



**STATEMENT OF KERRY E. HARTMAN, PH.D.
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NUETA HIDATSA SAHNISH COLLEGE AND
THE AMERICAN INDIAN HIGHER EDUCATION CONSORTIUM
NEW TOWN, NORTH DAKOTA**

**BEFORE THE
COMMITTEE ON AGRICULTURE -- UNITED STATES SENATE
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Chairman Roberts, Ranking Member Stabenow, and Members of the Committee, thank you for the opportunity to testify this morning on behalf of my institution, Nueta Hidatsa Sahnish College, and the American Indian Higher Education Consortium, which is the nation's 37 Tribal Colleges and Universities, on the topic of Agricultural Research: our past experiences and potential opportunities for the 2018 Farm Bill.

I am Dr. Kerry Hartman, Academic Dean and Sciences Chair, and for the past 25 years, I have been a full-time faculty member and teacher on the Fort Berthold Indian reservation in North Dakota. Throughout that time, I have been engaged – most often with my undergraduate students -- in research on the land, water, environment, and native plants and wildlife that are at the center of life for the Mandan, Arikara, and Hidatsa people.

BACKGROUND ON TRIBAL COLLEGES:

American Indian Tribal Colleges, including Nueta Hidatsa Sahnish College (NHSC), are public institutions of higher education that are young and geographically isolated – primarily located on federal trust land. Chartered by the Three Affiliated Tribes, NHSC, like all Tribal Colleges that followed, was established for two reasons: (1) the near complete failure of the U.S. higher education system to address the needs of – or even include – American Indians; and (2) the need to preserve our culture, our language, our lands, and our sovereignty.

Collectively, Tribal Colleges have grown from one institution in 1968 to 37 TCUs today, operating 75 sites in 16 states and serving approximately 160,000 American Indians, Alaska Natives, and other rural residents each year in academic and community-based programs. We are located in some of the most economically impoverished regions of the country, yet our homelands are rich in natural resources and our people are among the most resilient in the world. Within this context, Tribal Colleges are planting seeds of hope for the future; nurturing languages, cultures, and traditions; helping to strengthen tribal economies and governments, and sustaining and revitalizing our lands, waters, environments, and traditional foods.

NHSC's values are represented by the earth lodge, the common home to the Nueta/Mandan, Hidatsa, and Sahnish/Arikara people. The earth lodge symbolizes the universe and all elements necessary to exist in the world. Unity, being the key value, is located in the center (fire pit), around which the rest of the values build and is depicted through the Earth. Spirituality, People, Culture, and Future are the four domains represented by the four main posts. The outer twelve posts represent values within each of the four domains and follow these guiding principles: Our Livelihood, Teachings, Leadership, Community,

Industrious, Determination, Growth, Respect, Land, Language, Balance, and Humility. All of the research at our college, like our education programs, grows out of these values and is intended to sustain them. At the same time, we are part of the nation's higher education system and research infrastructure.

TCUs AS LAND-GRANT INSTITUTIONS

In 1994, the Tribal Colleges took a significant step toward greater participation in the American higher education system when American Indian reservations became the last lands under the American flag to receive federal land-grant status and funding under the U.S. Department of Agriculture (USDA). This historic -- and long overdue -- recognition occurred with the passage of the Equity in Educational Land Grant Status Act of 1994.

As place-based institutions of higher education whose collective mission is to meet the needs of our tribes and tribal communities -- and most important, to preserve, strengthen and sustain our tribal lands, languages, and cultures -- Tribal Colleges are proud to be part of this nation's land-grant family. I think it is important to remember that over 155 years ago, the first Morrill Act was enacted specifically to bring education to the people. Today, the 1994 Institutions -- more so than many other institutions of higher education -- epitomize the original intent of the first land grant legislation: we are truly place- and community-based institutions. All of the 1994 institutions offer place-based natural resource management programs and train a significant number of our tribal natural resource research and management professionals. Of 37 Tribal Colleges, 34 currently are 1994 land-grants, and another will join our ranks as a 1994 land-grant when the Farm Bill is next reauthorized.

Being part of the land-grant system is important to us because, as I mentioned earlier, we are people of a Place. Place defines who we are. Our stories, songs, and language come from the land, waters, mountains, and wind. Most of our land -- the remaining tribal land in North America -- is forest or agricultural land. In fact, of the 55.7 million acres that compose American Indians reservations, more than 75 percent are agricultural and forestry holdings.

The National Institute of Food and Nutrition (NIFA) administers four modest programs for the 1994 institutions: a \$3.4 million (formula) agriculture education equity program, which has enabled the thirty-four 1994 institutions to develop and offer small foundational agriculture or natural resource education programs; an endowment program, from which the 1994 institutions share annual interest payments of approximately \$5 million (total) each year; a \$4.4 million competitive extension program, which supports 1994 outreach activities such as community gardening, summer science and nature camps for youth, agriculture technical assistance, and financial literacy programs; and a \$1.8 million competitive research program, which began in FY2000 at \$500,000. As the NIFA website states, our institutions often serve as the primary institution of scientific inquiry, knowledge and learning for our tribal communities. This modest funding assists us in our efforts to protect our reservation's forests, woodland, and monitoring water quality and other environmental factors. Projects range from studying bison herd productivity to efforts such as mine, which focus on the connection between traditional plants and their role in managing diabetes, controlling invasive species, or revitalizing Native species.

Under the NIFA-1994 program, partnerships are required with other federal and land-grant institutions or state institutions or Agriculture Research Service stations. These partnerships assist us in carrying out the grant's primary emphasis, which is on training students in science.

Three types of funding are available through the program: "New Discovery" supports basic and applied scientific inquiry that could be published in a peer-reviewed journal. "Capacity level" grants support local, applied research. "Student Inquiry" funding allows a Tribal College student to build a research project and present the results under the guidance of a 1994 Land-Grant faculty member. 1994 faculty may also receive a grant to study optimal ways to teach Native American students in sciences as they relate to health, conservation and agriculture, and there is a special funding initiative that allows the 1994s to develop scientific capacity throughout the entire 1994 Land-Grant system.

All of these grant programs, though small, are critically important to NHSC and the other 1994 institutions. My years as a member of the NHSC faculty have instilled in me a keen understanding of the need to write and administer grants to support our extremely under-funded institution. In my 15 years as a full-time faculty member, I have written, co-authored, or been a collaborator in approximately two dozen grants, and I have served as Principal Investigator, Project Director, researcher, faculty member, and student mentor, usually at the same time. These grant programs have had a lasting impact on my students, our science department, and the community. They have allowed us to purchase equipment and supplies, conduct research, obtain training/professional development, financially support and employ student researchers, participate in national and regional conferences, and more. My college simply would not be able to offer the science and agriculture education and opportunities to our students and community that we offer today without these programs. The same is true for all of the 1994 institutions.

A key additional benefit of the USDA-NIFA Tribal College Research Grant Program is the collaboration the grants build other institutions faculty, agencies, tribal organizations, and researchers. Through these collaborations and cooperative projects, I personally have grown significantly in my educational philosophy, research capabilities, professional contacts, and most important, in terms of educational resources available to my students and me. Scientists, researchers, professors and career professionals from multiple institutions, agencies, and businesses are now readily available to me for support, to respond to questions, suggest methodologies and inform me of other resources. Likewise, I serve as a resource to others. These communities of practice are similar to learning communities – through and within them, we find camaraderie, communication networks, and resources that strengthen our individual research and education projects and serve as laboratories for innovation, technology transfer, and ongoing regional (and national) economic and community development.

1994 Research

NHSC along with the other Tribal Colleges in North Dakota are engaged in research directly related to sustainably managing the traditional resources of our tribes' homeland, now known as the Northern Great Plains. While mapping and exploring the region, Lewis and Clark were struck by the "immence [sic] herds of Buffaloe [sic] deer Elk and Antelopes which we saw in every direction feeding on the hills and plains." The wildlife that wandered this vast grassland and the plants on which they found nourishment were the traditional foods and medicines of the Mandan, Hidatsa, and Arikara people. Using Native knowledge and practices, tribal ancestors researched the plants, wildlife, and insects of their homeland and made remarkable discoveries that helped improve health, create crop rotation and irrigation cycles, and sustainably co-exist with the natural world. Today, the wildlife and plants are not entirely gone, but they are far less abundant.

I am proud to say that NHSC has been a beneficiary of the competitive USDA-NIFA TCU research program almost since the program's inception. I personally have been involved in NIFA-funded research grants since 2001. Common threads in all four of these grants is a research focus that is culturally and

economically relevant to the people of the Fort Berthold reservation, and most important, that the research involves and engages students. Locally- and community-relevant research enhances the education experience and, I believe, sparks an interest in my students to continue their education for the benefit of their tribe and community.

Primarily through our grant collaborations, NHSC students and I have been involved with multiple individual and collaborative research projects on a wide range of issues, including water quality monitoring, selenium in bison meat, diabetes monitoring, and aquaculture. Previously funded NIFA-TCU research grants include a multi-TCU/state institution of higher education grant to build and enhance TCU natural resources education programs; aquaculture research aimed at creating local small farmer economic development opportunities; and a series of grants related to juneberries (environment, production and propagation, nutritional implications, Native/traditional habitat), a traditional plant and food of our region. With all of these projects, the search for solutions and the excitement of conducting valid and reliable research that will benefit our community and tribe in terms of culture and identity, health status, and economic impact continues excites my students and me. Importantly, as my research has evolved, I have become more aware of the need to incorporate qualitative research into my methodologies and to ensure that Native science is incorporated within the research paradigm.

The goal of my current NIFA-TCU program research is to develop and sustain the environment needed to support *native* pollinators, which – through improved pollination – will help us restore and sustain one of our native plants/foods, *Amerlanchier Cultivars*, or juneberries. Juneberries are important to us for their nutritional value and newly discovered anti-cancer properties. NHSC is doing this research in partnership with Tribal Game and Fish biologists and South Dakota State University.

It is important to note that SDSU as well as the Tribal Game and Fish Department have been key partners in all of our *Amerlanchier Cultivars* research. Equally important is that fact that research such as this would not be possible without a focus at USDA on specialty crop research. In rural America and Indian Country, specialty crop research is critically important to building and sustaining a local economy: locally grown, locally produced, locally packaged, and locally consumed. Whether through a separate specialty crop program or the NIFA-TCU research program, we believe this type of research is the most relevant and will yield the largest return in many of our communities. The need for more an ongoing research into new and emerging technology uses and impacts; pest and invasive species management; sustainable growth; and food safety/security are essential in Indian Country, as NHSC's series of juneberry research grants attests.

Other TCUs are also doing important research. Salish Kootenai College, in Pablo, Montana, conducts extensive research and offers an accredited bachelor's degree program in the Science of Hydrology to address a dearth of American Indian water management scientists. This is particularly relevant to people of the Flathead Indian Reservation because their primary body of water, Flathead Lake, is the nation's largest freshwater lake west of the Mississippi and it is fed by several rivers and streams flowing from the glaciers of northern Montana and Canada.

Ilisagvik College in Barrow, Alaska, is located on the northern-most point of the United States where "the sea is the way of life." Ilisagvik offers a unique Marine Mammal Observer Stewardship degree that combines Inupiaq traditional knowledge, Western science research, and industry standards into a program that is recognized by the Alaska Federation of Natives as "the training center for Alaska Natives on Marine Mammal Observation."

These examples demonstrate our fundamental connection to the 1994 legislation: We are people of a Place. Tragically, due to misuse, exploitation and lack of expertise and training, millions of tribal acres are fallow, under-used, or are being developed through methods that could render resources non-renewable. For this reason, in particular, agriculture and forestry research is critically important to the 1994 institutions and our tribal communities.

THE NEED TO GROW TCU (1994) AGRICULTURE & FORESTRY RESEARCH PROGRAMS:

THE PRODUCTION CHALLENGE

The agriculture challenges we face as a nation and world today are well established: constantly and rapidly changing technologies; population growth and predicted food shortages; environmental changes and competition over water and land access and use; obesity and health status; and more. A common thread adding another layer of complexity to each of these challenges is the aging agriculture workforce in the U.S. The average age of farmers and producers in the U.S. is 60 years of age and continues to rise each year. Among Native American farm operators, more than 30 percent are 65 years or older. But for American Indians and Alaska Natives (AI/AN), the issue goes far beyond age. The 2012 Agricultural Census reports less than 38,000 Native American-operated farms, representing only 1.8 percent of the approximately 2.1 million farms in the U.S. Of these Native farms, only 8 percent had a market value of \$50,000 or more, while 25 percent of all U.S. farms were worth \$50,000 or more. In North Dakota, the statistics are even more grim: in 2012, only 348 principal farm operators were AI/AN, representing only 1.1 percent of all farm operators in the state. The state lost nearly 20 Native farmers between 2007 and 2012. The bottom line is that Native farmers and ranchers are already under-represented in the U.S., and their numbers will likely decline even further as today's farmers and ranchers retire.

As a nation, we must do more to increase the number of young people seeking careers in the food and agricultural sciences, including agriculture research, agribusiness, food production, energy and renewable fuels, and farming marketing, innovation, and distribution. The need is particularly acute in Indian Country, as the numbers I have cited attest. For Native farmers and ranchers, access to land is not the primary issue, as it is for most potential farmers in the country. (As I mentioned earlier, 75 percent of the remaining lands in Indian Country are forested or agriculture lands.) Access to capital, agriculture education and research, and technical assistance are the major barriers for most Native farmers and ranchers. Outreach, technical assistance and innovative research opportunities through traditional Cooperative Extension and education programs are limited in many tribal communities, often due to the rural settings and funding limitations. Tribal Colleges often lack the funding they need, as well as critical support from the mainstream land-grant system, to develop and deliver appropriate agricultural programming and research opportunities. Yet, with adequate funding, TCUs can provide relevant, locally- and place-based higher and technical/career education that is innovative and which includes important tribally-driven experiential learning and community-based research opportunities to aspiring and beginning farmers, ranchers, and agriculture/forestry researchers and students throughout Indian Country.

RECOMMENDATIONS FOR CONSIDERATION DURING THE FARM BILL REAUTHORIZATION

The 1994 institutions are confident that we have the potential of becoming significant contributors to the agricultural base of the nation and the world once again. More and more AI/AN tribes and 1994 institutions are beginning to re-assert sovereignty over our food, agriculture, livestock and fisheries systems. Working with key partners, we are defining policies that are ecologically, socially, and culturally appropriate to our unique circumstances.

Due in large part to our land-grant activities, leveraged with other federally funded STEM programs, our students are involved to some degree in cutting-edge and community-relevant research, particularly research related to the preservation of our natural resources and the exploration of the linkages between nutritional patterns and disease. Much of this research is conducted with other land-grant institutions, resulting in both good science and solid partnerships.

1. ACKNOWLEDGE THE VALUE OF PLACE-BASED, TRADITIONAL RESEARCH AND EDUCATION

The 1994 Institutions, along with other Minority-Serving Institutions (MSIs), are uniquely positioned to provide the next generation of technically and culturally competent agricultural scientists and researchers. We believe that our Native American students represent a unique competitive advantage in an increasingly culturally diverse global agriculture science world. Our Tribal College students can succeed in cross-cultural contexts better than anyone, and these types of people will be successful as agriculture scientists working in places that are culturally different from the U.S., such as the Middle East, South America, and Africa. American Indians and Alaska Natives are a unique and important component of any student pipeline that leads to a new generation of agriculture scientists.

The research provision of the Farm Bill should specifically acknowledge that students and faculty of the 1994 institutions and other MSIs can enhance the cultural competency of the next generation of agricultural scientists, researchers, and practitioners. The cultural competency needed to meet global agricultural challenges will often be as important as scientific and technical competency. Agricultural scientists and researchers working in cross-cultural, international settings will need to be sensitive and respectful of cultural and social norms and values. In many countries, cultural competency facilitates the initial access to local populations before technical and scientific activities can proceed. Indigenous peoples are especially vulnerable to exploitation of cultural and natural assets, such as traditional ecological knowledge and natural resources.

More broadly, research and education provisions of the Farm Bill must specifically include underserved students at the undergraduate level. The vast majority of the USDA current “education” and research funding supports graduate-level research. More resources need to be devoted to student success, faculty development, curriculum innovation, international development, facilities development, and infrastructure support at the community college and early undergraduate level.

2. RESIST EFFORTS TO CONSOLIDATE STEM RESEARCH PROGRAMS

As you know, the President’s Fiscal Year 2018 budget request proposes the consolidation of many federal STEM higher education and research programs. We expect that other proposals along these lines will be put forth in the months ahead. We believe that the research programs supported by NIFA are important and unique. Consolidation of these programs with other federal STEM research and education programs is simply a bad idea, particularly for Indian Country. Not only would the agriculture and natural resource focus become lost – which is so important to us for the reasons noted earlier – but also to be lost will be the multi-cultural, diversity of thought focus of America’s education programs. Under proposals to consolidate and homogenize programs, we stand to lose some important USDA programs, and history clearly demonstrates that small and under-resourced institutions, such as the 1994 land-grant institutions, would fair very poorly in competitions with well-resourced major Research I institutions.

3. McINTIRE STENNIS AMENDMENT TO ESTABLISH PARTICIPATION ELIGIBILITY FOR 1994 INSTITUTIONS WITH BACCALAUREATE DEGREE PROGRAMS IN FORESTRY

The McIntire Stennis Act of 1962 (16 U.S.C. 582a, et seq. Public Law 87-788) should be amended to allow Tribal Colleges (1994 institutions) that offer a bachelor's degree in forestry to receive a share of McIntire Stennis Act formula funding that flows to a state in which a relevant 1994 institution is located.

Justification: In 2008, the McIntire Stennis Act was amended to include Tribal lands in the formula calculation for funding of *state* forestry programs, which are centered around forestry research and management. However, the 1994 institutions were not included in the funding formula, nor were states required to include them in funding distributions. This oversight is significant because, as noted earlier, 75 percent of Tribal land in the U.S. is either forest or agriculture holding. In response to the severe under-representation of American Indian professionals in the forestry workforce to conduct research on the AI/AN forestry holdings in Montana and across the United States, Salish Kootenai College (SKC) launched a Forestry baccalaureate degree program in 2005.

In 2013, SKC became the first tribal college land-grant to join the National Association of University Forest Resource Programs, a consortium of 85 forestry schools, the vast majority of which receive McIntire Stennis funding. However, when SKC recently sought specialty accreditation for its program, the college was told that it was "one forestry researcher short" of the optimum number needed. Participation in the McIntire Stennis program, even with the required 1-1 match, would help SKC secure the researcher it needs to gain accreditation. Yet, it cannot participate in the program. Once again, TCU land-grants are prohibited from participating as full-partners in the land-grant system. And although currently, only SKC has a baccalaureate degree in forestry, considering the wealth of forested land on American Indian reservations, others such programs could arise at the nation's other Tribal land-grant institutions, to further the effort to grow Native researchers in this essential area.

CONCLUSION

In closing, Mr. Chairman and Madam Ranking Member, I want to reiterate that the 1994 Institutions have proven to be efficient and effective vehicles for bringing education and research opportunities to American Indians/Alaska Natives and the promise of self-sufficiency to some of this nation's poorest and most underserved regions. The extremely small federal investment in the 1994 Institutions has already paid great dividends in terms of increased employment, access to higher education and research opportunities, and economic development. Continuation of and significant growth in this investment makes sound moral and fiscal sense. As stated earlier, no institutions better exemplify the original intent of Senator Morrill's land grant concept than the 1994 Institutions. We are proud to be part of the nation's great land-grant system, and I am honored to have this opportunity to share our story and a few recommendations with the Committee today. Thank you.