Drainage Bibliography from Computer Based Data Sources

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THE literature search is a key step in beginning new research. Manual methods for finding as many related references as conveniently possible can be time consuming and useful papers can still be overlooked. In the past, many works have been published, like Drainage of Agricultural Land, An Annotated Bibliography of Selected References, 1956-1964. These require a major effort to keep up to date.

Recently, computers have become widely used in literature searching. Many indexes and abstracts are converted into machine-readable form as part of the publication process. The resulting files, known as "data bases", may be searched rapidly and comprehensively by computer. Researchers gain access to these data bases through government, university, or commercial information services.

Searches of data bases are generally performed by search specialists or intermediaries who are acquainted with system requirements and terminology. The usual result of a search is a printed bibliography, sometimes including abstracts.

Our purpose here is to list the data bases with possible references to drainage and to describe a procedure for compiling an individually tailored bibliography to cover any specific aspect of drainage from computer-based data sources or retrieval systems.

In the following section, we list data bases that include information on drainage topics. Only acronyms and name are included. For information on subject content, sources covered, cost and other details, see Williams and Rouse (1976) or consult an information specialist at a university library or other information service.

DATA BASES THAT INCLUDE REFERENCES RELATED TO DRAINAGE

Starred items are particularly important sources for information on the drainage of agricultural lands.

ABS
ATA
ARCM
*AGRICOLA (formerly CAIN)
*AGRIS
Aher's Guide
ASI

(Automated Bibliographic Services)
(Abstracts on Tropical Agriculture)
(Agricultural Economics)
(Agricultural On Line Access)
(Agricultural Information System, FAO)
(American Statistics Index)

BELL
Biosis Previews
*CAB Abstracts
CDB
*Compendex
*CRIS
Current Programs
Environmental Information Retrieval On Line
Field Crop Abstracts
FRATIS
Horticultural Abstracts
The Information Bank
International Environment
MARC Books
NTIS Bibliographic Data File
PASCAL 380—Agronomy
Pollution Abstracts
Review of Plant Pathology
SCI
Science Data Base
Soils and Fertilizers
*SWRA
Weed Abstracts
World Agricultural Economics

(Batesville Energy Information Center)
(Biological Abstracts)
(Commonwealth Agricultural Bureaus)
(Comprehensive Dissertation Index)
(Computerized Engineering Index)
(Current Research Information System)
(New York Times)
(EPA)
(Monographic Literature)
(National Technical Information Service)
(Science Citation Index)
(Selected Water Resources Abstracts)

THE SEARCHING PROCESS

1 Clearly define in writing the topic to be searched. This is usually the most critical step. (See Fig. 1 for our suggested format.)
2 Choose appropriate data base(s).
3 Analyze the search topic into its component concepts, and express these in terms appropriate to the data base(s) selected.
4 Make administrative and financial arrangements to gain access to the data base(s).
5 Enter the search terms and combinations selected. The computer system responds by giving the number of citations retrieved by each term or combination.
6 Request the system to print sample citations. Inspect these to determine if the citations being retrieved are relevant.
7 Request that the entire set of citations be printed off-line and mailed to the requester. If time is critical, however, the citations may be printed on-line at much higher cost.

Both the requester and the search specialist are involved in steps 1 to 4, and good communication between them is essential. In on-line searching (see definition below), both may also participate in steps 5 to 7.

The steps listed above are not always discrete, not do they always occur in the order given. Step No. 4, for example, may be handled by a standing arrangement with the information service used. Steps 2 and 3 may occur in reverse order or concurrently.

On-Line vs. Off-Line Searching:

In off-line searching, the search strategy or profile is prepared entirely in advance, and no change can be made in terms or combinations of terms while the com-
computer is performing the search. On-line searching allows the requester and/or searcher to interact with the computer system during the search, and to modify the search strategy if initial results are unsatisfactory. Best results are often obtained when both the requester and the searcher are present during an on-line search to evaluate results and modify search terms.

Current Awareness vs. Retrospective Searching: A retrospective search literature on a topic for a specific period, often the last 3 to 10 yr. It is generally used at the beginning of a research project to compile a working bibliography. A current awareness of SDI (selective dissemination of information) search is performed at regular intervals, often monthly, and each time covers the literature added to the data base since the preceding search. Its principal purpose is to keep the requester up to date with currently published materials in his area of interest.

GENERAL OBSERVATIONS ON THE SAMPLE SEARCH

1. Only the 1975-1977 section of the AGRICOLA (or CAIN) date base was searched. Seventeen additional references would have been retrieved had we searched 1970-1977.
2. Search statement 4 is actually the most precise formulation of the topic, but it resulted in so few references (3) that we decided to broaden the search to include any items on drainage of clay soils. The additional nine references, though they did not include the terms "subsurface", "tile", or "mole", might nevertheless contain useful information on the topic.
3. Some of the references came from journals not otherwise readily available to us. Both domestic and foreign journals were searched. Not all the references found were pertinent, but several were good ones.

References

FIG. 1 Sample Computer Search Request, completed with sample inquiry.

...PRENTOFF, P (DO, DOC (ALL), IDHORNET,TEI, CLAY,SOIL, DRAINAGE) ...

FIG. 2 Sample Keyword Input and On-line Response. In search statements 1-3, the searcher typed in keywords, and the computer system responded with the number of citations retrieved, e.g. "Result 945". In search statements 4 and 5, the searcher tried two different combinations of the keywords, resulting in 3 and 12 citations, respectively. The searcher then called for sample titles, which were printed at the terminal. The sample titles appeared relevant, so we requested an off-line printout of the entire set of references.
### Fig. 3 Off-line Printout of References Retrieved in the on-line Search

| AN | 77092853. | AU | TRAPPED, B. D. OLIPHANT, J. M. TI THE EFFECT OF DIFFERENT DRAINAGE SYSTEMS ON SOIL CONDITIONS AND CROP YIELD OF A HEAVY CLAY SOIL. SD ESP HUB, 32; 75-85. REF. 1977. YR 77. |
| AN | 77097987. | AU | BOUMA, J. DEKKER, L. W. VERLINDEN, H. L. TI DRAINAGE AND VERTICAL HYDRAULIC CONDUCTIVITY OF SOME DUTCH "KNIK" CLAY SOILS. SD AGRIC WATER MANAGE. 1 (1) 67-78. REF. DEC 1976. YR 76. |
| AN | 78117910. | AU | STEINHARDT, R. TI SUBSURFACE DRAINAGE, TILLAGE LAYER COMPACTABILITY AND COTTON RESPONSE TO HYDROPONIC CULTIVATION IN A CLAY SOIL. SD RAPP JORDAARBEIDENSAVO LANDBUROOKSHA. 45: 4111-41-6. REF. 1978. YR 78. |

**Citations:**
- 12
- **Pages:**
- 2

**Totals for Bornstein/Clay:**
- 12
- **Pages:**
- 2