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July 2016 | Member Newsletter

Phil Kozera

Letter from the Executive Director



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Early Seeds Of Growth Develop Productive Policies

The summer is moving quickly and it's hard to believe that we are turning the calendar to August. Bio Nebraska participated in the Governor's Summit on Economic Development on July 12. There were approximately 500 attendees from across Nebraska. SRI unveiled its *Nebraska's Next Economy* industry report. The report focuses on how Nebraska can better use the state's tax incentives and credits to add high-skill, high-wage jobs and improve innovation.

"Nebraska and Iowa are critical to producing and securing the global food supply and the format highlighted the importance of innovation within animal health."

Bio Nebraska also hosted, in collaboration with the Iowa Biotech Association, the *Animal Health in the Heartland* Symposium at UNMC in Omaha. Nebraska and Iowa are critical to producing and securing the global food supply and the format highlighted the importance of innovation within animal health. The strong agenda facilitated by Marcus Kehrl, director of the USDA-ARS, and a diverse audience representing eight states made the event an overwhelming success.

On the legislative front, the Senate approved a GMO labeling bill on July 7 that would pre-empt state labeling laws for genetically modified organisms (GMO) and the House followed on July 14. The legislation gives food companies three options to alert consumers of the presence of GMOs: text on the label, USDA-approved symbol, or smartphone-compatible electronic code. The bill is a response to the calls from member companies to create a federal standard for GMO disclosure in order to prevent a patchwork of state regulations that would be burdensome for food manufacturers and costly for consumers.

In closing, we hope that you mark your calendar for the third annual bioscience week scheduled for October 3 to 7. There will be a calendar of events forthcoming.

Best regards,



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Upcoming Events



[NASDA Conference](#)
September 21-24
Lincoln, NE



[I2SL Conference](#)
September 25-28
Kansas City, MO



[Bioscience Week](#)
October 3-7
Nebraska

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Bioscience Leader Spotlight



Ray Ward, founded Ward Laboratories in 1983. Ward Laboratories, Inc., is an agriculture-testing laboratory dedicated to serving farmers and ranchers. He received bachelor and master of science degrees in soil science from UNL and his PhD in plant science from South Dakota State University.

Interview with Ray Ward, founder of Ward Laboratories, Inc.

"We are developing testing methods for a new movement in soil science. It is called soil health. We are a leader in soil-health testing, which includes plant nutrients and microbiological activity in the soil."

A: Please tell us about Ward laboratories. What are your main markets?

Q: We serve the ag market. Our focus is on farmers and ranchers. We think our soil, feed, water, plant and manure analysis will help them make better decisions on input costs in their operation. I think we are good on all points but I think we help them make better decisions on fertilizer application rates and methods of application.

A: What special emphasis do you bring to your market?

Q: We are developing testing methods for a new movement in soil science. It is called soil health. We are a leader in soil-health testing, which includes plant nutrients and microbiological activity in the soil. By diversifying cropping and cover crops, we can diversify the microbes. This in turn helps to attack some of the pests that plague crops, allowing for decreasing pesticide inputs in crop production. The other part of soil health is saving our soil for future generations. This means stopping wind and water erosion by keeping the land covered by crop residue, a cover crop or a growing crop, and not doing any tillage other than planting the crop. It is a new way of farming. By growing more crops and cover crops, we will have more feed for livestock. There will be much improvement in management of forages for animal feed.

A: As you look at the categories of lab services you provide -- soil, water, plant tissues, feed - which are undergoing the most change?

Q: We continue to make all of our testing more meaningful to our customers. Right now we are looking at increasing water testing to include beer testing. We receive a lot of water samples from micro brewers and we think we could help them by testing some of the parameters that are needed to perfect brewing. In ag, I mentioned that the soil-health movement is affecting our thoughts on good fertilizer practices. Probably another change that is happening is better management of our water supply for cropland. By keeping the land covered, we slow evaporation, reducing the amount of water needed to grow a crop.

A: Farmers and agribusinesses have turned to precision farming and analytic decision-making systems for input use. Have these trends changed your field?

Q: The trends are increasing our business. Precision farming has improved the management ability of the producers, so they look more to us to provide the science to help them manage their inputs costs more closely. Another change that is starting to happen is growing more nutritious plants and animals that will improve human health.

A: How do your services contribute to greater nutrition in plants and livestock?

Q: Our soil-testing service looks at the mineral nutrition in the soil and we recommend fertilizer that can be added so the plant can take up the nutrient to make the plant more nutritious. If the soil is low in a mineral nutrient, the plant will be low in that nutrient. By adding the nutrient to the soil we make the plant more nutritious for the animal eating the food. The more mineral in the plant, the less need of mineral supplement needed for the animal.

A: Do you see other changes coming in farm-input use that affect your services?

Q: As the farming community strives to grow more specific crops for livestock and humans, we will see an increase in testing for mineral concentration of the foods and food products. Foods or crops will be marketed on the mineral concentration and quality of the food in addition to the physical appearance of the food. This will also increase interest in regular testing services.

A: On your website you call out the carbon-cycle for special attention. What is the role of carbon in plant health, crop production and the environment?

Q: The largest nutrient concentration in the plant is carbon. The carbon source is CO₂ (carbon dioxide). Increased CO₂ will help us grow more food. Our interest is to have more soil respiration during crop canopy so the CO₂ generated at that time can be used by the crop to increase yield. The simple word for carbon is food. The more carbon, the more food; or, the more carbon, the more plant growth, is the main thing to remember about CO₂. We have read research articles that conclude that doubling CO₂ will increase plant growth by at least 35%.

A: Do you see farming methods contributing to a more sustainable future?

Q: We have to save the soil and we have to nurture the soil to be more sustainable. One must remember that taking food or feed from a field takes carbon and all of the other nutrients away from the field, too. Those nutrients have to be replaced. Some nitrogen can be replaced by microbial activity, but all of the other minerals in the plant have to be replaced. This can be done with composts, manures and commercial fertilizers. Diversity of cropping will help to make farming more sustainable.

Dr. Ward, on behalf of Bio Nebraska, thank you.

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State News

UNEMED-STRECK DEAL'S FIRST FOCUS IS ON DIAGNOSTICS A new R&D agreement between UNeMed and Streck creates a myriad of collaborations that could lead to new healthcare products. Initially, Streck will support UNMC researcher **Catherine Gebhart**, an assistant professor in pathology and microbiology, who is developing a more powerful testing for Herpes simplex virus. Current methods can take more than three hours. Streck and Gebhart are looking to knock that down to less than 20 minutes using Streck technology.

STRECK GAINS SUPPLY AGREEMENT FOR DNA AND RNA TUBES Streck, Inc. and Biodesix®, a molecular diagnostics company using blood-based tests in oncology, have signed an agreement to make Streck the exclusive supplier of DNA and RNA tubes for Biodesix.

TRANSGENOMIC LICENSES DNA TESTING PORTFOLIO TO LABCORP Transgenomic signed a license agreement with Laboratory Corporation of America for TBIO's portfolio of DNA susceptibility testing for Long QT syndrome. This primarily congenital heart rhythm disorder is associated with potentially lethal cardiac arrhythmias.

UNL SURVEYS SHOW SOLID EMPLOYMENT OUTLOOK The outlook for employment was strong in Nebraska during June, while consumer confidence improved during the month, according to the UNL Bureau of Business Research. Expectations remained positive during June, with 22 percent of businesses expecting sales to grow over the next six months, compared to 18 percent expecting decline. For jobs, 18 percent of businesses expecting to add jobs versus just 6 percent planning to reduce employment. Nebraska's consumer confidence index rose to 92.4 in June, bouncing back from a drop to 89.3 in May. The index was 92.2 in April. All consumer values are somewhat weak compared to the neutral baseline value of 100.

ECONOMIC DEVELOPMENT LEADERS HOLD FIRST SUMMIT Governor Pete Ricketts hosted the first Governor's Summit on Economic Development in Lincoln to unveil a report on Nebraska's economic development programming. A diverse group of 400-500 attendees included business leaders, economic development executives and elected officials. The summit focused on SRI International's assessment of Nebraska's economic development ecosystem. SRI identified strengths in agriculture, food processing and farm machinery; skill and technology-intensive services and research; materials and non-agricultural machinery; and automotive and transportation equipment. SRI also reviewed the Nebraska Advantage tax-incentive program. The incentives suit large firms with big plans but are less useful for small high-growth, high-tech firms. **See the report at www.negovsummit.com.**

NEBRASKA

Good Life. Great Opportunity.

NEW STATE LOGO RELEASED Governor Pete Ricketts and the Nebraska Department of Economic Development unveiled the new State of Nebraska brand during the Governor's Summit on Economic Development. The tagline - "Good Life. Great Opportunity." - includes a new logo and website. Governor

Ricketts said the brand reflects Nebraska's historic strengths and future vision. [Read the governor's brand intentions.](#)

NEED A FREE SPEAKER? NPPD Speakers Circuit features energy experts on a variety of topics, at no charge. Experts can address energy topics ranging from energy 101, electrical safety, cost savings, real-life experiences and Nebraska's energy future. NPPD will bring an energy message to employees or customers and provide materials, displays and experts at no cost.

SCC BOND ISSUE GOING ON NOVEMBER BALLOT Registered voters in the 15-county area of Southeast Community College will have the opportunity to vote on a \$369 million bond issue on Nov. 8. SCC's Board of Governors approved calling a bond election in the SCC area. More than 1,000 people have heard information sessions conducted by SCC President Paul Illich and fellow administrators. [Learn more at www.southeast.edu/bondissue2016.](#)



UNMC researcher Sam Sanderson

UNMC SECURES \$2.25 MILLION MRSA GRANT Sam Sanderson, UNMC research associate professor, will use a \$2.25 million, 5-year NIH grant to further study a technology he's already patented. The goal is to develop a commercially useful and effective weapon against bacteria such as methicillin-resistant *Staphylococcus aureus* – better known as MRSA. About 11,285 people die every year of MRSA-related infections, according to a 2011 CDC report.

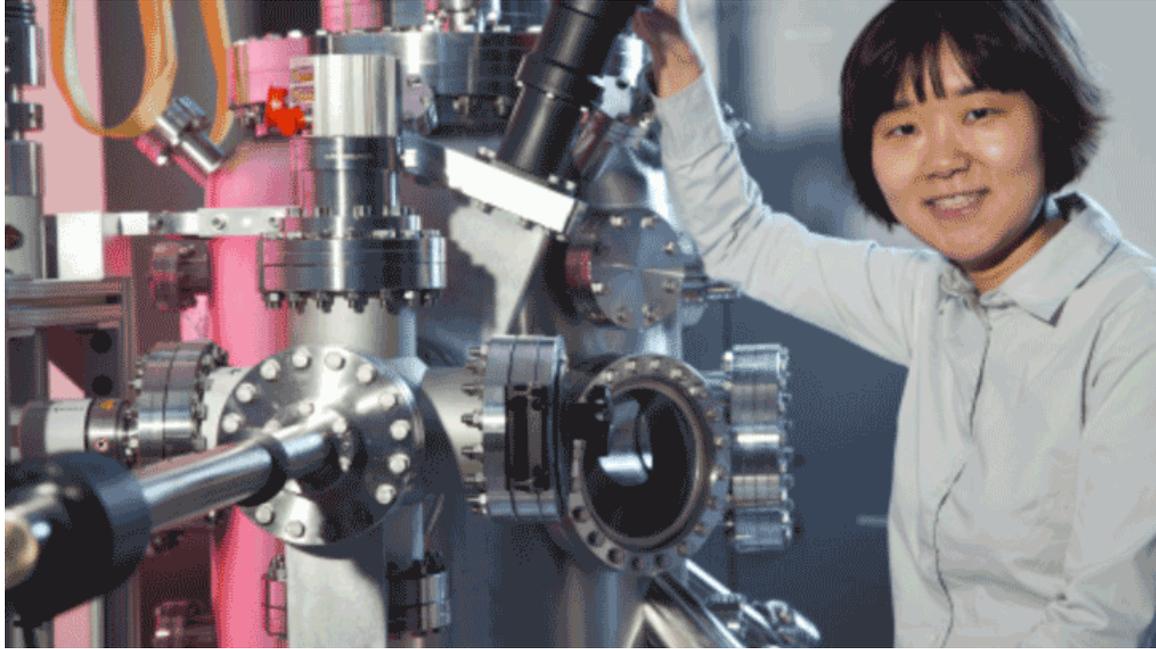
NEW DIRECTOR FOR FOOD SANITATION ALLIANCE Angela Anandappa is the new founding director of the Alliance for Advanced Food Sanitation. The alliance is housed at the Food Innovation Center on the Nebraska Innovation Campus. Anandappa will lead projects for better, more-efficient food sanitation. UNL launched the alliance in 2015, along with Cargill, Hershey, Kellogg's, Nestle, ConAgra Foods, Ecolab, Neogen and Commercial Food Sanitation.

CHILDREN'S CENTER MOVING TO NIC Children's Center for the Child & Community, created by **Children's Hospital & Medical Center** in Omaha, will improve public-health solutions for childhood obesity, poverty, injury prevention and food insecurity. Pediatrician Karla Lester leads the center. Holly Dingman will be center manager. "There are a lot of positive efforts happening, but there hasn't been a hub of coordination to ensure the biggest impact," Lester said. Children's has a research partnership with UNL and is part of a research team that received a "Food for Health" planning grant to address childhood obesity.



UNL doctoral student Ben Pavlik

POISON MAY HELP EASE THE CHRONIC PAIN By reprogramming the guidance system of the world's most potent toxin, UNL researchers have engineered a bacterial protein from *Clostridium botulinum* that may deliver therapeutics directly to nerves involved in chronic pain. Doctoral student Ben Pavlik and Paul Blum, a Charles Bessey Professor of biological sciences, worked with **NUtech Ventures** on a patent and are in talks to license the concept via their startup **Neurocarrus LLC**. The team published its findings (**Scientific Reports**) with Kevin Van Cott, associate professor of chemical and biomolecular engineering, and Elizabeth Hruska, a senior in pre-health. The research had support from the Defense Threat Reduction Agency and the UNL Cell Development Facility.



Xia Hong, assistant professor of physics and astronomy

UNL DISCOVERY COULD IMPROVE DIGITAL MEMORY Lanthanum strontium manganite offers properties that make it an appealing candidate for digital technologies. Chief among them: Its resistance to electric current can quickly change, by enormous amounts, when it's subjected to a magnetic field. This offers promise in spintronics, an emerging class of technology that relies on the alignment of electrons' spin - a measure of their angular momentum and magnetism - to encode data in the binary language of 1s and 0s. Xia Hong, assistant professor of physics and astronomy, said the research team placed strips of the materials in nanoscale layers on a template, which stabilized its ability to retain data.



Janos Zemleni (left) and Jiri Adamec

GRANT FUNDS STUDY MILK-CONVEYED MOLECULES UNL researchers received a \$1.7 million USDA grant to study how gene-regulating molecules in cow's milk might someday lead to cancer diagnostics. UNL researcher Janos Zemleni and his colleagues have reported that microRNAs can migrate from cows to

humans by hitching a ride in milk. The researchers will refine a toolkit for quantifying and differentiating these microRNAs – crucial bits of ribonucleic acid that silence certain genes to keep cells from overproducing proteins. The efforts could eventually improve cancer screening. Zempleni, Jiri Adamec, associate professor of biochemistry, and Juan Cui, assistant professor of computer science and engineering, are part of the Nebraska Center for the Prevention of Obesity Diseases, which started in 2014 with \$11.3 million from the NIH.



Karoly Mirnics, M.D., Ph.D., is new director of MMI

MIRNICS TAKES REINS AT MUNROE-MEYER INSTITUTE Karoly Mirnics, new director of the Munroe-Meyer Institute, sees great potential for growth at MMI. "The community support is great," he said. "Not only the donor base, but the base in the community. Success is not only about raising money - it's about other people, outside of MMI, who are willing to integrate and pool strengths together to accomplish something."



Deb Thomas, a new vice chancellor at UNMC

NEW UNMC VICE CHANCELLOR FOR BUSINESS AND FINANCE Deb Thomas, in an interim role since June 2015, will be the new UNMC vice chancellor for business and finance, said UNMC Chancellor Jeffrey P. Gold. "I am pleased that Deb is moving into this role on a permanent basis," Gold said. "This past year has shown that with her demonstrated professional abilities, her interpersonal skills and her experience both at UNMC and in government, Deb is the perfect leader for business and finance as UNMC continues on our journey of excellence and moves toward our goal of making Nebraska the healthiest state in the union." Thomas is responsible for all campus facilities, budget, human resources, information technology, finance/business services, security and legal service. More than 600 people are included in these departments.



National News

GREEN PLAINS JV BUILDING FUEL TERMINAL IN TEXAS Green Plains, Inc., and Jefferson Gulf Coast Energy Partners, a subsidiary of Fortress Transportation and Infrastructure Investors have formed a 50/50 joint venture to build an intermodal export/import fuels terminal in Beaumont, Texas. The \$55 million phase I development will first focus on ethanol. Further plans would add multiple liquid products, including liquid hydrocarbons, vegetable oils and other commodities. Said Todd Becker, President and CEO of Green Plains: "Access to three Class I rail roads, barges and inbound/outbound vessels will make this a successful partnership. This terminal will be one of the most modern and efficient solutions in the U.S."

NOVARTIS CEO PREDICTS DRUG PRICING OVERHAUL With both U.S. presidential candidates promising action on drug prices, November's election could trigger a sea change in the industry, Novartis CEO Joe Jimenez figures. In an interview with the Financial Times, Jimenez predicted that pricing pressures in the U.S. will only increase when a new administration takes over, whether that administration is helmed by Democrat Hillary Clinton or Republican Donald Trump. "We believe that, no matter which candidate wins, we will see a more difficult pricing environment in the U.S.," Jimenez told the Financial Times, adding, "We all have to plan for new pricing models in the U.S. that could help us ensure the sustainability of the system as the population ages."

BIOTECH MOSQUITO USE SUPPORTED IN UK

Biotech insects, including mosquitoes, should be considered as an aid to reduce agricultural pests and control insect-borne diseases, such as dengue and the Zika virus, according to the UK's House of Lords. Its report advises the government to invest in field trials in the Cayman Islands to evaluate biotech insects and associated regulatory policies and processes.

BIOTECH SOYBEANS FROM MONSANTO, BAYER CLEARED FOR EU IMPORT

The import of Monsanto's Roundup Ready 2 Xtend biotech soybean varieties and Bayer's soybean FG72 have been approved by the European Commission. The approval allows for widespread biotech soybean planting to start next season. The Monsanto beans have traits enabling resistance to the common broadleaf herbicide dicamba, along with glyphosate herbicide (Roundup). The FG72 soybeans will be tolerant to glyphosate and isoxaflutole. Using dual modes of action in the herbicide mix is a strategy to deal with weed strains that resist Roundup. In general, U.S. farmers have adopted this approach to weed control to reduce tillage passes in their fields to conserve soil, water and fuel, as well as save time at planting.

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