USDA United States Department of Agriculture

National Institute of Food and Agriculture

NIFA organic research trends and new initiatives

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NIFA

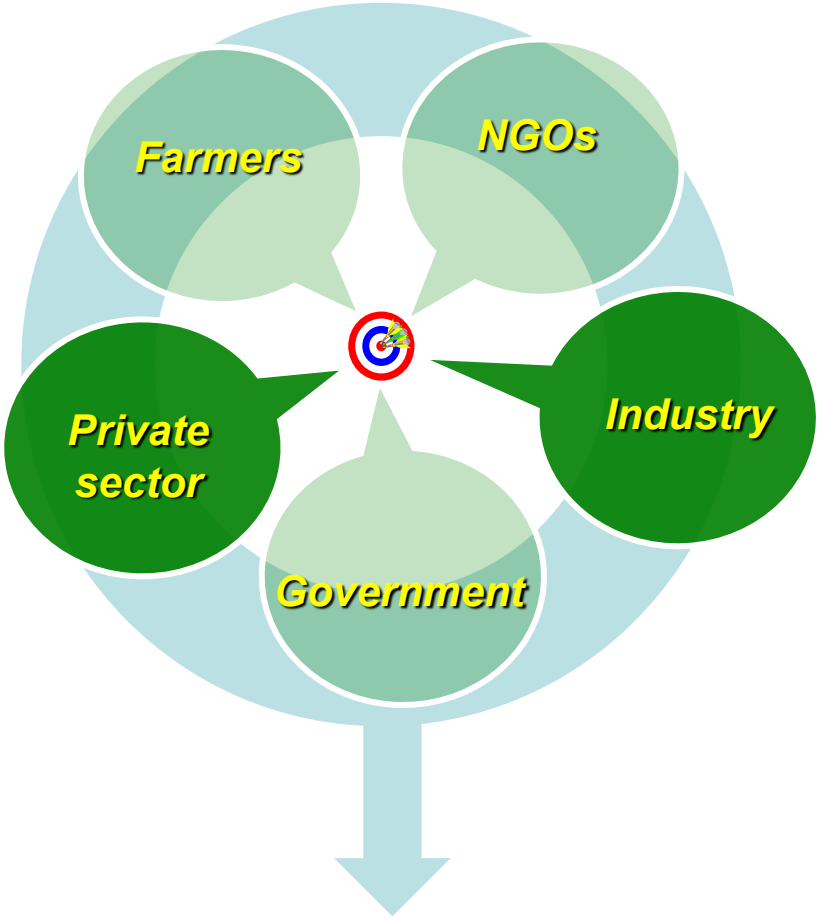
Agriculture Outlook Feb 19, 2021

USDA NIFA

NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

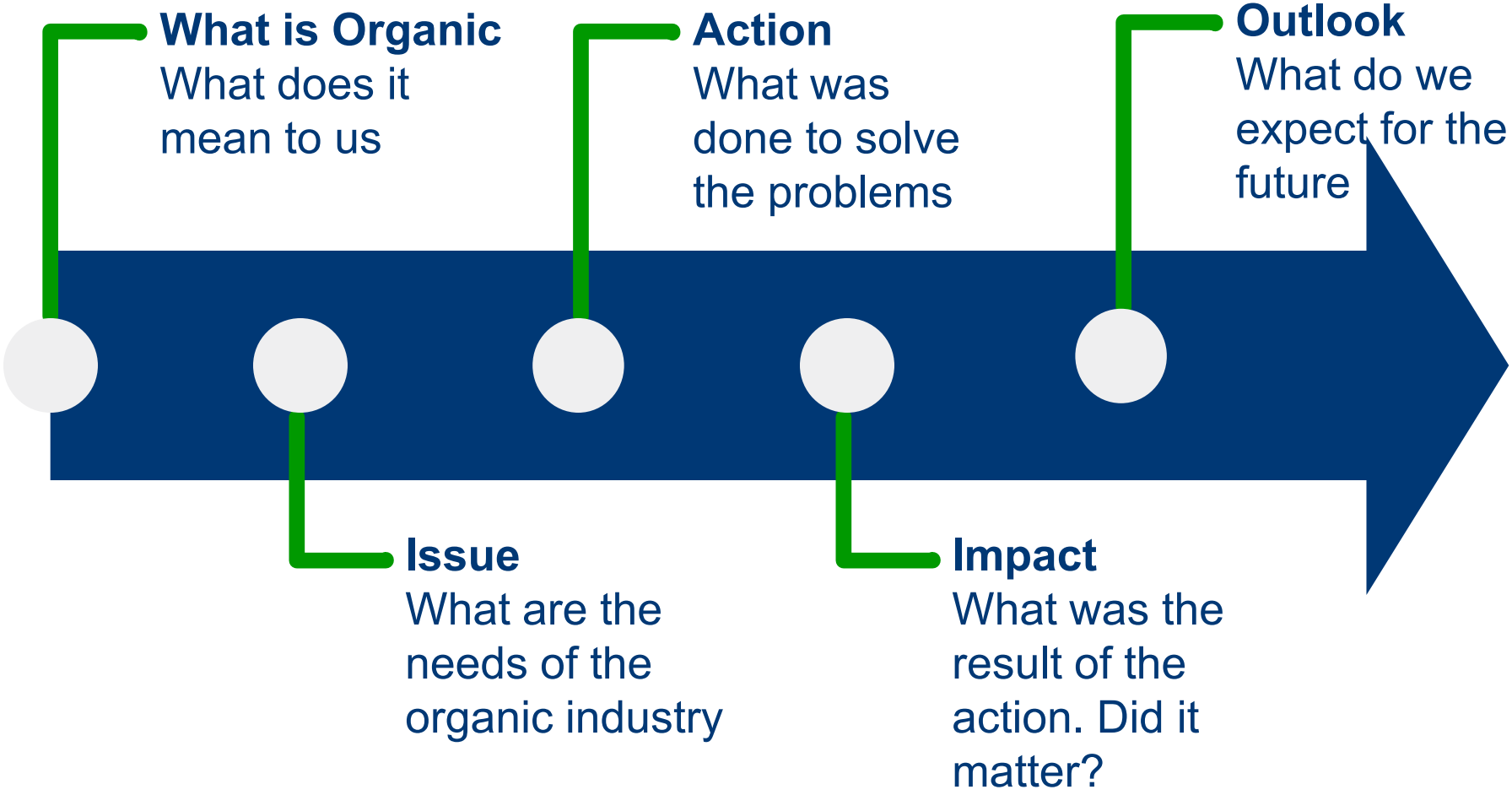
Main Take Home Message

Partnership is critical to the development of organic agriculture



USDA is a key element of the partnership

Main Topics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Impact
What was the result of the action. Did it matter?
Outlook
What do we expect for the future

What Does Organic Ag Mean to USDA-NIFA?

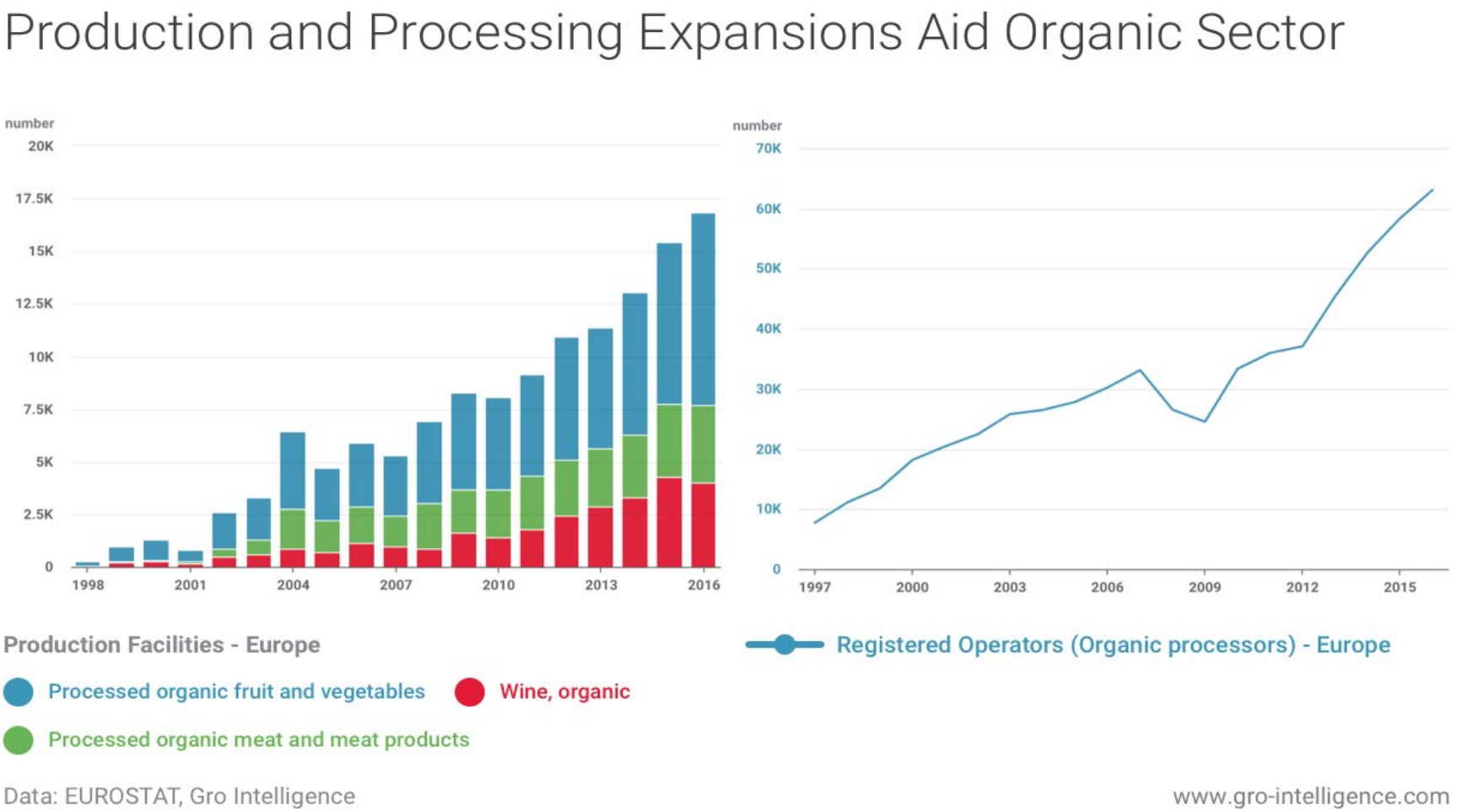
Agriculture	• A component of Global Food Security • A component of National Security
Production System	• Highly regulated system • Limits the use of synthetic inputs and GMOs
Opportunity for engagement	• Research, Education, Extension, Innovation • Leadership
Economic opportunity	• All types of operations (large and small) • Job creation • Promotion of rural and urban prosperity



Organic Farms, Acres, and Sales, 2008 to 2019

USDA NASS, 2019 Organic Survey (2017 Census of Agriculture)

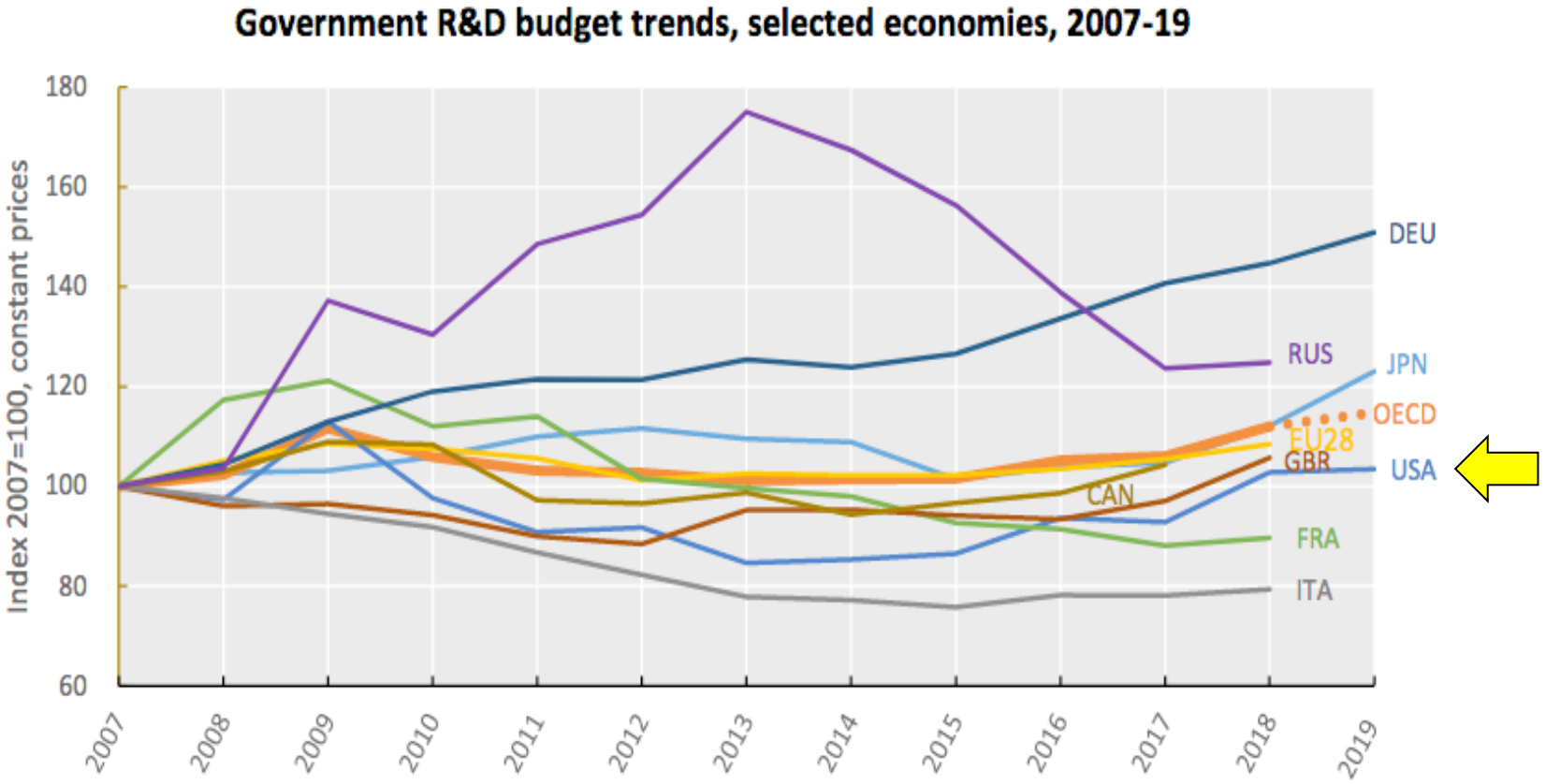
Similar trends observed in Europe



https://gro-intelligence.com/insights/articles/organic-agriculture-booming-in-europe

- ***"Despite robust consumer demand, however, there is still limited research, education programs, and extension resources that support organic systems" (NSAC).***

  - *Limited investment in R&D*



Source: OECD Main Science and Technology Indicators (MSTI) Database, 28 February 2020 http://oe.cd/msti

Strong investments in research and innovation is critical to the growth of the organic sector

Two USDA-NIFA programs have helped fill the gap by stimulating cutting-edge research to address critical challenges of the organic industry.

- *The Organic Agriculture Research and Extension Initiative (OREI)*
- *The Organic Transitions (ORG)*

While the focus of this presentation is on the two programs, there are many other NIFA programs that fund organic agriculture projects.

- ***Agriculture and Food Research Initiative (AFRI)***
- ***Sustainable Agriculture Research and Education (SARE)***
- ***Beginning Farmer and Rancher Development Program (BFRDP)***
- ***Hatch program***

Many other USDA agencies make significant investments in organic agriculture either directly or through funding opportunities.

- ***Agriculture Research Service (ARS)***
- ***Economic Research Service (ERS)***
- ***Agriculture Marketing Service (AMS)***
- ***Natural Resources Conservation Service (NRCS)***
- ***National Agricultural Statistics Service (NASS)***
- ***National Agricultural Library (NAL)***
- ***….***

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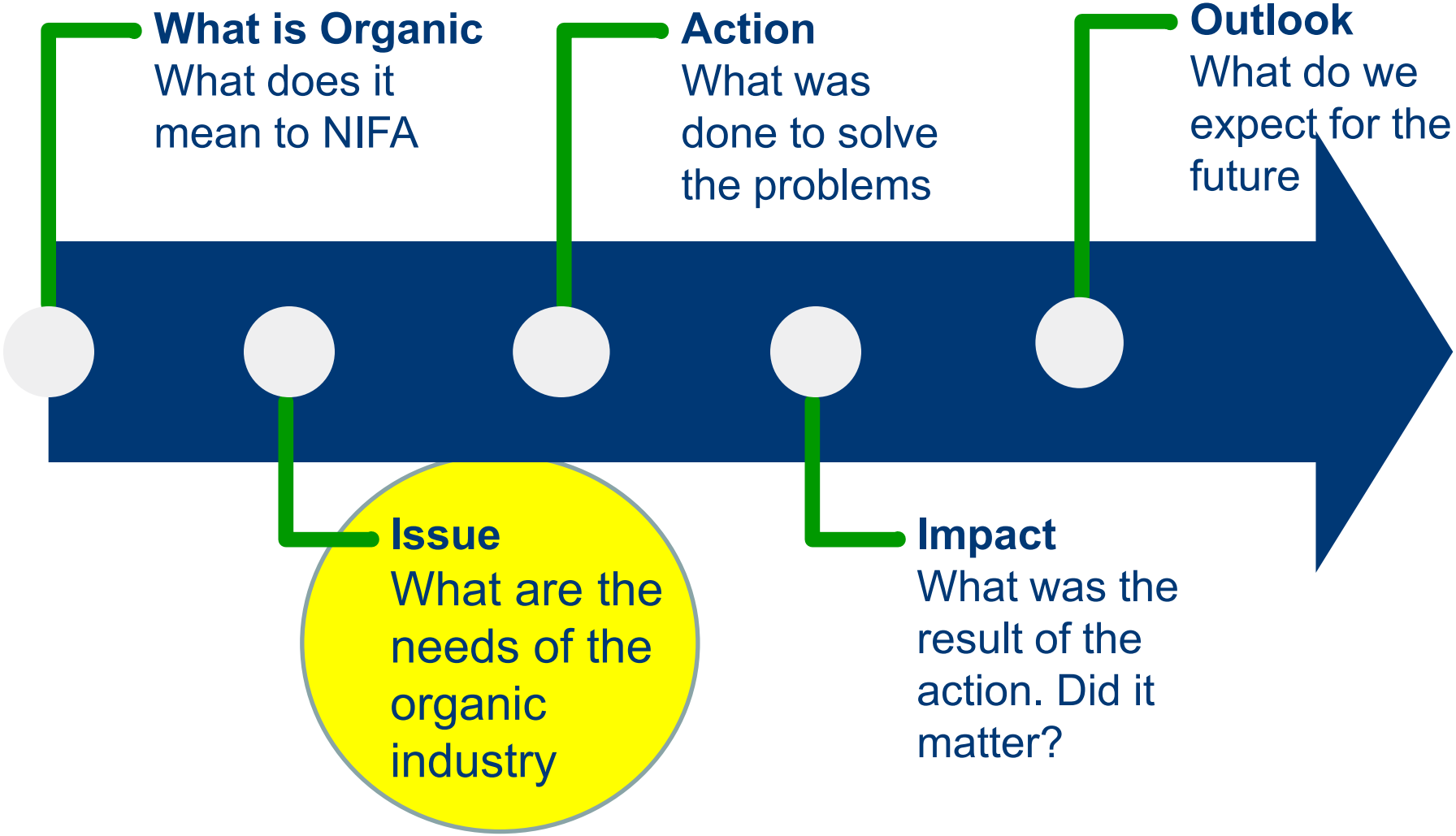
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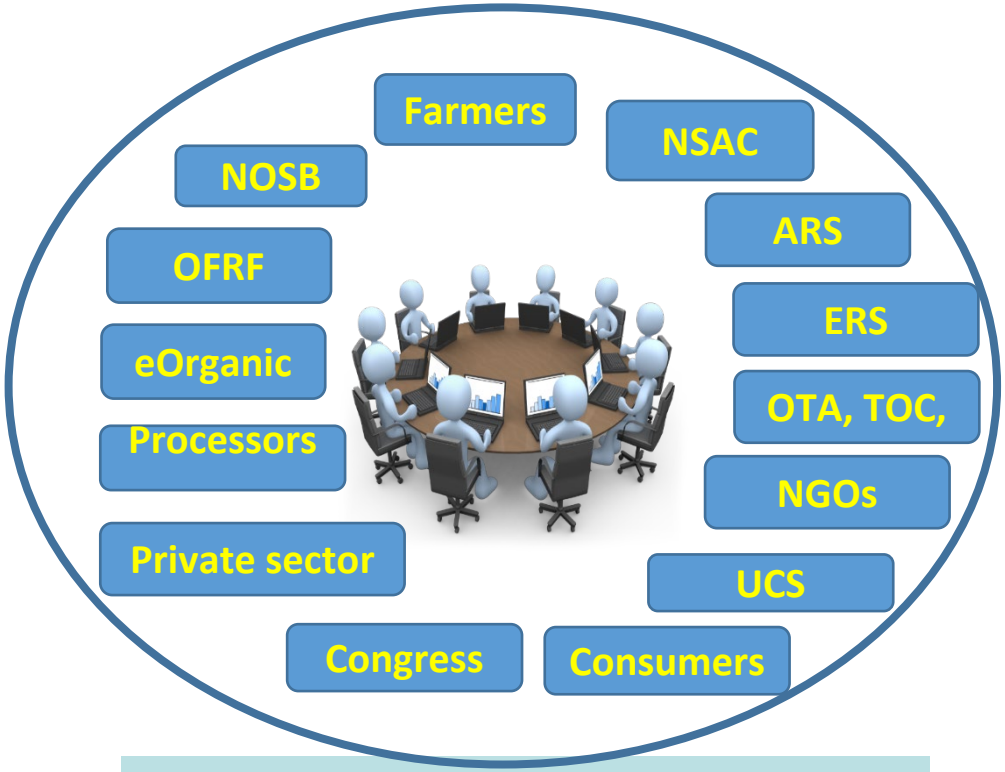
Challenges of the Organic Industry

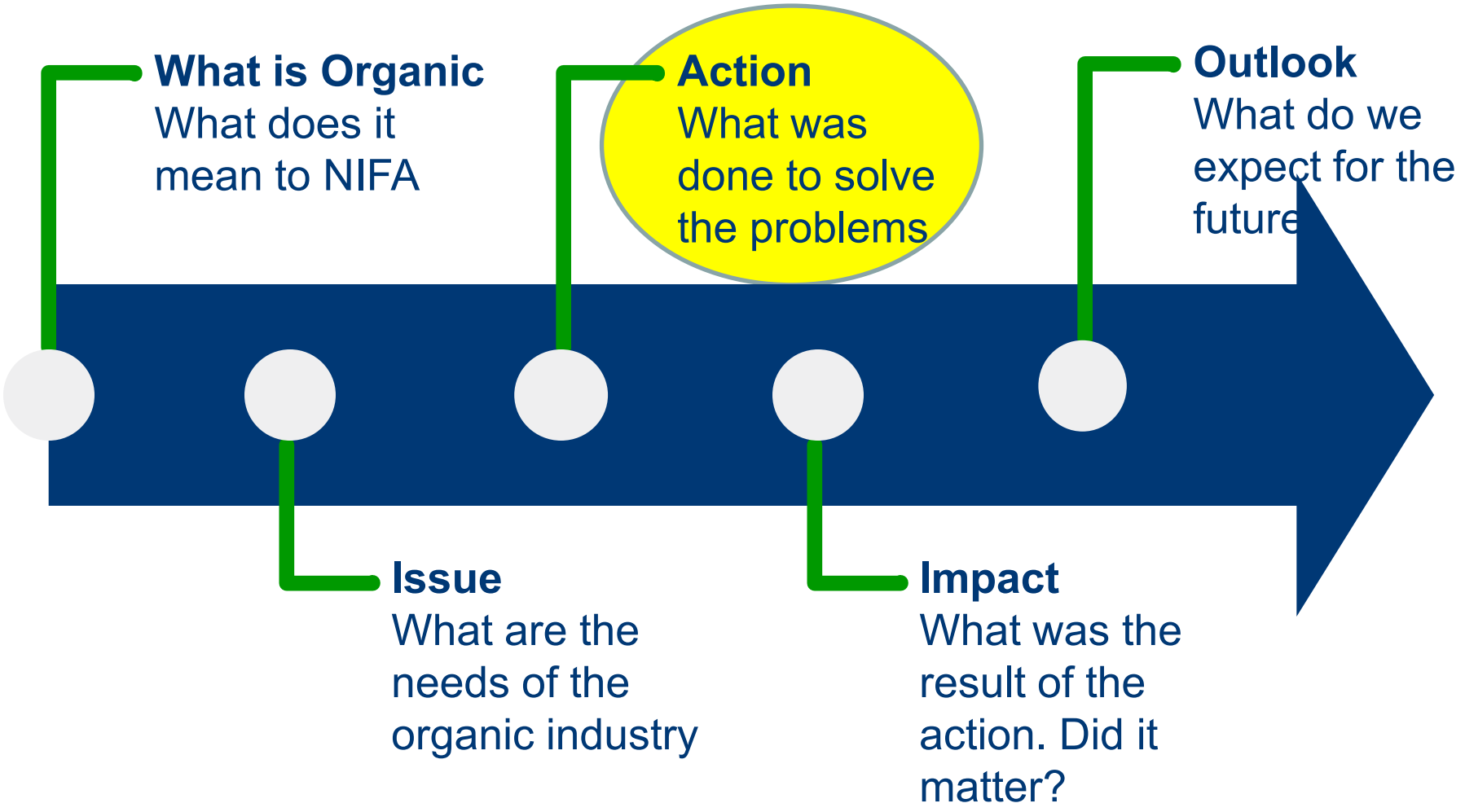


- *Farm bill*
- *National surveys*
- *Listening sessions*
- *Meetings*
- *White paper*
- *Inputs*

True partnership in issue identification

Issues span the entire supply chain from "farm to fork"

Main Topics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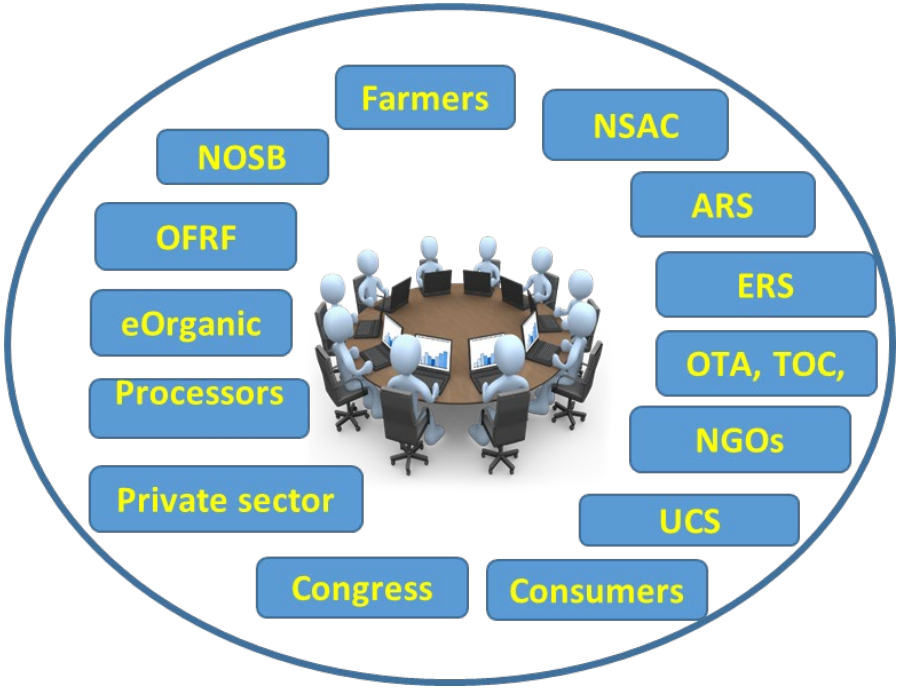
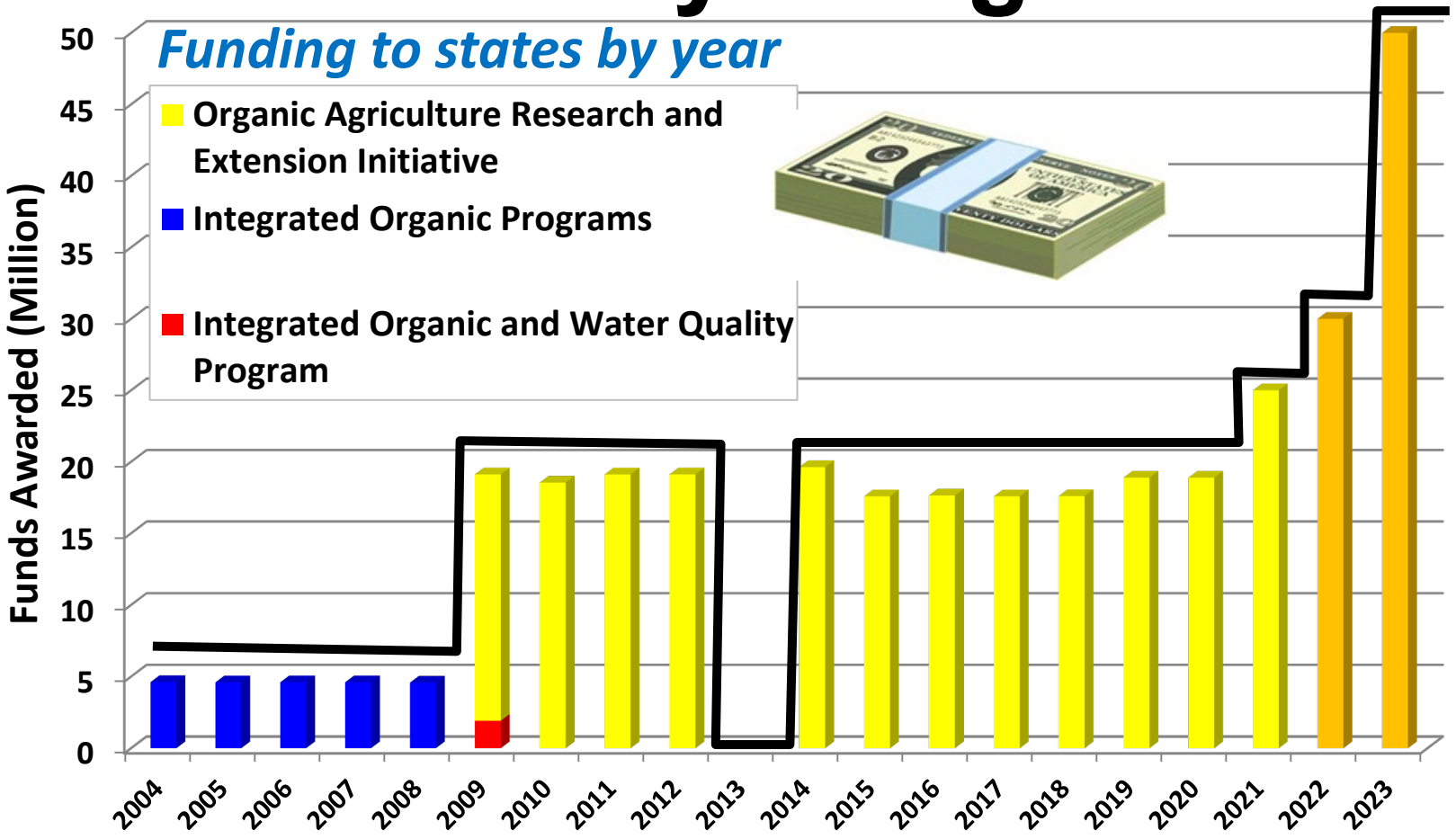
Action by the Industry



- ***Issue identification***
- ***Priority setting***
- ***Work with USDA***
- ***Work with congress***

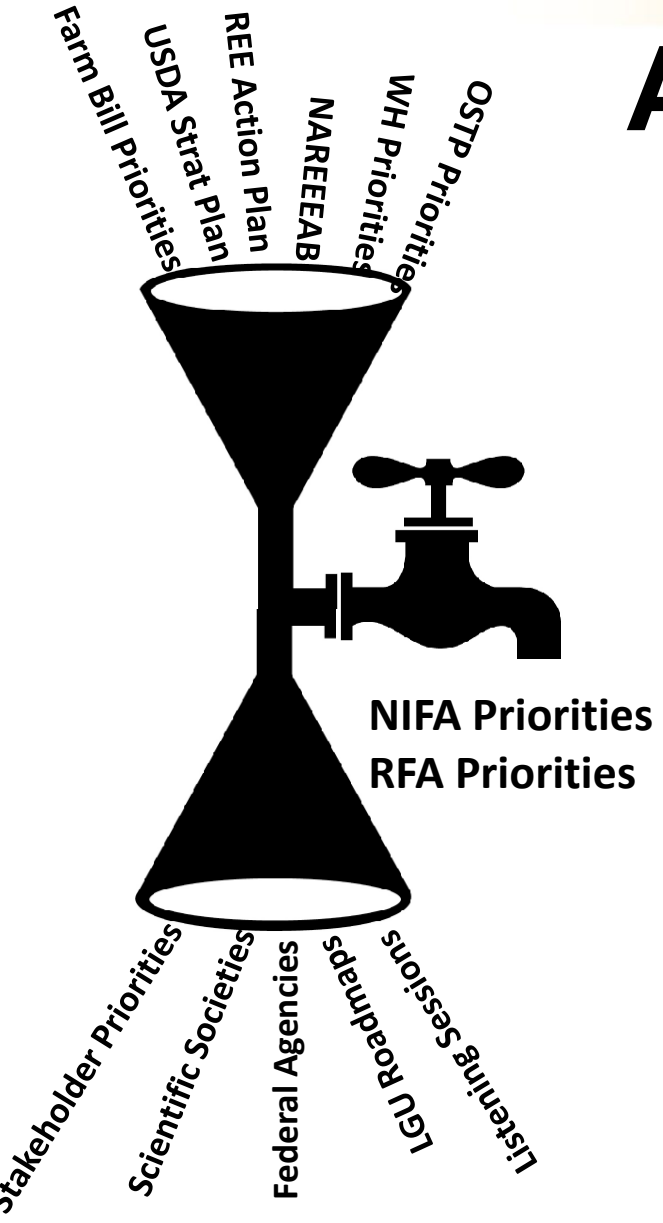
Goal: Secure funding to Research, Education, and Extension

Action by Congress



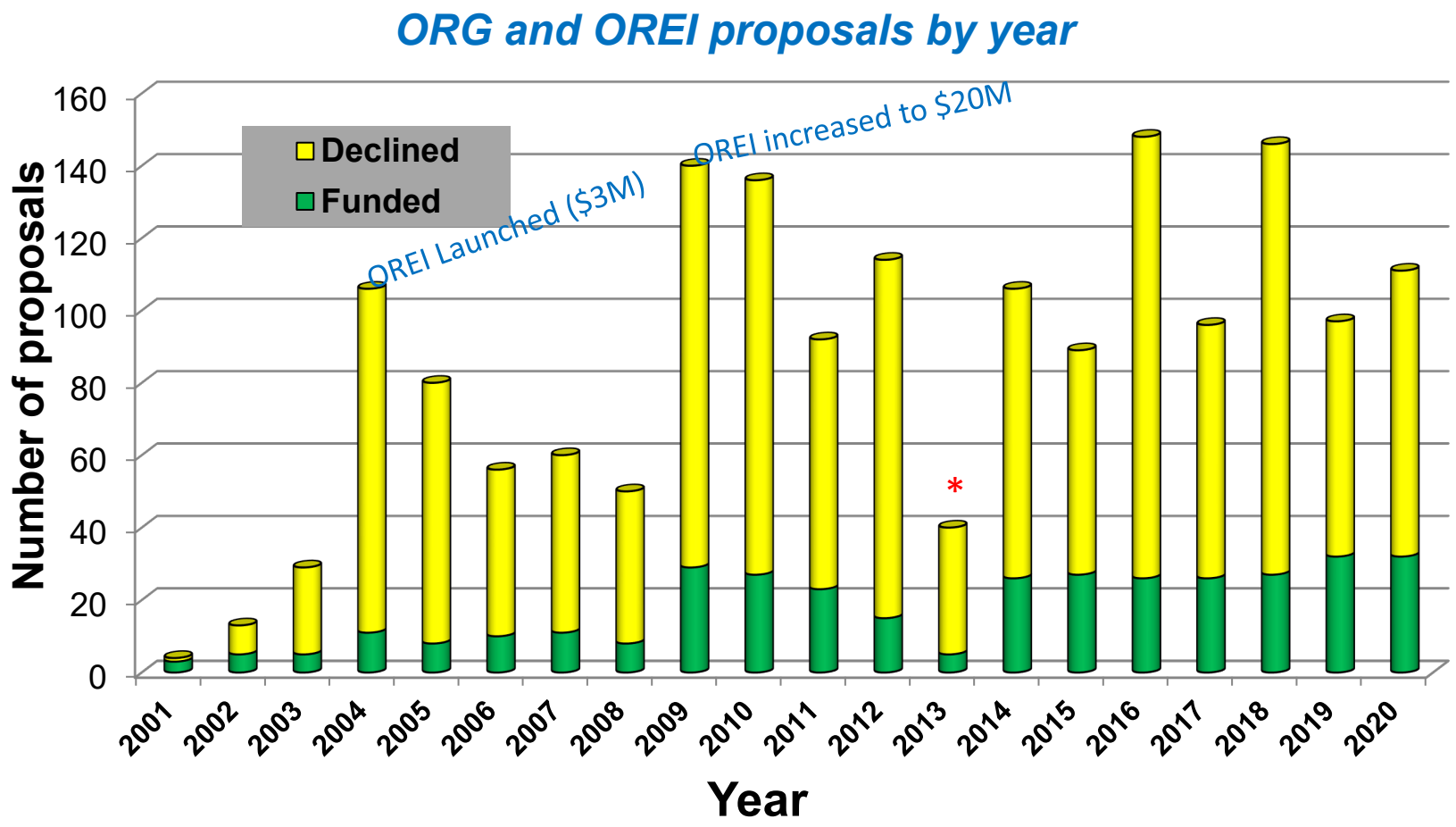
OREI funding through multiple Farm Bills

Action by NIFA



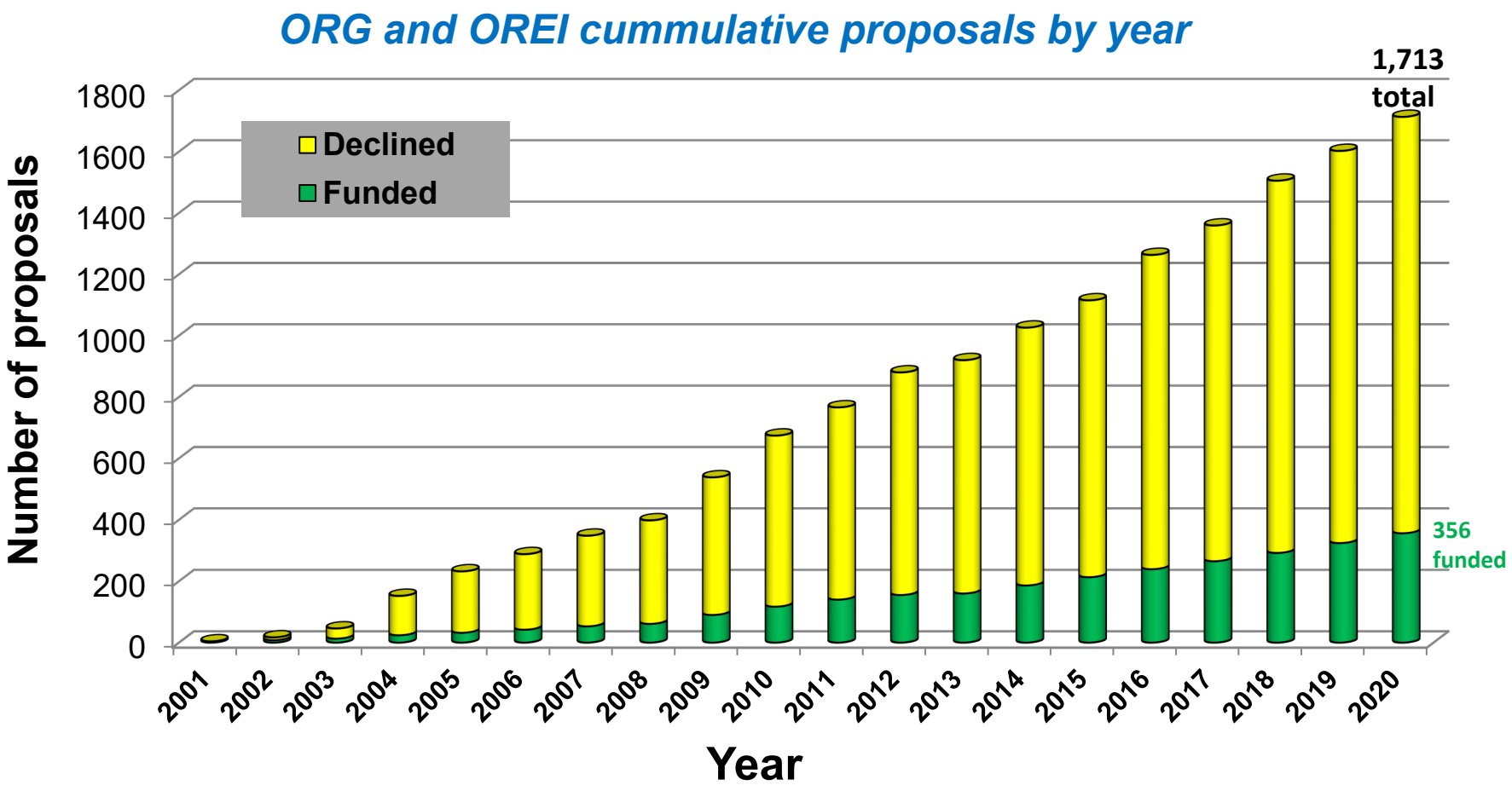
- *Industry priorities translated into Request For Applications (RFA)*
- *Rigorous panel review process*
- *Scientific merit used for award selection*
- *Post-award management*
- ***We are highlighting one of those projects today***

ORG and OREI # of proposals by year



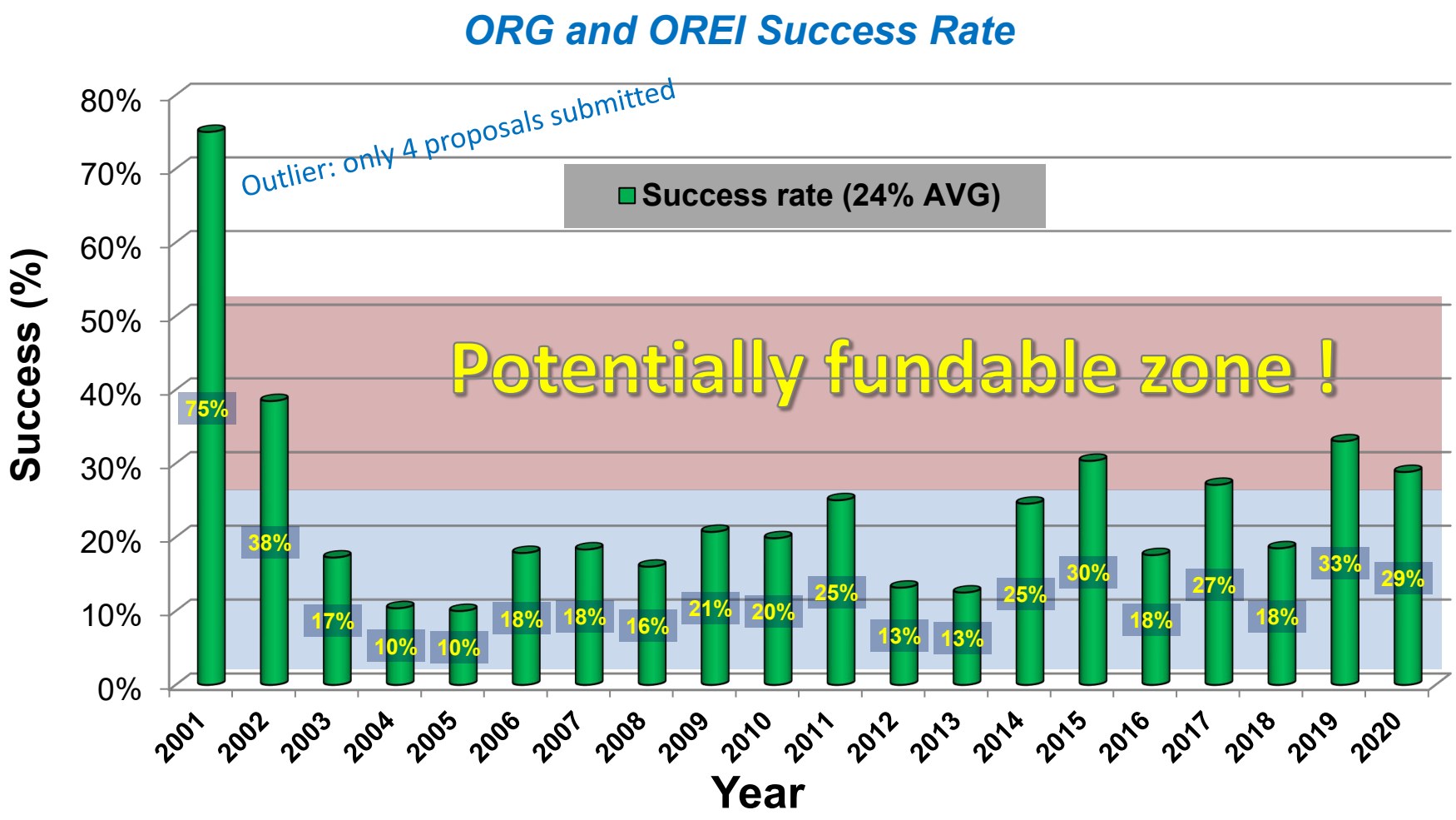
* OREI Not offered in 2013

ORG and OREI cumulative # of proposals by year



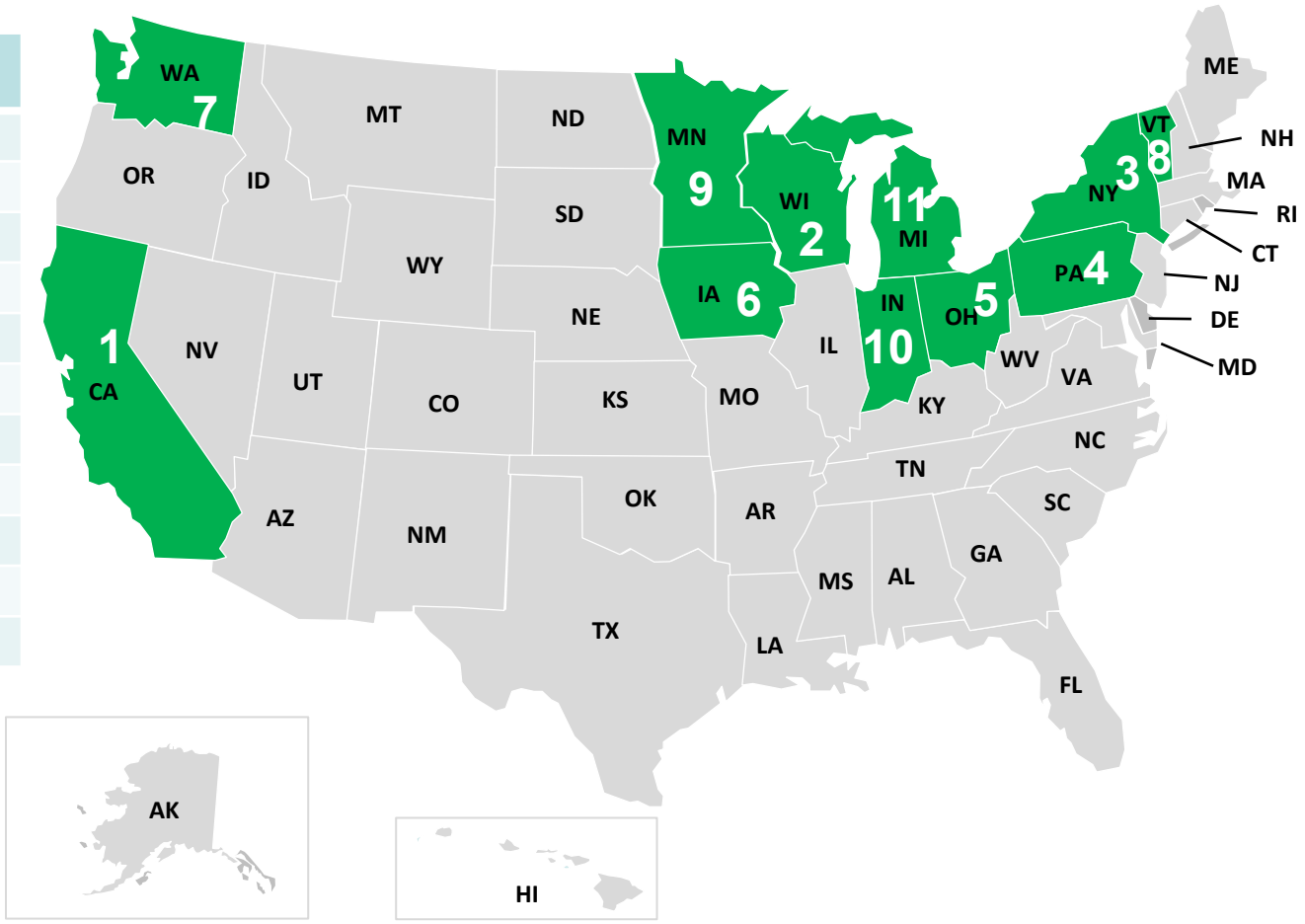
Note: Resubmissions included in the count

ORG and OREI Success Rate



Top States in Organic Farms, 2019

State	Farms
CA	3,012
WI	1,364
NY	1,321
PA	1,048
OH	785
IA	779
WA	745
VT	655
MN	635
IN	595
MI	541

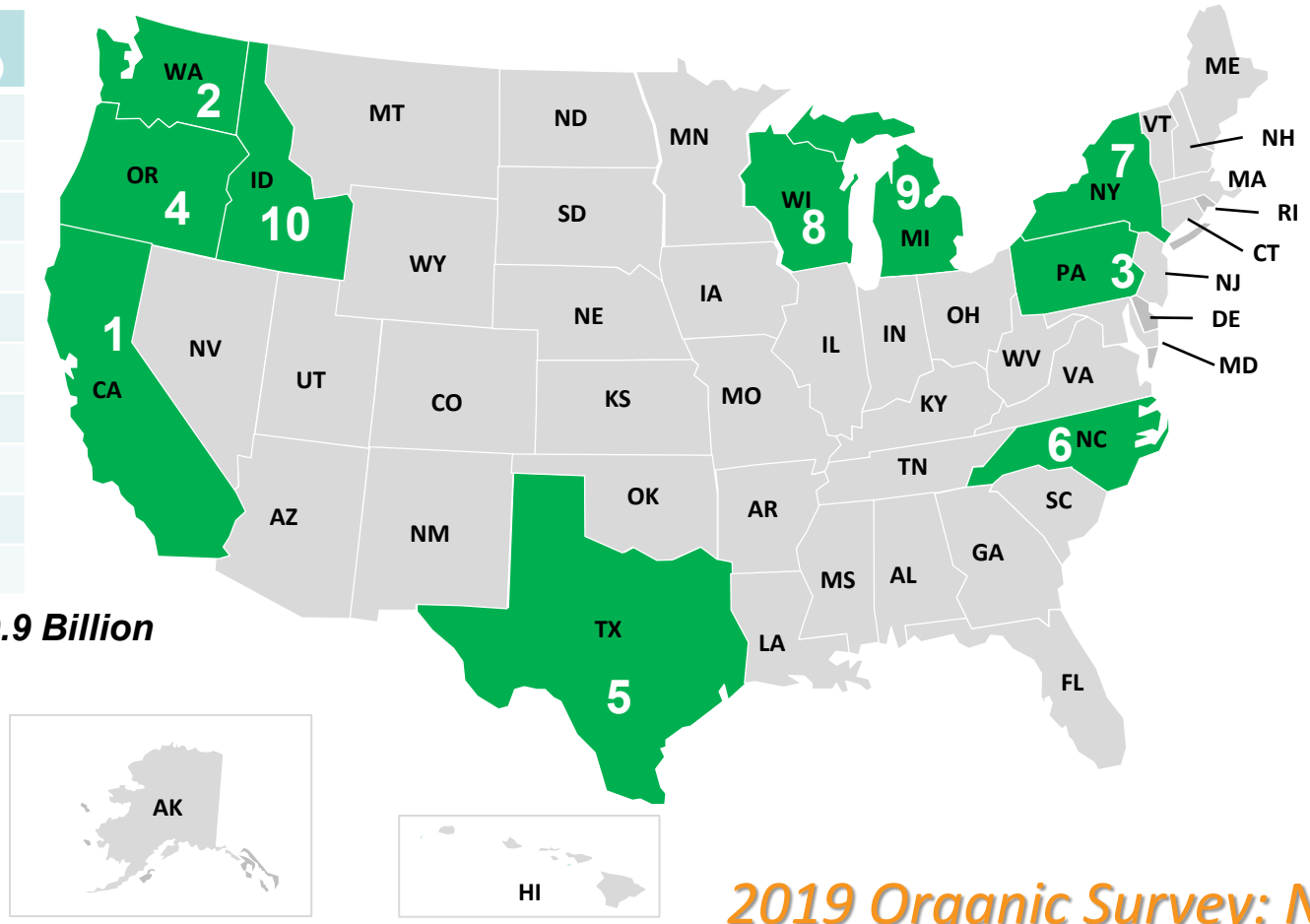


2019 Organic Survey: NASS

Top States in Organic Sales, 2019

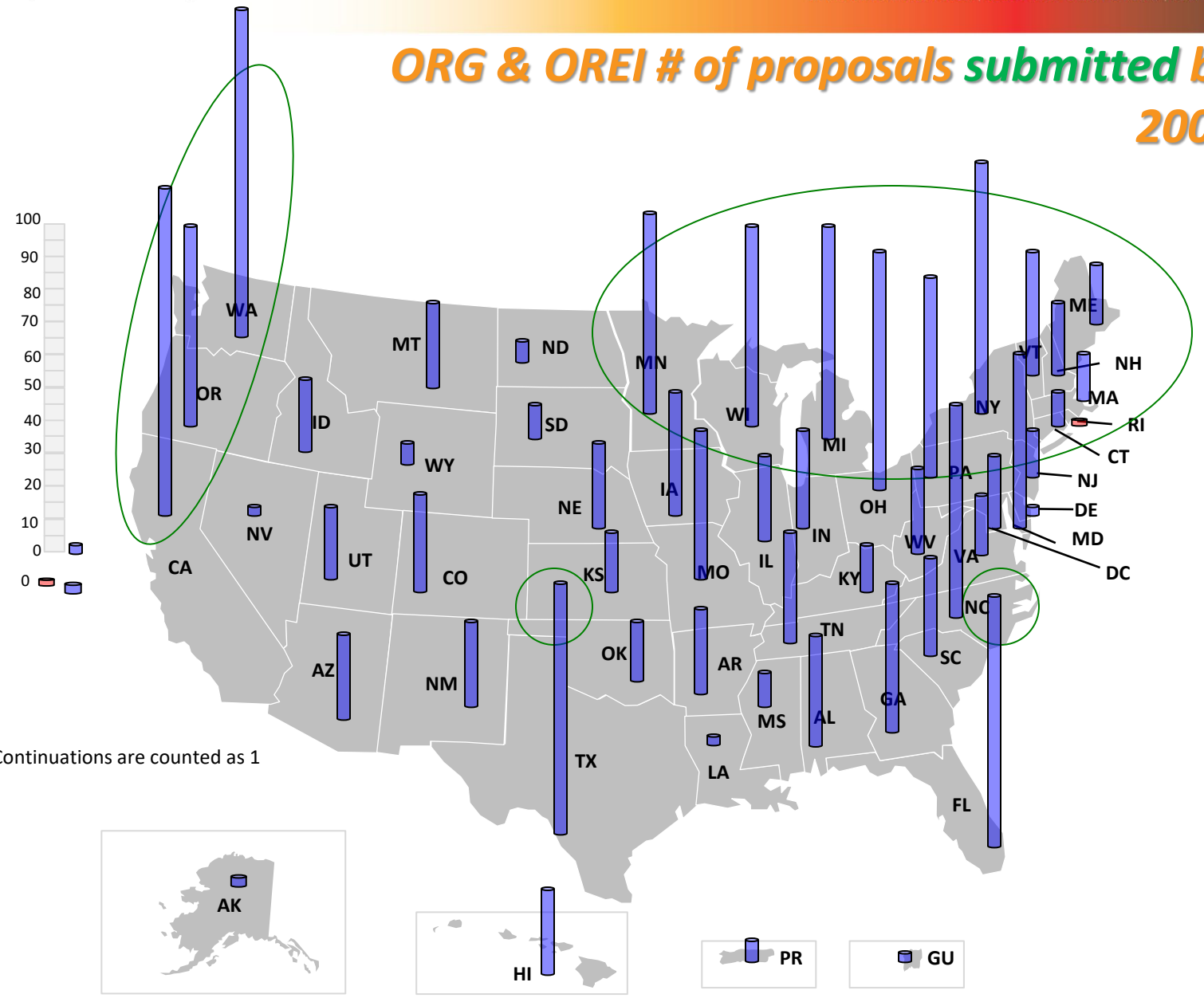
State	Sales ($Million)
CA	3,597
WA	889
PA	742
OR	454
TX	424
NC	370
NY	298
WI	269
MI	231
ID	206

U.S. Total = 9.9 Billion



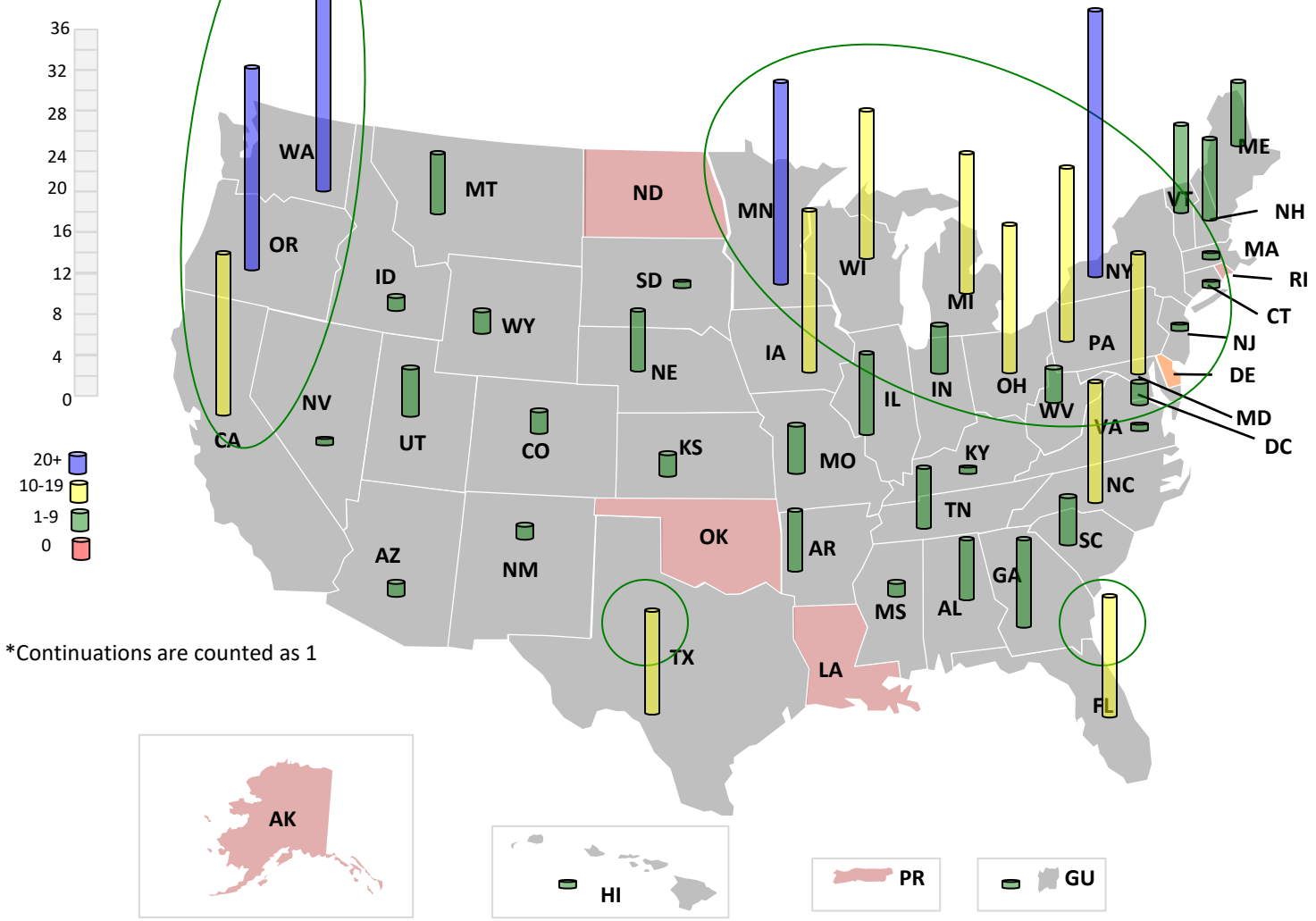
2019 Organic Survey: NASS

ORG & OREI # of proposals submitted by state 2001-2020



*Continuations are counted as 1

ORG & OREI # of proposals funded by state 2001-2020



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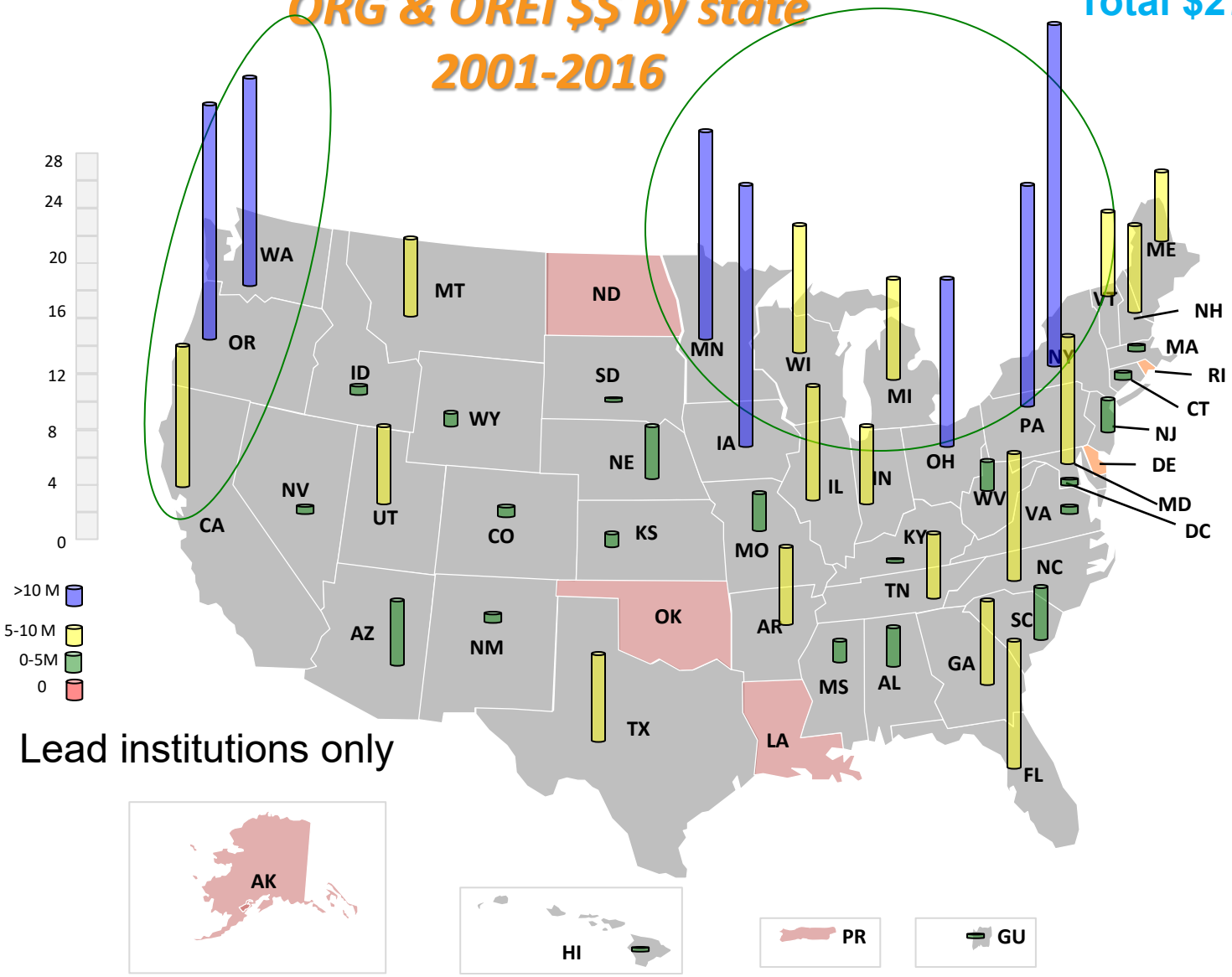
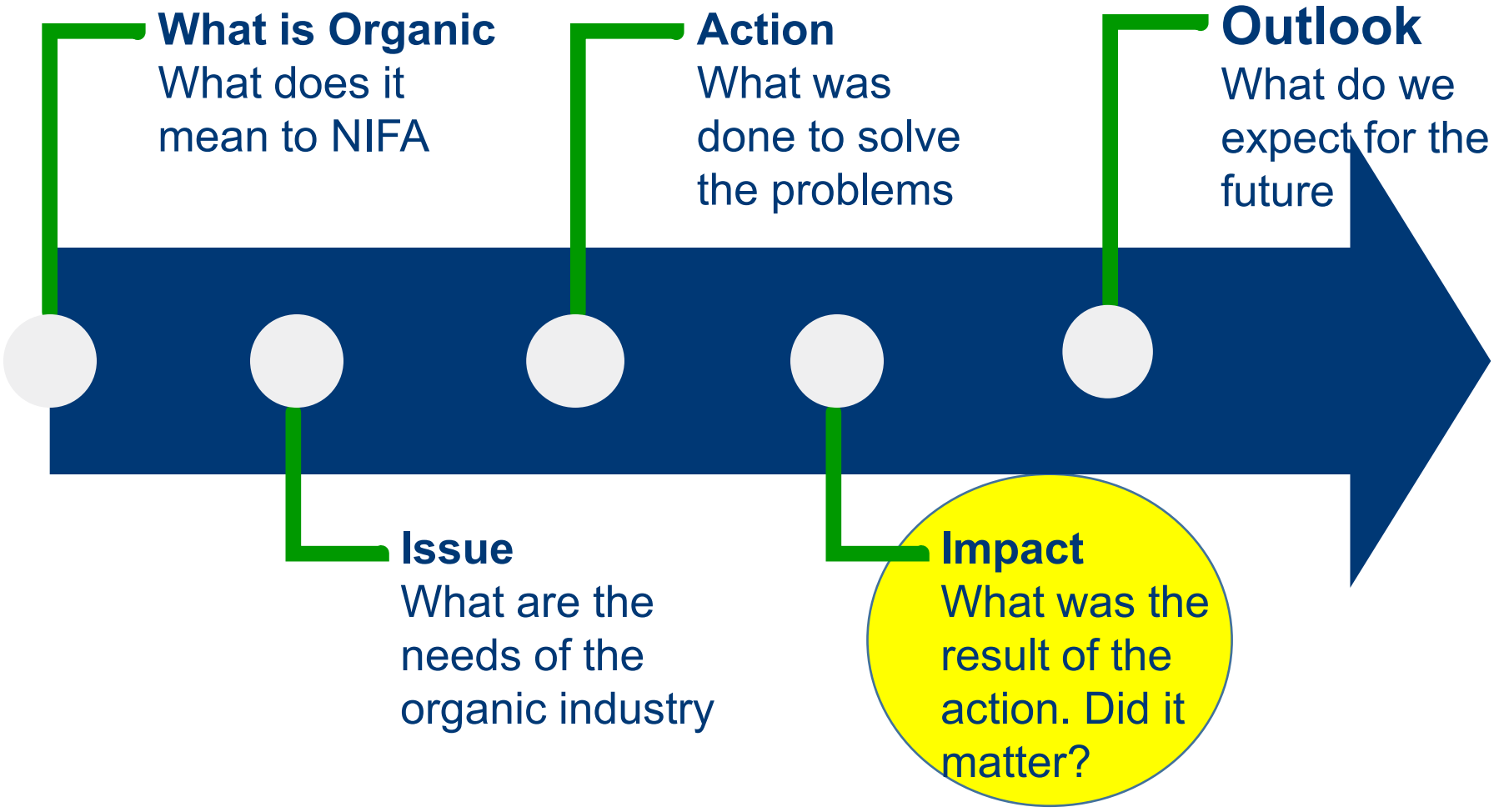
ORG & OREI $$ by state 2001-2016

Total $275.5 Million



Lead institutions only

Main Topics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Example of Challenges of the Organic Industry

- Soil: microbial life, fertility management, and soil quality
- Management of plant pests: weeds, insects, and diseases
- Organic livestock and poultry management systems
- **Breeding and genetics**

Source: 2007 Organic Survey

NOVIC

Northern Organic Vegetable Improvement Collaborative

Jim Myers – Oregon State University

Co-PDs: Michael Mazourek, Erin Silva, Bill Tracy, Micaela Colley, Joanne Labate

Supporting staff: Lane Selman, Shinji Kawai, Laurie McKenzie, Jared Zystro

Graduate students: Ryan King, Kara Young, Anne Pfeiffer, Ginny Moore, Rachel Hultengren

More than 30 organic farmers

NOVIC

Northern Organic Vegetable Improvement Collaborative

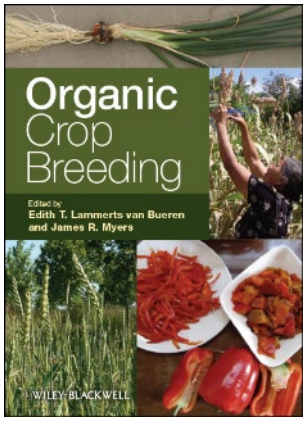
- NOVIC I 2009-2013 $2.3 million
- NOVIC II 2014-2018 $2.0 million
- NOVIC III 2018-2022 $2.0 million
- Adaptation to organic production; season extension
- Breeding of vegetable crops

USDA

Additional funding from

- SCRI
- AFRI

Project Outputs from NOVIC I:



- Improved varieties (broccoli, sweet corn)
- Germplasm (carrots, butternut squash, edible pod peas)
- Two books on organic plant breeding, Organic Crop Breeding and The Organic Seed Grower.
- Four graduate students were trained in organic plant breeding.
- Over 130 farmers and seed growers from across the U.S. were trained in the fundamentals of on-farm plant breeding and selection at a series of plant breeding workshops.

Credit: Jim Myers

NOVIC II breeding goals:

Breeding activities aim to develop open-pollinated varieties specifically adapted to meet the needs of organic growers.

- Tomato: Late blight resistant and adapted to the PNW
- Cabbage: Smooth green storage type with cold tolerance
- Bell Pepper: Early, high yielding blocky red types with good flavor
- Sweet Corn: High quality, early maturing hybrid and OP types
- Winter Squash: Short season, disease resistant delicata types
- Farmers' Choice: Fennel, Basil (OR), Romaine lettuce, Brussels sprouts (WA), Kale (WI), Leeks, Basil (NY),

GOAL Develop new vegetable varieties for organic agriculture

We have gotten so much out of working with all of you. And the varieties are terrific and serving our growers very well.

Tom Stearns | Vermont
Founder and President
High Mowing Organic Seeds

8 crops being developed for organic agriculture

2 new commercial organic varieties

40 states where new organic varieties have been sold

Credit: Jim Myers

Farmer participatory plant breeding: breed a striped sweet pepper with broad adaptation

Credit: Jim Myers

GOAL

Improve the ability of farmers and seed producers to grow organic seed

The NOVIC breeders listened to my needs as an organic farmer, and together we created a new sweet corn variety with traits important to organic production. NOVIC has also helped me hone my seed production skills.

Martin Diffley | Minnesota
Farmer and Co-founder
Organic Farming Works

80 NOVIC events and presentations

19 states reached with NOVIC in-depth trainings

Credit: Jim Myers

GOAL Train the next generation of professionals in breeding for organic agriculture

The Organic Research and Extension Initiative gave me the opportunity to learn the science of plant breeding and reinforced the value of working directly with organic farmers in the research process. The skills that I learned as a graduate student in NOVIC are ones I use every day in my work for an organic breeding and seed production company.

Adrienne Shelton | New Hampshire
Organic Product Specialist
Vitalis Organic Seeds

8 graduate students trained in NOVIC who now work in the organic seed industry

"Organic Research and Extension Initiative funding allowed me to gain valuable first-hand experience in vegetable breeding and trialing during the course of my graduate education. The skills I developed helped me to succeed in my current job breeding pumpkins and squash adapted for organic conditions at an employee-owned seed company. I'm incredibly grateful to have had the opportunity for such high-quality training via the NOVIC grant and to now be working daily to improve our country's food system and make our farmers more productive."

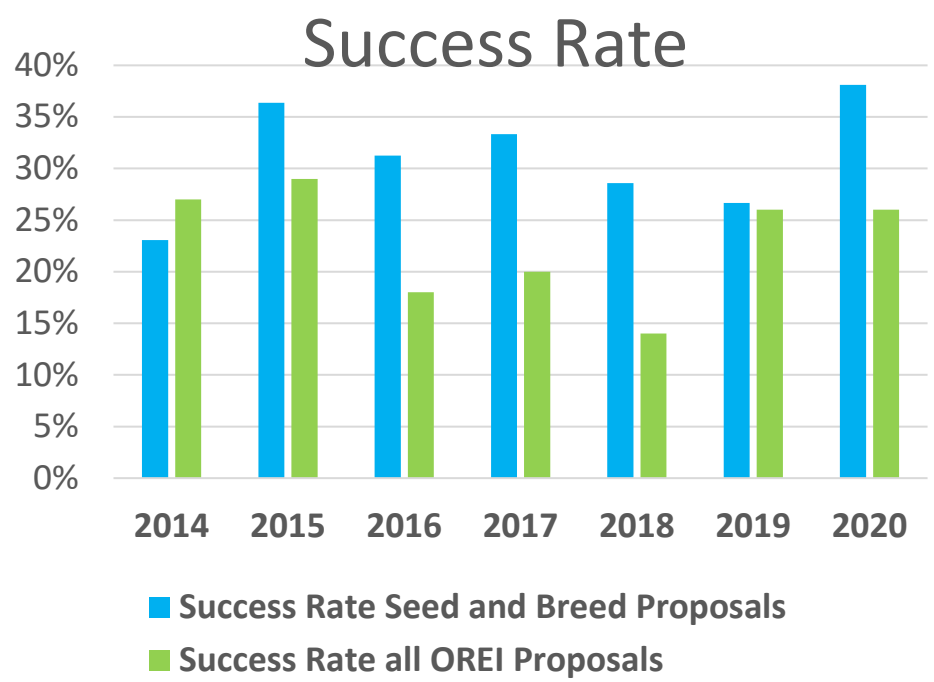
Lindsay Wyatt | Maine
Squash and Pumpkin Breeder
Johnny's Selected Seeds

Credit: Jim Myers

Good News!

- ***Funding has improved for:***
  - *Animal Systems Proposals*
  - *Small and Minority Serving Institutions (MSI)*
  - *Southern Region*

- ***Success rate is up for***
  - *Seeds and Breeds proposals*



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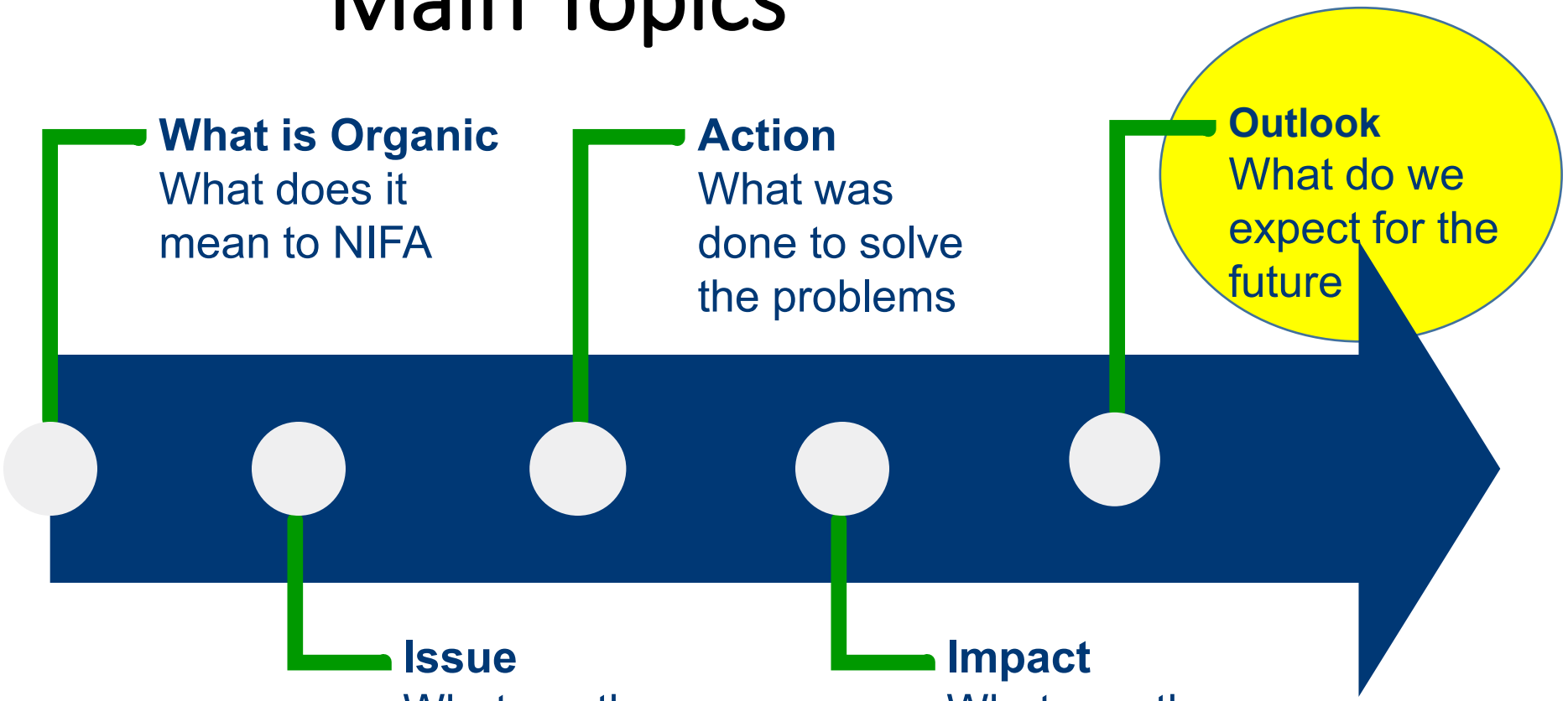
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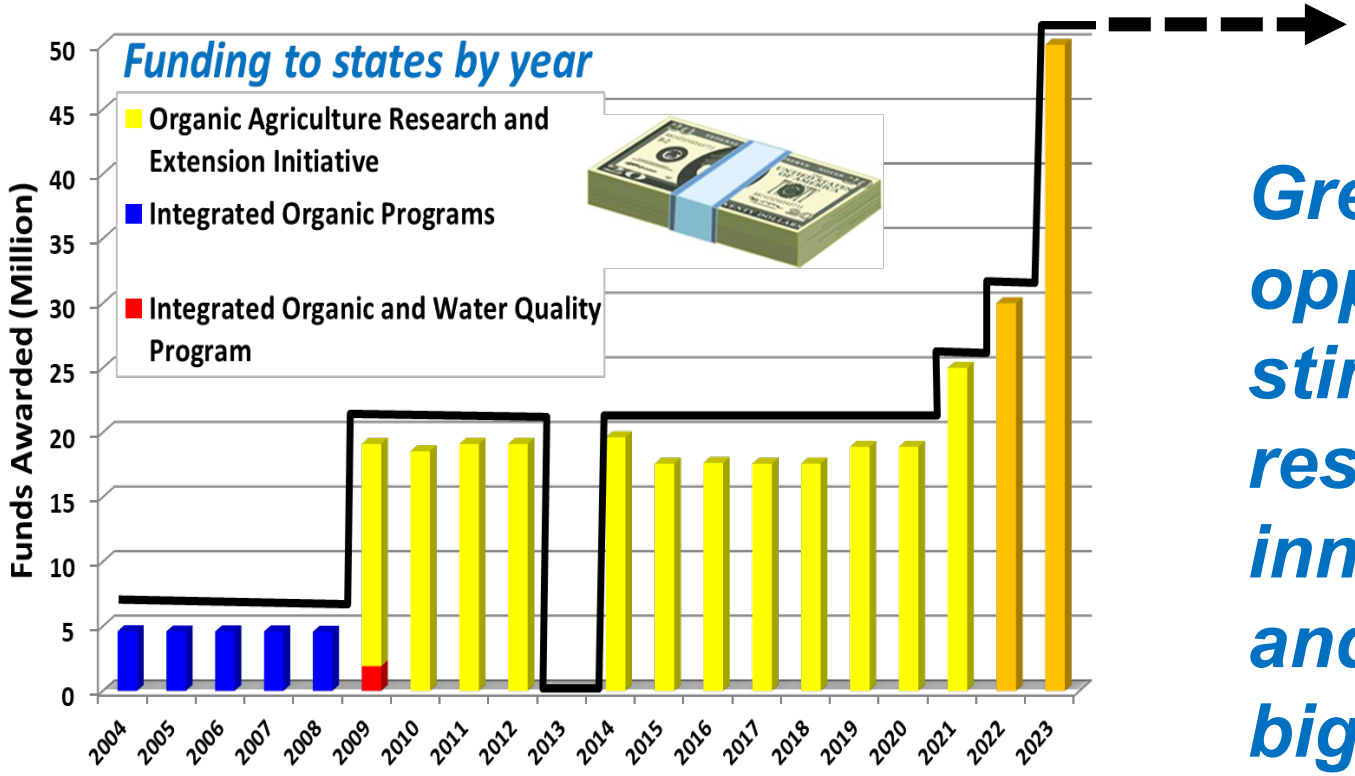
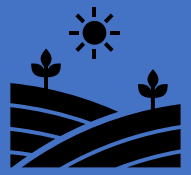
OREI budget increase is a big win for the industry



Great opportunity to stimulate research and innovation and to tackle big challenges

Future Perspective

01



Promote

- Promote Research and Innovation

02

Explore

- Explore New Extension Opportunities

03

Train

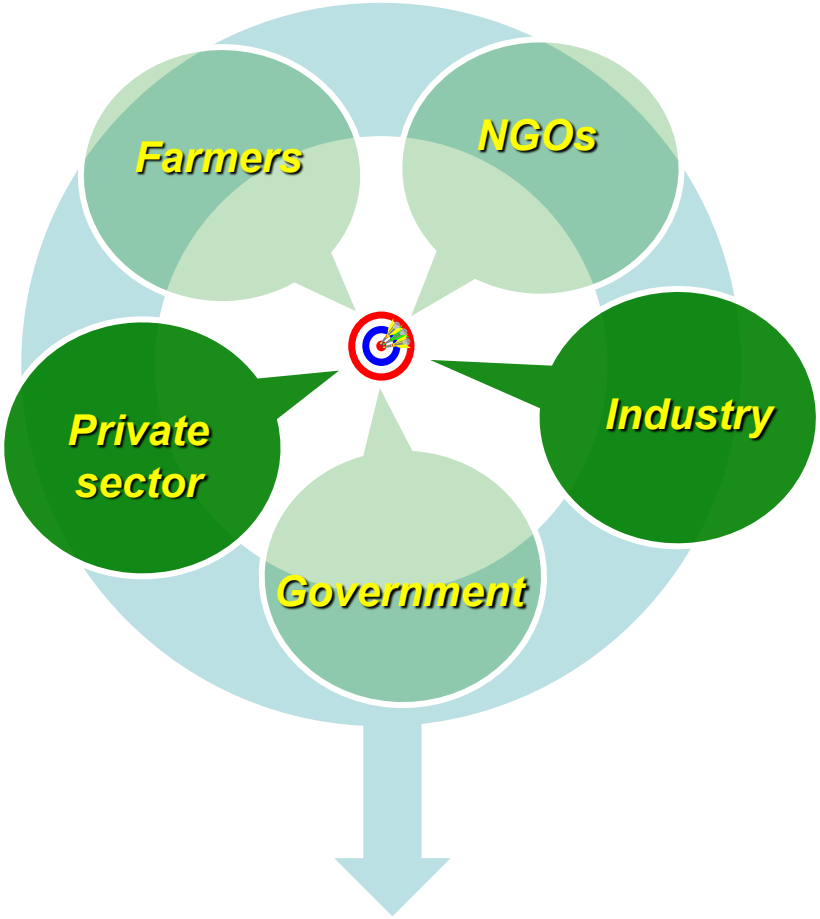
- Train the next Generation of Organic Farmers and Leaders

Future Perspective

- Develop smart tools for use by farmers and processors
  - Seeds, Natural substances etc.
- Develop smart tools for enforcement agents to support “Organic Integrity”
- Better understand the human dimension of organic agriculture
- Make new knowledge available and accessible to farmers
- Etc.

Main Take Home Message

Partnership is critical to the development of organic agriculture



USDA is a key element of the partnership

NIFA ORGANIC PROGRAMS

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