

# USDA, Agricultural Research Service (ARS): Technology Transfer Program and Formal Links to Economic Development through its Agricultural Technology Innovation Partnership Program (ATIP)

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## **Structure and function of ARS and the Office of Technology Transfer:**

As one of 17 agencies and 12 offices, ARS is USDA's principal intramural scientific research agency. Agency goals are to find solutions to agricultural problems that affect Americans every day, from field to table, such as (a) protecting crops and livestock from pests and diseases, (b) improving the quality and safety of agricultural products, (c) determining the best nutrition for people from infancy to old age, (d) sustaining our soil and other natural resources, (e) ensuring profitability for farmers and processors, (f) developing bioenergy crops that can be sustained with our natural resources, (g) emphasizing local / regional food production for enhanced nutrition and food safety, and (h) keeping costs low for consumers.

ARS has been delegated authority by the Secretary of Agriculture to administer the patent program for ARS, and the technology licensing program for all intramural research conducted by USDA. Thus, ARS's Office of Technology Transfer (OTT) is assigned the responsibility for protecting intellectual property (IP), developing strategic partnerships with outside organizations, and performing other activities that effectively transfer ARS research outcomes and technologies to the marketplace.

ARS-OTT is centralized in policy and approval procedures, but maintains eight field offices to provide one-on-one customer service to ARS researchers. Consisting of about 45 personnel dedicated to facilitate technology transfer, OTT is organized into five sections. The *Administrative/Headquarters Section* oversees day-to-day operations, coordinates technology transfer policy development, and executes licenses and Cooperative Research and Development Agreements (CRADAs). The *Patent Section* (8 in-house registered patent agents) provides strategic guidance to scientists in protecting IP, coordinates invention reports and Invention Disclosure Review Committees, prepares and prosecutes patent applications, and oversees any patent applications prepared by contract law firms for foreign patent rights. The *Licensing Section* (4 specialists) negotiates licenses for IP developed by USDA scientists and monitors license performance. The *Marketing Section* (staff of 3) develops, implements, and coordinates marketing strategies to facilitate available information to support technology transfer. ARS has seven *Technology Transfer Coordinators* (TTCs) strategically stationed across the United States who are responsible for facilitating the development and transfer of USDA technologies. They serve as liaisons with scientists, ARS managers, university partners, and the private sector. They also negotiate CRADAs and other technology transfer agreements. The Patent Section of the USDA Office of General Counsel provides legal guidance to OTT.

The success of this program is exemplified by the metrics and the nature of outcomes. The ARS budget represents 1% of federal R&D expenditures, yet routinely, ARS scientists receive between 18-25% of the national Excellence in Technology Transfer Awards presented by the Federal Laboratory Consortium for Technology Transfer. Currently there are 323 active licenses (over half with small businesses), with 125 producing commercial products and services for sale. Approximately 35% of patents and subsequent licenses are co-owned with research partners, principally Land Grant universities that are then licensed to U.S. businesses through the partner. Over 250 Cooperative Research and Development Agreements (CRADAs) reflect formal research partnerships, predominantly with U.S. small business, to find solutions to high national priorities for agricultural industries and to facilitate adoption of innovation-based research outcomes for private sector commercialization. CRADAs convey the right to negotiate exclusive licenses by the partners without Federal Register notice. By policy of ARS, IP related to research tools is not protected so as to encourage scientific research. Further, patent protection is sought **primarily** when protecting IP facilitates technology transfer (adoption of research outcomes) by U.S. businesses that must compete in global markets; otherwise, alternative means of technology transfer are employed to reduce transaction costs that must be absorbed by the private sector and passed to the consumer. Annual Reports on USDA Technology Transfer typically illustrate that nearly half of the "downstream outcomes" relate to adoption of research outcomes without patents or licenses (<http://www.ars.usda.gov/Business/Business.htm>) .

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Beginning in late 2007, ARS established the “**Agricultural Technology Innovation Partnership**” program (ATIP) to further enhance likelihood that research outcomes would be adopted by the private sector for commercialization. The program was born from the recognition that federal intramural R&D agencies were limited by mission and resources in the services they can provide to U.S. businesses. By statute, licensing any federal innovation requires that the applicant (business) provide a complete and sufficient business plan that describes their capabilities in marketing, manufacturing, access to fiscal resources, and their technical capabilities to develop products and services from the technology. Federal intramural R&D agencies can only offer “technical capabilities” through formal CRADAs with the licensee, but have neither the resources nor the authority to assist with the other requirements of licensees (assets) needed by these businesses to be successful. Consequently, ATIP was established to strategically form geographic partnerships with well-established economic development entities that excel in providing the complementary assets that ARS cannot.

## **Structure and function of ATIP:**

The Agricultural Technology Innovation Partnership (ATIP) Program is comprised of 8 economic development “Partners”, each serving as a portal anchored to an ARS Area, and a 9<sup>th</sup> Partner representing a national organization, the National Association of Seed and Venture Funds. ATIP “Associates” work in conjunction with a proximal Partner. Currently, there is one ATIP Associate. Partners and Associates become members of ATIP through a Partnership Intermediary Agreement (PIA) executed with the Office of Technology Transfer. **Members of ATIP include** the Maryland Technology Development Corporation (TEDCO), Mississippi Technology Alliance (MTA), Wisconsin Security Research Consortium (WSRC), National Association of Seed and Venture Funds (NASVF), Georgia Research Alliance (GRA), Ben Franklin Technology Development Authority (BFTDA), Kansas Bioscience Authority (KBA), TechComm (Center for Innovation) at Arlington, TX, California Association for Local Economic Development (CALED), and the Center for Innovative Food Technologies, Toledo, OH (CIFT; an ATIP Associate with WSRC). Their links to geographic Areas of ARS are shown in the top portion of Figure 1 below; eight of these members reflect recent additions to the network since September 2009.

ATIP members coordinate regional co-sponsored events with ARS, showcasing available technologies for licensing, and ARS research capabilities available to businesses to assist in solving high priority, mission-related issues related to the agricultural industries. Additionally, members provide the current or prospective private sector partners of ARS with access to business mentors, entrepreneur schools, seed and venture funds, and the Manufacturing Extension Partnership programs.

The Office of Technology Transition in the Department of Defense is the only other federal agency that has orchestrated a Partnership Intermediary Network (**OTTPIN**). Designed to serve all of DoD in a proactive, focused, and sustained marketing of lab technologies and capabilities, a significant part of their activities is to “spin in” technologies and products needed by DoD to meet its primary mission. In June 2010, ATIP and OTTPIN formalized a relationship to identify areas of common interest to USDA and DoD and to establish combined projects and partnerships with 3<sup>rd</sup> party private sector companies.

On February 4, 2011, President Obama released “*A Strategy for American Innovation: Securing Our Economic Growth and Prosperity*”, in which ATIP was cited as one of three examples of regional innovation clusters. The President’s “*Startup America Initiative*” (SAI) was launched on January 31, 2011, and ATIP is requested to have a formal roll out event under SAI sometime in the 3<sup>rd</sup> quarter of calendar year 2011 (at ARS discretion). See <http://www.whitehouse.gov/issues/startup-america> for more information on the Startup America initiative, and <http://www.whitehouse.gov/issues/economy/innovation> for more information on the innovation initiative.

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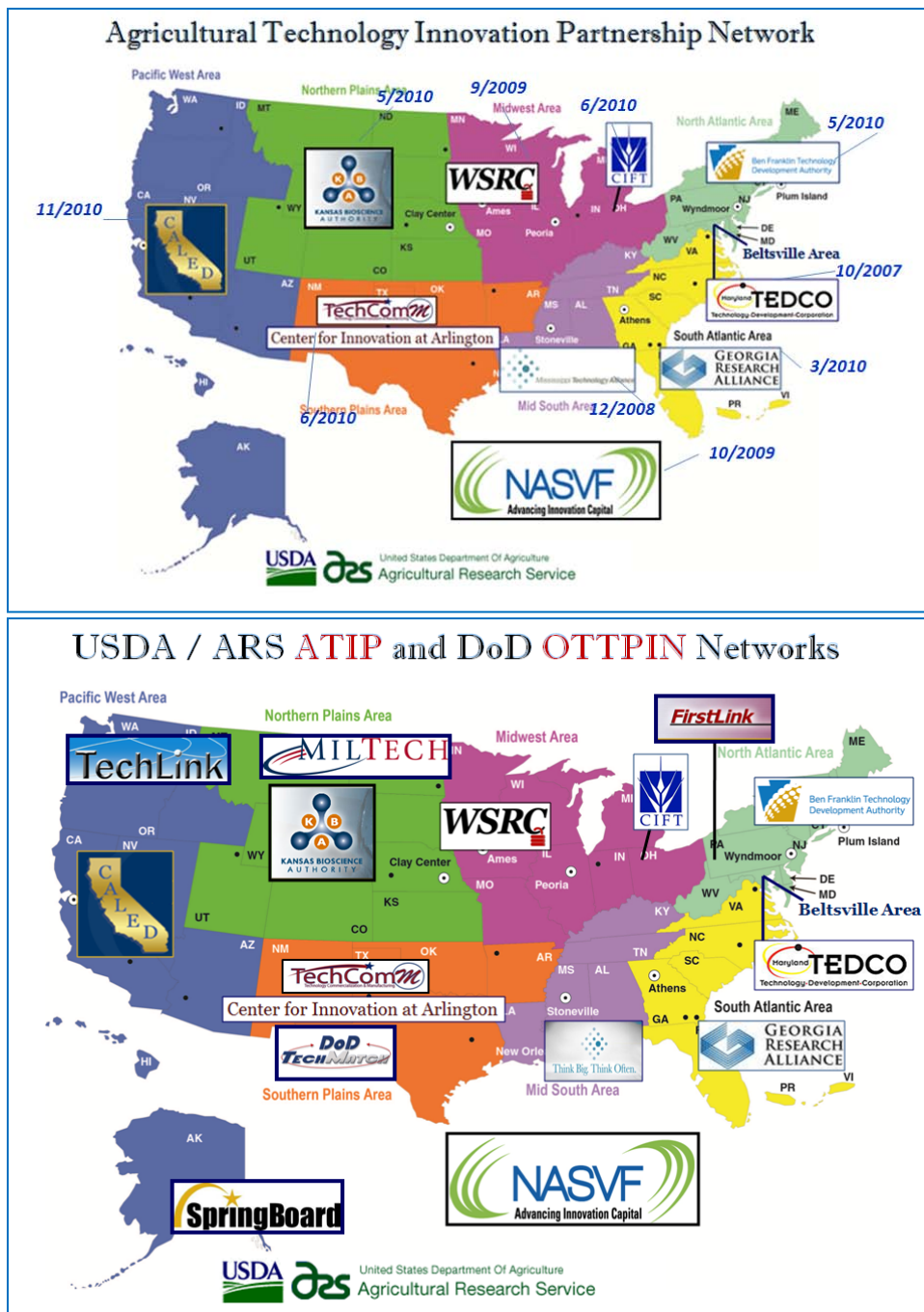


Figure 1. The Agricultural Technology Innovation Partnership (ATIP) network as of March 2011, with date each joined the network (top) and the overlay with network of Department of Defense (OTTPIN).