

The Challenges Facing Public Agricultural Research Today

Dr. Catherine Woteki

Chief Scientist

Under Secretary

Research, Education, and Economics

U.S. Department of Agriculture

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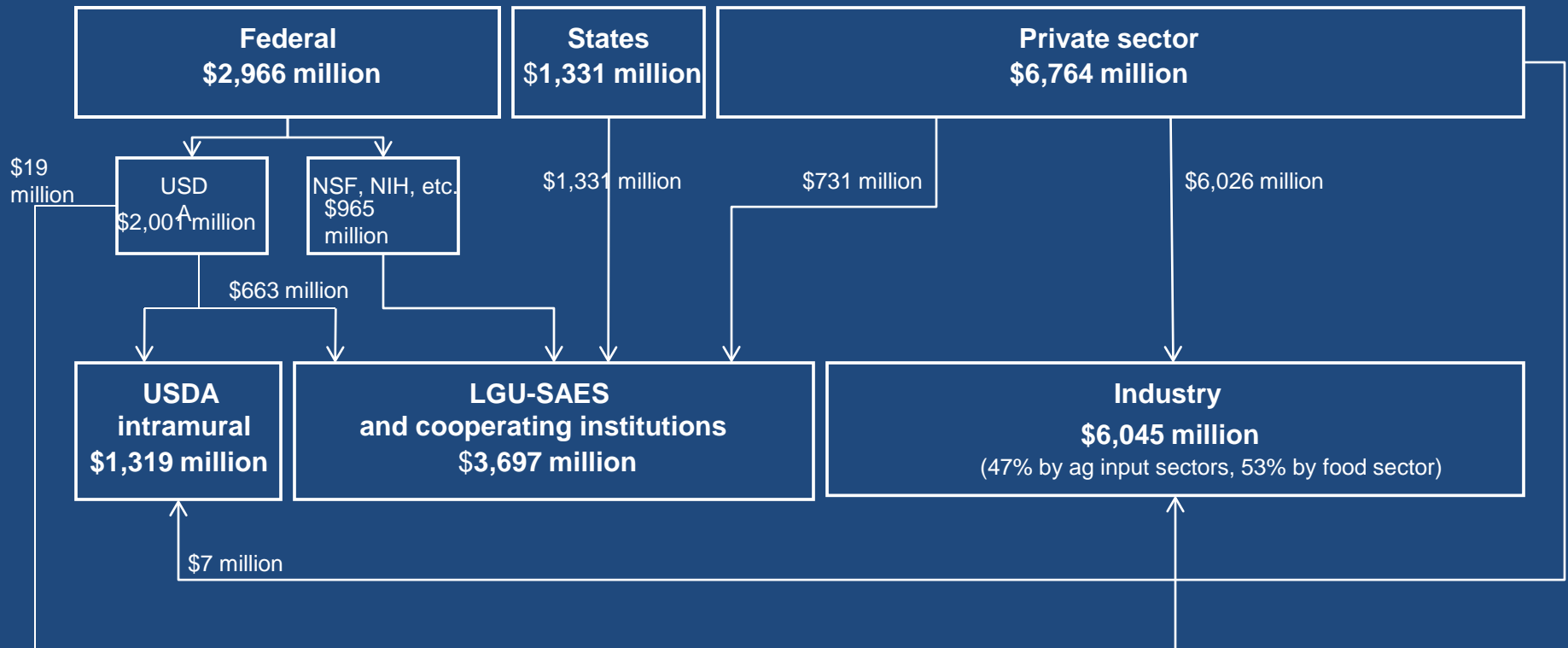
An aerial photograph of a rural landscape featuring rolling hills, various agricultural fields in shades of green and brown, and a small farm with a red barn and silos. The background shows more hills under a clear sky.

Major Challenge Areas for Agricultural Research and Education

- **Budgetary Challenges**
- **Management Challenges**
- **Societal Challenges**

The U.S. Food and Agricultural Research System

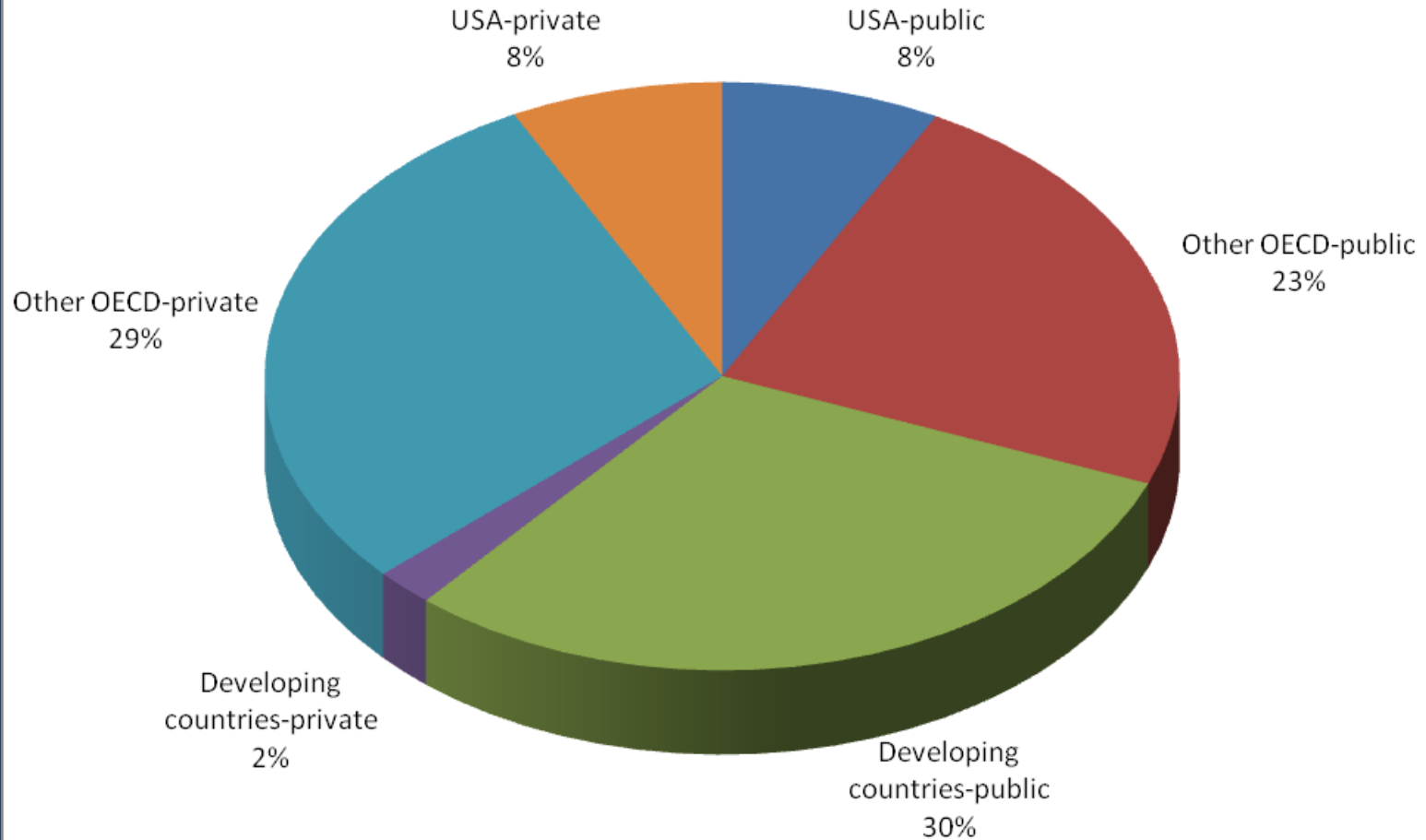
Funders and performers of U.S. food and agricultural research in 2006



Total U.S. food & ag R&D performed: \$11,061 million (\$5,016 million public + \$6,045 million private)

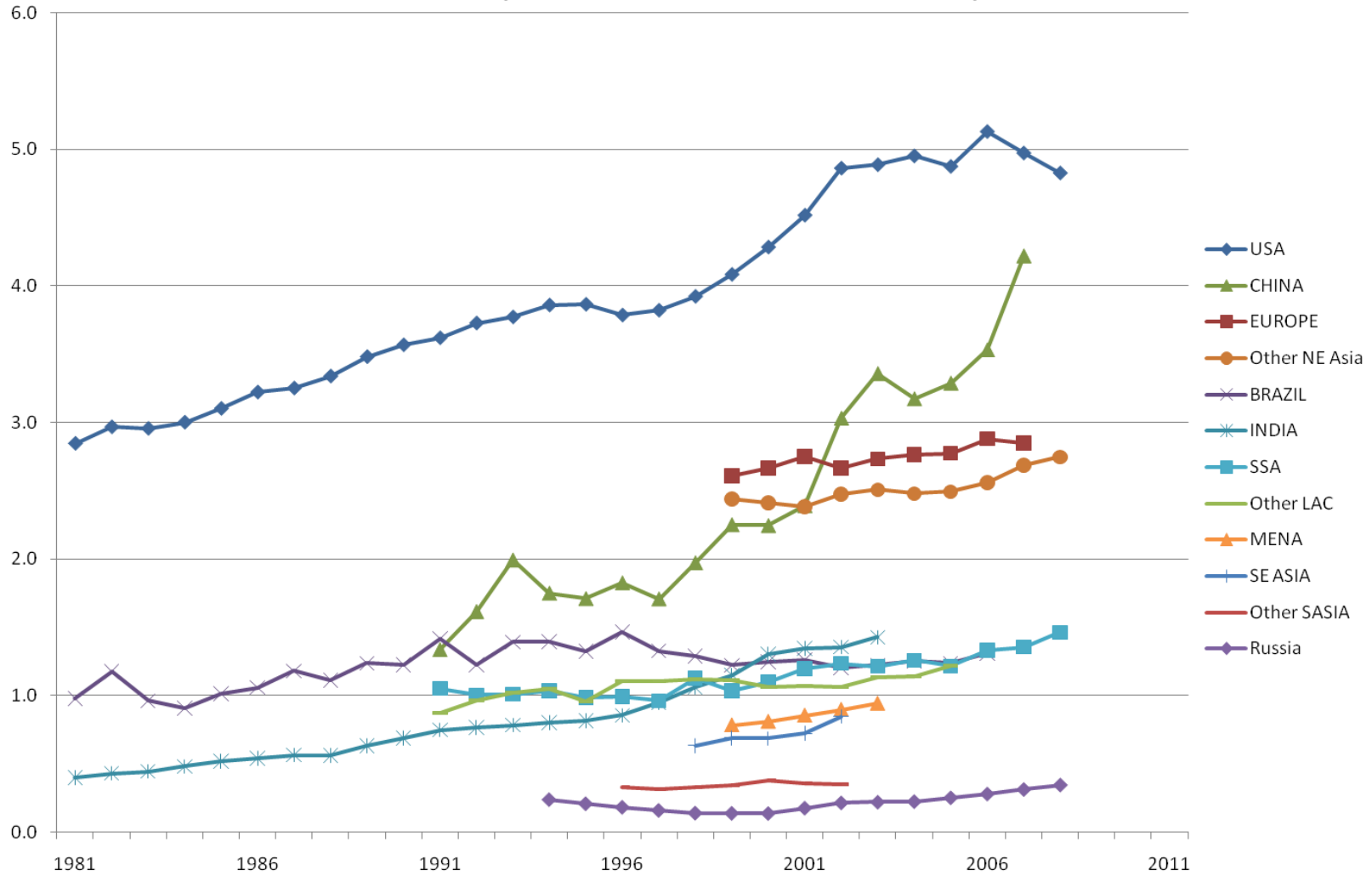
The Global Food and Agricultural R&D System in 2000

\$33.2 billion (68% public, 32% private)



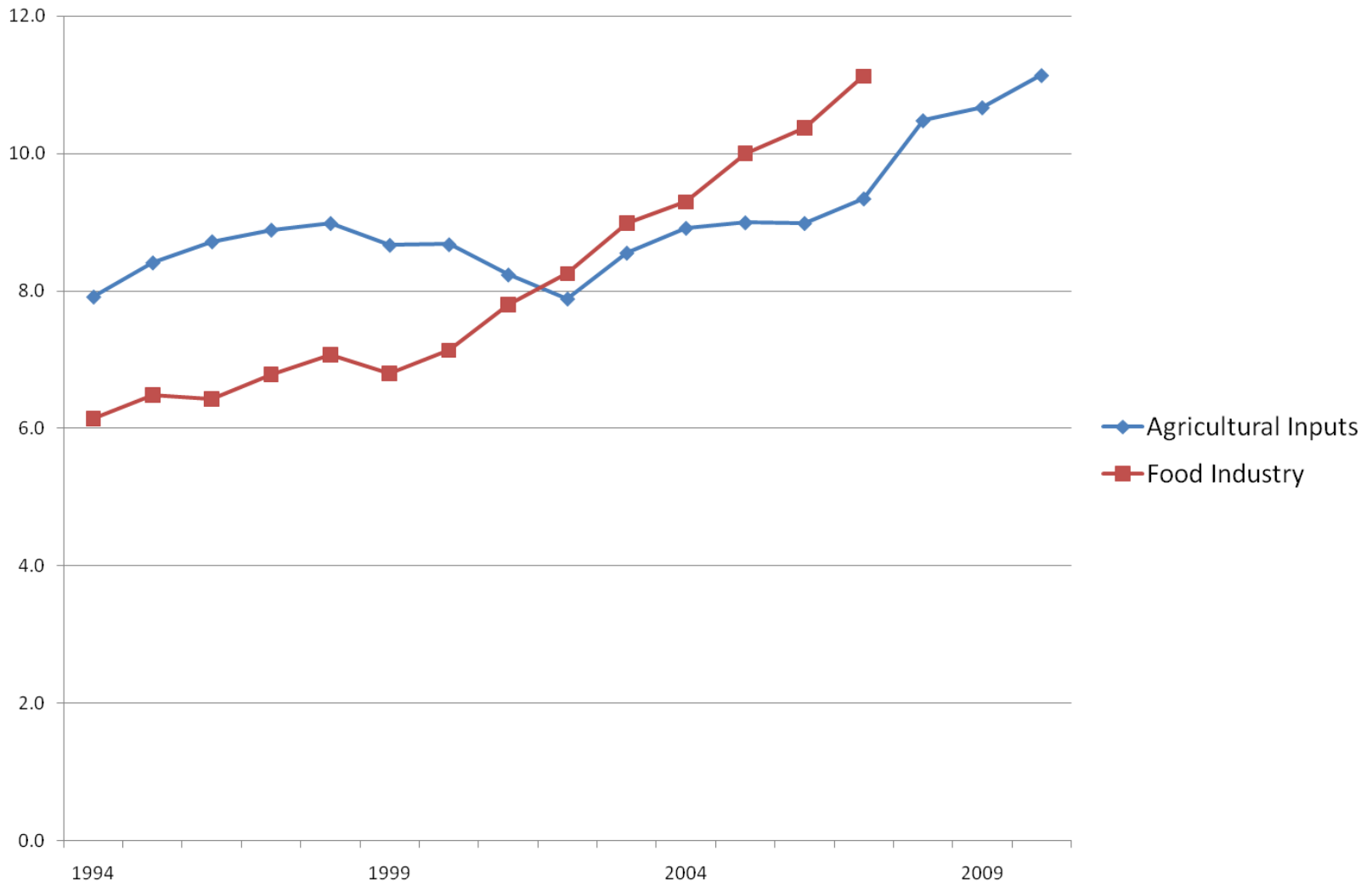
Source: Alston, et al. (2010)

Global Public Agricultural Research Spending (constant 2005 PPP dollars, billions)



ERS, derived from OECD, Eurostat and ASTI data

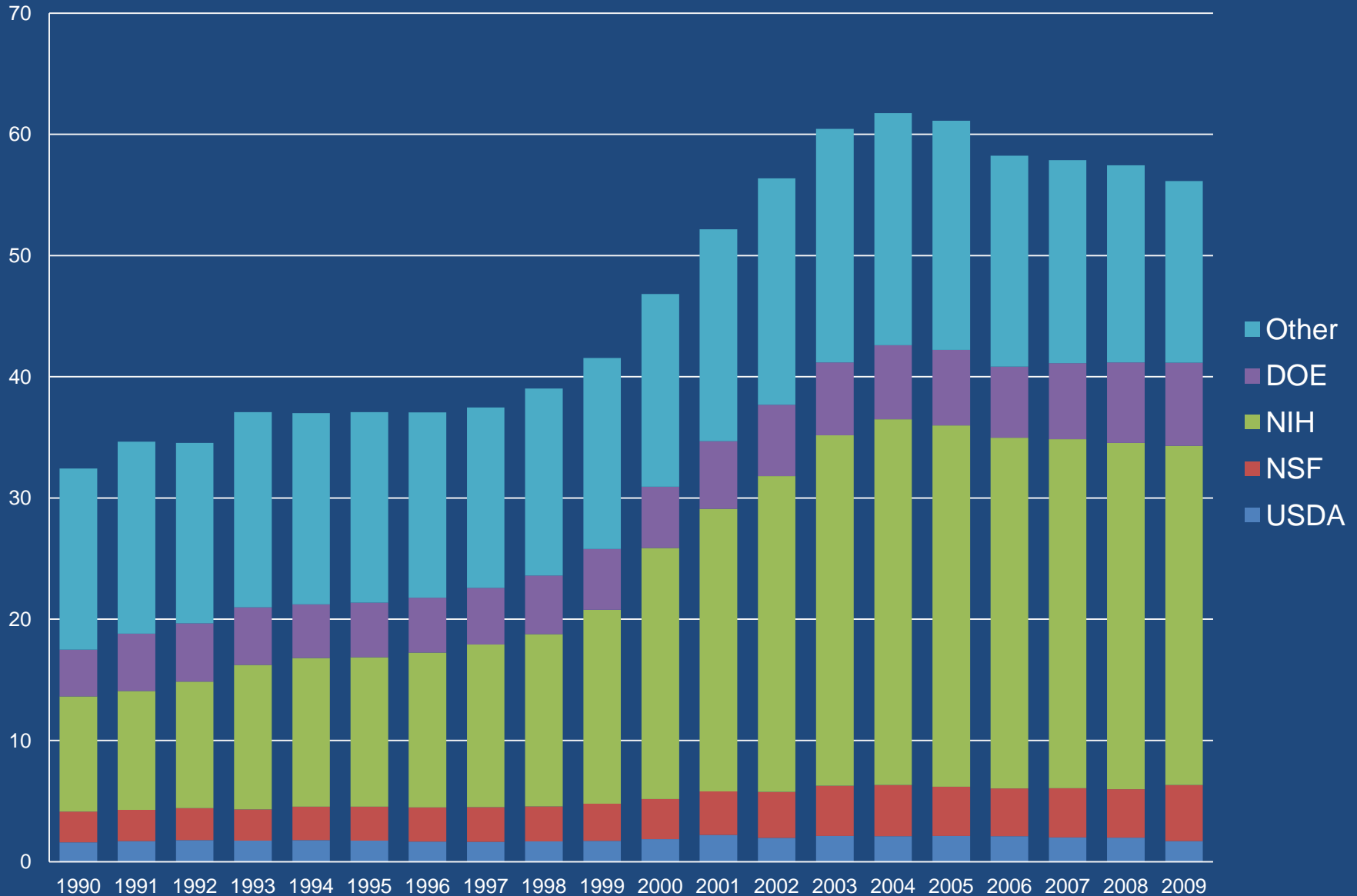
Global Private Food and Agricultural R&D Spending (constant 2005 US\$, billions)



Source: Fuglie et al. (unpublished, in preparation)

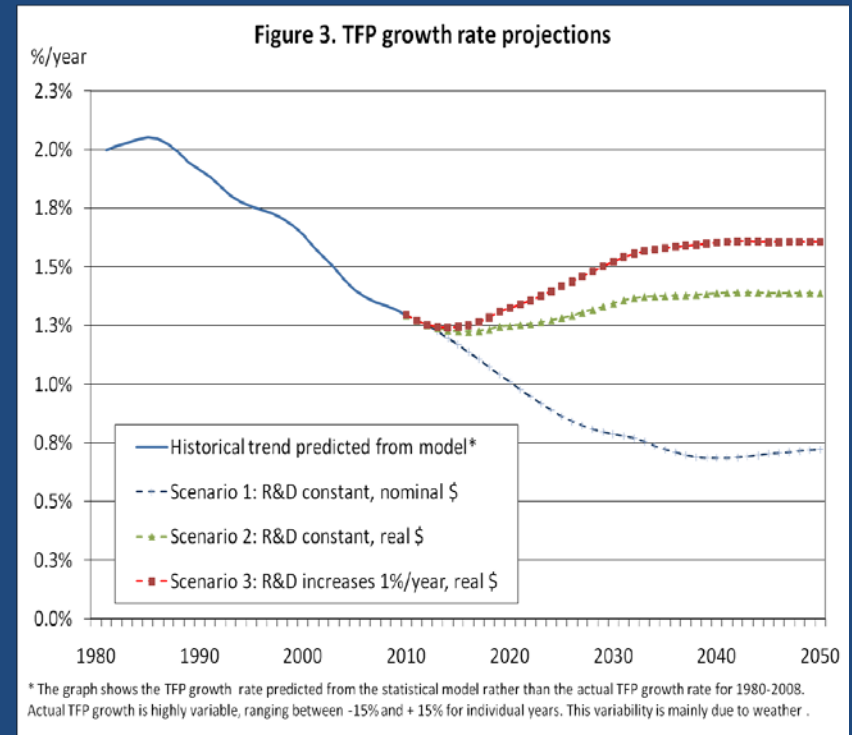
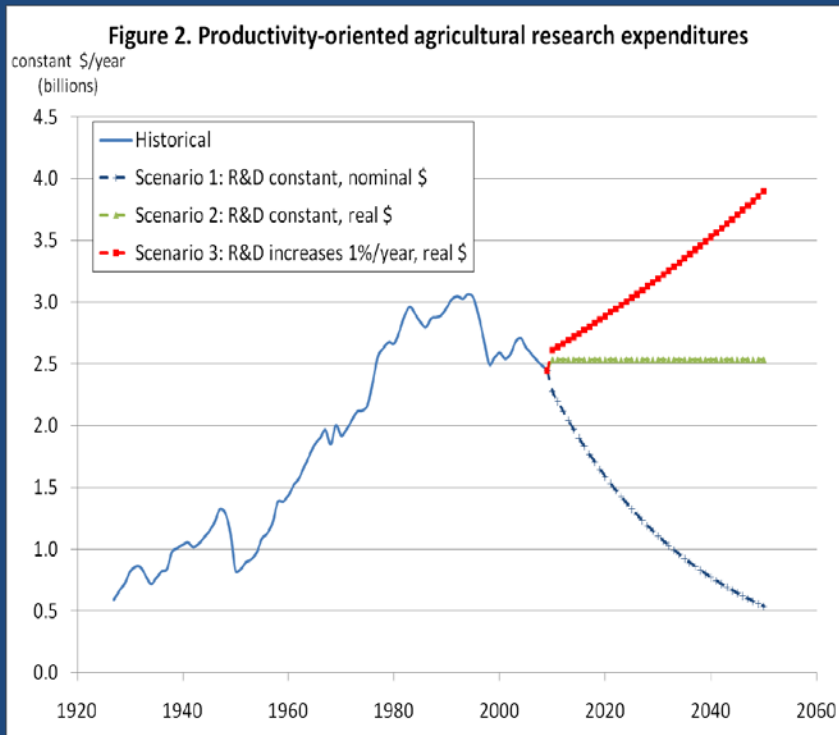
Federal R&D, 1990-2009

billions of constant FY 2008 dollars



Source: AAAS Reports I-XXXIII

Simulation of Future Productivity Growth Under Different R&D Funding Scenarios



Source: Heisey , Wang and Fuglie (2011)

AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, AND RELATED AGENCIES
 APPROPRIATIONS BILL, 2012
 Summary and Comparisons
 numbers in \$000

Agency	FY 10	FY11	% change FY 10 to FY 11	FY12	% change FY 11 to FY 12
ARS	1,250,512 ^a	1,133,230	-9%	1,094,647 ^e	-3.4%
ERS	82,478	81,814	-1%	77,723	-5.0%
NASS	161,830	156,447	-3%	158,616 ^f	1.4%
NIFA^b (Research)^c	788,243	698,740	-11%	705,599	1.0%
AFRI	262,482	264,470	1%	264,470	0.0%
NIFA (Extension)^d	494,923	479,132	-3%	475,183	-0.8%
NIFA (Integrated Activities)	60,022	36,926	-38%	21,482	-41.8%
All REE Agencies	2,838,008	2,586,289	-8%	2,534,098	-2.1%

^a FY 10 was the last year ARS' appropriations included Buildings and Facilities (B&F) funding
 AFRI is included in the NIFA research amount total.

^b NIFA figures do not include interest earned on tribal colleges endowment fund

^c includes Formula Funds and AFRI

^d includes Smith Lever Funds

^e The House bill allows 10 facility closures proposed in 2012 budget

^f the FY 12 funding for NASS includes an appropriation for the Agriculture Census, which occurs every 5 years

Management Challenges

Complexity

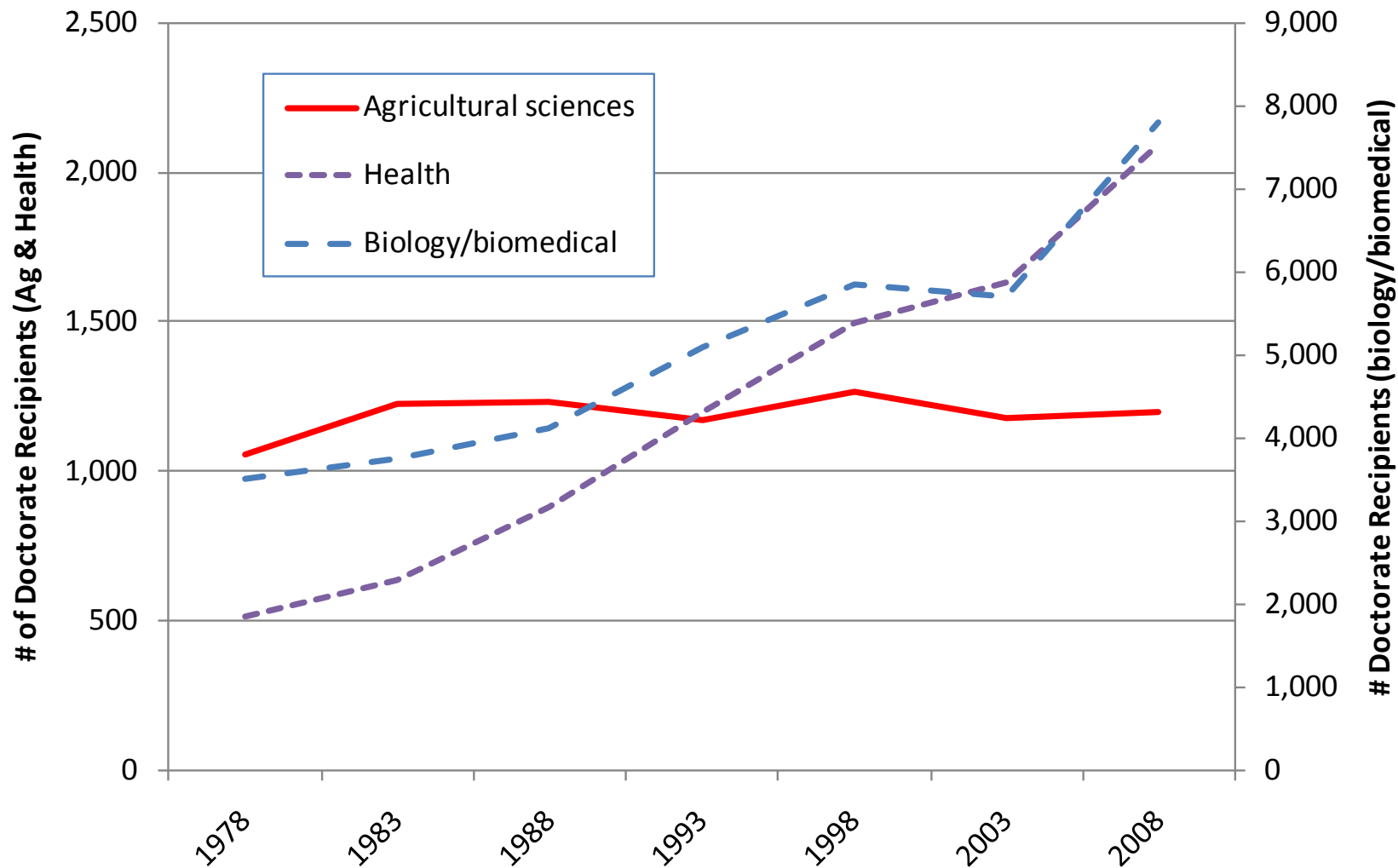
Legacy System

Public/
Private
Sector
Roles

Role within
Federal
Science
Portfolio

Education
Pipeline

Agricultural and other life sciences PhD recipients since 1978



Doctorate Recipients in Agricultural Subfields, 1998 and 2008

Agricultural field	Number of doctorate recipients		
	1998	2008	Annual growth
Plant/Soil	430	336	-2.5%
Environ/Nat Res	127	313	9.0%
Forest	199	150	-2.8%
Animal	144	139	-0.4%
Food	166	137	-1.9%
Other	201	126	-4.7%
Total	1267	1201	-0.5%

Source: NSF

Societal Challenges

Food
Security

Biofuels/
Bioproducts

Climate
Resilient
Agriculture:
Adaptation
and
Mitigation

Food Safety

Nutrition to
Promote
Lifelong
Health

REE Focus Areas

- Goal 1. Rural Prosperity/Rural-Urban Interdependence
- Goal 2. Protection of Natural Resources and the Environment
- Goal 3. Local and Global Food Supply and Security
- Goal 4. Nutrition and Childhood Obesity
- Goal 5. Food Safety
- Goal 6. Education and Science Literacy



The challenge: meeting the food and agricultural research needs of the future