

HORTICULTURE

Cool storage reduces produce losses

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More often than not, new market gardeners are so focused on growing and marketing (primarily growing) that they fail to plan adequately for what

happens between the two – post-harvest handling and storage.

It doesn't take long for harvested produce to start deteriorating. All the qualities growers and consumers look for in produce, including weight, texture, flavor, nutritive value and appeal, begin to decline. There is a rule of thumb for perishable crops: every hour lost before cooling to proper storage temperature results in a loss of one day of shelf life. The bottom line is that cool storage extends the market window for produce and reduces loss due to spoilage – both contributing factors to a grower's profitability.

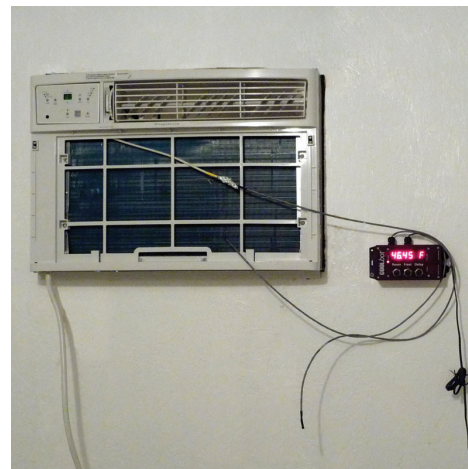
Commercial walk-in coolers are cost prohibitive to all but large-scale market gardeners. With the recent introduction of the CoolBot, an electronic controller used to supercharge off-the-shelf window air conditioners, small-scale market gardeners can now transform an ordinary portable building into an efficient walk-in cooler.

I recently had the opportunity to examine such a cooler at the farm of Niels and Carla Maness near Perkins, Okla. They farm about 7 acres of mixed vegetables, which are marketed at the farmers' market in Stillwater, Okla. Being the busy people that they are, they opted to have a local portable building company (Better Built Barns, www.okbarns.com) custom-build their cooler. The freestanding building measures 10 feet by 12 feet and is equipped with skids. It is framed with 2-inch by 6-inch lumber and is very well insulated. It is also equipped with an electrical service box and a waterproof light fixture. The building cost them \$4,000 delivered. Niels estimates he could do the job himself for about \$2,000. The CoolBot and air conditioner cost an additional \$600.

If you are in the market for a custom-built, walk-in cooler or thinking about building your own, there are several things to consider before opening your wallet.

When sizing the structure, take into account the amount of produce you will need to store at any one time, now and in the near future. Also consider container size and stacking arrangement.

In Oklahoma, due to our extreme heat and stormy weather, choose



The CoolBot controller makes it possible to turn a portable building into a walk-in cooler using a regular window air conditioner.

2-inch by 6-inch construction. A 6-inch wall can hold more insulation than a 4-inch wall, and the heavier construction is more resistant to storm damage.

To prevent condensation in the walls, floor and ceiling, the structure must be equipped with a vapor barrier. Condensation can reduce the effectiveness of the insulation and cause dry rot in wood studs and joists.

Foam boards can be added to the interior surface of the studs, ceiling and floor joists for additional insula- ▶

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tion – the thicker the board, the greater the R-value.

Several materials can be used to cover the interior and exterior of the cooler; however, most plans call for the use of ½-inch exterior grade plywood or wafer board to cover the interior and the same material or siding to clad the exterior.

To make the structure as airtight as possible, all joints must be sealed (caulked) and the interior walls painted.

Door width can vary depending on the producer's needs. A well-made, insulated door can cost several hundred dollars but will pay for itself in energy savings and reduced maintenance costs. Gluing foam board

insulation to the interior surface of the door will increase its R-value.

Niels and Carla couldn't be more satisfied with their cooler. It is enabling them to keep their produce in peak condition and keep their customers satisfied.

Read more about the CoolBot controller at <http://storeitcold.com>. ■