

Mobile Market Cooler Conversion Demonstration

By Richard VanVranken, Atlantic County Agricultural Agent

Scalable for small and mid-sized farm operations, portable farm market-type display units have dual benefits of big visual impact with quality enhancing cooling, extending fresh fruit and vegetable shelf life. For those with basic carpentry skills, converting a utility trailer into an insulated cooler box is a relatively easy project. Reasonably priced, these units add versatility boosting the “farm’s capacity to grow, and support their bottom line and sustainability.”

Utility Trailer to Mobile Market Cooler

While this project used a new 6’ x 12’ utility box trailer, others have cut costs for similar projects substituting used trailers, transportable boxes, or built-in units. The cooler unit is a standard household window air conditioning unit with a CoolBot (<http://storeitcold.com/>) controller that overrides the AC units thermostat, tricking it to keep it running well below household temperature ranges. The AC mobile market cooler in this conversion is adapted from instructions for a smaller Pack-n-Cool unit created by Dr. Penelope Perkins-Veazie, NCSU. See Pack-n-Cool Construction Summary to read about her experiences. (<https://plantsforhumanhealth.ncsu.edu/pack-n-cool/>)

Conversion Costs

Trailer, Hitch & Locks	\$3,369.24
Store It Cold “CoolBot” Unit	\$299.00
Air Conditioner Unit	\$349.00
Cooler wood, insulation & hardware	\$1,520.57
Graphic “Wrap”	\$1,900.00
Equipment Subtotal	\$7,437.81
Labor (hourly)	\$1,968.75
TOTAL	\$9,406.56

Lessons Learned

The Atlantic County Board of Agriculture obtained funding through a USDA Specialty Crop Block Grant for this project titled “Educating the Public about Agriculture in Atlantic County Through Promotional Displays and Advertising”. The primary purpose of the grant was to purchase or build a portable farm market-type display unit to be stocked with both fresh produce in season and promotional/educational videos and materials to hand out at public events such as agricultural fairs, food shows and community farmers’ markets to educate the public about Atlantic County’s specialty crop agriculture industry. A key

component of the mobile market display is the conversion of the interior into a cold storage unit to demonstrate low-cost cooler technologies that can be adopted by small to mid-sized farm operators to enhance their produce quality and extend the shelf life of their fresh fruits and vegetables. Construction of the project led to some take-away lessons:

- Although the CoolBot unit coupled with an inexpensive room-sized window air conditioning unit is a little more challenging to install in a trailer (requiring metal cutting and building of a support frame), completing the wiring and operation of the unit is easy following the simple instructions included with the CoolBot unit.
- Graphics wrapping technologies allow a wide range of possibilities illustrating ideas using an entire vehicle as a portable, highly visible canvas. A graphic wrap photo collage can tell a great story and more, when coupled with smart devices accessing websites via QR code scanning.
- The trailer conversion took 2-3 people working almost full time for nearly a month to complete. That time and effort need to be factored into the timeline for completing such an endeavor. Cost of trailer conversion, including extra labor, was more than anticipated, but still reasonable for the outcome.
- Be aware of challenging space constraints for set up at some events – the unit demonstrated here may be too big for some venues; it is too heavy to move easily by hand without the tow vehicle.

See attached pages for annotated images.

Special thanks to Ryan Alianell and Annalise VanVranken for assistance with design and construction of the mobile market cooler, to the team at Designer Wraps of Millville for the layout and application of the exterior graphics, and to the Executive Committee of the Atlantic County Board of Agriculture for financial support and design input.

This project was funded by USDA AMS Specialty Crop Block Grant Agreement # 12-25-B-1243 administered through the NJ Department of Agriculture.

For questions regarding the Atlantic County Mobile Market Cooler Trailer, contact County Agricultural Agent Richard VanVranken at vanvranken@njaes.rutgers.edu

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Here's our basic 6' x 12' box utility trailer prior to conversion.



The interior plywood skin and aluminum trim pieces were removed from the front and sidewalls of the trailer.

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A standard 2 x 4 frame was built of pressure treated lumber to cover the entire floor.



Framing covered two-thirds of the walls, front, and ceiling to create the cooler box.



The front-end wall cutout holds the air conditioning unit.



Inner doors were built to partition the cooler from the storage area

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The CoolBot unit overrides the thermostat of a household window AC unit, keeping it running until reaching the temperature selected – much below the limits of the AC's own thermostat.



The trailer-to-conversion before graphics were applied.



Every Picture tells a story and QR codes put a story behind every picture!