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Gudmundsen Sandhills Laboratory Open House
Wagonhammer Education Center
Gudmundsen Sandhills Laboratory, rural Whitman, NE
11:10 a.m. Wednesday, Aug. 27, 2008
John C. Owens, NU Vice President and Harlan Vice Chancellor, IANR

Today at this terrific Gudmundsen Sandhills Laboratory open house I want to begin with three thank you's. First, thank you for attending. It is a treat to see you here, ^{all of} and we thank you for your presence and your interest in this key univ. program.

Second, thank you to everyone who contributed to making today's open house a success. We recognize the work it takes, and your efforts are both important and appreciated. FACULTY + STAFF - WEST CENTRAL RES. + EXT. CENTER
- PANHANDLE R + E CENTER

Third, thank you to the Wolf family, as well as to the late Ray Bohy, whose generous gifts provided this wonderful Wagonhammer Education Center with its Ray Bohy Conference Room. I don't know of another University that has such a well-equipped ^{RANCH} center away from campus, and we are grateful for that. We thank the Wolf family, also, for the new teaching laboratory for cattle just being completed east of this building. Elaine and the late Jim Wolf had a wonderful dream of bringing education to the people of Nebraska, and their gift accomplished that in such an admirable way.

The new teaching laboratory, about 1,700 square feet, will accommodate 125 people and,
" when connected " to the Roy Bohy conference room by camera, will make it possible for
350 people in the Roy Bohy conference room and the 125 people in the laboratory to view
the same demonstration. The laboratory also is wired for "polycom" so demonstrations can
be viewed at locations across Nebraska and beyond.

Elaine Wolf and her son Jay are present today, and I want to recognize them for
their tremendous contributions to education, in NEBRASKA. The Wagonhammer Education Center is a
" wonderful " addition to our Gudmundsen Sandhills Laboratory, which we consider the
" most-productive " beef systems laboratory in the United States.

" Outdoor laboratories " such as Gudmundsen are critical to Institute research and
teaching and Extension efforts, and I'm going to talk a bit about the importance of these laboratories in NEBRASKA
today. The Gudmundsen, itself, is such a great example. As you know, it takes a large
number of cattle and many acres to support " grazing systems research, which is year-
round, multi-disciplinary, and holistic. With beef being such big business in Nebraska,
the work conducted here is vital to Nebraska's economy.

^{EXTENSION}
Most research and teaching programs at Gudmundsen are systems-based, aimed at reducing production costs and increasing profitability while enhancing management of the natural resources. Let me ~~SHARE SOME~~ examples. One is extended grazing systems, which synchronize nutrient needs of cattle with forage nutrients to reduce ~~dependence on~~ harvested feed. This increases profitability, which benefits Nebraskans. Another is heifer development systems that reduce feed costs, enhance reproduction, and increase profitability. A third is cow-calf and yearling systems that create alternative marketing opportunities.

A great outdoor research laboratory, the Gudmundsen also is a world-class teaching laboratory. Work accomplished here, as with all work of the Institute, is fully aligned with ~~THE~~ university's strategic planning framework.

Faculty at both the West Central and the Panhandle Research and Extension Centers have great success working with graduate students jointly with our faculty in Lincoln. This links the Gudmundsen to basic metabolism facilities, feedlot facilities, and chemistry and physiology laboratories on the Lincoln campus, and with the Barta Brothers Ranch near Rose, another of our outdoor laboratories. Graduate student programs can include studies with basic research on the Lincoln campus and at the Agricultural Research and Development Center near Mead, and with field trials of both fundamental and applied science right here at the Gudmundsen.

And while fundamental research that begins in Lincoln may come to the Gudmundsen for application and validation, I must note there are discoveries made at the Gudmundsen that are taken to indoor laboratories for more fundamental research, as well. A great example is the fetal programming work discussed earlier this morning. by Rick FUNSTON. Researchers on the Lincoln campus and in other states are conducting fundamental research to understand the mechanisms of this important discovery.

Sometimes people talk as if there is "either" fundamental science OR applied science, but truly, science is a continuum. It runs all the way from the most fundamental discoveries, 70 ~~to~~ education, and the application of the uses and benefits of new discoveries. One vital piece fits into another, and then another. All are important. We need both and we do both in the Institute, as we are at work for Nebraska.

Over the years we've seen much data pertaining to climate change and its affect on the Sandhills collected right here at the Gudmundsen. During the past four years UNL scientists in a 15-member multi-disciplinary research team collected data as part of our Sandhills Biocomplexity Project, funded by a \$1.8 million grant from the National Science Foundation.

Researchers explored how sand, grass, and water interact to stabilize the Sandhills. Work accomplished here and at the Barta Brothers ranch near Rose explored such issues as drought, dune movement, groundwater recharge, and climate change.

At the Barta Brothers ranch, our scientists explored what would happen to the Sandhills if something, such as ~~climate change~~ ^{a climatic event,} caused a loss of dune vegetation. Research results indicated these dunes may be much more stable than originally thought, and that's good news. Researchers found that even when dead, Sandhills grasses leave a below-ground legacy of roots and soil organic matter that stabilized dunes for at least three years. And ^{such} study continues.

Through this project's research we've learned much more about the history of the Sandhills, as well as much more about drought and dune movement over time. We know the droughts we've experienced in recent years are just "blips" in the long-term drought history of the Great Plains. We know healthy grasslands are the best dune protection against drought. We know ranchers here took the appropriate measures in the recent drought to keep their grasslands in the best condition possible. ^{also} We know concern for climate change continues, and so will our research in this important area.

Another example of the value UNL outdoor laboratories bring Nebraska is seen in the corn skip-row research conducted at the West Central Research and Extension Center in North Platte, and then expanded to our other outdoor laboratories in the Panhandle, at Concord, at Clay Center, and at Lincoln. This strategy for dryland and limited irrigation situations maximizes water available to corn at critical times. The skip-row planting strategy can produce corn where conventionally-planted corn yields little or nothing. It is made possible by the advent of ^{Roundup} glyphosate-resistant corn. It allows corn roots to utilize soil moisture available between wider-spaced, densely-planted rows at critical growing-times later in the season. When conventionally planted, corn uses the available moisture too early. With skip-row planting, roots constantly seek water, growing longer and tapping unused moisture later in the corn plant's development.

Our High Plains Agricultural Laboratory near Sidney, part of our Panhandle Research and Extension Center, is the only such research and extension outdoor laboratory serving the high elevation, semi-arid, dryland crop production region in Nebraska. It provides a resource base for dryland crop research, as well as for cattle grazing studies on crested wheatgrass pastures.

Another great example of how the Institute's outdoor laboratories contribute to Nebraska's economy and future is seen in our wheat breeding program. We have wheat plots at Institute "outdoor laboratories" all across Nebraska, these plots range from the Agricultural Research and Development Center near Mead, to Agronomy and Horticulture farm at 84th and Havelock in Lincoln, to the Southeast Agricultural Research Laboratory at Clay Center. Western Nebraskans "are familiar" with our wheat plots at the West Central Research and Extension Center in North Platte, the High Plains Agricultural Laboratory near Sidney, and on private farm fields near Hemingford.

" have Why plots all across Nebraska? One reason is Nebraska's agricultural, topographical, and environmental diversity. Climate differences between Lincoln and Scottsbluff are as great as from Lincoln to the East Coast. Different growing conditions and different soils affect how ~~something~~ something grows. Plots across our state tell us "what" works well and where. Plus, with several plots, we're less likely to totally lose a year of valuable research if something, such as a hailstorm, claims one plot, or even a total location.

Our interdisciplinary wheat research crosses the full continuum of science, from fundamental ^{to applied} to delivery of new knowledge to producers. On one end of the continuum is plant transformation, which is the genetic manipulation, or engineering, of plants for desired traits. Once done, that's taken to the field to see if it works beyond a controlled environment. Trying is the only way to find out. Outdoor laboratory field tests prove validity.

It takes about 12 years to develop and deliver a new wheat variety to producers. We don't have ^{any} time to waste. Our outdoor laboratories give us places to try something and to decide if it's worth investing further resources.

Once we have something new ready to go, we deliver it to Nebraska producers through extension education, through seed ^{releases,} and we share it with colleagues and others in various ways.

The University's outdoor laboratories, like the one at which we're gathered today, are absolutely vital. You'll see the Gudmundsen featured in the video we'll end with now. This is a tip-of-the-iceberg view of ways your Institute of Agriculture and Natural Resources is at work for Nebraska in beef research, teaching and extension education. Let's see the video.

1.) DON ADAMZ

7 minutes video
8

4.) DAVE SMITH

2.) WELDON SLEIGHT

5.) BRENT PLUGGE

3.) CHRIS CAUKINS

Let me add a figure to the ranch-practicum savings Brent Plugge mentioned: With a value of over \$19,000 per ranch practicum participant, collectively that's over \$2 million value-added through this single University educational program. And then, of course, Chris Calkins mentioned the \$1.5 *billion* value-added for Nebraska producers through his and colleagues' research. Your Institute of Agriculture and Natural Resources *is* at work for Nebraska. Thank you.

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