Lest the nation's land-grant universities be tempted to rest on their laurels as they celebrate 150 years of their nation-changing tradition, four former U.S. secretaries of agriculture and the leader of one of the world's leading philanthropic organizations laid out an ambitious to-do list for them for the next few decades.

The opening Heuermann Lecture of 2012-13 at the end of September capped the University of Nebraska-Lincoln's week-long celebration of the 150th anniversary of the Morrill Act. The legislation, passed at the height of the Civil War, helped transform the nation by opening up higher education to the masses through a system of land-grant universities.

The four former agriculture secretaries featured in the Lied Center lecture–Clayton Yeutter, Mike Johanns, Dan Glickman and John Block –pronounced the act an unqualified success in its creation of a system of agricultural research, extension and teaching that has helped transform agriculture in the United States into the most technologically advanced, profitable, efficient and productive system in the world.

The discussion's title, "The Land-Grant Mission of 2012: Transforming Agriculture for the 2050 World," is a nod to the land-grant system's challenges today: Helping to feed a world whose population is expected to increase from 7 billion to 9 billion by 2050.

Nebraska native Jeff Raikes, CEO of the Bill & Melinda Gates Foundation and co-moderator of Friday's lecture, said some estimates are that agricultural outputs actually will need to increase by 70 to 100 percent to meet that 2050 population's needs because as people in the developing world become wealthier, they will seek out more protein-rich diets.

"If you're going to feed the world … you're going to need science and you're going to need technology and you're going to need the best of land-grant universities," said Johanns, now a U.S. senator from Nebraska.

"We've got to do everything better than we do it today," Yeutter said.

Yeutter turned to Ronnie Green, Harlan vice chancellor of UNL's Institute of Agriculture and Natural Resources and the other moderator of the lecture, to call on UNL and other land-grant universities to be "bold" in their research, extension and teaching.

The panelists cited several goals for land-grant universities in the next few decades:

– Increase public-private partnerships, especially given federal budget limits that mean fewer government dollars for research.

– Help farmers continue to adjust to climate change and its impact on production.

– Continue to pursue biofuels options, notable cellulosic ethanol, that do not pit fuel vs. food as crop uses.

– Help farmers in the developing world increase their productivity and efficiency.

Johanns stressed that last point. While American farmers are justifiably proud of their role in feeding the world, he said, meeting the needs of 2050 and beyond will require producers in Africa and elsewhere to get more efficient. American scientists, many of them in land-grant universities, can play a key role in training them to do so.

"Nothing will buy more good will for the United States of America," Johanns added.

"They want our help. They want to feed themselves," Glickman agreed.

Although farmers now comprise fewer than two percent of Americans–compared to 60 percent when the Morrill Act was passed -- the ag sector actually is positioned to have greater political, social and economic influence than ever because of concerns about the expanding population's food needs, panelists agreed.

In fact, Glickman said, if the movie “The Graduate” were made today, the one-word career advice to Benjamin Braddock would be “agriculture.”

“Over the long term agriculture and food is poised to be a very dominant industry in America,” Glickman said.

This year’s punishing drought has increased the interest of people who normally don’t think about agriculture, Block said.

“They don’t know about farming, they don’t care about farming, but they do care about having enough food,” he said.

The four former agriculture secretaries, all but one of whom–Glickman–served Republican presidents, generally agreed on the issues and challenges, but for a good-natured exchange between Block and Glickman over organic agriculture, which the former dismissed as largely insignificant, while Glickman noted that consumers nowadays do want food that’s been treated with fewer chemicals. “That doesn’t mean they want to be vegetarian hippies from the 1960s,” he joked.

Johanns and Glickman agreed that today’s consumers do want more information about the food they eat, and they expect choices in the marketplace they didn’t expect in years past.

This lecture will be archived at heuermannlectures.unl.edu, as well as broadcast later on NET2 World, RFD-TV and RURAL TV.