



Research to Application

UI professor finds non-toxic help for growers in agriculture, nurseries

A new pesticide registered recently by the U.S. Environmental Protection Agency has an unusual property: it's non-toxic.

The pesticide's inventor, Don Crawford, a University of Idaho microbiologist and director of the Environmental Science program, said that is the beauty of putting bacteria to work against fungi. The targeted fungi cause extensive damage to turf and greenhouse, nursery, and agricultural crops. The pesticide is a specific strain of bacteria discovered and developed to attack a wide spectrum of root-damaging fungi.

Since official EPA action late last year allowed use of the strain as a fungicide, production has soared at a small Moscow spin-off company, Innovative Biosystems, formed to produce the strain by the late businessman Bill Kowalski.

Houston-based Natural Industries now markets Actinovate® SP, the commercial product, and shepherded it through EPA registration, a five-year effort. In January, Crawford and Kowalski's early work produced a bonus. A closely related product, Actino-Iron®, won approval months earlier than anticipated.

In all, Kowalski's effort to bring the product to market took more than a decade. His vision became reality three years after his death. His son Matt, company president, now operates the business. "Without their support and perseverance, this product would not have reached the market," Crawford said.

The specific strain that Crawford isolated and patented with graduate student Hyung-Won Suh in 1995 is known as *Streptomyces lydicus* WYEC108. It caught their attention because it enhanced plant growth when added to soil, and it fought common, economically damaging fungal diseases of plants. Now Crawford is studying bacteria found among sagebrush roots as sources of new antibiotics for both humans and plants.

Contact Crawford at donc@uidaho.edu.

Mustard meal—fertilizer with pesticide punch

Students and scientists at the UI College of Agricultural and Life Sciences (CALs) are testing mustard meal as a fertilizer with a pesticidal punch. A CALs student organization, Soil Stewards, added the meal to soil used to organically grow 16 vegetable crops, some 60 varieties, at UI's Parker Farm last summer to test its effect on soil nitrogen.

The effort yielded fresh produce that sold well on campus, including to UI food services, and benefited a local food bank.

Researchers also followed up on earlier work that showed mustard supplied more nitrogen for plant use than the meal alone would indicate.

UI soil scientist Jodi Johnson-Maynard will dig deeper into how nitrogen moves from meal to soil to plant as part of a team that won a \$613,000 USDA grant to study mustard meal as a pesticide, adding value to a hot crop.

Contact Johnson-Maynard at jmaynard@uidaho.edu

DID YOU KNOW?

85 PATENTS by UI scientists were issued since 1976. Of those, 32 were developed within the College of Agricultural and Life Sciences

*Source: Idaho Research Foundation, 2005

Wastewater treatment partnership advances with new lab

Coeur d'Alene-based Blue Water Technologies and the University of Idaho plan to begin operating the Hayden Wastewater Research Facility in March with the Hayden Area Regional Sewer Board.

The \$1 million facility, underwritten entirely by private funds, is the first in the nation capable of large-scale testing at an operating wastewater plant.

Blue Water is developing efficient water treatment technologies based on the Vandal-ION™ process patented by UI researchers to remove phosphorus and arsenic from wastewater and drinking water supplies. Pilot-scale testing of phosphorus removal at cheese and potato processing plants in Idaho and elsewhere already show promising results, say Blue Water officials.

UI environmental chemist Greg Möller also developed patent-pending processes to remove heavy metals, organic contaminants, and selenium from water, all of which Blue Water Technologies has licensed as well. Contact Tom Daugherty at tdaugherty@blueh2o.net