GROWERTALKS

Cover Story

6/1/2018

The Neighbors Are Complaining

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If you peruse through old back issues of *GrowerTalks*, you notice that greenhouses were pretty primitive—wooden benches with chicken wire, watering with a hose by hand and no lights. Back then, you rolled the dice with the sun, hoping it'd be a sunny late winter and early spring so those seeds would germinate in time for peak sales season. It was the sign of the times.

As more technology has become available to growers through the years, most have embraced it willingly. But with change also comes more responsibility. When pesticide formulations and computerized irrigation systems became the norm, local environmental watchdogs and the EPA stepped in to make sure these chemicals weren't going back into the water supply or running off into the surrounding soil.

Using lights in the greenhouse isn't a new phenomenon, but with the local produce market going gangbusters and the advent of LEDs, growers now have to worry about how much and how often they're using lighting. Urban growers and garden centers tend to be more prepared for complaints about the "light pollution" coming from the greenhouse, but now lettuce and indoor vegetable operations who've built in the middle of nowhere thinking it wouldn't be a problem are getting similar complaints.

Neighborhood watch

The Huntington Family opened Pleasant View Gardens in Loudon, New Hampshire, in 1976, and since then, the business has been very successful—enough to expand to other production sites and become a founding partner of the Proven Winners brand.

A few years ago, plans were put into the works to open a new operation for a different market: growing hydroponic baby greens and lettuce. Called lēf Farms, the company started delivering fresh lettuce mixes to local grocery stores, restaurants, and hospitality and food service organizations a year and a half ago.

When a new business begins, growing pains are expected. But Henry Huntington was surprised by the reaction he received from the locals who live around the greenhouse.

As you know, lettuce is a high-light crop, needing a minimum of 17 mols per day (Henry says two and a half times more light per square foot than he uses at Pleasant View). And the glow from these lights when turned on at night weren't giving the neighbors a warm, fuzzy feeling.

"The night we turned the lights on, we picked about the worst night that we could have," admitted Henry. "It was a very cloudy, low-ceiling night, so it just lit up the entire area. So when we turned them on, you could see it literally for miles. We immediately got a bunch of complaints about it."

In all the years at Pleasant View, Henry said they only received a handful of complaints. In the Loudon range, they have lights in about 50% of the range, and in Pembroke, it's close to 80%, but not to the degree as lēf Farms and not for the length of time.

The local government had to step in to address the concerns and set up some meetings, which Henry attended. Being a member of the community for over 40 years, he wanted to be face-to-face with them to answer their questions.

"No matter where we are, we try to be a good neighbor," Henry said. "We feel like that's a much better way to go than just fight people all the time. So we try to respond to any complaints we have by our neighbors on any issue."

Right now, the state of New Hampshire only has regulations pertaining to highway lighting, but encourages municipalities to enact their own ordinances if they choose, which hasn't happened yet. A few people brought up the idea of a "light pollution rule," but it didn't get much support.

"This is rural New Hampshire and people don't like a lot of regulation," explained Henry.

Henry promised to put in a blackout curtain whenever he plans to expand with a new greenhouse and would only turn the lights on after 11:00 p.m., when most people are asleep. He also said he would eventually retro-fit a blackout curtain into the current structure, which will be a huge hassle—not only would he have to shut down production for several weeks, but they'll have to reconfigure the curtain system.

Since Henry put those caveats in place, he said the complaints have ceased.

"Now whether they know we've made promises for the future or not, and that's why they're not complaining, I don't know. But it seems to have alleviated the complaints to practically nothing," he said.

Henry said he joked with the locals a bit, telling them, "If you want me to fix the problem, you need to buy as much lēf Farms' lettuce as you possibly can, so that we can build soon."

Light pollution ordinances & regulation

According to the National Conference of State Legislatures, "light pollution" has three main components:

- **Sky Glow—**Brightening of the night sky over inhabited areas
- **Light Trespass—**Light that shines where it's not needed or wanted
- **Glare—**Excessive brightness that causes visual discomfort

As of 2017, 18 states, along with the District of Columbia and Puerto Rico, have laws in place to reduce light pollution, but most of the "dark skies" legislation was enacted to promote energy conservation and public safety; reduce the effects it has on wildlife, astronomical research, and nighttime training at military bases; and to make sure that no one put in any "ugly" lighting.

Most of the state laws are focused on outdoor lighting on the grounds and parking lots of state buildings or on public roadways. Even at the local level, there are zoning and permitting laws that reference noise levels and even odor (especially for livestock and cannabis-growing operations), but there aren't specific ordinances purely about light pollution from a greenhouse. But as more greenhouse operations increase their light usage or grow crops that require more light for longer periods of time, we may start seeing more regulations being put in place.

"Light pollution regulations are being incorporated in many zoning laws that didn't have them before and most neighbors will complain about light pollution," said Jeff Warschauer, VP of sales for Nexus. "With traditional bedding

plant growers, mechanical lighting use is limited, but with an increase in cannabis and veggie growers, the light pollution numbers go up as the quantity of lights is much higher per square foot."

A cannabis grower may have as many as 800 1,000-watt HPS lamps in a 1-acre hybrid grow greenhouse, said Jeff. Cannabis does require a black cloth period—typically 12 hours so the amount of time the lights are on can be up to 12 hours. Depending on the number of micromoles naturally received, those HPS lamps "will light up the sky," he said.

One country with strict greenhouse light pollution regulations is the Netherlands. With a large number of greenhouses in a relatively small area, they've had to enact rules to ensure that both the greenhouse businesses and their residential neighbors can live together in relative peace and harmony.

To give you some perspective, the Netherlands covers approximately 41,543 sq. km. The United States, on the other hand, is 237 times bigger than the Netherlands. And most of the Dutch growing operations are concentrated in the swath of area known as Aalsmeer, southwest of Amsterdam, which is a very populated area. Two organizations had to put their heads together to tackle the problem of light-pollution complaints from the neighbors.

In 2004, an agreement was reached between LTO Horticulture (which is a Dutch greenhouse industry organization) and Stichting Natuur en Milieu (a non-profit environmental group) to control the light pollution from local greenhouses. The new regulations included better enforcement of already existing rules on mandatory side screening, along with requiring 98% of the greenhouse having to be screened if lighting is being used during nighttime hours. Screening must be applied at night and may only let through no more than 25% of light output. If more than 15,000 lux is being used during the hours of 5:00 p.m. and midnight, the screen needs to keep in 98% of the light during the entire night. The side screen has to shield at least 95% during nighttime hours.

When this agreement was reached, they were only talking about traditional greenhouse lighting. Now, there are more Dutch growers using LEDs, including Koppert Cress—a young plant grower that has the largest number of LEDs in the Netherlands. The owners of Koppert Cress told a local journalist that they found LEDs to be more sustainable and cheaper, so they're now lighting 16,000 sq. meters (which is about 172,000 sq. ft.) of greenhouse using a pink lighting spectrum.

But the pretty pink lights aren't making the neighbors happy at all. The current president of LTO Horticulture recently announced plans to extend the regulations to include those greenhouses using LEDs, requiring them to use 98% screen cover for the entire night, not just a short window of time.

"I've heard people complaining more so about [LEDs] when the sky's lit up by the pink or purple light," said Henry. "I think people interpret that as being even more 'unnatural.'"

Some light advice

First, if you're thinking of growing indoor greens or veggies, and/or adding lots of LED lighting, make sure you include a blackout curtain with the rest of your capital costs. It's much easier to pay for it up front, and cheaper than adding it later, especially if you're already installing a heat-retention/
shade curtain. The labor cost to add a curtain later after your grow system or benches go in is much more costly.

"The plus to adding a blackout curtain in parts of the country that require you to heat the greenhouse will act as a secondary heat-retention curtain, so that's a big savings on your heating costs," said Jeff.

Second, be aware of your surroundings. One of BrightFarms' head growers, Nick Chaney, said they also learned the hard way, when neighbors complained about the light at their facility in Bucks County, Pennsylvania. They had to work with the town to come to an agreement on hours they could run their lights. The location in Rochelle, Illinois, doesn't get complaints because it's in the middle of an industrial park, said Nick, but the one they're building now in

Wilmington, Ohio will have a blackout curtain because it’s closer to residential homes.

Third, be as flexible as possible and educate the local folks on what your business does and how it helps them. Although Henry got complaints about lēf Farms, there were just as many people that said the lights didn’t bother them and they appreciated the tax revenue and jobs the business brings to the community. It’s important to keep that dialog open, regardless if it’s positive or negative.

“I do think that as more controlled environment agriculture [businesses open], the more lighting will become an issue,” said Henry. “And I think people are going to start getting wise to it and you will see that regulation coming in. The best a grower can do is be upfront, open and honest about it, and just do what you can to minimize the impact.” **GT**