



## Energy Case Study: Wabi Sabi Farm

**W**abi Sabi Farm, near Granger, Iowa, aims to grow certified organic food using the smallest environmental impact. Owner Ben Saunders says energy efficiency – whether it’s human physical energy to get the work done or the energy used to operate the buildings and equipment – is a key part of his farm’s mission. Practical Farmers of Iowa’s (PFI) farm energy audit pilot project to serve rural areas offered Saunders an opportunity to learn more ways to better achieve that “big picture” farming goal.

PFI partnered with Green Iowa AmeriCorps (GIA), based at the University of Northern Iowa’s Center for Energy &



Ben Saunders drives his tractor on his farm near Granger.

Environmental Education. Green Iowa AmeriCorps offers comprehensive energy services to underserved areas to help Iowans become more energy efficient. Five farmers agreed to have their farmhouse and one outbuilding audited for energy efficiency. However, because there is no farmhouse at Wabi Sabi Farm, PFI agreed to audit two outbuildings on the farm for energy efficiency followed by any needed air sealing work—caulking/weather-stripping, etc. Saunders chose an 8x15’ walk-in cooler and a 26x48’ greenhouse on his 20-acre farm north of Des Moines.



Farmer Ben Saunders with Green Iowa AmeriCorps members James Gilchrist, Haley Cannon, Stephanie Eisner, Jessica Langr and Aaron Hammond in front of the cooler at Wabi Sabi Farm.

He took over the operation of Turtle Farm in 2013 after working with previous owner Angela Tedesco since 2004. 2013 was his first year operating as Wabi Sabi Farm, a name he chose because it refers to simplicity, freshness and serenity.

Saunders and his crew of three full-time and two part-time staff grow fruits, vegetables, and herbs for 157 community supported agriculture (CSA) members plus he makes direct sales to several Des Moines restaurants



Saunders discusses greenhouse concerns with Green Iowa AmeriCorps members.



Greenhouse door to be sealed by Green Iowa AmeriCorps members at Wabi Sabi Farm.

and the Iowa Food Cooperative, a collective of over 100 producers who sell online. Saunders is also the first certified organic vegetable transplant farmer in Iowa and sells to organic farms across the state from Iowa City to Creston.

The Des Moines team of Green Iowa AmeriCorps visited Wabi Sabi Farm last June and listened closely to Saunders' needs and plans. He uses his greenhouse to begin the spring season early by planting CSA seedlings and vegetables for transplanting.

A double layer of fabric covers the greenhouse and a small fan blows air between the layers to provide more insulation. According to Saunders, the inflated plastic (two layers with an air gap) model of greenhouse along with a Reznor brand heater are efficient at keeping the greenhouse warm, but the end walls, doors and vents let a lot of heat out. In the summer months when the greenhouse gets too hot, Saunders uses a small fan mounted fairly high to circulate cooler air. The north

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*Besides helping me further my goals of energy efficiency, I hoped this project would help my operation become more sustainable and also save me a few bucks by consuming less power.*  
 - Ben Saunders  
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end wall of the greenhouse is made out of 2x4s and a concrete panel material that Saunders describes as old and brittle. The south end of the greenhouse is polycarbonate panels, an 8x8' garage door and a standard-sized house door.

The GIA crew observed that both ends of the structure have windows, doors, or vents that let the heat out. The GIA team recommended caulking leaky spaces around the frame of the garage door and house door on the south end of the greenhouse.

Wabi Sabi's 16-year-old walk-in cooler presented another opportunity for Green Iowa AmeriCorps members to use their residential weatherization skills on a non-traditional space. The cooler is used to store picked vegetables for a few days until they are taken to market. Saunders likes to keep the cooler about 40°F, right at refrigerator temperature. As the team of four walked around the cooler, looked inside and out, Saunders said he learned a lot by listening to their conversation.

"I noticed how they spent time really checking out the seams of the walk-in cooler for leaks," Saunders noted. "Sometimes I forget to look at all the little things that

could be changed and would add up to a big change. I feel the project was successful just learning that from the AmeriCorps members!”

The team usually conducts a blower door test to determine where air is leaking into a structure, but they said the cooler was too small of a space for an effective test. However, they recommended several energy efficiency actions for the walk-in cooler and returned to Wabi Sabi in July to make those steps happen. Saunders took all of the food out of the cooler and turned it off so the weatherization could be done without the compressor on to enable the caulk and other materials to dry.

The Green Iowa AmeriCorps team:

- Replaced worn out weather-stripping around the door
- Added a door sweep to the bottom of the door
- Installed backer rods where the floor meets the base of the walls and where the wall seams join. These small foam rods fill gaps where materials join together as a way to add insulation and waterproofing.

Saunders and his employees were expending a lot of their physical energy while the GIA team worked to conserve energy that the outbuildings on the farm used.



Ben Saunders drives the tractor while an employee plants tomatoes.

Between harvesting, supervising, and planting fall crops, Saunders reiterated that he thought other farmers could benefit by learning ways to save on their electric bills. “The additional bonus is to learn ways we all can conserve more non-renewable sources of our current on-farm energy and be able to live and grow food in a more environmentally sustainable manner.”



A Green Iowa AmeriCorps member caulks the walk-in cooler at Wabi Sabi Farm.



Ben Saunders discusses options for sealing his greenhouse with Green Iowa AmeriCorps members.

## IN PARTNERSHIP WITH:



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