'Waste' ups yield on crops

Chemical firms' problem becomes plus for farmers

By DICK WRIGHT
Advocate staff writer

When a test field limed with waste from a pesticide manufacturing process yielded almost twice as much sweet corn as the untreated plot, the experimenters knew they had something hot on their hands.

"Hot" as in fertile, not hot as in radioactive. The stuff they limed the test field with was ReCal II, an industrial by-product of making the herbicide atrazine.

It comes from Ciba-Geigy Corp.'s plant at St. Gabriel, and it has been approved for use by the Louisiana Department of Environmental Quality.

ReCal II is now spread on several Baton Rouge area farms. County agent John Roy said farmers want more of it. Ciba-Geigy has plenty.

Occidental Chemical Corp., downriver at its Convent plant, has a similar waste by-product from chlorine manufacture under Department of Environmental Quality review. Occidental calls its product Oxyslurry Lime.

Representatives at both plants said converting the waste, which accumulates by the ton, into agricultural use benefits the companies as well as farmers.

Spreading it on farmland relieves companies of an expensive environmental cost, they said. Dumping most of it in landfills for a fee is the alternative.

Ciba-Geigy is giving ReCal II away, even hauling it to area farms at no charge.

ReCal II is recycled calcium carbonate, a kind of lime. It is treated at the Ciba-Geigy plant to remove salts and hazardous heavy metals that would harm cropland.

ReCal II and its related by-product ReCal I, a granular lime, boost the "sweetness" of soils by one or two numbers on the pH scale, which is a measure of soil acidity and alkalinity.

Seven on the scale is neutral. A reading of 6 to 6.5 on the pH scale is ideal for many field crops, Roy said.

East Baton Rouge Parish soil outside the Mississippi River flood plain tends to test at 5.2 to 5.4 on the pH scale, or too acid for the best growth of some crops, Roy said.

ReCal II does what agricultural lime does - it raises the pH of soil — but it does it faster, Roy said.

"You don't have to wait six months like you do with agricultural lime," Roy said. "In other words, it's a hot material."

"With a good liming regimen you get better fertilizer utilization," Roy said.

Untreated sweet corn land in the test produced 1,900 dozen ears of corn per acre. The ReCal II-treated land produced 3,500 dozen ears an acre, Roy said.

Good results also were obtained on field crops.

Farmers Hardee Brian, left, and Ronald Gremillion, center, examine recycled calcium carbonate from Ciba-Geigy with county agent John Roy, at Brian's farm in East Baton Rouge Parish.
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corn, Roy said. Roy said East Baton Rouge Parish farmer Ronald Gremillion harvested 167 bushels of corn an acre from land limed with ReCal II. "On these soils it is unheard of," Roy said. (Higher corn yields on alluvial soils are not unusual, Roy said.)

ReCal II has also been used on pasture and soybeans with good results, Roy said.

Getting the ReCal I and II cleared as safe to use involved not only officials and technicians at Ciba-Geigy, but also LSU agronomist Joe Sedberry, the Louisiana Department of Agriculture and Forestry and the Louisiana Department of Environmental Quality. It involved extensive analyses of the industrial materials for salts and heavy metals and other possible contaminants, and analyses of field soils for pH factors and plant tissue after ReCal applications, Roy said.

The DEQ has approved use of ReCal II through 1995, with stipulations it receive annual reports on its use and notification of any changes in the manufacturing process. Roy said he expects there will be further tests at that time.

Steps to use the material on farms began eight years ago, and both greenhouse and field tests were conducted. DEQ gave full clearance last year.

Roy's role as program coordinator working with farmers made him a winner this year in the National Association of County Agricultural Agents/Ciba-Geigy Crop Production Program. Part of the prize is a tour of environmentally sound agricultural practices in Switzerland.

Ciba-Geigy's senior chemical buyer John Bruce said in a statement Ciba-Geigy was taking 20,000 to 80,000 pounds of solids to landfills a day.

"Now we have been able to reduce that amount and recycle a former waste into a usable product that benefits farmers," Bruce said.

According to Ciba-Geigy, farmers have received 5,575,160 pounds of ReCal II in 1992, and 1,760,984 pounds were sent to a cement kiln.

ReCal II is a solid waste from the neutralization of hydrochloric acid with lime, according to Ciba-Geigy. ReCal I is granular lime that does not break down in solution, the company said.

Solids that can't be used as ReCal II are shipped to a cement kiln to be used as raw material limestone, the company said.

Ciba-Geigy produces about 2,600 tons of ReCal II a year and about 600 tons of ReCal I a year.

Oxy-slurry Lime, the Occidental product, is still in the testing stage and has not been cleared for general use by the DEQ. An Occidental representative said the company hopes to sell Oxy-slurry Lime as another product of its Convent plant. The plant generates about 3,700 tons a year, according to Occidental.

Roy said that while alluvial soils don't ordinarily need the "sweetening" with lime that upland soils do, he believes ReCal II will prove beneficial on sugarcane land. He said the high rates of nitrogen applied to cane fields lowers the pH reading in the soil, and ReCal II should be useful in countering that, he said.

The program tested in East Baton Rouge Parish, now expanded into surrounding parishes, proved the benefit of ReCal II, he said.

Roy said Ciba-Geigy has paid costs of the program, including costs of the tests, some of which are expensive.

"We proved substantial yield increases, there are no detrimental effects and there are no heavy metals," Roy said.

"It has been a very rewarding program," he said.