

## News

North Carolina Research Campus, Kannapolis

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### N.C. State's "Pack 'N Cool" Provides Farmers with Mobile Refrigeration Solution

KANNAPOLIS, NC – N.C. State University's Plants for Human Health Institute (PHHI) has developed a new mobile cooling unit for farmers. The five-by-eight-foot refrigerated trailer – called the "Pack 'N Cool" – is designed to keep fruits and vegetables at ideal temperatures during transport to and from farmers markets or as they're harvested in farm fields. The Pack 'N Cool is the program's latest postharvest quality and food safety project geared toward helping farmers.

[Dr. Penelope Perkins-Veazie](#), professor and postharvest physiologist with PHHI, coordinated the effort to develop a mobile refrigeration unit that agricultural producers can use as a model for building their own versions. The Pack 'N Cool unit combines the mobility of a cargo trailer with the refrigeration capabilities of a commercial cooler.

With construction spearheaded by Louis Wojciechowski, a lab technician with Perkins-Veazie's research team, the model unit cost around \$3,400 to construct, including a new cargo trailer priced at \$1,500 (a pre-owned trailer can reduce costs). Construction guidelines, step-by-step photos and a sample budget are available on the [Plants for Human Health Institute website](#).

As a scientist that studies fresh produce after it's harvested, Perkins-Veazie recommends that many fruits and vegetables be stored at 32 to 41 degrees Fahrenheit. This includes most fruits (apple, blackberry, strawberry), leafy greens (cabbage, lettuce) and immature vegetables (broccoli, cucumber, green beans), which decay in heat.

"Based on my experience, farmers know that it's important to keep certain fruits and vegetables at cool temperatures to remove field heat and hold fresh-grown quality, but it's often challenging to purchase or maintain the equipment needed to ensure those ideal temps," said Perkins-Veazie. "The Pack 'N Cool model provides farmers with a mobile, cost-efficient alternative to commercial cooling units."

She adds that keeping fresh-picked fruits and vegetables cooler for longer preserves quality and extends the shelf life of the produce, a benefit for farmers hauling food to and from multiple markets each week.

"Highly perishable fruits like blackberries that sit at 80 degrees at market will last only a day compared to a week if kept at 40 degrees," said Perkins-Veazie. "That makes a big difference to farmers."

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The Pack 'N Cool utilizes [CoolBot](#) temperature technology to maximize the output of a basic window air conditioner unit. The CoolBot adapter interfaces with the AC unit, which typically bottoms out at 60 F, to generate temperatures as low as the 30s in the trailer.

Wojciechowski added, "if the AC ever fails, a new unit can be bought at a home improvement store for \$300 and hooked up the same day without the need for a refrigeration service call. It's simple and energy-efficient." An electrical extension cord (110V) or a generator powers the unit.

The Pack 'N Cool will also be used as a training tool for N.C. State faculty and N.C. Cooperative Extension agents. The unit will be demonstrated at agricultural field days and events across the state.

This past spring, the institute announced the development of two mobile hand-washing stations aimed at helping farmers reduce food safety risks. ([Read the article.](#))

#### **About Plants for Human Health Institute**

The N.C. State University Plants for Human Health Institute is leading the discovery and delivery of innovative plant-based solutions to advance human health. N.C. Cooperative Extension serves as the outreach component of the institute, which is part of the N.C. Research Campus in Kannapolis. The campus is a public-private venture including eight universities, one community college, the David H. Murdock Research Institute (DHMRI), the U.S. Department of Agriculture (USDA) and corporate entities that collaborate to advance the fields of human health, nutrition and agriculture. Learn more at <http://plantsforhumanhealth.ncsu.edu>.

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