

## Ag research pays dividends at UNL

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While investing money in the stock market can be risky in today's economy, investing in the University of Nebraska-Lincoln's Agricultural Research Division is a pretty sure thing, offering an internal rate of return of 36% in the period of study.

The UNL study found that for every \$1 invested in ARD, the major research arm of the university's Institute of Agriculture and Natural Resources and Nebraska's Agricultural Experiment Station, investors received the equivalent net annual benefits of 36 cents every year for 31 years, amounting to \$17.

This is more than twice the national average return of \$8.

Nebraska's ARD returns rank second nationally with only the University of Missouri's Agricultural Experiment Station ranking just slightly higher with a 37% rate of return. The study was conducted in all 48 continental U.S. states. On average, the rate of return in other states was 29%.

"These returns are very impressive," said Lilyan Fulginiti, UNL agricultural economist. "The ARD's impressive 36% rate of return beats the 9% and 12% average returns of the S&P 500 and NASDAQ composite indexes during the same period."

Fulginiti conducted this research, along with Alejandro Plastina, an economist at the International Cotton Advisory Committee.

At a time of declining financial support from the federal government for agricultural research, every dollar counts. This study shows that research and development through land-grant universities helps the agricultural sector be competitive by substantially contributing to increases in productivity, Fulginiti said.

Nebraska agriculture depends heavily on the scientific advancements ARD provides, said Susan Fritz, interim dean and director of the ARD and associate vice chancellor of IANR.

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“Nebraska has a bio-based economy, with approximately one in three Nebraska jobs depending in some way upon agriculture,” Fritz said. “ARD scientists make important contributions to the state’s agriculture, food industries, environment, the well-being of families and communities. ARD scientists also provide new knowledge and seek answers to Nebraskans’ problems and concerns.”

Fulginiti and Plastina calculated the rate of return on investments by taking expenditures that were allocated to ag experiment stations in each state and comparing them with the private cost savings generated by productivity improvements stemming from these public research and development expenditures.

Researchers looked not only at the impact of research and development in each state, but also at the research impacts on other states. For example, they looked at how research and development in Nebraska affects states with similar production characteristics like Iowa and Missouri.

They found that even though Nebraska receives less public agricultural research dollars than Iowa, for example, the bang for the buck of Nebraska research seems to be higher than of Iowa. And while California gets a lot more research dollars than any other state, it produces relatively low spillover productivity in other states.

This is mainly due to the fact that production in California is highly capital input intensive, while that is not the case in other states. Furthermore, some agricultural products, such as almonds, for example, are not produced as much in other states.

“California’s research impacts on their own productivity is high, but the impacts on other states’ productivity are not as high as they would be in Nebraska,” she said. “It goes to show that what we do with public research dollars here in Nebraska are very well-invested because it affects a lot of people in and out of this state. We receive less (than Iowa or California), but our reach is broader.”

The study covered the years 1949-1991, the longest uninterrupted time that could be studied.

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Fulginiti noted that there usually is a lag between research innovations and the adoption of the new technology, which means the stream of benefits tends to be low in the years immediately following the investment and more concentrated later, as the new technology becomes more widely used.

Fulginiti and Plastina now are collaborating with the USDA to update their calculations to 2008 and to include Extension funding. They also are looking at returns on investment on public infrastructure, such as roads, bridges, etc.

Housed on UNL's East Campus, the ARD has several other research sites across the state, including four UNL Research and Extension centers at North Platte, Scottsbluff, Norfolk and Lincoln and a system of centers, farms, laboratories and forests across the state.

The ARD is the only public entity in Nebraska charged with conducting agricultural research. It is part of a national network of state agricultural experiment stations housed at land-grant universities across the United States.