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LAND GRANT UNIVERSITY RESEARCH AND EXTENSION IN THE 21ST CENTURY

Jon Wefald
Kansas State University

I am happy and honored to address the 1997 National Public Policy Educational Conference. I want to talk about the land grant university now and as we head into the 21st Century.

Three Waves in History

From the time of Abraham and Moses, agriculture has been fundamental to the economy of the world. I am sure most people here have had an opportunity to read books by Alvin Toffler and John Nesbitt. In his book entitled *The Third Wave*, Alvin Toffler discerns three basic waves of civilization and human history: the agricultural era, the industrial era and the technological era. In all three waves, agriculture has played a primary role. Toffler's first wave, the agricultural era, dates from about 8,000 B.C. up to the 1750s or the early 19th Century. Since the time of Abraham, Moses and Ramses II, right down to the 17th and 18th Centuries, the ox, sickle and plow were symbolic of the agricultural era

Someone living in rural France in 1700 could more easily identify with someone in the first century A.D. or the fifth century B.C. than that person could identify with someone in 1900 or certainly 1950 or 1997. The farmers of 1800 used oxen, sickles and plows to produce the same wheat, barley and fruits that the ancient Egyptians tried to develop. This 10,000-year epoch was characterized by continuity, stability, permanence and tradition.

The great majority of people that lived during these thousands of years seldom got more than three or four miles from their home during their lifetime. In the 10,000 years from 8,000 B.C. to the 18th Century, the major advancement in speed occurred from 1,200 BC to 800 BC when the peoples of Syria and the Middle East invented the chariot. Man's speed tripled from about 5 miles per hour to 18 to 20 miles per hour. It took another 500 years to develop a horse with a back strong enough to carry a man.

Toffler then talks about the second wave, the industrial revolution, which he dates from about the 1750s to the 1950s and 1960s. In terms of this period, we go from 10,000 years in defining the agricultural era to about 300 years for the industrial revolution. Now, the new age of industrialism is defined by huge migrations of people from the land and the peasant villages to the cities to work in emerging huge industries. By the 1880s to the 1890s, this new industrial era was probably best illustrated by huge corporations, growing labor unions and an emerging strong

central government. Additionally, during this time there was consolidation, monopolization, centralization of government and an evolving welfare state. The new symbols are U.S. Steel, Standard Oil and Union Pacific. John Rockefeller, Andrew Carnegie and J.P. Morgan replaced the agrarian lords of the manor.

Toffler, then, talks about the third wave. It is a time span of less than 30 years. It is a new era of service, information and high technology. Quite frankly, it is this third wave that possibly, more than any other, helped topple the communist governments of Eastern Europe and the USSR. Those countries had articulated 5-year plans controlled from the top and they could no longer compete in this far more competitive, computerized, fast changing and decentralized world where individual business decisions come weekly, if not daily. Now, with this new third wave, the dominant symbols of the world are computers, computer software, the Worldwide Web and instantaneous communication by cellular phone, E-mail and fax. The two companies that best typify this era might be Microsoft and Wal-Mart. Now, the wealthiest person in the world is not Carnegie or Rockefeller. It is Bill Gates and Sam Walton. I recite this so that we have an overall understanding of these changes, how long they took, and when they began. Throughout all three of these waves, agriculture has been, and still continues to be, a dominant industry in the world.

Land Grant Universities

What about the role of the land grant universities? They came out of the Morrill Act in 1862—developed in the era of the industrial revolution. The mandate of the land grants was, and I think still is, to train the sons and daughters of the common people of the United States of America. We have to keep in mind that prior to 1862, higher education in America was dominated by private religious colleges and a few state universities that appealed to the rich and the well born. Consequently, prior to 1862, there were no colleges and universities that were designed specifically to train the sons and daughters of working class America. That, my friends, is the fundamental reason why Abraham Lincoln and the people who controlled the Congress in 1862 came up with the land grant legislation referred to as the Morrill Act.

There are too many land grant colleges and universities in America today that are getting away from their mission and trying to replicate the values and the research proclivities of private elite colleges and some elite state universities. I think that is a huge mistake. At places like Kansas State, I can assure you, we are proud of our heritage of being a land grant university. We are also proud of the whole structure in our university that represents agriculture, whether it is the extension service, the experiment station or the teaching mission. We believe that teaching is fundamental. It is our first priority at Kansas State and in our College of Agriculture. The mission of the land grant universities is still to educate the plain people of America and to train people for agriculture and agribusiness.

A further sharpening of the mission came with the Hatch Act of 1887 and the Smith Lever Act of 1914. Having been at Kansas State for over 10 years now, I know how well the Hatch Act has worked for us. As you talk to farmers and ranchers in the State of Kansas today, they will tell you how pleased they are with breakthrough research, for example, in wheat. Our internationally-renowned wheat specialists and geneticists have come up with, over and over again, new wheat hybrids. We had a record wheat crop in Kansas this year and two of the most important varieties were wheat hybrids developed at Kansas State University.

Certainly, the extension service that came out of the Smith Lever Act of 1914 has been of fundamental importance to Kansas State from then up to the present. I talk to farmers and ranchers from all over Kansas constantly and, by and large, the extension service and Kansas State are viewed as crucial to the quality of life and economic well-being of the entire state.

We cannot forget that, in the beginning, the Morrill Act had as one of our primary functions to emphasize arts and sciences or a liberal arts education. That is still fundamental to a place like Kansas State in 1997.

The land grant universities of the 20th Century and the post-World War II era have been extraordinarily successful—I believe brilliantly successful. America's land grant system is the envy of the world. The rest of the world looks upon America and the great success that we have with land grant universities as the model—as the paradigm—for the world. If you were to talk to people in the liberated states of Eastern Europe or the 14 or 15 Republics of the former USSR, they can only wish they had the tradition, experience and structures of land grant universities. As an example, a delegation was here from North Korea visiting in the state of Georgia, and they were looking at the poultry farms. They were stunned at the efficiency and productivity of these operations.

The Success of American Agriculture

How successful did American agriculture become after 1862? By 1900, American agriculture was clearly the most dominant agricultural system in the entire world. Already, by the 1890s and the first decade of the 20th Century, American farmers and ranchers were helping to feed the world at very affordable prices. In the post-World War II period, Americans farmers clearly led the world in the production of basic commodities and food products. There is no country on the face of the earth that has such a diversified and magnificent agriculture as the United States of America.

We are now in the third wave of what they call the era of service, information and high technology. Agriculture and the food system still comprise 17 to 19 percent of the working force in America and it generates one-fifth of the Gross National Product.

In 1935-36, the number of farmers and ranchers reached an all-time high of about 6.8 to 7 million. Today, there are fewer than two million farmers. In terms of commercial farmers that gross over \$500,000 a year, there are less than 100,000. Whether that is good or bad, I will leave up to you to decide. But, I want to remind you that a prosperous agriculture is good for the American economy.

In 1950, the American consumer spent about 25 cents out of every dollar for food. By 1980, it was 14 cents and, today it is about 10 cents. It is 16 cents in France, 30 cents in Russia and about 50 cents in the developing countries. But, you have to keep this in mind—the cost to consumers in France does not take into consideration the huge subsidies from the French government to the French farmers. What about our subsidies that have come out of the New Deal with price support and loan programs? Well, we have spent less on farm programs in our entire history than we did to bail out failed Savings and Loans in the financial crisis of 1980s.

Importance of Agricultural Research and Extension

Far more money is spent by the United States government on biomedical research than on agricultural research. Yet, the return on investment when monies come into agricultural research are huge. Let me just give you one example at Kansas State. In terms of economic development we generate about \$1.3 billion a year. We receive about a \$140 million per year in pure state tax dollars from state appropriations. That is for all our functions. That is to educate our students, pay our faculty and all of the rest. So, is it a good deal? It is a *very* good deal and we try to explain this to legislators every day and every week. If you want to invest in a solid operation, invest in a place like Kansas State where we not only educate young people, but we, on top of that, generate \$1.3 billion for the state's economy.

As we go into this new world of high technology (actually, we entered it perhaps 45 years ago), the methods and activities of the extension service and experiment station are still important. You know we can talk all we want to about how fancy the world has become, but agriculture is still going to play a critical role in the future of America and in the future of the world. I do not care if you are a football coach or president of the United States, you cannot forget the basics. The “basics,” in this case, is the food and fiber system of America. Will the traditional techniques of the extension service, i.e., demonstrations so that farmers and families can learn by observing, go out of fashion or go out of style? Research is obviously going to continue to be important. We have to continue to develop better wheat hybrids, lower beef fat, and child development skills, for example. Extension and research will continue to play a very, very important role in the United States.

At Kansas State, what we are trying to do is to bring the agricultural experiment station and the cooperative extension service together. We have one dean and director, and three associate directors for research, extension and resident instruction.

They are working very well together. At Kansas State, we have the people in place. We have performed the changes that allow research and extension to be “hand and glove” and it is working very well. I know a fine line exists between extension and applied research. Most will have to have the skills to do both interchangeably.

If we strengthen our ties to the people, if we work on their problems, if we provide them with cutting edge solutions, and if we provide their sons and daughters with a valuable education, we will prosper. Our functions (teaching, research and extension), especially in agriculture, human ecology and engineering, are and will continue to be, in high demand in the next century. But, we must adapt our institutions to the 21st Century.

In Kansas, we have 105 counties—many of which are struggling to hire and keep capable county agents. Many people argue we do not need county agents anymore. I do not agree with that. Our local contacts, and I know many of these county agents personally, are invaluable to us and to the local people. They are still crucial. So, we have to find ways to hire and keep the best.

In 1996, we held public policy educational forums on the future structure of the Kansas extension service. The leadership of all those counties told us they want local contact. They want local influence. But, they also want access to the latest cutting edge information. The suggestion that came out of the forums was to keep one agent in every county, and then surround the county agents with specialized agents who will work with the county agents. The citizen has the local contact, the research and the educated expertise of the specialized agents. The specialized agents would serve 6, 8 or 10 counties.

I know I am speaking to public policy education specialists from across the country with appointments in agriculture and human ecology. I know of your tremendous record in using the alternative consequences approach to education on controversial issues. I am well aware of the work of the Food and Agriculture Policy Research Institute out of Iowa State and the University of Missouri, the Agricultural and Food Policy Center out of Texas A&M University and the work that our own agricultural economics department did on the 1996 farm bill.

But, we know that there are many, many future issues to work on: food safety, environmental issues, welfare reform, juvenile justice, international trade expansion and the viability of rural communities and families, just to name a few. If we tackle the issues of the 21st Century like we have in the 20th Century, I am very optimistic that what we have worked with over the past many, many years will continue to be of great importance and central to the 21st Century.

Kansas State University in the 21st Century

Let me just take a few minutes to talk about what we're doing at Kansas State to reinvent our operations for the 21st Century. We are calling it Vision 20/20. What we are trying to do is to reinvent the entire curriculum—that is, to have a curriculum that is relevant to the students. It should not necessarily be what faculty members want to teach. Rather, it is faculty members teaching what the students need to be successful in the 21st Century. We are looking at all faculty time and talent. After all, 90 percent of the academic budget goes directly to pay for faculty. We have to make sure that faculty are doing what they can do best. Quite frankly, most of us are still on the old industrial model, where you go across the entire university from agriculture to arts and sciences, and people have so many similar hours of teaching, research and service. What we are trying to do is develop an individual base set of evaluations at Kansas State where, instead of being compared to others in the department, they work with their department head to articulate their goals for the next year. They are then rated and evaluated on whether they have met those goals. So, what we are trying to do is to figure out who does the best research and have them do more of it, and who are the best teachers and have them do more of it. Instead of the old model of everybody doing exactly the same, we are trying to set up variations on the theme, and I think we are making a lot of progress.

We have come up with a policy of “two strikes and you are out” at Kansas State. We all know how important tenure is, and it is crucial. But, we got our faculty senate to vote (70 percent in favor) that if you have two years of failure to meet expectations, termination proceedings can begin. We are probably the only university in America that has developed that kind of consensus with our faculty.

We are able to get to the bottom of what each department and college ought to do because we are using the new accounting system called “activity-based costing.” A dean or department head can determine where the money is going and if it is not necessarily good for the department or college any more, we will change it. For example, we have two departments that do similar functions, but one is only generating \$250,000 in actual funding and the other is generating \$7 million. Some positions ought to go from Department A to Department B. Furthermore, activity-based costing allows us to incorporate technology and distance learning into the classroom.

The last thing I want to talk about are the accomplishments of our students. Virtually all of our students come from the State of Kansas. We actually have open admissions—anyone who graduates from high school in Kansas can get in to Kansas State—but, that will change in the next four years. We are getting the sons and daughters of common folk.

Just to show you how outstanding our faculty and students are, since I started at Kansas State in 1986, we have had five Rhodes scholars. We are third in the

country in public universities in the number of Rhodes scholars. We have had seven Marshall scholars since 1990. We are third in America in the number of Marshall scholarships. In the spring of 1997, we had two more Truman scholars—for a total of 21. We are first in the country of all land grant and state universities in Truman scholarships. We had three Goldwater scholars this Spring—now, we are up to 31 of those. We are first in the country in Goldwater scholars. So, just using those four prestigious scholarships, since 1986, we have had 57 Rhodes, Marshall, Truman and Goldwater scholars. That is more than any other university in the PAC 10, Big 10, Big 12, ACC, SEC, Big East, and more than any other state university or land grant university in America.

Over half of these young people who are winning these scholarships are from farms and ranches or from a little town in Kansas. I would say that 98 percent of our scholarship winners are from Kansas. When our faculty gets done with them, they can go into the Rhodes or Marshall competition and go eyeball-to-eyeball with students from Harvard, Princeton and MIT, and come out winning. If you throw all the private universities in, Kansas State is fifth in prestigious scholarships. Only Harvard, Stanford, Princeton and MIT have had more scholarships than Kansas State. I use this as an example of the important training many of our Kansas State students had in 4-H and Future Farmers of America. So, I dare say, at Kansas State we are getting the job done, and we are a great investment for the state. We not only educate the students and bring them to an entirely new level, but we are doing an excellent job in terms of working with farmers, ranchers and the rural communities of Kansas.

Reference

Toffler, Alvin. *The Third Wave*. New York, NY: Morrow, 1980.