Public-Private Partnerships in Agriculture

Sally Rockey, Executive Director
Foundation for Food and Agriculture Research
@FoundationFAR | @RockTalking

Ag Innovation Summit | September 21, 2018
We will need 60-100% more food by 2050
70% of fresh water used for agriculture
25% of all greenhouse gases from agriculture
2050 Grand Challenges

- Feeding the World
- Environmental Stewardship
- Competing Resources
- Changing Climate
- Improving Health & Nutrition
Innovation can solve the problems of agriculture.
More data generated in the past two years than in the entire history of the human race.

The pace of science continues to accelerate.

We must take advantage of this incredible time in science.
Sequencing DNA has become **1 billion times faster** and **cheaper** in the past 25 years.
What does a billion times faster look like?

*Only* 125,000 times faster
What does a billion times faster look like?

Imagine a 3.7 mile commute

1 hour walk

3.7mph

home

work
What does a billion times faster look like?

Imagine a 3.7 mile commute

home ➔ 1 hour walk ➔ Pluto

3.7mph
How quickly can science make a difference?

On average, public agricultural research undertaken today will begin to noticeably influence agricultural productivity in as little as 2 years and its impact could be felt for as long as 30 years.
Innovations that have “done the most to shape the nature of modern life,

Top 10: printing press, electricity, internal combustion engine, paper, Internet, and steam engine

11. Nitrogen fixation, 1918 Fritz Haber wins a Nobel Prize for the ammonia-synthesis Beijerinck
13. Refrigeration, 1850s
22. Green Revolution, mid-20th century: Norman Borlaug
30. Moldboard plow, 18th century
32. Cotton gin, 1793
33. Pasteurization, 1863
38. Scientific plant breeding, 1866: Gregor Mendel
50. Self-propelled Combine harvester, 1930s
Agriculture is the place to be in these days in science!

- Importance of the issues
- Take fundamental knowledge almost immediately to application
- New technologies often apply directly to agriculture before any other sector
- Growing consumer interest in the food system
Burgeoning Fields for Ag
Advanced genetic technologies
Data Analytics
Imaging, drones, GPS
Block Chain
Whole system modeling
Artificial intelligence and deep learning

Rapid progress happens when our knowledge of how things work converges with technological advances to accelerate discovery
Why is agricultural research funding not commensurate with its value in improving the quality of life?

“When it comes right down to it, food is practically the whole story every time.”

- Kurt Vonnegut, Galápagos
Funding for Agricultural Research:

How stagnant funding has led to new funding models and opportunity
The FFAR model leverages private funds for public good

Source: USDA ERS
About FFAR

• Nonprofit created through bipartisan congressional support in the 2014 Farm Bill

• Governed by a Board of Directors, advised by expert Councils

• FFAR complements the work of the USDA
We envision a world in which ever-innovating and collaborative science provides every person access to affordable, nutritious food grown on thriving farms.
FFAR Challenge Areas

- Food Waste and Loss
- Healthy Soils, Thriving Farms
- Protein Challenge
- Innovation Pathway to Sustainability
- Making My Plate Your Plate
- Urban Food Systems
- Water Scarcity
How We Work

Private-Public Partnerships

We build unique partnerships to support innovative science addressing today’s food and agriculture challenges.

$200M FFAR Investment + $200M Non-Federal Match

FFAR also brings together diverse groups that might not otherwise collaborate to solve big challenges...

the FFAR model delivers - and doubles the taxpayer's investment.

-Bob Stallman
Past President, American Farm Bureau Federation
Current FFAR Board Member
The FFAR Model

- FFAR works directly and easily with private sector partners
- Multiplying investment (20 donors to date), currently matching each dollar invested with $1.40 from partners.
- Filling gaps – can adapt quickly
- Stakeholder input through Board and Advisory Councils
- Flexibility and nimbleness
  - FFAR can quickly pursue emerging issues.
  - ROAR program fills a need for rapid response to pest and pathogen threats (Example: Grant to combat SWD in tart cherries)
Industry and Foundations
Why Engage Industry?

Shift to private and proprietary R&D in agriculture – means we must move together

And where possible, work in the precompetitive space
Precompetitive Space

How to define?

Competitive Space: Areas of business in which a firm feels comfortable against competitive pressures, on the basis of its cost advantage and/or technological leadership.

Precompetitive Space?: Areas of business in which a firm feels uncomfortable against unambitious relaxation, on the basis of its cost disadvantage and/or technological inferiority.
Precompetitive Space

Definition

Area of research where outcomes offer no particular advantage relative to peers and where there is potential to positively impact all parties.

Allows resources and data to be readily shared in order to reach an end goal.
Private sector incentives:

Corporate social responsibility
More rapidly develop products where there are common obstacles to advancement
Cost savings
Get direct access to important fundamental research
Access to academic expertise and excellence
Bring in students and trainees

Public Sector incentives:

Address real world problems
Generate research that is transferred quickly to the economy
Get access to resources and data otherwise unattainable
Access to excellent scientists
How to Make Public-Private Partnerships Work

• Shared Goals and Values (honesty)

• Agreement on responsibilities and rules of engagement (including IP)

• Transparent value proposition for each partner (trust)

• Synergy (goals cannot be achieved by any partner working alone)

• Skin-in-the-game from all partners

• Joint celebration of successes

• Shared responsibility for failures

• Engaged stakeholders
Tough Issues

• What do the companies represent in each others mind and how will working together affect their reputations?
  Neutral arbitrator
  Evidence Based

• Time

• IP

• Transparency

• Public Perception
Opportunities

• Engage various government agencies
  USDA  NSF
  NIH   DOD
  DOE   NIST
  DOfD  FDA

• Create non-traditional and unique partnerships

• Fund Science for the public good that is embraced by partners

• Engage stakeholders, farmers and producers

• Create networks for future work
Crops of the Future

A FFAR COLLABORATIVE

Founding Partners
Welcome

The Irrigation Innovation Consortium (IIC) is a joint initiative between private, public, and university organizations addressing growing water scarcity in the western U.S. and worldwide. The Consortium will be an internationally recognized center of excellence in irrigation automation, supervisory control and data acquisition (SCADA), data management and decision support, modernization, and management to enhance energy and water use efficiency in irrigated food systems and amenity landscapes across the globe. This partnership strategically capitalizes on existing strengths between the universities, USDA-ARS, the Irrigation Association, the Irrigation Foundation, the Foundation for Food and Agricultural Research (FFAR), and numerous irrigation equipment manufacturers with opportunities for joint collaborations in demonstrations, technology transfer, tailored workshops, certifications, and student training.

Project Goals
Consumers have never cared more, nor known less, how their food was produced.
Skeptical Consumers
“The eye sees only what the mind is prepared to comprehend.”
— Robertson Davies
People love innovation
People love innovation

Almost as much as they despise change
How do we demystify food science and food production?
Food doesn’t have to be scary
…and neither does science
The biggest threat to the future of the planet is not agriculture.

It is our inability to work together to apply the solutions we have at hand to the problems we all face.
The next 35 years is not just the most important 35 years in the history of agriculture.

It is the most important 35 years there will ever be in the history of agriculture.
Imagine our future and change the world. Be the impatient optimist.

-Bill and Melinda Gates Foundation
Take it to the farmer.
Thank You

Dr. Sally Rockey  
*Executive Director*  
Foundation for Food and Agriculture Research  
srockey@foundationfar.org  
@RockTalking

Connect with FFAR  
www.foundationfar.org  
@FoundationFAR