



Research and Extension¹

INTRODUCTION

This backgrounder surveys the Research and Extension Title (Title VII) of the 2014 Farm Bill, which authorizes and funds programs within USDA’s Research, Extension, and Education mission area. Under this title, the federal government seeks innovative solutions to complex agricultural issues, disseminates research results to farmers, and educates groups and individuals on topics involving agriculture.² Many consider the USDA’s RE&E programs as vital to the operation and enhancement of the United States agricultural industry because farmers rely on the latest science, technology, and training.³

I. HISTORY

Agricultural research and extension⁴ traces its history to the Morrill Land Grant Act of 1862.⁵ This Act sold tracts of federal land to finance the establishment of new public colleges and universities for agricultural and technical education.⁶ The Hatch Act of 1887 then expanded on the Morrill Act, offering federal money for agricultural research at the land grant institutions.⁷ The Second Morrill Act of 1890 extended grants to historically black colleges and universities.⁸ In 1914, the Smith-Lever Act provided funding for extension agents, people hired at land grant schools to conduct and disseminate relevant agricultural research to farmers.⁹ The Smith-Lever Act also offered federal funding for research and extension activities at these institutions. These laws created the basis for the modern agricultural research and extension system.

This modern system falls under the USDA’s Research, Extension and Education (REE) mission area, which supports the creation and dissemination of scientific knowledge around agriculture.¹⁰ The mission area comprises four agencies that together carry out “biological, physical, and social sciences related broadly to agriculture, food, and natural resources, delivered through research, statistics, extension, and higher education.”¹¹ Although the REE mission area has a total budget approaching \$3 billion in FY 2016,

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² *Research, Extension, and Related Matters: Title VII*, USDA ECON. RESEARCH SERV., <https://www.ers.usda.gov/agricultural-act-of-2014-highlights-and-implications/research/> (last visited Sep. 21, 2017).

³ *Our Work: Research, Extension and Education*, NAT’L SUSTAINABLE AGRIC. COAL., <http://sustainableagriculture.net/our-work/issues/research-extension-education>.

⁴ “Extension provides non-formal education and learning activities to people throughout the country — to farmers and other residents of rural communities as well as to people living in urban areas. It emphasizes taking knowledge gained through research and education and bringing it directly to the people to create positive changes,” *see* USDA NAT’L INST. OF FOOD AND AGRIC., *Extension*, <https://nifa.usda.gov/extension> (last visited Sep. 21 2017).

⁵ JIM MONKE, CONG. RESEARCH SERV., R40819, AGRICULTURAL RESEARCH: BACKGROUND AND ISSUES 2 (2016).

⁶ *History of APLU*, ASS’N OF PUBLIC & LAND GRANT UNIV., <http://www.aplu.org/about-us/history-of-aplu/>; *Land-Grant University FAQ: What is a land-grant university?*, ASS’N OF PUBLIC & LAND GRANT UNIV., <http://www.aplu.org/about-us/history-of-aplu/what-is-a-land-grant-university/index.html> (last visited Sep. 21 2017).

⁷ 7 U.S.C. 301; MONKE, *supra* note 5, at 5.

⁸ 7 U.S.C. 322; MONKE, *supra* note 5, at 2.

⁹ 7 U.S.C. 341; MONKE, *supra* note 5, at 5.

¹⁰ MONKE, *supra* note 5, at 1.

¹¹ *Id.*



the vast majority of this funding is made through annual discretionary appropriations from Congress.¹² The 2014 Farm Bill accounts for only a small portion, about \$120 million, through mandatory funding.¹³

Of the four agencies under REE, three are “intramural” and carry out research and statistics work directly. Secretary of Agriculture Henry Wallace created the **Agricultural Marketing Service (AMS)** in 1939 by responsibility for “facilitating the efficient, fair marketing of U.S. agricultural products, including food, fiber, and specialty crops.”¹⁴ Today, AMS employs 4,500 researchers at 100 research stations across the U.S. who conduct and share research related to “crop and livestock production and protection, human nutrition, food safety, rural development, natural resource management, and conservation.”¹⁵

The **National Agricultural Statistics Service (NASS)** grew out of USDA’s early Division of Statistics and the creation of the Crop Reporting Board in 1905. Like the Economic Research Service, the modern-day NASS came out of a USDA administrative reorganization in 1961.¹⁶ NASS employs about 1,000 analysts in 45 states who collect and compile U.S. agricultural statistics including the decadal Census of Agriculture, and crop forecasts and price estimates.¹⁷

The **Economic Research Service (ERS)** was an administrative creation of the Secretary of Agriculture in 1961, although it was preceded by the creation of the Bureau of Agricultural Economics in 1922 and by the Division of Statistics one year after the USDA was created in 1862.¹⁸ ERS employs about 365 researchers centralized in Washington, D.C., who conduct economic and policy analysis on all aspects of the agricultural sector.¹⁹

The fourth RE&E agency, the **National Institute of Food and Agriculture (NIFA)**, is a creation of the 2008 Farm Bill. NIFA is “extramural,” meaning that rather than conducting research in-house, the Institute “provides grants and partnerships with the land-grant university system and other organizations that work at the state and local level.”²⁰ NIFA has discretionary budget authority totaling \$1.3 billion annually.²¹

II. 2014 FARM BILL

The Research and Extension Title of the 2014 Farm Bill funds specific programs, sets REE priorities, and sets requirements for competitive grant funds. This section outlines the most significant provisions.

The 2014 Farm Bill reauthorized a variety of existing REE programs. These programs fall roughly into two categories: programs that are focus on disseminating information and those that focus on research. The former includes extension service activities, meaning the services provided by extension agents at

¹² *Id.* at 2.

¹³ *Id.*

¹⁴ USDA AGRIC. MARKETING SERV., *About AMS: Out History*, <https://www.ams.usda.gov/about-ams> (last visited Sep. 21, 2017).

¹⁵ MONKE, *supra* note 5, at 1.

¹⁶ USDA NAT. AGRIC. STAT. SERV., *About NASS: History of Agricultural Statistics*, https://www.nass.usda.gov/About_NASS/History_of_Ag_Statistics/index.php (last visited Sep. 21, 2017).

¹⁷ MONKE, *supra* note 5, at 1.

¹⁸ USDA ECON. RES. SERV., *ERS History*, <https://www.ers.usda.gov/about-ers/ers-history/> (last visited Sep. 21, 2017).

¹⁹ MONKE, *supra* note 5, at 1.

²⁰ *Id.*

²¹ *Id.*



land grant institutions; and the Beginning Farmer and Rancher development program, which provides grants for new farmer training and educational programming.²²

On the research side, recent farm bills authorize and fund the National Agricultural Research, Extension, Education, and Economics Advisory Board (NAREEEAB), which allows key stakeholders to set research priorities; and the Agriculture and Food Research Initiative program, which provides broad competitive grants for agricultural research ranging from rural community-building to renewable energy to farm productivity to food safety. Each new farm bill reevaluates and modifies research priorities, with NAREEEAB providing recommendations to both the Secretary of Agriculture and Congress broadly.²³ The 2014 priorities include “pulses, coffee plants, corn and soy meal and other grain byproducts, and food safety training.”²⁴ Research on pollinator health is also broadened to include more population monitoring and a more comprehensive disorder definition.²⁵

The Research and Extension Title of the most recent farm bill also includes some significant changes. First, the nonprofit Foundation for Food and Agricultural Research was created to raise funds from individuals, private industry, and nonprofits to supplement USDA agency research.²⁶ The Organic Agriculture Research and Extension Initiative, which provides grants for organic production and marketing projects, began requiring recipients match the funds they receive. However, USDA agencies, land grant institutions, and certain projects focused on priority research areas are exempt from the matching requirement.²⁷

The Organic Production and Market Data Initiative, which promotes data collection to inform policy, business, and marketing, now requires coordination across different USDA branches for the first time.²⁸ Existing programs were also expanded -the Beginning Farmer and Rancher Development Program and the Organic Agriculture Research and Extension Initiative both received 30 percent funding increases.²⁹ The Specialty Crop Research Initiative, which provides grants for fruit, vegetable, and nut research, was given permanent annual funding of \$80 million.³⁰

The 2014 Farm Bill also repealed a variety of initiatives relating to the REE mission area. The Human Nutrition Intervention and Health Promotion Research programs were repealed, and research centers such as the National Swine Research Center and the Red Meat Safety Center were no longer authorized or

²² The Beginning Farmers and Rancher Program has its historical roots in the 1862 and 1890 Morrill Acts, but became codified in its current form within the Food, Conservation and Energy Act of 2008 (2008 Farm Bill) (Pub .L. No. 110-234 § 7410); *See* USDA NAT’L INST. OF FOOD AND AGRIC., *Beginning Farmer and Rancher Development Program*, <https://nifa.usda.gov/funding-opportunity/beginning-farmer-and-rancher-development-program-bfrdp> (last visited Sep. 21, 2017).

²³ *About NAREEEAB*, NAT’L AGRIC. RESEARCH, EXTENSION, EDUC., AND ECON. ADVISORY BD. <https://nareeeab.ree.usda.gov> (last visited Sep. 21, 2017).

²⁴ *Research, Extension, and Related Matters: Title VII*, USDA ECON. RESEARCH SERV., <https://www.ers.usda.gov/agricultural-act-of-2014-highlights-and-implications/research/> (last visited Sep. 21, 2017).

²⁵ *Id.*

²⁶ *Id.*

²⁷ USDA ECON. RESEARCH SERV., *supra* note 24; *2014 Farm Bill Drilldown: Sustainable and Organic Research*, NAT’L SUSTAINABLE AGRIC. COAL., <http://sustainableagriculture.net/blog/2014-farm-bill-drilldown-ree/> (last visited Dec. 17, 2016).

²⁸ NAT’L SUSTAINABLE AGRIC. COAL., *The New 2014 Farm Bill: Outcomes for Sustainable Food and Farming Systems*, 14, <http://wfan.org/wp-content/uploads/2014/03/NSAC-Farm-Bill-Wins-and-Losses.pdf> (last visited Sept. 21, 2017).

²⁹ *Id.*

³⁰ *Id.*



funded.³¹ The farm bill also ended some congressionally-mandated studies, such as an analysis of food deserts and a review of RE&E programs' impact.³²

III. KEY ISSUES

A. Regional Extension Agents Role Assistance in Navigation of Rules/Regulations

The outlets for information regarding research and funding opportunities are extremely fragmented. There are over 50 programs and sub-programs through the Farm Bill alone available to producers and similar entities.³³ With 97 percent of farms being family owned and run, it is difficult to keep up with all the opportunities available to producers.³⁴ Theoretically, extension agents are provided to help farmers navigate these systems. However, they are already stretched thin³⁵ and experience high rates of burnout.³⁶ As a result, some advocates feel that the next farm bill should allocate more funding to extension agents to help farmers understand the complexity of farm bill programs.³⁷ On the other side, fiscal conservatives are likely to resist expanded hiring due to the expense. Given the current political climate, the 2018 Farm Bill will already face significant cuts, so increased expenditures will be scrutinized and will likely have to be offset elsewhere in the legislation.³⁸ Congress must decide going forward whether more extension agents are worth the investment.

B. Matching Requirement for Organic Agriculture Research and Extension Initiative (OREI)

The 2014 Farm Bill added a 100 percent matching requirement for grants under OREI received by researchers not affiliated with a university.³⁹ Some argue that this change favors academia and makes it much harder for non-profits and farmer-driven groups to receive research, extension, and education grants.⁴⁰ However, this policy reduces federal spending given that other entities are required to raise funds for research. The next farm bill will have to decide whether the matching requirement is reasonable, or whether additional exceptions should be made for non-profits, farmer-driven research organizations, and primary producers (those whose primary source of income is farm revenues) under a specified income

³¹ USDA ECON. RESEARCH SERV., *supra* note 24.

³² *Id.*

³³ NAT'L SUSTAINABLE AGRIC. COAL., *Farm Bill Programs & Grants – Overview* <http://sustainableagriculture.net/publications/grassrootsguide/farm-bill-programs-and-grants> (last visited Sept. 21, 2017).

³⁴ 2012 CENSUS OF AGRIC. HIGHLIGHTS – FAMILY FARMS, USDA NAT'L AGRIC. STATISTICS SERV. (Mar. 2015), https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/NASS%20Family%20Farmer/Family_Farms_Highlights.pdf.

³⁵ N.C. COOP. EXTENSION CMTY. LISTENING SESSION, CREATING OUR FUTURE, N.C. AGRIC. AND TECH. STATE UNIV., (2013) <https://www.ces.ncsu.edu/wp-content/uploads/2013/10/Moore-County-Listening-Session-Summary.pdf?fw=no>.

³⁶ Karen M. Enslie, *Burnout: How Does Extension Balance Job and Family?*, 43 JOURNAL OF EXTENSION (2005) <https://www.joe.org/joe/2005june/a5.php>.

³⁷ NAT'L FARMERS UNION, POLICY OF THE NAT'L FARMERS UNION, 168, (2016) <http://1yd7z7koz052nb8r33cfxyw5-wpengine.netdna-ssl.com/wp-content/uploads/2016/03/2016-Policy-Book-Final.pdf>.

³⁸ Catherine Boudreau, *Trump budget is not kind to the farm bill*, POLITICO: MORNING AG., (May 23, 2017) <http://www.politico.com/tipsheets/morning-agriculture/2017/05/23/trump-budget-is-not-kind-to-the-farm-bill-220457>; Chad Smith, *House Budget Wants \$10 Billion Cuts to Ag Spending*, AGNEWS890, (Jul. 19, 2017) <http://www.agnews890.com/2017/07/19/house-budget-wants-10-billion-cuts-to-ag-spending>.

³⁹ 2014 Farm Bill Drilldown: Sustainable and Organic Research, NAT'L SUSTAINABLE AGRIC. COAL., <http://sustainableagriculture.net/blog/2014-farm-bill-drilldown-ree> (last visited Dec 20, 2016).

⁴⁰ NAT'L SUSTAINABLE AGRIC. COAL., *The New 2014 Farm Bill: Outcomes for Sustainable Food and Farming Systems*, 14, <http://wfan.org/wp-content/uploads/2014/03/NSAC-Farm-Bill-Wins-and-Losses.pdf>, (last visited Sept. 21, 2017).



threshold. Debate about this provision has already begun, as signaled by the introduction of a marker bill⁴¹ entitled The Organic Agriculture Research Act of 2017.⁴² This act, introduced by Representative Chellie Pingree (D-ME 1st District), aims “to amend the Food, Agriculture, Conservation, and Trade Act of 1990 to reauthorize the organic agriculture research and extension initiative.”⁴³

C. New Farmers and Ranchers Associate Degree Program

The Research and Extension Title works to attract new farmers through the Beginning Farmers and Ranchers Development Program. The program has proliferated of a wide variety of projects. For instance, from 2009 to 2010, sixty-nine different projects trained, educated, and provided outreach assistance to beginning farmers in forty-five states.⁴⁴ These projects used several techniques, but some of the most successful included face-to-face classroom coursework or workshops, one-on-one mentoring, hands-on workshops, incubators, and full-time apprenticeships with seasoned farmers.⁴⁵ However, some have criticized the program for its inconsistency. The USDA’s own analysis pointed out that measuring outcomes proved challenging given the variety of offerings.⁴⁶ Thus, some have argued for standardization, possibly modeled on private industry associates degree offerings like the Ford Asset Program, designed to set desired outcomes and procedures across states. The standardization may come up against opposition, however, due to its expense and the transfer of decision-making from the state to the federal level.

D. Specialty Crop Research Initiative

The 2014 Farm Bill provides twice the funding to the Specialty Crop Research Initiative than the 2008 Farm Bill, totaling \$80 million annually.⁴⁷ Even so, some argue that an inadequate amount of funds are provided for specialty crop research.⁴⁸ Specialty crops are primarily fruits and vegetables that Americans would buy and eat directly, as opposed to “commodity” crops which are usually ingredients in manufactured foods. Scholars argue that increased funding for research into issues around fruits and vegetables could improve public health. The research could make specialty crops more affordable to Americans, thus making it easier for Americans to eat more nutritious diets.⁴⁹ Thus, those who are interested in nutrition and public health will likely push for the 2018 Farm Bill to address specialty crop funding.

The American Farm Bureau Federation provided the following questions⁵⁰ as guidelines for thinking about the topic: “1) Should we support a greater amount of specialty crop funds for research programs? If so, where should that funding come from? 2) The 2014 Farm Bill opened the door for a stronger focus on public-private partnerships for specialty crops research. Is this working or are there ideas for ways to

⁴¹ A marker bill is a placeholder bill that introduces specific policy with the intent that it will be wrapped into larger, omnibus legislation such as the farm bill.

⁴² *H.R. 2436: Organic Agriculture Research Act of 2017*, GOVTRACK, (Sep. 21, 2017, 11:00 PM) <https://www.govtrack.us/congress/bills/115/hr2436>.

⁴³ *Id.*

⁴⁴ *2011 Outcomes Report: Beginning Farmer and Rancher Development Program*, USDA, https://nifa.usda.gov/sites/default/files/resources/Beginning%20Farmer%202011%20Outcomes_0.pdf (last visited Dec. 18, 2016).

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *See 2014 Farm Bill Highlights*, USDA (Mar. 2014), <http://www.usda.gov/documents/usda-2014-farm-bill-highlights.pdf>.

⁴⁸ AM. SOC’Y FOR HORTICULTURAL SCI., *Public Funding For Specialty Crops Inadequate, Research Suggests*, SCIENCEDAILY, (Feb. 14, 2009) <https://www.sciencedaily.com/releases/2009/02/090203130711.htm>

⁴⁹ *Id.*

⁵⁰ *Should Changes be Made to Enhance Research for Specialty Crops?*, AM. FARM BUREAU FED’N (Oct. 18, 2016), http://www.fb.org/files/2018FarmBill/Should_Changes_be_Made_to_Enhance_Research_for_Specialty_Crops.pdf.



improve the system? 3) Are there gaps in the existing specialty crops research programs? If so, should we support targeting specific programs?” As the next farm bill is written, the balance between government and private funding, as well as the quantity and targeting of each, will be a recurrent consideration.

E. Farm-Level Data Collection

As precision agriculture becomes more widely used, questions of data privacy become more urgent. Farmers’ equipment gathers a wealth of information about their local climate, fields, and crops.⁵¹ That information could be very useful to researchers, but farmers could see their competitiveness suffer if data linked to their land became public in an identifiable way.⁵² Congress will likely debate privacy protections and research access for this data in discussions about the 2018 Farm Bill. Indeed, a recent congressional hearing discussed the subject.⁵³

CONCLUSION

The Research and Education Title, though not as costly or politically contentious as more prominent titles,⁵⁴ remains crucial for scientific progress, agricultural productivity, and farmer education. Funding for the title has increased consistently (with adjustment for inflation) over time,⁵⁵ but the current political climate could put REE provisions at risk, particularly given the current administration’s intent to cut funding.⁵⁶ Research programs may be politically expedient to cut, because its dividends accrue over a longer term than benefits from crop insurance or nutrition programs. These concerns must be weighed against the cost of undermining REE, and the potential to cause lasting harm to American agricultural competitiveness and advancement.

⁵¹ Sjaak Wolfert, et al., *Big Data in Smart Farming – A review*, 153 *ELSVIER*, 69, (2017)
<http://www.sciencedirect.com/science/article/pii/S0308521X16303754>.

⁵² *Data Privacy*, FARM BUREAU, <http://www.fb.org/issues/technology/data-privacy> (last visited Sep. 21, 2017).

⁵³ Hearing: The Future of Farming: Technological Innovations, Opportunities, and Challenges for Producers, US. House of Representatives Committee Repository, <http://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=106220> (last visited Sep. 21, 2017).

⁵⁴ Brad Plumer, *The \$956 billion farm bill, in one graph*, WASH. POST: WONKBLOG (Jan. 28, 2014)
<https://www.washingtonpost.com/news/wonk/wp/2014/01/28/the-950-billion-farm-bill-in-one-chart/>

⁵⁵ USDA ECON. RESEARCH SERV., *supra* note 24.

⁵⁶ OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, BUDGET OF THE U. S. GOVERNMENT FISCAL YEAR 2018: A NEW FOUNDATION FOR AMERICAN GREATNESS, (2017).