



**Charles Valentine Riley
Memorial Foundation**

**Food, Agriculture and Natural Resources
Research and Education**

**Non-Land-Grant Colleges of Agriculture:
Contributing to the Common Good**

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Charles Valentine Riley Memorial Foundation

5585 Guilford Road
Madison, WI 53711-5801

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Authors

Richard L. Ridgway, President Emeritus, Charles Valentine Riley Memorial Foundation; Michael Compton, Professor, School of Agriculture, University of Wisconsin, Platteville; and Cindy Akers, Associate Dean, College of Agriculture Sciences and Natural Resources, Texas Tech University

About the Charles Valentine Riley Memorial Foundation

The Charles Valentine Riley Memorial Foundation (RMF) is committed to promoting a broader and more complete understanding of agriculture and to build upon Charles Valentine Riley's legacy as a "whole picture" person with a vision for enhancing agriculture through scientific knowledge. RMF, founded in 1985, recognizes that agriculture is the most basic human endeavor and that a vibrant, robust, food, agricultural, forestry, and environmental-resource system is essential for human progress and world peace. RMF's goal is to have all world citizens involved in creating a sustainable food and agriculture enterprise within a responsible rural landscape.

RMF's Commitment for Increased Federal Research Investment

RMF supports growing each of the key components of the agricultural research funding portfolio that supports the national system delivering results for the public good: **competitive grants**, which take advantage of innovation at public and private universities, and other organizations with scientific and technical expertise; **capacity funds**, for state (universities) and federal agencies such as USDA's Agriculture Research Service, Economic Research Service and Forest Service, to continue to provide a stable scientific workforce and research sites that conduct research requiring long-term commitment and potential high-risk/high-payoff solutions, while maintaining the capacity to rapidly deal with crisis situations; and **public-private partnerships**, such as the Foundation of Food and Agricultural Research, a nonprofit corporation that matches public funds with private funds to conduct research on problems of national and international significance.

About this Report

RMF sponsored the development of this report highlighting the functions of the Non-Land-Grant Colleges of Agriculture (NLGCA) because these universities represent a segment of the agricultural research and educational system that RMF believes has not received sufficient attention and focus. Federal funding for NLGCA, which are represented by the Non-Land-Grant Agriculture and Renewable Resources Universities (NARRU), is somewhat unique in that it is a combination of both capacity and competitive funding.

Disclaimer

Although RMF supports increased federal investment in food, agricultural and natural resources research, that message is not the intent of this report. The primary purpose of this report is to document what has been done with existing resources. Some additional information is included to place NLGCA in perspective with related activities and where quotes are included, the source is provided. These quotes do not necessarily reflect the position of RMF.

Highlights

Many Non-Land-Grant Colleges of Agriculture (NLGCA) recognized by the Non-Land-Grant Agricultural and Renewable Resources Universities (NARRU) evolved from teacher colleges that added degree programs in agriculture. Other NLGCA are part of state universities established decades after the Land-Grant-Universities (LGU). In both cases, the agriculture programs were added to fulfill existing needs.

Currently, NARRU recognizes 58 NLGCA. These colleges enroll more than 32,000 undergraduate students in agricultural majors, which is a significant complement to the over 110,000 undergraduate students in agriculture enrolled at LGU. In addition, 11 NLGCA are in the top 100 universities in FY 2014 R&D expenditures for agricultural research.

Five million federal dollars were appropriated in FY 2017 for competitive capacity-building activities on education, research and outreach at NLGCA. Although the research mission and activities such as Cooperative Extension are not directly comparable, appropriations for formula capacity building at LGU provides an important perspective on how capacity building funds are used. Appropriations in FY 2017 for formula capacity building at LGU for four major programs were \$643 million.

NLGCA teaching programs prioritize real-world, hands-on experiences, undergraduate research and independent studies and internships on campus, at farms and in laboratories and in cooperation with producers, industry and governmental agencies.

Graduates from NLGCA are helping to fulfill a national demand for a highly skilled workforce in agriculture and related areas. *The Employment Opportunities for College Graduates in Food, Agriculture, Renewable Natural Resources and the Environment, United States, 2015-2020*, produced by Purdue University with grant support from USDA National Institute of Food and Agriculture, indicates that new U.S. graduates with expertise in food, agriculture, renewable natural resources, or the environment are expected to fill only 61 percent of the expected 57,900 average annual openings.

Thus, it is clear that capacity is needed for both LGU and NLGCA to meet this critical workforce need.

“When considering the challenge to more than double sustainable food production on existing land resources to meet the need for global food production, reauthorization and increased funding for educational, research and outreach activities outlined in the NLGCA Capacity Building Grant Program is a great investment for the future of agriculture.”

— Robert Rhykerd, President, Non-Land-Grant Agriculture and Renewable Resources Universities, and Chairman, Department of Agriculture, Illinois State University

Foreword

The Non-Land-Grant Colleges of Agriculture (NLGCA) are organized and represented by the Non-Land-Grant Agricultural and Renewable Resources Universities (NARRU). The NLGCA institutions are public colleges and universities that offer baccalaureate or higher degrees in agriculture, food and renewable resources. Each year these institutions grant nearly one-fourth of the degrees in agriculture granted in the United States. These institutions also provide important transformational research and outreach activities, while developing a highly skilled workforce for the agriculture, food and natural resource industries.

The priorities that make NLGCA teaching programs and graduates unique are the real-world, hands-on experiences in laboratories, undergraduate research, independent studies and internships on campus and farms and with industry and governmental agencies. NLGCA place an emphasis in their curricula on business, critical thinking, problem solving, decision making, creativity, communications and teamwork. They produce science-based and workforce-ready graduates with a strong work ethic who may choose to pursue graduate studies, enter industry and government careers or return to production-oriented positions on our nation's farms and ranches. Through their educational, research and outreach programs, NLGCA are making a significant contribution nationwide in developing a highly skilled workforce for agriculture, food and renewable resource industries.

One of NARRU's goals is to increase support for NLGCA to build capacity to support their educational, research and outreach missions as well as compete for USDA's National Institute for Food and Agriculture funding offered through programs such as the Higher Education Challenge Grant Program and the Agriculture and Food Research Initiative (AFRI). NARRU leaders have worked with lawmakers and the agriculture industry to garner support for NLGCA institutions.

Recognizing that NLGCA institutions often lack the capacity to compete with land-grant universities and other entities for federal funds, Congress authorized a program in the 2008 Farm Bill (re-authorized in 2014) to provide capacity-building competitive grants for NLGCA. Since FY 2012, the NLGCA Capacity-Building Grant Program has awarded \$16,273,223 in grants for 54 projects. These funds have been instrumental in developing capacity for improved academic, research and outreach activities at NLGCA institutions, as well as promoting regional and multi-institutional collaborations.

Thus, it is clear that capacity is needed for both Land-Grant Universities and NLGCA to meet this critical workforce need.

When considering the challenge to more than double sustainable food production on existing land resources to meet the need for global food production, reauthorization and increased funding for educational, research and outreach activities outlined in the NLGCA Capacity-Building Grant Program is a great investment for the future of agriculture.

Robert Rhykerd
President, Non-Land-Grant Agriculture and Renewable Resources Universities
Chairman, Department of Agriculture, Illinois State University

Introduction

“Investments in agricultural research and infrastructure built over time are long-term investments in the future well-being of our nation. Research serves as the foundation of applied sciences to assist the industry in solving problems that have a direct impact on all aspects of our economy. As you (U.S. Congress, Committee on Agriculture) continue your important work, we hope you will continue supporting and increasing the funding for the Non-Land-Grant Colleges of Agriculture capacity-building program.”

— Robert Duncan, Chancellor, Texas Tech University System, June 22, 2017

Non-Land-Grant Colleges of Agriculture (NLGCA) are generally defined as public colleges and universities that offer baccalaureate or higher degrees in the study of agriculture, food and renewable resources. These institutions also provide important translational research and outreach benefits through graduate education (M.S. and Ph.D. levels). Through their educational, research and outreach programs, NLGCA are making a significant contribution nationwide in developing a highly skilled workforce for agriculture, food and renewable resource industries.

Non-Land-Grant Agricultural and Renewable Resources Universities (NARRU) is the organization that unifies and represents NLGCA institutions. One of NARRU’s goals is to increase support for NLGCA to build capacity to support their educational, research and outreach missions as well as to compete for USDA’s National Institute Food and Agriculture funding offered through programs such as the Higher Education Challenge Grant Program and the Agriculture and Food Research Initiative.

Non-Land-Grant Colleges of Agriculture

NLGCA have a long and successful history of educating and preparing professionals in agriculture, food, renewable resources and related fields¹. NLGCA recognized and represented by NARRU evolved from teacher colleges that added degree programs in agriculture to fulfill needs that not being met by other institutions. However, in some instances the awarding of agriculture degrees became part of state universities established decades after the original Land-Grant Universities (LGU) were founded. Currently, 58 NLGCA are recognized by NARRU using criteria established by the National Center for Education (Table 1)².

Capacity-Building Grants for Non-Land-Grant Colleges of Agriculture

Recognizing that NLGCA institutions often lack the capacity to compete with land-grant universities and other entities for federal funds, Congress authorized a program in the 2008 Farm Bill (re-authorized in 2014) to provide capacity-building competitive grants for NLGCA³.

USDA’s National Institute of Food and Agriculture administers grants through a competitive capacity grant program that allow NLGCA to carry out educational, research and outreach activities that address priority concerns of national, regional, state and local interest. Like their LGU counterparts, NLGCA can use this funding to promote food security, food safety and improve production agriculture. NLGCA faculty can use the funding to develop curricula and enhance agricultural-related programs at their institutions.

Table 1. Non-Land Grant Colleges of Agriculture as recognized by the Non-Land Grant Agriculture and Renewable Resources Universities.

Abraham Baldwin Agricultural College (GA)	Sam Houston State University (TX)
Angelo State University (TX)	Southeast Missouri State University
Arizona State University Polytechnic Campus	Southern Illinois University, Carbondale
Arkansas State University	Southern Utah University
Arkansas Tech University	Southern Arkansas University
Austin Peay State University (TN)	Southeastern Louisiana University
Cal Poly, Pomona	Southwest Minnesota State University
Cal Poly, San Luis Obispo	State University of New York, Cobleskill
California State University, Chico	Sul Ross State University (TX)
California State University, Fresno	Tarleton State University (TX)
California State University, Stanislaus	Tennessee Technological University
Cameron University (OK)	Texas A&M University, Commerce
Dickinson State University (ND)	Texas A&M University, Kingsville
Eastern Kentucky University	Texas State University, San Marcos
Eastern New Mexico University	Texas Tech University
Fort Hays State University (KS)	Truman State University (MO)
Illinois State University	University of Arkansas, Monticello
Louisiana Tech University	University of Central Missouri
McNeese State University (LA)	University of Hawaii, Hilo
Middle Tennessee State University	University of Louisiana, Lafayette
Missouri State University	University of Louisiana, Monroe
Montana State University-Northern	University of Minnesota, Crookston
Morehead State University (KY)	University of Nebraska, Kearney
Morrisville State College (NY)	University of Tennessee, Martin
Murray State University (KY)	University of Wisconsin, Platteville
Nicholls State University (LA)	University of Wisconsin, River Falls
Northwest Missouri State University	University of Wisconsin, Stevens Point
Northwestern Oklahoma State University	West Texas A&M University
Oklahoma Panhandle State University	Western Illinois University

NLGCA institutions may use capacity building grant funding:

- to successfully compete for funds from federal grants and other sources to carry out educational, research and outreach activities that address priority concerns of national, regional, state, and local interest;
- to disseminate information relating to priority concerns to interested members of the agriculture, renewable resources and other relevant communities, the public, and any other interested entity;
- to encourage members of the agriculture, renewable resources and other relevant communities to participate in priority education, research and outreach activities by providing matching funding to leverage grant funds;

- for the purchase or other acquisition of equipment and other infrastructure (not including alteration, repair, renovation or construction of buildings); for the professional growth and development of faculty of the NLGCA institution; and for the development of graduate assistantships.
- to encourage members of the agriculture, renewable resources and other relevant communities to participate in priority education, research and outreach activities by providing matching funding to leverage grant funds;
- for the purchase or other acquisition of equipment and other infrastructure (not including alteration, repair, renovation or construction of buildings); for the professional growth and development of faculty of the NLGCA institution; and for the development of graduate assistantships.

Five million federal dollars were appropriated in FY 2017 for competitive capacity-building activities on education, research and outreach at NLGCA. Although the research mission and activities such as Cooperative Extension are not directly comparable, appropriations for formula capacity building at LGU provides an important perspective on how capacity building funds are used. In FY 2017, \$46 million was appropriated for 1890 Extension, \$65 million for Evans-Allen (research and Extension at 1890 institutions), \$244 million for Hatch Act (research and education), and \$300 million for Smith-Lever (Extension).⁴ Although not included in the online version of “Overview of FY 2018 Request”, it is important to note that a similar version in the “one-pager” entitled “APLU (Association of Public and Land-Universities) requests \$200 million increase for NIFA” included “APLU also supports increased funding for Capacity Building for Non-Land-Grant Colleges of Agriculture and Multicultural Scholars, Graduate Fellowship and Institution Challenge Grants.”

Contributions and Need

The NLGCA provide an important complement to the Land-Grant Universities. A Food and Agricultural Education Information System (FAEIS) survey⁵ reported that for 2011-2015, the NLGCA enrolled over 32,000 undergraduate students per year and the LGU enrolled over 110,000 undergraduates per year. Two other sources reported 132,000⁶ and 135,000⁷ students enrolled in postsecondary education with agriculture as the major field of study during the same period of time.

In its recent report, *The Employment Opportunities for College Graduates in Food, Agriculture, Renewable Natural Resources and the Environment, United States, 2015-2020*^l, Purdue University reported that “college graduates with expertise in food, agriculture, renewable natural resources and the environment are essential to our ability to address the U.S. priorities of food security, sustainable energy and environmental quality.” The report, funded by USDA’s National Institute for Food and Agriculture, estimated that an average of 35,400 new U.S. graduates with expertise in food, agriculture, renewable natural resources or the environment are expected to fill only 61 percent of the expected 57,900 average annual openings in these fields.⁸

Thus, it is clear that capacity is needed for both Land-Grant Universities and NLGCA to meet this critical workforce need.

In addition to their role in preparing agriculture graduates, some NLGCA institutions have significant research programs. Eleven NLGCA institutions were classified among the top 100

universities in FY 2014 research and development expenditures for agricultural research with annual expenditures from \$2 to \$27 million (Table 2)⁹.

Table 2. Non-Land-Grant Colleges of Agriculture recognized by NARRU that are in the top 100 universities in the expenditures for R&D in the agricultural sciences. 2014.

Cal Poly, San Luis Obispo	Tarleton State University (TX)
Cal Poly, San Luis Pomona	Tennessee Technological University
California State University, Fresno	Texas A&M University-Kingsville
Missouri State University	Texas Tech University
Southern Illinois University-Carbondale	West Texas A&M University
Stephen F. Austin State University (TX)	

Acknowledgements and Endnotes

The Charles Valentine Riley Memorial Foundation (RMF) gratefully acknowledges Wendy Fink, Director of Food, Agriculture, and Natural Resources, Association of Public and Land-Grant Universities; Jay Akridge, Provost and Executive Vice President for Academic Affairs and Diversity, Purdue University; and Todd A. Winters, Dean, College of Agriculture and Applied Sciences, University of Tennessee at Martin for reviewing all or part of the manuscript; and Brian Meyer, Director of College Relations, College of Agriculture and Life Sciences, Iowa State University, for copyediting and archiving this special report in the National Technical Information System and posting the report on the RMF website.

¹Non-Land-Grant Agriculture and Renewable Resources Universities (NARRU). 2017. Competitive Capacity Building Grants for Non-Land-Grant Colleges of Agriculture. 2018 Farm Bill ask. Personal communications. January 2018. Rob Rhykerd, President, NARRU (rrhyker@ilstu.edu)

²National Center for Education. 2002. Classifications of Instructional Programs.

³National Institute of Food and Agriculture. 2017. Capacity-Building Grants for Non-Land-Grant Colleges of Agriculture ... (see home page and abstracts)
<https://nifa.usda.gov/.../capacity-building-grants-non-land-grant-colleges-agriculture>

⁴Association of Public and Land-Grant Universities. 2017. Overview of FY 2018 Request.
http://www.aplu.org/members/commissions/food-environment-and-renewable-resources/board-on-agriculture-assembly/policy-board-of-directors/budget-and-advocacy-committee/bac-minutes/option_a_one_pager.pdf

⁵Food and Agricultural Education Information System. faeis.ahnrit.vt.edu

⁶National Center for Education Statistics. Enrollment in secondary education, by level of enrollment, level of institution, student age, and major field of study.
https://nces.ed.gov/programs/digest/d13/tables/dt13_311.60.asp

⁷National Center for Education Statistics. Numbers of qualified graduates for food, agriculture, renewable natural resources, and environment positions, 2012–13.
https://www.purdue.edu/usda/employment/wpcontent/uploads/2015/04/NCES_Ag_Supply_42515.htm

⁸U. S. Department of Agriculture. 2017. Employment Opportunities for College Graduates in Food, Agriculture, Renewable Natural Resources, and the Environment.
<https://www.purdue.edu/usda/employment/>

⁹National Science Foundation. Total and federally financed higher education R&D expenditures in the agricultural sciences, ranked by FY 2014 total: FYs 2011–14.
https://ncesdata.nsf.gov/herd/2014/html/HERD2014_DST_40.html