. Phototrophic anaerobic lagoons as affected by copper and zinc in swine diets. *Transactions of the American Society of Agricultural Engineers* 43:1853-1859. (J. Series No. 12970)
- Gomez, R.S., A.J. Lewis, P.S. Miller, and H.-Y. Chen. 2000. Growth performance and digestive and metabolic responses of gilts penned individually or in groups of four. *Journal of Animal Science* 78:597-603. (J. Series No. 12609)
- Haddad, S.G. and R.J. Grant. 2000. Influence of nonfiber carbohydrate concentration on forage fiber digestion *in vitro*. *Animal Feed Science and Technology* 86:107-115. (J. Series No. 12831)
- Hill, G.M., G.L. Cromwell, T.D. Crenshaw, C.R. Dove, R.C. Ewan, D.A. Knabe, A.J. Lewis, G.W. Libal, D.C. Mahan, G.C. Shurson, L.L. Southern, and T.L. Veum. 2000. Growth promotion effects and plasma changes from feeding high dietary concentrations of zinc and copper to weanling pigs (regional study). *Journal of Animal Science* 78:1010-1016. (J. Series No. 13383)
- Holt, S.M., T.L. Mader, J.B. Gaughan, A. Lisle, and T. Scott. 2000. Limit feeding of feedlot cattle during the summer. *Asian-Australian Journal of Animal Science* 13:421-424. (J. Series No. 12902)
- Klemesrud, M.J., T.J. Klopfenstein, and A.J. Lewis. 2000a. Evaluation of feather meal as a source of sulfur amino acids for growing steers. *Journal of Animal Science* 78:207-215. (J. Series No. 12474)
- Klemesrud, M.J., T.J. Klopfenstein, and A.J. Lewis. 2000b. Metabolizable methionine and lysine requirements of growing cattle. *Journal of Animal Science* 78:199-206. (J. Series No. 12473)
- Klemesrud, M.J., T.J. Klopfenstein, R.A. Stock, A.J. Lewis, and D.W. Herold. 2000. Effect of dietary concentration of metabolizable lysine on finishing cattle performance. *Journal of Animal Science* 78:1060-1066. (J. Series No. 12469)
- Klopfenstein, T., R. Cooper, D. Jordon, D. Shain, C. Calkins, and C. Rossi. 2000. Effects of backgrounding and growing programs on beef carcass quality and yield. *Online Journal of Animal Science* <http://www.asas.org/jas/0942.pdf>. (J. Series No. 12684)
- Kuchida, K., S. Kono, K. Konishi, L.D. Van Vleck, M. Suzuki, and S. Miyoshi. 2000. Prediction of crude fat content of longissimus muscle of beef using the ratio of fat area calculated from computer image analysis: Comparison of regression equations for prediction using different input devices at different stations. *Journal of Animal Science* 78:799-803. (J. Series No. 12569)
- Kuchida, K., S. Tsuruta, L.D. Van Vleck, M. Suzuki, and S. Miyoshi. 2000. A method for predicting beef marbling standard using parameters obtained from image analysis of beef rib eyes. *Official Journal of Japanese Society of Zootechnical Science* 70:107-112. (J. Series No. 12390)
- Lardy, G.P., D.C. Adams, T.J. Klopfenstein, R.T. Clark, and J. Emerson. 2000. Escape protein and weaning effects on calves grazing meadow regrowth. *Journal of Range Management* 54:233-238. (J. Series No. 11955)
- Leamy, L., J. Cheverud, E.J. Eisen, and D. Pomp. 2000. Quantitative trait loci for directional but not fluctuating asymmetry of mandible characters in mice. *Theoretical and Applied Genetics* 76:27-40. (J. Series No. 12675)
- Lee, J.W., S.B. Choi, Y.H. Jung, J.F. Keown, and L.D. Van Vleck. 2000. Parameter estimates for direct and maternal genetic effects on yearling, eighteen-month, and slaughter weights of Korean native cattle. *Journal of Animal Science* 78:1414-1421. (J. Series No. 12582)
- Lee, J.W., S.B. Choi, J.S. Kim, J.F. Keown, and L.D. Van Vleck. 2000. Parameter estimates for genetic effects on carcass traits of Korean native cattle. *Journal of Animal Science* 78:1181-1190. (J. Series No. 12713)
- Lee, J.W., D.F. Waldron, and L.D. Van Vleck. 2000a. Parameter estimates for greasy fleece weight of Rambouillet sheep at different ages. *Journal of Animal Science* 78:2108-2112. (J. Series No. 12745)
- Lee, J.W., D.F. Waldron, and L.D. Van Vleck. 2000b. Parameter estimates for number of lambs born at different ages and for 18-month body weight of Rambouillet sheep. *Journal of Animal Science* 78:2086-2090. (J. Series No. 12761)
- Lewis, A.J., T.J. Wester, D.G. Burrin, and M.J. Dauncey. 2000. Exogenous growth hormone induces somatotrophic gene expression in neonatal liver and skeletal muscle. *American Journal of Physiology* 278:838-844. (J. Series No. 12563)

- Lewis, N.M., K. Schalach, and S.E. Scheideler. 2000. Serum lipid responses to n-3 fatty acid enriched eggs in persons with hypercholesterolemia. *Journal of American Dietetic Association* 100:365-367. (J. Series No. 12264)
- Morrison, M. and J. Miron. 2000. Adhesion to cellulose by *Ruminococcus albus*: A combination of cellulosomes and Pil-proteins. *FEMS Microbiology Letters* 185:109-115. (J. Series No. 12788)
- Nash, D.L., G.W. Rogers, J.B. Cooper, G.L. Hargrove, J.F. Keown, and L.B. Hansen. 2000. Heritability of clinical mastitis incidence and relationships with sire transmitting abilities for somatic cell score, udder type traits, productive life, and protein yield. *Journal of Dairy Science* 83:2350-2360. (J. Series No. 13227)
- Pedersen, J.F., C.T. Milton, and R.A. Mass. 2000. A 12-hour *in vitro* procedure for sorghum grain feed quality assessment. *Crop Science* 40:204-208. (J. Series No. 12506)
- Sandberg, R.E., D.C. Adams, T.J. Klopfenstein, and R.J. Grant. 2000. N-alkane as an internal marker for predicting digestibility of forages. *Journal of Range Management* 53:159-163. (J. Series No. 12440)
- Scheideler, S.E. and P.R. Ferket. 2000. Phytase in broiler rations—effects on carcass yields and incidence of tibial dyschondroplasia. *Journal of Applied Poultry Research* 9:468-475. (J. Series No. 12853)
- Son, J., L.L. Larson, and R.J. Grant. 2000. Effect of time of initiating dietary fat supplementation on performance and reproduction of early lactation dairy cows. *Asian-Australian Journal of Animal Science* 13:182-187. (J. Series No. 11189)
- Stock, R.A., J.M. Lewis, T.J. Klopfenstein, and C.T. Milton. 2000. New information on the use of wet and dry milling feed byproducts in feedlot diets. *Online Journal of Animal Science* <http://www.asas.org/jas/0924.pdf>. (J. Series No. 12732)
- Story, C.E., R.J. Rasby, R.T. Clark, and C.T. Milton. 2000. Age of calf at weaning of spring-calving beef cows and the effect on cow and calf performance and production economics. *Journal of Animal Science* 78:1403-1413. (J. Series No. 12630)
- Teruyama, R. and M.M. Beck. 2000. Changes in immunoreactivity to anti-cGnRH-I and -II are associated with photostimulated sexual status in male quail. *Cell and Tissue Research* 300:413-426. (J. Series No. 12234)
- Tsuruta, S., J.F. Keown, L.D. Van Vleck, and I. Misztal. 2000. Bias in genetic evaluations by records of cows treated with bovine somatotropin. *Journal of Dairy Science* 83:2650-2656. (J. Series No. 12783)
- Van Vleck, L.D., K.A. Leymaster, and T.G. Jenkins. 2000. Genetic correlations for daily gain between ram and ewe lambs fed in feedlot conditions and ram lambs fed in Pinpointer units. *Journal of Animal Science* 78:1155-1158. (J. Series No. 12694)
- Zanella, E.L., D.D. Lunstra, T.H. Wise, J.E. Kinder, and J.J. Ford. 2000. GnRH antagonist inhibition of gonadotropin and steroid secretion in boars *in vivo* and steroid production *in vitro*. *Journal of Animal Science* 78:1591-1597. (J. Series No. 12522)
- Book**
- Jones, S.J. and D.E. Burson. 2000. *Porcine myology*. University of Nebraska Press, Lincoln, NE.
- Book Chapter**
- Grant, R.J. and J.L. Albright. 2000. Feeding behaviour, p. 356-382. *In*: J.P.F. D'Mello (ed.), *Farm Animal Metabolism and Nutrition*. CAB International Publishers, New York, NY.
- Research Bulletin**
- Perrin, R.K. and T. Klopfenstein. 2000. Economic impact of feeding wet grain processors' byproducts. *Nebraska Research Bulletin* 337. University of Nebraska Agricultural Research Division.
- M.S. Theses**
- Blackford, M.P. 2000. Effects of increasing Rumensin® level during an experimentally induced acidosis challenge. (T.J. Klopfenstein and C.T. Milton, Advisors)
- Boddugari, K.R. 2000. Maximal replacement of dietary concentrate and forage with wet corn milling feed for dairy cows. (R.J. Grant, Advisor)
- Canterbury, J.L. 2000. Strategy for the conservation of non-game birds in the state of Nebraska. (M.M. Beck, Advisor)
- Colina, J.J. 2000. Dietary manipulation to reduce ammonia emission in nursery pig facilities. (A.J. Lewis and P.S. Miller, Advisors)
- Creighton, K.W. 2000. Undegradable intake protein supplementation of grazing yearlings and determination of undegradable intake protein content of forages. (T.J. Klopfenstein, Advisor)
- Davis, T.L. 2000. Endocrine regulation to enhance luteal function in cattle. (J.E. Kinder, Advisor)
- DeGroot, B.J. 2000. Divergent selection for predicted transmitting ability for type in Holsteins: Genetic parameters and response of linear type, yield traits, and somatic cell scores through four generations. (J.F. Keown, Advisor)
- Fischer, R.L. 2000. Compensatory growth and plasma urea concentrations of growing-finishing pigs. (P.S. Miller and A.J. Lewis, Advisors)
- Folmer, J.D. 2000. Utilization of Bt corn residue for grazing beef steers and Bt corn silage for growing beef steers and lactating dairy cattle. (C.T. Milton and T.J. Klopfenstein, Advisors)
- Gladney, C.D. 2000. Evaluation of gene expression in ovarian follicles of pigs selected for reproduction. (D. Pomp, Advisor)
- McDaneld, T.G. 2000. The role of uncoupling proteins on maintenance energy in mice divergently selected for heat loss. (M.K. Nielsen and J.L. Miner, Advisors)
- McEver, M.E. 2000. Precooked bacon manufactured by microwave and double belt conveyor cooking systems. (R.W. Mandigo, Advisor)
- Mussard, M.L. 2000. Regulation of FSH synthesis and control of ovarian follicular development in cattle. (J.E. Kinder, Advisor)
- Park, J.L. 2000. Evaluation of feeding beef cattle wet pressed beet pulp in growing and finishing feedlot diets. (I.G. Rush and D.R. Brink, Advisors)
- Rumph, J.M. 2000. A comparison of various models used to estimate genetic parameters for mature weight of Hereford cattle. (L.D. Van Vleck, Advisor)
- Von Seggern, D.D. 2000. Physical and chemical properties of 39 muscles from the beef chuck and round. (C.R. Calkins, Advisor)
- Ph.D. Dissertations**
- Arango-Gomez, J. 2000. Genetic study of cow weight, height and body condition score in beef cattle. (L.D. Van Vleck, Advisor)
- Chiang, C.-F. 2000. Selection for maternal behavior in mice. (R.K. Johnson, Advisor)
- Cooper, R.J. 2000. Effect of corn processing on the degradable intake protein requirements of finishing cattle. (T.J. Klopfenstein, Advisor)
- Ermer, P.M. 2000. Behavioral and metabolic changes associated with the addition of tallow to the diet of lactating sows. (P.S. Miller and A.J. Lewis, Advisors)
- Figueroa-Velasco, J.L. 2000. Performance and nitrogen balance of growing gilts fed low-protein amino acid-supplemented diets. (A.J. Lewis and P.S. Miller, Advisors)
- Jordon, D.J. 2000. Performance and slaughter breakeven analysis of calf and yearling systems and compensatory growth. (T.J. Klopfenstein, Advisor)
- Patterson, Hubert H., III. 2000. Protein supplementation to pregnant heifers and grazing management effects on cow diet quality. (D.C. Adams and T.J. Klopfenstein, Advisors)
- Ruiz-Flores, A. 2000. Direct and correlated responses to two-stage selection for ovulation rate and number of fully formed pigs at birth. (R.K. Johnson, Advisor)
- Scott, T.L. 2000. Utilization of feed resources to enhance efficiency of feedlot cattle. (T.J. Klopfenstein, Advisor)

Biochemistry

Journal Articles

Allison, L.A. 2000.

The role of sigma factors in plastid transcription. *Biochimie* 82:537-548. (J. Series No. 12959)

Beardslee, T.A., M.G. Zeece, G. Sarath, and J.P. Markwell. 2000.

Soybean glycinin G1 acidic chain shares IgE epitopes with peanut allergen Ara h 3. *International Archives of Allergy and Immunology* 123: 299-307. (J. Series No. 13045)

Chastain, C.J., M. Botschner, G.E. Harrington, B.J. Thompson, S.E. Mills, G. Sarath, and R. Chollet. 2000.

Further analysis of maize C4 pyruvate, orthophosphate dikinase phosphorylation by its bifunctional regulatory protein using selective substitutions of the regulatory Thr-456 and catalytic His-458 residues. *Archives of Biochemistry and Biophysics* 375:165-170. (J. Series No. 12804)

Chowdhury, S. and R. Banerjee. 2000.

Evidence for quantum mechanical tunneling in the coupled cobalt carbon bond homolysis-substrate radical generation step catalyzed by methylmalonyl-CoA mutase. *Journal of American Chemical Society* 122:5417-5418. (J. Series No. 12872)

Chowdhury, S. and R. Banerjee. 2000.

Thermodynamic and kinetic characterization of the Co-C bond homolysis catalyzed by coenzyme B12-dependent methylmalonyl-CoA mutase. *Biochemistry* 39:7998-8006. (J. Series No. 12833)

Doukov, T., J. Seravalli, J. Stezowski, and S.W. Ragsdale. 2000.

Crystal structure of a methyltetrahydrofolate and corrinoid dependent methyltransferase. *Structure* 8:817-830. (J. Series No. 12914)

Du, Y., S. Hong, and R.J. Spreitzer. 2000.

RbcS suppressors enhance the CO₂/O₂ specificity and thermal stability of *rbcL*-mutant ribulose-1, 5-bisphosphate carboxylase/oxygenase. *Proceedings of the National Academy of Science U.S.A.* 97:14206-14211. (J. Series No. 13124)

Du, Y. and R.J. Spreitzer. 2000.

Suppressor mutations in the chloroplast-encoded large subunit improve the thermal stability of wild-type ribulose-1,5-bisphosphate carboxylase/oxygenase. *Journal of Biological Chemistry* 275:19844-19847. (J. Series No. 12932)

Johnson, P.G., T.P. Riordan, J. Johnson-Cicalese, F.P. Baxendale, R.E. Gaussoin, R.C. Shearman, and R.V. Klucas. 2000.

Registration of '61' buffalograss. *Crop Science* 40:569-570. (J. Series No. 12361).

Johnson-Cicalese, J.M., P.G. Johnson, T.P. Riordan, F.P. Baxendale, R.E. Gaussoin, J.E. Watkins, and R.V. Klucas. 2000.

Registration of '120' Buffalograss. *Crop Science* 40:571-572. (J. Series No. 12362)

Kryukov, G.V. and V.N. Gladyshev. 2000.

Selenium metabolism in zebrafish: multiplicity of selenoprotein genes and expression of a protein containing seventeen selenocysteine residues. *Genes and Cells* 5:1049-1060. (J. Series No. 13058)

Lahiri, S.D. and L.A. Allison. 2000.

Complementary expression of two plastid-localized sigma-like factors in maize. *Plant Physiology* 123:883-894. (J. Series No. 12820)

Martinov, M.V., V.M. Vitvitsky, E.V. Mosharov, R. Banerjee, and F.I. Ataullakhanov. 2000.

A substrate switch: A new mode of regulation in the methionine metabolic pathway. *Journal of Theoretical Biology* 204:521-532. (J. Series No. 12815)

Murakami, E. and S.W. Ragsdale. 2000.

Evidence for intersubunit communication during acetyl-CoA cleavage by the multienzyme CO dehydrogenase/acetyl-CoA synthase complex from *Methanosarcina thermophila*: Evidence that the Beta subunit catalyzes C-C and C-S bond cleavage. *Journal of Biological Chemistry* 275:4699-4707. (J. Series No. 12623)

Oh, B.-T., G. Sarath, P.J. Shea, R.A. Drijber, and S.D. Comfort. 2000.

Rapid spectrophotometric determination of 2,4,6-trinitrotoluene in a *Pseudomonas* enzyme study. *Journal of Microbiology Methods* 42:149-158. (J. Series No. 12803)

Ojha, S., J. Kim, O. Kabil, J. Penner-Hahn, and R. Banerjee. 2000.

Characterization of the heme in human cystathionine b-synthase by X-ray absorption and electron paramagnetic resonance spectroscopies. *Biochemistry* 39:10542-7. (J. Series No. 12995)

Olson, B.J.S.C., M. Skavdahl, H. Ramberg, J.C. Osterman, and J. Markwell. 2000.

Formate dehydrogenase in *Arabidopsis thaliana*: characterization and possible targeting to the chloroplast. *Plant Science* 159:205-212. (J. Series No. 12243)

Ott, C.M., B.D. Smith, A.R. Portis, and R.J. Spreitzer. 2000.

Activase region on chloroplast ribulose-1,5-bisphosphate carboxylase/oxygenase: Nonconservative substitution in the large subunit alters species specificity of protein interaction. *Journal of Biological Chemistry* 275:26241-26244. (J. Series No. 13031)

Peng, L., E. Arechaga-Ocampo, G. Sarath, R. Arredondo-Peter, and R.V. Klucas. 2000.

Analysis of a ferric leghemoglobin reductase from cowpea (*Vigna unguiculata*) root nodules. *Plant Science* 154:161-170. (J. Series No. 12805)

Riordan, T.P., P.G. Johnson, J.M. Johnson-Cicalese, R.E. Gaussoin, F.P. Baxendale, R.C. Shearman, and R.V. Klucas. 2000.

Registration of '118' buffalograss. *Crop Science* 40:570-571. (J. Series No. 12363)

Seravalli, J. and S.W. Ragsdale. 2000.

Channeling of carbon monoxide during anaerobic carbon dioxide fixation. *Biochemistry* 39:1274-1277. (J. Series No. 12821)

Taybi, T., S. Patil, R. Chollet, and J.C. Cushman. 2000.

A minimal serine/threonine protein kinase circadianly regulates PEP carboxylase activity in CAM-induced leaves of the common ice plant. *Plant Physiology* 123:1471-1481. (J. Series No. 12890)

Telsler, J., Y.-C. Horng, D. Becker, B. Hoffman, and S.W. Ragsdale. 2000.

On the assignment of nickel oxidation states of the Ox1 and Ox2 forms of methyl-coenzyme M reductase. *Journal of the American Chemical Society* 122:182-183. (J. Series No. 12871)

Zhang, Z., G.Y. Yuen, G. Sarath, and A.R. Penheiter. 2000.

Chitinases from the plant disease biocontrol agent, *Stenotrophomonas maltophilia* C3. *Phytopathology* 91:204-211. (J. Series No. 12764)

Book

Weeks, D.P., J. Baker-Segelken, and R.W.F. Hardy. 2000.

World food security and sustainability: The impacts of biotechnology and industrial consolidation. National Agricultural Biotechnology Council, Ithaca, NY.

Book Chapters

Banerjee, R. 2000.

Molecular biology of methionine synthase: Interrelationships with homocysteine and vascular disease, p. 291-311. In: K. Robinson (ed.), *Homocysteine*. Kluwer Publishing, Amsterdam.

Martinov, M.V., V.M. Vitvitsky, E.V. Mosharov, R. Banerjee, and F.I. Ataullakhanov. 2000.

Metabolic trigger: control of methionine metabolism, p. 57-64. In: J.H.S. Hofmeyr, J.M. Rohwer and J.L. Snoep (eds.), *Animating the Cellular Map*. Stellenbosch University Press, South Africa.

Ragsdale, S.W. 2000.

Nickel Containing CO dehydrogenases and hydrogenases, p. 487-518. In: A. Holzenburg and N. Scrutton (eds.), *Enzyme-catalyzed Electron and Radical Transfer*, vol. 35. Plenum Press, NY.

Weeks, D.P., J. Baker-Segelken, and R.W.F. Hardy. 2000.

National Agricultural Biotechnology Council Meeting Eleven: An Overview, p. 3-12. In: *World Food Security and Sustainability: The Impacts of Biotechnology and Industrial Consolidation*. National Agricultural Biotechnology Council, Ithaca, NY.

Weeks, D.P., J. Baker-Segelken, and R.W.F. Hardy. 2000.

Workshop reports NABC11, p.16-24. In: *World Food Security and Sustainability: The Impacts of Biotechnology and Industrial Consolidation*. National Agricultural Biotechnology Council, Ithaca, NY.

Biometry

Journal Articles

Barbuto, J.E., S. Fritz, and D.B. Marx. 2000.

A field study of two measures of work motivation for predicting leader's transformational behaviors. *Psychological Reports* 86:295-300. (J. Series No. 12807)

Darnell, S.J., L.J. Meinke, and L.J. Young. 2000.

Influence of corn phenology on adult western corn rootworm (Coleoptera: Chrysomelidae) distribution. *Environmental Entomology* 29:587-595. (J. Series No. 12596)

Desmond, J.J., J.A. Savidge, and K.M. Eskridge. 2000.

Correlations between burrowing owl and black-tailed prairie dog declines: a 7-year analysis. *Wildlife Society Bulletin* 64:1067-1075. (J. Series No. 11827)

Drijber, R.A., J.W. Doran, A.M. Parkhurst, and D.J. Lyon. 2000.

Changes in soil microbial community structure with tillage under long-term wheat-fallow management. *Soil Biology and Biochemistry* 32:1419-1430. (J. Series No. 12934)

Eskridge, K.M., M.M. Shah, P.S. Baenziger, and D.A. Travnicek. 2000.

Correcting for classification errors when estimating the number of genes using recombinant inbred chromosome lines. *Crop Science* 40:398-403. (J. Series No. 12525)

Frank, K.W., R.E. Gaussoin, T.P. Riordan, W.W. Stroup, and M.H. Bloom. 2000.

Nitrogen allocation of turfgrasses: II-Recovery of 15N-labeled ammonium nitrate applied to buffalo-grass (*Buchloe dactyloides*(nut.) Engelm). *International Turf Research Society*. (J. Series No. 13163)

Gilley, J.E., D.P. Spare, R.K. Koelsch, D.D. Schulte, P.S. Miller, and A.M. Parkhurst. 2000.

Phototrophic anaerobic lagoons as affected by copper and zinc in swine diets. *Transactions of the American Society of Agricultural Engineers* 43:1853-1859. (J. Series No. 12790)

Kettler, T.A., D.J. Lyon, J.W. Doran, W.L. Powers, and W.W. Stroup. 2000.

Soil quality assessment after weed-control tillage in a no-till wheat-fallow cropping system. *Soil Science Society of America Journal* 64:339-346. (J. Series No. 12494)

Kocher, M.F., B.M. Smith, R.D. Grisso, and L.J. Young. 2000.

Performance tests of three-point mounted implement guidance systems: II-Results 16:605-661. (J. Series No. 12792)

Lohte-Watson, K.R., C.L. Weller, and K.M. Eskridge. 2000.

Fractional composition of grain sorghum (*Sorghum bicolor*) after wet-peeling in a centrifugal pump. *Applied Engineering in Agriculture* 16:253-258. (J. Series No. 12466)

Poague, K.L., R.J. Johnson, and L.J. Young. 2000.

Bird use of rural and urban converted railroad rights-of-way in southeast Nebraska. *Wildlife Society Bulletin* 28:852-864. (J. Series No. 12444)

Rockwell, S.K., J.W. Furgason, and D.B. Marx. 2000.

Research and evaluation needs for distance education: a delphi study. *Online Journal of Distance Learning Administration*. (J. Series No. 13083) <http://www.westga.edu/~distance/jmain11.html>

Rockwell, S.K., J. Schauer, S. Fritz, and D.B. Marx. 2000.

Faculty education, assistance and support needed to deliver education via distance. *Online Journal of Distance Learning Administration*. (J. Series No. 12965) <http://www.westga.edu/~distance/jmain11.html>

Schacht, W.H., J.D. Volesky, D. Bauer, A.J. Smart, and E.M. Mousel. 2000.

Plant community patterns on upland prairie in the eastern Nebraska Sandhills. *The Prairie Nature* 32:43-25 (J. Series No. 13089)

Refereed Proceedings

Feng, S., A.M. Parkhurst, K.M. Eskridge, D.A. Travnicek, D.E. Spiers, and G.L. Hahn. 2000.

Assessing refinements in modeling sinusoidal conditions used to drive cattle body temperatures, American Statistical Association, Indianapolis, IN.

Parkhurst, A.M. and T.L. Mader. 2000.

Using nonlinear growth curves to estimate heat stress in processing feedlot cattle. *Proceedings of 12th KSU Conference on Applied Statistics in Agriculture*, Manhattan, KS.

Biological Systems Engineering

Journal Articles

Al-Faraj, A., G.E. Meyer, G.R. Schade, and G.L. Horst. 2000.

Dynamic analysis of moisture stress in tall fescue (*Festuca Arundinacea*) using canopy temperature, irradiation, and vapor deficit. *Transactions of the American Society of Agricultural Engineers* 43:101-109. (J. Series No. 12526)

Al-Faraj, A., G.E. Meyer, and G.L. Horst. 2000.

A crop water stress index for tall fescue (*Festuca arundinacea* Schreb.) irrigation decision-making — A traditional method. *Computers and Electronics in Agriculture* (Elsevier) 31:107-124. (J. Series No. 12949)

Brand, R.M., T.L. Hannah, and F.G. Hamel. 2000.

A combination of iontophoresis and the chelating agent 1,10 phenan-throline act synergistically as penetration enhancers. *Pharmaceutical Science* 2:35. (J. Series No. 13068)

Brand, R.M., T.L. Hannah, C. Mueller, Y. Cetin, and F.G. Hamel. 2000.

A novel system to study the impact of epithelial barriers on cellular metabolism. *Annals of Biomedical Engineering* 28:1210-1217. (J. Series No. 13084)

Eghball, B., J.E. Gilley, L.A. Kramer, and T.B. Moorman. 2000.

Narrow grass hedge effects on phosphorus and nitrogen in runoff following manure and fertilizer application. *Journal of Soil and Water Conservation* 55:172-176. (J. Series No. 12712)

Fang, Q., M.A. Hanna, E. Haque, and C.K. Spillman. 2000.

Neural network modeling of energy requirement for size reduction of wheat. *Transactions of the American Society of Agricultural Engineers*. 43:947-952. (J. Series No. 12702)

Fang, Q., Y. Lan, M.F. Kocher, and M.A. Hanna. 2000.

Thermal conductivity of granular rice starches. *International Journal of Food Properties* 3:283-293. (J. Series No. 12021)

Gilley, J.E., B. Eghball, L.A. Kramer, and T.B. Moorman. 2000.

Narrow grass hedge effects on runoff and soil loss. *Journal of Soil and Water Conservation* 55:910-196. (J. Series No. 12280)

Jones, D.D. and E.M. Barnes. 2000.

Fuzzy composite programming to combine remote sensing and crop models for decision support in precision crop management. *Agricultural Systems* 65:137-158. (J. Series No. 12846)

Jones, D.D., R. Chinnaswamy, Y. Tan, and M.A. Hanna. 2000.

Physiochemical properties of ready-to-eat breakfast cereals. *Cereal Foods World* 45:164-168. (J. Series No. 10067)

Kocher, M.F., M.B. Smith, R.D. Grisso, and L.J. Young. 2000.

Performance tests of three-point mounted implement guidance systems: II. results. *Applied Engineering in Agriculture* 16:605-661. (J. Series No. 12792)

Kocher, M.F., M.B. Smith, R.D. Grisso, and L.L. Bashford. 2000.

Performance tests of three-point mounted implement guidance systems: I. procedure. *Applied Engineering in Agriculture* 16:595-603. (J. Series No. 11216)

Lan, Y., Q. Fang, M.F. Kocher, and M.A. Hanna. 2000.

Thermal properties of tapioca starch. *International Journal of Food Properties* 3:105-116. (J. Series No. 12544)

Lochte-Watson, K.R., C.L. Weller, and D.S. Jackson. 2000.

Fractionation of grain sorghum using abrasive decortication. *Journal of Agricultural Engineering Research* 77:203-208. (J. Series No. 12171)

Lochte-Watson, K.R., C.L. Weller, and K.M. Eskridge. 2000.

Fractional composition of grain sorghum (*Sorghum bicolor*) after wet-peeling in a centrifugal pump. *Applied Engineering Agriculture* 16:253-258. (J. Series No. 12466).

Merino, G.G., D.D. Jones, and L.E. Stetson. 2000.

Performance of a grid-connected photovoltaic system using actual and kriged hourly solar radiation. *Transactions of the American Society of Agricultural Engineers* 43:1011-1018. (J. Series No. 12879)

Miladinov, V. and M.A. Hanna. 2000. Starch esterification via reactive extrusion. *Industrial Crops and Products* 11:51-57. (J. Series No. 12254)

Panning, J.W., M.F. Kocher, J.A. Smith, and S.D. Kachman. 2000. Laboratory and field testing of seed spacing uniformity for sugarbeet planters. *Applied Engineering in Agriculture* 16:7-13. (J. Series No. 12664)

Reed, S.D., R.D. Grisso, W.E. Woldt, and S.M. Niemeier. 2000. Waste assessment of agricultural chemicals, petroleum products and maintenance residuals on farmsteads. *Applied Engineering in Agriculture* 16:175-188. (J. Series No. 11630)

Rhim, J.W. and C.L. Weller. 2000. Properties of formaldehyde adsorbed soy protein isolate films. *Food Science Biotechnology* 9:228-233. (J. Series No. 12748)

Rhim, J.W., A. Gennadios, A. Handa, C.L. Weller, and M.A. Hanna. 2000. Solubility, tensile, and color properties of modified soy protein isolate films. *Journal of Agricultural and Food Chemistry* 48:4937-4941. (J. Series No. 12997)

Roy, S., C.L. Weller, R.F. Testin, and A. Gennadios. 2000. Modeling parameters for water vapor transport through wheat gluten films. *Industrial Crops Production* 11:43-50. (J. Series No. 11720)

Wu, Y., J.W. Rhim, C.L. Weller, F. Hamouz, S. Cuppett, and M. Schnepf. 2000. Moisture loss and lipid oxidation for precooked beef patties stored in edible coatings and films. *Journal of Food Science* 65:300-304. (J. Series No. 12672)

Refereed Proceedings

Allen, R.G., I.A. Walter, R. Elliott, B. Mecham, M.E. Jensen, D. Itenfisu, T.A. Howell, R. Snyder, P. Brown, S. Echings, T. Spofford, M. Hattendorf, R.H. Cuenca, J.L. Wright, and D.L. Martin. 2000.

Issues, requirements and challenges in selecting and specifying a standardized ET equation, p. 201-208. *In: R.G. Evans, B.L. Benham, and T.P. Trooien (eds.), Proceedings of the National Irrigation Symposium, American Society of Agricultural Engineers, Phoenix, AZ.*

de Mol, R.M. and W.E. Woldt. 2000. Application of fuzzy logic in automated cow status monitoring, p. 45-53. *In: H.J. Blokhuis, E.D. Ekkel, and B. Wechsler (eds.), Improving health and welfare in animal production. Proceedings of sessions of the EAAP Commission on Animal Management & Health. EAAP publication No. 102, The Hague, The Netherlands.*

Eisenhauer, D.E. and D. Fekersillassie. 2000.

Operating rules for surge flow furrow irrigation, p. 283-289. *In: R.G. Evans, B.L. Benham, and T.P. Trooien (eds.), National Irrigation Symposium, Proceedings of the 4th Decennial Symposium, Phoenix, AZ.*

Eghball, B. and J.E. Gilley. 2000. Nitrogen and phosphorus-based manure or compost application: Corn production, soil properties, and nitrogen and phosphorus transport in runoff, p. 127-135. *In: M. Vigil and L. Pieper (eds.), Proceedings of Innovative Technologies for Planning Animal Waste Operations, December 4-6, 2000, Denver, CO.*

Hindman T.W. and G.E. Meyer. 2000. Fuzzy logic inference systems for discriminating plants from oil and residue with machine vision, p. 111-121. *In: G.E. Meyer and J.A. DeShazer (eds.), Precision Agriculture and Biological Quality II. SPIE Optical Engineering Press, Bellingham, WA.*

Meyer, G.E. 2001. History and progress of optical weed detection and discrimination for spot spraying control, p. 101-139. *In: G.E. Meyer and J.A. DeShazer (eds.), Optics in Agriculture 1990-2000, A Critical Review. SPIE Optical Engineering Press, Bellingham, WA.*

Thompson, A.L., D.L. Martin, and W.L. Kranz. 2000. Water application distribution under center pivot systems, p. 103-108. *In: R.G. Evans, B.L. Benham, and T.P. Trooien (eds.), Proceedings of the National Irrigation Symposium, American Society of Agricultural Engineers, Phoenix, AZ.*

Walter, I.A., R.G. Allen, R. Elliott, M.E. Jensen, D. Itenfisu, B. Mecham, T.A. Howell, R. Snyder, P. Brown, S. Echings, T. Spofford, M. Hattendorf, R.H. Cuenca, J.L. Wright, and D.L. Martin. 2000.

ASCE's standardized reference evapotranspiration equation, p. 201-208. *In: R.G. Evans, B.L. Benham, and T.P. Trooien (eds.), Proceedings of the National Irrigation Symposium, American Society of Agricultural Engineers, Phoenix, AZ.*

Watts, D.G., D. Fekersillassie, J.S. Schepers, D.E. Eisenhauer, R.F. Spalding, and N.L. Klocke. 2000. Integrated management of irrigation and nitrogen for groundwater quality improvement, p. 144-152. *In: R.G. Evans, B.L. Benham, and T.P. Trooien (eds.), National Irrigation Symposium, Proceedings of the 4th Decennial Symposium, Phoenix, AZ.*

Book Chapters

Gennadios, A., C.L. Weller, and M.A. Hanna. 2000. Edible films and coatings, p. 579-584. *In: F.J. Francis (ed.), The Wiley Encyclopedia of Food Science and Technology, 2nd Edition. John Wiley & Sons, Inc., New York, NY.*

Grisso, R.D., H.E. Ozkan, V. Hofman, A. Womac, R. Wolf, W.C. Hoffman, J. Williford, and T. Valco. 2000. Pesticide Application Equipment, p. 235-250. *In: Conservation Tillage Systems and Management (MWPS-45), 2nd Edition, Midwest Plan Service, Iowa State University, Ames, IA.*

Grisso, R.D., R.T. Schuler, H.M. Hanna, J. Williford, and W. Hart. 2000.

Crop cultivators, p. 227-234. *In: Conservation Tillage Systems and Management (MWPS-45), 2nd Edition, Midwest Plan Service, Iowa State University, Ames, IA.*

M.S. Theses

Ehrhardt, J.P. 2000. Implement draft prediction using the tillage reference implement concept. (R.D. Grisso Jr., Advisor)

Hua, L. 2000. Yield and fractionation effects on sorghum wax extracted by two solvents. (C.L. Weller, Advisor)

Rinkol, M.J. 2000. Modeling the atmospheric dispersion of odors from agricultural sources. (D.D. Schulte, Advisor)

Trompke, M.L. 2000. Spatial characterization of soil physical properties in irrigation furrows. (D.E. Eisenhauer and W.L. Powers, Advisors)

Ph.D. Dissertations

Arumi, J.L. 2000. Modeling the effects of agricultural management practices on ground water quality and quantity. (D.L. Martin and D.G. Watts, Advisors)

Coelho, A.M. 2000. Irrigated corn yield as related to spatial variability of selected soil properties in silty clay loam and sandy soils. (D.G. Watts and J.W. Doran, Advisors)

Fu, D. 2000. Zein properties and alternative recovery methods. (C.L. Weller, Advisor)

Merino, G.G. 2000. Including confliction criteria and ambiguous information in the design of a grid-connected photovoltaic-wind generator power system supplying a farmstead in Nebraska. (D.D. Jones, Advisor)

Pohl, S.H. 2000. Effects of environment and group size on growing swine performance. (D.D. Schulte and A. Nienaber, Advisors)

Entomology

Journal Articles

- Bedick, J.C., R.L. Pardy, R.W. Howard, and D.W. Stanley. 2000. Insect cellular reactions to the lipopolysaccharide component of the bacterium *Serratia marcescens* are mediated by eicosanoids. *Journal of Insect Physiology* 46:1481-1487. (J. Series No. 12942)
- Berkebile, D.R., J. Chirico, and R.A. Leopold. 2000. Permeabilization of *Cochliomyia hominivorax* (Diptera: Calliphoridae) embryos. *Journal of Medical Entomology* 37:968-972. (J. Series No. 12797)
- Byers, M.E., S.T. Kamble, and J.F. Witkowski. 2000. Assessing insecticide drift during and after center-pivot chemigation to corn using glass plates and gauze pads. *Bulletin of Environmental Contamination and Toxicology* 65:522-529. (J. Series No. 12991)
- Clark, T.L., J.E. Foster, S.T. Kamble, and E.A. Heinrichs. 2000. Comparison of Bt (*Bacillus thuringiensis* Berliner) maize and conventional measures for control of the European corn borer (Lepidoptera: Crambidae). *Journal of Entomological Science* 35:118-128. (J. Series No. 12575)
- Danielson, S.D., J.R. Brandle, L. Hodges, and P. Srinivas. 2000. Bean leaf beetle (Coleoptera: Chrysomelidae) abundance in soybean fields protected and unprotected by shelterbelts. *Journal of Entomological Science* 35:385-390. (J. Series No. 12711)
- Darnell, S.J., L.J. Meinke, and L.J. Young. 2000. Influence of corn phenology on adult western corn rootworm (Coleoptera: Chrysomelidae) distribution. *Environmental Entomology* 29:587-595. (J. Series No. 12596)
- Davis, C.S., X. Ni, S.S. Quisenberry, and J.E. Foster. 2000. Identification and quantification of hydroxamic acids in maize seedling root tissue and impact on western corn rootworm (Coleoptera: Chrysomelidae) larval development. *Journal of Economic Entomology* 93:989-992. (J. Series No. 12651)
- Haile, F.J., D.L. Kerns, J.M. Richardson, and L.G. Higley. 2000. Impact of insecticides and surfactant on lettuce physiology and yield. *Journal of Economic Entomology* 93:788-794. (J. Series No. 12647)
- Hoback, W.W., R.L. Rana, and D.W. Stanley. 2000. Use of fatty acid stores by larvae and adults of a Nebraska salt marsh tiger beetle, *Cicindela togata globicollis* Casey. *Great Plains Research* 10:127-144. (J. Series No. 12709)
- Hunt, T.E., L.G. Higley, and L.P. Pedigo. 2000. A re-examination of economic injury levels for potato leafhopper (Homoptera: Cicadellidae) on soybean. *Journal of Entomological Science* 35:97-104. (J. Series No. 12492)
- Hunt, T.E., R.L. Hellmich, J.M. Dyer, L.G. Higley, and J.F. Witkowski. 2000. Oil-soluble dyes for marking European corn borer (Lepidoptera: Crambidae). *Journal of Entomological Science* 35:338-341. (J. Series No. 12646)
- Johnson, P.G., T.P. Riordan, J. Johnson-Cicalese, F.P. Baxendale, R.E. Gaussoin, R.C. Shearman, and R.V. Klucas. 2000. Registration of '61' buffalograss. *Crop Science* 40:569-470. (J. Series No. 12361)
- Johnson-Cicalese, J.M., P.G. Johnson, T.P. Riordan, F.P. Baxendale, R.E. Gaussoin, J.E. Watkins, and R.V. Klucas. 2000. Registration of '120' buffalograss. *Crop Science* 40:471-572. (J. Series No. 12362)
- Marçon, P.C.R.G., B.D. Siegfried, T. Spencer, and W.D. Hutchison. 2000. Development of diagnostic concentrations for monitoring *Bacillus thuringiensis* resistance in European corn borer (Lepidoptera: Crambidae). *Journal of Economic Entomology* 93:925-930. (J. Series No. 12635)
- Miota, F., B.D. Siegfried, M.E. Scharf, and M.J. Lydy. 2000. Atrazine induction of cytochrome P450 in *Chironomus tentans* larvae. *Chemosphere* 40:285-291. (J. Series No. 12460)
- Ni, X. and S.S. Quisenberry. 2000. Comparison of DIMBOA concentrations among wheat isolines and corresponding plant introduction lines. *Entomologia Experimentalis et Applicata* 96:275-279. (J. Series No. 12641)
- Ni, X., S.S. Quisenberry, S. Pornkulwat, J.L. Figarola, S.R. Skoda, and J.E. Foster. 2000. Hydrolase and oxido-reductase activities in *Diuraphis noxii* and *Rhopalosiphum padi* (Hemiptera: Aphididae). *Annals of Entomological Society of America* 93:595-601. (J. Series No. 12037)
- Pachamuthu, P. and S.T. Kamble. 2000. *In vivo* study on combined toxicity of *Metarhizium anisopliae* (Deuteromycotina: Hyphomycetes) strain ESC-1 with sublethal doses of chlorpyrifos, propetamphos and cyfluthrin against German cockroach (Dipteroptera: Blattellidae). *Journal of Economic Entomology* 93:60-70. (J. Series No. 12351)
- Pachamuthu, P., S.T. Kamble, T.L. Clark, and J.E. Foster. 2000. Differentiation of three phenotypically similar *Blattella* spp.: analysis with polymerase chain reaction-restriction fragment length polymorphism of mitochondrial DNA. *Annals of the Entomological Society of America* 93:1138-1146. (J. Series No. 12893)
- Park, N-J and S.T. Kamble. 2000. Effect of low temperature exposure on the supercooling point of oriental cockroach (Dipteroptera: Blattidae). *Journal of Entomological Science* 35:444-451. (J. Series No. 12762)
- Pruess, K.P., B.J. Adams, T.J. Parsons, X. Zhu, and T.O. Powers. 2000. Utility of the mitochondrial cytochrome oxidase II gene for resolving relationships among black flies (Diptera: Simuliidae). *Molecular Phylogenetics and Evolution* 16:286-295. (J. Series No. 11874)
- Riordan, T.P., P.G. Johnson, J.M. Johnson-Cicalese, R.E. Gaussoin, F.P. Baxendale, R.D. Shearman, and R.V. Klucas. 2000. Registration of '118' buffalograss. *Crop Science* 40:570-571. (J. Series No. 12363)
- Scharf, M.E., B.D. Siegfried, L.J. Meinke, and L.D. Chandler. 2000. Fipronil metabolism, oxidative sulfone formation and toxicity among organophosphate- and carbamate-resistant and susceptible western corn rootworm populations. *Pest Management Science* 56:757-766. (J. Series No. 12834)
- Scharf, M.E., B.D. Siegfried, L.J. Meinke, R.J. Wright, and L.D. Chandler. 2000. Cytochrome P450-mediated N-demethylation activity and induction in insecticide-resistant and susceptible western corn rootworm populations (Coleoptera: Chrysomelidae). *Pesticide Biochemistry and Physiology* 67:137-143. (J. Series No. 12347)
- Siegfried, B.D., T. Spencer, and J. Nearman. 2000. Baseline susceptibility of the corn earworm (Lepidoptera: Noctuidae) to the Cry1Ab toxin from *Bacillus thuringiensis*. *Journal of Economic Entomology* 93:1265-1268. (J. Series No. 12765)
- Szalanski, A.L., R.L. Roehrdanz, and D.B. Taylor. 2000. Genetic relationship among *Diabrotica* species (Coleoptera: Chrysomelidae) based on rDNA and mtDNA sequences. *Florida Entomologist*. (J. Series No. 12808)
- Szalanski, A.L., D.B. Taylor, and P.G. Mullin. 2000. Assessing nuclear and mitochondrial DNA sequence variation within *Steinernema*. *Journal of Nematology* 32:229-233. (J. Series No. 12600)
- Uriás-López, M.A., L.J. Meinke, L.G. Higley, and F.J. Haile. 2000. Influence of western corn rootworm (Coleoptera: Chrysomelidae) larval injury on photosynthetic rate and vegetative growth of different types of maize. *Environmental Entomology* 29:861-867. (J. Series No. 12802)
- Wright, R.J., M.E. Scharf, L.J. Meinke, X. Zhou, B.D. Siegfried, and L.D. Chandler. 2000. Larval susceptibility of an insecticide-resistant western corn rootworm (Coleoptera: Chrysomelidae) population to soil insecticides: laboratory bioassays, assays of detoxification enzymes and field performance. *Journal of Economic Entomology* 93:7-13. (J. Series No. 12422)

Book Chapter

- Heinrichs, E.A., J.E. Foster, and M.E. Rice. 2000. Maize insect pests in North America. In: E.B. Radcliffe and W.D. Hutchison (eds.), *Radcliffe's IPM World Textbook*, <http://ipmworld.umn.edu>, University of Minnesota, St. Paul, MN.

M.S. Theses

- Durham, E.W. 2000.
Toxicity, electrophysiology, and metabolism of fipronil and its oxidative sulfone metabolite in European corn borer larvae, *Ostrinia nubilalis* (Hübner) (Lepidoptera: Crambidae). (B.D. Siegfried, Advisor)
- Reimers-Hild, C.I. 2000.
Temperature dependent mortality and development of immature European corn borer, *Ostrinia nubilalis* (Hübner). (J.E. Foster, Advisor)
- Sagel, A. 2000.
The effect of dietary protein level and population density on adults of the primary screwworm (Diptera: Calliphoridae) reared at different temperatures. (D.R. Berkebile and J.E. Foster, Advisors)
- Villatoro, K.E. 2000.
Revision of the genus *Trizogeniatus* (Coleoptera: Scarabaeidae: Rutelinae: Geniatiini). (B.C. Ratcliffe and M.L. Jameson, Advisors)
- Weinhold, A.P. 2000.
High pressure liquid injection: a novel approach for managing turfgrass insect pests. (F.P. Baxendale, Advisor)

Ph.D. Dissertations

- Clark, T.L. 2000.
Marker based diagnosis, molecular phylogenetics and discovery of population altering endosymbionts for selected Diabroticites (Coleoptera: Chrysomelidae). (J.E. Foster and L.J. Meinke, Advisors)
- Heng-Moss, T.M. 2000.
Buffalograss resistance to the chinch bug, *Blissus occiduus*: an investigation of tolerance and antixenosis. (F.P. Baxendale and T.P. Riordan, Advisors)
- Pachamuthu, P. 2000.
Toxicity of *Metarhizium anisopliae* (Metchnikoff) Sorokin strain ESC-1 with and without selected insecticides to control German cockroach, *Blattella germanica* (L.). (S.T. Kamble, Advisor)
- Parimi, S. 2000.
Induced resistance to bean leaf beetle in soybean. (S.D. Danielson, Advisor)

- Park, N-J. 2000.
Comparison of esterase between insecticide resistant and susceptible strains of German cockroach, *Blattella germanica* (L.) (Diptera: Blattellidae). (S.T. Kamble, Advisor)
- Saldanha, L.A. 2000.
Genetic variation of the European corn borer (*Ostrinia nubilalis*) (Hübner) (Lepidoptera: Crambidae). (J.E. Foster and S.S. Quisenberry, Advisors)

Food Science and Technology

Journal Articles

- Beardslee, T.A., M.G. Zeece, G. Sarath, and J.P. Markwell. 2000.
Soybean glycinin A1a shares IgE epitopes with peanut allergen Ara h 3. *International Archives of Allergy and Immunology* 123:299-307. (J. Series No. 13045)
- Becker, L., S.N. Evans, R.W. Hutkins, and A.K. Benson. 2000.
The role of FB in adaptation of *Listeria monocytogenes* to growth at low temperature. *Journal of Bacteriology* 182:7083-7087. (J. Series No. 13140)
- Coyne, D.P., J.M. Reisen, D.A. Smith, A. Ibrahim, L. Sutton, and D. Lindgren. 2000.
'Butterbowl' squash, a novel, flat shouldered globe butternut. *HortScience* 35: 776-777. (J. Series No. 12638)
- Gu, X., Q. Chu, M. O'Dwyer, and M.G. Zeece. 2000.
Analysis of resveratrol in wine by capillary electrophoresis. *Journal of Chromatography A*. 881:471-481. (J. Series No. 12883)
- Gutema, T., C. Munimbazi, and L.B. Bullerman. 2000.
Occurrence of fumonisins and moniliformin in corn and corn based food products of U.S. origin. *Journal of Food Protection* 63:1732-1737. (J. Series No. 12920)
- Hlywka, J.J., S.L. Hefle, and S.L. Taylor. 2000.
A sandwich enzyme-linked immunosorbent assay for the detection of almonds in foods. *Journal of Food Protection* 63:252-257. (J. Series No. 12624)
- Kaplan, H. and R.W. Hutkins. 2000.
Fermentation of fructooligosaccharides by lactic acid bacteria. *Applied and Environmental Microbiology* 66:2682-2684. (J. Series No. 12877)
- Kelly, J.D. and S.L. Hefle. 2000.
2S Methionine-rich protein (SSA) from sunflower seed is an IgE-binding protein. *Allergy* 55:556-559. (J. Series No. 12741)
- Kelly, J.D., J.J. Hlywka, and S.L. Hefle. 2000.
Identification of sunflower-seed IgE-binding proteins. *International Archives of Allergy and Immunology* 121:19-24. (J. Series No. 12701)
- Kirunda, D.F. and S.R. McKee. 2000.
Relating egg quality characteristics of aged eggs and fresh eggs to vitelline membrane strength as determined by a texture analyzer. *Poultry Science* 79:1189-1193. (J. Series No. 12835)
- Lochte-Watson, K., Weller, C.L., and D.S. Jackson. 2000.
Fractionation of grain sorghum using abrasive decortication. *Journal of Agricultural Engineering Research* 77:203-208. (J. Series No. 12171)
- Osman, M.G., D. Sahai, and D.S. Jackson. 2000.
Oil absorption characteristics of a multi-grain extrudate during frying: Impact of extrusion temperature and screw speed. *Cereal Chemistry* 77:101-104. (J. Series No. 11429)
- Pineda-Valdes, G. and L.B. Bullerman. 2000.
Thermal stability of moniliformin at varying temperature, pH and time in an aqueous environment. *Journal of Food Protection* 63:1598-1601. (J. Series No. 12917)
- Richert, K.J., J.A. Albrecht, L.B. Bullerman, and S.S. Sumner. 2000.
Survival and growth of *Escherichia coli* 0157:H7 on broccoli, cucumber and green pepper. *Dairy, Food and Environmental Sanitation* 20:24-28. (J. Series No. 11508)
- Sahai, D., I. Surjewan, J.P. Mua, M.O. Buendia, M. Rowe, and D.S. Jackson. 2000.
Dry matter loss during nixtamalization of a white corn hybrid: Impact of processing parameters. *Cereal Chemistry* 77:254-258. (J. Series No. 12523)

- Wu, Y., J.W. Rhim, C.L. Weller, F. Hamouz, S. Cuppett, and M. Schnepf. 2000.
Moisture loss and lipid oxidation for precooked beef patties stored in edible coatings and films. *Journal of Food Science* 65:300-304. (J. Series No. 12672)

Book Chapters

- Bullerman, L.B. 2000.
Fusaria and toxigenic molds other than Aspergilli and penicillia. *In: M.P. Doyle, L.R. Beuchat, and T.N. Montville (eds.), Food Microbiology: Fundamentals and Frontiers*. 2nd Edition. ASM Press, Washington, DC.
- Bullerman, L.B. 2000.
Toxigenic Fusarium species in cereal grains and processed foods. *In: J.S. Garcia and R. Labbe (eds.), Guide to Microbial Foodborne Pathogens*. John Wiley and Sons, New York, NY.
- Bullerman, L.B. and H. Gourama. 2000.
Toxigenic fungi and fungal toxins. Chapter 43. *In: The Compendium of Methods for the Microbiological Examination of Foods*. 4th Edition. American Public Health Association, Washington, D.C.
- Chu, Q. and M.G. Zeece. 2000.
Capillary electrophoretic determination of 4-hydroxyproline, p. 227-236. *In: C. Cooper and K. Williams (ed.), Methods in Molecular Biology*. Volume 159. Amino Acid Analysis Protocols. Humana Press, NJ.
- Hefle, S.L. 2000.
Food allergies, p. 1022-1031. *In: K.F. Kiple and K.C. Ornelas-Kiple (eds.), The Cambridge World History of Food*. Volume 2. Cambridge University Press, Cambridge, England.
- Munimbazi, C. and L.B. Bullerman. 2000.
Chromatographic methods for the determination of the mycotoxin moniliformin. *In: A.E. Pohland and M.W. Trucksess (eds.), Mycotoxin Protocols*. Methods in Molecular Biology Series. Humana Press, Inc., Totowa, NJ.
- Sarath, G., M.G. Zeece, and A.R. Penheiter. 2000.
Protease assay methods, p. 45-76. *In: J.S. Bond (ed.), Proteolytic Enzymes*. 2nd Edition. IRL Press, Oxford England.

Taylor, S.L. and S.L. Hefle. 2000. Food allergy, p. 863-866. *In*: F.J. Francis (ed.), Wiley Encyclopedia of Food Science and Technology. 2nd Edition. John Wiley & Sons, New York, NY.

Taylor, S.L., S.L. Hefle, and B.A. Gauger. 2000. Food allergies and sensitivities, p. 1-35. *In*: W. Helferich and C.K. Winter (eds.), Food Toxicology. CRC Press, New York, NY.

M.S. Theses

Flennoy, J. 2000. Chemical and physical properties of traditional and instant masa flour. (D.S. Jackson, Advisor)

Pensick, E.S. 2000. Vacuum infusion with α -nupthalenacetic acid and commercial insecticidal soap on the development of poinsettia 'Freedom Red'. (J.B. Fitzgerald and D.A. Smith, Advisors)

Ph.D. Dissertations

Chawna, A. 2000. Development of rapid analytical methods for determining corn quality. (R.L. Wehling, Advisor)

Shandera, D.L. Jr. 2000. Understanding corn endosperm morphology through solvent and heat treatments. (D.S. Jackson, Advisor)

Stearns, G.W. 2000. Characterization of the energy-sensing module of the Rsb cascade in *Bacillus subtilis*. (A.K. Benson, Advisor)

Plant Pathology Department

Journal Articles

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J.R. Steadman. 2000. Registration of 'JB-178' red mottled bean. *Crop Science* 40:857-858. (J. Series No. 12668)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000a. Registration of 'CIAS-95' red mottled bean. *Crop Science* 40:857. (J. Series No. 12666)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J. R. Steadman. 2000b.

Registration of 'JB-178' red mottled bean. *Crop Science* 40:857-858. (J. Series No. 12668)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000c. Registration of 'Arroyo Loro Negro' black bean. *Crop Science* 40:856-857. (J. Series No. 12669)

Baenziger, P.S., B. Moreno-Sevilla, C.J. Peterson, D.R. Shelton, R.W. Elmore, R.N. Klein, D.D. Baltensperger, L.A. Nelson, D.V. McVey, J.E. Watkins, and J.H. Hatchett. 2000.

Registration of 'Culver' wheat. *Crop Science* 40:862-863. (J. Series No. 12612)

Brown, J.K., K.M. Ostrow, A.M. Idris, and D.C. Stenger. 2000.

Chino del tomate virus: Relationships to other begomoviruses and identification of A-component variants that affect symptom expression. *Phytopathology* 90:546-552. (J. Series No. 12587)

Campbell, B.T., P.S. Baenziger, A. Mitra, S.J. Sato, and T.E. Clemente. 2000.

Inheritance of multiple transgenes in wheat. *Crop Science* 40:1133-1141. (J. Series No. 12806)

Cassada, D.A., Y. Zhang, D.D. Snow, and R.F. Spalding. 2000.

Trace analysis of ethanol and MTBE in water using solid phase microextraction and gas chromatography/mass spectrometry. *Analytical Chemistry* 72:4654-4658. (J. Series No. 12979)

Cessna, S.G., V.E. Sears, M.B. Dickman, and P.S. Low. 2000. Oxalic acid, a pathogenicity factor for *Sclerotinia sclerotiorum*, suppresses the host plant oxidative burst. *The Plant Cell* 12:2191-2199. (J. Series No. 12868)

Choi, I.-R., D.C. Stenger, and R.C. French. 2000.

Multiple interactions among proteins encoded by the mite-transmitted wheat streak mosaic tritrovirus. *Virology* 267:185-198. (J. Series No. 12265)

Choi, I.-R., D.C. Stenger, T.J. Morris, and R.C. French. 2000.

A plant virus vector for systemic expression of foreign genes in cereals. *The Plant Journal* 23:547-556. (J. Series No. 12906)

Coyne, D.P., D.S. Nuland, D.T. Lindgren, J.R. Steadman, D.W. Smith, J. Gonzales, J. Schild, J. Reiser, L. Sutton, and C. Carlson. 2000.

'Weihing' Great Northern disease-resistant dry bean. *Horticultural Science* 35:310-312. (J. Series No. 12639)

Giesler, L.J., G.Y. Yuen, and G.L. Horst. 2000.

Canopy microenvironments and applied bacteria population dynamics in shaded tall fescue. *Crop Science* 40:1325-1332. (J. Series No. 12773)

Kim, H.S., G.L. Hartman, J.B. Manandhar, G.L. Graef, J.R. Steadman, and B.W. Diers. 2000.

Reaction of soybean cultivars to *Sclerotinia* stem rot in field, greenhouse, and laboratory evaluations. *Crop Science* 40:665-669. (J. Series No. 12824)

Kim, M.-S., N.B. Klopfenstein, G.I. McDonald, K. Arumuganathan, and A.K. Vidaver. 2000.

Characterization of North American *Armillaria* species by nuclear DNA content RFLP analysis. *Mycologia* 92:874-883. (J. Series No. 12652)

Lavrukhin, O.V., J.M. Fortune, T.G. Wood, D.E. Burbank, J.L. Van Etten, N. Osheroff, and R.S. Lloyd. 2000.

Topoisomerase II from *Chlorella* virus PBCV-1. Characterization of the smallest known type II topoisomerase. *Journal of Biological Chemistry* 275:6915-6921. (J. Series No. 12839)

Miklas, P.N., R. Delorme, V. Stone, M.J. Daly, J.R. Stavely, J.R. Steadman, M.J. Bassett, and J.S. Beaver. 2000.

Bacterial, fungal, and viral disease resistance loci mapped in a recombinant inbred common bean population ('Dorado'/XAN 176). *Journal for the American Society of Horticultural Science* 125:476-781. (J. Series No. 11083)

Nin, J.C., E. Arnaud-Santana, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, J.R. Steadman. 2000a.

Registration of 'Anacaona' white bean. *Crop Science* 40:856. (J. Series No. 12670)

Nin, J.C., E. Arnaud-Santana, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, J.R. Steadman. 2000b.

Registration of 'Saladin-97' red mottled bean. *Crop Science* 40:858-859. (J. Series No. 12665)

Park, S.O., D.P. Coyne, G. Jung, P.W. Skroch, E. Arnaud-Santana, J.R. Steadman, H.M. Arlyarathne, and J. Niehuis. 2000.

Mapping of QTL for seed size and shape traits in common bean. *Journal for the American Society of Horticultural Science* 125:466-475. (J. Series No. 12166)

Plugge, B., S. Gazzarrini, M. Nelson, R. Cerana, J.L. Van Etten, C. Derst, D. DiFrancesco, A. Moroni, and G. Thiel. 2000.

A potassium channel protein encoded by *Chlorella* virus PBCV-1. *Science* 287:1641-1644. (J. Series No. 12838)

Pruess, K.P., B.J. Adams, T.J. Parsons, X. Zhu, and T.O. Powers. 2000.

Utility of the mitochondrial Cytochrome Oxidase II gene for resolving relationships among black flies (Diptera: Simuliidae). *Molecular Phylogenetics and Evolution* 16:286-295. (J. Series No. 11874)

Robertson, N.L., R. French, and T.J. Morris. 2000.

The open reading frame 5A of foxtail mosaic virus is expressed *in vivo* and is dispensable for systemic infection. *Archives of Virology* 145:1685-1698. (J. Series No. 12655)

Saladin, F., E. Arnaud-Santana, J.C. Nin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J.R. Steadman. 2000.

Registration of 'PC-50' red mottled bean. *Crop Science* 40:858. (J. Series No. 12667)

Shirako, Y., N. Suzuki, and R.C. French. 2000.

Similarity and divergence among viruses in the genus *Furovirus*. *Virology* 270:201-207. (J. Series No. 12897)

Sun, L., J.R. Gurnon, B.J. Adams, M.V. Graves, and J.L. Van Etten. 2000. Characterization of a B-1, 3-glucanase encoded by *Chlorella* virus PBCV-1. *Virology* 276:27-36. (J. Series No. 13096)

Sun, L., Y. Li, A.K. McCullough, T.G. Wood, R.S. Lloyd, B. Adams, J.R. Gurnon, and J.L. Van Etten. 2000.

Intron conservation in a UV-specific DNA repair gene encoded by *Chlorella* viruses. *Journal of Molecular Evolution* 50:82-92. (J. Series No. 12562)

- Szalanski, A.L., K. Church, D. Oats, R. Bishof, and T.O. Powers. 2000. Mitochondrial DNA variation within and among wild turkey (*Meleagris gallopavo*) subspecies. *Transactions of the Nebraska Academy of Sciences* 26:47-53. (J. Series No. 12606)
- Truedell, G.M., Z. Yang, and M.B. Dickman. 2000. A G alpha subunit from the phytopathogenic fungus *Colletotrichum trifolii* is required for conidial germination. *Physiological and Molecular Plant Pathology* 56:131-140. (J. Series No. 12534)
- Yan, X., N.H. Olson, J.L. Van Etten, M. Bergoin, M.G. Rossmann, and T.S. Baker. 2000. Structure and assembly of large, lipid-containing dsDNA viruses. *Nature Structural Biology* 7:101-103. (J. Series No. 12744)
- Zhang, L., J.J. Rybczynski, W.G. Langenberg, A. Mitra, and R.C. French. 2000. An efficient wheat transformation procedure: Transformed calli with long term morphogenic potential for plant regeneration. *Plant Cell Reports* 19:241-250. (J. Series No. 12181)
- Zhang, Z. and G.Y. Yuen. 2000a. Effects of culture fluids and preinduction of chitinase production on biocontrol of *Bipolaris* leaf spot by *Stenotrophomonas maltophilia* C3. *Biological Control* 18:277-286. (J. Series No. 12763)
- Zhang, Z. and G.Y. Yuen. 2000b. The role of chitinase production by *Stenotrophomonas maltophilia* strain C3 in biological control of *Bipolaris sorokiniana*. *Phytopathology* 90:384-389. (J. Series No. 12464)
- Book Chapters**
- Baenziger, P.S., A. Mitra, and I.B. Edwards. 2000. Protecting the value in value added crops: Intellectual property rights, p. 239-248. *In: C.F. Murphy and D.M. Peterson (eds.), Designing crops for added value.* American Society of Agronomy, Madison, WI.
- Dickman, M.B. 2000. Signal exchange during *Colletotrichum trifolii*-alfalfa interactions, p. 205-231. *In: M. Dickman, S. Freeman, and D. Prusky (eds.), Colletotrichum: Host specificity, pathology and host-pathogen interaction.* APS Press, St. Paul, MN.
- Dickman, M.B. 2000. *Colletotrichum*, p. 127-147. *In: J. Dronstad (ed.), Fungal Pathology.* Kluwer Academic Publishers, London.
- Dickman, M.B. 2000. Protein kinase, p. 835-836. *In: O. Maloy and T. Murray (eds.), Encyclopedia of Plant Pathology.* John Wiley and Sons, New York, NY.
- Dickman, M.B. 2000. Comparative pathobiology, p. 242-243. *In: O. Maloy and T. Murray (eds.), Encyclopedia of Plant Pathology.* John Wiley and Sons, New York, NY.
- Dickman, M.B. 2000. Anthracnose, p. 43-44. *In: O. Maloy and T. Murray (eds.), Encyclopedia of Plant Pathology.* John Wiley and Sons, New York, NY.
- Mitra, A. 2000. Genetic engineering in plant pathology, p. 507-512. *In: O.C. Maloy and T.D. Murray (eds.), Encyclopedia of Plant Pathology.* John Wiley and Sons, New York, NY.
- Patil, S. and J.R. Steadman. 2001. Halo blight of bean, p. 521-522. *In: O.C. Maloy and T.D. Murray (eds.), Encyclopedia of Plant Pathology.* John Wiley and Sons, New York, NY.
- Steadman, J.R. 2000. White mold, p. 1191-1194. *In: O.C. Maloy and T.D. Murray (eds.), Encyclopedia of Plant Pathology.* John Wiley and Sons, New York, NY.
- Tolin, S.A. and A.K. Vidaver. 2000. Genetically modified organisms: guidelines and regulations for research, p. 499-509. *In: J. Lederberg (ed.), Encyclopedia of Microbiology.* Academic Press, CA.
- Van Etten, J.L. 2000. Phycodnaviridae, p. 183-193. *In: M.H.V. Van Regenmortel, C.M. Fauquet, D.H.L. Bishop, E.B. Carstens, M.K. Estes, S.M. Lemon, J. Maniloff, M.A. Mayo, D.J. McGeoch, C.R. Pringle, and R.B. Wickner (eds.), Virus Taxonomy, Classification and Nomenclature of Viruses, Seventh Report.* Academic Press, London.
- Vidaver, A.K. and S. Tolin. 2000. Laboratory, growth chamber, and greenhouse microbial safety: plant pathogens and plant-associated microorganisms of significance to human health, p. 27-33. *In: D.O. Fleming and D.L. Hunt (eds.), Biological Safety: Principles and practices.* 3rd Edition. ASM Press, Washington.
- Ph.D. Dissertation**
- Ma, C. 2000. Tandem repeat sequences in a transcriptional unit cause high frequency transgene silencing in primary transgenic tobacco. (A. Mitra, Advisor)
- School of Natural Resource Sciences**
- Journal Articles**
- Cassada, D.A., Y. Zhang, D.D. Snow, and R.F. Spalding. 2000. Trace analysis of ethanol and MTBE in water using solid phase microextraction and gas chromatography/mass spectrometry. *Analytical Chemistry* 72:4654-4658. (J. Series No. 12979)
- Danielson, S.D., J.R. Brandle, L. Hodges, and P. Srinivas. 2000. Bean leaf beetle (Coleoptera: Chrysomelidae) abundance in soybean fields protected and unprotected by shelterbelts. *Journal of Entomological Science* 35:385-390. (J. Series No. 12711)
- Hu, Q. and S. Feng. 2000. A southward migration of centennial-scale variations of drought/flood in eastern China and the western United States. *Journal of Climate* 14:1323-1328. (J. Series No. 13073)
- Hu, Q. and C.D. Willson. 2000. Effects of temperature anomalies on the Palmer Drought Severity Index in the central United States. *International Journal of Climatology* 20:1899-1911. (J. Series No. 13049)
- Krishnan, G., G.L. Horst, and P.J. Shea. 2000. Differential tolerance of cool- and warm-season grasses to TNT-contaminated soil. *International Journal of Phytoremediation* 2:369-382. (J. Series No. 12936)
- Oh, B.-T., G. Sarath, P.J. Shea, R.A. Drijber, and S.D. Comfort. 2000. Rapid spectrophotometric determination of 2,4,6-trinitrotoluene in a *Pseudomonas* enzyme assay. *Journal of Microbiological Methods* 42:149-158. (J. Series No. 12803)
- Pachamuthu, P. and S.T. Kamble. 2000. *In vivo* study on combined toxicity of *Metarhizium anisopliae* (Deuteromycotina: Hyphomycetes) strain ESC-1 with sublethal doses of chlorpyrifos, propetamphos and cyfluthrin against German cockroach (*Dictyoptera: Blattellidae*). *Journal of Economic Entomology* 93:60-70. (J. Series No. 12351)
- Pachamuthu, P., S.T. Kamble, T.L. Clark, and J.E. Foster. 2000. Differentiation of three phenotypically similar *Blattella* spp.: analysis with polymerase chain reaction-restriction fragment length polymorphism of mitochondrial DNA. *Annals of the Entomological Society of America* 93:1138-1146. (J. Series No. 12893)
- Poague, K.L., R.J. Johnson, and L.J. Young. 2000. Bird use of rural and urban converted railroad rights-of-way in southeast Nebraska. *Wildlife Society Bulletin* 28:852-864. (J. Series No. 12444)
- Privette, J.L., G.P. Asner, J. Conel, K.F. Huemmrich, R. Olson, A. Rango, A.F. Rahman, K. Thome, and E.A. Walter-Shea. 2000. The EOS Prototype Validation Exercise (PROVE) at the Jornada: Overview and lessons learned. *Remote Sensing of Environment* 74:1-12. (J. Series No. 13167)
- Vasilyeva, G.K., B.-T. Oh, P.J. Shea, R.A. Drijber, V.D. Kreslavski, B. Minard, and J.-M. Bollag. 2000. Aerobic TNT reduction via 2-hydroxylamino-4,6-dinitrotoluene by *Pseudomonas aeruginosa* strain MX isolated from munitions-contaminated soil. *Bioremediation Journal* 4:111-124. (J. Series No. 12566)
- Weiss, A.L., V. Crowder, and M. Bernardi. 2000. Communicating agrometeorological information to farming communities. *Agricultural and Forest Meteorology* 103:185-196. (J. Series No. 12572)

Weiss, A.L., T.J. Arkebauer, and E.A. Walter-Shea. 2000. Evaluation of an algorithm for predicting albedo in heliostatic crops. *Agricultural Systems* 68:137-150. (J. Series No. 12767)

Wilhite, D.A. 2000. Drought preparedness and response in the context of sub-Saharan Africa. *Journal of Contingencies and Crisis Management* 8:81-92. (J. Series No. 12939)

Wilhite, D.A., M.J. Hayes, C. Knutson, and K.H. Smith. 2000. Planning for drought: Moving from crisis to risk management. *Journal of the American Water Resources Association* 36:697-710. (J. Series No. 12766)

Yamoah, C.F., D.T. Walters, C.A. Shapiro, C.A. Francis, and M.J. Hayes. 2000. Standardized Precipitation Index and nitrogen rate effects on yields and risk analysis of maize in dryland cropping systems. *Agriculture, Ecosystems, and Environment* 80:113-120. (J. Series No. 12548)

Refereed Proceedings

Chen, X.H. 2000. Streamflow depletion due to groundwater irrigation: Analysis of reduced baseflow and induced stream infiltration, p. 294-297. *In: Proceedings of the International Symposium on Hydrogeology and the Environment*, Wuhan, China.

Gitelson, A.A., U. Grits, R. Stark, D. Rundquist, and Y. Kaufman. 2000. Novel algorithms for remote estimation of vegetation fraction, p. II-1-II-8. *In: Proceedings of the Second International on Geospatial Information in Agriculture and Forestry Conference*, Lake Buena Vista, FL.

Gitelson, A.A., Y.A. Grits, D. Etzion, Z. Ning, Y. Salmi, and A. Richmond. 2000. Optical properties of *Nannochloropsis* sp. and their application to remote estimation of cell mass, p. II-369-II-376. *In: Proceedings of the Sixth International Conference on Remote Sensing for Marine and Coastal Environments*, Charleston, SC.

Gitelson, A.A., Y.Z. Yacobi, D.C. Rundquist, J.F. Schalles, R. Stark, L. Han, and D. Etzion. 2000. Remote estimation of chlorophyll concentration in productive waters: Principles, algorithm development and validation, p. 149-160. *In: Monitoring for the Millennium*, Proceedings of NWQMC National Conference, Austin, TX.

Hu, Q., G.A. Buyanovsky, and X. Tao. 2000. Climate effects on corn yield in the North American Corn Belt, p. 288-291. *In: Proceedings of 12th Conference on Applied Climatology*, American Meteorological Society, Asheville, NC.

Hu, Q., J. Lee, and C. Hays. 2000. Interannual variations of summer precipitation and temperature in the central United States, p. 176-179. *In: Proceedings of 11th Symposium on Global Change Studies*, American Meteorological Society, Long Beach, CA.

Hu, Q., G. Schaeffer, C. Hays, and P. Pasteris. 2000. Soil temperature quality control for USDA NRCS SM/ST Network: Methods and products, p. 48-51. *In: Proceedings of 12th Conference on Applied Climatology*, American Meteorological Society, Asheville, NC.

Hu, Q. and G.D. Willson. 2000. Hydrological responses to climate and land-cover changes in a mid-sized watershed, p. 282-283. *In: Proceedings of 15th Conference on Hydrology*, American Meteorological Society, Long Beach, CA.

Rundquist, D., Ramirez, J., and A.A. Gitelson. 2000. The effect of extreme background conditions on reflectance of vegetation and estimation of vegetation fraction, p. II-59-II-65. *In: Proceedings of the Second International on Geospatial Information in Agriculture and Forestry Conference*, Lake Buena Vista, FL.

Schalles, J., D. Rundquist, A.A. Gitelson, and J. Keck. 2000. Close range hyperspectral reflectance measurements of healthy Indo-Pacific and Caribbean Corals, p. I-431-I-440. *In: Proceedings of the Sixth International Conference on Remote Sensing for Marine and Coastal Environments*, Charleston, SC.

Stark, R. and A.A. Gitelson. 2000. Radiation regime in irrigated wheat, p. II-89-II-96. *In: Proceedings of the Second International on Geospatial Information in Agriculture and Forestry Conference*, Lake Buena Vista, FL.

Zur, Y., A.A. Gitelson, O.B. Chivkunova, and M.N. Merzlyak. 2000. The spectral contribution of carotenoids to light absorption and reflectance in green leaves, p. II-17-II-23. *In: Proceedings of the Second International on Geospatial Information in Agriculture and Forestry Conference*, Lake Buena Vista, FL.

Books

Wilhite, D.A. 2000. *Drought: A global assessment*. Routledge Publishers, London, England.

Wilhite, D.A., M.K.V. Sivakumar, and D.A. Wood. 2000. *Early warning systems for drought preparedness and management*. World Meteorological Organization, Geneva, Switzerland.

Book Chapters

Brandle, J.R., L. Hodges, and B. Wight. 2000. Windbreak practices, p. 79-118. *In: H.E. Garrett, W.J. Rietveld, and R.F. Fisher (eds.), North American Agroforestry: An Integrated Science*, American Society of Agronomy, Madison WI.

Hayes, M., D.A. Wilhite, and M. Svoboda. 2000. Monitoring drought using the Standardized Precipitation Index, p. 168-180. *In: D. Wilhite (ed.), Drought: A Global Assessment*, Vol. 1. Routledge Publishers, London, England.

Skopp, J. 2000. Physical properties of primary particles, p. A-3-17. *In: Malcolm E. Sumner (ed.), Handbook of Soil Science*. CRC Press, Boca Raton, FL.

Skopp, J. 2000. Particle size separation: Sieving/screening, p. 1826-1830. *In: Ian Wilson (ed.), Encyclopedia of Separation Science*, Academic Press, London, UK.

Wilhite, D.A. 2000. Drought preparedness in the U.S.: Recent progress, p. 119-131. *In: J. Vogt and F. Somma (eds.), Status of Drought Management in Europe*. Kluwer Academic Press, Dordrecht, The Netherlands.

Wilhite, D.A. 2000. Drought early warning systems in the context of drought preparedness and mitigation, p. 1-16. *In: D.A. Wilhite, M.K.V. Sivakumar, and D.A. Wood (eds.), Early Warning Systems for Drought Preparedness and Management*. World Meteorological Organization, Geneva, Switzerland.

Wilhite, D.A. 2000. Drought as a natural hazard: Concepts and definitions, p. 3-18. *In: D.A. Wilhite (ed.), Drought: A Global Assessment*. Vol. I. Routledge Publishers, London, England.

Wilhite, D.A. 2000. Preparing for drought: A methodology, p. 89-104. *In: D.A. Wilhite (ed.), Drought: A Global Assessment*. Vol. II. Routledge Publishers, London, England.

Wilhite, D.A. 2000. State actions to mitigate drought: Lessons learned, p. 149-157. *In: D.A. Wilhite (ed.), Drought: A Global Assessment*. Vol. II. Routledge Publishers, London, England.

Wilhite, D.A. 2000. Responding to drought: Common threads from the past, visions for the future, p. 158-167. *In: D.A. Wilhite (ed.), Drought: A Global Assessment*. Vol. II. Routledge Publishers, London, England.

Wilhite, D.A. 2000. Reducing societal vulnerability to drought: Future challenges, p. 295-298. *In: D.A. Wilhite (ed.), Drought: A Global Assessment*. Vol. II. Routledge Publishers, London, England.

Wilhite, D.A. 2000. Drought: A conceptual overview, p. 3-14. *In: D.A. Wilhite (ed.), Report on the Status of Drought Preparedness and Mitigation in Sub-Saharan Africa*. Vol. 1. United Nations Development Program. New York, NY.

Wilhite, D.A. 2000.
Drought preparedness status, constraints, and future needs: A synthesis, p. 15-32. *In*: D.A. Wilhite (ed.), Report on the Status of Drought Preparedness and Mitigation in Sub-Saharan Africa. Vol. 1. United Nations Development Program. New York, NY.

Wilhite, D.A. 2000.
Drought planning: A methodology, p. 67-75. *In*: D.A. Wilhite (ed.), Report on the Status of Drought Preparedness and Mitigation in Sub-Saharan Africa. Vol. 1. United Nations Development Program. New York, NY.

Wilhite, D.A., M.J. Hayes, and M.D. Svoboda. 2000.
Drought monitoring and assessment: Status and trends in the United States, p. 149-160. *In*: J. Vogt and F. Somma (eds.), Drought and Drought Mitigation in Europe. Kluwer Academic Publishers, Dordrecht, Netherlands.

Wilhite, D.A., M. Hayes, and M. Svoboda. 2000.
Monitoring drought using the standardized precipitation index, p. 168-180. *In*: D.A. Wilhite (ed.), Drought: A Global Assessment. Vol. I. Routledge Publishers, London, England.

Wilhite, D.A. and O. Vanyarkho. 2000.
Drought: Pervasive impacts of a creeping phenomenon, p. 245-255. *In*: D.A. Wilhite (ed.), Drought: A Global Assessment. Vol. I. Routledge Publishers, London, England.

M.S. Theses

Derry, D.P. 2000.
Monitoring corn development via close-range and aerial remote sensing. (D.C. Rundquist, Advisor)

Pearson, T.J. 2000.
The use of benthic macroinvertebrates by rainbow trout (*Oncorhynchus mykiss*) in Lake Ogallala, Nebraska. (E.J. Peters, Advisor)

Reade, C.N. 2000.
Larval fish drift in the lower Platte River, Nebraska. (E.J. Peters, Advisor)

Mariappan, S. 2000.
Evaluation of the groundwater nitrate contamination and $\delta^{15}\text{N}$ anomalies at confined animal feeding operation waste lagoons in Nebraska. (R.F. Spalding, Advisor)

Najarian, P. 2000.
An analysis of state drought plans: A model drought plan proposal. (D.A. Wilhite, Advisor)

Perkins, M.W. 2000.
Effects of woody cover in the landscape on riparian avifauna and a preliminary nesting assessment. (R.J. Johnson, Advisor)

Ramirez, J.P. 2000.
Close-range and aircraft remote sensing of crop phenology and selected biophysical variables. (D.C. Rundquist, Advisor)

Renken, R.R. 2000
Retardation of potassium in porous media as influenced by velocity. (J. Skopp, Advisor)

Vina, A. 2000.
Analysis of the spatial and temporal patterns of forest fragmentation in the Columbia-Ecuador border. (D.C. Rundquist, Advisor)

Ph.D. Dissertations

Kauffman, C. 2000.
Effects of ASOS on calculation of climate normals. (Q.S. Hu and K.F. Dewey, Advisors)

McFeeters, S.K. 2000.
Characterizing the impact of vegetation-water interfaces as they affect composite spectral signals. (D.C. Rundquist, Advisor)

Suyker, A.E. 2000.
Carbon dioxide and methane exchange in a boreal wetland. (S.B. Verma, Advisor)

Ullah, A. 2000.
Measuring biophysical aspects of aquatic macrophytes using *in-situ* hyperspectral and airborne remote sensing. (D.C. Rundquist, Advisor)

Xue, Q. 2000.
Phenology and gas exchange in winter wheat (*Triticum aestivum* L.). (A. Weiss, Advisor)

Veterinary and Biomedical Sciences

Journal Articles

Allende R., W.W. Laegreid, G.F. Kutish, J.A. Galeota, R.W. Wills, and F.A. Osorio. 2000.

Porcine reproductive and respiratory syndrome virus: A description of persistence in individual pigs upon experimental infection. *Journal of Virology* 74:10834-10837. (J. Series No. 13009)

Allende R., G.F. Kutish, W. Laegreid, Z. Lu, T.L. Lewis, D.L. Rock, J. Friesen, J.A. Galeota, A.R. Doster, and F.A. Osorio. 2000.

Mutations in the genome of porcine reproductive and respiratory syndrome virus responsible for the attenuation phenotype. *Archives of Virology* 145:1149-1161. (J. Series No. 12671)

Ambagala, A.P.N., S. Hinkley, and S. Srikumaran. 2000.

An early pseudorabies virus protein down-regulates porcine MHC class I expression by inhibition of TAP. *Journal of Immunology* 164:93-99. (J. Series No. 12415)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, J.S. Beaver, D.P. Coyne, and J.R. Steadman. 2000b.

Registration of 'JB-178' red mottled bean. *Crop Science* 40:857-858. (J. Series No. 12668)

Arnaud-Santana, E., J.C. Nin, F. Saladin, G. Godoy-Lutz, D.P. Coyne, J.S. Beaver, and J.R. Steadman. 2000c.

Registration of 'Arroyo Loro Negro' black bean. *Crop Science* 40:857-858. (J. Series No. 12669)

Barcellos, D.E.S.N., M. de Uzeda, N. Ikuta, V.R. Lunge, A.S.K. Fonseca, I.I.T.A. Kader, G.E. Duhamel. 2000.

Identification of porcine intestinal spirochetes by PCR-restriction fragment length polymorphism analysis of ribosomal DNA encoding 23S rRNA. *Veterinary Microbiology* 75:189-198. (J. Series No. 12854)

Barcellos, D.E.S.N., M.R. Mathiesen, M. de Uzeda, I.I.T.A. Kader, G.E. Duhamel. 2000.

Prevalence of *Brachyspira* species isolated from diarrhoeic pigs in Brazil. *Veterinary Record* 146:398-403. (J. Series No. 12571)

Bueno, A.R., T.G. Cappel, G.D. Sunvold, R.A. Moxley, G.A. Reinhart, and E.T. Clemens. 2000.

Feline colonic microbes and fatty acid transport: Effects of feeding cellulose, beet pulp and pectin/gum arabic fibers. *Nutrition Research* 20:1319-1328. (J. Series No. 12733)

Bueno, A.R., T.G. Cappel, G.D. Sunvold, G.A. Reinhart, and E.T. Clemens. 2000.

Feline colonic morphology and mucosal tissue energetics as influenced via the source of dietary fiber. *Nutrition Research* 20:985-993. (J. Series No. 12714)

Devireddy, L. and C.J. Jones. 2000.

Olf-1, a neuron-specific transcription factor, can activate the herpes simplex virus 1 ICP0 promoter. *Journal of Biological Chemistry* 275:77-81. (J. Series No. 12858)

Hinkley, S., A.P.N. Ambagala, C.J. Jones, and S. Srikumaran. 2000.

A vhs-like activity of bovine herpesvirus 1. *Archives of Virology* 145:2027-2046. (J. Series No. 12632)

Jones, C., T.J. Newby, T. Holt, A.R. Doster, M. Stone, J. Ciacci-Zanella, C.J. Webster, and M.W. Jackwood. 2000.

Analysis of latency in cattle after inoculation with a temperature sensitive mutant of bovine herpesvirus 1 (RLB106). *Vaccine* 73:9734-9740. (J. Series No. 12750)

Kelling, C.L., D.M. Grotelueschen, D.R. Smith, and B.W. Brodersen. 2000.

Testing and management strategies for effective beef and dairy herd BVD biosecurity programs. *The Bovine Practitioner* 34:13-22. (J. Series No. 12782)

Lapointe, J.M., S. Lachance, and D.J. Steffen. 2000.

Tibial hemimelia meningocele, and abdominal hernia in shorthorn cattle. *Veterinary Pathology* 37:508-511. (J. Series No. 12777)

Winkler, M.T., T. Holt, A. Hossain, A.R. Doster, L. Schang, and C.J. Jones. 2000.

Expression of cyclin D1, E, and A in trigeminal ganglionic neurons after infection with bovine herpesvirus 1. *Journal of General Virology* 81:2993-2998. (J. Series No. 12828)

Perng, G.-C., C. Jones, M. Inman, J. Ciacci-Zanella, G. Henderson, S.M. Slanina, A. Yukht, H. Ghiasi, A.B. Nesburn, and S.L. Wechsler. 2000.

A latency associated transcript (LAT) anti-apoptotic function appears to enhance reactivation of herpes simplex virus type 1 from latency. *Science* 287:1500-1503. (J. Series No. 12755)

Wills, R.W., J.T. Gray, P.J. Fedorka-Cray, K-J Yoon, S. Ladely, J.J. Zimmerman. 2000.

Synergism between *Salmonella choleraesuis* and porcine reproductive and respiratory syndrome virus (PRRSV) in swine. *Veterinary Microbiology* 71:177-192. (J. Series No. 12577)

Winkler, M.T., A.R. Doster, and C.J. Jones. 2000.

Persistence and reactivation of BHV-1 in tonsils of latently infected cattle. *Journal of Virology* 74:5337-5346. (J. Series No. 12866)

Zhang, P., X. Cheng, and G.E. Duhamel. 2000.

Cloning and DNA sequence analysis of an immunogenic glucose/galactose Mg1B lipoprotein homologue from *Brachyspira pilosicoli*, the agent of colonic spirochetosis. *Infection and Immunity* 68:4559-4565. (J. Series No. 12851)

Zhang, P., C.J. Gebhart, D. Burden, and G.E. Duhamel. 2000.

Improved diagnosis of porcine proliferative enteropathy caused by *Lawsonia intracellularis* using polymerase chain reaction-enzyme-linked oligosorbent assay (PCR-ELOSA). *Molecular and Cellular Probes* 14:101-108. (J. Series No. 12292)

Zhang, Z., G.Y. Yuen, G. Sarath, and A.R. Penheiter. 2000.

Chitinases from the plant disease biocontrol agent, *Stenotrophomonas maltophilia* C3. *Phytopathology* 91:204-211. (J. Series No. 12764)

Book Chapters

Andley, U., J. Liang, and M.F. Lou. 2000.

Biochemical mechanisms of age-related cataract, p. 1428-1449. *In: D.M. Albert and F.A. Jakobiec (eds.), Principles and Practice in Ophthalmology.* W.B. Saunders Co., Philadelphia, PA.

Barletta, R.G., R.O. Donis, O. Chacón, H.A. Shams, and J.D. Cirillo. 2000.

Vaccines against intracellular pathogens, p. 559-599. *In: J.A. Hacker and T.A. Oelschaefer (eds.), Bacterial Invasion Into Eukaryotic Cells.* Subcellular Biochemistry Series. Plenum Publishing Company, Würzburg, Germany.

Doster, A.R. 2000.

Porcine gastric ulcer, p. 163-174. *In: R.G. Helman (ed.), Veterinary Clinics of North America: Food Animal Practice,* Philadelphia, PA.

Huston, K., G. Saperstein, D. Steffen, P. Millar, and J.J. Auvergne. 2000.

Clinical pathological and other visible traits except coat colour (category 2), p. 107-492. *In: P. Millar, J. Lauvergne, and C. Dolling (eds.), Mendelian Inheritance in Cattle.* Wageningen Press, The Netherlands.

Moxley, R.A. 2000.

Edema disease, p. 16:175-185. *In: R.G. Helman (ed.), Veterinary Clinics of North America: Food Animal Practice.* Diagnosis of Diseases of the Digestive Tract, W. B. Saunders Co., Philadelphia, PA.

Wills, R.W. 2000.

Diagnosis of diarrhea in growing-finishing swine, p. 135-161. *In: R.G. Helman and W.B. Saunders (eds.), Diagnosis of Digestive Tract Diseases.* *Veterinary Clinics of North America-Food Animal,* Philadelphia, PA.

M.S. Theses

Manjula, Navaratnam. 2000.

Cp96 as an adjuvant for induction of cytotoxic T-lymphocytes against Bovine Herpesvirus 1. (S. Srikumaran, Advisor)

Li, Xiaoli. 2000.

Pestivirus and hepacivirus viral-host interactions. (R. Donis, Advisor)

Ph.D. Dissertations

Winkler, M. Teresa. 2000.

Analysis of bovine herpesvirus 1 host interactions (C.J. Jones, Advisor)

Risatti, Guillermo. 2000.

Bovine viral diarrhea virus *in vitro* studies on virus-host cell interactions (R. Donis, Advisor)

Human Resources and Family Sciences Departments

Family and Consumer Sciences

Journal Articles

Dalla, R.L. 2000.

Exposing the 'pretty woman' myth: A qualitative investigation of the lives of female streetwalkers. *Journal of Sex Research* 37: 344-353. (J. Series No. 12950)

Dalla, R.L. and W.C. Gamble. 2000.

Mother, daughter, teenager—Who am I?: Perceptions of self and the timing of first-time motherhood among Navajo Native-American adolescent women. *Journal of Family Issues* 21: 225-245. (J. Series No. 12867)

Edwards, C.P. 2000.

Children's play in cross-cultural perspective: A new look at the Six Culture Study. *Cross Cultural Research* 34: 318-338. (J. Series No. 12927)

Edwards, C.P. and L. Willis. 2000.

Integrating visual and verbal literacies in the early childhood classroom. *Early Childhood Education Journal* 27: 259-265. (J. Series No. 12437)

Jones, J.E., J. DeFrain, L. Ernst, and N. DeFrain. 2000.

The teacher's role in helping young people survive and transcend a traumatic childhood. *Journal of Family and Consumer Sciences* 92: 51-52. (J. Series No. 13075)

M.S. Theses

Austin, A.R. 2000.

Making sexual decisions: Understanding adolescents' choices. (D. Abbott, Advisor)

Comp, D.J. 2000.

Undergraduate sojourner change as a result of a study abroad experience. (D. Abbott, Advisor)

Hunt-Amos, S.L. 2000.

Husband's perspectives of his wives' past childhood sexual abuse. (R. Bischoff, Advisor)

Liu, W. 2000.

Parental knowledge, attitudes and practices about sex education for children in the People's Republic of China. (C.P. Edwards, Advisor)

Yungtum, S.J. 2000.

The perceived availability of utilization of employee benefits and work-life conflict. (R. Combs, Advisor)

Ph.D. Dissertations

Falter, J. 2000.

The company as family: Perceived strengths of Duncan Aviation. (J. DeFrain, Advisor)

Xia, Y.R. 2000.

Chinese adolescents' involvement in the family decision-making processes and the parent-adolescent communication and relationship. (J. DeFrain, Advisor)

Zhou, G.Z. 2000.

The relationship between preschool children's emergent literacy status and home literacy activities. (P. Zeece, Advisor)

Nutritional Science and Dietetics

Journal Articles

Carr, T.P., G. Cai, J-Y Lee, and C.L. Schneider. 2000.

Cholesteryl ester enrichment of plasma low density lipoproteins in hamsters fed cereal-based diets containing cholesterol. *Proceedings of the Society for Experimental Biological Medicine* 223:96-101. (J. Series No. 12322)

Driskell, J.A., D.W. Giraud, and S.H. Mitmesser. 2000.

Vitamin B-6 intakes and plasma B-6 vitamin concentrations of men and women, 19-50 years of age. *International Journal of Vitamin and Nutrition Research* 70:221-225 (J. Series No. 12691)

Driskell, J.A., M.J. Marchello, and D.W. Giraud. 2000.

Riboflavin and niacin concentrations of bison cuts. *Journal of Animal Science* 78:1267-1271. (J. Series No. 12706)

Harwell, S.W. and J.A. Driskell. 2000.

Ethnicity of Caucasian adults influences vitamin/mineral usage. *Journal of Family and Consumer Sciences* 92:52-57. (J. Series No. 12532)

Lewis, N., S. Seburg, S. and N. Flanagan. 2000. Enriched eggs as a source of n-3 PUFA for humans. *Journal of Poultry Science* 79:971-974. (J. Series No. 12898)

Lewis, N.M., K. Schalch, and S. Scheideler. 2000. Serum lipid response to n-3 fatty acid enriched eggs in persons with hypercholesterolemia. *Journal of the American Dietetic Association* 100:365-367. (J. Series No. 12264)

Mitmesser, S.H., D.W. Giraud, and J.A. Driskell. 2000. Dietary and plasma levels of carotenoids, vitamin E, and vitamin C in a group of young and middle-aged nonsupplemented women and men. *Nutrition Research* 20:1537-1546. (J. Series No. 12787)

Richert, K.J., J.A. Albrecht, L.B. Bullerman, and S.S. Sumner. 2000. Survival and growth of *Escherichia coli* 0157:H7 on broccoli and green pepper. *Dairy, Food and Environmental Sanitation* 20:24-28. (J. Series No. 11508)

Schneider, C.L., R.L. Cowles, C.L. Stuefer-Powell, and T.P. Carr. 2000. Dietary stearic acid reduces cholesterol absorption and increases endogenous cholesterol excretion in hamsters fed cereal-based diets. *Journal of Nutrition* 130:1232-1238. (J. Series No. 12730)

Setiawan, B., D.W. Giraud, and J.A. Driskell. 2000. Food sources of vitamin B-6 of a group of Indonesian children. *Journal of Food Quality* 23:293-304. (J. Series No. 12550)

Setiawan, B., D.W. Giraud, and J.A. Driskell. 2000. Vitamin B-6 inadequacy is prevalent in rural and urban Indonesian children. *Journal of Nutrition*, 130:553-558. (J. Series No. 12605)

Wu, Y., J.W. Rhim, C.L. Weller, F. Hamouz, S.L. Cuppett, and M.I. Schnepf. 2000. Moisture loss and lipid oxidation for precooked beef patties stored in edible coatings and films. *Journal of Food Science* 65:300-304. (J. Series No. 12672)

Books

Driskell, J.A. 2000. *Sports nutrition*. CRC Press, Boca Raton, FL.

Driskell, J.A. and I. Wolinsky. 2000. *Energy-yielding macronutrients and energy metabolism in sports nutrition*. CRS Press, Boca Raton, FL.

Wolinsky, I. and J.A. Driskell. 2000. *Nutritional applications in exercise and sport*. CRC Press, Boca Raton, FL.

Book Chapters

Betts, N.M. 2000. Exercise dependence, p. 229-248. *In: J. Driskell and I. Wolinsky (eds.), Nutritional applications in exercise and sport*. CRC Press, Boca Raton, FL.

Carr, T.P. and R.L. Cowles. 2000. Lipid supplements and exercise performance, p. 183-189. *In: J.A. Driskell and I. Wolinsky (eds.), Energy-yielding macronutrients and energy metabolism in sports nutrition*. CRC Press, Boca Raton, FL.

Lewis, N.M. and J.E. Guest. 2000. Nutritional implications of age differences in energy metabolism, p. 263-289. *In: J.A. Driskell and I. Wolinsky (eds.), Energy-yielding macronutrients and energy metabolism in sports nutrition*. CRC Press, Boca Raton, FL.

Lewis, N.M. and A.M. Frederick. 2000. Vitamins D and K, p. 111-117. *In: J.A. Driskell (ed.), Sports nutrition*. CRC Press, Boca Raton, FL.

Wolinsky, I. and J.A. Driskell. 2000. Summary: Energy-yielding macronutrients and energy metabolism in sports nutrition, p. 317-322. *In: J.A. Driskell and I. Wolinsky (eds.), Energy-yielding macronutrients and energy metabolism in sports nutrition*. CRC Press, Boca Raton, FL.

Wolinsky, I. and J.A. Driskell. 2000. Summary: Nutritional applications in exercise and sport, p. 279-283. *In: I. Wolinsky and J.A. Driskell (eds.), Nutritional applications in exercise and sport*. CRC Press, Boca Raton, FL.

M.S. Theses

Breuer, T.A. 2000. The effect of eating behavior and menstrual health on bone injury rate in female athletes. (W.M. Koszewski, Advisor)

Covey, L.C. 2000. Written survey to compare the perceptions of diet quality and physical activity level between nutrition educators and limited resource clientele. (W.M. Koszewski, Advisor)

Flanagan, N.L. 2000. Using multimedia education to increase consumer understanding of breast cancer prevention. (N.M. Lewis, Advisor)

Guest, J.E. 2000. Feeding and swallowing status in children receiving living related liver transplantation: A retrospective study. (N.M. Lewis, Advisor)

Nyberg, E.J. 2000. The relationship between time to eat school lunch and nutrient consumption. (M.I. Schnepf, Advisor)

Sindelar, C.A. 2000. Serum lipid response to inclusion of omega-3 fatty acid enriched eggs in diets of physically active adults. (N.M. Lewis, Advisor)

Waltz-Hill, M.M. 2000. Using multi-media nutrition education to increase consumer understanding of coronary heart disease. (N.M. Lewis, Advisor)

Textiles, Clothing and Design

Journal Articles

Chiweshe, A. and P. Crews. 2000. Influence of household fabric softeners and laundry enzymes on pilling ratings and breaking strength. *Textile Chemist and Colorist and American Dyestuff Reporter* 32:41-47. (J. Series No. 12789)

Niemeyer, S.M. and C.A. Francis. 2000. Beyond green: From issues to initiatives. *Journal of Family and Consumer Sciences* 92:48-54. (J. Series No. 13121)

Reed, R.D., R.D. Grisso, W.E. Wolcott, and S.M. Niemeyer. 2000. Waste assessment of agricultural chemicals, petroleum products and maintenance residuals on farmsteads. *Applied Engineering in Agriculture* 16:175-188. (J. Series No. 11630 and No. 11631)

Scheyer, L.E., V. Rai, and A. Chiweshe. 2000. Compensation for hydrolysis in the reuse of reactive dyes. *Textile Research Journal* 70:59-63. (J. Series No. 12000)

Scheyer, L.E. and M. Polsani. 2000. Use of chemically modified wheat gluten to reduce formaldehyde emissions during curing of pigment print pastes on fabrics. *Starch/Stärke* 52:420-422. (J. Series No. 12953)

Book Chapter

Craig, K.E. and J.M. Laughlin. 2000. Scholarship reconsidered: A functional core for graduate curricula, p. 25-32. *In: P.A. Ralston, R. Learner, A.K. Mullis, C.B. Simerly, and J.B. Murray (eds.), Social Change, Public Policy, and Community Collaborations: Training Human Development Professionals for the Twenty-First Century*. Kluwer Academic Publications, Norwell, MA.

Off-Campus Research Centers

Northeast Research and Extension Center

Journal Articles

Brumm, M.C., J.M. Dahlquist, and J.M. Heemstra. 2000. Impact of feeders and drinker devices on pig performance, water use and manure volume. *Journal of Swine Health Production* 8:51-57. (J. Series No. 12448)

Byers, M.E., S.T. Kamble, and J.F. Witkowski. 2000. Assessing insecticide drift during and after center-pivot chemigation to corn using glass plates and gauze pads. *Bulletin of Environmental Contamination and Toxicology* 65:522-529. (J. Series No. 12991)

Gaughan, J.B., S.M. Holt, G.L. Hahn, T.L. Mader, and R.A. Eigenberg. 2000. Respiration rate — is it a good measure of heat stress in cattle? *Asian-Australian Animal Science* 13:329-332. (J. Series No. 12903)

Holt, S.M., T.L. Mader, J.B. Gaughan, A. Lisle, and T. Scott. 2000. Limit feeding of feedlot cattle during the summer. *Asian-Australian Journal of Animal Science* 13:421-424. (J. Series No. 12902)

Hunt, T.E., L.G. Higley, and L.P. Pedigo. 2000. A re-examination of economic injury levels for potato leafhopper (*Homoptera: Cicadellidae*) on soybean. *Journal of Entomological Science* 35:97-104. (J. Series No. 12492)

Hunt, T.E., R.L. Hellmich, J.M. Dyer, L.G. Higley, and J.F. Witkowski. 2000. Oil-soluble dyes for marking European corn borer (*Lepidoptera: Crambidae*). *Journal of Entomological Science* 35:338-341. (J. Series No. 12646)

Kranz, W.L. and R.S. Kanwar. 2000. Impact of Tillage and Tracer Application Method on Spatial Distribution of Leaching Losses. *Transactions of the American Society of Agricultural Engineers* 43:1103-1116. (J. Series No. 12327)

Mader, T.L. and K.F. Lechtenberg. 2000. Growth promoting systems for heifer calves and yearlings finished in the feedlot. *Journal of Animal Science* 78:2485-2496. (J. Series No. 12800)

Yamoah, C.F., D.T. Walters, C.A. Shapiro, C.A. Francis, and M.J. Hayes. 2000. Standardized precipitation index and nitrogen rate effects on yields and risk distribution of maize. *Agriculture Ecosystems and Environment* 80:113-120. (J. Series No. 12548)

Refereed Proceedings

Benham, B.L., J. Blumenthal, R.B. Ferguson, G.W. Hergert, W.L. Kranz, C.A. Shapiro, W.B. Stevens, and C.D. Yonts. 2000. Crop response and nitrogen availability as a function of climate, variable-rate nitrogen application and every- and alternate-row furrow irrigation, p. 501-506. *In: Proceedings of the 4th Decennial National Irrigation Symposium, American Society of Agricultural Engineers, Phoenix, AZ.*

Brumm, M.C., A.K. Baysinger, R.W. Wills, E.T. Clemens, and R.C. Thaler. 2000. Impact of wean-to-finish facility management on pig performance, p. 147-151. *In: Proceedings of the 1st International Swine Housing Conference, American Society of Agricultural Engineers, St. Joseph, MI.*

Clark, R.T., D.C. Adams, G. Carriker, and J. Volesky. 2000. Extending grazing for beef cow operations: Nebraska research and education, p. 179-188. *In: Food Animal Production Systems, Issues and Challenges, Proceedings of Extension Specialist Triennial Workshop, East Lansing, MI.*

Clark, R.T., D. Adams, D. Feuz, P. Reece, B. Plugge, B. Stolzenburg, and J. Volesky. 2000. The Nebraska ranch practicum: An interdisciplinary, hands-on training school, p. 167-171. *In: Food Animal Production Systems, Issues and Challenges, Proceedings of Extension Specialist Triennial Workshop, East Lansing, MI.*

Feng, S., A.M. Parkhurst, K.M. Eskridge, D.A. Travnick, D.E. Spiers, and G.L. Hahn. 2000. Assessing refinements in modeling sinusoidal conditions used to drive cattle body temperatures, *American Statistical Association, Indianapolis, IN.*

Norton, N.A., R.T. Clark, and J. Schneekloth. 2000. Effects of alternative irrigation allocations on water use, net returns and marginal user cost. Selected paper (refereed) at the Western Agricultural Economics Association Annual Meetings, Vancouver, BC, June 29-July, 2000. <http://agecon.lib.umn.edu/waea97.html#waea00>.

Parkhurst, A.M. and T.L. Mader. 2000. Using nonlinear growth curves to estimate heat stress in processing feedlot cattle. *Proceedings of 12th Kansas State University Conference on Applied Statistics in Agriculture, Manhattan, KS.*

Shelton, D.P. and M. Mamo. 2000. Manure injector influences on percent soybean and corn residue cover, p. 568-577. *In: J.A. Moore (ed.), Animal, Agricultural, and Food Processing Wastes, Proceedings of the Eighth International Symposium, American Society of Agricultural Engineers, St. Joseph, MI.*

Thompson, A.L., D.L. Martin, and W.L. Kranz. 2000. Water Application Distribution Under Center Pivot System, p. 103-108. *In: Proceedings of the 4th Decennial National Irrigation Symposium, American Society of Agricultural Engineers, Phoenix, AZ.*

Wicks, G.A., R.N. Klein, R.G. Wilson, F.W. Roeth, S. Knezevic, and A.R. Martin. 2000. Isoxaflutole (Balance) herbicide injury to corn in Nebraska, p. 287-299. *In: Proceedings of the 2000 Wisconsin Fertilizer, Adlime, and Pest Management Conference, Madison, WI.*

Book Chapters

Jasa, P.J., D.P. Shelton, and J.C. Siemens. 2000. Tillage system selection and equipment considerations, p. 185-192. *In: R. Reeder (ed.), Conservation Tillage Systems and Management. MWPS, Ames, IA.*

Jasa, P.J., J.C. Siemens, V.L. Hofman, and D.P. Shelton. 2000. Tillage system descriptions, p. 5-10. *In: R. Reeder (ed.), Conservation Tillage Systems and Management. MWPS, Ames, IA.*

Shelton, D.P., P.J. Jasa, L.C. Brown, and M.C. Hirschi. 2000. Water erosion, p. 17-22. *In: R. Reeder (ed.), Conservation Tillage Systems and Management. MWPS, Ames, IA.*

Shelton, D.P., J.A. Smith, and P.J. Jasa. 2000. Estimating residue cover, p. 35-46. *In: R. Reeder (ed.), Conservation Tillage Systems and Management. MWPS, Ames, IA.*

Ph.D. Dissertation

Echavarria-Chairez, F.G. 2000. Alternate irrigation and fertilization to reduce leaching of nitrates. (C.A. Shapiro, D.T. Walters, and W.L. Kranz, Advisors)

Panhandle Research and Extension Center

Journal Articles

Baenziger, P.S., B. Moreno-Sevilla, C.J. Peterson, D.R. Shelton, R.W. Elmore, R.N. Klein, D.D. Baltensperger, L.A. Nelson, D.V. McVey, J.E. Watkins, and J.H. Hatchett. 2000. Registration of 'Culver' wheat. *Crop Science* 40:862-863. (J. Series No. 12612)

Coyne, D.P., D.S. Nuland, D.T. Lindgren, J.R. Steadman, D.W. Smith, J. Gonzales, J. Schild, J. Reiser, L. Sutton, and C. Carlson. 2000. 'Weihing' Great Northern disease resistant dry bean. *HortScience* 35:310-312. (J. Series No. 12639)

Drijber, R.A., J.W. Doran, A.M. Parkhurst, and D.J. Lyon. 2000. Changes in soil microbial community structure with tillage under long-term wheat-fallow management. *Soil Biology and Biochemistry* 32:1419-1430. (J. Series No. 12934)

Hendrickson, J.R., L.E. Moser, and P.E. Reece. 2000. Tiller recruitment patterns and biennial tiller production in prairie sandreed. *Journal of Range Management* 53:537-543. (J. Series 12350)

Kefi, S., A.D. Pavlista, P.E. Read, and S.D. Kachman. 2000. Comparison of thidiazuron and two nitroguanidines to kinetin on potato microtuberization *in vitro* under long and short days. *Journal of Plant Growth Regulation* 19:429-436. (J. Series No. 12884)

Kefi, S., A.D. Pavlista, M.M. Meagher, and P.E. Read. 2000. Invertase activity during tuberization *in vitro* as influenced by cytokinin-like compounds. *American Journal of Potato Research* 77:57-61. (J. Series No. 12226)

Kelling, C.L., D.M. Grotelueschen, D.R. Smith, and B.W. Brodersen. 2000. Testing and management strategies for effective beef and dairy herd BVD biosecurity programs. *The Bovine Practitioner* 34:13-22. (J. Series No. 12782)

- Kettler, T.A., D.J. Lyon, J.W. Doran, W.L. Powers, and W.W. Stroup. 2000. Soil quality assessment after weed-control tillage in a no-till wheat-fallow cropping system. *Soil Science Society of America Journal* 64:339-346. (J. Series No. 12494)
- Panning, J.W., M.R. Kocher, J.A. Smith, and S.D. Kachman. 2000. Laboratory and field testing of seed spacing uniformity for sugarbeet planters. *Applied Engineering in Agriculture* 16:7-13. (J. Series No. 12664)
- Pester, T.A., P. Westra, R.L. Anderson, D.J. Lyon, S.D. Miller, P.W. Stahlman, F.E. Northam, and G.A. Wicks. 2000. *Secale cereale* interference and economic thresholds in winter *Triticum aestivum*. *Weed Science* 48:720-727. (J. Series No. 12985)
- Rife, C.L., D.L. Auld, W.D. Stegmeier, H.D. Sunderman, W.F. Heer, D.D. Baltensperger, L.A. Nelson, D.L. Johnson, D. Bordovsky, and H.C. Minor. 2000. Registration of 'Plainsman' Winter Rapeseed. *Crop Science* 40:262-293. (J. Series No. 12541)
- Schacht, W.H., J.D. Volesky, D.E. Bauer, A.J. Smart, and E.M. Mousel. 2000. Plant community patterns on upland prairie in the eastern Nebraska sandhills. *The Prairie Naturalist* 32:43-58. (J. Series No. 13089)
- Stebbing, J.A., R.C. Wilson, A.R. Martin, and J.A. Smith. 2000. Row spacing, redroot pigweed *Amaranthus retroflexus* density, and sugarbeet *Beta vulgaris* cultivar effects on sugarbeet development. *Journal of Sugar Beet Research* 37:11-21. (J. Series No. 12752)
- Refereed Proceedings**
- Benham, B.L., J. Blumenthal, R.B. Ferguson, G.W. Hergert, W.L. Kranz, C.A. Shapiro, W.B. Stevens, and C.D. Yonts. 2000. Crop response and nitrogen availability as a function of climate, variable-rate nitrogen application and every- and alternate-row furrow irrigation, p. 501-506. *Proceedings of the 4th Decennial National Irrigation Symposium, American Society of Agricultural Engineers, Phoenix, AZ.*
- Pavlista, A.D. 2000. Thidiazuron increased yields of the potato cultivar Atlantic, p. 321. *In: R. Dunand (ed.), Proceedings of the 27th Annual Meeting of the Plant Growth Regulation Society of America. Omnipress, Madison, WI.*
- Weichenthal, B.A., D.D. Baltensperger, K.P. Vogel, S.D. Masterson, J.M. Blumenthal, and J.M. Krall. 2000. Annual Forages for the Central High Plains, p. 180-184. *In: M. Phillips, T. Terrill, D. Belesky, J. Berdahl, K. Cassida, M. Williams, and M. Wiedenhoef (eds.), Proceedings of the 2000 American Forage and Grassland Conference, Madison, WI. American Forage and Grassland Council, Georgetown, TX.*
- Wicks, G.A., R.N. Klein, R.C. Wilson, F.W. Roeth, S. Knezevic, and A.R. Martin. 2000. Isoxaflutole (Balance) herbicide injury to corn in Nebraska, p. 287-299. *In: Proceedings of the 2000 Wisconsin Fertilizer, Adlime, and Pest Management Conference, Madison, WI.*
- Wilson, R.G., B. Desprez, J.A. Smith, and C.D. Yonts. 2000. Effect of drying on the carbohydrate composition of chicory roots, p. 14-21. *In: A. Fuchs (ed.), Proceedings of the Eighth Seminar on Inulin, Lille, France. European Fructan Association, Stuttgart, Germany.*
- Book Chapters**
- Brenner, D.M., D.D. Baltensperger, P.A. Kulakow, J.W. Lehmann, R.L. Myers, M.M. Slabbert, and B.B. Sleugh. 2000. Genetic resources and breeding of amaranthus, p. 227-285. *In: J. Janick (ed.), Plant Breeding Reviews. John Wiley & Sons, Inc., New York, NY.*
- Pavlista, A.D. and J.M. Blumenthal. 2000. Potatoes, p. 151-156. *In: R.B. Ferguson and K.M. DeGrout (eds.), Nutrient Management Manual. University of Nebraska Cooperative Extension, Lincoln, NE.*
- Lyon, D., J.A. Smith, and D. Fryrear. 2000. Wind erosion, p. 12-15. *In: R. Reeder (ed.), Conservation Tillage Systems and Management, MWPS-45, Second Edition. MidWest Plan Service, Iowa State University, Ames, IA.*
- Shelton, D.P., J.A. Smith, and P.J. Jasa. 2000. Estimating residue cover, p. 36-46. *In: R. Reeder (ed.), Conservation Tillage Systems and Management, MWPS-45, Second Edition. MidWest Plan Service, Iowa State University, Ames, IA.*
- Smith, J.A., V. Hofman, and R. Taylor. 2000. Residue management at harvest, p. 30-33. *In: R. Reeder (ed.), Conservation Tillage Systems and Management, MWPS-45, Second Edition. MidWest Plan Service, Iowa State University, Ames, IA.*
- M.S. Thesis**
- Park, J.L. 2000. Evaluation of feeding beef cattle wet pressed beet pulp in growing and finishing feedlot diets. (I.G. Rush, Advisor)
- Ph.D. Dissertation**
- Guillen-Portal, F.R. 2000. Maize hybrid adaptability to drought stress assessed with combining ability and genotype-by-environment effects. (D.D. Baltensperger and L.A. Nelson, Advisors)
- South Central Research and Extension Center**
- Journal Articles**
- Baenziger, P.S., B. Moreno-Sevilla, C.J. Peterson, D.R. Shelton, R.W. Elmore, R.N. Klein, D.D. Baltensperger, L.A. Nelson, D.V. McVey, J.E. Watkins, and J.H. Hatchett. 2000. Registration of 'Culver' wheat. *Crop Science* 40:862-863. (J. Series No. 12612)
- Dielman, J.A., D.A. Mortensen, D.D. Buhler, and R.B. Ferguson. 2000. Identifying associations among site properties and weed species abundance. II. Hypothesis generation. *Journal of Weed Science* 48:576-587. (J. Series No. 12555).
- Scharf, M.E., B.D. Siegfried, L.J. Meinke, R.J. Wright, and L.D. Chandler. 2000. Cytochrome P450-mediated N-demethylation activity and induction in insecticide-resistant and susceptible western corn rootworm populations. *Pesticide Biochemistry and Physiology* 67:137-143. (J. Series No. 12347)
- Schepers, J.S., M.R. Schlemmer, and R.B. Ferguson. 2000. Site-specific consideration for managing phosphorus. *Journal of Environmental Quality* 29:125-130. (J. Series No. 12637)
- Story, C.E., R.J. Rasby, R.T. Clark, and C.T. Milton. 2000. Age of calf at weaning of spring-calving beef cows and the effect on cow and calf performance and production economics. *Journal of Animal Science* 78:1403-1413. (J. Series No. 12630)
- Van Vleck, L.D., K.A. Leymaster, and T.G. Jenkins. 2000. Genetic correlations for daily gain between ram and ewe lambs fed in feedlot conditions and ram lambs fed in Pinpointer units. *Journal of Animal Science* 78:1155-1158. (J. Series No. 12694)
- Wright, R.J., M.E. Scharf, L.J. Meinke, X. Zhou, B.D. Siegfried, and L.D. Chandler. 2000. Larval susceptibility of an insecticide-resistant western corn rootworm (*Coleoptera: Chrysomelidae*), population to soil insecticides: Laboratory bioassays, assays of detoxification enzymes and field performance. *Journal of Economic Entomology* 93:7-13. (J. Series No. 12422)
- Wright, R.J. and T.A. DeVries. 2000. Species composition and relative abundance of Coccinellidae in south central Nebraska field crops. *Journal of Kansas Entomological Society* 73:103-111. (J. Series No. 12908)
- Yamoah, C.F., D.T. Walters, C.A. Shapiro, C.A. Francis, and M.J. Hayes. 2000. Standardized Precipitation Index and nitrogen rate effects on yields and risk analysis of maize in dryland cropping systems. *Agriculture, Ecosystems, & Environment* 80:113-120. (J. Series No. 12548)

Refereed Proceedings

Paschold, J.S., B.J. Wienhold, J.E. Gilley, R.B. Ferguson, and P.S. Miller. 2000.

Crop utilization and environmental fate of N and P from soils receiving manure from swine fed diets containing traditional or highly available phosphorus corn, p. 425-432. *In*: P.A. Moore (ed.), Proceedings of the 8th International Symposium on Animal, Agricultural, and Food Processing Wastes, American Society of Agricultural Engineers, St. Joseph, MI.

Wicks, G.A., R.N. Klein, R.C. Wilson, F.W. Roeth, S. Knezevic, and A.R. Martin. 2000.

Isoxaflutole (Balance) herbicide injury to corn in Nebraska, p. 287-299. *In*: Proceedings of the 2000 Wisconsin Fertilizer, Adlime, and Pest Management Conference, Madison, WI.

Book Chapter

Eghball, B., G.W. Hergert, G.W. Lesoing, and R.B. Ferguson. 2000.

Fractal Analysis of Spatial and Temporal Variability, p. 259-272. *In*: Y.A. Pachepsky, J.W. Crawford, and W.J. Rawls. (eds.), Fractals in Soil Science. Elsevier Sciences, B.V., Amsterdam.

West Central Research and Extension Center

Journal Articles

Adams, D.C., M.K. Nielsen, W.H. Schacht, and R.T. Clark. 2000. Designing and conducting experiments for range beef cattle. *Online Journal of Animal Science* <http://www.asas.org/jas/0947.pdf> (J. Series No. 12760)

Coyne, D., J. Reiser, D. Smith, A. Ibrahim, L. Sutton, and D.T. Lindgren. 2000. 'Butterbowl' squash, a novel, flat-shouldered globe butternut. *HortScience* 35: 776-777. (J. Series No. 12638)

Coyne, D., D.S. Nuland, D.T. Lindgren, J.R. Steadman, D.W. Smith, J. Gonzales, J. Schild, J. Reiser, L. Sutton, and C. Carlson. 2000. 'Weihing' Great Northern disease resistant dry bean. *HortScience* 35: 310-312. (J. Series No. 12639)

Lardy, G.P., D.C. Adams, T.J. Klopfenstein, R.T. Clark, and J. Emerson. 2000. Escape protein and weaning effects on calves grazing meadow regrowth. *Journal of Range Management* 54:233-238. (J. Series No. 11955)

Pester, T.A., P. Westra, R.L. Anderson, D.J. Lyon, S.D. Miller, P.W. Stahlman, F.E. Northam, and G.A. Wicks. 2000. Secale cereale interference and economic thresholds in winter wheat. *Weed Science* 48:720-727. (J. Series No. 12985)

Sandberg, R.E., D.C. Adams, T.J. Klopfenstein, and R.J. Grant. 2000. N-alkane as an internal marker for predicting digestibility of forages. *Journal of Range Management* 53:159-163. (J. Series No. 12440)

Schacht, W.H., J.D. Volesky, D. Bauer, A.J. Smart, and E.M. Mousel. 2000. Plant community patterns on upland prairie in the eastern Nebraska Sandhills. *The Prairie Nature* 32:43-25. (J. Series No. 13089)

Story, C.E., R.J. Rasby, R.T. Clark, and C.T. Milton. 2000.

Age of calf at weaning of spring-calving beef cows and the effect on cow and calf performance and production economics. *Journal of Animal Science* 78:1403-1413 (J. Series No. 12630)

Wicks, G.A., G.W. Mahnken, and G.E. Hanson. 2000. Controlling weeds with herbicides after winter wheat (*Triticum aestivum*) harvest. *Weed Technology* 14:705-712. (J. Series No. 12496)

Wicks, G.A., W.L. Felton, R.D. Murison, and R. Martin. 2000. Changes in fallow weed species in continuous wheat in northern New South Wales. *Australian Journal of Experimental Agriculture* 40:831-842. (J. Series No. 12232)

Refereed Proceedings

Clark, R.T., D.C. Adams, G. Carriker, and J. Volesky. 2000. Extending grazing for beef cow operations: Nebraska research and education, p. 179-188. *In*: Food Animal Production Systems, Issues and Challenges, Proceedings of Extension Specialist Triennial Workshop, East Lansing, MI.

Clark, R.T., D. Adams, D. Feuz, P. Reece, B. Plugge, B. Stolzenburg, and J. Volesky. 2000. The Nebraska ranch practicum: An interdisciplinary, hands-on training school, p. 167-171. *In*: Food Animal Production Systems, Issues and Challenges, Proceedings of Extension Specialist Triennial Workshop, East Lansing, MI.

Norton, N.A., R.T. Clark, and J. Schneekloth. 2000. Effects of alternative irrigation allocations on water use, net returns and marginal user cost, Western Agricultural Economics Association Annual Meetings, Vancouver, BC. <http://agecon.lib.umn.edu/waea97.html#waea00>.

Book Chapters

Eghball, B., G.W. Hergert, G.W. Lesoing, and R.B. Ferguson. 2000. Fractal Analysis of Spatial and Temporal Variability, p. 259-272. *In*: Y.A. Pachepsky, J.W. Crawford, and W.J. Rawls (eds.), Fractals in Soil Science. Elsevier Sciences, B.V., Amsterdam.

Lindgren, D.T. 2000. Breeding penstemon, p. 196-212. *In*: D.J. and M.B. Callaway (eds.), 'Ornamental Plant Breeding.' Timber Press, Portland, OR.

M.S. Theses

Richardson, D.M. 2000. Vegetation Response to Stocking Rate and Grazing Frequency on Sandhills Meadows. (J.D. Volesky and W.H. Schacht, Advisors)

Wilson, Casey. 2000. Undegradeable intake protein supplementation to growing cattle. (D.C. Adams and T.J. Klopfenstein, Advisors)

Ph.D. Dissertation

Patterson, Hubert H., III. 2000. Protein supplementation to pregnant heifers and grazing management effects on cow diet quality. (D.C. Adams and T.J. Klopfenstein, Advisors)

Research Expenditures

ARD receives funding from federal formula funds, industry grants, federal grants and state appropriations. During fiscal year 2000-2001, faculty with ARD appointments obtained grant and contract funds that totaled \$25,174,446. This amount represents 40 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, 2000 through June 30, 2001

Federal Formula Funds:

Hatch Formula	\$2,311,175
Regional Research	\$ 890,340
McIntire-Stennis	\$ 153,099
Animal Health	\$ 148,580

Total Federal Formula Funds..... \$ 3,503,194

State Appropriated Funds \$27,466,538

Nebraska Research Initiative Funds \$ 2,279,052

Contracts and Grants:

USDA Cooperative Agreements	\$1,368,212
USDA Special and Competitive Grants ..	\$4,218,652
Federal Grants - (NSF, NIH, USEPA, AID, DOE)	\$5,814,899 ¹
Industry Grants	\$9,184,314

Total Grants and Contracts \$20,586,077

Product Sales \$ 9,913,842

Total Expenditures \$63,748,703

¹\$226,974 was included to show actual Agricultural Research Division expenditures reflecting transfers from International Programs.

Agricultural Research Division

Research Investments by Category and Funding Source FY 2001


<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					
Faculty/Administrative	40.4	4.5	3.2	1.4	21.2
Managerial/Prof	13.7	6.1	6.7	5.7	9.8
Office/Service	11.3	4.8	9.8	14.4	10.3
Hourly Wages	0.7	2.6	4.0	2.8	1.9
GRA Stipends	5.5	16.3	14.7	2.0	8.5
Benefits	13.6	5.8	7.0	5.4	9.7
Subtotal:	85.2	40.2	45.3	31.7	61.5
Operating					
Supplies and Expenses	11.1	54.9	41.2	48.3	30.3
Travel	0.8	2.8	5.0	3.0	2.3
Equipment	2.9	2.1	8.4	17.0	6.0
Subtotal:	14.8	59.8	54.7	68.3	38.5
Total:	100.0	100.0	100.0	100.0	100.0

Agricultural Research Division Selected Research Program Information

Category	FY 1999	FY 2000	FY 2001
Project Information:			
Projects at beginning of year	368	399	383
Projects terminating	23	42	25
Projects revised	11	6	14
New projects	54	26	37
Projects at the end of the year	399	383	395
Faculty full-time equivalents (FTE)	129.9	130.4	130.2
Expenditures for budgeted research faculty:			
Federal formula and state approp., \$/FTE ¹	\$258,582	\$241,259	\$255,367
Grant and contracts, \$/FTE	\$135,262	\$138,217	\$158,111
Product sales, \$/FTE	\$ 51,357	\$ 52,774	\$ 76,143
Outputs from research programs²:			
Refereed journal articles	274	327	275
Research bulletins	2	1	4
Books and book chapters	68	45	97
M.S. and Ph.D. theses	148	115	128
Cultivars and germplasm released	13	17	18
Patents obtained	3	6	2

¹Includes cost of administration and expenditures from the Nebraska Research Initiative by ARD-affiliated faculty.

²A large number of abstracts, technical reports, and other non-refereed articles also are published by faculty each year.

A photograph of a rural landscape. A dirt road curves through a green field. In the background, there is a barn and a silo. The sky is overcast. The image has a soft, slightly faded appearance.

““ *Science knows no country because knowledge belongs to humanity and is the torch which illuminates the world. Science is the highest personification of the nation because that nation will remain the first which carries the furthest the works of thought and intelligence.* **””**

– Louis Pasteur

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