Internet resources for stored product protection

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Abstract
The Internet is a global information network that connects millions of computers. It is growing exponentially and provides a unique information resource. The most basic use of the Internet is electronic mail. Initially designed to send short messages, it has now developed where you can attach computer files which enable you to send data, word processing texts and programs. In early 1995 we set up with Paul Flinn of USDA-ARS a worldwide mailing list for stored product experts. Details on how to subscribe are given.

One of the most user-friendly innovations of the Internet is the World Wide Web, or WWW. We have listed and commented on relevant sites from government, university and industry. This article is available on the WWW at http://res.agr.ca/wmn/home.html

General internet resources
The Internet is a global information network that connects millions of computers. It is growing exponentially and provides a unique information resource that is global, diverse and current. The concept of the Internet was first discussed in the early 1960's, with the first working network, DARPNET (Defense Advanced Research Projects Agency Network), being established in 1969 as a joint project between the military and the universities in the USA. From the beginning the Internet was designed to allow many different types of computers to connect to the network. Although in 1973 the architects of the Internet only envisaged 256 nodes, it has grown to more than 10 million today. The other initial concept was that there would be no global control at the operational level. In the early 90's the World Wide Web (WWW) was developed in at CERN, The European Laboratory for Particle Physics in Geneva Switzerland to allow researchers using different computer systems and programs to share information. The basis of the WWW is Hypertext Markup Language (HTML), a program language for documents, Hypertext Transfer Protocol (HTTP), allows computers on the Internet to communicate. The WWW has made it simple to share many different types of information. For people just new to the Internet, visit the following sites for more information: http://www.soc.org/internet/history/, http://www.excite.com/computers and internet/internet/beginner guides/ (Internet addresses for the WWW must be typed exactly as shown as Internet addresses are case sensitive).

One of the major advantages of the Internet is the diverse number of sites available from around the world. Because of the huge number of sites, it is a challenge to find the information that is useful for your specific needs. To meet this need there are many commercial sites that have programs or search engines that will search the Internet for you. For example a search of the words 'stored grain' garnered 478,767 hits, or possible documents that would be of interest. Search engines will also list the documents in order of relevance. Some of the major search engines are: http://www.yahoo.com/, http://www.excite.com/, http://www.altavista.digital.com/, http://www.patents.ibm.com/ibm.html (for USA patents).

In order to narrow the search, these search engines now offer search engines concentrating on a particular country. As the Internet expands it has become more international and although the bulk of the material offered on the Internet is in English only, there are more and more sites that are in other languages. AltaVista, http://www.altavista.digital.com/, offers a service that will translate WWW pages from English to Spanish, French, Italian, German or Portuguese as well as any of these languages to English.

Electronic mail
The earliest use of the Internet was electronic mail. It was first used in 1972 and for the next decade it was the most common use of the Internet. Electronic mail initially could only be used to send short messages. Today, you can attach computer files which enable you to send data, word processing texts and programs.

In early 1995 we set up with Paul Flinn of USDA-ARS a worldwide mailing list for stored product experts. The goal of the mailing list was to provide a venue for discussion and as a resource for the stored product community. To subscribe, send an E-mail to: almanac@ecn.purdue.edu

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ONLY include the following single line (lowercase) in your message: subscribe stored product mg. To send a message to the group simply E-mail your message to stored product mg@ecn.purdue.edu, and it will be sent to all subscribers including yourself. You have a choice in replying to the message by replying to ALL on the list or only the sender. Additional information on the mailing list can be found at the following web site, http://pasture.ecn.purdue.edu/~granlab/listserv.html.

Government links

All of these sites provide names and addresses of people working in the field of stored products or pesticide safety.

Agriculture and Agri-Food Canada, Cereal Research Centre, http://res.agr.ca/winn/home.html. This site provides pictures and life history data on stored product insects, malathion, fumigation, physical control methods and safe storage conditions.


Canadian Grain Commission, http://www.cgc.xa/mam-e.htm. This site provides extensive information on the Canadian grain trade. It provides many online research and regulatory publications, as well as a quality database.

Canadian Wheat Board, http://www.cwb.ca/. The Canadian Wheat Board is responsible for selling wheat and barley grown in western Canada. The site provides information on payment schedules, grain movement, sales, as well as online publications.

Central Science Laboratory, http://www.csl.gov.uk/navf.htm. CSL is primarily a United Kingdom government-funded laboratory specialising in all aspects of environmental and food safety. Their site provides recent references, an overview of projects and a newsletter on methyl bromide replacements.

CISRO, Stored Grain Research Laboratory, http://www.ento.csiro.au/research/storprod/storprod.html. This site provides information about the programs at the main Australian laboratory working on stored products. It contains online copies of the Newsletter of the Stored Grain Research Letter, the Research Report and Strategic Plan.

Food and Agricultural Organization of the United Nations, http://www.fao.org/. This is an extensive site that covers the mandate of the FAO, statistical databases on food production, food quality (CODEX ALIMENTARIUS: Pesticide Residues in Food) and nutrition, job opportunities and publications. The site is also available in French, Arabic and Spanish.

Information Network on Post-harvest Operations, http://www.fao.org/mpho/. This site is sponsored by the FAO, GTZ, CIRAD, USAID. Its purpose is to act as a venue for discussion and exchange of information on postharvest issues. The site is trilingual, English, Spanish and French. There are photographs, videos, online documents, production data and links to other postharvest databases. This site has just come on line in July 1998, so not the entire site is working, but it already has substantial information available.

Grain Marketing and Production Research Center, http://www.usgmrl.ksu.edu/index.html. This is the site of the main United States Department of Agriculture, Agriculture Research Service laboratory working on stored products. It is an extensive site with information on the programs run by the 12 scientists in the Biological Unit of Grain Marketing and Production Research Laboratory. You can download the Stored Grain Advisor, an expert system for farm grain storage, order reprints, search a database on Tribolium genetics, as well as read short articles on rearing stored product insects and their parasites and research projects. This site provides an idea of the scope of services that can be provided via the WWW.

Grain Inspection, Packers and Stockyards administration, http://www.usda.gov/gipsa/index.htm. This site is the USDA site for food inspection. It provides online document of their commodity grading manual and calibrations for grain moisture metres.

National Institute of Occupational Safety and Health (NIOSH), http://www.cdc.gov/niosh/homepage.html. NIOSH is the USA federal institution responsible for worker-related injuries and illnesses. This site provides some documentation on chemicals for free and some such as bibliographic database for a fee.

USA EPA Methyl Bromide Phase Out site, http://www.epa.gov/docs/ozone/mbrv/mbrqa.html. This site is maintained by the USA Environmental Protection Agency. It provides background info: what is methyl bromide, how it affects the ozone layer, phase out dates for the USA and other countries, online publications on methyl bromide alternatives, extensive links and current news releases.

University links

Bruchid Research at University of London, http://www.bl.rbhnc.ac.uk/bruchid.htm. This site provides information on the biology of bruchids. There are several scanning electron micrographs and links to other researchers working on bruchids.

Department of Entomology, Colorado State University, http://www.colostate.edu/Depts/Entomology/ent.html. This is a general entomology site with news on meetings, jobs, photographs, videos as well as entomological resources on the Internet.
Department of Entomology, Iowa State University, http://www.ent.iastate.edu/. This is another excellent general entomology site with similar information as the Colorado State University site.

Postharvest Document Database, http://www.lib.ksu.edu/depts/issa/phds/. If you are looking for a reference in the postharvest area, this is the best site. It has more than 30,000 citations, many with the abstract.

Purdue University, http://pasture.ecn.purdue.edu/grainlab This site is a cooperative effort of Purdue University’s Cooperative Extension Service, and the departments of Agricultural, Biological Engineering, Entomology, and Botany and Plant Pathology. It contains: information about the research projects at Purdue, online research and extension articles as well as extensive links to other sites on the WWW.

US universities’ pesticides network, http://ace.ace.orst.edu/info/extoxnet/. The purpose of this site is to develop and make available information relevant to extension toxicology. It has general information about toxicology and a searchable database on pesticide toxicology.

**Industry links**

PestWeb, http://www.pestweb.com/ This site is supported by some of the major pesticide manufacturers and is aimed at professional pest control industry. It provides links to many of the companies manufacturing, distributing, and applying pesticides. There is some information on the biology and control of common insect pests, links to discussion groups and recent news releases.

AgriHZ, http://www.agrihz.com This site provides information for the agricultural community, such as commodity prices, travel resources, and recent news releases.

Publishers of World Grain and Milling and Baking News, http://sosland.com/index.html This site provides articles from World Grain and extensive links to other WWW sites.


Publishers of Journal of Stored Product Research and Postharvest Biology and Technology, http://www.elsevier.nl/ This site provides instruction to authors, contact information for editors, and a list of articles since 1995. Since 1997, Elsevier has offered electronic subscriptions for these journals.