



The newer Stihl backpack sprayers, including the SR-450 shown here, are unique in that the chemical is injected into the air stream of a device that's basically a leaf blower, and creates a mist. Photo courtesy of Stihl.

DOWNSIZING SPRAY OPTIONS:

Good Things in Small Packages

BY DAVID RATTIGAN

Originally, Bob Houser's wheel-mounted IPM Caddie was a tool for his own use. Then people started asking him about it. Now it's part of a new business venture.

The IPM Caddie is a wheel-mounted, portable spray system that includes a gas-powered pump and a 5-gallon tank on a cart. "It's almost like a gas-powered backpack, but it's on wheels," Houser says. "That's the easiest way to explain it."

When he designed it, Houser was looking for something that would give him more options and allow him to switch application tools.

"I'm very selective in what I do," he says. "Different materials are better at treating certain insect and disease problems than others, and in certain situations, a different application method is better than another one. This gives me all those options, but I also wanted to be able to do it very efficiently. Just having a regular backpack doesn't allow for that. Nor does constantly mixing in our mix tanks on our truck, dragging out and recirculating the hose - that's very time consuming and labor intensive.

So, wanting to have options but to do so efficiently, I knew I needed something different. The IPM Caddie is part of a system I use on my truck that makes it very versatile and efficient."

In the industry, smaller units - and "smaller" is a relative term - include battery-powered backpacks, units that can be wheeled into the backyard and units that sit on the back of a pickup truck.

They join traditional spray trucks and newer spray vans that are designed like rolling crime-scene-investigation labs. Advocates say they save time and offer better efficiency than the traditional, large spray truck.

"Initially, I did have a backpack on a handcart, and that's what I was pulling around, and thought, 'I still can't switch tanks,'" Houser says. "Then I designed the Caddie, so I could switch tanks back and forth. I mix up a product and, if I need a different one, I can just take that tank out and put in a different tank, but I don't have to waste that product that I already have mixed. I can use it on the next property or one later in the day.

"I preferred that over a backpack sprayer," recalls Houser, who is in his 33rd year in the tree care industry and runs Houser's Plant Health Care, a seven-year TCIA member company based in Manheim, Pennsylvania. It gave him options. "I can use a fertilizer probe, different spray guns or my injector with it - and it's all quick connect."

Over the past two years, Houser founded PHC Systems and has been learning the

Offering effectiveness and efficiency, smaller sprayers are having a big impact on the tree care industry.



Green Pro's Njekt Soil Injection System utilizes a 4-gallon backpack that includes a special fitting and a 5-foot connecting hose that substitutes for the one-gallon interchangeable tank shown here. Photo courtesy of Green Pro.



The IPM Caddie is a wheel-mounted, portable spray system that includes a gas-powered pump and loader. "It's almost like the backpack, but it's on wheels," says Bob Houser. Photo courtesy of Bob Houser.

manufacturing business with the IPM Caddie as his lead product. In doing so, he's part of an industry trend moving to more plant-health maintenance and to smaller spray units.

Ten-year trend

"I'm going to say this is a trend over the past 10 years," says Caleb Boullion, market manager for sprayer equipment with

Altec Spray Equipment, a 35-year TCIA corporate member company based in Birmingham, Alabama. Boullion defines "smaller" as anything less than 300 gallons.

"When it comes to rights of way, companies are looking for a more targeted and less invasive approach to vegetation management. You do not see as much broad-spectrum spraying anymore.



Altec's SK55 is one of its small, skid-mount sprayers that come in sizes from 55 to 110 gallons. They are commonly used for pest control, burn control and right-of way-applications. Photo courtesy of Altec Spray Equipment.

Spot treatments, backpacks and, on a small scale even drone technology, are being used.

"There's a lot more sensitivity these days to chemicals being used on pretty much anything," he says. "You saw it 10 years ago with the trans-fat trend, trying to get that out of certain foods. You're also seeing people not wanting to spray high up in the trees anymore, because they perceive the drift coming off of that as being dangerous to their health. Whether it is or not, it's a perception, and in this world, perception is everything.

"A lot of companies are very sensitive to the perception that's out there now. So one, if they can go to the job site and their truck doesn't look like it's full of chemicals, that's a good thing. People don't see these tubs of fertilizer. Then, as far as spraying high in the tree, they're trying to get more targeted systems, even down to the root-injection systems that people are getting into."

European origins

"I remember when I started at Stihl, there were only a handful of people in the company who even knew how it worked," Stihl product manager Brian Manke says of the company's backpack sprayer, a popular niche product he says is technically best described as a mist blower. "I don't know what the sales were, but I can tell you from my field experience, when we sold one and somebody had questions, it was a challenge to find somebody who knew anything about it.

"That started to change about 10 years ago, and within the last couple of years it's just exploded."

Manke traces the change to the emergence of Lyme disease, which put people at risk in their own backyards, and to concern about mosquito-borne diseases. With Stihl, a 25-year TCIA corporate member company, being based in Virginia Beach, he notes that employees are well aware of mosquitoes in the backyard.

In tree care, Manke has noticed a growth in active management of trees and adoption of horticultural practices. "People don't want their trees to die

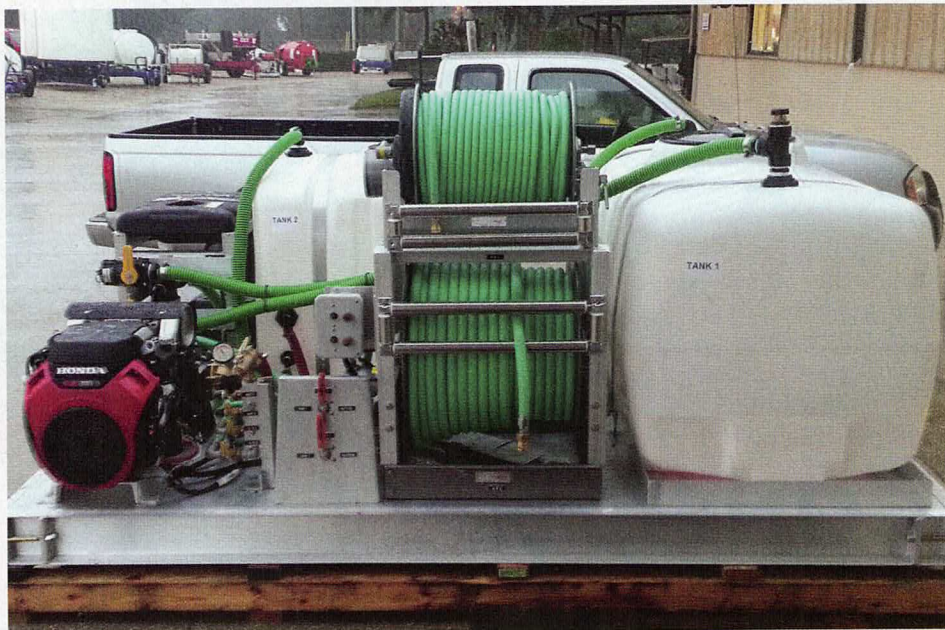
from some invasive bug that came in on a boat," Manke says. "They want that nice tree in their yard."

The backpack sprayers were originally designed and developed for use on tree farms in Europe, which manage their trees differently than in the United States, according to Manke. There's a more targeted approach and different mindset, he says. "If you have a tree that's sick, you treat the sick tree. You don't treat the whole orchard."

The Stihl backpack sprayers, particularly the SR-450 and SR-200, are unique in that the chemical is injected into the air stream of a device that's basically a leaf blower, he explains, and creates a mist.

"It's a completely different way of applying the chemical versus a traditional sprayer, where you've got the liquid that you're just spraying out under pressure," Manke says. "In this case, your chemical is being mixed in to a high-velocity, high-volume air stream, and that's why it's so good for trees. Now you're getting that chemical into the tree canopy and under the leaves, getting the coverage you need for it to be effective."

That targeting of the application is key to the efficiency. Manke notes that there is an environmental and financial benefit to using chemicals with restraint. In



Chemical Containers' skid-mounted spray system includes passenger-side hose reels and a direct-fill system. Photo courtesy of Chemical Containers.

his words, "It's the tool for the job."

"These backpack sprayers/misters are like the top-handled chain saw," Manke says. "They have a very definitive purpose, and there's really no substitute. You're not going to go up in a tree and do pruning with a traditional chain saw. And just like with the mister/sprayer, there's really no other way to effectively treat a tree using any other spraying method. There's nothing else that's going to be as effective or as good a tool for the job."

Shifting to maintenance


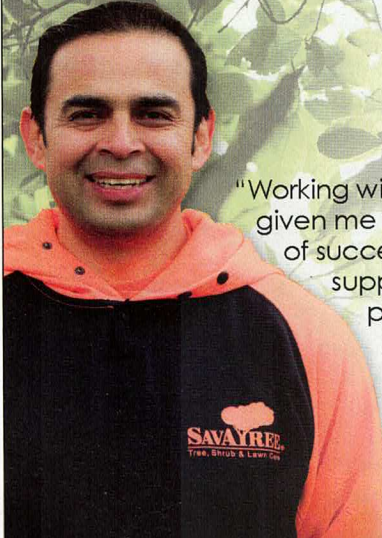
"This whole industry has taken a turn," says Tom Duffy, a North Carolina-based independent sales representative of Chemical Containers, Inc., a seven-year TCIA corporate member company based in Wales, Florida. Duffy recalls a time when spraying brought the need for insurance. "The little guy said, 'I don't want to get involved in that stuff. I've got enough liability because I have tree climbers; now you want me to add on the liability of spraying chemicals. Let the big guys do it.'"

"That went on for quite a while, and then all of a sudden the landscapers said, 'You know, I've got 30 clients - or 50 clients - that I've turned over to this tree care company to spray these trees. That's business I'm giving away. If I can keep my truck on the property for a longer time, why don't I get into the spray business?' Now the smaller guys are coming back, big time."

Duffy sees a link between the shift in business focus to plant health care and the trend of larger companies buying up small companies.

"I contend that a lot of them are being purchased because of their plant health care," Duffy says. "It's like a TruGreen (formerly TruGreen-ChemLawn). If I have a private company that's doing

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The future is here. Drones are currently being used for spraying in the agriculture industry and are finding their way into maintenance of rights of way as well. Photos courtesy of www.yamahaprecisionagriculture.com.

lawns and I have 150, 200, 300 customers, TruGreen's going to buy me." In the same manner, he suggests, larger tree care companies are buying smaller ones for their plant health care customers.

When is the right time to buy a piece of application equipment? When the cost of that equipment is more than offset by increased efficiency and/or effectiveness.

Duffy provides an historic example: "The applicator used to be out there fertilizing a tree with a bag of fertilizer and a steel bar - I call it a crowbar. They'd punch a hole in the ground and fill the hole with fertilizer. That was obviously

labor intensive. Eventually the applicator said, 'Man, I'm getting tired of punching these holes and lugging a heavy bag of fertilizer. I'll do it with liquid.' So they buy a 100-gallon sprayer and put in whatever the mixture is and punch a hole in the ground with the needle. They squeeze the lever and the liquid goes into the ground, taking the fertilizer with it. Now, instead of doing 10 trees a day, they're doing 60 trees a day. And that's how one builds a strong plant health care business."

There's still a place for larger equipment, Duffy says, though he acknowledges that the old image of a 1,000-gallon spray rig sitting on the back of an open flatbed

with chemicals dripping from it is probably not going to make a comeback.

Duffy's company offers fully enclosed trucks and also smaller skid-style sprayers that are no wider than 48 inches and no longer than 8 feet, so they can fit into the back of a pickup truck. The truck parks in the driveway, and the operator rolls out a 300-foot hose to treat the trees.

That model is often used by companies transitioning to the larger, enclosed truck, Duffy says.

"If I have a skid-style sprayer in a pickup truck, hopefully what I'm doing is building up my plant health care business," Duffy says. "Eventually, when you have enough business volume, the fully enclosed truck would be the way to go."

PHC in the 21st century

"Although the plant health care industry may have grown somewhat thus far in the 21st century, the real change has been in the plethora of new chemicals and new equipment that are gradually transforming how PHC is done," says Gary Maurer, president of Green Pro Solutions, LLC, a 28-year TCIA corporate member company based in Jonestown, Pa. "For instance, without the development of Quest's Pentra-Bark, trunk sprays would still not be possible.

"In my opinion, a backpack sprayer is the most profitable piece of equipment in your PHC-management arsenal, at least since the introduction of bark sprays. Nothing can be faster and more profitable than treating a large tree for disease with less than a gallon of spray in under five minutes, perhaps under one minute for smaller trees."

The backpack sprayers, soil injection units and smaller spray units cost "a fraction of what a sprayer costs, use a fraction of the chemicals, use a fraction of the water and costs a fraction in labor cost," Maurer says, noting that they are not necessarily the tool for volume applications, but are more than enough for the scale of many jobs.

"Backpacks are not just for spraying. The Njekt Soil Injection System utilizes an upgraded, four-gallon backpack that includes a special fitting and a 5-foot





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"A start-up company or an existing tree care company that wishes to create a plant health care department can buy all of the equipment needed for under \$5,000."

- Gary Maurer

connecting hose that substitutes for the one-gallon interchangeable tanks to provide greater volume.

"How about battery-powered backpacks?" says Maurer. "Jacto's battery-powered units have exceptional battery life versus earlier models. They have five different pressure/volume settings and can be calibrated to match your walking speed. Jacto builds the only backpack with a diaphragm pump, so it is



Green Pro's Sprinter spray van carries all of the spray and injection gear, along with multiple tanks and 500 gallons of water. Photo courtesy of Green Pro.

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appropriate for use with biologicals.

"Backpacks have come a long way!" Maurer says.

"Next might come equipment that injects various products directly into the trunk of the tree. There are a number of manufacturers for this type of equipment," says Maurer. "Or, the next item might be a powerful mist blower that can spray 30 to 40 feet high, servicing ornamentals with foliar applications."

Plant health care is a profit area that a company can get into without a large investment, Maurer says. "A start-up company or an existing tree care company that wishes to create a plant health care department can buy all of the equipment needed for under \$5,000.

"Twenty-first-century plant health care incorporates cutting-edge products and the most advanced and efficient equipment to provide the highest-quality services to the consumer, while reducing the use of chemicals, minimizing the need for water and making the PHC business segment much more profitable than any other tree service," concludes Maurer.