

# Gearing Up a Greenhouse for Summer



*Preparing your operation for summer can boost growing potential and overall profitability.*

**BY JESSICA BATCHELOR**

**A**s summer approaches and temperatures start creeping back up, many greenhouses may need some climate adjustments.

Many greenhouse growers overlook the work that is required prior to the summer

because they attempt to make growing season preparations in late winter or early spring. However, growers will find that preparing their greenhouse for the summer can boost their growing potential and overall profitability. To

optimize the summer crop, growers should consider the state of their shade curtain, the installation and maintenance of an evaporative cooling system, and the performance of their insect screening.

## SHADE

Growers know how easily the sun's radiant energy can build up inside a greenhouse during the summer, sending temperatures soaring past the desired range for crops. The need for shade cloth is based on the climate and the type of plants being grown, and is not always a necessity. However, if the need for shade is apparent, growers should consider the percentage of shade that needs to be blocked and select from white, metallic or black color options.

As a general rule of thumb, a shade percentage of 30 to 50 percent is ideal for vegetables, while 80 to 90 percent is best for protecting people. Experts recommend the middle range of 40 to 60 percent shade density for most plant varieties. The density of a shade curtain can be made different from section to section based on crop requirements or energy savings, but if the application is especially unique, consider a custom shade curtain.

The first step in installing shade cloth is to take accurate measurements of the roof's width and length, and the distance from the top of the roof to two-thirds of the way down on each side. Shades can be placed on the inside or outside of the greenhouse and drawn either from gutter-to-gutter across the width, or from truss-to-truss down its length. Make sure the cloth connects to the greenhouse frames and does not overhang on the sides. Once the shade is in place, it can be tied to ground stakes, a ribbon board or a custom mounting system inside. Keep in mind that shade curtains should be easy to remove in the winter and easy to put back on in the spring.

Greenhouse specialist Will Kacheris, who has extensive experience designing greenhouses for GrowSpan, encourages first-time shade buyers to work with a supplier that has a representative who will help the client find the best solution. "Don't guess and buy something off a website," he cautions. "Ask an

expert or nearby grower what they use, and more importantly, if they avoid a certain approach to shading."

If it is in the grower's budget, Kacheris suggests investing in automated shade curtains to reduce future labor costs.

## EVAPORATIVE COOLING

The hot, arid summer atmosphere can be brutal on plant life, both indoors and outdoors. An easy way to tackle this yearly challenge is through an evaporative cooling system.

Popularly referred to as water wall or cooling pad systems, they provide the most cost-efficient way to reduce plant stress during hot days and optimize plant growth, all at a fraction of the cost of an HVAC system. They require only a water



# AmericanHort®

---

## Plug & Cutting

---

### CONFERENCE

*Seeding smarter solutions for better performance...*

The road to better performance starts at the  
AmericanHort Plug & Cutting Conference

The event for plant producers and growers from across the country. Find the newest and best strategies, technologies, and techniques in the world of plugs and cuttings.

#### Professional Development

Recognized for years as the leading educational opportunity for both advancing and experienced growers.

#### Production Tour

Get up close and personal with two of the top 100 growers in the U.S. Tour both Metrolina Greenhouses and Rockwell Farms.

#### Biocontrols for Propagation Workshop

Learn the biocontrol agents that can be used on your young plants, what pests they control, and best application practices.

**REGISTER NOW**  
[AmericanHort.org/Plug](http://AmericanHort.org/Plug)

**September 17–19, 2018** | Sheraton Charlotte Hotel | Charlotte, North Carolina



#### Plug & Cutting: An AmericanHort Experience for Growers

Perform better, grow faster, and prepare for the future as a member of AmericanHort, the green industry's leading association. Join us at the 2018 Plug & Cutting Conference, the premier event for young plant producers and growers, and see the latest and greatest in strategies, technologies, and techniques in the world of plugs and cuttings that can help your business perform at its best. Join us, you'll dig it. [AmericanHort.org/Join](http://AmericanHort.org/Join)



Installing screens helps prevent insects from entering the greenhouse and damaging plants.

source and a standard breaker panel to operate. Because they are completely sealed, they do not need any supplementary internal plumbing or heavy duty wiring.

These systems cool and moisturize the air simultaneously, so plants don't need to be watered as often. Most plants benefit from some humidity in the air, and workers in dry climates will find the increased humidity makes it a more enjoyable atmosphere.

Installing an evaporative cooling system requires some building experience, because it needs to be built into the structure's wall.

"Evaporative cooling walls work best with a shutter or louver system installed on the outside of the pad," Kacheris elaborates. "This protects the pad from direct UV exposure, directing the cool, moist airflow upwards and off the floor of the greenhouse, keeping cold air out during the winter months."

For those with an evaporative cooling system already in place, it's important remember that mineral deposits and other buildup can begin to clog the cooling pad. It's recommended to have coolers serviced twice a year, once before the cooling season and again in the middle of the summer. Water from inside the water tank should be changed regularly, and it's worthwhile to clean the outside pads on a monthly basis with a gentle pressure washer. This keeps algae and pests away and helps extend the life of the system. To remove hard stains, use a vinegar and water solution and make certain the tank is dry and free of any vinegar residue before using the unit again.



**High quality lamps and complete lighting systems. All from one source: BLV!**



- Get maximum yield with the HORTURION HPS lamp 2100  $\mu\text{mol/s}$
- Extremely efficient MH lamp, ideal for enriching secondary metabolites for the pharmaceutical industry
- Produced in Europe



Kacheris relays the importance of confirming that the shutter or louvers are opening and closing properly. "Checking daily on the float valve in the sump of the evaporative cooling wall can prevent 'sticking' of the level controls and prevent flooding or drying out of the pad," he states.

### INSECT SCREENS

The arrival of summer brings with it the arrival of insects, and insects bring the potential risk of infected crops. Insect screening is a common tool to protect greenhouse crops without relying heavily on insecticides or pesticides. Properly installing an insect barrier on the exhaust fans, louvers and other potential openings of a greenhouse will keep the inside cool and ventilated, while preventing bugs from getting in.

Insect screens come in a variety of sizes to exclude almost any type of insect or pest. If crops suffer from pests during a limited part of the growing season, a light-duty screen should suffice. If multiple pests arrive at different times throughout the season, for example, aphids in spring, thrips in summer and whiteflies in the fall, pick a screen tight enough to reduce as many pests as possible. Remember that screens with small holes are effective at keeping out pests but are more resistant to airflow.

Before purchasing insect screening, growers should first research the correct screen based on the types of pests that must be kept out. Then, determine how much airflow will be restricted with the screen, as too little airflow can cause overheating in a greenhouse. Finally, assess exactly how much of the greenhouse needs to be screened.

Insect screens can be fastened one of three ways: poly fastener, spring lock or lath. Each ensure that the seal will be snug and prevent abrasion. Some greenhouse manufactures have ready-made solutions for securing insect screening available, so growers should

inquire with a manufacturer about this option.

After months of toiling to achieve an optimal harvest, it's a shame to see hard work squandered due to the inevitable change of seasons. A successful summer season can easily

be achieved each year by using and maintaining shade curtains, evaporative cooling systems and insect netting. Equally important as having these tools is proper maintenance to ensure optimal function and a long lifespan. [gpn](#)

*Jessica Batchelor is a content specialist for GrowSpan Greenhouse Structures ([www.growspan.com](http://www.growspan.com)), which specializes in custom greenhouse and growing systems for year-round production.*

## PHLOXSTAR™

PHLOXSTAR™ are tested for easy rooting. This strong annual phlox stays compact in the garden and blooms all summer long.

NEW FOR  
2019



Phloxstar™ White



Phloxstar™ Salmon



Phloxstar™ Red

PHLOXSTAR™  
Phlox

DANZIGER  
[www.danzigeronline.com](http://www.danzigeronline.com) |

For further information please contact: Mike Fernandez at: [mike@danziger.co.il](mailto:mike@danziger.co.il), Tel. +1-315-396-6684  
Kate Zvara at: [kate.zvara@danziger.co.il](mailto:kate.zvara@danziger.co.il), Tel. +1-440-9499016