

A four-foot transparent pressure hose with braided reinforcement connects the tank to the 24-inch-long plastic spray wand. Both a flat spray tip and a cone tip are standard, and the disk can be removed from the latter to shoot a straight stream. For my uses, I prefer the flat tip, because it produces a slightly wider spray. Since the fine spray only projects a couple of feet, I purchased a brass extension tube that gives me a five-foot spray wand. By holding the wand overhead, my seven-foot reach plus the five-foot wand and two feet of spray means that I can wet down leaves as high as 14 feet.

The tank on this model is easy to fill. The four-and-a-quarter-inch opening is covered with a knurled cap that is easy to open even with gloves on. Inside is a fine-mesh removable strainer that helps prevent anything from getting into the tank and clogging the pump or nozzle.

Clogging in sprayers is commonly caused when you are using a wettable powder, which can settle out of suspension after being mixed with water. With a backpack sprayer this is much less likely to happen—indeed, it has never happened to me—because the contents keep sloshing as you walk and work. And though the Solo's cap is vented, a check valve prevents any of the liquid from ever splashing onto the user's neck.

The most interesting discovery I made when I began to use the Solo knapsack sprayer was how little pesticide I needed to control the plum curculio. The books I'd consulted said I'd need 10 gallons or more per apple tree, but I found that as little as two or three did the job. The reason for this, I suspect, is the degree of control that you have when you use the spray wand at such close range. Using it like a long paintbrush, I found that I was systematically painting the tree, first from the outside spraying in, and then from the inside spraying out, coating both sides of every leaf and branch and yet using very little liquid overall.

Since my intention has always been to do as little spraying as possible, most of the time my equipment sits idle. It's a simple matter to rinse out the tank of this particular sprayer and pump it to dryness. I have never done anything more. During the winter I hang it on a line of hooks in an unheated barn. In more than a decade of repeated use, nothing has ever cracked, broken, or clogged—which points to either my good fortune or the sprayer's superior design.

The knapsack sprayer, however, has one great drawback: Its weight rests firmly on one's shoulder. After years of sweating inside my spray suit, it occurred to

me that I might hate spraying a little less if I shed the weight. So I went out and purchased a **Mantis Spray Mate**. This two-wheeled cart has a 12-gallon yellow polyethylene tank mounted between 16-inch tires. A single handle allows the cart to be pushed or pulled; a trailer hitch is an optional accessory. When empty, this sprayer weighs 50 pounds; filled, it weighs 100 more. The pump mounted on the exterior of the tank is a double-diaphragm, intermittent-demand pump, which is powered by a 12-volt rechargeable battery and generates 50 psi. Fifteen feet of reinforced clear-plastic hose connects the pump to an 18-inch brass spray wand with a curved tip and an adjustable nozzle.

The Mantis tank is calibrated in gallon increments and has a six-and-a-quarter-inch opening that is easy to fill. No strainer is included for this opening, but a shutoff valve and a removable in-line strainer are located underneath the tank. To prime the pump you remove the nozzle and direct the spray wand back into the filled tank, letting the pump recirculate the liquid for several minutes until the lines are purged of air.

Starting the pump is as easy as pulling the on-off knob. The motor runs until pressure is built up in the line, then it shuts off. As you spray, the pump automatically cycles on and off as needed to maintain sufficient pressure. The pump will empty five tankfuls, or 60 gallons, before the battery needs recharging, whereupon you have to plug the battery charger into a wall outlet, connect its lead to the battery, and leave it charging for eight hours.

While the sprayer's advertised range is 25 feet, I never succeeded in shooting more than 20, even with the coarsest of streams, so I presume the height of the user is factored into the claim. To reach the tops of my trees with a fine spray I modified the spray wand by taping it and the attached hose to a seven-foot stick. While this left me with a much shorter connection to the sprayer, it enabled me to put a fine spray up where I wanted it.

The Mantis Spray Mate's great virtue is that it takes the weight of the spray solution off your shoulders, and, as an added benefit, spares you from steady pumping. Now and then, you do have to stop and shake the tank vigorously to keep the contents agitated and prevent wettable powders from clogging the diaphragm, but this is light work. The sprayer's chief drawback is the repeated need to charge the battery. I don't mind charging it during the growing season,