



Recently, UNL teamed up with the economic development officers of a smaller Nebraska community in its efforts to induce a major company to move to its location. We were able to supplement the very creative package of incentives generated by the community, with a demonstration of how the company would benefit from working with our faculty in assisting them in product development. We are also proud of our work in Scottsbluff, where UNL scientists, both at the Panhandle Research and Extension Center and in Lincoln, combined to create a budding industry in chicory, a crop with significant economic potential for that region of Nebraska.

These are direct examples of how the University of Nebraska-Lincoln is helping spur economic development in Nebraska and beyond.

As the economy moves to a knowledge-based economy, the university and its faculty will become an increasingly important resource for Nebraska. Similarly, our ability to attract and retain young people to Nebraska will determine the pool of creativity this state will need to generate new and exciting business opportunities.

This is why we have consistently operated with two primary priorities: enhancing our undergraduate program so it can be competitive with other universities and building our research enterprise. Many of you have supported our efforts. On behalf of all Nebraskans, thanks.

Harvey Pulman

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THE CHANCELLOR'S REPORT

A report to special friends and supporters of the University of Nebraska-Lincoln

February 2004

Dear Friends and Colleagues:

While I have often claimed that the university is an important "economic engine" for the state, it is quite another matter to provide numbers, faces and names to back up that claim. In looking at recent records, it is clear that Nebraska's best and brightest are busy creating opportunities for themselves and others. This is another reason it is important to try to keep them in Nebraska.



As one example, 48 businesses have been started by students in the College of Business Administration through the Nebraska Center for Entrepreneurship. Of those 48 businesses, 35 are still operating.

A sampling of 27 of the businesses that responded to a recent informal survey revealed that 351 full-time jobs have been created by those 27 businesses. They reported gross annual revenues of \$45.5 million for 2003. A few of those businesses are located outside of Nebraska. Excluding the non-Nebraska based companies, these start-ups created 314 full-time jobs in Nebraska with gross revenues of \$39.8 million.

Several technologies have been licensed to Nebraska companies which have had positive effects on the Nebraska economy, some making the news in high-profile situations.

In a development with far-reaching implications for one of the most important sectors in Nebraska's economy, a case of "mad cow" disease (bovine spongiform encephalopathy) was detected in December 2003 in a dairy herd in Washington state. Rapid identification of the origin and extent of the presence of BSE was

critical to determining the measures required to ensure food safety for domestic and international markets.

Expertise and resources derived from the University of Nebraska-Lincoln played a central role in the rapid determination of the origin and parentage of the afflicted animal as well as the genetic information necessary for tracking its progeny. The United States Department of Agriculture turned to GeneSeek, Inc., a startup company

founded by Daniel Pomp, a faculty member in UNL's Department of Animal Science, and his business partner, Abraham Oommen, who, working over the New Year's weekend, isolated the genetic traits of the animal stricken by BSE.

They were aided in their work by the efforts of two other companies closely associated with the university. The software package developed to manage the test data was created by i2rd Inc., a startup company founded by Don Nelson of UNL's Department of Electrical Engineering and Mulin Chen, an adjunct faculty member in Electrical Engineering. The genetic sequencing was accomplished in part utilizing equipment developed by Li-Cor, Inc. based upon technology patents licensed from UNL.

GeneSeek and i2rd are companies that have taken advantage of the services provided by the technology business incubator operated by the University of Nebraska Technology Park and are currently located at the Park.

The University of Nebraska Technology Park began formal operations in 1997 with the opening of its technology business incubator



and Park headquarters building. Today the Park is home to 18 companies with 860 full- and part-time employees. Firms range in size from single person startups to such recognizable international firms as Siemens and Cabela's.

Companies started by faculty and staff of UNL have played an important role in the development of the Park. A half-dozen companies operating in Nebraska today all started within the past six years and have been residents of the Technology Development Center. They represent a variety of disciplines reflecting the strengths of UNL including: Highway Bridge Services (Civil Engineering), i2rd (Computer Science and Engineering/Electrical Engineering), MetaLogic (College of Education and Human Sciences), GeneSeek (Animal Science), GIS Workshop (Conservation and Survey Division IANR) and Specialized Networking Systems (UNL Telecommunications). In total, these six firms employ 54 people and have annual sales totalling between \$3 million and \$5 million.

These companies offer a diverse array of services. For example, Highway Bridge Services provides software development for bridge systems monitoring and analysis. i2rd Inc. creates software for Internet-based applications and intranet and e-commerce product development and support. i2rd was named Small Business of the Year by the Lincoln Chamber of Commerce last year. GeneSeek is a DNA analysis and diagnostics company. GIS Workshop provides software development and support for GIS operating systems.

Tech Park companies that developed independently from university research include Dynamic Solutions, which provides information systems for independent banks and financial institutions; Midwest MicroSystems, which provides herd management software systems; Damacreg, which provides CCTV and Internet-based security systems; and E-C Logix, which provides software for managing digital financial

transaction tools.

A number of companies create and sell products based on technology developed at UNL and licensed to these companies. Some examples include:

- Rieke Metals. Founded by former UNL Chemistry Professor Reuben Rieke, this start-up company employs 12 full-time and two part-time workers, all of whom are Nebraska graduates. With annual sales between \$1 million and \$1.5 million, the company supplies unique organometals to various industries for the synthesis of complex organic molecules.

- Todd Valley Farms. This Omaha-based company employs eight full-time and 20 season employees. The company sells a unique buffalograss, Legacy® buffalograss, developed by UNL turfgrass scientists. Legacy® has a narrow, soft blade and is darker green than other buffalograss varieties and retains low-maintenance and drought tolerance characteristics, making it an idea turf for residential and commercial lawns. Todd Valley Farms is the only farm in the region and one of few in the country to grow turf-type buffalograss. Lawns must be established by sod or plugs because the plants do not produce seed. The fiscal impact of the technology licensed through the university is estimated between \$300,000 and \$400,000 per year.

- Li-Cor Biosciences. This Lincoln-based company employs 195 and has annual revenues between \$25 million and \$30 million. Scientists in more than 100 countries use the instrument systems developed and manufactured by Li-Cor to conduct research in biotechnology, plant biology, drug discovery and environmental monitoring. Founded in 1971, the company licenses technology developed by faculty in UNL's Department of Agronomy and the School of Biological Sciences. The company pioneered the development of detection systems for DNA sequencing, protein imaging, genotyping, and tools for genomic and proteomic research.



- J.A. Woollam Co. The J.A. Woollam Co. was founded in 1987 by Dr. John A. Woollam as a spin-off from the University of Nebraska. Since then, the company has grown to be a worldwide leader in spectroscopic ellipsometry. Ellipsometry is a very sensitive measurement technique that uses polarized light to characterize thin films, surfaces and material microstructure. Industries that use the technology include those developing semiconductors, telecom devices, data storage devices, flat panel displays, chemical and biochemical industries and optical coatings. The company's research had led to more than 40 patents. Woollam Co. employs more than 40, many of whom are engineers and scientists.

University expertise in the area of food processing and technologies also has significant economic impact. For instance, since June 1, 2003, some 91 companies have used services provided by the UNL Food Processing Center. Of those companies, 47 are based in Nebraska.

Among the Food Processing Center's most-publicized activities are its food entrepreneur assistance programs. In 2003, nearly 200 individuals representing some 138 potential new businesses attended one of the center's many seminars aimed at helping people decide whether to take the leap into entrepreneurship. Eventually, six companies completed the follow-up phase and began operations in 2003. Four are Nebraska-based and are selling spice blends, salsa and barbecue sauces.

Since the program's inception in 1989, some 119 companies have started up after utilizing Entrepreneur Assistance Program services. Sixty-six percent of these companies are still in business, a rate that exceeds the national average for small business success.

For the past two years the Food Processing Center has helped producers and growers apply for Value Added Producer Grants through the USDA. These grants are awarded directly to producers to help them develop marketing plans or feasibility studies and to provide work-

ing capital for marketing products. In 2003, 17 grants were awarded for over \$3.6 million. In 2002, 11 grants were awarded for \$1.4 million. These grants assist processors in exploring new markets and have the potential for economic impact in the rural areas.

The center also is working on two projects with potential economic impact in rural communities. "Buying Local Products" is a grant through the USDA to work with producers and end-users (grocery stores, dining services, restaurants, etc.) to incorporate locally grown products. Another USDA grant, "Exploring Business Opportunities in the Ethnic Food Market," is also under way. We are studying opportunities in growing and/or processing ethnic foods for local producers and processors. Nebraska has one of the fastest growing Hispanic population in the Midwest. With this new culture comes opportunities for new and different types of food products. We are identifying products and working with local growers and processors on the opportunities to supply this market with those products. Both projects began last October, and we expect to see direct economic impacts beginning as soon as next fall.

Finally, research done by food toxicologists at the Food Processing Center has financial impact for food processors and health impact for consumers. Food allergies are a worldwide concern and cause as many as 200 deaths and countless allergic reactions annually in the United States. Research and training by toxicologists in our internationally recognized Food Allergy Research and Resource Program are helping the food industry protect the nation's 6 million to 7 million allergic consumers. The food industry uses the team's fast, accurate tests to detect traces of allergenic foods on food or equipment. The IANR team also trains food manufacturers nationwide on broad food allergy issues. At one training session, 100 industry representatives changed a manufacturing practice and estimated avoiding potential recall costs of \$500,000 each.