The Center

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The Center is a bulletin compiled by WRRC to alert potential partners of technology transfer opportunities.

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Opportunities for Technology Transfer Partnerships with the Plant Mycotoxin Research Unit

PMR researcher Doug Light and visiting ARS researcher Alan Knight, Yakima, WA set up a flight tunnel to test which pear odors attract insect pests in a unique facility at WRRC.
ARS Information Office

The Plant Mycotoxin Research Unit (PMR) of the Western Regional Research Center (WRRC), Albany, CA, performs research to reduce or eliminate mycotoxin contamination of tree nuts (almonds, pistachios, and walnuts), and other crops. Mycotoxins are natural chemicals, made by fungi, that are toxic to humans or farm animals. The U.S. and foreign markets have very strict limits on allowable levels for contamination by some mycotoxins such as aflatoxins. Small levels of contamination can result in rejection of a product and monetary loss.

The main thrust of PMR is to develop ecologically safe methods and to transfer these to growers and to industry. Methods are being developed to reduce mycotoxin contamination of commodities either prior to harvest or during sorting after harvest. Preharvest efforts focus on prevention of fungal growth or on inhibiting mycotoxin biosynthesis. Preharvest control of fungal infection may involve controlling insect pests because insects can feed through protective layers of tree nuts creating wounds within which fungal spores can germinate. PMR research is aimed at understanding and stopping this process. PMR's insect work has also led to the successful development of a lure which attracts both male and female codling moths, a major pest of apples, pears and walnuts.

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U. S. Department of Agriculture

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WRRC Patent Activity

March 2003 - July 2003

Patent Applications Allowed:

May 1, 2003
Serial No. 09/774,810
"Intermediate-Moisture Formed Food Products Made From Partially Dehydrated Fruit and/or Vegetables and Novel Methods of Packing"
USDA Inventors: C. Huxsoll, T. McHugh, D. Olson

May 20, 2003
Serial No. 08/785,716
"Glutenin Genes and Their Uses"
USDA Inventors: A. Blechl, O. Anderson

May 21, 2003
McKeon et al.
Serial No. 09/715,677
"Transformation of *Ricinus Communis*, The Castor Plant"
USDA Inventor: T. McKeon

U.S. Patents Issued:

March 4, 2003
Patent No. 6,528,049
"Novel Bisexual Attractants, Aggregants and Arrestants for Adult and Larvae of Codling Moth and Other Species of Lepidoptera"
USDA Inventor: D. Light

April 1, 2003
Patent No. 6,541,725
"Acoustical Apparatus and Method for Sorting Objects"
USDA Inventor: T. Pearson

April 22, 2003
Patent No. 6,551,559
"Monoclonal Antibodies Against Campylobacter *jejuni* and Campylobacter *coli* Outer Membrane Antigens"
USDA Inventor: R. Mandrell

June 10, 2003
Patent No. 6,576,457
"Fungal Media and Methods for Continuous Propagation of Vesicular-Arbuscular Mycorrhizal (VAM) Fungi in Root Organ Culture"
Inventor: S. Hua

Almonds with protective hulls that can protect them from aflatoxin contamination
ARS Information Office

Recently, PMR scientists identified a group of natural plant compounds capable of inhibiting production of aflatoxin, a mycotoxin of major concern to the food industry. PMR scientists have also identified a number of safe microbes that may be used to control mycotoxin-producing fungi in agricultural settings. In addition to work on mycotoxins, PMR scientists are also working on the fungus that causes Eutypa dieback, a major disease of grapevines and apricots. PMR researchers have identified a number of previously unknown phytotoxic compounds produced by this fungus.

Postharvest efforts of PMR entail developing automated equipment capable of detecting and removing contaminated product from processing streams. Postharvest successes include development of a patented sorting machine that can identify pistachios having a telltale discoloration, a sign of potential aflatoxin contamination. Other sorters have been developed and patented that separate split and unsplit pistachio nuts based on acoustics.

PMR research is expanding to include more agricultural commodities. In addition PMR molecular biologists are developing methods to rapidly screen natural products capable of inhibiting production or detoxifying mycotoxins.

The PMR Unit is seeking industry partners for further development of both pre and postharvest research findings.

To learn more please schedule a visit to PMR or for more information contact:

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