

STATE: Oregon

PROGRAM: Rural Energy for America Program (REAP, formerly the Section 9006, Renewable Resources & Energy Efficiency Improvements Program)

OUTLINE OF NEED: Brothers Marvin and Dale Fessler, owners of Fessler Nursery Company in Woodburn, Oregon, southwest of Portland, were looking at how they could make their operation more energy efficient. Fessler Nursery uses natural gas to run forced-air heaters in their greenhouses that contain a variety of annual plants and hanging baskets sold in retail and wholesale markets. "Heating costs are 12% of our annual expenses, so we were interested in reducing energy use," explains Marvin Fessler.



OLD FIBERGLASS GREENHOUSES

The nursery began looking at options to replace old fiberglass greenhouse walls and roofs, which had become clouded and yellowed with age, and had a low heat retention capacity.



ROOF OF OLD FIBERGLASS GREENHOUSE

The nursery scheduled a professional energy audit to evaluate the benefits of upgrading the greenhouse walls. "We compared the energy savings from converting to a new double-wall material with an U-value of .55, with leaving our existing walls, which have an U-value of .7," explains Marvin Fessler. The U-value is a measure of the material's capacity to lose heat; the lower the u-value, the better. "The projected payback was 4.2 years."

HOW RURAL DEVELOPMENT HELPED: Fessler decided to apply for a USDA Rural Development Energy Efficiency Grant for the new walls and roof. The program requires a professional energy audit for all efficiency Applications, so the nursery submitted its audit to document the projected savings.

The application process was time-consuming, but Fessler is pretty positive about it. "It's not hard," he says. "It just takes time. The USDA staff were a big help, and they walked me through all the forms that I needed to fill out."



NEW DOUBLE WALL LEXAN ON ROOF & SIDES

After submitting their application, the nursery began ordering materials and proceeded with construction. The nursery put in clear material on the roof, and white material on the walls. "The old fiberglass was so yellowed, there wasn't as much light getting through to the plants," explains Marvin

Fessler. “The new material allows more light in, which allows even more heating in the winter.”

The nursery also installed roof vents at the same time they replaced the greenhouse walls and roof. “On its own, the roof vent project didn’t make sense – the projected payback was something like 30 years,” says Marvin Fessler. “But when we combined it with replacing the walls and roof, it worked out.”

THE RESULTS: Now that the roof vents are in place, the Fesslers don’t need to run ventilation fans in the summer. “We used to run them 18 to 20 hours a day in the summer. Now, we just have the roof vent programmed to open on its own at specific temperatures. The vent system is much quieter than the fans. We left them in there just in case, but we haven’t needed them yet.”



NEW ROOF MATERIAL

The project cost \$183,000 altogether, and the USDA Rural Development grant covered 25% of project costs. I would definitely recommend the program to others,” Fessler says. “It’s well worth the time I put into it.”