GROWERTALKS

Features

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7 Simple Ways to Save Energy in the Greenhouse

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Your home is supposed to be your castle, but what about your greenhouse? If we treated our greenhouses as well as our homes in the winter we'd have the energy bills to prove it. And yet, we're leaving doors open in January. We're installing double pane windows, reinsulating and sealing all the crevices in our homes, but often we aren't taking the same simple precautions at the greenhouse. It's ironic, isn't it, that one of our biggest expenses can often be mitigated with some very small changes. It doesn't take a huge technology investment to make a big impact on your energy bills. All it takes is a little effort and a lot of common sense.

1. Double-check the heater.

Whether you're using hot air, oil or gas, if you don't do the proper maintenance, you're definitely using more fuel than you should be. Calibrate once a year and you'll see a huge difference in your energy bill. For forced-air units, check the fuel pressure and fuel lines, clean your nozzles, adjust the pilot light, lubricate your bearings, check the valves, and ask your supplier for a full checklist or inspection. Some aren't easy to get to, I get it, but you're just throwing away money if you don't take the time.

2. Check your computer settings.

Unfortunately computers aren't human—at least not in the greenhouse world—so they don't know when it's winter. You likely have your systems set for maximum light exposure, which is great. But forget to check or change your control settings with the season and on a cold winter day you could be caught with your windows or roofs open. It's a great way to lose a lot of heat and an easy loss to prevent. A computer doesn't realize that it's better to lose a bit of light than even a little heat.

3. Seal it up.

We've proved it unequivocally in our homes, and greenhouses all over Europe won't go without them: put seals on your screens. Your greenhouse is no different than your home—heat will find every little crack to make its way out of your greenhouse. You lose a surprising amount of hot air between screens, walls and coverings. It's likely you have a vent that won't seal tightly. And the smaller the greenhouse, the more heat you're going to lose. It's one of our biggest recommendations and one with the most impact.

4. Research roofing.

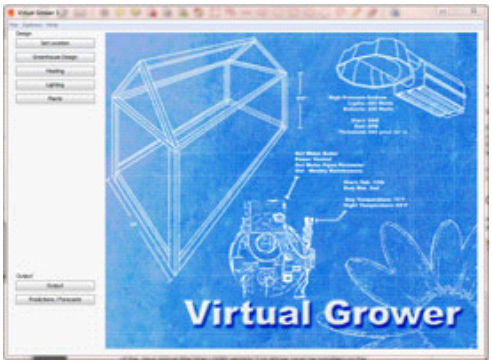
Roofs are one of those things that are easy to set and forget. But unless you've recently retrofitted or built new construction, technology has likely come a long way since yours was installed. It used to be glass or poly, period. Now there are new glass types with lower emissivity and even double poly (celebrating its golden anniversary) gives you options for different thickness of layers to impact emissivity. Take a hard look at roofs, walls and gables—you'll see the benefits.

5. Pull the curtains.

One of the biggest ways to decrease your energy bill comes with energy curtains. You can cut costs by 10% to 70% depending on which curtain you choose, how it's installed and how often you use it. It makes sense—you're lowering the volume of air to heat and making sure the heat stays in the greenhouse. The heat is reflected back onto the crop where you need it, not up in the gutters where the plants can't benefit. Colder geographic areas are going to two screens for maximum light and minimum heat loss, and some growers are even triple screening! Plus, they have the added appeal of quick payback: Single curtain layers often pay back in less than three years and in some cases, less than two. It's the most efficient way to save energy.

6. Check out grants.

Remember as you're considering ways to conserve energy in your greenhouse, you don't have to do it all alone—many options are available for grants to subsidize your projects. The USDA Rural Energy for America Program (REAP) awards energy grants and guaranteed loans to qualifying projects. Energy curtains, for example, typically have short paybacks and a high percentage of energy savings—two major scoring components in the grant review process. Many utility companies also offer rebates for energy savings. Check the Database of State Incentives for Renewables & Efficiency at dsireusa.org for available incentives by state and utility. (Editor's note: Read more about energy grants, tax credits and other incentives starting on page 58.)



7. Use your secret weapon.

I'm constantly shocked at how few people know about what I think is one of the best energy savings tools in the grower's toolbox: Virtual Grower. USDA's free energy use calculator lets you input details for your greenhouse, such as crops, roof, walls, location, heating schedule and more. It uses historical weather data to calculate, then provides you with a custom energy scenario. You can add, remove and change different components and equipment to see their impact on your energy use. Right in front of you, you have what some basic modifications can do. Download it for free online at www.ars.usda.gov/services/software/download.htm?softwareid=309.

Common Sense Strategies—Were You Born in a Barn?

Tips so simple they seem obvious, but we see them happening every single day as we're visiting greenhouses.

Close the holes. | Make sure the greenhouse doesn't have any holes—in the roof, the walls, anywhere. If you remove fans or wet walls, close or seal the hole they leave.

Shut the door. | Seriously. It's unfortunately easy to prop a door open while you're carrying plants or supplies in and out of a greenhouse, then never close it again. A lunch break, a phone call, a move to a different section, and two hours later, your heating bill is out the door, too.

Find the hidden holes. | When converting your operation for winter, don't forget to check fans. It's easy to leave them open or uncovered all season, compromising the performance of your equipment and your energy usage.

Do some basic maintenance. | Make sure windows and doors close properly and completely. Especially in older houses, windows and doors can begin to have issues with age. Even a small crack can make a big impact on energy loss.

It's all about losing heat—it slips out wherever it can. Make sure it's as tight as you can.

- *Don't underestimate the impact things like supplemental lighting can have on your energy use. Depending on how many fixtures you have and how long you're running them, you could be changing your climate by 2 to 3 degrees.*
- When fuel prices start spiking, that's when many growers start looking for ways to save energy. But the reality is, when prices are at their lowest—like now—that's when you can negotiate the best deals. **GT**

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