

The Semi-Arid Tropical Crops Information Service (SATCRIS) and the Aflatoxin Database

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Abstract

A description of the SATCRIS Project at ICRISAT Center, the characteristics of the SATCRIS database, and its information retrieval and dissemination services for groundnut, and the specialized database on aflatoxin.

Résumé

Les ressources et services du Semi-Arid Tropical Crops Information Service (SATCRIS) et la base des données sur les aflatoxines : L'activité principale du projet SATCRIS au Centre ICRISAT, les caractéristiques de la base des données SATCRIS, ses services de recherche et de diffusion des données sur l'arachide ainsi que la base de données spécialisée sur les aflatoxines sont décrits.

Resúmene

El Servicio de Información sobre Cultivos del Trópico Semiárido (SATCRIS) y la organización electrónica de datos e información sobre las aflatoxinas : Se presenta una descripción del proyecto SATCRIS del Centro ICRISAT, las características de la organización electrónica de datos e información del proyecto y los servicios de recuperación y distribución de información sobre el cacahuete, así como la organización electrónica de datos e información sobre aflatoxinas.

Background

CRISAT's capacity to provide information has been considered important not just to keep its own scientists abreast of the latest developments in their fields of interest but also to satisfy information requirements of many others who are working on its mandate crops in laboratories and fields located in areas where information resources are either nonexistent or meager. It is against this background that ICRISAT established a specialized information center, the

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Sorghum and Millets Information Center (SMIC) in 1976 as a part of its Library and Documentation Services to collect, collate, and disseminate information on sorghum and millets to research workers throughout the semi-arid tropics (SAT). The financial support to this project was partially provided by the International Development Research Centre (IDRC), Canada. Information products and services provided by SMIC included comprehensive bibliographies, selective dissemination of information (SDI), literature searches, an information analysis service, and a document delivery service. It is also published a newsletter thrice a year in English and French to provide current awareness to researchers in the SAT.

A project proposal to expand the information resources, products, and services of SMIC to cover all five ICRISAT mandate crops was made in 1986 to ICRISAT's management and to IDRC. The project, known as the Semi-Arid Tropical Crops Information Service, or SATCRIS for short, was approved in November 1986 and is funded in part by IDRC.

A major departure of SATCRIS from its predecessor SMIC is its emphasis on the exploitation of machine-readable products of global database producers such as the Commonwealth Agricultural Bureau International (CABI) and the Food and Agricultural Organization of the United Nations (FAO) for inhouse database development, and on the provision of information retrieval and dissemination services. The emphasis is also on closer collaboration with database producers, both for input provision, and in utilization of their expertise and infrastructure for the regular and timely delivery of comprehensive information dissemination services to researchers throughout the SAT. An important goal of SATCRIS is to establish a SATCRIS subcenter at the ICRISAT Sahelian Center (ISC) in Niamey. This subcenter will ensure the capture of nonconventional literature especially of West African origin and the input such data into the SATCRIS database. It will also provide document delivery services from its collection and liaise with the center in India for other services.

SATCRIS Objectives

Given these above broadly stated goals, SATCRIS has set for itself several tasks and objectives. These are:

- To convert the existing database of SMIC into computer-readable form for interactive use at ICRISAT.
- To provide input to global systems such as AGRIS and CABI of both conventional and non-conventional information generated within ICRISAT.
- To create a machine-readable database of SATCRIS using subsets of CABI and AGRIS databases and to integrate such data with locally generated input.
- To provide SDI, bibliographical, and literature search services using inhouse and external databases to scientists and others in the SAT working on ICRISAT mandate crops.
- To develop a subcenter of SATCRIS at ISC in Niamey, Niger.
- To hold a series of workshops in eastern and southern Africa to promote SATCRIS among potential users, and to build contacts with librarians and documentalists, and,
- To undertake well-defined information analysis projects in collaboration with scientists.

User Community

The primary users of SATCRIS information products and services are scientists and researchers at ICRISAT Center, ISC, in western, eastern, and southern Africa, and in the national, regional,

and international programs collaborating with ICRISAT. Scientists, academics, and extension personnel in other national and regional institutions will also be provided service on request. The user community of SATCRIS comprises plant breeders, entomologists, plant pathologists, botanists, microbiologists, biochemists, agronomists, agricultural engineers, land and water management specialists, agroclimatologists, soil physicists, soil chemists, economists, social anthropologists, and extension personnel. The output and services of SATCRIS, it is envisaged, will go a long way to providing the necessary information support to the stated user community in the SAT, particularly in Africa where library and information systems are still far from adequate.

Outputs

The following information products and services will be generated:

- monthly SDI output to users throughout the SAT,
- on-demand literature search outputs,
- abstracts, journals, and annual bibliographies in collaboration with CABI,
- information analysis products such as literature reviews, a newsletter, and
- interactive access for scientists at ICRISAT to the SATCRIS database.

SATCRIS Database

The central resource of SATCRIS is its machine-readable database, that has been developed by obtaining monthly subsets of the CABI and AGRIS databases in machine-readable form. The two databases have been chosen for CABI's excellent coverage of primary journal literature, and AGRIS's coverage of nonconventional literature.

A comprehensive profile of SATCRIS interests has been communicated to CABI so that they can generate a relevant monthly subset of their database.

A versatile software package called BASIS is used to derive data from the two databases. This data is integrated with locally generated input to create a single, multidisciplinary database on ICRISAT mandate crops. The existing SMIC database will also be integrated into the SATCRIS database using the BASIS software.

SDI Service

The manual SDI service of SMIC has been replaced by a fully automated service, i.e., one in which the selection of items to be output to a given individual is based on a carefully constructed and tailored user profile. The emphasis is on meeting as specifically as possible, the current awareness needs of individual scientists. A two-level service is provided. The first is based on macro-profiles which may serve a small research station, and the second provides highly specific and personalized profiles. The service will be based on the monthly inputs received from CABI and AGRIS. BASIS modules will be used to store the user profiles and for the production of SDI outputs. This system will allow us to offer the service to many more users than was possible using manual selection.

SDI service outputs are backed up by document delivery services. SATCRIS uses its own resources as well as those of others (e.g., NAL, BLLD) including the faster Dialorder services wherever necessary.

Literature Search Services

SMIC responded to more than 300 requests for literature searches from 1984 to 1987. SATCRIS continues to promote this on-demand search service, using the SATCRIS database wherever possible. Where access to a broad spectrum of information is required, searches are done using external databases in an online mode, using the DIALOG system in the USA.

Experience has shown that searches done for a given individual are often found useful by others. Dissemination of information on completed searches e.g., through the ICRISAT Research and Development Leaflet series distributed with our newsletter *At ICRISAT*, and through items in our other newsletters has made searches available to many others who might otherwise have not used the results.

At SATCRIS, search outputs are considered to be bibliographic items in their own right; they are input to the SATCRIS database and can be retrieved in response to interactive searches.

SATCRIS input to CABI and AGRIS databases

Since SATCRIS builds its database using CABI and AGRIS, it is in its interest to contribute to both of them. SATCRIS inputs ICRISAT-generated conventional and nonconventional literature to both AGRIS and CABI, and also provides input of nonconventional literature captured at ICRISAT Center and ISC to CABI.

Collaboration with CABI

An important objective of SATCRIS is to collaborate with CABI in the production of specialist abstract journals on ICRISAT's mandate crops. These CABI abstract journals are available free of cost to key libraries and individuals in SAT countries. It is believed that such collaboration with a major database producer ensures the regular dissemination of information on our mandate crops to scientists and others in national, regional, and international programs of the SAT. Also, the information thus disseminated is more comprehensive and current than that provided from local resources. The advantages of using the expertise and infrastructure of a major disseminator of bibliographical information such as CABI more than compensates the costs involved.

CABI already produces the *Sorghum and Millets Abstracts* and will produce two new abstracts services, one for chickpea and pigeonpea and another for groundnuts. SATCRIS has identified individuals and libraries in the SAT who will receive these free abstract services directly from CABI.

Information Analysis Services

Scientists at ICRISAT will be involved in the choice of topics and subjects for information analysis that will produce reviews and critical evaluations of the literature on specific topics. In choosing topics, the emphasis will be on the usefulness of the repackaged information to scientists, researchers, and others working in Africa, since they do not have the benefit of regular interaction with the expertise available in a center such as ICRISAT. They will be written by subject specialists, whose services will be contracted from a few weeks to several months depending on the nature and scope of the subject. The project provides for short-term sabbaticals to scientists for this purpose. Information scientists of SATCRIS will provide literature search services, and document delivery. They will also attempt to identify key papers in the chosen topic using a citation-based approach.

Microcomputer Databases

An important objective of SATCRIS is to strengthen the information handling capabilities at ISC. In the long run, it is hoped that SATCRIS will be involved also in strengthening information handling capabilities in other national and regional agricultural research systems in the SAT.

One approach that SATCRIS is exploring is the development of specialized databases for decentralised use on microcomputers. The idea is that SATCRIS will create and maintain useful specialized databases and make available such databases to national and regional centers in the SAT. SATCRIS will also provide appropriate software, and wherever necessary, training to national and regional centers to enable them to utilize the databases. SATCRIS will of course periodically provide database updates on diskettes to centers in the SAT. In addition, SATCRIS will offer information retrieval and dissemination services in the subject areas of the specialized databases.

We believe that such an approach will serve two purposes:

- deliver useful information to SAT centers in a form that is easily accessible.
- introduce relevant information technology into national and regional centers.

Two specialized databases on which some work has already begun are: Aflatoxins and *Striga*. Information on a variety of primary documents, both conventional and nonconventional is being input to the databases. A public-domain software called Micro CDS/ISIS is being used to create and maintain the databases. The CDS/ISIS is a versatile software package and enables the definition of databases, data entry and updating, multidimensional searching, and provision of a variety of output products. Most importantly, CDS/ISIS supports variable length records, a vital requirement in bibliographic information systems.

Once such databases are developed SATCRIS will offer them to interested agricultural research centers in the SAT.

SATCRIS Activities in Africa

The SATCRIS subcenter at ISC will monitor sources of information in French, and provide reference and document delivery services to scientists at ISC and others in national and regional programs in Francophone West Africa. It will liaise with SATCRIS in India for search, bibliographic, and SDI services, will acquire relevant conventional and nonconventional literature of African origin, especially from Francophone sources. Such literature will be input to the SATCRIS and CABI databases.

Useful primary literature (journal articles, conference papers, etc.) and nonconventional literature already collected at SMIC and the ICRISAT library will be deposited in microfiche form at ISC. The collection will be kept up-to-date with regular input from the Center in India. A microfiche reader and reader-printer will also be provided at ISC to enable the use of this collection.

An informative leaflet in English and French describing the microfiche project and its objectives will be printed and distributed to institutions and individuals in Africa. The leaflet will describe the nature of the collection and the services that users may expect from the SATCRIS subcenter at ISC.

It is proposed to hold a number of workshops in eastern and southern Africa to improve the awareness of scientists to the resources and services of SATCRIS. The countries to be covered will be in the Southern African Development Coordination Conference (SADCC) region and

eastern Africa. The workshops will promote SATCRIS services using audio-visual aids, inter-personal discussions, display of information products, and enrolment of potential users to its services. The workshops will also attempt to establish stronger rapport with end-users and with librarians and documentalists leading to a better exchange of information, and increased utilization of the resources and services of SATCRIS.

Discussion

K.J. Middleton. Does the microcomputer database run only on IBM?

L.J. Haravu. Yes. At the moment it will run only on IBM PC, XT, AT and the Vax. It will very soon run on the Micro-vax family. I am hoping to soon become a distributor on behalf of UNESCO for this particular software package which comes on two floppy diskettes, to non-profit organizations.

R.V. Bhat. Are you proposing to link SATCRIS with Medline and national documentation organizations?

L.J. Haravu. At the moment we have not thought of interaction with Medline although for aflatoxin perhaps Medline is as relevant as an agricultural database. We will be concentrating more on the agricultural science databases. That is the Commonwealth Agriculture Bureau mandate. Although this database does capture some biomedical literature related to agricultural products, for the other aspects we have to go to Medline or food science databases if we want to be totally comprehensive. We are definitely going to take care of national inputs particularly from ICAR institutions and so on.

P.D. Blankenship. We would like to suggest that you contact the Coastal Plain Experiment Station of the University of Georgia. They have a library with a comprehensive facility of peanut periodicals. It is available on the same kind of system you are talking about, but one point which makes it unique is that this library has access to all postgraduate theses that were done in the US.

L.J. Haravu. Thank you, we will do that.

H. Amra. Is this only for semi-arid tropics? Which crops are covered?

L.J. Haravu. It is intended for anyone who is actually working on the five ICRISAT-mandate crops, and is not exclusive to the semi-arid tropics. We were thinking of microcomputers because we felt that, for instance, in Africa, not many institutions can afford to buy big computers, but they could probably afford a microcomputer. If you could develop a small database on a microcomputer then it will be easier for such institutions to use.