

Compare and Contrast:

Market-bound products handle their tasks differently

By MARK LESLIE

Nearly a decade of research has been done on the pioneering subsurface injection machines. So, what are the differences?

Prof. Mark Sears of the University of Guelph in Ontario said, "I think they're comparable."

Most all force water, at high pressure, into the ground, causing probes that look similar to aeration holes.

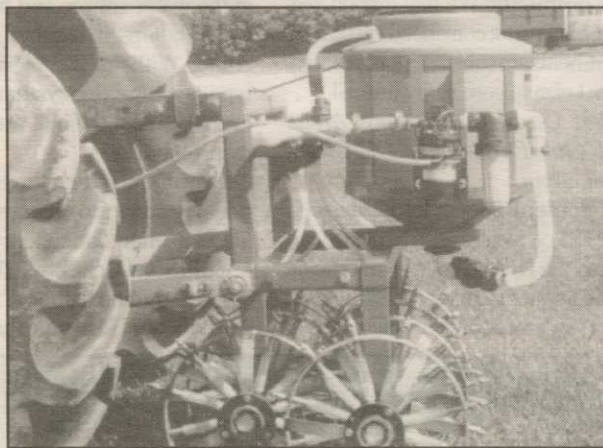
Rogers Innovative's Liquid Pulse Injector (LPI) is "a Cadillac unit," Sears said. "You can set all the variables. It's larger [than the Toro HydroJect—48 versus 33 inches]. It runs on hydraulic pressure and you need a good-sized tractor. It also has a 300-gallon tank, so you don't have to carry a hose around like the HydroJect.

Calling the LPI "big and a bit cumbersome," Sears noted that Rogers is working on a smaller unit that mixes chemicals into water.

Units on the Pattison Brothers Agro's Spoke Injector, according to President Rick Pattison, can be joined to make it anywhere from one to 50 feet wide.

Rogers President R. Barry Rogers said his LPI pulses liquid electronically, compared to the mechanical operation of the HydroJect and Spoke Injector.

"That gives us flexibility in pressure, plus makes it easier to adjust the length our valves are on as we go along," Rogers said. "You have to dig in [the ground] and find out the depth the water has gone. That will vary according to type of soil, but you can regulate



Pattison Bros. Agro Ltd.'s prototype for its subsurface injection machine

it by the pressure and by the size of the jet stream, which we can reduce as low as 13/1000ths of an inch."

The HydroJect is set up so that the operator must use most of the volume. The LPI volume is adjustable. The Spoke Injector operates on 20 to 50 pounds pressure.

"Our unit is electronically controlled by a digital computer," Rogers said. "In the future it will be made to sense the color of the grass and adjust the application."

He said the LPI can put down insecticides at one gallon per 1,000 square feet, or go as high as 28 gallons of water per 1,000 square feet while aerating.

"The more water you use, the more aeration, fraction and lift in the soil," he said.

The LPI can speed along as fast as 3.4 mph, which equates to 72,000 square feet per hour injecting pesticides. It can pump nine A gal-

lons per minute.

Ransome America's Liquidator was birthed in the LPI. Rogers licensed it to Ransome to manufacture self-propelled models, something the Rogers plant is not equipped to do.

Marvin Jaques, director of engineering and technology at Ransomes America, was reluctant to discuss specifics about the Liquidator.

It will use the same chassis as that used on Cushman's deep aerator, Jaques said.

Jaques said the Cushman/Ryan prototype using a colter is "on our palette of things we're looking at and working on. There are two distinct mar-

kets: the golf course and large turf areas; and the home lawn maintenance. The requirements are different for the products and what they do. You can break that up into liquids and granular. We're trying to address the needs of everyone."

Pattison's Spoke Injector is



Rogers Innovation's Liquid Pulse Injector at work.

Manufacturers trying to perfect systems to inject below ground

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Department of Environmental Biology has done tests with the HydroJect, Spoke Injector and LPI and says there are two areas of "great potential" for these machines.

"One is that [subsurface injection] gets the pesticides right at the grubs, where they live, without having to leach it through the thatch. If we can cut our rates by half, it's great.

"The other benefit is, in Ontario we have strict regulations on putting a product on turf. This way we can inject it below the surface to avoid surface runoff and human contact... It's more efficient and it's more environmentally sound."

Sears discounted worries that injecting chemicals may increase the potential for polluting ground water, saying that most emulsifiable concentrates are immobile.

Meanwhile, Dr. Harry Niemczyk, professor emeritus at Ohio State University, who has been studying subsurface injection in cool-season grasses since the early 1980s, believes all the hard work and high finances may have no pay-off in results.

"We're not convinced that any kind of point injection system will work," he said. "We think subsurface placement is the most likely to work. The injection system is the least likely to be useful. This is a very, very precise placement. You have to get the grubs where they live—where the thatch and soil meet—one-half to three-quarter-inch deep in cool-season grasses."

Niemczyk, working with project leader Dr. Dave Sheilar at OSU, said tests have been moderately successful placing liquid and granular material through a Cushman/Ryan

prototype for an unnamed machine. Using an eight-inch colter disc, the device makes a slice in the turf and a tube behind the colter delivers the material into the ground.

"We have worked with this extensively, and our success with the colter system has been limited at best. And I don't think we can do a better job of placing it. The results are not yet as good as with broadcast surface treatment," Niemczyk said.

"Theoretically, it should work. But we're dealing with a living organism. And how they behave when they encounter the chemical is another matter. It's like shooting ducks. You either have to hit the animal on the nose or else. If you place it below the grubs you've missed them."

Saying tests show that pesticides do not move vertically or laterally, he said, "The pesticide doesn't come to the grub. The grub has to come to where the pesticide is. We're talking about a grub population at the thatch soil interface that can range from two or three to 15 per square foot."

Yet, Niemczyk did not discount manufacturers' efforts.

"Someone may come up with a system that works," he said. "I wouldn't discourage anyone anybody who has an idea, for a point injection system or whatever."

Marvin Jaques, director of engineering and technology for Ransomes America, said if subsurface injection is perfected, "The big gain will be in the public. We hope for commercial success, but we also hope it will evolve into an environmentally sound product. That way, everyone wins."

Deaths illustrate importance of protection

TEXARKANA, Texas—The importance of workers being provided—and wearing—protective clothing and equipment when working in confined spaces was emphasized after the recent deaths of three local workers overcome by toxic fumes from an underground storage tank.

One man was overcome by fumes as

they cleaned the tank, the others when they attempted rescue.

Edward K. "Red" Hayse, Texas Workers' Compensation Commission chairman, said the three men and four others who recently died in Texas while working in confined spaces might still be alive had they been wearing respirators or safety harnesses.

Halifax the venue for Canada's annual conference

Continued from page 11

Course Superintendents Association of America President Bill Roberts. Peter Hope, past president of Royal Canadian Golf Association, will be the moderator.

A special companions program and special nights will add spice to the program, which includes the Grey Cup party and opening reception Sunday, Nov. 29, a lob-

ster party Monday, skating party and East-West hockey game Tuesday, and banquet with dancing Wednesday.

Also, the 1992 Superintendent of the Year, Thom Charters (See story, page 12), will speak, broadcaster Danny Gullivan will deliver the keynote address, and General John Cabot Trail will entertain at the closing banquet.

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