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January 2017 | Member Newsletter

Phil Kozera

Letter from the Executive Director



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Bio Nebraska hard at work on targeted legislation

I've had the good fortune of kicking off 2017 with visits to several members and this reminds me how privileged Bio Nebraska is to have such a dynamic group of leaders in industry, academia and government. Your participation and service to the biotech industry are the foundation of our mission.

On behalf of the board of directors, we greatly appreciate your continued commitment to strengthen and grow the biotech ecosystem in Nebraska. As the year progresses, please keep us posted on your interests and any areas where Bio Nebraska can help you and your organization.

"Within the state legislature, the mood is focused on tax cuts and spending reductions. However, Bio Nebraska has been diligent about steering discussions toward growth and innovation."

January has passed in a flurry with the start of the legislative session, introduction of new legislation and our first successful network gathering.

Within the state legislature, the mood is focused on tax cuts and spending reductions. However, Bio Nebraska has been diligent about steering discussions toward growth and innovation. There are several bills that could impact our state's biotech ecosystem:

The first is LB 557. Introduced by Senators Harr and Williams, it changes the Nebraska Advantage Act, including a bio tier. The current act does not fit the size of most biotech companies due to the jobs threshold.

- **LB557 (Harr) Adopt the Great Opportunities Nebraska Act**--Chamber's update to the Nebraska Advantage Act. It includes a bio tier and modifies the job threshold with a higher compensation requirement.

The second bill is LB 641. Introduced by Senator Morfeld, it's focused on supporting small biotech innovation and addresses scarcity of risk capital for entrepreneurs.

- **LB641 (Morfeld) Create a Bioscience Innovation Program**--Appropriates \$2 million to a newly created Bioscience Innovation Program under the Business Innovation Act to support small enterprise formation in the bioscience sector. Encourages the development of new bioscience technologies and creation of new startup businesses.

Thank you to Senators Harr, Williams and Morfeld for their leadership. If these bills are important to you, please express your support, as it is important for our industry to be heard.

A recent *Omaha World-Herald* opinion touting the new UNeTech asks a pivotal question at this time for our state: *"Wouldn't it be an important achievement if a big chunk of the biomedical research done in Omaha no longer was automatically licensed with corporations from out of state? What if, instead, some of that research was kept here to build a homegrown biotech sector, generating new jobs and investment?"* (See summary below in state news.) One should not diminish the efforts of our state's licensing professionals – they add value to Nebraska research while minimizing risk. But it is a fair question about job growth and we could apply that vision across all areas of our bioscience economy.

We had a strong turnout for the first Bio & Beers of 2017. Thank you to Deputy Director of Economic Development Eric Zeece for speaking at our social last Thursday. Eric has been a strong advocate for the life sciences industry in Nebraska. His presentation was bittersweet as we learned of new initiatives by the department but also that Eric is leaving the department to enter a new phase of his professional career as a consultant. I'd also like to thank Streck Inc. for their partnership and for sponsoring our gathering.

Finally, we are in the process of member renewals. If you have colleagues or peers who you feel would benefit from participating in our organization, please let me know.

Sincerely,



Phil Kozera



Upcoming Events

Nebraska State Chamber Meeting

February 2

Lincoln, NE

BIO CEO & Investor Conference

February 13-14

New York, NY

Partnering for Growth

March 21-22

FFA Enrichment Center

Ankeny, IA

Ethanol Emerging Issues Forum

April 13-14

LaVista, NE



Bioscience Leader Spotlight



Absolute Purity and Performance in Aseptic Manufacturing



In the spotlight today is Gloria Thesenvitz, president of Nova-Tech of Grand Island, a success story in parenteral injectable manufacturing for animal health.

Rapid growth drives Nova-Tech expansion

Q: Gloria, please give us a little history about your company.

A: I incorporated Nova-Tech in 1988. Initially, we manufactured animal serums which are used as a nutritional element for in-vitro cell growth. In 2004, along with my business partner, Teresa Grabowski, we began manufacturing large-volume parenterals. This helped us eliminate serum seasonal cycles and reduced inventory turn times. In 2011, Nova-Tech moved into an all new aseptic fill facility, a state-of-the-art plant that doubled manufacturing capacity.

Q: What are your major markets?

A: Nova-Tech is the leading U.S. supplier of CGMP aseptically manufactured large-volume parenterals for the veterinary market. We provide 22 fluid products in fill sizes of 100, 250, 500,

and 1,000 mL, in either high-density polyethylene or glass. Our customers are distributors, buying groups and drug sponsors in U.S. animal health market.

Q: You're expanding again. Is this about growth?

A: To meet increasing demand, in 2014 we added to our temperature-controlled warehouse. By this fall of 2017, we will add a third and fourth line for aseptically filling of bags and product/process development. We will add 10 to 13 new jobs and bring our facility to 106,000 sq. ft. The new area will include regulatory office space, training rooms plus the two new production lines.

Q: How will new facilities help you meet your company's biggest challenges?

A: We are committed to be the leading U.S. provider in our market. We will continue to invest in staff, facilities and equipment to provide for our customers' needs.

Q: How do current economic conditions affect your business?

A: The challenge is development and retention of workforce. An unemployment rate of +/- 3% is not a positive for business growth. It is the No. 1 topic of discussion within the business sector, along with increasing costs of employee benefits. This company will continue to hire highly skilled staff and we will pay for skill and quality of work. The challenge is, will there be employees to staff our growth?

Q: What can we do to overcome these challenges?

A: Nebraska will need to target cluster development that is specifically focused on innovation industries. This would include information technology, bio sciences, financial services, etc. We need to invest in local entrepreneurship in rural areas. And promote internship and placement programs in high skill/high wage jobs. We also must be prepared to invest long term, before effects are visible. We need to grow the population *and* new businesses that offer high-skill/high-wage careers. To do that, our state tax programs must attract these industries.

Q: How can government address workforce shortages?

A: We should support vocational opportunities for students – apprenticeships, job shadowing and internships. Also, a growing in-migration continues to increase our diversity. About 30% of the workforce fits into this sector. Assimilating these people into our communities has costs and benefits. Funding programs are needed to optimize this workforce asset.

Q: What skills are most in need?

A: That's a very broad subject. What is needed today? What is needed in 10 years, 20 years? What skills are needed if we create incentives and locate more high skill/high wage businesses in our community, in our state?

Q: Does the workforce issue slow down your capital plans or market leadership goals?

A: No, you don't slow down progress. You eat an elephant one bite at a time. Growth is ongoing. We're always identifying, promoting and training high achievers who fuel growth. With each planned and executed addition, internal training and external recruitment efforts are stepped up. When applicable, robotics are engineered in the production process.

Q: What can our state do better to be leaders in bio sciences?

A: Midwesterners are resourceful, tireless, dedicated, committed, loyal, inventive, all rooted in common sense and a history of overcoming adversity. Some may not credit us as "leading edge." This is a perception problem we Nebraskans need to fix. You can count on us to start, but more importantly, to finish.

We have assets we can build upon. Our companies are feeding, fueling and healing the world. The University of Nebraska is a global "rising star" in natural sciences. NU is No. 9 in the U.S., No. 90 among 8,000 worldwide institutions. We can convert these achievements into more economic opportunities.

Funding for any technical startup is a challenge. It's the nature of the beast. Economic programs that work with communities and lending institutions to mitigate the risk are "deal makers" for technically based, entrepreneurial startups. Nova-Tech is here today because of economic development programs.

Q: How can Bio Nebraska members effect change?

A: Bio Nebraska is a voice for a big sector of our economy. The continued presence at the legislative level has and will influence lawmakers. We need to continue to spotlight our industries, to raise public awareness. We need to sharpen up public incentive programs, based on our experiences with Nebraska Advantage.

Our schools, towns, community colleges and universities continue to address the shortage of skilled workers. Bio Nebraska can identify and list jobs, education and skill sets needed today and in the future.

We need more conversations about the mass of our population that delivers products that make our lives what they are today. It is kind of like a football mindset. Everyone wants to talk about the quarterback. But few appreciate others on the team who deliver.

Q: What has been the most rewarding thing you have done as an entrepreneur?

A: The most rewarding thing I have done is found a technically based company, located in rural Nebraska, which provides an environment to encourage and reward all employees to develop the knowledge and skills that advance them personally and professionally.

And I do so like working on solutions.

Thank you, Gloria, for your support of Bio Nebraska and for your company's contribution to our state.



Meet Michael Boehm, new IANR chief

Michael Boehm, new UNL-IANR chief, is profiled as a first-generation college student with 20 years of military experience and a record of success in academia. Boehm said: "There's such a strong work ethic instilled in Nebraskans and they go about their lives in a values-driven way. I'm excited to get to know more about the state and its people." Boehm was professor of plant pathology and a vice provost at Ohio State University. Boehm and Vice Chancellor Ronnie Green recently toured the state, along with Donde Plowman, new executive vice chancellor at UNL.



John Woollam, NU professor and entrepreneur

NU Electrical Engineer Honored

John Woollam, NU professor of electrical engineering and founder of J.A. Woollam Co., a high-tech company, will be honored at the 2017 International Conference on Metallurgical Coatings and Thin Films conference in San Diego. Woollam, a faculty member since 1979, is also president of **J.A. Woollam Co.** His Lincoln company is a world leader in spectroscopic ellipsometry, which uses polarized light to detect properties of materials and measure films only an atom or two thick. <https://www.jawoollam.com/about-us>

World-Herald: Nurturing Startups Can Grow Biotech Jobs

Biomedical research done in Omaha can build a cluster of homegrown biotech firms, generating new jobs and investment. The *Omaha World-Herald* Opinion highlights UNMC strengths in robotic and computer-assisted surgery, drug delivery, biochemical defense and telemedicine along with UNO's world-class research in biomechanics and strength in biomedical data. New opportunities can grow at UNeTech, a new UNMC and UNO partnership.

Corbion launching Improved Listeria Control Tool for Meat Industry

Corbion will demo its Listeria Control Model at the 2017 International Production and Processing Expo in Atlanta. The tool helps processors predict Listeria growth in processed foods while cutting R&D costs and increasing speed to market.



Kenda Jackson, UNL intern, examines blood agar plates in tests on detection of Shiga toxin-producing E. coli bacteria in cattle.

E. Coli Project Generates Science And Solutions

In 2011 UNL got a USDA-NIFA grant for \$25 million to investigate Shiga toxin-producing E. coli. Rodney Moxley, a UNL professor of veterinary medicine and biomedical sciences, said the project enhanced detection, eradication and food safety education efforts. "The researchers' findings will save lives and stop people from getting sick," added Isabel Walls, a NIFA program leader for food safety. "And there is a substantial economic benefit, not only in reducing the

cost of food-borne illness and productivity losses, but the cost of food recalls, lost brand reputation and business failures.”

Flint Hills Putting \$50 Million Into Ethanol Plant

The *Omaha World-Herald* reports that Kansas-based Flint Hills Resources, part of Koch Industries, plans to invest more than \$50 million in the ethanol plant it operates in Fairmont, Neb. The plant will produce a high-protein fish and chicken feed from ethanol distillation byproducts. Mark Kruse, general manager of grain and feed ingredients at Flint Hills Resources, said the feed is composed of spent yeast and corn gluten, is aimed at markets in the U.S. and Asia fish farms.

Leadership Nebraska Taking Applications

Applications are being accepted for the State Chamber’s Leadership Nebraska, the statewide program that prepares Nebraskans for larger roles their communities. Applications due by April 14.



UNO Chancellor John Christensen and Deans Louis Pol and Hesham Ali welcome former USSTRATCOM Commander Cecil Haney to a Fellows event.

UNO, NU Educators Facilitate Leadership Program

On Jan. 20, a group of 10 civilian employees from the [United States Strategic Command](#) began a fellowship course led by UNO. The graduate-level course is designed for STRATCOM civilians identified for leadership development. The course involves UNO, UNL, UNMC and UNK. The fellows program launched in 2014 as a first-of-its-kind effort between UNO and NU’s **National Strategic Research Institute (NSRI)**.

NatureWorks Joins Global Plastic Transformation

NatureWorks has joined the New Plastics Economy, a global alliance of companies and organizations transforming the global plastics industry. The New Plastics Economy aims to

create an effective after-use plastics economy, reduce plastics into natural systems and decouple plastics from fossil feedstocks.

Bounds puts NU budget cut process in place

Hank Bounds, NU president, created a cost-cutting budget response with 10 key areas task forces to identify budget cuts or revenue growth. “Efficiencies alone will not solve this challenge. The University of Nebraska is a lean institution already and this process will impact people, positions and services across our campuses,” Bound said. “I also believe that we must use this budgetary challenge as an opportunity to become an even more collaborative and forward-thinking university.” For more info, visit: <https://nebraska.edu/president/budget-info-2017-19.html>

Ag Bio a partial solution for economic diversity

The Unicameral may have solutions to a softer ag economy right at its fingertips. Advancing Nebraska’s Biotechnology Economy, a report delivered in November to the legislature, says our biotechnology sector could drive a new, vibrant economy. These high-wage, high-skill, high-growth jobs are in high-demand sectors and play to our state’s strengths in agriculture and food. Bio Nebraska has asked that lawmakers adjust current programs to grow ag bio opportunities across Nebraska to the benefit of rural and urban areas.



National News

Global Bio-Based Biodegradable Plastics Market Expected to Grow

Bio-based biodegradable plastics forecasters expect double-digit growth into 2020, says Future Market Insights (FMI). Global market share is now insignificant compared to fossil fuel-based plastics. Europe leads the bio-based biodegradable plastics market, followed by North America. The European market is relatively mature, while North America is set for rapid growth.

DuPont, ADM Win Global Energy Award

DuPont and Archer Daniels Midland won the Breakthrough Solution of the Year Award from Platts Global Energy. Their bio-based technology, furan dicarboxylic methyl ester (FDME), could expand the market for high-performance renewables in packaging, textiles, engineering plastics and industry.

Pruitt Voices Ethanol Support

Oklahoma Attorney General Scott Pruitt, President Donald Trump's choice to lead the Environmental Protection Agency, said he would honor the intent of the U.S. biofuels program. The Renewable Fuel Standard sets annual quotas for ethanol and biodiesel.

China Raises Ethanol And Dried Distillers Grain Tariffs

China has increased punitive tariffs on imports of a U.S. dried distillers' grains (DDGS) and ethanol. The ruling is a win for China's fledgling ethanol industry and is a blow to U.S. ethanol

manufacturers. DDGS are a byproduct of corn-based ethanol. U.S. Grains Council CEO Tom Sleight said the group is disappointed by China's higher tariffs on DDGS and ethanol imports.

Economist Looks At Ag's Future

"Smart farming" technologies -- precision farming, genomics, internet of things and irrigation -- are in the spotlight. "Between now and 2050 the planet's population is likely to rise to 9.7 billion, from 7.3 billion now. Those people will not only need to eat, they will want to eat better than people do now, because by then most are likely to have middling incomes, and many will be well off," writes *The Economist*.

NASDA offers Trans-Pacific Partnership resource kit

The Trans-Pacific Partnership (TPP), revoked by President Trump, included Australia, Brunei, Canada, Chile, Malaysia, Mexico, New Zealand, Peru, Singapore, Vietnam, Japan and the U.S. TPP would reduce tariffs and trade barriers, open foreign markets to the U.S., and set science-based rules for trade among countries representing 40% of global GDP. A National Association of State Departments of Agriculture [resource kit](#) says TPP would create 1,730 new jobs in Nebraska, boosting state ag exports by \$230 million and improving ag income by \$378 million through more sales of beef, pork, soybeans and processed foods.

<http://www.nasda.org/File.aspx?id=41824>

Perdue Nominated For Secretary Of Agriculture

Sonny Perdue was nominated to be secretary of agriculture by President Donald Trump. Perdue, a former veterinarian and Georgia's governor, has extensive background in agribusiness and politics. Former Gov. [Dave Heineman](#) and Nebraska businessman Charles Herbster were also in the news for this posting.

<http://www.agriculture.com/news/business/who-is-on-trumps-short-list-for-secretary-of-ag>

The Industrial Status of Biofuel Technologies

A myriad of biofuel technologies exists, but which are fully developed industrial processes? To answer this question, three classifications of industrial status are utilized: Established, Demonstration, and Developing. The distinctions are key to risk assessment.

Gates, world leaders team up to stop pandemics

The Bill and Melinda Gates Foundation has launched **Coalition for Epidemic Preparedness Innovations** (CEPI) at the World Economic Forum in Davos, Switzerland. Germany, Japan, and Norway and the Gates Foundation have pooled \$490 million, with a target of \$1 billion, to finance five years of vaccine R&D. "Ebola and Zika showed that the world is tragically unprepared to detect local outbreaks and respond quickly enough to prevent them from becoming global pandemics," Bill Gates said.

Humira Biosimilar From Boehringer Accepted For Review

A regulatory license application submitted by Boehringer Ingelheim for BI 695501, a biosimilar version of AbbVie's Humira, or adalimumab, has been accepted for review by the FDA and European Medicines Agency.

Ag Biological Solutions Diversifying

BASF is introducing five new biological seed treatments within the next five years, 20 new biologicals all together, says Justin Clark, technical marketing manager, adding "seed treatments function in all three categories -- biostimulant, biopesticide and biofertilizer." Bioag, an alliance of Novozymes Biologicals and Monsanto, is taking a different approach by using big data to evaluate thousands of organisms in half a million field plots this year and next, searching for a yield benefit.

Evonik Takes Stake in U.S. Nano Firm

Evonik Industries has invested through its venture capital arm in Nanotech Industrial Solutions, Inc., of Avenel, NJ. NIS, founded in 2012, has a unique particle technology for high-performance lubricants.

Monsanto, NRGene Sign Big Data Genomics Deal

Monsanto and NRGene signed a multi-year global licensing agreement for NRGene's genome-analysis technology. The system – developed by algorithm designers, software engineers, plant breeders and plant geneticists – is used by seed companies and academics around the world and will help Monsanto manage its vast trove of genetic, genomic and trait data.



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