

TECHNOLOGY TRANSFER AGREEMENTS WITH THE AGRICULTURAL RESEARCH SERVICE

To help translate research results into practical products, processes, and services, the Agricultural Research Service (ARS) has worked closely with commercial firms for many years. Technology transfer cooperative research and development agreements (CRADA's) were created by Congress in 1986 to enhance and facilitate this traditional cooperation, increasing the benefits to the agency, the public, and the commercial firms.

These CRADA's are an implementation of the Federal Technology Transfer Act of 1986 (Public Law 99-502). They differ from other ARS research contracts and agreements mainly by providing the cooperator with the first right to exclusive licenses on patented inventions made under the agreement. Also, in carrying out these agreements, ARS scientists are authorized to work as closely as necessary with private firms to help the companies commercialize technology based on the scientists' research.

Under a CRADA, the cooperating firm provides the know-how needed for development and commercialization of a new product, process, or service. The firm may also provide funds to cover some of the added costs to ARS for work done under the agreement. Or the firm might contribute personnel (for example, a postdoc or technician), equipment, or materials. Many agreements involve no transfer of funds to ARS. The agency provides research personnel, laboratory facilities, materials, equipment, supplies, and other "in-kind" contributions. As with its other cooperative agreements, ARS enters into a CRADA only when the research objective is commensurate with the agency's mission.

A CRADA between a commercial firm and ARS will include provisions on:

- Research, development, and commercialization to be done by each party
- What ARS will contribute
- What the commercial firm will contribute
- Confidentiality
- Publication of results
- Inventions
 - Definition
 - Ownership
 - Right to license
- Copyrights
- Liability

Benefits of CRADA's to Commercial Firms

First right to exclusive licenses on patented inventions made under the agreement.

Improved access to ARS scientists and facilities.

Better access to expertise related to research results and inventions.

Profitable new products and processes.

Benefits of CRADA's to ARS

Improved opportunities to develop and transfer technology.

Better feedback from industry on what research is needed.

Increased familiarity with problems related to commercialization of a product or process.

Scientists and ARS share licensing fees and royalties.

Steps Commercial Firms Can Take To Initiate a CRADA with ARS

- Learn of ARS research capabilities, programs, and results. (See below for sources of information.)
- Contact ARS scientists responsible for programs that interest you.
- With the scientist, develop a brief proposal.
- Ensure that the draft proposal receives appropriate preliminary review and clearance within the firm.
- Work with the ARS scientist to develop a cooperative research and development program.
- Approve cooperative research and development agreement incorporating the proposed research plan.

Sources of Information about New ARS Technology

Other than contacts with individual scientists, professional society meetings, and professional journals, commercial firms can learn more about ARS research from:

Online Databases

TEKTRAN Internet Reports - Over 25,000 brief, easy-to-read summaries of the latest research results that have been peer-reviewed and cleared by ARS management but, in most cases, have not yet been published; about 400 new findings are added to the database each month. TEKTRAN can be accessed electronically through the ARS Technology Transfer Home Page at <http://ott.arsusda.gov/>.

Patents Available for Licensing - To maintain a competitive edge, obtain current listings of newly filed patent applications and issued patents on-line from the U.S. Department of Agriculture (USDA). Each month licensable technologies are made available on the Internet via the USDA, Agricultural Research Service (ARS).

World Wide Web server. Brief descriptions of licensable technology containing inventor names, addresses and telephone numbers are provided. Industry keywords targeting commercialization opportunities of USDA licensable technologies are also offered each month. Information on issued patents and filed patent applications available for licensing can be accessed electronically through the ARS Technology Transfer Home Page at <http://ott.arsusda.gov/>.

CRIS (Current Research Information System) - Abstracts describing all ongoing (and some recently completed) agricultural research projects at least partly funded by the Federal Government. CRIS is one of the databases available through Dialog Information Services, a commercial online service. Write or call Current Research Information System, Cooperative State Research, Education, and Economics Service, USDA, National Agricultural Library, Beltsville, MD 20705-2350; (301) 504-6846. Electronic Searching: <http://cristel.nal.usda.gov:8080/>.

AGRICOLA -The bibliographic database of the National Agricultural Library. Provides comprehensive coverage of worldwide journal literature and monographs on agriculture and related subjects. Available through Dialog and through the Bibliographic Retrieval Service. Write or call AGRICOLA, National Agricultural Library, USDA, Beltsville, MD 20705-2350; (301) 504-6813.

Technology Transfer Information Center

The Technology Transfer Information Center (TTIC) helps to promote the rapid conversion of federally developed inventions into commercial products by "getting the results of research into the hands of those individuals and organizations who can put it into practical use."

To accomplish these goals, the Center provides a variety of services to professionals involved in the innovations process.

For more information about TTIC activities or services, please contact:

Technology Transfer Information Center (TTIC)
National Agricultural Library - Beltsville, MD 20705-2351
Tel: (301)504-6875 FAX: (301)504-7098 ttic@nalusda.gov

ARS Publications

Current issues of the publications listed below are available from Information Staff, Agricultural Research Service, USDA, Room 400, 6303 Ivy Lane, Greenbelt, MD 20770. Agricultural Research magazine is also available by subscription; you may ask to be put on the mailing list.

Quarterly Report of Selected Research - Brief, nontechnical summaries of about 75 ARS research results for the preceding 3 months. Includes scientists' names, locations, and phone numbers. Electronic searching: <http://www.ars.usda.gov/is/qtr>.

Agricultural Research - Monthly magazine. More detailed and slightly more technical. Includes scientists' names, locations, and phone numbers. Electronic searching: <http://www.ars.usda.gov/is/ar>.

Laboratory Visits

To acquaint commercial firms with its latest research discoveries, ARS periodically holds technology transfer meetings at its laboratories. These meetings also provide industry a first-hand opportunity to meet and confer with individual scientists about ongoing research projects.

For further information about technology transfer agreements with ARS, write or call:

Office of Technology Transfer
Agricultural Research Service, USDA
Room 403, Building 005, BARC-West
10300 Baltimore Avenue
Beltsville, MD 20705-2350
(301)504-5345

Martha B. Steinbock
Technology Transfer Coordinator
Pacific West Area/
Western Regional Research Center
Agricultural Research Service, USDA
800 Buchanan Street Albany, CA 94710
Phone: (510)559-5619
FAX: (510)559-5963
E-mail: mbs@pw.usda.gov

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TEKTRAN

Technology Transfer Automated Retrieval System

<http://www.nal.usda.gov/ttic/tektran.html>

- [What is TEKTRAN?](#)
- [Search TEKTRAN.](#)
- [Browse TEKTRAN.](#)
- [How to Search TEKTRAN](#)

[Give us your feedback!](#)

For more information or assistance in searching TEKTRAN,
please contact Kate Hayes at:

Technology Transfer Information Center
10301 Baltimore Avenue Beltsville, MD 20705
Phone: (301) 504-6875
Fax: (301) 504- 7098
Email: ttic@nal.usda.gov

TEKTRAN

United States Department of Agriculture
National Agricultural Library
Technology Transfer Information Center

- **What is TEKTRAN?**

TEKTRAN, produced by the **Agricultural Research Service** (ARS) of the **U.S. Department of Agriculture**, is a dynamic database containing nearly 13,000 interpretive summaries of research results. These are pre-publication notices, and as such, they forecast the future for improved food, feed, and fiber products and processes. TEKTRAN changes when scientists submit articles for publication and when previously submitted articles are published. TEKTRAN on the Internet is updated monthly.

- **Search the TEKTRAN Database**

The **Simple Search** allows you to perform a search by entering one or several keywords. The search engine returns the records and highlights the terms which occur in the document.

The **Search Form** allows you to conduct a search using only keywords or a combination of keywords and specific fields of the TEKTRAN record, i.e. title, author, interpretive summary, contact, keyword or ARS identification number. The search engine returns the records and highlights the terms that occur in the document.

If you still can't find what you are searching for, you can try our **Glimpse search**. Glimpse allows you to search by keyword, and record title, author, interpretive summary, contact person, as well as the ARS identification number. The search engine returns the **TEKTRAN** record identification number, the record title and the lines in the record in which the search term appears. Glimpse provides the context within which the search terms appear in the document.

TEKTRAN URL: <http://www.nal.usda.gov/ttic/tektran/tektran.html>

Browse TEKTRAN By ARS Strategic Planning Code

A table of contents allows you to browse all the records according to ARS strategic planning codes. Simply click on a code name, then on a file name to pull up the interpretive summary.

Agrochemical Technology

Analysis Models

Animal Well-Being

Assessing & Improving Water Quality

Basic Soil Processes

Bioavailability

Biochemistry, Physiology, & Reproduction

Composition of Products

Contamination

Crop Management

Diseases

Equipment for Production & Harvesting

Erosion

Extrinsic Toxic Factors

Family Economics

Food Composition

Food Consumption

Foods & Food Ingredients

Genetics

Germplasm Collections & Biosystematics

Germplasm

Hydrology/Sediment Transport

Improvement & Integration

Industrial Products (nonfood)

Infants, Children & Adolescents

Insect Pollinators

Insects & Mites

Irrigation & Drainage

Library and Information Services

Model/Expert Systems

Models & Systems

Naturally Occurring Toxic Factors

Nutrition

Nutrition & Aging Relationships

Nutrition Education

Nutritional Status Assessment

Parasites

Pathogens & Nematodes

Pests

Plant Genetics & Breeding

Plant Nutrient Management

Plant Response

Pregnant & Lactating Women

Production Systems Efficiency

Production Systems/Environment

Quality Determinants

Quality Measurement

Quality Regulation & Control

Quarantine Treatments

Reproduction

Requirements & Risk Factors in Adults

Research Priority Assessment

Risk Assessment

Soil Management

Soil-Plant Systems as Gas Sources/Sinks

Soil-Water-Plant Interactions

System Integration Technologies

Total Production Systems Integration

Weeds

Help on Searching TEKTRAN

This text describes how to create and apply search queries against the Technology Transfer Automated Retrieval System (TEKTRAN).

WAIS Simple Search Instructions

The easiest way to search TEKTRAN is to select 'Simple Search', then enter a single or multiple terms into the 'General search terms' box. Press the '**start search**' button. The more specific your term is, the better your results will be. Examples include:

food
nutrition
natural

Your results will include no more than the maximum number of hits (40). These items will be ranked according to "relevance" where relevance is based on the number of times the term was found in each document, the position of the term in the document, the size of the document, and the number of times the term appears in the entire database.

WAIS Search Form Instructions

The Search Form option for WAIS searching allows you to use keywords and/or specific fields of the TEKTRAN record, i.e. title, author, interpretive summary, contact or ARS identification number. Simply enter your terms and press 'start search' button. The search engine returns the records and highlights the terms that occur in the document.

WAIS Boolean Searching Instructions

A Wide Area Information Server (WAIS) is the underlying searching facility of this system. More specifically, the system relies on **free WAIS-sf** as the search engine and **SFGate** as a gateway program between our World Wide Web and WAIS servers.

The search engine provides for Boolean expressions, right-hand truncation, literal searching, numeric searching, and soundex searches. The first two features are described below:

Boolean OR

Terms combined with OR represent the logical union of document sets. Thus, queries like "red OR blue" will create a set of documents where the terms "red" or "blue" are located in any of the resulting documents, but not necessarily in the same documents. A Boolean OR is most effectively used when combining synonyms or similar concepts. Queries that contain multiple terms but no modifiers are interpreted as Boolean OR queries.

The use of a Boolean OR increases the number of possible documents retrieved.

Examples:

dogs OR hounds
dogs hounds
astrophysics OR astronomy

Boolean AND

Terms combined with a logical AND create a set of documents representing the intersection of those terms. Thus, a query like "red AND blue" will generate a set of documents that contain the terms "red" and "blue" in each and every document. The use of a Boolean AND is most beneficial when combining dissimilar terms.

The use of a Boolean AND decreases the number of possible documents retrieved.

Examples:

dogs AND cats
astronomy AND guides
business AND journals

Boolean NOT

Queries using the Boolean NOT exclude documents from a set of documents. The query "red NOT blue" will create a set of documents all containing the term "red" but not including any documents containing the word "blue". The use of a Boolean NOT is beneficial when you want to remove a subset of documents from your search.

The use of a Boolean NOT decreases the number of possible documents retrieved.

Examples:

pets NOT dogs
anthropology NOT archeology
economics NOT business

Right-hand truncation

The asterisk (*) symbol provides a method for creating a set of documents containing terms with similar roots but different suffixes. This feature does not function within or to the left of any characters. Thus, the query "librar*" will locate documents containing the terms "library", "libraries", as well as "librarians". The use of an asterisk is good for retrieving terms as well as their plural forms.

The use of the asterisk increases the number of possible documents retrieved.

Examples:

dog*
astro*
vet*

Note: This page has been revised from <http://www.lib.ncsu.edu/searching-instructions.html>.

Glimpse Simple Instructions

Glimpse allows you to search by keyword, and record title, author, interpretive summary, contact person, as well as the ARS identification number. When you have completed the search, the search engine returns the TEKTRAN record identification number and the lines in the record in which the search term appears. Instead of providing the title of the record like WAIS does, Glimpse provides the context within which the search terms appear in the document. If you click on the ARS identification number, the title appears along with the rest of the record. If you click on the line number, that line of text appears within the record.

Glimpse Boolean Search Instructions

AND Searching - Combine two or more search terms by using a semi-colon (;). For example, entering "ANDERSON;MATTHEWS" will find all records containing both ANDERSON AND MATTHEWS.

OR Searching - Broaden your search retrieval by using a comma (,). For example, entering "cereal,grains" will find all records containing either 'cereal' or 'grains'.

Proximity Searching - Glimpse can find words located directly next to each other. For example, entering "cereal grains" will find all abstracts for the word 'cereal' followed by the word 'grains'.

Truncation/Wild card

The symbol '#' is used to retrieve singular or plural words, as well as any variant word spellings. For example, the query "librar#" will locate documents containing the terms "library", "libraries", as well as "librarians".

Glimpse (which stands for GLobal IMPLICIT Search) is an indexing and query system that allows you to search through all your files very quickly. Glimpse supports approximate matching (e.g., finding misspelled words), Boolean queries, and even some limited forms of regular expressions.

More help on using Glimpse is available on TEKTRAN.

TEKTRAN URL: <http://www.nal.usda.gov/ttic/tektran/tektran.html>

- **Give us your feedback!**

Tell us what you would like to see at this Web site. What information would be most helpful? Give us your feedback after using the TEKTRAN. Tell us what we could have done better!! Please send comments and questions to ttic@nalusda.gov.

Agricultural Inventions How to Apply for a Patent License

Patent License Program

One of many programs within the U.S. Department of Agriculture (USDA) that directly benefits the public is its Patent License Program. Through its varied research projects, the USDA often obtains patents on its research findings. These patents are transferred to public use by patent licenses.

USDA's Patent License Program conforms with Public law 96-517, effective July 1, 1981, that authorizes all Government agencies to grant patent licenses. Regulations implementing this law are published in Title 37 of the Code of Federal Regulations, Part 404. Prospective licensees may obtain nonexclusive, exclusive, or partially exclusive licenses. In some instances, foreign licensing is also available. License fees are negotiable.

Criteria for meeting exclusive licenses are:

- granting such an exclusive license is in the best interest of the public,
- desired practical application of the invention has not been achieved,
- practical application of the invention is not likely to be achieved expeditiously under a nonexclusive license, and
- exclusive or partially exclusive license is a reasonable and necessary incentive to promote the investment of risk capital to bring the invention to practical application.

How To Apply For a Patent License

Prospective licensees may obtain a license application package from:

Coordinator, National Patent Program
USDA-ARS
Room 416, Building 005, BARC-W
Beltsville, Maryland 20705
Telephone: (301) 504-6786 Fax: (301) 504-5060

Applicants must submit by mail an original signed application, accompanied with a detailed marketing and development plan. Evidence of capabilities that exist to fulfill the plan submitted must also be reflected. All business plans are held confidential.

Applications will be evaluated to ensure that the intended use will not contravene the purpose of the license agreement.

License Provisions.

- Licensees are required to report at least annually on their use of or efforts to use the patent. These reports are kept confidential.
- Products sold by the license through use of the patent must generally be manufactured substantially in the United States.
- A license may be for all or less than all fields of use of the invention or in a specific geographic area, or both.
- The license is nonassignable without approval of USDA. It may, however, be extended to subsidiaries of the licensee.
- The license is revocable for specific reasons, such as nonuse of the patent or failure to comply with governing regulations.

The public use of a USDA patent without express permission by USDA constitutes an unauthorized use.

ADDITIONAL INFORMATION

Technical Assistance

For most of its inventions, USDA can provide technical advice to assist licensees in expediting commercial development of the invention. USDA's scientific staff is available and frequently assists industries and individuals in adapting new and improved products or processes.

Copies of Patents

USDA-owned patents and patent applications are published periodically in the Federal Register and in the Official Gazette of the United States Patent and Trademark Office. These publications are available from:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
Phone: (202) 783-3238

Copies of patents issued in the United States are available for \$3 each; allow 4 to 6 weeks for delivery. You must identify the patent number when ordering a copy of a patent. Send your order along with a check or money order with your complete address to:

Commissioner of Patents and Trademarks
U.S. Patent and Trademark Office
Washington, D.C. 20231
Voice response line: Phone: 703-557-INFO
For further information regarding sales:
703-305-4350
Patent Depository Library Program: 703-308-3924

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Cooperative Research and Development Agreements (CRADA's) Between Industry and ARS A Plain Language Guide for ARS Scientists

Definition and Policy

CRADA's are an implementation of the Federal Technology Transfer Act of 1986 (Public Law 99-502). They differ from other Agricultural Research Service research contracts and agreements by providing the cooperator with the right of first refusal to an exclusive license on patented inventions made under the CRADA. Also, in carrying out CRADA's, ARS scientists are authorized to work as closely as necessary with private firms to help the companies commercialize technology based on the scientists' research.

Under a CRADA, the cooperator may or may not provide funds. As with other ARS cooperative agreements, ARS enters into a CRADA only when the objective is commensurate with the agency's mission.

ARS policy is to take full advantage of the Technology Transfer Act and of Executive Order 12591, which charged agencies with expeditiously implementing the Technology Transfer Act. While the Office of Technology Transfer (OTT) provides guidance and assistance, scientists are the key to fulfilling this policy. The scientist is responsible for getting the research used as well as done.

Scientists should seek opportunities for CRADA 's with industry that meet three conditions:

- The work is consistent with the ARS mission.
- There are no conflicts of interest.
- All potential cooperators have been given a fair chance to participate.

Funding

Cooperative research with the private sector is an addition, expansion, or continuation of an in-house project. Therefore, none of the funding expected from a CRADA can be used to shore up a base program. The additional funding might include costs of an added research associate, a technician, special equipment, and so on.

Procedures

To expedite research cooperation between industry and ARS, the following procedures are carried out in accordance with the provisions of the Technology Transfer Act. The goal is to complete processing of a CRADA within 6 weeks after ARS scientists and industry representatives agree on the cooperative activities to be conducted. This means that all parties must deal promptly with documents.

1. Individual scientist and the cooperator determine what research will be done cooperatively.
2. Scientist consults with line managers-Research Leader, Laboratory/Institute Director, and Area Director, and with the appropriate National Program Leader. If they agree, scientist proceeds to step 3.
3. The scientist and cooperator develop a proposal (plan of work) describing briefly what the cooperator and ARS will do jointly and what each will provide separately to achieve the objectives of the cooperative research. An estimated budget is also developed. Copies of the plan of work and budget are forwarded to the technology transfer coordinator for the area involved. If one is not assigned to your area, send the documents to the deputy assistant administrator (national technology transfer coordinator). These individuals will provide sample CRADA's on request.
4. The technology transfer coordinator will work with the scientist and cooperator to develop an appropriate draft CRADA using generic provisions. Non-generic provisions are forwarded to the Authorized Departmental Officer (ADO) for review and approval. (The ADO is the official delegated authority to sign and administer CRADA's for ARS). The area director and appropriate national program leader will be kept informed.
5. The technology transfer coordinator will monitor and coordinate subsequent negotiations and clearances for development of the CRADA.
6. Once an acceptable CRADA is completed, the following steps are taken:
 - a. For CRADA' s involving the receipt of funds, the scientist obtains approval from the National Program Staff via normal channels: forms ARS 425, AD 416, and AD 417 through the Research Management Information System.
 - b. The Technology Transfer Coordinator sends the CRADA through the area director to the ADO.
 - c. If changes are needed, OTT will expedite revisions.

7. The ADO will make sure that clearances (for conflicts of interest and similar matters) are obtained. The ADO will then send the final version of the agreement to the cooperating firm for signature.

FOR FURTHER INFORMATION, CALL OR WRITE:

Assistant Administrator for Technology Transfer

Agricultural Research Service, USDA
Room 358-A, Administration Building
Washington, DC 20250-0300
Phone: (202) 720-3973
Fax: (202) 720-5427

Deputy Assistant Administrator

Agricultural Research Service, USDA
Room 416, Bldg. 005, BARC-West
Beltsville, MD 20705-2350
Phone: (301) 504-5734
Fax: (301) 504-5060

Technology Transfer Coordinator for North Atlantic Area

Agricultural Research Service, USDA
600 East Mermaid Lane
Philadelphia, PA 19118-2551
Phone: (215) 233-6690
Fax: (215) 233-6777

Technology Transfer Coordinator for Midwest and Northern Plains Areas

Agricultural Research Service, USDA
National Soil Tilth Laboratory
2150 Pammel Drive
Ames, IA 50011
Phone: (515) 294- 7762
Fax: (515) 294-8125

Technology Transfer Coordinator for Southern Areas

Agricultural Research Service, USDA
P .O. Box 5677
Athens, GA 30604-5677
Phone: (706) 546-3496
Fax: (706) 546-3367

Technology Transfer Coordinator for Beltsville Area

Agricultural Research Service, USDA
Room 219, Bldg. 003, BARC-West
Beltsville, MD 20705-6350
Phone: (301) 504-6421
Fax: (301) 504-5863

Technology Transfer Coordinator for Pacific West Area

Agricultural Research Service, USDA
800 Buchanan St.
Albany, CA 94710
Phone: (510) 559-5641
Fax: (510) 559-5963

Authorized Departmental Officer

Agricultural Research Service, USDA
Room 419, Building 005, BARC-West
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Phone: (301) 504-6532
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