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PREPARED FOR THE U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON AGRICULTURE  
HEARING ENTITLED: THE NEXT FARM BILL - UNIVERSITY RESEARCH  
JUNE 22, 2017**

Chairman Conaway, Ranking Member Peterson, and members of the Committee, on behalf of the nation's 37 Tribal Colleges and Universities (TCUs), which collectively are the American Indian Higher Education Consortium (AIHEC), thank you for the opportunity to testify today and share a few recommendations on the topic of agricultural research in preparation for the next reauthorization of the Farm Bill.

**BACKGROUND ON TRIBAL COLLEGES:**

American Indian Tribal Colleges are public institutions of higher education that are young and geographically isolated – primarily located on federal trust land. Tribal Colleges are tribally or federally chartered and they have been 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 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. They 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 working to sustain and revitalize our lands, waters, environments, and traditional foods.

**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 with that designation, to participate in vital agriculture and natural resource programs operated by 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. 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 truly are place- and community-based institutions. All of the 1994 institutions offer place-based agriculture and natural resource

management programs and train a significant number of our tribal natural resource research and management professionals and small farmers and ranchers. Of the 37 Tribal Colleges, 34 currently are 1994 land-grant institutions, and another – Red Lake Nation College in Minnesota – is expected to join our ranks as a 1994 land-grant institution 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, youth summer science and nature camps, agriculture technical assistance, and financial literacy programs; and a competitive research program, authorized in 1998 and first funded in FY 2000 at \$500,000. The current appropriation for this program, and its high watermark, is \$1.8 million for all 34 institutions. 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 forests, woodlands, grasslands, and crops, and monitor the quality of our soil, water, and other environmental factors. Projects range from studying bison herd productivity to efforts focused on the connection between traditional plants and their role in managing diabetes, controlling invasive species, and revitalizing Native species. Each of the 1994 programs, though small, is critically important to the 1994 institutions and the communities they serve.

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

Three types of funding are available through the research 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.

Key benefits of the USDA-NIFA Tribal College Research Grants Program are the collaboration and long-term relationships that the grants help us build with top faculty and scientists at state universities, agencies, tribal organizations, and research centers. Through a 1994 research grant, scientists, researchers, professors, and career professionals from multiple institutions, agencies, and businesses become readily available sources of support for TCUs, able to respond to questions, suggest methodologies, and share equipment, resources, and facilities. Conversely, the 1994s are a unique resource to their partners. These communities of practice are similar to learning communities; through and within, the 1994s 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 Examples

Through the 1994 Tribal College research program, White Earth Tribal and Community College in Mahanomen, Minnesota is conducting research on land use and land cover on water quality and wild rice productivity. This research is important because wild rice is one of the key cultural, economic, and nutritional resources of the Anishinaabeg people. The White Earth Band and other Anishinaabeg people are facing many challenges in protecting this resource for future generations. Some of these are genetic, but many are connected to water quality and, in particular, how changes in land use such as agriculture, development, and mining may impact wild rice. Tribal natural resource departments face additional challenges: the lack of personnel and resources to comprehensively monitor water quality and adequately study its impacts on wild rice productivity. The WETCC wild rice research project includes *in situ* research in existing rice beds and waterways, comprehensive statistical analysis using remote data, and the construction of an online data portal – all three engaging undergraduate student researchers – as well as an innovative and longstanding partnership of institutions and organizations.

Led by Dr. Steve Dalberg, WETCC is working to determine whether satellite data can be useful as a cost-effective predictor related to wild rice productivity. The key is to find satellite data that correlates strongly enough with important biochemical water quality parameters and the productivity of rice stands to be useful. Then, the college will make those data available to tribal resource managers so they can use them to identify “hot spots” that need further monitoring. This will enable the managers to make informed, data-driven decisions, targeting their limited resources in the most effective way. At the same time, TCU students build important research skills, working with scientists and natural resources practitioners while they learn to manage large, complex datasets that ultimately, could help sustain their tribal culture and economy for generations to come.

The success of this project has been fundamentally tied to the strength of the WETCC team, which includes many of the principals from the college’s long-standing collaboration with NASA, the U.S. Geologic Service Eros Data Center, and Dr. Abdullah Jaradat and his staff from the USDA Agricultural Research Service Lab in Morris, MN. These partners provide the range of expertise that Dr. Steve Dalberg, the sole scientist on the WETCC’s staff cannot begin to duplicate. Without the committed and capable partnerships forged through opportunities from both the USDA-NIFA TCU research program and NASA, this project would not be possible. As with most things in Indian Country, the long-standing relationships we develop are the key factors in our success. According to Dr. Dalberg, “it goes without saying that Federal dollars are the grease that makes these relationships possible.”

Since 2001, Dr. Kerry Hartman and his undergraduate students have been conducting culturally and economically relevant research at Nueta Hidatsa Sahnish College, on the Fort Belknap reservation in North Dakota, through the USDA-TCU research program. The goal of Dr. Hartman’s current NIFA research project, conducted with tribal Game and Fish biologists and South Dakota State University, is to figure out how to develop and maintain an environment that will support *native* pollinators of *Amerlanchier Cultivars*, or juneberries, and other traditional plants. Juneberries are an ancient plant. Their high levels of protein, calcium, and antioxidants sustained generations of Native peoples throughout the northern plains and woodlands, until native pollinators and juneberry stands fell victim to westward expansion. If NHSC can restore the juneberries’ native habitat, they could sustainably cultivate crops for local use and small farm commercial production, helping to grow the reservation economy and improve the health status of their

people. They will also be restoring identity and cultural pride within the Mandan, Hidatsa, and Arikara people.

It is important to note 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 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 juneberry research 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."

United Tribes Technical College, in Bismarck, North Dakota is currently conducting a wide variety of research related to the land, wildlife, and traditional plants of the grasslands and northern prairie. Under the USDA-NIFA TCU research program, UTTC is conducting a small study on new methods to control invasive Kentucky Bluegrass, in partnership with the local Agriculture Research Service station. In partnership with North Dakota State University, the college is engaged in its second student research project on bat ecology in the state of North Dakota. More specifically, this grant supports research on bat foraging ecology habitat structure and distribution across the state. UTTC is also integrating its research programs with extension and outreach activities, conducting significant research on nutrition, health, and native/traditional plants. Under an optimal gardening research effort aimed at boosting production of small farmers, they are studying management strategies and inputs to ascertain cost effectiveness for growers on reservations, given limited access to water and soil inputs. Faculty and students have also conducted important research on healthy eating habits, juneberries, corn varieties, and seed sovereignty among tribal nations.

These are just a few examples but they 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, agriculture and forestry research, in particular, 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, in comparison 25 percent of all U.S. farms were worth \$50,000 or more. 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.

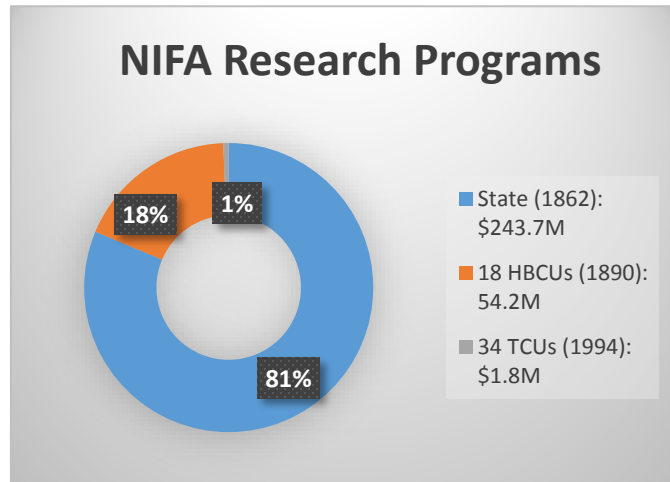
As a nation, we must do more to increase the number of young people seeking careers in the food and agricultural sciences, including agriculture research, agribusiness, food production, energy and renewable fuels, and farming marketing, innovation, and distribution. The need is particularly acute in Indian Country, as the numbers cited herein 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 noted previously, 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.

### *THE RESEARCH CHALLENGE*

I would like to respectfully suggest that USDA's research portfolio has not benefited in any significant way from the unique value that 1994 institutions can contribute in helping to meet the challenges we face as a nation. The USDA research portfolio is heavily oriented to large capacity and Research I institutions. In 2013, the Government Accounting Office issued a report on the participation by Minority Serving Institutions – including the 1994 institutions – in USDA's research programs. The report concluded that MSIs received about two percent of all research funding. (For a copy of the report, please see: <http://www.gao.gov/products/GAO-03-541>.) We believe that the disparity described in the report has probably expanded in recent years, as the program in question was a predecessor to the Agriculture and Food Research Initiative (AFRI). We know it is the case for the 1994 institutions.

Research and experiential learning are critical components of higher education in the classroom, the lab, and for students' careers. Without being able to participate in USDA's flagship research program, AFRI, 1994 institutions are losing out in ways that are almost immeasurable. We strongly urge this Committee to rectify this serious problem in the next reauthorization of the Farm Bill, and further, to take a look at USDA's overall commitment to research, including facilities at the 1994 institutions.

In Fiscal Year 2016, the 1994 institutions *competed* against one another for \$1.8 million in research funding. That same year, the 1862 land-grant institutions (state) received \$236 million in formula funds, even though 10 states are smaller than some of the reservations with a 1994. The 1890 institutions (17 historically black colleges and universities) received \$51 million, with a guarantee of at least \$1 million each.



We are told that nothing can be done – the federal budget situation is too dire. We disagree. We believe that this Administration and Congress could begin to correct these inequities. We are not asking for handout. We are asking for an investment – a proven investment in Tribal Colleges, which would help our people become – once again – significant contributors to the agricultural base of the nation and the world.

**RECOMMENDATIONS FOR CONSIDERATION DURING THE FARM BILL REAUTHORIZATION**

The 1994 institutions are confident that they 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. Tribal College and other MSI 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 critically needed infrastructure support at the community college and early undergraduate level.

## **2. RESIST EFFORTS TO CONSOLIDATE STEM RESEARCH PROGRAMS**

As you are aware, 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 lost will be the multicultural, diversity of thought focus of America’s education programs. Under proposals to consolidate and homogenize federal 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 and large land-grant universities.

## **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 on 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 Mr. 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. I am honored to have this opportunity to share our story and a few recommendations with the Committee today. Thank you.