Partnerships to Harness the Innovations and R & D Capacity of ARS for Technology-Based Economic Development

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Leveraging food technology for obesity prevention and reduction efforts
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ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to:

- ensure high-quality, safe food, and other agricultural products
- assess the nutritional needs of Americans
- sustain a competitive agricultural economy
- enhance the natural resource base and the environment, and
- provide economic opportunities for rural citizens, communities, and society as a whole.”

- Over 2100 scientists at 100 locations, many co-located with Land Grant universities.
- 1100 projects in 22 National Programs

http://www.ars.usda.gov/Research/Research.htm
Technology Transfer: the adoption of research outcomes for public benefit
How Does Industry Partner with USDA for Commercialization / R&D?

Through the Office of Technology Transfer...

- **Licensing** current protected technologies (including plants) to private sector firms for commercial production.

- **Cooperative Research and Development Agreements (CRADAs)** establish research partnerships to solve industry problems consistent with ARS mission and priorities.

http://www.ars.usda.gov/Business/Business.htm
ARS Decision-Making Principles

ARS conducts research to develop and transfer solutions to agricultural problems of high national priority. Licensing policies are mission driven.

Research programs are designed with stakeholder input, and outcomes are measured by positive impacts. ARS has a “market pull” orientation.

A variety of tools are available for partnering and technology transfer. Select the right tool for the job.
Models for Developing and Transferring Federal Technologies to the Private Sector

**Background Invention**
(e.g., developed in USDA)

Seek Private Sector Interest For Commercialization

**Marketing Section**
- Creates summary
- Places on OTT website

**Licensing Section**

Federal Register Notice

Corporate response
The Federal CRADA Model for Developing and Transferring Technologies to the Private Sector

Corporate Research Need → ARS Scientist → Technology Transfer Coordinator → Cooperative Research & Development Agreement (CRADA) → Corporation negotiates license (no FR notice) → Patent → Subject Invention (developed under CRADA) → Manufacture & Market
Role of University / Private Sector Collaborators & Cross-Area Partnerships: Some FY 2009 Metrics

- **Licenses**
  - Current active: 301 (316 were active during FY) --- over 120 with commercial products in the market
    - Universities - 118 (39%)
    - Non-profits - 17 (6%)
    - Small Businesses - 105 (35%)
    - Foreign businesses (no U.S. presence) - 7 (2%)
    - Large businesses (includes foreign multinationals with major U.S. presence) - 54 (18%)

- **CRADAs**
  - Active 233 (during FY 2009)
    - Domestic companies - 217 (93%; ca. 62% small business)
    - Outside state of researcher - 167 (72%)
    - Out of ARS Area of researcher - 133 (57%)
Current Technologies in Successful Commercialization ...

Table grape varieties
- - (David Ramming, PWA; California Table Grape Commission) (license & infringement)

Sweet Scarlet

Scarlet Royal

Autumn King
Helping people with peanut allergies: “Sunbutter”®
(Harmeet Guraya / Isabel Lima, MSA; Red River Commodities) (CRADA)
Current Technologies In Successful Commercialization ...

Preserving color, crispness, and flavor of fresh cut apples (fruits & vegetables) --- "Apple Dippers"® (Attila Pavlath / Dominic Wong; Mantrose-Hauser) (CRADA, license)
Current Technologies In Successful Commercialization...

George Inglett, MWA
(Oatrim, Z- trim, Nutrim, Calorie- trim)
Current Technologies In Successful Commercialization …

Low glycemic sweetener Xtend™ sucromalt
(Greg Cote/ Tim Leathers, ARS, Peoria, IL/ Cargill) (CRADA)
Current Technologies In Successful Commercialization …

100% natural fruit bars from fruit puree (Tara McHugh; Gorge Delights) (CRADA, license)
Current Technologies On The Road to Success …

Fruit & vegetable films
(Tara McHugh; Origami Foods)
(CRADA, license)
Model of a Public/Private Partnership for Commercialization of Research Outcomes

Intellectual Capital

- Human Capital
- Intellectual Assets
  - Intellectual Property

Complementary Assets (required for federal license)

- Manufacturing Capacity
- Marketing & Distribution Capabilities
- Fiscal Resources
- Technical Expertise - Product Dev, Scale-up, QC
- Product Registration Expertise

Structural Assets and Financial Resources

These can be facilitated by Partnership Intermediaries of ARS (TBED entities) linked to mission priorities

CRADA

ARS Agricultural Technology Innovation Partnership Program (ATIP)

What is a Partnership Intermediary Agreement (PIA)?

PIAs allow federal research agencies to enter into an agreement with a non-profit organization (partnership intermediary) to assist the federal agency with its technology transfer efforts.

The partnership intermediary’s services complement those of the federal laboratory and increase the likelihood of success in conducting cooperative or joint activities between the federal agency and a partnering organization (businesses, universities, or other federal agencies).

These agreements can help strengthen state and national economic development and help U.S. businesses compete globally in the marketplace.

The ARS Office of Technology Transfer (OTT) facilitates and manages PIA agreements for USDA.

What’s in it for the Partnering Organization?

PIAs give the partnering organization access to more than 2,000 ARS researchers located at more than 100 research facilities nationwide—including four state-of-the-art pilot plants located in California, Illinois, Louisiana, and Pennsylvania. The partnering organization becomes part of our Agricultural Technology Innovation Partnership (ATIP). Any business that enters into an agreement with ARS resulting from a PIA partnership becomes an ATIP affiliate.

ATIP is a forum created and managed by ARS-OTT that fosters interaction between businesses, universities, and ARS professionals nationwide.

What’s in it for Businesses?

Through the partnering organization, businesses gain:

- marketing assessments and business plan development assistance,
- identification of funding sources (state funds, angel investments, venture capital, and SBIR and other federal grants),
- early notification of “ARS Technology Showcase” events,
- access to facilities, equipment, and research expertise through formal agreements, and
- assistance in matching USDA technologies with business needs.

What’s in it for ARS?

The partnering organization offers many benefits to ARS researchers, including:

- identifying potential research partners and licensees,
- increasing access to a variety of businesses,
- providing industry perspective on ARS technologies,
- increasing the likelihood of impact from research outcomes,
- identifying potential funding sources for research successes, and
- expanding customer and stakeholder interactions with the private sector and other federal agencies, e.g., food safety and environmental agencies.
Early Success from ATIP (TEDCO) …

Rice-based frying batter, “Choice Batter” gluten free, absorbs 50% less oil (Fred Shih, New Orleans, LA)

CrispTek, LLC
- TEDCO-facilitated marketing plan
- ARS Licensed 4 April 2008
- TEDCO support October 2008 (MTTCF)
- First sale, 3 May 2009
- Internet sales; 400 stores; 3 food companies (New CRADA)
Early Success from ATIP (TEDCO) …

ChoiceBatter  Initial 5Q Sales

- $25,000.00
- $20,000.00
- $15,000.00
- $10,000.00
- $5,000.00
- $-

Q3 2009  Q4 2009  Q1 2010  Q2 2010  Q3 2010
Economic Impact Study (5 yr projection to 2014):

- $4.7M sales;
- 95 jobs;
- Impact in 4 states (MD, IA, IL, TX)
Leveraging the Assets of Partnership Intermediaries of ARS
The Office of Technology Transfer ...

... promoting the adoption of ARS research outcomes

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Photo: Quiet Waters Park, Annapolis, MD (Joann Perkins)

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