

# A Controlled Curtain



**Left:** The PowerPull shade system moves over stationary lines. **Middle:** The PowerPull system fabric is designed to resist UV rays, heat and chemicals. (Photos courtesy of Wadsworth Control Systems) **Right:** The EnviroSTEP environmental control unit controls the PowerPull curtain and other greenhouse equipment. (Photo courtesy of Barlow Flower Farm)

Together the EnviroSTEP environmental control unit and the PowerPull energy curtain reduced energy and labor costs and gave these growers some peace of mind.

## By Meghan Boyer

**S**hade curtains have a lot of potential in the greenhouse: They can retain heat, cool temperatures and even reduce energy costs. And that's when they're working alone. Some growers find that shade curtains are even easier to use and more beneficial when linked to an environmental control system. Wadsworth Control Systems produces the PowerPull shade system and the EnviroSTEP computerized control unit. Working together, the two products may reduce energy and labor costs and could give growers peace of mind.

The PowerPull shade system can be installed in new constructions or retrofitted in existing greenhouses. The curtain moves over stationary lines; its fabric is designed to resist UV rays, heat and chemicals. Growers I spoke to operated the curtain with the EnviroSTEP computerized control unit.

The EnviroSTEP is a self-contained computer that controls a single zone. It has 12 outputs designed to control most greenhouse equipment along with temperature, humidity, energy curtains, lighting, carbon dioxide, irrigation, misting and fog. Each piece of equipment has its own settings. Some of the parameters growers can program include on/off temperature settings, dehumidification settings, wind speed and direction, light intensity and accumulation, precipitation and carbon dioxide.

The overall automatic control that the EnviroSTEP provides is the main benefit growers found of having the PowerPull — and other greenhouse equipment — linked to the EnviroSTEP control system. Stephen Barlow III, general manager of Barlow Flower Farm, Sea Grit, N.J., described the feeling as "peace of mind." Speaking of the EnviroSTEP and PowerPull working together, he said, "It's controlled automatically, so therefore, I don't have to actually go in and close the curtain. If I step out, I know that it's going to close at night to keep the heat in, or it's going to close when the sunlight is too bright for our conditions." Without the control system, a worker would have to ensure the curtain is moved at the correct times.

The computer is designed to move the curtain

based on limits growers input. Vince Beall, facilities manager for Bell Nursery, Burtonsville, Md., described how it operates: "The EnviroSTEP actually ties into the controls for the shade curtain. We can operate any control basically by light of day, time of day, temperature and humidity; just about anything." In this way, growers can customize how their equipment works.

### Lowered Costs

Growers found the two systems saved labor in two ways. Jack Weatherford, president of Weatherford Farms, Stafford, Texas, found his workers saved time because they no longer had to manually shade the plants. "You have your labor savings because in some of our other houses we would actually go up and whitewash the roof," he explained. Similarly, Beall described having workers climb up on the roof to install the old shade cloth over the top, a practice no longer needed with the PowerPull.

Barlow feels the shade curtain and control system combination is what saves money on labor. He found workers don't have to stay late or come in early to manually open or close the shade cloth. He said, "It's been labor saving for us, because I would have to have myself or my grower make sure that we either come in extra early to make sure the curtain was open or closed or stay later to make sure the greenhouses were kept at the right temperature."

Growers also found the curtain and control system saves on energy costs. Beall installed one section of curtain more than a year ago and found it helped with heating costs, which is why he installed another section last December. Beall feels the curtain gives his grower more control over the environment by creating a smaller area to heat: "When you try to heat a house, you know where most of the heat ends up: in the roof. Plants are either on the floor or on tables, so you end up pumping out more heat, which continues to rise. Our grower has more control since the environment he is heating is the smaller, more controlled

area." The curtain itself provides a layer of insulation, trapping heat below it and cold air above it while decreasing the overall space needing heat.

Weatherford and Barlow also feel the two products save energy. Weatherford has two curtains: a black-out and shade system. He uses the blackout curtain in the winter as a heat-retention curtain because it is thicker and doesn't let much air through. "I would say it definitely helps, because it keeps your heat in," he said. And even though the system has not been through a complete energy cycle, Barlow still describes the savings he sees as "tremendous."

### Getting Good Help

Installing and using the PowerPull and EnviroSTEP didn't give the growers we spoke to many headaches. Weatherford found using the controls easy after first becoming familiar with the computer system and entering the parameters for his greenhouse: "It's pretty simple, but it takes a few steps. There's other parameters, because you're not only dealing with the inside temperature, but you're dealing with the outside temperature. You're also dealing with the light readings outside, and there's lots of other things that you have to take into consideration." Fortunately, learning to use the new system only took about a week.

Overwhelmingly, the growers found that if a system problem or concern ever arose, the people at Wadsworth Control Systems are easy to deal with and efficient. The times he's had to call them, Barlow has always been helped promptly: "Not once have I ever not been able to work out the problem or not gotten a person on the phone right away." The customer service is also a selling point for Weatherford. He said, "They've always been really good to us, and that's one of the reasons we've stuck by them."

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