

Winging It

OSU geothermal innovation is helping poultry farms

Oklahoma State University's innovation in geothermal production is spreading its wings.

A hybrid system using a ground source heat pump configuration is proving to offer significant advantages for poultry brooder environments.

JIM BOSE, professor at OSU, says the ground source technology is a green option that provides long-term cost savings and production efficiency.

The ground source technology was developed at OSU, which is home to the International Ground Source Heat Pump Association. Bose serves as the association's executive director.

The Holliday Farm, a contracted grower for Cargill Inc. in Missouri, operates two broiler houses and two grow-out houses using the ground source heat pump system.

"Dr. Shawn Xu, principal investigator on this project, is an IGSHPA member and longtime researcher in ground source heat pumps," says Bose. "Xu has applied geothermal technology to turkey production and has successfully demonstrated the integration of ground source technology developed at Oklahoma State University into a new application."


With the technology, the Holliday Farm is reporting better air quality and lower costs.

This system allows the farm to avoid propane burning inside poultry houses and improves air quality through less oxygen consumption and less carbon dioxide/carbon monoxide production. It also reduces ammonia generation. Ultimately, it offers significant energy savings with less required ventilation for the better air quality, which enhances grower speeds.

Xu has creatively solved a number of engineering problems that plague the poultry industry in regards to indoor air quality, ammonia production, dust control and energy efficiency," says Bose. "The biggest was the elimination of the standard open-flame heater that contributed to many problems in regards to the dusty and ammonia productions that the use of this technology caused. Energy efficiency and improved poultry environment is its main strength."

Although this technology is only being used by a select number of poultry growers, its potential could revolutionize the industry.

"This innovative use of technology will be distributed to growers not only in the U.S., but in China where poultry production is widespread," says Bose. "Xu was a key person in developing an IGSHPA Chapter in China while working at the University of Missouri."

The International Ground Source Heat Pump Association is an outreach center at OSU within the College of Engineering, Architecture and Technology. It supports OSU's land-grant mission through efforts in advanced technology and services to the state and international communities. 

 WRAVENNA BLOOMBERG

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