

2018 President's Budget  
Economic Research Service

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## ECONOMIC RESEARCH SERVICE

### Purpose Statement

The Economic Research Service (ERS) was established in 1961 from components of the former Bureau of Agricultural Economics principally under the authority of the Agricultural Marketing Act of 1946 (7 U.S.C. 1621 - 1627). The mission of ERS is to inform and enhance public and private decision making on a broad range of economic and policy issues related to agriculture, food, natural resources, and rural America. The Agency's mission is to anticipate issues that are on the horizon, and to conduct sound, peer-reviewed economic research. ERS is also the primary source of statistical indicators that, among other things, gauge the health of the farm sector (including farm income estimates and projections), assess the current and expected performance of the agricultural sector (including trade), and provide measures of food security here and abroad. Most of the Agency's research is conducted by a highly trained staff of economists and social scientists through an intramural program of research, market outlook, and analysis. Key clientele include White House and USDA policy officials; program administrators/managers; the U.S. Congress; other Federal agencies; State and local government officials; and organizations, including farm and industry groups interested in public policy issues.

ERS develops its research program in coordination with other REE and USDA research agencies, USDA program agencies, and other external collaborators. Activities to support this mission involve research and development of economic and statistical indicators on a broad range of topics, including but not limited to global agricultural market conditions, trade restrictions, agribusiness concentration, farm business and household income, farm and retail food prices, food borne illnesses, food labeling, nutrition, food assistance programs, agrichemical usage, livestock waste management, conservation, genetic diversity, technology transfer, and rural employment. Research results and economic indicators on such important agricultural, food, natural resource, and rural issues are fully disseminated to public and private decision makers through reports and articles; special staff analyses, briefings, and presentations; databases; and individual contact. More information on ERS' program is contained on the ERS Web site at [www.ers.usda.gov](http://www.ers.usda.gov).

The ERS headquarters is in Washington, D.C. ERS does not have any field offices. As of September 30, 2016, there were 329 permanent full-time employees.

ECONOMIC RESEARCH SERVICE

Available Funds and Staff Years (SYs)  
(Dollars in thousands)

Item	2015 Actual		2016 Actual		2017 Estimate		2018 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Salaries and Expenses:								
Discretionary Appropriations.....	\$85,373	341	\$85,373	345	\$85,211	347	\$76,690	329
Mandatory Appropriations.....	500	-	-	-	-	-	-	-
Lapsing Balances.....	<u>-308</u>	-	<u>-312</u>	-	<u>-</u>	-	<u>-</u>	-
Obligations.....	<u>85,565</u>	<u>341</u>	<u>85,061</u>	<u>345</u>	<u>85,211</u>	<u>347</u>	<u>76,690</u>	<u>329</u>
<u>Obligations under other USDA appropriations:</u>								
Foreign Agricultural Service.....	191	1	106	1	200	1	200	1
Food and Nutrition Service.....	6,038	-	5,145	-	5,000	-	5000	-
Agricultural Research Service.....	155	-	188	-	200	-	200	-
Nat'l Agricultural Statistics Svc.....	-	-	-	-	10	-	10	-
Office of the Chief Economist.....	38	-	14	-	-	-	-	-
Office of the Chief Scientist.....	62	-	-	-	-	-	-	-
Total, Other USDA Appropriation.....	<u>6,484</u>	<u>1</u>	<u>5,453</u>	<u>1</u>	<u>5,410</u>	<u>1</u>	<u>5,410</u>	<u>1</u>
Total, ERS.....	<u>92,049</u>	<u>342</u>	<u>90,514</u>	<u>346</u>	<u>90,621</u>	<u>348</u>	<u>82,100</u>	<u>330</u>

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Permanent Positions by Grade and Staff Year Summary

<u>Grade</u>	<u>2015 Actual</u> Washington DC	<u>2016 Actual</u> Washington DC	<u>2017 Estimate</u> Washington DC	2018 President's <u>Budget</u> Washington DC
Senior Executive Service.....	6	6	6	6
GS-15.....	69	67	67	64
GS-14.....	70	68	68	65
GS-13.....	80	72	72	66
GS-12.....	72	70	70	63
GS-11.....	34	34	34	32
GS-10.....	1	1	1	1
GS-9.....	17	17	17	20
GS-8.....	2	1	1	1
GS-7.....	5	3	3	3
GS-6.....	2	1	1	1
GS-5.....	1	1	2	2
GS-4.....	4	3	3	3
GS-3.....	1	1	2	2
GS-2.....	1	1	1	1
Total Permanent Positions.....	365	346	348	330
Unfilled Positions, EOY.....	-23	-17	0	0
Total Permanent, Full-Time Employment, EOY.....	342	329	348	330
Staff-Year Estimate.....	342	346	348	330

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The estimates include appropriation language for this item as follows (new language underscored; deleted matter enclosed in brackets).

For necessary expenses of the Economic Research Service, [~~\$85,373,000~~] \$76,690,000.

Lead-Off Tabular Statement

Budget Estimate, 2018.....	\$76,690,000
2017 Annualized Continuing Resolution.....	<u>85,211,000</u>
Change in Appropriation.....	<u><u>-8,521,000</u></u>

Summary of Increases and Decreases  
(Dollars in thousands)

Discretionary Appropriations:	2015	2016	2017	2018	2018
	<u>Actual</u>	<u>Change</u>	<u>Change</u>	<u>Change</u>	President's <u>Budget</u>
Research Innovation for Improving Policy Effectiveness....	\$3,500	-	-	-\$1,500	\$2,000
Increasing Drought Resilience.....	488	+\$1,000	-	-1,000	488
Beginning Farmers and Ranchers.....	130	+350	-	-	480
Food Assistance and Nutrition Research Program.....	3,408	-	-	-	3,408
Commodity Outlook Programs.....	5,717	-	-	-324	5,393
Macroeconomic analysis.....	200	-	-	-	200
Intramural research on the economics of invasive species....	835	-	-	-	835
Cooperative Agreements and Grants.....	5,763	-2,858	-	-1,000	1,905
Interagency Agreements.....	7,001	-2,168	-	-	4,833
Environmental Services.....	605	-	-	-	605
Consumer Data Information Program.....	5,966	-	-	-2,250	3,716
Agricultural Resource Management Survey (ARMS).....	6,650	-	-	+350	7,000
Homeland Security.....	934	-	-	-	934
International Activities.....	2,819	-	-	-1,000	1,819
Diet quality including the role of food access.....	657	-	-	-657	-
Bioenergy/renewable energy.....	2,500	-	-	-1,500	1,000
Local Foods.....	200	-	-	-200	-
IT equipment.....	1,000	-	-	-	1,000
Decentralized GSA rent and DHS security payments.....	6,227	+179	+\$129	-342	6,193
Pay costs.....	952	+564	+927	+902	3,345
Other Ongoing Research.....	29,821	+2,925	-1,218	-	31,536
<b>Total Discretionary Appropriations.....</b>	<b>85,373</b>	<b>-</b>	<b>-162</b>	<b>-8,521</b>	<b>76,690</b>

ECONOMIC RESEARCH SERVICE

Project Statement  
Adjusted Appropriations Detail and Staff Years (SYs)  
(Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget		
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	
Discretionary Appropriations:											
Economic Analysis & Research.....	\$85,373	341	\$85,373	345	\$85,211	347	-\$8,521	(1)	-18	\$76,690	329
Subtotal.....	85,373	341	85,373	345	85,211	347	-8,521		-18	76,690	329
Mandatory Appropriations.....	500	-	-	-	-	-	-	-	-	-	-
Farm Bill.....											
Subtotal.....	500	-	-	-	-	-	-	-	-	-	-
Total Appropriations.....	85,873	341	85,373	345	85,211	347	-8,521		-18	76,690	329
Total Available.....	85,873	341	85,373	345	85,211	347	0		-	76,690	329
Lapsing Balances.....	-308	-	-312	-	-	-	-	-	-	-	-
Total Obligations.....	85,565	341	85,061	345	85,211	347	-8,521		-18	76,690	329

Project Statement  
Obligations Detail and Staff Years (SYs)  
(Dollars in thousands)

Program	2015 Actual		2016 Actual		2017 Estimate		Inc. or Dec.		2018 President's Budget		
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs	
Discretionary Obligations:											
Economic Analysis & Research.....	\$85,065	341	\$85,061	345	\$85,211	347	-\$8,521	(1)	-18	\$76,690	329
Subtotal.....	85,065	341	85,061	345	85,211	347	-8,521		-18	76,690	329
Mandatory Obligations:											
Farm Bill.....	500	-	-	-	-	-	-	-	-	-	-
Subtotal.....	500	-	-	-	-	-	-	-	-	-	-
Total Obligations.....	85,565	341	85,061	345	85,211	347	-8,521		-18	76,690	658
Balances.....	+308	-	+312	-	-	-	-	-	-	-	-
Total Available.....	85,873	341	85,373	345	85,211	347	-8,521		-18	76,690	658
Total Appropriation.....	85,873	341	85,373	345	85,211	347	-8,521		-18	76,690	329

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### Justification of Increases and Decreases

Funding will be used for core programs of research, data analysis, and market outlook; which reflect the Secretary of Agriculture's priorities. Proposals for ERS budget priorities reflect principles based on the Agency's role as a Federal intramural research and statistical organization. The principles identify areas where ERS is best positioned to provide information that the private sector or academia has weaker incentives or higher cost to provide, and include: 1) research that builds on unique or confidential data sources or investments at the Federal level and is inherent in the role of a Federal Statistical Agency; 2) provides coordination for a national perspective or framework; 3) requires sustained investment and large teams; 4) directly serves the U.S. Government's or USDA's long-term national goals and are not likely to be understood or valued; and 5) addresses questions with short-run payoff or that have immediate policy implications. We also seek to cover the breadth of USDA programs (except forestry) and provide funding to provide a critical mass of expertise in the analysis of farming, commodity markets and trade, natural resources and the environment, rural communities, food safety, food markets, and nutrition.

- (1) A net decrease of \$8,521,000 and 18 staff years for economic research (\$85,211,000 and 348 staff years available in 2017).

Funding changes are requested for the following items:

- (a) An increase of \$902,000 for pay costs (\$253,000 for annualization of the 2017 pay increase and \$649,000 for the 2018 pay increase).

This increase will enable ERS to provide proposed staffing levels, which are critical to conducting research within ERS' highest priority programs.

- (b) An increase of \$350,000 for the Agricultural Resource Management Survey (ARMS) (\$6,650,000 available in 2017).

Through the Agricultural Resource Management Survey (ARMS), ERS prepares estimates of commodity costs of production that capture the most recent changes by farmers in technology or production practices, farm income estimates, and research on farm financial and structural issues. The increase in funding in FY 2018 will serve to fully fund the higher operating costs of conducting the survey.

- (c) A decrease of \$1,500,000 and 2 staff years for Research Innovation for Improving Policy Effectiveness (\$3,500,000 and 8 staff years available in 2017).

This program supports development of ERS internal expertise, collaboration with USDA program agencies, and partnerships with extramural researchers to: (1) fund experiments that incorporate concepts from behavioral economics, identifying high (and low) performing options without the costs associated with new program implementation; and (2) link multiple sources of administrative and survey data and assess the quality for policy-relevant research. At the proposed funding level, ERS will investigate alternative program structures that have potential to better target benefits and other strategies to improve program effectiveness. In an effort to strengthen the focus of the research and focus on the highest priority programs, ERS will select programs to analyze in consultation with USDA program agency leadership.

- (d) A decrease of \$1,000,000 and 1 staff year for Increasing Drought Resilience (\$1,488,000 and 4 staff years available in 2017).

ERS research on the impacts of drought on agriculture examines the challenges and risks of weather variability to farmers, including drought events, and how agriculture adapts to extreme weather and resource availability. Current efforts are assessing water use and irrigation adoption trends in crop

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agriculture as well as risk management responses by farmers, including crop insurance use and crop management strategies. In order to strengthen the focus of the program, FY 2018 research on drought will analyze existing USDA programs such as implications for crop insurance and conservation program incentives to adopt practices that build resilience to mitigate the effects of drought.

- (e) A decrease of \$1,500,000 and 2 staff years for Bioenergy/Renewable Energy (\$2,500,000 and 6 staff years available in 2017).

ERS has invested in new data and expanded modeling capacity to understand the implications of bioenergy and renewable energy for power and fuels on the farm sector and land use. The investments encompass energy from new and traditional crops. The new data and tools have enabled a series of publications on the effect of first and second generation bioenergy crops on land use and the farm sector. In addition, the investments have strengthened ERS and the broader research community's capacity for analysis of agriculture and energy issues. ERS will capitalize on existing tools and improve the focus of the program to meet the Agency's core responsibilities for market and policy analysis.

- (f) A decrease of \$2,250,000 for the Consumer Data Information Program (\$5,966,000 available in 2017).

The Consumer Data Information Program (CDIP) funds data purchases and research to develop new data sources that support research by ERS and the academic community on the food system beyond the farm gate. The data purchases include the data used to produce the U.S. Food Security Estimates (from the Census Bureau), retail scanner sales data, and grocery store and restaurant location data, and modules on national surveys on a periodic basis (e.g., Eating & Health Module in the Bureau of Labor Statistics' American Time Use Survey and the Flexible Consumer Behavior Survey in the National Center for Health Statistic's National Health and Nutrition Examination Survey). In FY 2018, with the goal to focus more on core responsibilities, ERS will continue to support core data for U.S. food security statistics, reduce the frequency of other data purchases (e.g., scanner data), and maintain the academic community's access to restricted data for research. In addition, proposed funding will support only the highest priority research to create new and linked data.

- (g) A decrease of \$1,000,000 and 6 staff years for International Activities (\$2,819,000 and 16 staff years available in 2017).

ERS will continue to provide annual estimates of international food security for low- and middle-income countries and prioritize research on international development to support this activity. In order to strengthen the focus of international activities, research and market analysis of other countries' agricultural markets and policies will focus on major agricultural trading countries such as China, Brazil, and India.

- (h) A decrease of \$1,000,000 for Cooperative Agreements and Grants (\$2,905,000 available in 2017).

Each fiscal year ERS selects partners and recipients of cooperative agreements and grants based on research priorities and need for external expertise. ERS funding is not anticipated or included in the annual budget of any particular external institution or organization. Cooperative agreements and grants funding in FY 2018 will fund the highest priorities to bring needed expertise to core research and statistical program activities.

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- (i) A decrease of \$657,000 and 4 staff years for Diet Quality including the Role of Food Access (\$657,000 and 4 staff years available in 2017).

ERS will eliminate research on food access and reduce research on diet quality. Intramural and extramural research funded by ERS on food access has shown that prices and food preferences largely determine food choices and access to supermarkets is not a significant factor. Additional research on food access does not have a high payoff and ERS will discontinue this research. ERS will reduce research on the causes of poor diet quality as there is an extramural research community working in this area. Ongoing research will focus on unique contributions such as developing databases of food-commodity-nutrition linkages and research linked to USDA's nutrition programs' effects on diet quality.

- (j) A decrease of \$324,000 and 2 staff years for Commodity Outlook Programs (\$5,717,000 and 31 staff years available in 2017).

The ERS Commodity Outlook program's priorities are to support participation in USDA's Interagency Commodity Estimates Committees and provide analysis for commodities covered by USDA Farm Act commodity programs. These activities include analysis for the monthly World Agricultural Supply and Demand Estimates (WASDE) reports, public release of data for feed grains and other commodities, and supply and utilization tables for commodities that serve as critical inputs to the ERS Food Availability and Loss Data. Economists in the Commodity Outlook program will continue to support ERS leadership of modeling for USDA's Agricultural Baseline Projections. With the goal to strengthen the focus of the program, funding will focus these core responsibilities and reduce information for non-program commodities including aquaculture, minor livestock species, and specialty crops.

- (k) A decrease of \$200,000 and 1 staff year for Local Foods (\$200,000 and 1 staff year available in 2017).

During the past ten years, ERS has had an ongoing program of research on local foods. ERS has published reports covering local food markets, characteristics of local food farmers, and the local foods supply chain. Academic expertise and research on local foods has grown during this period and provides information on local food markets and the effects on farmers and rural communities thus reducing the value of the ERS research on local foods.

- (l) A decrease of \$342,000 for Decentralized GSA rent and DHS security payments (\$6,535,000 available in 2017).

ERS will achieve this savings by vacating 16,650 square feet on the 7<sup>th</sup> floor of the Patriots Plaza-3 building, and will move those ERS employees on the 7<sup>th</sup> floor to other floors occupied by ERS.

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Geographic Breakdown of Obligations and Staff Years  
(Dollars in thousands and Staff Years (SYs))

State/Territory	2015 Actual		2016 Actual		2017 Estimate		2017 President's Budget	
	Amount	SYs	Amount	SYs	Amount	SYs	Amount	SYs
Arizona.....	\$14	-	-	-	-	-	-	-
Arkansas.....	-	-	\$85	-	-	-	-	-
California.....	600	-	338	-	-	-	-	-
Colorado.....	16	-	112	-	-	-	-	-
Connecticut.....	141	-	1	-	-	-	-	-
Delaware.....	128	-	-	-	-	-	-	-
District of Columbia.....	67,846	341	73,953	345	\$85,211	347	\$76,690	329
Florida.....	72	-	68	-	-	-	-	-
Georgia.....	434	-	82	-	-	-	-	-
Idaho.....	-	-	1	-	-	-	-	-
Illinois.....	1,901	-	1,634	-	-	-	-	-
Indiana.....	365	-	78	-	-	-	-	-
Iowa.....	87	-	82	-	-	-	-	-
Kansas.....	91	-	275	-	-	-	-	-
Kentucky.....	435	-	5	-	-	-	-	-
Louisiana.....	3	-	-	-	-	-	-	-
Maryland.....	1,615	-	4,514	-	-	-	-	-
Massachusetts.....	832	-	236	-	-	-	-	-
Michigan.....	167	-	327	-	-	-	-	-
Minnesota.....	92	-	111	-	-	-	-	-
Missouri.....	60	-	328	-	-	-	-	-
Montana.....	35	-	12	-	-	-	-	-
Nebraska.....	265	-	88	-	-	-	-	-
Nevada.....	4	-	2	-	-	-	-	-
New Hampshire.....	101	-	40	-	-	-	-	-
New Jersey.....	3,350	-	31	-	-	-	-	-
New Mexico.....	736	-	20	-	-	-	-	-
New York.....	1,857	-	176	-	-	-	-	-
North Carolina.....	439	-	684	-	-	-	-	-
Ohio.....	189	-	135	-	-	-	-	-
Oregon.....	62	-	-	-	-	-	-	-
Pennsylvania.....	476	-	163	-	-	-	-	-
Rhode Island.....	230	-	8	-	-	-	-	-
South Carolina.....	50	-	25	-	-	-	-	-
Tennessee.....	4	-	3	-	-	-	-	-
Texas.....	218	-	9	-	-	-	-	-
Virginia.....	1,802	-	1,095	-	-	-	-	-
Washington.....	361	-	17	-	-	-	-	-
West Virginia.....	-	-	5	-	-	-	-	-
Wisconsin.....	346	-	192	-	-	-	-	-
Australia.....	69	-	13	-	-	-	-	-
Brazil.....	1	-	-	-	-	-	-	-
Canada.....	31	-	29	-	-	-	-	-
China.....	-	-	1	-	-	-	-	-
France.....	-	-	4	-	-	-	-	-
Germany.....	1	-	2	-	-	-	-	-
Italy.....	8	-	1	-	-	-	-	-
Japan.....	1	-	-	-	-	-	-	-
Korea.....	1	-	-	-	-	-	-	-
Mexico.....	-	-	25	-	-	-	-	-
Netherlands.....	2	-	-	-	-	-	-	-
South Africa.....	-	-	3	-	-	-	-	-
Switzerland.....	1	-	-	-	-	-	-	-
United Kingdom.....	26	-	48	-	-	-	-	-
Obligations.....	85,565	341	85,061	345	85,211	347	76,690	329
Lapsing balances.....	308	-	312	-	-	-	-	-
Total Available.....	85,873	341	85,373	345	85,211	347	76,690	329

Note: The distribution of 2017 and 2018 funds by location has not been determined at this time.

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Classification by Objects

(Dollars in thousands)

		2015	2016	2017	2018
		<u>Actual</u>	<u>Actual</u>	<u>Estimate</u>	<u>President's Budget</u>
<b>Personnel Compensation:</b>					
Washington, D.C.					
11	Total personnel compensation.....	\$36,655	\$37,620	\$38,333	\$35,862
12	Personnel benefits.....	10,750	11,325	11,539	10,937
	Total personnel comp.and benefits.....	47,405	48,945	49,872	46,799
				927	902
<b>Other Objects:</b>					
21.0	Travel and transportation of persons.....	524	531	500	500
22.0	Transportation of things.....	91	74	75	75
23.1	Rental payments to GSA	5,512	5,611	5,705	5,363
23.3	Communications, utilities, & misc. charges.....	802	686	650	650
24.0	Printing and reproduction.....	29	18	20	20
25.1	Interagency Agreements.....	7,001	4,833	4,833	4,833
25.3	Other Services.....	1,916	3,025	2,000	2,000
25.4	Contracts.....	6,408	2,818	2,800	2,800
25.5	Cooperative Agreements.....	4,384	1,643	2,105	1,305
25.7	Data acquisition.....	8,965	14,067	13,901	9,795
26.0	Supplies and materials.....	273	521	500	500
26.3	ADP Software/Material/Supplies.....	529	528	1,000	1,000
31.0	Equipment.....	347	499	450	450
41.0	Grants.....	1,379	1,262	800	600
	Total, Other Objects.....	38,160	36,116	35,339	29,891
99.9	Total, new obligations.....	85,565	85,061	85,211	76,690
			85,061	85,211	76,690
	DHS Building Security Payments (included in 25.3).....	\$715	\$795	\$830	\$830
<b>Position Data:</b>					
	Average Salary (dollars), ES positions.....	\$176,884	\$179,050	\$180,974	\$182,847
	Average Salary (dollars), GS positions.....	\$113,075	\$114,545	\$116,950	\$119,172
	Average Grade, GS positions.....	13.7	13.7	13.7	13.7

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Shared Funding Projects

(Dollars in thousands)

	2015 Actual	2016 Actual	2017 Estimate	2018 President's Budget
<b>Working Capital Fund:</b>				
Administration:				
HR Enterprise System Management.....	-	\$5	\$5	\$5
Integrated Procurement Systems.....	\$35	37	36	36
Mail and Reproduction Services.....	124	126	127	128
Materiel Management Service Center.....	33	45	45	40
Procurement Operations Division.....	5	-	-	-
Subtotal.....	196	213	212	208
Communications:				
Creative Media & Broadcast Center.....	129	76	71	67
Finance and Management:				
Financial Management Services.....	94	96	98	94
National Finance Center.....	94	99	97	88
Subtotal.....	188	196	195	182
Information Technology:				
Client Technology Service.....	399	304	486	450
National Information Technology Center.....	181	200	213	228
Enterprise Network Services.....	143	207	705	739
Subtotal.....	723	711	1,404	1,418
Correspondence Management.....	7	6	6	5
Total, Working Capital Fund.....	1,243	1,202	1,889	1,880
<b>Departmental Shared Cost Programs:</b>				
1890's USDA Initiatives.....	10	11	13	12
Advisory Committee Liason Services.....	2	2	2	2
Classified National Security Information.....	4	3	3	3
Continuity of Operations Planning.....	8	7	7	7
Emergency Operations Center.....	8	8	8	7
Facility and Infrastructure Review and Assessment.....	2	2	2	1
Faith-Based & Neighborhood Partnerships.....	1	1	1	1
Hispanic-Serving Institutions National Program.....	7	6	7	6
Honor Awards.....	0	0	0	0
Human Resources Transformation.....	6	5	6	6
Identity and Access Management (HSPD-12).....	24	24	24	21
Intertribal Technical Assistance Network.....	-	-	-	-
Medical Services.....	28	28	33	30
People's Garden.....	3	2	2	2
Personnel Security Branch (was PDSB).....	9	4	8	7
Pre-authorizing Funding.....	14	13	13	12
Retirement Processor Web Application.....	2	2	2	2
TARGET Center.....	5	5	5	5
USDA 1994 Program.....	3	2	3	2
Virtual University.....	7	7	7	6
Total, Departmental Shared Cost Programs.....	141	133	148	133

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Shared Funding Projects

(Dollars in thousands)

	2015 Actual	2016 Actual	2017 Estimate	2018 President's Budget
<b>E-Gov:</b>				
Budget Formulation and Execution Line of Business.....	0	0	0	0
Enterprise Human Resources Integration.....	8	7	7	7
E-Rulemaking.....	3	-	-	-
E-Training.....	10	9	-	-
Financial Management Line of Business.....	1	0	0	0
Geospatial Line of Business.....	-	7	13	13
Grants.gov.....	2	-	-	-
Human Resources Management Line of Business.....	1	1	1	1
Integrated Acquisition Environment - Loans and Grants.....	7	-	-	-
Integrated Acquisition Environment.....	2	5	1	1
Total, E-Gov.....	33	29	22	22
Agency Total.....	1,417	1,363	2,059	2,035

Status of Programs

**Economic Research and Analysis Program**

**Enhance competitiveness for American farms, agriculture, and rural communities.**

Current Activities:

The Economic Research Service (ERS) conducts research that strengthens our understanding of American farms, the agricultural sector, and rural communities. This includes analysis of commodity markets, the competitiveness of U.S. farms at home and abroad, and the general health of the rural economy.

ERS research and analysis provides insights into market conditions facing U.S. agriculture, potential avenues for innovation and market expansion, and the effects of farm policies. The agency conducts research on the effects of new agricultural technologies and practices on farm business and farm sector performance as well as their implications for the changing size and organization of U.S. farms. ERS produces USDA's estimates of farm business and farm household income and identifies and analyzes market structure and technological developments that affect farm efficiency and profitability.

ERS research and analysis provides insights into how the agricultural sector is evolving in both the short and long term. Analysis of the major factors driving the near and long-term outlook for agricultural commodity markets plays a central role in supporting USDA's monthly flagship report, World Agriculture Supply and Demand Estimates (WASDE). This report serves as the benchmark for information on major global commodities, and also supports the annual USDA baseline, ten-year agricultural projections that go into the President's budget baseline.

ERS research explores how investments in rural businesses, communities, and people affect the capacity of rural economies to prosper in a changing global marketplace. The agency analyzes how employment opportunities, Federal policies, demographic trends, and public investment in infrastructure and technology enhance economic opportunity and quality of life for rural Americans.

**Selected Examples of Recent Progress:**

- *Farm income indicators and forecasts measure the financial performance of the U.S. farm sector.* ERS has a prominent role in monitoring the financial health of the farm sector including the performance of farm businesses and well-being of farm households. Published three times a year, these core statistical indicators provide guidance to policy makers, lenders, commodity organizations, farmers, and others interested in the financial status of the farm economy. ERS's farm income statistics also inform the computation of agriculture's contribution to the gross domestic product for the U.S. economy in the Bureau of Economic Analysis statistics for GDP.
- *Nearly a third of all farmland is rented from non-operator landlords.* The 2014 Tenure, Ownership, and Transition of Agricultural Land (TOTAL) survey, conducted by the National Agricultural Statistics Service (NASS) and ERS, integrates data on farm finance and land ownership in the U.S. The TOTAL survey collected data on landlords' acres rented out, income, expenses, assets, debt, race, gender, land transfer plans, and more, to provide detailed information from all agricultural land owners, whether operating or non-operating. Analysis of the survey data revealed that landlords are more likely to be involved in decisions concerning long-term farm practices such as permanent conservation procedures and government program participation, than in short-term management practices. Also, as most landlords have long-term relationships with their tenants, access to new land through renting may be limited. Ten percent of all land in farms is expected to be transferred over the 2015-2019 period, most of which (6 percent) will change hands through gifts, trusts, or wills. Just over 2 percent of farmland was expected to be sold to a nonrelative of the current owner, illustrating the potential challenges associated with acquiring land through open-market purchase.

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- *Renewable energy production increases on U.S. farms.* Changes in the energy sector—such as the Renewable Fuel Standard, the shale energy revolution, and the Clean Power Plan to cut carbon emissions—have or could affect the agricultural sector. The number of farms producing renewable energy more than doubled from 2007 to 2012. The shale revolution has provided new revenue streams for farmers owning their mineral rights, with about 6 percent of U.S. farm businesses averaging \$56,000 in lease and royalty payments from energy production. The Clean Power Plan is expected to have relatively small impacts for most farm businesses, although electricity rate increases may be greater for agricultural and other rural customers than for other retail customers, due to rural electric cooperatives' greater share of electricity generation from coal. ERS is the only Federal source for the most current information on energy consumption and production on farms.
- *Only a portion of producers use antibiotics for production purposes.* ERS researchers examined the incidence and types of antibiotic use in the hog, poultry, beef, and dairy industries and the impact that restrictions on the use of antibiotics for 'production purposes' (such as growth promotion) may have on livestock production. Drawing from the Agricultural Resources Management Survey (ARMS), as well as from surveys of the National Animal Health Monitoring System, ERS found that rates of antibiotic administration for production purposes varied by livestock type, but likely declined slightly for hogs and broilers during the study period. On average their use appears to have little impact on productivity. Thus, restrictions are predicted to lead to a small increase (approximately 1 percent) in wholesale prices and a net decline in production of less than 1 percent. The report led to numerous presentations to including invited talks at the Organization Economic Cooperation and Development, the Food and Drug Administration, the National Academy of Science's Institute of Medicine, and the Farm Foundation.
- *Precision agriculture technologies are associated with higher returns on U.S. corn farms.* Precision agriculture (PA) and its suite of information technologies—such as soil and yield mapping using a global positioning system (GPS), GPS tractor guidance systems, and variable-rate input application—allow farm operators to fine-tune their production practices. Access to detailed, within-field information can both decrease input costs and increase yields. Adoption rates vary significantly across PA technologies, with yield monitors that produce the data for GPS-based mapping being the most widely adopted on corn and soybean farms. Guidance or auto-steer systems are used on about a third of those farms and GPS-based yield mapping on a quarter. All three technologies were shown in a recent ERS report to have small positive impacts on both net returns (including overhead expenses) and operating profits for a U.S. corn farm of average size. Findings were shared through a USDA Radio News interview and were picked up by a number of news services.
- *Nearly all canola and sugar beet acres harvested in 2013 were planted with genetically engineered (GE) seeds containing herbicide-tolerant (HT) traits.* The success of GE HT corn, soybeans, and cotton led to the deregulation that enabled the commercialization of HT canola in 1998 and of HT alfalfa and sugar beets in 2005. An ERS report uses data from USDA's 2013 ARMS to examine GE adoption rates among these three crops. About 95 percent of U.S. canola acres (1.3 million acres) and over 99 percent of sugar beet acres (1.2 million acres) were harvested from GE seeds that year. In contrast, only 13 percent of U.S. alfalfa acres were planted using GE seeds; this slower adoption rate is expected because alfalfa is a perennial crop and only about one-seventh of the alfalfa acreage is newly seeded each year. Farmers who planted GE HT alfalfa in 2013 had about 17 percent higher yields than farmers who planted conventional seeds.
- *U.S. agriculture has become more concentrated at both the farm and farm product procurement levels.* In the report, *Price Discovery in Thin Agricultural Markets*, ERS focused on how thin markets, which have received attention from policymakers because of concerns that processing firms could depress farm-level prices below those that would prevail in a competitive market. In addition, the low volume of spot market trading in thin markets provides fewer data for market observers and regulators to use, analyze, and publish, leaving producers to wonder whether they are being paid a fair price in a shrinking cash market or in contracts where few price benchmarks may be available. ERS found that markets for many farm products are increasingly concentrated at the processing level; increased coordination between farmers and processors can resolve information problems encountered by traditional spot markets and enhance the

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efficiency of agricultural production; and processors have an economic incentive to offer a price that is at least sufficient to cover long-run farm costs. ERS economists were interviewed by a variety of media on this topic.

- *ERS examined the interrelationships between structural change in dairy production, changes in dairy product markets, growing price volatility, and dairy policy.* ERS research traces the linkages between structural change in dairy production, changes in dairy product markets, and growing price volatility. This research identifies the challenges that structural change, evolving product markets, and volatility pose for policy. Drawing from ARMS and Census of Agriculture, as well as data from the Farm Service Agency (FSA) and Agricultural Marketing Service, this study finds the structure of dairy farming has changed dramatically in the last two decades, with cows and production shifting to much larger operations. These changes have led to reduced industry-average production costs and contributed to an expansion of dairy product exports. However, increased international exposure creates new sources of price risks for U.S. farmers, and dairy policy has been redesigned in response to price risks and changing structure. These findings were discussed in industry publications, such as Hoard's Dairyman, DTN, and Successful Farmer, and also reported in national newspapers and other media.
- *A farmers' wealth and decision horizon impacts Federal crop insurance participation decisions.* Standard economic approaches predict farmer demand for crop insurance. ERS research finds that when savings are considered, wealthier farmers will spend less on insurance and self-insure through savings, while limited-resource farmers with low farm income will use savings, if available, to increase insurance coverage. This research also found that the longer the time horizon when comparing insurance versus savings for risk management, the less important insurance becomes. ERS briefed USDA's Chief Economist and senior officials at USDA's Risk Management Agency on this analysis.
- *ERS research highlights potential impacts of conventional and organic production coexistence.* Drawing on data from several USDA producer surveys—including ARMS and the 2014 National Organic Producer Survey—the study found that in 2012, producers planted nearly half of cropland acres with GE seed; over 90 percent of GE acreage was in corn and soybean. Conventional farmers planted 7 percent of corn and 6 percent of soybeans with non-GE seed; less than 0.5 percent of U.S. corn and soybean acres were planted using organic farming systems. USDA data indicate that just 1 percent of all certified organic farmers reported economic losses during 2011-2014. The report led to briefings to policy makers in the Marketing and Regulatory Programs mission area as well as other groups working on biotechnology policy.
- *Among organic retail foods, eggs and dairy products had the highest organic retail price premiums, while fresh produce has the widest spread of premiums (ranging from 7 percent for spinach to 60 percent for salad mix).* ERS estimated the organic retail price premiums and trends from 2004 to 2010 using store Nielsen Homescan scanner data. The Nielsen Homescan data is an annual, nationally representative panel of households' retail food purchases. Processed food premiums ranged from 22 percent for granola to 54 percent for canned beans. The share of organic product sold increased steadily for all products studied. Sales in 2010 were generally higher for the organic products with lower premiums (e.g., spinach, granola, and carrots); sales were also higher for foods frequently fed to children (such as baby food). The organic food sector has been one of the fastest growing parts of the food industry since USDA began regulating organic labels on food in 2002. The strong organic premiums, combined with increased sales, suggest that there is continued room for growth in the organic supply. Briefings to senior officials at the Food, Nutrition and Consumer Services (FNCS) and the Food and Nutrition Service (FNS) informed decision makers about estimated price premiums and trends in organic retail food sales.
- *The ERS commodity outlook program serves USDA stakeholders in the public and private sectors by delivering timely, independent and objective information about agricultural markets.* These reports and data products are among ERS's most widely used and ERS is committed to maintaining a strong and vibrant commodity outlook program. In 2016, ERS improved customer and user experience by providing interactive online content of findings in select commodity markets including fruits and tree nuts, vegetable and pulses, as well as content on U.S. agricultural trade projections. ERS is also implementing a strategic plan focused on the actions necessary to strengthen this program, including a staffing plan to support long-

term succession planning and high-quality analysis as senior analysts retire; additional enhancements to the content and communication of commodity outlook materials; and implementing internal data and process improvements to provide high quality data in formats requested by users.

- *Rural America continues a gradual economic recovery following the 2007-2009 recession.* ERS provides up-to-date information on rural economic and demographic trends in an annual series, *Rural America at a Glance*. The latest report notes that population stabilized in rural areas in 2015, after declining every year from 2010 to 2014. Unemployment continued to decline in rural areas last year, falling close to levels last seen before the Great Recession. This is due, in part, to fewer people seeking work as the share of the rural population working remains well below pre-recession levels, while urban employment was 4 percentage points above its 2007 level. The report also notes that rural median household earnings grew by more than 2 percent in 2015, and were above their level in 2007 before the recession. The rural poverty rate had its greatest decline in 2015 since the Great Recession, although the rural poverty rate remains above the pre-recession level. The findings were communicated via a webinar and in briefings to senior USDA policy makers.
- *The rise in rural child poverty since 2003 is explained more by rising income inequality than by a decline in average income.* Between 2003 and 2012, the share of rural children living in poor families rose from 20.1 percent to 26.7 percent, its highest level since at least 1968. Thirty-five percent of this increase in rural child poverty was due to declining average family income, 24 percent stemmed from demographically driven changes in the distribution of income, and the remaining 41 percent of the increase may be attributed to other changes in the distribution of income—namely, faster-than-average income declines for families near the poverty line—that cannot be explained by demographic shifts, and that occurred despite rising educational attainment. Between 2012 and 2014, average real incomes for urban and rural families with children grew by about 6 percent, approximately returning to their 2003 levels. This income growth has reduced poverty, but the rise in income inequality since 2003 has not been reversed, and this growing inequality has limited the extent of poverty reduction in both urban and rural counties. As a result, urban and rural child poverty rates remain 3 to 4 percentage points above their 2003 levels. The research was widely distributed through an ERS *Amber Waves* feature article and has been the subject of a number of briefings to senior USDA and other Federal policy makers.

**Protect and enhance the Nation's natural resource base and the environment.**

Current Activities:

The ERS natural resources and environmental economics research program improves understanding of the economic relationships behind Federal environmental, water and air quality regulations and programs. As part of its analysis of environmental regulations and conservation incentive policies, ERS provides insight into developing policies for controlling nonpoint source pollution. More generally, ERS research analyzes the economic efficiency, environmental effectiveness, and distributional implications of alternative designs of resource, conservation, environmental, and commodity programs and their linkages.

ERS develops models and other analytical techniques to estimate the impacts of alternative approaches used by farmers to adapt to changing weather conditions and resource constraints as the demand for agricultural production grows. The models predict responses of farmers to USDA programs including voluntary incentives for drought mitigation, and improved soil health and nutrient management. A related area of research addresses the implications of regional drought for U.S. agriculture, including producers' production and investment decisions, and their participation in conservation and other risk-mitigating programs. ERS research on farmer responses the implications for markets and natural resources builds on expertise in the economics of land use and land management, technology adoption, conservation program design, economics of biofuels, and value and dissemination of public investment in research and development.

Selected Examples of Recent Progress:

- *Participation in nutrient trading by livestock operations may depend on current nutrient levels.* Despite decades of nutrient-runoff reduction efforts, manure remains a significant contributor to Chesapeake Bay nutrient loadings. An ERS report assessed the extent to which animal feeding operations (AFOs) are implicated in Chesapeake Bay nutrient pollution and analyzes whether AFOs may be as likely to participate as crop-only producers in nutrient-trading programs. The study finds AFOs constituted only 15 percent of agricultural operations in the Chesapeake Bay watershed but controlled 63 percent of the acreage to which manure is applied in 2012 – suggesting the potential benefits of having these producers participate in nutrient trading. Simulation results showed that AFOs without excess manure nutrients are as likely to participate as large-scale, crop-only producers. However, AFOs with excess manure nutrients (more nutrients than the level allowed in a nutrient management plan) are much less likely to participate, due in part to requirements to first transport excess nutrients off-farm.
- *Conservation-practice adoption rates vary widely by crop and region.* ERS analyzed no-till and strip-till adoption, planting of cover crops, and nutrient management practices on corn, soybean, wheat, and cotton acres—practices that are supported by USDA conservation programs. Results show that U.S. farmers’ adoption of these practices varies widely by crop and region. In addition, many farmers are “partial” adopters, adopting conservation practices on some but not all acres of their farm. In 2010-2011, no-till/strip-till was used on roughly 40 percent of combined acreage of corn, soybean, wheat, and cotton and cover crops were in use on less than 2 percent of total cropland for all crops. Also, farmers reported applying nitrogen at rates higher than “benchmark” application rates for 36 percent of corn acres, 19 percent of cotton acres, 22 percent of spring wheat acres, and 25 percent of winter wheat acres. This report provides essential information on trends in conservation practice adoption that will be valuable in tracking the progress of Federal and state efforts to encourage conservation on U.S. farms. The report focuses heavily on practices that are often seen as promoting soil health. Findings were cited in local and national media, including major national newspapers.
- *Economic experiments can be used to test existing and new approaches to conservation program delivery.* ERS, along with the ERS-funded Center for Behavioral and Experimental Agri-Environmental Policy Research, collaborates with USDA agencies on randomized controlled trials that include work with the Natural Resources Conservation Service and FSA on climate change mitigation from high-carbon soils and work with the National Association of Conservation Districts on reversing declining financial contributions from various conservation districts. Other ongoing field and lab experiments include “nudges” looking at what initiatives and incentives are best suited for encouraging participation in Chesapeake Bay Conservation Programs (in collaboration with FSA).
- *Climate change is projected to reduce average yields over the next century for major U.S. field crops—corn, soybeans, rice, sorghum, cotton, oats, and silage—under both irrigated and dryland production, relative to projected yields assuming no climate change.* An ERS report examined the biophysical and economic impacts of climate change under several future climate projections, and implications for farm returns, resource use and environmental quality. It also identifies the regions and crop sectors that are most vulnerable to climate change and explores whether irrigation limitations could reduce farmer flexibility in their adaptation decisions. The report also found that yields for some crops such as wheat, hay, and barley are projected to increase. Also, irrigated field crop acreage is projected to decline as a result of climate change over the 2020 to 2080 study period. Before midcentury, the decline in irrigated acreage is largely driven by regional constraints on surface-water availability for irrigation. Beyond midcentury, the decline reflects a combination of increasing surface-water shortages and declining relative profitability of irrigated production.

**Strengthen the international competitiveness of American agriculture.****Current Activities:**

ERS conducts research on the economic performance and competitiveness of the U.S. agriculture in international markets. U.S. producers rely on export markets to sell agricultural and food products, to sustain and grow revenues, and to contribute to employment, particularly in rural communities. This research program examines emerging patterns of agricultural trade and the associated economic drivers including income and population growth, and domestic and trade policies, and provides information on the principal underlying factors affecting U.S. and global agricultural trade.

ERS conducts research on the state of global food security, including factors affecting food production and the ability to import food, in Africa, Asia, Latin America and the Caribbean, and the Commonwealth of Independent States. By investigating conceptual and measurement challenges inherent in assessments of undernourishment at the country, household, and individual level, ERS informs decision makers in the United States and throughout the world with its annual assessment of global food security.

**Selected Examples of Recent Progress:**

- *ERS estimates productivity growth for the aggregate U.S. farm sector.* ERS constructs annual indexes of farm inputs and outputs, as well as total factor productivity (TFP), for the U.S. farm sector. The current series covers 1948-2013. The detailed indexes include 10 separate output categories and 12 input categories, with the inputs adjusted for changes in quality. The accounts are constructed to identify the impacts of changes in input quantities and quality, and TFP, on agricultural output growth. Using data from the productivity accounts, ERS has shown that growth in TFP accounts for nearly all growth in agricultural output, while inputs—particularly land and labor—have declined. TFP growth is driven in turn by innovations developed primarily through investments in public and private research and development.
- *USDA Agricultural Projections to 2025 suggest long run increases in global consumption, world trade, and agricultural commodity prices.* Each year ERS coordinates the Department's Baseline projections for U.S. and world agriculture for the coming decade. The 2016 projections indicate that over the next decade, the agricultural sector will continue to adjust to lower prices for most farm commodities. Although reduced energy prices have decreased energy-related agricultural production costs, lower crop prices in the near term result in declines in planted acreage. Lower feed costs provide economic incentives for expansion in the livestock sector. Long-run developments for global agriculture reflect steady world economic growth and continued global demand for biofuel feedstocks, factors which combine to support longer run increases in consumption, trade, and prices of agricultural products. The 2016 long-term projections were presented in a session at the February 2016 USDA Agricultural Outlook Forum. The projections also helped shape the FY 2016 Federal Budget, and supported the Farm Service Agency's estimation of budget costs for farm program commodities. In addition to its importance for USDA's policymakers, the annual Baseline projections report and related data products are essential references for public and private decision makers, receiving over 100,000 website page views in FY 2016.
- *Global macroeconomic developments are driving the recent downturn in U.S. agricultural exports.* Compared to earlier periods, 2016 was marked by slower global income growth, particularly in the developing economies, and stronger appreciation of the U.S. dollar against the currencies of many other countries engaged in agricultural trade. Economic simulations conducted by ERS suggest that these less favorable macroeconomic conditions are having and will have a negative impact on the price and volume of U.S. agricultural exports over the next several years. The largest price and volume impacts were found for crop exports, with relatively smaller impacts on meat exports. Almost across the board, reductions to projected U.S. exports exceed corresponding reductions in world trade, implying a decline in U.S. market share. ERS briefed senior USDA officials on these findings.
- *The U.S. compares favorably with Argentina and Brazil as a corn and soybean exporter in some, but not all respects.* ERS research explored the differences in production costs and export competitiveness of the

United States, Argentina, and Brazil in the corn and soybean sectors. On a per acre basis, Argentina and Brazil were found to have lower average farm-level production costs for corn and soybeans than the United States. On a per bushel basis, the United States was found to have the lowest average production costs for corn and the second lowest for soybeans (after Brazil). Of the regions studied, the U.S. Heartland—defined as encompassing all of Iowa, Illinois, and Indiana and parts of South Dakota, Nebraska, Minnesota, Missouri, Ohio, and Kentucky—was found to be the second most competitive exporter of corn and soybeans, after the Parana region of Brazil. The latter region, however, has smaller production volumes than the U.S. Heartland. ERS briefed senior officials at USDA’s Farm Services Agency on these findings.

- *Improved market access is needed for U.S. beef to remain competitive in Japan.* In 2015, the Japan-Australia trade agreement (JAEPA) was implemented resulting in significant and immediate tariff reductions on Australian beef in Japan. No similar agreement is in place between the United States and Japan. ERS researchers analyzed potential trade losses for the U.S. beef sector resulting from JAEPA and potential benefits of equal market access for U.S. beef. Findings reveal strong competition among exporting countries, the intensity of which varies markedly across beef products. Overall, results show that JAEPA could generate a large increase (estimated at \$105.9 million) in Japan’s beef imports from Australia and a large decrease (estimated at \$105.1 million) in its beef imports from the United States. However, similar tariff reductions for U.S. beef could eliminate the decline in U.S. exports to Japan and even result in a net increase in beef exports to Japan from both countries. ERS briefed senior USDA officials including the Chief Economist on these findings. They were also disseminated through several media outlets.
- *Ethanol production and demand in response to global oil prices could lead to land-use changes in Brazil.* The westward expansion of agriculture into Brazil’s frontier region, and the conversion of range, pasture, and other land into cropland is due to rising domestic and international food demand but is also a consequence of ethanol production and policies. Because the supply and demand for ethanol are linked to that of petroleum, oil prices can affect production and land-use decisions for ethanol feedstocks and related agricultural commodities. ERS examined the effects of two oil-price scenarios—sustained high prices and sustained low prices from 2015 to 2024—on Brazilian agricultural land use and compared results to USDA’s 2015-2024 Agricultural Projections. With higher oil prices, Brazilian ethanol demand increases resulting in an increase in sugarcane area of 11 percent and a decline in area for crops other than sugarcane. Lower oil prices are projected to result in less ethanol production and sugarcane land use, freeing up land for other uses. Given Brazil’s dominant position in global commodity markets, adjustments in sugarcane and ethanol output and exports would lead to changes in world prices. ERS briefed USDA senior officials on this report’s findings.
- *Food security is projected to improve for many developing countries.* ERS publishes the *International Food Security Assessment* to inform U.S. policymakers as well as international donor organizations of the food security situation in 76 low- and middle-income countries. The report provides projections of food demand and access—including food gaps and the number of food-insecure people. The 2016 report introduced ERS’s new, demand-oriented model, which allows for analysis of income and price changes on food security. Given projections for lower food prices and rising incomes, food security for the study countries is expected to improve through 2026. Food-insecure people are defined as those consuming less than the nutritional target of roughly 2,100 calories per day per person. The share of population that is food insecure is projected to fall from 17 percent in 2016 to 6 percent in 2026. In total, the number of food-insecure people is projected to fall markedly, by 59 percent. This matches the decline in the distribution gap, the amount of food needed to raise consumption to the nutritional target for all consumers. The similar rates of decline for the two measures indicate no worsening in the intensity of food insecurity, at the aggregate level, for those people considered to be food-insecure. Despite improvements over the years, Sub-Saharan Africa is projected to remain the most food-insecure region in the world.
- *ERS research finds that despite lower productivity growth for grains, higher productivity growth in other agricultural products supports Indian food security.* Between 1980 and 2008 India’s agriculture growth expanded beyond the Northern grain belt, led primarily by rapid growth in horticulture and livestock products. Agricultural productivity averaged 2.1 percent per year, but regional variations emerged. Productivity was slower in the traditional grain producing region of the North (1.9 percent) and faster in the

West (2.3 percent) and South (2.7 percent). ERS identified several factors propelling productivity growth, including public investments in agricultural research and expansion of irrigated area. Productivity benefits from both of these were tilted towards producers in the North and West. Investment in public rural education was also important; achieving 4.3 years of schooling for the rural population was associated with greater productivity growth.

### **Improve the Nation's nutrition and food safety.**

#### Current Activities:

ERS studies the relationship among the many factors that influence food choices and health outcomes. At the household level, research focuses on food price trends, income, and individual characteristics such as age, race and ethnicity, household structure, knowledge of diet and health, and nutrition education. At the industry level, research focuses on the interaction among firms, consumers, and government programs and policies. Children's food access, food security, and child and adult obesity continue to be important foci of the ERS research program. ERS research related to adult and child obesity includes approaches taken from behavioral economics to investigate how psychological mechanisms related to food choices might contribute to poor dietary quality and obesity.

Through its food assistance and nutrition research and by coordinating research priorities with FNS, ERS studies and analyzes the Nation's nutrition assistance programs. These programs receive substantial Federal funding and affect the daily lives of millions of America's children. Long-term research themes include food security outcomes, dietary and nutritional outcomes, food program targeting and delivery, and measurement of program participation. ERS research is designed to meet the critical information needs of USDA, Congress, program managers, policy officials, the research community, and the public at large.

ERS food safety research focuses on enhancing methodologies for valuing societal benefits associated with reducing food safety risks, understanding consumer response to food safety incidents, assessing industry incentives to enhance food safety through new technologies and supply chain linkages, and evaluating regulatory options and change. Part of this research relates to impacts of the Food Safety Modernization Act (FSMA) on the produce industry. ERS research also investigates the safety of food imports and the efficacy of international food safety policies and practices.

#### Selected Examples of Recent Progress:

- *An estimated 87.3 percent of American households were food secure throughout the entire year in 2015, meaning that they had access at all times to enough food for an active, healthy life for all household members.* The remaining households (12.7 percent) were food insecure at least some time during the year, including 5.0 percent with very low food security because the household lacked money and other resources for food, resulting in reduced food intake and disruptions in eating patterns for one or more household members. Additional research focused specifically on children shows that an estimated 92.2 percent of households with children were food secure throughout the year in 2015, which denotes that all household members had consistent access to adequate food for active, healthy lives. The ERS food security statistics are widely recognized as the benchmark for measuring food security in the U.S., and support decision making on USDA food assistance and nutrition programs.
- *In 2014, 14.0 percent of all U.S. households were food insecure, versus 22.4 percent of Hispanic households.* Using 2011-2014 data from the Current Population Survey's Food Security Supplement, ERS researchers demonstrated how food insecurity varies among Hispanic subpopulations by origin, immigration status, household composition, State of residence, and metropolitan status. Food insecurity was more prevalent among Hispanics identifying as Mexican (20.8 percent), Central/South American (20.7 percent), and Puerto Rican (25.3 percent) than among those identifying as Cuban (12.1 percent) over 2011-14. Food insecurity was more prevalent among Hispanic adults who were noncitizens (24.4 percent) than among those who were U.S. citizens (18.9 percent), and more prevalent among Hispanic citizens who were born in the United States (19.1 percent) than among immigrants who became naturalized citizens (16.6

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percent). Trends in food insecurity from 2000 to 2014 among Hispanic households appear to be closely related to trends in the U.S. labor market.

- *Descriptive estimates of food spending, food security, Supplemental Nutrition Assistance Program (SNAP) participation, and diet and health behaviors from USDA's National Household Food Acquisition and Purchase Survey (FoodAPS) were found to be within plausible bounds of estimates from other surveys.* FoodAPS is the first nationally representative survey to collect detailed and comprehensive information about household food purchases and acquisitions for a full week for everyone in the surveyed household. The survey also collects information on household food security, income and employment, and diet- and health-related behaviors and status. Although several other national surveys separately collect information on these key variables, no other nationally representative survey contains all of this information. This report compares several key FoodAPS estimates to those from other national-level surveys, including: (1) food spending; (2) food security; (3) food assistance program participation and income; (4) dietary knowledge and preferences; and (5) body mass index and general health, as well as sociodemographic information. Multiple intramural and extramural research projects are underway using FoodAPS with two reports planned for release in 2017: one focusing on the food expenditures of SNAP participants and the other on the nutritional quality of foods purchased and acquired by Americans.
- *Thirty-seven percent of households acquired food from family, friends, parties, or a place of worship, and six percent of households acquired food from their own or others' production by hunting, fishing, or gardening.* A July 2016 ERS report used USDA's FoodAPS to examine where households get food in a typical week. FoodAPS captured the acquisition of free food, something which is not measured in any other U.S. purchase surveys. Household and store scanner data from Nielsen and IRI provide data on grocery store purchases, but national data on food from restaurants, schools, food banks/community resources, or family and friends are scarcer, especially those that would allow the comparison of SNAP participants to nonparticipants. The FoodAPS provides the first complete picture of U.S. household food acquisitions. The report provides many interesting statistics about weekly food acquisitions such as the finding that households devoted 55 percent of all expenditures reported during the week at large grocery stores, 3 percent at small or specialty food stores, and 7 percent at other food stores. And a third of all expenditures were at restaurants and other eating places, with the rest of food-away-from-home (FAFH) spending occurring at work and schools.
- *SNAP participants spend more on additional food when receiving additional SNAP benefits than they do when receiving additional cash income.* After the temporary increase in SNAP benefits provided in the American Recovery and Reinvestment Act of 2009, commonly known as the Stimulus Act, SNAP households increased the share of total expenditures spent on food by 1.44 percentage points. They spent 53 cents of each additional dollar of SNAP benefits on food, meaning that SNAP and cash income are not perfectly fungible. SNAP households spend more on food when using SNAP than economic theory predicts, with the lowest income households demonstrating the highest rate of additional spending on food using SNAP (0.62, or 62 cents for each additional dollar). Briefings to senior officials at FNCS and FNS informed decision makers about these updated estimates of an important measure of SNAP's effects on food spending.
- *In USDA's National School Lunch and Breakfast Programs, economies of scale exist for both breakfasts and lunches but are much stronger for breakfasts.* The balance between breakfasts and lunches served also affects costs, with the cost per breakfast dropping dramatically as the number of breakfasts and lunches served become more balanced. An ERS report examined how variations in school location, size, and other factors may affect the costs to schools for providing meals, separately for breakfasts and lunches. Based on a nationally and regionally representative sample of School Food Authority's (SFAs) serving both breakfasts and lunches, SFAs served more lunches than breakfasts, with breakfasts making up only 25 percent of school meals served. However, the proportion of school breakfasts served varied considerably across locations. Consistent with findings in USDA's School Lunch and Breakfast Study II, the average cost per breakfast for schools exceeded reimbursement rates, but costs per lunch were less than the reimbursement rate.

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- *Despite the lack of a program incentive to shop for the lowest prices, 77 percent of WIC retail food benefits were redeemed at large stores (super store, supermarket, or large grocery) in FY 2012.* This compares to 84 percent for participants of the SNAP. The sizeable share of WIC redemptions at large stores may be due to the large share of WIC retail vendors that are large stores (63 percent) and WIC participants' tendency to shop for WIC foods at the same stores where they do their regular shopping. The April 2016 ERS report also documents wide variation, across States, in the shares of authorized vendors and dollar redemption by store type.
- *New surveys on food safety practices.* ERS launched an initiative to collect primary data on food safety practices currently in use for U.S. produce growers and post-harvest firms through surveys being conducted by the USDA's NASS. ERS researchers will use the survey data to assess pre-implementation food safety practices relative to several FSMA rules specifically focused on fresh produce. Results will compare food safety practices and costs of adoption for different size farms or post-harvest operations, across different regions of the country, and to the extent possible for different produce commodities. The research will describe and explain sources and impacts from potential overlap of the Produce rule (focused on produce growers) and the Preventive Controls rule (focused on firms that manufacture, process, pack or hold human food). The research will provide a baseline of current practices and compliance costs for eventual assessment of effectiveness of FSMA adoption. NASS provided ERS with the survey results for fruit growers and post-harvest firms in early summer 2016 and is currently collecting data for vegetable growers. Preliminary results based on response from fruit growers were presented at the 2016 Agricultural and Applied Economics Association annual meeting.
- *Sanitary violations were the most common reason for a shipment refusal in both fishery/seafood products and fruit/fruit products, whereas pesticide residues were the most common violation for vegetables.* A March 2016 ERS report analyzes food import shipments that were refused entry into the United States by the U.S. Food and Drug Administration from 2005 to 2013 and assesses patterns in import refusals. It highlights which products are most often found in violation, identifies the most common types of violations, and discusses country-product patterns of note and changes in import refusal patterns over time. The industry group with the most shipments refused over 2005-13 was fishery and seafood products, with 20.5 percent of refused shipments. This was followed by vegetables/vegetable products (16.1 percent) and fruit/fruit products (10.5 percent). The share of refusals for fishery/seafood products was slightly higher over 2005-2013 than over 1998-2004, while the shares for vegetables and fruit both decreased.

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### Summary of Budget and Performance

The Economic Research Service (ERS) was established in 1961 from components of the former Bureau of Agricultural Economics principally under the authority of the Agricultural Marketing Act of 1946 (7 U.S.C. 1621-1627). The mission of ERS is to inform and enhance public and private decision making on economic and policy issues related to agriculture, food, the environment, and rural America.

The Department will be revising the USDA Strategic Plan later in the spring and expects to release it with the FY 2019 President’s Budget.

#### Key Performance Measures:

ERS has developed a set of performance measures to demonstrate the use of our research findings, market analysis, and data programs to inform and improve decision making by policy makers, regulators, program managers, and those shaping the public debate on important socioeconomic issues. Current Key Performance Measures are presented in the table below and explained after the table:

<b>Performance Measures:</b>	<b>2013 Actual</b>	<b>2014 Actual</b>	<b>2015 Actual</b>	<b>2016 Actual</b>	<b>2017 Target</b>	<b>2018 Target</b>
Inform policy officials and stakeholders on policy issues through briefings on research findings (number of briefings)	44	51	68	57	45	40
Provide research, data, and analysis on policy relevant issues at the request of key decision makers and policy officials (number of staff analyses produced)	518	515	553	511	500	450
Federal Register Notice and other Government Use (number of notices citing ERS research and/or data)	34	50	47	46	40	36
Number of ERS website page views (million)	8	7	7.6	7.8	8	7.2
Customer satisfaction with the ERS Website (score on a 0-100 scale from Foresee website satisfaction survey)	74	75	74	72	75	75
Percent of scheduled key statistical indicators released on time	n/a	n/a	97%	96%	98%	98%
Percent of staff analyses delivered on time	n/a	n/a	98%	98%	95%	95%
Annual Program Review score (1-10 scale, with 1-3=needs improvement, 4-7=adequate, and 8-10=excellent )	n/a	n/a	Excellent	Excellent	Excellent	Excellent

#### **Inform policy officials and stakeholders on policy issues through briefings on research findings:**

Central to the mission of the ERS is the delivery of research findings, data, and analysis to key public and private decision makers. Briefings for senior policymakers ensure that the results of the Agency’s research program are made available to, and used by, those who make decisions and implement public policy decisions related to agriculture, food, the environment, and rural development. This measure tracks briefings for such officials as the Secretary of Agriculture and senior advisors, USDA Under Secretaries, USDA and other Federal program agency heads, White House, and Congressional staff.

#### **Provide research, data, and analysis on policy relevant issues at the request of key decision makers and policy officials:**

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This measure demonstrates that ERS research, market analysis, and data are used by decision makers. Requests from decision makers for rapid-response answers to key policy issues provided by ERS (“staff analysis”) provide evidence that the Agency’s research program helps support informed decision making by policy officials, including the Secretary of Agriculture and senior advisors, USDA Under Secretaries, USDA and other Federal program agencies, and White House and Congressional staff.

### **Federal Register Notice and other Government use:**

This measure tracks the number of rules published in the Federal Register that cite ERS research findings, data or analysis, plus instances where ERS research is cited in publications by the Government Accountability Office, the Congressional Research Service, the Congressional Budget office, and the Congressional Record. This measure demonstrates that ERS research findings, data, and analysis are used to support decision making and implementation of policies and programs.

### **Visits to the ERS website:**

This measure tracks the number of page views on the ERS website. This measure demonstrates that the outputs from the ERS research, market analysis and data program are sought and used to support both public and private decision making on issues related to agriculture, food, the environment, and rural development.

### **Customer Satisfaction with the ERS Web site:**

ERS uses a Web-centric approach to communicating with customers -- all ERS research, data, and other information disseminated by the agency are available through the ERS Web site. This measure is an indicator of customer satisfaction with the ERS Web site using a survey based on the American Customer Satisfaction Index (ACSI). The measure tracks satisfaction of Web site users and provides a basis for comparison with similar government and private sector Web sites. The target for this measure is at or above the average rating for government Web sites in the Information/News category.

### **Annual Program Review Score:**

In 2015, ERS updated its schedule and topic focus for annual program reviews in order to cover the breadth of research topics covered by agency output over a 5-year period. Each annual review covers a subset of ERS research topics and the specific program area is reviewed by an external panel of experts in the topic area. In addition to a long-form narrative review, the panel is asked to score the ERS research topic on a scale of 1-10 with 8-10 considered a rating of ‘Excellent.’ ERS includes this as a KPI with an objective of achieving a score of ‘Excellent’ each year.

### Selected Past Accomplishments Toward Achievement of Key Outcomes:

ERS has four key outcomes that drive the research conducted and statistics produced by the agency. To make progress across these four key outcomes, ERS provides research, data, and analysis to enhance the understanding of policymakers, regulators, program managers, and those shaping debate on economic and policy issues.

**Key Outcome 1:** Enhanced understanding by policy makers, regulators, program managers, and those shaping public debate of economic issues affecting rural development, rural well-being, farm business and household income, and rural communities.

ERS identifies key economic issues related to rural economic development, farm viability, rural household prosperity and well-being, and competitiveness. ERS uses sound analytical techniques to understand the immediate and broader economic and social consequences of how alternative policies and programs and changing market conditions affect rural and farm economies and households. ERS effectively communicates research results to policy makers, program managers, and those shaping the public debate on rural economic conditions and performance of all sizes and types of farms. Examples of these activities include the following:

- Developed a comprehensive, integrated base of information on rural economic and social conditions that can be used by Federal policy makers for strategic planning, policy development, and program assessment.
- Analyzed how investment, technology, Federal policies, demographic trends, increased foreign competition in low-wage industries, and growing demand for highly skilled labor affect rural America’s capacity to prosper in the global marketplace.

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- Conducted research to better understand the role and effectiveness of investments in infrastructure, housing, and business assistance for sustaining rural communities, particularly in areas with rapid population growth or long-term population decline.
- Developed and published estimates of farm income, assets and debt (balance sheet) through the ERS web site. Three times each year ERS provides updated income and balance sheet forecasts that reflect the most recent information available on production, prices and quantities of crops, livestock, products, and other outputs and services generated from farms. The information was also used as an input for other agencies: the Bureau of Economic Analysis' (BEA) National Income Staff used this information in developing their estimates of gross domestic product (GDP) and National Income Accounts and estimates of Personal Income and Outlays, and Corporate profits. Forecast data were provided to the Council of Economic Advisors, and the estimates were also used by BEA's Regional Economic Measurement Division in developing a system of regional economic indicators that help form the basis for dissemination of Federal Revenue Sharing funds.
- Working closely with the World Agricultural Outlook Board, the Foreign Agricultural Service, and other USDA agencies, ERS conducted market analysis and provided short- and long-term projections of U.S. and world agricultural production, consumption, and trade. The market analysis and outlook program enhanced the quality, transparency, and accessibility of data and analytical information. Program enhancements improved data access technologies and provided advanced graphing tools and applications to enhance the delivery of information through automated feeds.
- Provided timely, accurate agricultural economic analysis and data on the impacts of policies and changes in market conditions to inform decisions by policy makers, farmers, and ranchers in highly variable and evolving agricultural markets.

### Selected Past Accomplishments toward Achievement of Key Outcome 1:

Past accomplishments toward achievement of the key outcome include analyses of:

- The economic and demographic determinants of the recent rise in rural child poverty
- Employment trends in rural labor markets
- Family farms
- Producer participation across the food supply chain
- Farm operators and land ownership
- Renewable energy production trends on U.S. farms
- The prevalence of antibiotic use in U.S. livestock production.

### Selected Accomplishments Expected at the FY 2018 Proposed Resource Level:

*ERS will conduct the following research on the rural and farm economy:*

Large-Scale Farms in the United States. Farm production continues to shift to larger operations. ERS will analyze this shift for different regions and commodities, and will assess reasons for its continuation. The study will also focus on the attributes of very large U.S. farms using a new top sales class of \$10 million or more. ERS will examine size and growth, management, ownership, commodity focus, and financial performance of the largest farms.

Implications of Changing Land Values for Financial Stress and Land Ownership. ERS research will examine the potential vulnerability of the farm sector to changes in agricultural land values, interest rates, and commodity prices. Farm real estate values reached record highs in 2013, but forecasts indicate a slowing rate of appreciation, or possibly even a decline in land values caused in part by lower commodity prices and rising interest rates.

Financial Stress, Bankruptcies, and Loan Delinquencies. After several years of strong growth in farm income, the sector's overall returns have declined, with net farm income now forecast for 2016 to be 45 percent below the \$123.8 billion peak in 2013. The decline may lead to increased financial stress within the sector; two possible indicators of financial stress would be increases in farm bankruptcies and in loan delinquencies. ERS is analyzing trends in bankruptcies and loan delinquencies over time in order to understand and identify drivers of financial stress in the sector. Preliminary results using the most recent available data indicate minimal signs of financial stress in

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the agricultural sector. Both farm bankruptcy rates, considered a lagging indicator of financial stress, and commercial bank delinquency rates for agricultural loans, are low compared to historical levels and to more recent history in the 2000s.

Trends in Mortality Rates among Rural Residents. Preliminary ERS research has identified rising mortality rates among some subgroups in the rural U.S. population during the twenty-first century. This analysis focuses on the largest such group, middle-aged white men, tracing the upward trend in death rates since 2000 and examining possible correlates of this trend, including access to health care and increasing economic distress in some rural regions.

Analysis of the Rural Rental Housing Program. ERS research will examine the current allocation of USDA's housing and the communities served, areas presently underserved or at risk of becoming underserved, the factors contributing to the risk of loss of affordable rental housing, and the communities and populations likely to be affected. Since 1963, USDA has made subsidized direct loans to developers to finance affordable, multi-family rental housing in rural areas for low and moderate income families, elderly people, and persons with disabilities. This research will inform policy makers concerned about the need for affordable rental housing in rural areas.

*ERS will conduct the following research on farm and commodity policy:*

Analysis of USDA Risk Management Programs. American farmers face risks from weather and markets for the inputs they purchase (e.g., energy, labor) and products they sell. ERS will continue to provide research that analyzes the environment in which farmers operate and USDA's risk management programs. Building on a set of ERS studies completed or to be completed in FY17 on risk management policies and programs under the 2014 Farm Bill programs, ERS will conduct analysis that could have implements for program design. One study will provide a broad overview of the different risk management tools available in different countries, which in turn will inform an empirical analysis for domestic producers of how changes to their agricultural risk management portfolio impacts their downside revenue risk. Motivated by the notion that weather data is rapidly collected for all counties, another study will empirically examine for U.S. crop producers the differences in impacts on risk management of crop insurance policies and other commodity support policies using a weather-based yield index rather than farm yield-based.

Improved Season-Average Price Forecasts. ERS will conduct research on using forward-looking data and methods to improve the accuracy and expand market information provided from USDA's situation and outlook program. The analysis will use public USDA reports and daily futures and options prices to better inform market participants about price uncertainty in major agricultural commodity markets. Ultimately, derivatives markets are a technology that improves the discovery of market price levels given supply and demand fundamentals. To the degree that the latter are well understood, markets function more efficiently.

Feed Grains Database Developments. The ERS Feed Grains Database is an important component in USDA monitoring of the grain, oilseed, and livestock complex, providing data on four feed grains (corn, grain sorghum, barley, and oats), seven foreign coarse grains (feed grains plus rye, millet, and mixed grains), hay, animal unit indexes of grain and roughage, rail rate indexes, and grain shipments. The database serves as an important, timely, accurate, reliable, and official source of information for stakeholders. Planned program enhancements include applications to enhance the delivery of information and expansion to other commodities.

Updated Commodity Cost and Returns Estimates. ERS produces annual cost and returns estimates for nine crop commodities, as well as hogs and milk. The annual estimates update baseline estimates with information on changes in input and commodity prices, while the baselines are set using data on technologies, production processes, and expense shares from commodity-specific questionnaires of the ARMS. ERS will set new baselines for corn and milk with surveys from the 2016 ARMS, and will design a wheat questionnaire for the 2017 ARMS to help set a new wheat baseline estimate (the surveys are completed by spring of the year following the reference year).

Analysis of the Dairy Margin Protection Program. ERS will conduct an ex-post examination of the Dairy Margin Protection Program, which offers dairy producers catastrophic coverage at no cost. The analysis will use the USDA baseline to examine margin expectations and milk output and how margins are likely to increase in nominal terms

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by the next Farm Bill. This research will further explain how feed efficiency and milk output could impact the national averages calculated for the program.

U.S. Hog Production: Continuing Trends in Productivity Growth. Total factor productivity in the U.S. hog industry will be estimated using Agricultural Resource Management Survey (ARMS) data to determine productivity trends. Information pertaining to changes in industry structure and production practices including changes in the size of operations, the use of production contracts, growth-promoting antibiotics, and innovative technologies are reported and evaluated relative to productivity growth.

*ERS will conduct the following activities related to homeland security:*

Analysis of Animal Disease Outbreaks. ERS researchers will collaborate with Federal and academic researchers to examine how economic variables and factors affect animal and crop disease outbreak assessments. This work will examine how economic analysis can help to develop clearer views of actual and hypothetical outbreaks, and to more fully identify what factors are significant in measuring the success of a mitigation or prevention effort. This research focuses on efforts to introduce economic components into epidemiological analysis that will allow analysts and decision makers to include social (e.g., impacts on rural communities) considerations and expand the number of criteria that may be used to determine effective outbreak responses. ERS will continue to invest in the data and analytical capacity needed to provide the current market context and data needed to support USDA Homeland Security event assessments and planning efforts, and support the USDA Highly Pathogenic Avian Influenza multiagency coordination. In addition, ERS is contributing expertise as subject matter experts to the Department of Homeland Security, Science and Technology Directorate, for the Agro-terrorism Risk Assessment, and the NSTC Foreign Animal Disease Threats Interagency Working Group.

**Key Outcome 2:** Enhanced understanding by policy makers, regulators, program managers, and those shaping public debate of economic issues related to developing Federal farm, natural resource, and rural policies and programs that respond to the need to protect and maintain the environment while improving agricultural competitiveness and economic growth through the adoption of economically and environmentally sustainable technologies.

ERS identifies key economic issues related to interactions among natural resources, environmental quality, and the agriculture production system. ERS uses sound analytical techniques to understand the immediate and broader economic and social consequences of alternative policies and programs to protect and enhance environmental quality associated with agriculture. ERS research analyzes the economic effects and cost effectiveness of resource, conservation, environmental, and commodity programs and their linkages. Topics include USDA's conservation programs and environmental policies addressing water and air quality as well as the risks faced by agricultural producers due to weather-related uncertainties. ERS effectively communicates research results to policy makers, program managers, and those shaping public debate on agricultural resource use and environmental quality.

Examples of these activities include the following:

- Characterized implications of conservation and environmental policy design. Conservation policy design is generally limited to defining the subset of producers eligible to participate in a program, constructing the incentive structure, and selecting program participants from among willing bidders. ERS research examined options for using market forces to improve the economic, environmental and distributional performance of programs. Design features examined included compliance mechanisms that link program benefits to environmental performance, options for targeting specific producer types (e.g., socially disadvantaged farmers), regions, or environmental attributes, the use of auctions for soliciting high benefit or lower cost offers, and procedures for selecting participants from among all program applicants.
- Examined policy drivers for land management and land use change. Farm and environmental policies, including farm programs, water resource policies, and conservation programs, as well as fundamental changes in commodity demand (diet and trade), may encourage farmers to modify cropping patterns, to change their crop management practices, to expand cropland and/or to retire cropland. ERS research examined whether and to what extent changes in land management and land use would occur under alternative policy specifications.

Selected Past Accomplishments toward Achievement of Key Outcome 2:

Past accomplishments toward achievement of the key outcome include:

- Analysis of how a changing climate may increase the use of genetic resources for adaptation to heat and drought stress
- Analysis of choices for managing declining effectiveness of and resistance to glyphosate
- Analysis of wetlands restoration programs
- Analysis of the impacts of the drought in California
- Analysis using behavioral economics of how alternative auction mechanisms could increase the cost-effectiveness of USDA conservation programs.

Selected Accomplishments Expected at the FY 2018 Proposed Resource Level:

*ERS will conduct the following research on conservation, water, and environmental issues:*

Conservation Compliance. To maintain eligibility for most agriculture-related federal programs, Conservation Compliance requires farmers to implement approved conservation systems on highly erodible cropland and refrain from draining wetlands. The Agricultural Act of 2014 eliminated Direct Payments and Countercyclical Payments—which previously accounted for a large proportion of compliance incentives—but also created “shallow loss” programs and linked crop insurance premium subsidies to Conservation Compliance requirements. ERS research will investigate the effectiveness of conservation compliance, changes in incentives due to the Agricultural Act of 2014, and the effectiveness of these incentives in protecting highly erodible cropland and wetlands.

Economics of Reducing Nutrient Losses from Agriculture in the Mississippi Atchafalaya River Basin. ERS research will examine the economic consequences of reducing nutrient losses from agriculture to the Gulf of Mexico and its implications for improving environmental quality. Every summer a large hypoxic zone forms in the Gulf of Mexico. Low dissolved oxygen in the Gulf is a serious environmental concern that can impact valuable fisheries and disrupt sensitive ecosystems. Reducing agricultural nutrient losses has been a major conservation goal for USDA and many Mississippi Basin states. However, despite years of investment in conservation measures, most cropland does not meet criteria for good nutrient management. ERS expects to publish a report that examines policy options for reducing nutrient losses in the Mississippi/Atchafalaya River Basin.

Changes in Climate and Crop Insurance. The changing climate has the potential to introduce greater uncertainty into agricultural production, with implications for farm profitability. This can influence the demand for crop insurance products and the costs to government of providing crop insurance premium subsidies. ERS researchers are examining how a changing climate will affect crop insurance premium subsidies in 2080. The ERS analysis combines models of crop risk, land allocation, prices, and crop insurance premiums to simulate total premium subsidy costs under alternative scenarios.

Determinants of Unfinished Conservation Practices. Since 1996, USDA working lands programs have entered into hundreds of thousands of conservation contracts. Many of the practices specified in these contracts are never installed as planned, leading to lost opportunities for additional conservation activity. ERS researchers are examining reasons why practices get dropped, using EQIP program administrative data to ascertain whether changes to conservation plans are due solely to adaptive management (adjusting to unforeseen weather or financial conditions) or to other reasons related to contract design.

Conservation “Legacy” Effects. An aspect of conservation policy that has received little attention is how financial assistance may provide conservation benefits beyond the specific location and duration of program participation. ERS researchers are using EQIP administrative data along with satellite data to study the extent to which participation leads farmers to retain conservation tillage practices after the contract has expired or to adopt conservation tillage on non-contract fields, or the extent to which participation leads neighboring farmers to adopt conservation tillage on their land. This research improves our understanding of the long-term benefits from conservation, and would help in the development of better metrics for measuring program success.

Herbicide Resistant Weed Management in Corn. Weed resistance to the herbicide glyphosate (popularly known as Round-up) is a growing problem in field crops, and there are also emerging concerns with insect resistance to seeds

genetically engineered with the Bt toxin. ERS has elicited information on pesticide use, seed choices, and resistance management practices from farmers in the 2016 Corn Production Practices questionnaire of the ARMS. ERS research will evaluate farm strategies to manage weed and insect resistance, and track how those strategies have changed since the earlier 2010 ARMS corn survey; the research will also draw on related ARMS soybean surveys for 2006 and 2012.

**Key Outcome 3:** Enhanced understanding by policymakers, regulators, program managers, and organizations shaping public debate of economic issues related to factors affecting trade of U.S. agricultural products and strategies to reduce trade barriers and increase markets for U.S. products.

ERS identifies key economic issues related to the competitiveness and sustainability of rural and farm economies, including economic factors guiding the development and adoption of new technologies and production systems to support international trade and food security. These activities include the following:

- Developed and disseminated research and analysis on the U.S. food and agriculture sector's performance in the context of increasingly globalized markets. Key emphasis areas included trade agreements, domestic policy reforms, and the principal drivers of structural changes in global supply and demand.
- Provided information on changes in technology of food production and adoption of new agricultural inputs and practices that have significant implications for the way in which the Nation's food supply is produced and sold.
- Produced an annual assessment of the prevalence and depth of food security in developing and middle-income countries.

Selected Past Accomplishments toward Achievement of Key Outcome 3:

Past accomplishments toward achievement of the key outcome include analyses on:

- The drivers of increased production in foreign markets and implications for U.S. agriculture
- Chinese agriculture and its effects on world markets
- The effects of sanitary and phytosanitary measures quotas maintained by the European Union (EU) on U.S. exports
- The changing agricultural traded landscape to inform agricultural trade policy formulation to further reduce barriers to U.S. exports.

Selected Accomplishments Expected at the FY 2018 Proposed Resource Level:

*ERS will conduct the following research on global agricultural markets and food security:*

Investments in Agricultural Research in High-Income Countries. There is a growing concern that agricultural productivity growth, especially in high-income countries, may be slowing, and that current agricultural R&D levels may not be sufficient to address this concern. Some Organization for Economic Cooperation and Development countries have introduced policy reforms to improve the financing and performance of their public agricultural R&D systems. However, there is a lack of comprehensive and comparable information on these trends and developments, particularly for countries outside of the U.S. ERS is analyzing trends in U.S. agricultural research funding and agricultural research policy reforms in the context of global changes. This analysis will demonstrate the impact of R&D investments on agricultural productivity growth and examine the complementary roles of public and private research, and relate public investments to the size of the agricultural sector and to public science investments across the economy.

The Next Horizon: The Agricultural Trade Policy Landscape in 2016 and Beyond. ERS will quantify the potential for gains from trade reform under existing forms of policies targeted at agriculture. The core of the product would be an estimate of economic impacts of selected current domestic and border intervention policies, focusing on tariffs and tariff-rate quotas and other trade-related policies, domestic support, and non-tariff measures. To examine the impacts of different policy scenarios, the trade modeling framework will remove these policies separately and in combination in the context of multilateral trade liberalization.

Global Price Determination. While price in a given region reflects local (current and expected) supply and demand fundamentals, important agricultural commodities are often traded internationally, meaning that regional prices are also affected by the prices—and therefore the fundamentals—of their trading partners. ERS research will examine whether shifting production and trading patterns for several major commodities have affected the degree to which U.S. prices inform global prices, and also the influence international production and demand shocks have over prices paid to farmers domestically.

China's Commodity Markets and Efficiency. China has become more integrated with global agricultural markets since its accession to the World Trade Organization (WTO) in 2001. China is the world's largest producer and consumer of most agricultural commodities, so its integration with global markets is an important determinant of the efficiency of those markets. ERS research will evaluate the efficiency of agricultural commodity markets before and after China's WTO accession to characterize the country's degree of global integration.

International Food Security Assessment. ERS produces an annual assessment of the prevalence and depth of food security in low-and middle-income countries. ERS makes available the full historical database used for the model projections on its website. ERS developed new model capabilities, included in the 2017 report, including the ability to assess the impact of changes in food prices and income on demand. This allows ERS analysis to address all four dimensions of food security—availability, access, utilization and stability.

Progress and Challenges in Global Food Security. ERS will analyze progress made in reducing global food security, as well as new areas of challenge, drawing on 25 years of data from the International Food Security database. The analysis will examine progress in food security measurement, agricultural trade and food security, agricultural productivity and food safety nets. It will also highlight emerging issues that create new food security challenges, such as nutrition, risk management, climate change and urbanization. It integrates the analysis with priorities developed in the Global Food Security Act of 2016.

*ERS will conduct the following research on production technologies:*

Developments in Markets for U.S. Organic Exports. ERS research will examine developments in the U.S. organic export market. In addition to developing absolute and relative measures of organic trade performance over time, by commodity, and by trading partner, ERS will analyze the impact of equivalency agreements on observed trade flows. Results will inform the extent to which observed increases in U.S. organic exports can be attributed to these agreements as compared to changes in market fundamentals.

Evolution of Markets for Genetically Engineered Seeds. Since their commercial introduction in 1996, most acreage planted to genetically engineered (GE) seeds have been planted to three crops—corn, cotton, and soybeans—and has featured two traits, one for insect resistance and one for herbicide tolerance. In recent years, GE acreage has expanded to other field crops, such as alfalfa, canola, and sugarbeets, and seed developers have added more complex combinations of the two key traits as well as new traits for drought tolerance. ERS research will draw on questions introduced into the 2016 ARMS to track the spread of new types of GE technologies.

**Key Outcome 4:** Enhanced understanding by policy makers, regulators, program managers, and those shaping public debate of economic issues related to improving the efficiency, efficacy, and equity of public policies and programs relating to domestic food prices and availability at home, consumer food choices, nutrition and health outcomes related to nutrition assistance programs, and protecting consumers from unsafe food.

ERS identifies key economic issues affecting food prices and availability, food acquisition patterns, food markets, and food safety. ERS uses sound analytical techniques to understand the immediate and long-term efficiency, efficacy, and equity consequences of alternative policies and programs aimed at ensuring access by children and adults to safe, nutritious, affordable, and adequate meals. ERS explores factors that can improve the effectiveness and efficiency of USDA Food and Nutrition Assistance programs and effectively communicates research results to policy makers, program managers, and those shaping efforts to promote abundant, safe, and healthful food at home and abroad. Examples of these activities include the following:

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- Conducted economic analyses of the impacts of the Nation's domestic nutrition assistance programs, including the Supplemental Nutrition Assistance Program (SNAP); the Special Supplemental Nutrition Program for Women, Infants, and Children; and the Child Nutrition Programs.
- Provided national estimates of U.S. household food insecurity, an annual measure of the share of households that lack consistent access to adequate, healthful food.
- Conducted analyses of the benefits and costs of food assistance program policies that affect diet and health outcomes, including nutrition education, behavioral nudges, and regulations.
- Conducted research on food program targeting and delivery to gauge the success of programs aimed at needy and at-risk population groups, and to identify program gaps and overlaps.
- Conducted research on how program needs changed with local labor market conditions, economic growth and recession, and how changing State welfare programs interact with food and nutrition programs.
- Provided economic analysis of the food marketing system to understand factors affecting the availability and affordability of food for American consumers.
- Provided annual estimates of the quantity of food available for human consumption, and measures of disappearance and loss in the food system.
- Provided food safety information through publications, web materials, and briefings that address the economics of food safety, including consumer knowledge and behavior, industry practices, the relationship between international trade and food safety, and government policies and regulations.
- Worked with Federal food safety agency partners to evaluate available foodborne illness data related to meat, poultry and egg products, and developed more accurate measures of the effectiveness of regulatory strategies in reducing preventable foodborne illness.

### Selected Past Accomplishments toward Achievement of Key Outcome 4:

Past accomplishments toward achievement of the key outcome include:

- An analysis of the food safety of chicken served in the National School Lunch Program
- A study of how low-income households differ in food purchase behavior and diet quality as compared to other consumers
- A study estimating the economic burden of foodborne illness.

### Selected Accomplishments Expected at the FY 2018 Proposed Resource Level:

*ERS will conduct the following research on USDA's food and nutrition assistance programs:*

Food Insecurity in Veteran Households. Food insecurity as a measure of well-being for veterans and their households is relatively unstudied. Previous studies have been restricted to non-nationally representative samples or focused on veterans with disabilities. This study uses a nationally representative sample of veterans to describe the prevalence of food insecurity among veterans, subpopulations of veterans, and veteran households by selected characteristics.

Using Administrative Data to Improve Research on the Causal Effects of the SNAP Program on Labor Supply. This project continues the work on the effects of food assistance program participation on individuals' incentives to work. Previous work examined the issue using Current Population Survey (CPS) data from Census that contain labor supply information as well as information on whether the individual participated in the SNAP program. Misreporting of SNAP participation in CPS data is a major issue with uncertain effects on estimates of the effect of participation on outcomes. The goal of the project will be to link administrative data sources to CPS data, examine how estimates of causal effects of SNAP participation on labor supply are affected by SNAP misreporting, and examine possible solutions to bias created by misreporting.

The Food Assistance National Input-Output Multiplier (FANIOM) Model and Stimulus Effects of SNAP. This project will examine the role of SNAP as a stimulus measure during an economic downturn. Using the Food Assistance National Input-Output Multiplier (FANIOM) model, we estimate the multiplier effect of a hypothetical SNAP expansion on economic output and employment. Since the end of the Great Recession, new research and new data sources are available to inform on this topic. Borrowing on these new sources, this project extends the work of ERS researchers in 2012 to provide an updated estimate of the multiplier effect of the SNAP program on

the economy. Additionally, we review new literature examining the impact of the SNAP program on the economy during the Great Recession.

The Role of SNAP in the Rural Economy. ERS research will compare the rural impacts of the Supplemental Food Assistance Program (SNAP) to those in urban areas and to impacts of other Federal programs targeted to rural areas, such as agricultural commodity and rural development programs. Although SNAP is the largest USDA program, little research has investigated the economic effects of SNAP in rural areas. The project will examine how SNAP affects household savings and consumption decisions, impacts of SNAP on employment in rural vs. urban communities, and impacts of SNAP compared to impacts of agricultural commodity programs nationally and in selected regions.

Characteristics of School Districts Offering Free School Meals to All Students Through the Community Eligibility Provision. This project will study the determinants of school and district participation in the Community Eligibility Provision (CEP). In 2010, Congress mandated the CEP as a reimbursement option that allows schools serving high percentages of low-income students to offer USDA school meals at no charge to all students with reduced administrative burden. USDA's Food and Nutrition Service expects the CEP to result in expanded participation with most impact on poor or near-poor students who may benefit the most from USDA's child nutrition programs.

Food Costs of Large School Food Authorities in the National School Lunch Program. The Food and Nutrition Service (FNS) reimburses school food authorities (SFAs) for the estimated costs of providing school lunches and breakfasts. Reimbursement rates are based on cost accounting techniques that measure SFA labor, food purchase, and operating material costs. All SFAs in the 48 contiguous states receive the same reimbursement rates regardless of size or geographic location. Thus FNS implicitly assumes that labor and food purchase costs are the same across SFAs. Recent research shows that economies of scale exist in meal service and food costs vary across SFAs. Yet SFAs vary in size from large, urban SFAs serving millions of meals per year to small, rural and suburban SFAs serving less than 10,000 meals. This research will determine if cost differences exist in food purchases and if so, how these differences in costs shape food choices.

WIC and the Retail Markup of Infant Formula. This project will examine the retail markup of the formula purchased through WIC. The number of participants in WIC who can be served within the fixed budget depends heavily on the program's food-package costs, which in turn are significantly affected by the cost of infant formula. Do retailers charge higher markups for the WIC contract brand than for the non-WIC brands of formula? This is an important question because retail markups, along with the net prices, are what WIC—and ultimately U.S. taxpayers—pay for infant formula. The answer to this question may also have implications for the prices that non-WIC participants pay for infant formula.

*ERS will conduct the following research on food safety, foodborne illness, and industry practices:*

Estimating Food Attributable Fractions of Foodborne Illness from Time Series Data. Reliable measures of the relative role of different foods in foodborne illness caused by specific pathogens are critical to government's and industry's ability to target food safety interventions effectively. USDA, FDA and CDC have all identified a need for new, more reliable methods to estimate this relationship. This collaborative study between ERS, CDC and the University of California, Berkeley pioneers use of Nielsen HomeScan time series data on food consumption and FoodNet foodborne illness surveillance to estimate the relative contributions of specific foods to illnesses caused by major foodborne pathogens.

Trends in Food Product Recalls: 2004-2013. Food product recalls, the removal of risky food products from the marketplace, can impose significant burdens for consumers, producers, and regulators. This report analyzes trends and patterns of food product recall events from 2004 to 2013. The analysis considers multiple factors, including the types of foods being recalled, the reasons for initiating the recalls, the severity of the risks posed by the recalled products, and the geographic distribution.

The 2011 Food Safety Modernization Act (FSMA) and the Fresh Produce Industry. Using new survey data collected through a joint ERS/NASS initiative, ERS researchers will assess pre-implementation food safety practices relative to several FSMA rules specifically focused on fresh produce. Results will compare food safety practices and

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costs of adoption for different size farms or post-harvest operations, for different regions of the country, and to the extent possible for different produce commodities. The research will provide a baseline for eventual assessment of effectiveness of FSMA adoption.