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NORTH AMERICA

1- Radio Waves May Offer a New, Environmentally Safe Pest Control Method

In today's global marketplace, agricultural exports carry the risk of introducing exotic insect pests into new environments, causing major economic losses. Effective pest control methods, such as methyl bromide, unfortunately come with toxic gases and chemicals. New research using radio frequency (RF) treatments as an environmentally-friendly pest control method may provide a new alternative.

To reduce the risk of introducing pests, importing countries or regions impose quarantine for the hosts of targeted pests. This can present major economic implications considering the value of world agricultural exports increased from \$442 billion to \$604 billion between 2002 and 2004, making the international trade of agricultural commodities an integral part of the global economy.

Drs. Juming Tang and Shaojin Wang at Washington State University (WSU) with colleagues at the University of California-Davis and USDA's Agricultural Research Service in Parlier, CA, developed a way to harness electromagnetic energy at RF to eliminate the targeted insect pests.

Thirty percent of U.S. in-shell walnuts are exported to Asia and Europe, where they are subject to quarantine. RF heating characteristics were applied first to walnuts, due to the heat sensitivity of this low-moisture commodity. Using a WSU heating block system, thermal death kinetic models were developed for targeted insects, including codling moth (*Cydia pomonella*), Indianmeal moth (*Plodia interpunctella*), red flour beetle (*Tribolium castaneum*) and navel orangeworm (*Amyelois transitella*).

RF energy generates heat through agitation of bound water molecules in dry agricultural commodities, such as walnuts. This process also generates heat through ionic conduction and agitation of free water molecules in insects. As a result, more thermal energy is converted in insects than in walnuts, which may provide pest control in low-moisture commodities.

RF treatments effectively control insect pests at life stages present in in-shell walnuts without negatively affecting walnut quality or storability. This process is technically feasible for large-scale commercial applications. RF treatments may serve as a non-chemical alternative to chemical fumigants for post-harvest pest control in similar commodities (such as almonds, pecans, pistachios, lentils, peas, and soybeans), reducing the long-term impact on the environment, human health and competitiveness of agricultural industries.

The research results were published in two papers in the latest issue of *Postharvest Biology and Technology* and presented in the new book entitled, *Heat Treatments for Postharvest Pest Control: Theory and Practice*.

The USDA's Cooperative State Research, Education, and Extension Service (CSREES) funded part of this research through the NRI Improved Food Quality and Value program and the Methyl Bromide Transitions program. CSREES advances knowledge for agriculture, the environment, human health and well-being, and communities by supporting research, education and extension programs in the Land-Grant University System and other partner organizations. For more information, visit www.csrees.usda.gov.

Media Contact: Jennifer Martin, CSREES Staff (202) 720-8188

Source: The USDA's Cooperative State Research, Education, and Extension Service (CSREES), 15 January 2008, By Stacy Kish, CSREES Staff,

http://www.csrees.usda.gov/newsroom/impact/2008/nri/01154_radiowaves.html

2- Judge Reverses Methyl Bromide Timeline Ruling Requires Phase-out Plan by Jan. 26

Environmentalists on Wednesday won a battle in their long war to reduce pollution from pesticides used on strawberries and other crops in Ventura County. A federal judge denied a motion that would have given farmers until 2012 to gradually reduce the use of fumigants, including methyl bromide. Instead, U.S. District Court Judge Lawrence Karlton ruled his previous order stood, and the California Department of Pesticide Regulation will have to come up with a plan by Jan. 26 to reduce emissions by 20 percent of 1991 standards.

However, the Environmental Protection Agency still needs to weigh in, and farmers are threatening to countersue, which will inevitably drag the process on for some time. Nonetheless, the groups that started this process cheered Wednesday's decision. "It's a win for public health and a win for decreased pollution," said Mary Haffner of Ventura, a board member of Community & Children's Advocates Against Pesticide Poisoning. Her Ventura group and a number of others sued to have the Clean Air Act enforced to reduce fumigant pollution. That lawsuit resulted in the original court order.

"This is far from over, but we are confident," she said. Fumigants are used to sterilize soil before planting, which leads to a more robust yield. Some of the fumigants escape into the air, causing smog that can lead to lung disease. Fumigants such as methyl bromide are widely used in the county, especially in the strawberry industry, which was valued at \$366 million in 2006.

Estimates of how much this will affect the county's agriculture range from \$11 million to \$120 million.

Victories in the case have ping-ponged between the two sides since it began. In September, the California Air Resources Board said farmers had until 2012 to meet the more stringent guidelines and could slowly phase out the fumigants.

But Wednesday's decision effectively nullified that. Karlton said his ruling was based on jurisdictional issues. The decision lies with the appeals court, which now has the case.

Ventura County Agricultural Association President Rob Roy said it's likely farmers will sue to keep the regulations from taking effect, citing flawed science and a lack of study about what will happen if agricultural land becomes residential property. "The industry will challenge the regulations," he said. Roy said the Department of Pesticide Regulation shouldn't have gone back to Karlton after the ARB decision and merely implemented it without the judge's opinion. A DPR spokesman said the agency will do whatever the court orders.

Farmers have long contended that taking away fumigants would be a death knell to the local industry, leading to a reduction in agriculture and increase in urban sprawl.

But Brent Newell, an attorney with the Center on Race, Poverty & the Environment, which is representing the environmental groups, disagreed. "Just because someone can't use fumigants on strawberries doesn't mean they can't grow anything," he said. "The industry is crying foul."

Source: Ventura County Star, 13 December 2007, By Zeke Barlow,
<http://www.panna.org/resources/documents/VenturaStar20071213.pdf>

SOUTH ASIA

3- US Asks India to Relax Pest Control Rules on Pulses

New Delhi (PTI): The US has asked India to relax pest control guidelines for import of pulses so that American suppliers can export the commodity to the South Asian nation.

"Unless the fumigation (pest control method) requirement is removed or the waiver extended, pulses exports from North America to India will be in jeopardy, which could further exacerbate the Indian pulse supply situation leading to a further significant rise in domestic pulse prices," the US Department of Agriculture said in its latest report.

India's imports of pulses increased to 2.8 million tons in 2006-07, while domestic production has remained stagnant at around 14 million tons. Yellow dry peas, chick peas and moong dal accounted for a major share of imports.

The share of US pulses in India's imports, has grown to three per cent in 2006 from less than 0.2 per cent in 2003, the USDA said, adding there is potential for export of pulses to India provided prices are competitive.

The US has also been exerting pressure on India to ease phytosanitary rules on wheat imports from American firms.

The fumigation requirement for imported pulses under India's Plant Quarantine Regulation is likely to affect imports from the US and from Canada in future, USDA said.

Fumigation is a method of pest control that fills an area with gaseous pesticides to suffocate or poison the pests.

India had in 2004 made it mandatory that import of peas and chickpeas from all origins should comply to fumigation by 'methyl bromide' at the port of loading to protect spread of plant parasites like stem and bulb nematode and pea cyst nematode into domestic production.

Source: The Hindu, 20 January 2008, <http://www.hindu.com/thehindu/holnus/001200801201652.htm>

4- Role of Trap Crops in Integrated Pest Management

Trap crops are the plants that are grown to attract insects or other organisms to protect target crops from pest attack. The principle of trap cropping rests on the fact that virtually all pests show a distinct preference to certain crop stage.

More economical

Farmers are being motivated to utilise trap cropping because the cost of chemical pesticides and the number of treatments required are so high that more economical ways have to be developed.

Additionally, the pests have often evolved resistance to commonly used pesticides, which requires some alternative control strategies.

Must be attractive

Yet another function of trap crop is their use in attracting natural enemies of pest insects. The essential feature in trap cropping is that the trap crop must be more attractive to the pest than the main crop.

It should occupy a small area and should be established early or later or along with the main crop. Some important trap crops commonly used in pest management include bhendi/okra in cotton to trap bollworms and marigold at the border of the field.

Sesamum is commonly being used as a trap crop to attract diamond back moth in both cabbage and cauliflower. Two rows of sesamum for every 25 rows of cabbage or cauliflower should be planted to trap the pest.

Castor or sunflower

In groundnut, castor or sunflower can be used to attract leaf eating caterpillar on the border of the field.

In tomato, marigold or cucumber is commonly used as a trap crop for every 15 rows of the main crop to attract tomato fruit borer.

In case of field beans, chrysanthemum acts as a trap crop against leaf minor.

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Source: The Hindu, 3 January 2008,

<http://www.thehindu.com/thehindu/seta/2008/01/03/stories/2008010350111600.htm>

5- FPRDI Lumber Kiln Helps Control Global Spread of Pests

Quezon City (3 December) -- The pine wood nematode, a microscopic worm carried by sawyer beetles, entered Japan in the early 1900s and has since killed large tracts of the country's pine trees. It entered Missouri in the US in 1979 and until now continues to decimate pines in several mid-western and eastern states.

The Asian long-horned beetle, on the other hand, entered the US in 1996 and wiped out many hardwood trees in Chicago and New York. Also native to Asia, the Dutch Elm disease caused by the fungi

Ophiostoma ulmi was introduced to Europe after World War I. By causing discoloration in the tree's sapwood, it has eliminated most majestic American elms in Europe's urban areas and continues to kill many trees each year.

How did these pests manage to cross the seas, settle and wreak havoc in new lands? Thru wooden packaging materials (WPM) that are used to move commodities around the world.

To remove the risk of pest spread, the International Plant Protection Convention (IPPC) in 2002 required that all WPMs be stamped with the IPPC mark after they have undergone methyl bromide (MB) or heat treatment (HT).

MB, which is hazardous to human health, is 60 times more damaging to the ozone layer than chlorine and is responsible for 5-10% worldwide ozone depletion. It also renders wood non-recyclable.

In 2005, the Department of Science and Technology's Forest Products Research and Development Institute (FPRDI) in a joint project with Nippon Express Philippines Corp. (NEPC), found that HT using the Institute's 1,000-board feet capacity furnace-type lumber dryer (FTLD) is a technically and commercially feasible way to eliminate insect pests and diseases infesting wooden pallets - although re-infestation could occur under favorable conditions.

FPRDI's Forester Robert A. Natividad explains, "HT requires that the pallet's wood core be treated at 56oC for 30 minutes. We found in our study that the optimum HT time was 5 hours and average operation cost was Php 6.66 per pallet, 46% cheaper than MB fumigation. Today, six of the country's biggest producers of wooden pallets use the technology."

Researcher Wency H. Carmelo adds, "By doing away with MB fumigation, we help protect the environment. We also help the wooden industry- which makes about 14.5 million units a year- comply with the European and Japanese markets' demand for heat-treated pallets."

"With HT, the pallet industry has found a safer and cheaper way to get the IPPC mark on its products,

something any exporter who relies on WPMs can not afford not to have." (FPRDI)

Source: Philippine Information Agency, 3 December 2007, By: Rizalina K. Araral ,
<http://www.pia.gov.ph/?m=12&r=&y=&mo=&fi=p071203.htm&no=15>

6- More Efforts to Protect Grain Crop

A senior grain official said on Friday that the country is exploring more ecological and effective ways to manage its grain storage in a bid to ensure safe resources for consumption and production.

As part of a project with the United National Industrial Development Organization, China has already stopped using bromomethane as a pesticide in its grain storage facilities, as it damages the ozone layer and leaves a residue in foodstuffs, He Yi, director of the department of distribution and science and technology development under the State Grain Administration (SGA), said.

Tan Bengang, an SGA official who oversaw the project to replace the chemical, told China Daily on Friday: "We now use phosphine fumigation instead of bromomethane to control pests at our storage depots, especially those in southern China which are most prone to damage by pests."

Phosphine is more environmentally friendly and less likely to leave residues in foodstuffs, experts have said.

Meanwhile, authorities are experimenting with other physical methods of controlling pests in grain depots, including using special inert dust and simulating low-voltage oxygen environments in which the pests cannot survive.

"However, we have yet to implement these methods in grain depots," Tan said.

According to official figures, the proportion of grain lost at storage depots is about 0.2 percent. However, the figure can be as high as 5 to 10 percent for individual grain producers due to pests and mildew.

Finding effective ways to reduce the amount of grain lost by producers and establishing greener storage methods are two of six areas authorities want to address with the aid of international cooperation.

The other areas are the development of modern grain logistics, enhancing the refined production of grain and edible oils, building quality control and rapid examination systems, and setting up a modern information system for grain circulation.

As the world's largest producer, China's grain harvest is expected to exceed 500 million tons this year.

With such high volumes being produced, much of the crop has to be put in storage, sometimes for as long as five years. As a result, minimizing losses and ensuring green storage methods are the top priorities for the nation's grain authorities.

Agriculture authorities in other countries have also expressed an interest in cooperating with China on grain technology.

Peter Hewitt, the agriculture counselor with the Australian Embassy in China, said: "Grain safety is a global issue, not just a bilateral issue.

"We hope we can improve the sharing of information, technology and capacity building not only on a bilateral basis, but also on a multi-level basis."

After a visit to laboratories at the Academy of State Administration of Grain on Friday, Hewitt said: "China is a world leader in grain technology research, especially in storage and transport."

Source: China Daily, 15 December 2007, By Wu Jiao, http://www.chinadaily.com.cn/china/2007-12/15/content_6323395.htm

PACIFIC ISLANDS COUNTRIES

7- Cold Treatment Opens Doors for Citrus Exports to Japan New South Wales Department of Primary Industries

Citrus growers in eastern Australia now have greater access to the Japanese market as a result of research by the NSW Department of Primary Industries (DPI).

Trials undertaken at NSW DPI's Gosford Horticultural Institute have proven that cold storage at temperatures of 2° or 3°C can effectively kill Queensland Fruit Fly in citrus stored for 14 to 16 days.

Cold treatment at these temperatures provides greater market flexibility and reduces problems associated with cold chilling such as internal fruit and skin damage.

This new cold treatment is the Australian citrus industry's preferred method and Japan formally accepted it after the Federal Government advised them of the results of extensive replicated trials conducted at Gosford and in Western Australia.

At Gosford, post-harvest researchers led by NSW DPI's Andrew Jessup examined the effect of the cold treatment on QFF on citrus sourced from the Murrumbidgee Irrigation Area (MIA), Victoria's Sunraysia and South Australia's Riverland regions.

In WA, researchers from the WA Department of Agriculture examined the impact of the same treatment on the Mediterranean Fruit Fly (MFF) in local citrus.

(QFF is endemic to the east coast of Australia, extending inland for 600 kilometres or more, while MFF is found in pockets around major townships in WA.)

Mr Jessup says the QFF, *Bactrocera tryoni*, is more suited to tropical and subtropical conditions and is more susceptible to cold treatment than the MFF.

The trials show that QFF were killed after 14-16 days storage, compared with 16 to 20 days for MFF.

The previous cold treatment at 1° C, if not managed correctly can cause chilling injury to fruit.

Mr Jessup said that "the new higher temperatures for dis-infestation help to conserve fruit quality and are easier to maintain in-transit.

"They also provide an alternative to methyl bromide fumigation, which is toxic to citrus and shortens its shelf life. Methyl bromide is also being phased out in Australia because it is ozone depleting", he said.

The research is expected to assist in gaining market access for Australian citrus to other countries in the northern hemisphere.

Further information on the research trials is available from the New Zealand Journal of Crop and Horticultural Science, 2007, Vol.35:39-50.

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Source: State of New South Wales, 27 November 2007, <http://www.dpi.nsw.gov.au/aboutus/news/recent-news/agriculture-news-releases/new-cold-treatment>

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FEATURED READING

>>> [Handbook on Critical Use Nominations for Methyl bromide](#) (December 2007)

FEATURED WEBSITE

>>> [Agricultural Resources Center & Pesticide Education Project](#)

<http://www.pested.org/involved/organic.html>

>>> [Vital Ozone Graphics - Resource kit for journalists](#)

"Vital Ozone Graphics" is designed to be a practical tool for journalists interested in developing stories related to ozone depletion and the Montreal Protocol. Besides providing a basic introduction to the subject, this publication is meant to encourage you to seek further information from expert sources and to provide you with ready-made visual images that can be incorporated into your article.

<http://www.vitalgraphics.net/ozone/about/index.html>

FEATURED EVENT

>>> [Second Announcement for the European Turfgrass Society Conference](#), Pisa, ITALY, 19-20 May 2008.

>>> [Indicative list of TEAP/Technical Options Committee meetings for 2008](#) (decision [XVII/47\(2\)](#))

>>> [Indicative list of Ozone Secretariat meetings for 2008 and 2009](#)

The United Nations Environment Programme Division of Technology, Industry, and Economics (UNEP DTIE) OzonAction Programme provides R U M B A as a free service to promote information exchange and stimulate discussion about methyl bromide phase out under the Montreal Protocol. The goal of R U M B A is to provide information, stimulate discussion and promote co-operation in support of compliance with the Montreal Protocol. With the exception of items written by UNEP and occasional contributions solicited from other organisations, the news is sourced from on-line newspapers, journals and websites. The views expressed in articles written by external authors and the views expressed by emails sent to the forum are solely the viewpoints and opinions of those authors and do not represent the policy or viewpoint of UNEP. While UNEP strives to avoid inclusion of misleading or inaccurate information, it is ultimately the responsibility of the reader to evaluate the accuracy of any news article. The citing of commercial technologies, products or services does not constitute endorsement of those items by UNEP.

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