



Solar Drying

Gelé Chicken Farm, Quebec



Left, SolarWall® installation at Gelé Chicken Farm, Cookshire Quebec, Canada

Background

At the Gelé Chicken Farm located near Sherbrooke, Quebec, chicken manure is dried and used as fertilizer. The owners were looking to improve their current drying process with an energy and cost efficient alternative to fossil fuels. In any drying operation, the cost of heating the air is always a significant amount of money, and given the cold winter climate that is typical in Quebec, it represented a large opportunity to reduce costs.

Solution

A black SolarWall® system was installed by the owner at a 75-degree angle to maximize energy gain. The system dries 3300 kg of manure a day, from an initial moisture content of 75% to a final moisture content of 25%. The SolarWall® system is connected to a variable speed fan to fully utilize available solar energy.

The manure is exposed to the solar heated air while passing over conveyor belts. At the end of the drying chamber, it is ready for packaging and distribution.

Results

This SolarWall system was installed in 2001, and was projected to have annual savings of \$8000/year. This means that since that system has been in operation for over 10 years, Gele Chicken Farm has saved over \$80,000 with their SolarWall system.

It also means that after 10 years, the system has eliminated approximately 300 tons of greenhouse gas (GHG) emissions.

"I'm amazed to see the heat drawn in from the cladding when the system is turned on. The heat goes where it should – into the drying process."

-Mario Gelé, Elevage et grains Gelé

Performance

Surface Area: 1,700ft² (158m²)

Energy Savings: 534 GJ /year

CO₂ Reduction: 29.5 tons/year

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