

Colorado State University Identifies Natural, Plant-Produced Herbicide

FORT COLLINS, Colo. — Scientists have speculated for decades that spotted knapweed is able to spread over large areas because of a secret weapon — an ability to release a chemical that kills surrounding plants.

Until now, they have never been able to put their thumb on the phenomenon, but recently a Colorado State University horticulture professor identified and isolated the chemical for the first time.

What's more, they are using the chemical as a completely natural and environmentally friendly herbicide to kill other weeds.

The discovery and isolation of the chemical, called catechin, within spotted knapweed may revolutionize the war against weeds for homeowners and farmers.

"For years, scientists have talked about spotted knapweed releasing this chemical, but they couldn't find it in the soil because it was almost impossible to separate from all the other

compounds that naturally occur in soil," said Jorge Vivanco, assistant professor of horticulture biotechnology at Colorado State. "We looked for it in the plant. Spotted knapweed releases catechin into the soil through its roots."

Now that catechin has been identified and isolated, and scientists can capture the chemical in the Department of Horticulture's laboratory, Vivanco and a team of researchers at Colorado State are investigating a wealth of applications for the chemical. They have discovered that the weed produces two types of catechin that are the same chemical compound but the mirror image of each other in structure. One has antibacterial properties and the other acts as a natural herbicide.

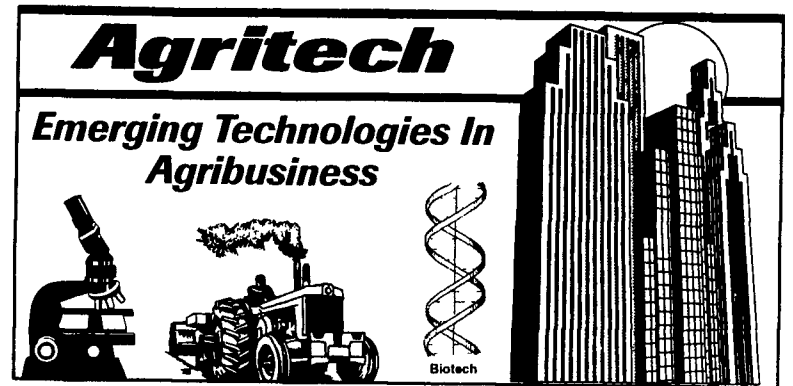
The chemical acts as a natural herbicide to most other plants, although grasses and grassy-like plants, such as wheat, display some resistance to it. This discovery alone holds much potential. For example, it may mean

that specific amounts of catechin could be used in lawns to kill weeds without killing grass or on wheat without damaging the crop. The chemical also is environmentally friendly and has existed in the soil for decades.

Catechin kills other species of knapweed, such as diffuse knapweed, which also is a noxious weed. It is fatal to spotted knapweed only when manually inserted into its cells in a laboratory. In nature, spotted knapweed cells do not permit catechin to reenter the plant once the chemical is produced and released into the soil.

"It is a clever root to produce, secrete, and protect itself from this chemical," Vivanco said. "There are only small amounts of catechin inside the root at any given time; it secretes it as it produces it."

The Colorado State team has found that spraying catechin on



plants or adding it to soil is as effective as 2,4-D against pigweed, lambsquarters, and other common weeds. Catechin usually kills cells within the plants in an hour and kills the plants in about a week, but the team still is investigating the length of time that it remains active in the soil to prohibit plant growth. The researchers are working with commercial companies to make spotted knapweed catechin spray available to consumers within a year or two.

Colorado State researchers also are working to transfer the genes that produce the natural

chemical into other plants to give them a built-in defense mechanism against weeds.

Perhaps one of the most promising applications of the discovery is the fact that spotted knapweed has such a complex defense mechanism. Spotted knapweed immediately begins to produce and release chemicals at the slightest hint of a threat or stress. Just tapping its leaves automatically activates the plant's chemical response.

The funding for these projects comes from Colorado State University's Invasive Weeds Initiative.

CTB Celebrates 50 Years In 2002

MILFORD, Ind. — CTB International Corp., a leading designer, manufacturer and marketer of systems for the poultry, hog, egg production, and grain industries, is celebrating its 50th anniversary in 2002. The company's anniversary theme is, "Celebrating the Past — Leading Into the Future." Based in Milford, Ind., CTB was founded as Chore-Time Equipment in 1952.

In the past 50 years, CTB has grown to have worldwide annual sales of over \$230 million and to have approximately 1,100 employees in 13 facilities in the U.S., Europe and Latin America. CTB also has a worldwide distribution network that sells and services its products. The company's primary brand names include Brock®, Chore-Time®, Energy Miser®, Fancom®, Roxell®, Sibley® and Staco®. Its common stock is traded on the Nasdaq® Stock Market under the symbol CTBC.

A variety of activities are planned as part of the company's celebration of this milestone in its history. Early in the year, a 2002 calendar was produced highlighting old and new CTB products. Other planned activities include a festive event scheduled for the morning of

June 29 at the company's Milford facilities, and recognition of some of the individuals involved in the founding and establishment of CTB.

CTB has focused its product portfolio on equipment that aids in the efficient production of animal protein (poultry, meat, pork and eggs) and that helps to facilitate long-term storage of grain.

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Sale Reports

SCHNADER SALE

An 11-acre tract of woodland sold for \$90,000 June 27 at a public real estate auction conducted at Fivepointville Fire Hall for Carl W. Schnader, Kramer Mill Road, Fivepointville. Samuel Hoover, Denver, was the buyer.

Kline, Kreider and Good Auctioneers, Bowmansville, conducted the sale.

HUNSICKER SALE

A five-unit investment property at 461 Godfrey St., Rehrersburg, Berks County, sold for \$89,000 June 28 at a public auction of real estate conducted for Betsy F. Hunsicker and conducted by Kline, Kreider and Good Auctioneers, Bowmansville.

The buyer was Joseph Giorgio, Rehrersburg.

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