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February 2008

## The Leading Object: February 2008

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## Perspectives

In January the deans and I had the opportunity to visit with members of Agriculture Builders of Nebraska, Inc., during their daylong meeting here in Lincoln.

I always enjoy this day; it's an opportunity to update ABN on what's happening in the Institute, and to hear what members are thinking. Their interest and insights are highly valued.

ABN was the first organization I spoke to when I came to Nebraska seven years ago. I told them then I knew they had much to be proud of in IANR.

This year I was pleased to report reasons for pride continue to grow.

When I arrived in 2001 the university was looking at its best budget in years. In months that changed. Five rounds of extremely painful budget cuts took \$6.6 million from IANR's budget, and since then an additional \$1.9 million "minus," most of which is IANR's share of UNL's enrollment shortfall, has been carried on our financial books.

Yet despite that; despite having to carefully cash flow our funds to meet our obligations; despite our frustrations at not being able to fill positions that came open as quickly as we would like to, or as quickly as our faculty and constituents would like — we have preserved traditional IANR strengths and discovered and grown new ones to meet Nebraskans' needs and help build and secure Nebraska's future.

At the ABN meeting I reviewed a few of the many good things we've seen in the years it has been my privilege to work with everyone in the Institute, and our partners throughout Nebraska.

Sometimes we're so focused on what we have to do that we forget to review — and take pride in — things already accomplished. Everyone in IANR has a right to be proud of all we've accomplished work—continued on page 2



**John C. Owens**  
NU Vice President and  
Harlan Vice Chancellor, IANR

# The Leading Object

*The Morrill Act of 1862  
established a Land Grant University  
in each state where  
The Leading Object  
would be instruction  
in agriculture and related fields.*



February 2008

## IANR Researchers Show Switchgrass a Good Biofuel Source

Switchgrass, used up until now as a pasture crop, has taken a huge step forward thanks to Institute of Agriculture and Natural Resources researchers.

Years of research has culminated in a finding that switchgrass grown for biofuel production produces far more energy than it takes to grow it — 540 percent more.

The results were released in January after studies on farms in Nebraska, North Dakota, and South Dakota, said Ken Vogel, a U.S. Department of Agriculture-Agricultural Research Service geneticist in the University of Nebraska-Lincoln's Department of Agronomy and Horticulture.

The results point out the potential of switchgrass as a biomass fuel source that yields significantly more energy than is consumed in production and conversion into cellulosic ethanol, Vogel said.

"We hope it now becomes a viable crop," Vogel said of the switchgrass, which now primarily is used in pastures.

The study was the largest ever done anywhere that examines the net energy output, greenhouse gas emissions, biomass yields, agricultural inputs, and estimated cellulosic ethanol production from switchgrass grown and managed for biomass fuel, he said.

The study of switchgrass also is the longest-running research ever at UNL, Vogel said. USDA and UNL started cooperative studies on switchgrass in the mid-1930s. Several decades of switchgrass research put scientists in a position to start studying the crop as an energy crop in 1990, Vogel said.

"This clearly demonstrates that switch-



Photo by Brett Hampton

**Ken Vogel examines switchgrass. Research has shown when grown for biofuel production, switchgrass produces 540 percent more energy than it takes to grow it.**

grass is not only energy efficient, but can be used in a renewable biofuel economy to reduce reliance on fossil fuels, reduce greenhouse gas emissions and enhance rural economies," Vogel said.

The study was conducted jointly between IANR and the USDA-ARS on 10 fields of 15 to 20 acres each. Previously switchgrass studies were based on small test plots, Vogel said.

Vogel anticipates that perennial crops like switchgrass could be developed into major cellulosic ethanol sources that could potentially displace 30 percent of current U.S. petroleum consumption. Technology to convert biomass into cellulosic ethanol is being developed.

While Vogel led the research, he was assisted by Richard Perrin, UNL agricultural economist who was the primary economic analyst for the study. Other authors were Marty Schmer, USDA-ARS agricultural science research technician and UNL doctoral student, and Robert Mitchell, USDA-ARS agronomist at UNL.

*Perspectives continued from page 1*

ing together, despite the difficulties we've faced. For instance:

After eight years of declining enrollments, in 2005 we saw College of Agricultural Sciences and Natural Resources enrollments begin to climb. This fall CASNR led all UNL colleges in enrollment growth, with an overall enrollment gain of 11.7 percent, compared to UNL's overall gain of 3.9 percent.

ARD remains UNL's leader in garnering external grants and contracts. When we account for grants and contracts earned by all parts of the Institute, IANR accounts for about 38 percent of all external grants and contracts awarded to UNL this past year.

The School of Natural Resources was established in 2003; in 2007 Hardin Hall became its home. We've seen a new federally-funded Nebraska Fish and Wildlife Cooperative Research Unit established here. Nebraska is the only state where Congress has established a Co-Op research unit in the 21<sup>st</sup> century.

In 2005 all CASNR baccalaureate degree programs were restructured to more appropriately and more accurately describe the breadth of academic undergraduate degree offerings across the college. Exciting majors and options with potential for significant growth have been implemented.

We established the Department of Statistics. The multimillion dollar Kimmel Education and Research Center was

built and dedicated in Nebraska City; the Wagonhammer Education Center, with its Ray Bohy Conference Room, was built at the Gudmundsen Sandhills Laboratory near Whitman; the Barta Brothers Ranch Headquarters was built near Rose.

We formed the Water Resources Advisory Panel; we entered into an agreement with Iowa State's College of Veterinary Medicine to provide veterinary medical education for Nebraska students, and veterinary medicine was taught at UNL for the first time in history. Last year 135,000 youth took part in Nebraska 4-H programs. We don't just follow the national agenda — we help set it.

This represents the barest tip of the iceberg. There's so much more. In teaching, in research, in extension education. I'm sure every IANR community member can add an "and more."

There is much to be proud of in the many ways IANR is at work for Nebraska.



## CASE Communication Award Given to Fritz, UNL Team

Susan Fritz, associate vice chancellor of IANR, was part of a team that won a communications award from the Council for Advancement and Support of Education District VI.

CASE awarded a silver medal for Excellence in Institutional Relations in the category of Best Solution to an Institutional Communications Challenge. The entry was UNL's Institutional Self-Study created for the university's decennial accreditation review.

Fritz was one of six representatives from UNL on the team.

## Turfgrass, Landscape Management Program Set to Begin

A one-of-a-kind degree program that blends turfgrass and landscape management is likely to be offered next fall in the College of Agricultural Sciences and Natural Resources.

The turfgrass and landscape management program will educate students in areas where employers say prospective employees are lacking, said Robert Shearman, Sunkist Fiesta Bowl professor of agronomy.

Many employers are looking for employees with knowledge in both turfgrass and landscape management, but until now no such four-year programs existed, he said. Other universities offer programs in either turfgrass management or landscape management, but CASNR's is the first in the nation to offer both together.

"This is unique," Shearman said.

The program recently was approved by the University of Nebraska Board of Regents and is awaiting approval by the Coordinating Commission for Postsecondary Education.

The degree program came about after faculty in the Department of Agronomy and Horticulture suggested a program in turfgrass management would be a good addition to the college, Shearman said. Then Assistant Professor Kim Todd suggested adding landscape management, and the idea was born, he said.

Students in the degree program can pursue careers and positions like golf course superintendents, sports field managers, lawn care service operators and owners, grounds and institutional managers, sod and ornamental landscape plant production, landscape management contractors, landscape management service providers, and industrial grounds managers. Arbo-retum and botanical garden work, resort and estate grounds management, as well as sales, research, and technical support for industry also are possible choices, he said.

Two options exist within the program — turfgrass management and landscape management. Students will need to select one of the options.

Shearman anticipates starting the program with 25 to 30 students and eventually reaching up to 75.

"One of the exciting things about this new degree program is the tremendous support it has received from members of the green industry, both locally and nationally," Shearman said.

— Lori McGinnis

### Need to meet with the

**Vice President/Vice Chancellor?**  
Drop-ins each Friday from 3-5 p.m.\*  
**John C. Owens**

NU Vice President for  
Agriculture and Natural Resources  
and Harlan Vice Chancellor of IANR

202 Ag Hall • (402) 472-2871

\*Occasionally Dr. Owens will be called away on University business.

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103 ACB, 0918; via e-mail (lmcginnis2@unl.edu) or via fax (402-472-0025).

## Downs Uses Skills Learned as Student in his Global Career

**R**yan Downs has taken several career turns in his life.

Growing up on a farm near Hershey, he decided he wanted to do something in the agriculture industry. Living through the 1980s farm crisis, however, made him realize production agriculture wasn't something he wanted to do. Agricultural business was.

"Because of the U.S. farm crisis, going into production agriculture was not attractive to someone at my age at the time, but I saw the opportunities in agribusiness. A tremendous amount of the economy was tied to agriculture," he said.

Downs enrolled at the University of Nebraska-Lincoln's College of Agricultural Sciences and Natural Resources in the fall of 1987. In 1991 he earned his bachelor's degree in agribusiness and agricultural honors, a self-designed agricultural science program.

"It was a degree that let me bridge agriculture and business," he said.

Driven by the desire to help farmers with their legal issues and the recognition that few attorneys specialized in that area, Downs enrolled in Harvard Law School.

"I thought I could marry the two disciplines and build a unique skill set to help that population of people," he said.

While that exact opportunity didn't materialize, Downs did practice law for several years. He took his first job as a civil trial attorney for a law firm in Denver, traveling frequently to do a variety of litigation work. After six years, during which time he achieved the status of partner, he realized practicing law for the rest of his life wasn't something that inspired him.

He decided he wanted to build and create something new, so he resigned and became chief executive officer for a start-up technology company in Omaha called eTopia Technologies. After about one year, one of his friends and clients, Peter Thiel, recruited him to a new company that he had started called PayPal, a company specializing in online payment solutions. It is now owned by eBay.

PayPal was in the midst of doing its initial public offering and

Thiel wanted someone with Downs' expertise to help the company through the business and legal aspect of going public.

It was 2001, just a year after PayPal had opened up its operational headquarters in the Omaha area, when Downs was hired as vice president of operations. He moved to the company's corporate headquarters in San Jose, Calif., in 2006 and now serves as senior vice president of eBay and PayPal global operations.

Downs supervises thousands of employees throughout the world.

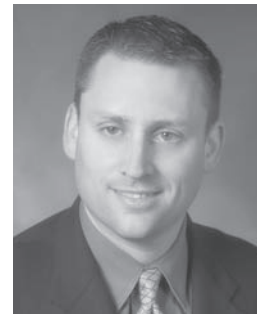
While not directly involved in agriculture through PayPal, Downs relies on the business principles he learned as an agribusiness student.

"It's interesting how much I rely on basic business principles I picked up at the university," he said. "This is such a global business and managing it effectively requires the understanding and daily use of economic, management, accounting and financial principles. That basic business knowledge I acquired at the university has been incredibly helpful."

Besides the business knowledge, Downs said the leadership opportunities he had while a student in CASNR helped him be a strong leader in his career. Downs had a number of leadership roles in many campus organizations as well as in FarmHouse Fraternity.

"The opportunities I had to lead teams, oversee projects and manage budgets to achieve the goals of the various organizations have really served me well in the business world," he said.

Even though Downs is now a global businessperson, he hasn't left the farm boy in him behind. He still owns a home in rural Sarpy County and dabbles in farming on the three farms he owns in Sarpy and Cass counties.



**Ryan Downs**

## Omtvedt Innovation Awards Go to Adams, Klopfenstein

**T**he 2008 Omtvedt Innovation Awards have been given to Don Adams, director of the West Central Research and Extension Center in North Platte and associate dean of the Nebraska College of Technical Agriculture and Terry Klopfenstein, professor in the Department of Animal Science.

John Owens, Harlan vice chancellor of IANR and NU vice president, presented the awards, which recognize areas of innovative research and programming by faculty, staff and students.

Adams was recognized for his research on how to best modify the calving season to extend grazing resources and lower costs.

As developer of the successful Nebraska Ranch Practicum, Adams has taught more than 300 producers, veterinarians, consultants, agency personnel and others how to best manage land and cattle, Owens said.

Adams previously served as faculty supervisor for the Gudmundsen Sandhills Laboratory near Whitman. Under his leadership, Gudmundsen grew into a center of research activity that is nationally known, Owens said.

Klopfenstein, widely recognized for nearly 40 years of teaching and research in the institute, also is known nationally for his efforts to make beef production sustainable and efficient for cattle producers, Owens said.

Pioneering research led by Klopfenstein demonstrated the feasibility and benefits of feeding cattle ethanol byproducts wet instead of drying them. This work laid the foundation for a new, economical cattle feed source that also helped reduce ethanol production costs.

It is estimated that from 1992 through 2006 the cumulative benefit to Nebraska from feeding byproducts wet instead of dry approached half a billion dollars.

Klopfenstein also has researched sustainable beef production systems that emphasize the use of forages and other byproducts.

The Omtvedt awards are provided through the generosity of Leone and the late Neal Harlan, who worked to support IANR. The Harlans honored former IANR Vice Chancellor Irv Omtvedt on his retirement with funding to support the awards.



**From left, John Owens, Don Adams, Terry Klopfenstein and Irv Omtvedt.**



## Jacobsons Lead Organizations Promoting IANR

A husband and wife team from North Platte shares a common goal when it comes to supporting the University of Nebraska–Lincoln. They both head organizations that aim to promote the Institute of Agriculture and Natural Resources.

Mike Jacobson assumed the presidency in January of Agriculture Builders of Nebraska. Julie Jacobson is the outgoing president of Family, Youth and Community Partners (FYCP), which she calls a reciprocal organization to Ag Builders.

“It’s unique we are serving at the same time in such similar organizations,” Mike said.

Ag Builders is a group of about 150 agricultural producers and agribusiness representatives who work to support the University of Nebraska and the work of IANR. FYCP is a citizen advocacy group that supports the College of Education and Human Sciences, a part of IANR.

“Our primary thrust is to work with the administration and agricultural interests across the state to help move the institute forward,” Mike Jacobson said.

One of the areas Ag Builders works to strengthen is the level of state support for

the university. The group traditionally is one of numerous groups from outside the university that annually testify before the Legislature’s Appropriations Committee on behalf of state funding for the university.

As president-elect last year, Jacobson was the one to testify before the committee, and this year he is serving on a new task force with representatives from agricultural organizations. The task force will look at ways to improve funding for the institute.

Increased funding will help the institute continue fulfilling its mission for research, teaching and extension education, Jacobson said.

Important research that needs to take place within the institute includes looking for ways to boost the availability of alternative fuels and the use of distillers grains as livestock feed, he said.

Alternative fuels are the wave of the future and ethanol is an important aspect of that, Jacobson said. Ethanol production in Nebraska has been phenomenally successful and has pushed up the demand for corn, which has contributed to record grain prices in Nebraska.

Those high prices, however, are expensive for livestock producers who need grain for feed, Jacobson said. While distillers grains work well as a cattle feed, hogs and chickens cannot easily digest it. Researching the development of distillers grains as a feed for pork and poultry is one of the areas that would be valuable for IANR, Jacobson said.

The improvement of funding for research into issues such as these will impact more than research, he said. It will impact UNL extension, which will work to get the information out to producers, and teaching, where College of Agricultural Sciences and Natural Resources faculty will work to apply new information in the classroom, he said.

Julie Jacobson, a graduate of the former UNL Home Economics College, said FYCP works to support the college in meetings with state senators and other decision-makers. About 35 members meet at least quarterly to be updated on topics relating to the college. Members also work to educate the public and recruit students to the college, she said.

Members of UNL extension serve as faculty advisers for the group, she said.

— Lori McGinnis

## Three-Dimensional Video Teaches Bovine Anatomy

A new three-dimensional learning video created at the University of Nebraska–Lincoln likely won’t attract the interest of your standard movie-goer, but it will appeal to animal science students who want to learn bovine muscle and skeletal anatomy.

The video shows the location of muscles and bones in the beef carcass by having them appear on a skeleton. When wearing 3-D glasses, the images are displayed in all three dimensions to the viewer.

“This isn’t that 1950s technology that comes to mind when you mention 3D,”

said Steve Jones, UNL animal science professor who worked on the project. “We’re talking about a new wow factor that has the potential to be an extremely powerful teaching tool.”

The video is an offshoot of UNL’s Bovine Myology and Muscle Profiling Web site, found at <http://bovine.unl.edu>. The Web site is being used around the world as the standard in understanding the muscular anatomy of the beef animal, Jones said.

Vishal Singh, a specialist in IANR’s Communication and Information Technology,

took information from the Web site and from medical CT scans to create the 3D video. Muscle and bones were mapped out and a 3D model of each muscle and bone were formed. Singh then took the muscles and placed them in the carcass in their correct anatomical location. He then took actual photos of the muscle cuts and wrapped them around the computer models. Once the model was developed, a learning video was developed to demonstrate key muscles and bones in the beef carcass.

## Scholarships Available for Ag Economics Students

University of Nebraska–Lincoln students in agricultural economics are getting some scholarship help from outside sources.

The Nebraska Cooperative Council Education Foundation announced in January it will provide six \$800 scholarships for the 2008–09 academic year for full-time undergraduate students in the Department of Agricultural Economics in the College of Agricultural Sciences and Natural Resources.

The scholarships will go to one incoming student and five upper-class students majoring in agricultural economics or agribusiness.

The Nebraska Bankers Association is giving scholarships for a second year to students in the department’s agricultural finance and banking option, said Department Head Alan Baquet.

The scholarships started two years ago after rural Nebraska bankers expressed concern about a shortage of loan officers, Baquet said.

The association awarded 10 scholarships in the first year of the program and is awarding 20 scholarships in the second year. This year the scholarships will total \$25,000.