

# Look What's Out There

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<http://www.wvu.edu/~agexten/>

## Tomato Bacteria May Benefit Human Infection Cure

Research at the Boyce Thompson Institute for Plant Research centers around knowing which bacterial proteins cause infection, which may lead to a mechanism that will stop tomato speck bacteria from injecting them into plant cells. "Just understanding fundamental processes about how the bacteria infects hosts will give us new targets to be able to go in and interfere with the infections," said Greg Martin in a mid-August interview. *Pseudomonas syringae*, which is ubiquitous and causes tomato speck, is related to a bacterium that causes illness in humans. Tomato speck usually doesn't wipe out crops, but it is persistent. Farmers rely on copper-based sprays to kill the bacterium, but it is becoming resistant. In humans, *Pseudomonas aeruginosa* attacks those with weak immune systems, causing symptoms such as rashes and nausea. Patients with the lung disease cystic fibrosis can suffer heart failure if they become infected. *Pseudomonas aeruginosa* also can cause ear infections and meningitis, which inflames tissue in the brain and spinal cord.

Doctors are faced with the same problem as farmers - the bacteria is becoming resistant to the antibiotics they depend on to kill it. Dennis Ohman, a microbiologist at Virginia Commonwealth University, said he and other researchers can use the sequenced genome of tomato speck to learn more about the human infection. "They're very similar organisms," said Ohman, who is on a team studying the genome of *Pseudomonas aeruginosa*. "A lot of the same factors that were prevalent in plant disease were there in human disease as well. The human disease and plant disease may not be all that

different." Plant scientists found there are more than 5500 genes, or proteins, in tomato speck. Of those, as many as 50 are key in spreading infection, Martin said. The bacterium "has an amazing way of injecting them into the host cell," he said. "It develops a little syringe-like structure, pokes a hole into the host cell, and then it starts injecting these proteins." The findings were published on August 20, 2003 in the journal *Proceedings of the National Academy of Sciences*. (Royal Society News, 8/22/03 via Chemically Speaking and AgNet).

## Eating Plants May Protect Against Asthma

Eating genetically modified plants could one day be used to "immunize" sufferers against asthma, according to Australian scientists who have engineered a new type of lupin. Dr Simon Hogan, a molecular scientist at the Australian National University in Canberra and colleagues report their research in the current issue of the *Journal of Immunology*. Hogan and team have developed a genetically- modified lupin that they report protects against asthma in laboratory mice. The asthma protection is based on the principle that very low doses of an allergen can be used to induce a protective immune response in the body. This "tolerance" ensures that when the body is exposed to a larger dose of the allergen, it is not triggered into an overactive immune response that can lead to inflamed airways and ultimately an asthma attack. The same principle underlies vaccination by injection. So far, experiments with plant-based vaccines - using plants such as bananas, potatoes and tomatoes - have been for treatment of infectious diseases, and this is the first time that a plant-based vaccine has been used to protect against allergy. (Australian Broadcasting

Corporation Online 8/26/03 via Chemically Speaking and AgNet).

## Pesticide News

\* The American Water Works Association has notified the EPA that it believes the immunoassay method selected for monitoring atrazine in water is flawed. The specific concern is that water samples exposed to chlorine dioxide will interfere with the detection of atrazine. Consequently, steps to dechlorinate the water must be taken. The AWWA also argued that the trigger for atrazine regulation should be 12 PPB, rather than 37.5 PPB. (*Pesticide & Toxic Chemical News*, 8/4/03).

\* Beginning this fall, U.S. border inspectors will be trained to look for "agroterrorism," defined as the deliberate import of harmful pests or plant and animal diseases. Commissioner Robert Bonner, U.S. Customs and Border Protection, told members of The National Plant Board last week that border agents will cross-train agricultural experts to share each other's expertise. The NPB is an organization of state plant pest regulatory agencies. (*CropLife America Spotlight*, 8/29/03).

\* The EPA has approved drift language for azinphos-methyl products.

In case you have forgotten the details, here are the crops lost and remaining for azinphos-methyl registrations.

These crops were deleted from the label: Alfalfa, Beans, Birdsfoot trefoil, Broccoli, Cabbage, Cauliflower, Celery, Citrus, Clover, Cucumbers, Eggplant, Filberts, Grapes, Melons, Onions, Pecans, Peppers, Plums & Dried prunes, Quince, Spinach, Strawberries, and Tomatoes.

These crops will remain on the label until 2005: Caneberries, Cotton, Cranberries, Nectarines, Peaches, Potatoes, and Southern Pine Seed orchards.

These crops will remain on the label indefinitely: Almonds, Apples & Crabapples, Blueberries,

Brussels sprouts, Cherries, Nursery Stock, Parsley, Pears, Pistachios, and Walnuts (Via Georgia Pest Management Newsletter, Volume 26, No. 9).

\* Look on the web for information that can help schools improve indoor air quality. Pesticides are an important part of this picture. Pesticides are important tools to manage indoor pests; droppings, shed skin, and other debris from pests contribute to a variety of health problems. However, pesticides and inerts can become airborne and become part of an indoor air quality problem. This EPA web site offers advice for schools to improve indoor air quality through design innovations.

<http://www.epa.gov/iaq/schooldesign/>

\* The EPA has announced the cancellation of all diazinon registrations held by Syngenta. Syngenta requested the cancellations some time ago, and the comment period ended recently. The EPA received only one comment, and it supported the cancellation. (EPA Pesticide Program Updates, 9-9-03)

This announcement does not mean that diazinon will be unavailable. Other companies will continue to market diazinon products for the uses that were not eliminated (e.g., home uses) by earlier regulatory actions.