

The Black Box

An Iowa contract applicator has improved his company's image and his spraying accuracy by using a sprayer controller. This "black box", Rod Foster thinks, could change the lawn care industry.

The sprayer controller "black box" may become to the turf market what it has become to agriculture, more a necessity than a luxury.

Rod Foster is partner with his father, Verne, in Turf Control, based in Waterloo, IA. The younger Foster started the business three years ago. The company now employs six people.

Turf Control's client list includes schools, hospitals, churches and residential accounts covering about 2,000 acres. Foster says he does about 75 percent commercial work and 25 percent residential.

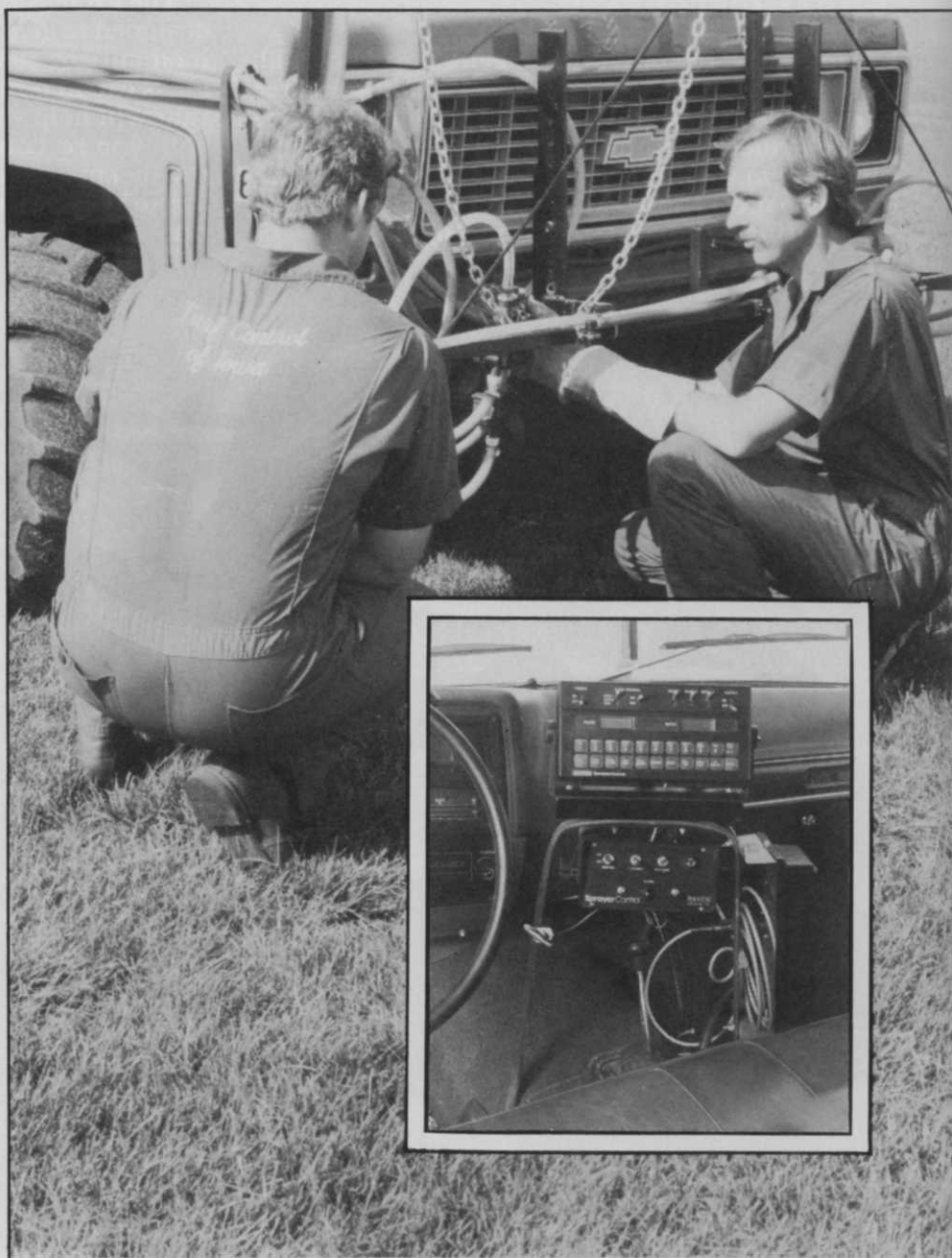
Foster's company is involved in several turf care markets, including residential lawn care, football field maintenance in Eastern Iowa, care of commercial properties such as hospitals, schools and local businesses, custom application for golf courses and many other accounts.

He contends the application accuracy he achieves with his controller is helping build a reputation of high competence for his company.

"I'm in exact compliance with the label and minimize application errors caused by inaccurate equipment calibration," Foster explains. "With the kinds of results possible, I think more people in the turf care industry may soon be using them.

"With this guaranteed accuracy, Foster says he can project a more professional image, he is able to maintain better cost control and he can even serve the environment by guarding against misapplication.

Foster, left, and Mike Wienands adjust the pneumatic no-drip nozzles on their unit. In inset, controller system is mounted within easy reach in the cab of the pick-up sprayer.





Foster's unit sees most of its use on commercial accounts of one to one-and-a-half acres.

In the two seasons Foster has used the electronic sprayer controller system, his average percentage of application error has been just less than three percent.

"On level terrain with few or no obstacles such as a football field, I can come within .03 percent of the target rate," he claims. The University of Nebraska says that application errors of plus or minus 10 percent are considered acceptable for any spray application.

"The accuracy I achieve with the controller assures the results I demand when I bid the job," Foster says. "I can guarantee my work with confidence. There have been times when I have bid jobs higher than the competitors, but the accuracy sells the job."

Foster used a Raven SCS 400 system in 1983 before upgrading to the SCS 440 this season. Both units are controllers, providing automatic control of application rates, maintaining the target flow regardless of vehicle speed.

Virg Huebner, chief engineer for Raven Industries explained the dif-

ference between monitors and controllers.

"The monitor only determines what is happening and tells the operator, usually with a digital display showing the gallons per acre (GPA) being applied, what it sees. The monitor does not adjust the flow rate for the operator.

"The controller, however, meas-

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ures what is happening and uses a motor-driven control valve to adjust spray pressure and compensate for changes in ground speed," Huebner said. "These units thereby maintain the selected application rate at all times."

Controller systems basically con-

sist of only four components:

- a console keyboard, the "brains of a system
- a flow meter, measuring actual flow vehicle speed
- a speed sensor, measuring actual vehicle speed
- a control valve, motorized for fast pressure adjustment.

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The flow meter and speed sensor send their information to the console, which relays the proper adjustment information to the control valve.

"Any deviation from the pre-programmed GPA is adjusted for by the control valve which adjusts the flow pressure in order to keep the actual GPA constant," Huebner says.

A spray unit equipped with the sprayer controllers sees most of its use on commercial accounts of one to one-and-a-half acres and more. He thinks it's worth using the unit on any tract of land where obstacles can be worked around, simply because of the assurance of an accurate application.

Another aspect Foster tries to stress to customers is environmental. He believes misapplication is a threat to the entire fertilizer and chemical industry as environmental agencies become more concerned with the number of individuals who do not apply within the guidelines of the product labels.

"As an operator, the biggest environmental threat of course, is misapplication," Foster contends. "I push the advantages of using electronic controllers from an environmental standpoint because it is the only sure way of documenting that you are within environmental and labeled safety guidelines. I can be positively sure that I'm putting on legal labeled rates at the proper intervals." **WT&T**