



Environment

UI-tested technology turns dairy wastewater pollutant into fertilizer

Phosphorus—prompter of unwanted algae blooms in Idaho waters—is the element livestock producers overwhelmingly want to reduce in their animal manures. It's the key target of the nutrient management plans that Idaho dairy producers must write.

In cooperation with North Carolina State University, Washington State University, and Multifarm Harvest of Seattle, UI Extension waste manager engineer Ron Sheffield has field-tested a technology that removes dissolved phosphorus from dairy wastewater and produces a concentrated, granular, slow-release fertilizer called struvite.

On the Si-Ellen Dairy in Jerome, Sheffield has validated the technology's ability to turn 70 to 80 percent of dissolved phosphorus into struvite, or ammonia magnesium phosphate, which has a fertilizer rating of 4-20-0.25. "This is the most promising phosphorus-removal technology that has been developed for livestock operations," says Sheffield. "The wonderful thing about it is that it produces a granular, non-sludgy, non-odorous, and fairly valuable byproduct." The research team is investigating whether struvite can be blended with commercially available fertilizers or certified for use on organic farms.

This year, with funding from the Idaho Dairymen's Association, Sheffield will take the phosphorus crystallizer on the road to test its effectiveness on effluent from anaerobic digesters and on potato- and cheese-processing wastewater in Idaho and other states. (Phosphorus is also being regulated in land-applied wastes from food processing facilities.) Sheffield also wants to determine how small an anaerobic digester can be coupled with the crystallizer to efficiently remove the greatest amount of phosphorus.

Contact Sheffield at rons@uidaho.edu.

Pest management plans aid Idaho agriculture

With a federal emphasis on limiting Americans' overall exposure to pesticides, producers of agricultural commodities must now work together to decide which pest problems pose crucial threats and which pest-management approaches are essential to bringing in a crop.

UI Extension is central to those efforts. Over the past three years, pesticide program coordinator Ronda Hirnyck has led Pacific Northwest working groups for potatoes, small grains, sugarbeets, and alfalfa and clover seed. Together, growers, indus-

try representatives, processors, regulators, and university personnel have hammered out pest-management strategic plans prioritizing each industry's needs.

The benefits are swiftly unfolding: new pesticides have been approved or short-listed, designated research has attracted federal funds, and joint efforts to secure funding for other high-priority research have been launched.

Contact Hirnyck at rhirnyck@uidaho.edu.

DID YOU KNOW?

50% Idaho farms with annual sales of \$500,000 or more; 63% had sales of less than \$10,000. Total Idaho farms: 25,017.

*Source: 2002 Idaho Census of Agriculture

New tests find diseases without killing fish

Animal scientists at the UI's Hagerman Fish Culture Experiment Station have received a patent on a genetic test that screens salmon and trout for bacterial kidney disease without harvesting fish organs on the chopping block.

The "quantitative polymerase chain reaction" test identifies disease-causing agents in living body fluids—rather than disease antibodies in necropsied organs. Team leader Madison Powell says it delivers diagnoses within 4 hours, rather than 2 to 14 days for older tests. A second patent is pending and a third is being pursued for tests for other fish diseases.

Keith Johnson, fish pathologist supervisor at the Idaho Department of Fish and Game, says non-lethal QPCR tests of endangered species "would allow us to separate infected from uninfected fish and to plant fish into appropriate lakes."

Contact Powell at mpowell@uidaho.edu.

