This year marks UNL’s Agricultural Research and Development Center’s (ARDC) 50th anniversary. On April 12, 1962, the United States Department of Health, Education, and Welfare transferred land and former Nebraska Ordnance Plant buildings to the University of Nebraska for the purpose of education and research.

Half a century ago, UNL embarked on a journey to develop ag research and education capabilities and the ARDC was founded. Many changes have taken place since that time, from the type of research conducted to the facilities and landscape. We recognize the advances and accomplishments of the first 5 decades, as we look ahead towards the future. Plans are being finalized for a special event we”ll hold in December with the ARDC is rich in history and we want to capture as many of those stories as possible. If you have stories or photos that you would like to share as we compile historical records, please visit the website at: ardc.unl.edu or call (402)472-3293.

From Genetics to Nutrition... Providing Insight for Pork Producers

According to the United States Department of Agriculture, the U.S. is the world’s second-largest pork producer and a major player in the world pork market.1 Pork production plays an important role in the Nebraska’s agricultural industry. Swine research conducted by the University of Nebraska–Lincoln Animal Science Department seeks to support and enhance that industry.

The primary focus of UNL swine research encompasses: progeny and genetic, aging, nutrition and diet evaluation, meat production, and management. Here we take a brief look at some of those studies.

Nutrition and Diet Evaluation
- Pigs require a balanced diet that meets the energy and nutrient requirements of their specific stage of production. For instance, the diet of a lactating sow will differ than the diet of a growing-finishing pig.1
- Feed, of course, is significant production expenditure for pork producers. Producers must formulate a cost effective plan for feeding their animals in order to not only maintain a healthy herd, but also maintain a healthy bottom line at the bank.2

And the research suggests that the concentration of dietary DDGS does not affect color, chemical composition, or sensory characteristics of pork.3

Feed ingredient evaluation and animal nutritional requirements are the focus of swine nutrition research conducted by UNL’s Department of Animal Science.
Zoubek Receives ARDC Honors

Mike Zoubek (right) was presented with the Employee of the Year plaque by Mark Schroeder, ARDC Director.

Mike Zoubek was named recipient of the 2011 Employee of the Year Award at the University of Nebraska-Lincoln Agricultural Research and Development Center (ARDC).

Sponsored by the social/benefits committee at the ARDC, fellow employees nominate candidates. Supervisors, employees and the committee then submit scoring forms.

Zoubek is an ag research technician with Foundation Seed/Husker Genetics at the ARDC and has worked at the center for over 40 years. Also nominated were Bill Barelman, Will Duly, Dick Meyer, and Mark Steele.

Nominators for Zoubek stated that, "Mike will take the initiative to make sure production is done in a timely manner. They also stated, "He gets to the plant early year round and works extended hours and days during the peak seasons. His experience is a valuable asset to the unit and the university."

In addition to receiving a plaque, Zoubek was also honored with prizes solicited and organized by the social/benefits committee at the ARDC. Prize donors included DVAuction, Micro Beef, Mead Cattle Company, and the Hilltop Country Club in Wahoo.

50 Years of Research - Continued from Page 1

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UNL swine nutritionist, Phil Miller notes that concentrations up to 30% are being used in the industry. He says, "It also appears that the increase in unsaturated (soft) fat may be alleviated by withdrawing DDGS prior to slaughter or by increasing the intake of saturated fat. In addition, increasing the amount of modified DDGS is now used in swine diets."

Phytase is an enzyme that helps animals utilize grains as a source of phosphorus in their diet. In another UNL DDGS study, the findings suggest that supplementing the diet of growing-finish pigs with phytase instead of calcium-phosphates could help decrease costs without altering animal performance and growth parameters.

Miller noted that with the improved phosphorous availability in DDGS in conjunction with adding phytase (and decreasing dicalcium phosphate) may provide an economic advantage to the producer.

Studies also look into the role DDGS plays in the growth performance on nursery pigs and during the development on growth and puberty of gilts.

"UNL research has also shown that DDGS can effectively be incorporated into nursery diets, and it can help limit energy intake during gilt development," Miller said.

Physiology and Genetics - What traits do producers look for and strive to achieve in swine herd genetics? Most producers would agree that maintaining a herd that produces large litters of healthy piglets and raising healthy growing and mature animals is desirable.

UNL swine geneticist Rodger Johnson spent 38 years researching swine genetic improvement of reproductive efficiency, sow longevity and resistance to disease. He retired last summer, but his research laid the foundation for continued research.

Johnson’s reproductive research focused on ovulation rate, litter size and uterine capacity observed during 27 generations of selection in the Nebraska Index Line. The index line is a maternal line of females selected for litter size using ovulation rate and uterine capacity as important biological components defining litter size.

UNL swine physiologist, Brett White’s research also looks at reproduction and litter size. He is examining the relationship between the gonadotropin-releasing hormone (GnRH) and its accompanying receptor. According to White, this specific hormone/receptor interaction is critical to reproductive functions in all mammals.

Hormones usually only affect certain cells, so the receptor could be explained as a target or land-
Daily Care and Research

A dedicated staff tend to the needs of the swine at the ARDC research unit and assist with the research. Their day starts with a shower onsite and ends with a shower before they go home. These biosecurity measures help reduce the incident of foreign germs entering the facility and ensure the health of the herd.

Jeff Perkins is the unit manager of the swine research area at the ARDC and has worked there since 1983. He has a degree in farm management from Iowa Western College and a bachelor’s degree in continuing education from University of Nebraska at Omaha.

Don McClure is a swine research technician and works with growing and finishing animals at the unit. Prior to joining the team at the swine research unit, he managed the sheep unit for 30 years. He has a bachelor’s degree from Kansas State University.

Cory Willison joined the team at the swine research unit last year as an ag research technician. He is the farrowing supervisor and is in charge of the farrowing department.

Faculty Feature

Dr. Tom Burkey is one of the faculty members conducting swine research at UNL. Dr. Burkey is an assistant professor in UNL’s Animal Science Department.

Dr. Burkey’s research has been focused on deciphering the interactions between nutrients, gut microbes, and health in swine. Specifically, his research has been aimed at: 1) evaluating the effects of dam parity on progeny growth and health; 2) evaluating the effects of pre- and probiotics on nutrient transport and immune markers in vitro in a porcine intestinal epithelial cell line (IPEC-12); and 3) evaluating the effects of dietary components (e.g., DDGS and lactose) on weanling pig growth and health. Dr. Burkey’s research provides baseline knowledge with respect to interactions between gut microbes, nutrients, and immunity and continued research in this area will help to provide new strategies for cost-effective feeding to optimize health in pigs.

In addition to his research, Dr. Burkey teaches one graduate level course (Amino Acid and Protein Nutrition) in the Animal Science Department, and two courses in the UNL/ISU Professional Program in Veterinary Medicine (Veterinary Nutrition and Digestive Physiology).

He received his doctorate and master’s degrees from Kansas State University and his bachelor’s degree from Rockford College in Rockford, Illinois. He has been with the University since 2006.

A dedicated staff tend to the needs of the swine at the ARDC research unit and assist with the research. (Clockwise from top): Jeff Perkins uses a digital scale to weigh a piglet; Don McClure places a piglet back in its pen after recording data; Cory Willison, utilizes an ultrasound machine on pregnant sows at the swine research unit; and Tom McGargill enters swine research data.

UNL and ARDC... The FFA Connection

Each spring, a campus that is famous for the color red is overtaken by a sea of blue. If you have ever been anywhere near UNL’s east campus during the State Future Farmers of America (FFA) Convention, you know that the “sea of blue” reference pertains to the familiar blue corduroy jackets worn by over 3,000 students that converge upon Lincoln for the event.

While many University of Nebraska–Lincoln departments are involved in the event, some of the cattle that are usually found pastures at the ARDC play an integral role in the state convention. Eight heifers and 4 bulls from UNL’s Department of Animal Science’s cow/calf herd at the ARDC are the center of attention when they are utilized in the livestock evaluation competition.

Just up the road from the ARDC, eight teams from the Mead Public School FFA Chapter qualified for the Career Development Events (CDEs) at this year’s convention. Those teams included: Meats Judging, Junior Livestock Management, Nursery and Landscape, Floriculture, Agronomy, Agriscience, Agricultural Sales, and Natural Resources.

Getting to this point was no small undertaking for the students. They dedicated a great deal of their own free time after school to meet and study for their events.

Mead FFA Chapter reporter, Julia Schnell noted many of the MPS many students are involved in multiple activities beyond school. She says, “It is sometimes difficult to get all of the hours of studying in that members need so they can successfully participate in their respective contests. Sometimes FFA students have to sacrifice their personal agenda for the opportunity to succeed for their chapter and grow in knowledge.”

There are 17 CDEs in Nebraska with the majority of them being held on UNL’s East Campus in Lincoln and hosted by the UNL departments in the College of Agricultural Sciences and Natural Resources.

Tom Dux teaches agriculture and biology classes at Mead Junior and Senior High School and is the FFA advisor. He says that the FFA CDEs help students strive for high academic achievements in the classroom and in society. He states, “Career Development Events are important for students because they give FFA members a chance to practice and apply knowledge they have gained in the classroom to an actual scenario in a contest setting.”

The contests not only put the students’ knowledge to the test, but they help them develop valuable problem solving, decision making and communication skills.

Livestock from the ARDC play an important role during the Nebraska State FFA Convention in Lincoln. The animals are evaluated in the Career Development Events.
Field Notes - Continued from Page 1

The ARDC also played center stage to FFA’s State Land Judging Contest. Students evaluated soil in 5 foot deep pits in a pasture at the ARDC. Despite having to deal with a bitter cold, rainy day, the students did their best evaluating soil types, topography, land use practices at the state contest. Locally, the Raymond Central team was one of the top contenders coming in 5th place. Other top placings included: 1st place - Tekamah-Herman, 2nd place - Norris, 3rd place - Franklin, and 4th place - Arapahoe.

The contest was sponsored by the Lower Platte Natural Resources District and the Saunders County Natural Resources Conservation Service, and hosted at UNL’s ARDC.

Real-Time Technology - Continued from Page 2

tain heaters and lights are not being required. Timers are also used to the advantage of regulating the amount of time that water flows into our waste water flushing system. This helps in our management of the natural resources that are available and reduces the amount of waste water that is generated. The entire system has been a great cost savings not only in terms of energy and natural resources, but a great savings in labor as well.

If a problem should arise, the system sends out alerts so that appropriate actions can be taken.

Pigsmart® herd management hardware and software enables lifetime tracking for all of the animals and aids in accurate, timely data collection. Each pig is assigned an electronic tracking tag with a unique number unique only to that animal. The tag can be scanned with a handheld device.

The information is transmitted to a laptop computer with a wireless connection and data can be entered. The electronic data tracking and analysis provided by the accompanying software provides for timely, accurate management.

A digital scale cart is utilized with piglets and manual entry.

The ARDC Today - Continued from Page 3

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The ARDC Today - Continued from Page 3

more digestible in an economical way.

Foundation Seed/Husker Genetics - Husker Genetics director, Jeff Noel, is serving as interim assistant director with UNL’s Agricultural Research Division (ARD). In this new role, Noel provides support for farm/livestock management, business, and facility operations for IANR research and extension centers, and ag labs/ranches statewide. He represents IANR/ARD on commodity boards. He also coordinates technology transfer with the University’s Office of Technology Development, variety release and related agreements, royalty and research and development fee distribution. He serves as administrative coordinator for field releases of regulated plant materials and as Animal and Plant Health Inspection biotechnology quality management system quality manager. And he coordinates administrative review of contracts and agreements associated with ARD. Noel maintains his position as director of Husker Genetics.

Forestry - The unseasonably nice weather allowed significant changes to take place in the forested research area. Hail damaged trees along County Road 10 were removed and burned. Normally, this type of work would have been done in the spring, but since the ground wasn’t frozen, a great deal of the project took place in the winter.

The 22 year-old ponderosa pine planting was completely destroyed by the September 2010 storm that pummeled the ARDC.

Facilities - At first glance, it might look like there are some shiny new buildings sprouting up at the ARDC. But that’s not quite the case, the repaired buildings are a tangible sign of progress from the September 2010 wind and hail storm. Hail storm damaged buildings at the feedmill, feedlot, and forest have been received facelifts in the form of new siding and roofs.

UNL Receives Nebraska Environmental Trust Grant

The UNL Board of Regents announced that it will receive $850,000 from the Nebraska Environmental Trust (NET) for “Remedial Activities at the Agricultural Research and Development Center” project near Mead, Nebraska. The NET Board announced funding for the project at its meeting on April 5, 2012 in Lincoln.

The project is one of the 107 projects receiving $19,292,396 in grant awards from the Nebraska Environmental Trust this year.

The grant funding will be used by the University for remedial activities that will include installation of a landfill cap, extending the existing monitoring well network and the treatment of groundwater for 1,4-dioxane.

What’s Happening at the ARDC

This issue of the ARDC Today was produced and edited by Debbie Pittman, Marketing and Promotions Manager. The ARDC Today is published quarterly by the University of Nebraska–Lincoln ARDC, 1071 County Road G, Elkhorn, Nebraska, 68033-2324.

Mark Schuessler is the director, University of Nebraska–Lincoln ARDC. For more information, call (402) 624-8010 or (800) 329-8006. On the web at: ardc.unl.edu. Email: dppittman@lpi.unl.edu.

University of Nebraska–Lincoln Extension in Saunders County and the Saunders County Natural Resources Conservation Service, and hosted at UNL’s ARDC.

Real-Time Technology - Continued from Page 2

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University of Nebraska–Lincoln Extension in Saunders County and the Southeast Research and Extension Center administrative offices are located at the ARDC. Links are located on the ARDC website. © 2012 University of Nebraska–Lincoln Agricultural Research and Development Center.

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The University of Nebraska–Lincoln does not discriminate based on gender, age, disability, race, color, religion, marital status, veteran's status, national or ethnic origin or sexual orientation.

The feedlot machine shed received new siding and a roof and a 22 year-old windbreak was removed during the unseasonably mild weather this winter.

Funded by revenue from the Nebraska Lottery, NET has provided over $178 million in grants to over 1,300 projects across the state. Citizens, organizations, communities, farmers and businesses can apply for funding to protect habitat, improve water quality and establish recycling programs in Nebraska. The Nebraska Environmental Trust works to preserve, protect and restore our natural resources for future generations.

Calendar of Events

May
28-30 ATV Training
June
11 Extension Board of Director’s Meeting
13 Mid-Plains Beef Educational Series
14 Excellence in Ag Science Day
19 PQA Hus Certification Webinar
20 Use of Treated Corn Stalks and Corn Silage for Beef Cattle
26-30 Redsky Workshop

4-H Events
Babykating Basics (6/7-5), Clover Kids Daycamp (6/12), Juggling and Tatsmking (6/15), Natural Resources Workshop (6/15), Foods Workshop (6/19), Sheep Box Workshop (6/21), Home Environment Workshop (6/26)

JUNE
17-18 Mid-Summer Crop Management Diagnostic Clinic
19 UNL Turf Research Field Day
19 4-H Council Meeting

Learn more about what’s on the calendar, visit ardc.unl.edu.
You can also click on the links on our website to “follow us” and “like us”!