



AUBURN
UNIVERSITY



CICEP

INNOVATION AND ECONOMIC PROSPERITY UNIVERSITIES
AWARDS PROGRAM

CASE
STUDY
2015

IEP CATEGORY • PLACE

The National Poultry Technology Center

When the prices of propane, electricity, and water began to rapidly increase in the early 2000s, the Auburn faculty realized this live production industry could be lost to overseas companies with lower labor costs if they did not step in. People from several disciplines at Auburn agreed it was time to fill this need in Alabama and worked together to establish the National Poultry Technology Center (NPTC).

The center partners with the Auburn University College of Agriculture and the Alabama Poultry and Egg Association and has a board of directors comprised of representatives from both organizations. “We need to grow chickens in the U.S. because it ensures a reliable, sustainable, and safe food supply, and it also means jobs stay right here in Alabama,” James Donald, Director of the NPTC, said.

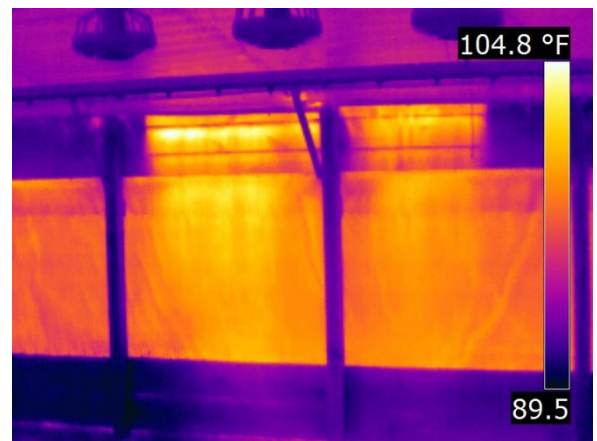
Dr. Donald, a professor in the department of Biosystems Engineering, said the NPTC was a missing link in the Alabama poultry industry, which generates about \$3 billion in receipts and has an economic impact of more than \$15 billion to Alabama’s economy each year. There are approximately 12,000 poultry houses and 3,000 growers in Alabama, and the state’s poultry industry employs more than 86,000 people.

Established in 2007, the Auburn University NPTC started out researching simple ways to help poultry growers save money and increase profitability. For instance, the center found that growers could cut heating costs by about 15 percent just by recirculating air inside poultry houses to improve the efficiency of the heating system and keep birds more comfortable.

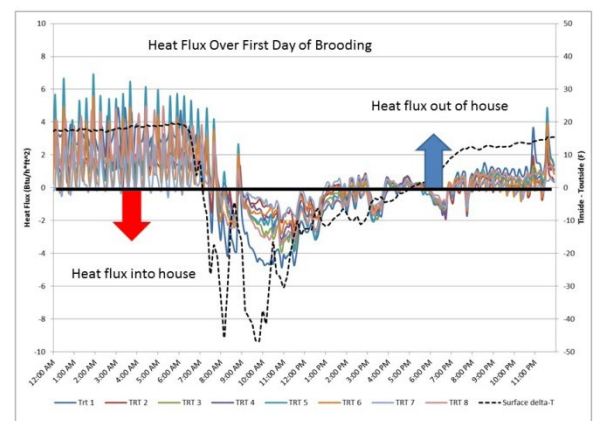
Now the NPTC is helping this vital Alabama industry save about \$34 million a year through its research and outreach efforts aimed at increasing the efficiency of poultry production facilities. The NPTC focuses on areas such as new energy sources, equipment advances for optimal environmental conditions for birds, improved designs that will ensure long-lasting facilities, and engineering issues during live production that may affect the quality of poultry products.

The relationship between sound engineering principles and good economics is the foundation of poultry technology. Combining engineering science with environmental and agricultural sciences helps Auburn understand how a bird’s weight and laying efficiency—its productivity—is so contingent on its environment.

For instance, lighting in poultry houses is crucial; too much or too little lighting can adversely affect chickens’ eating habits and growth. The NPTC advised that poultry houses switch to a combination of LED and compact fluorescent (CFL) lights, which



Thermal image of heat loss from non-insulated poultry barn



Heat loss and gain over 24 hours, typical poultry house

together provide uniform lighting and have a lifespan 10 to 20 times greater than standard incandescent bulbs. Installed correctly, these lights can reduce a grower's electric costs for lighting by as much as 85 percent, according to NPTC research.

Research on conserving heating fuel, however, has had the greatest impact so far. The NPTC found that by properly insulating typical chicken houses in Alabama—making building modifications for about \$9,000 per house—the state's growers could save \$12 million a year on heating fuel, *and* the state's poultry processors could save about \$12 million a year on reduced poultry feed costs. If chickens are too cold, they will eat more to compensate. Therefore, both poultry growers and processors benefit from the technology.

The NPTC also gives recommendations for the best ways to construct chicken houses so they are structurally sound and durable under the sometimes extreme weather conditions in Alabama. More than 200 poultry houses were destroyed in the April 27, 2011 tornadoes that ravaged the state. But improved building standards ultimately have saved the industry about \$10 million per year in each of the last five years. NPTC researchers also have pioneered green technology in poultry houses on test farms in the state. Studies are underway to catch rainwater from poultry houses and use it for cooling and rearing birds.

The center team members spend most of their time in the field, conducting research and training growers and company representatives on commercial poultry farms. A hundred farmers often attend one meeting or training session. "Growers know they can trust us," Donald noted. "We strive to be an unbiased source of information that growers can use to make good business decisions."



Modern poultry houses are not chicken coops. 66 feet wide by 600 feet long are typical.



Hands on training for growers and technicians in the field

LINKS

Website	http://www.aces.edu/dept/poultryventilation/NationalPoultryTechnologyCenter1.php
Videos	https://www.youtube.com/user/NPTCAuburn/videos
Newsletters	http://www.aces.edu/poultryventilation/Newsletters.php
Books	http://www.aces.edu/dept/poultryventilation/Books.php

METRICS

\$340 million	Annual Economic Impact in U.S. from NPTC
\$34.2 million	Annual Economic Impact in Alabama from NPTC
\$125 million	Annual Gas & Electricity saved in U.S.
\$12.6 million	Annual Gas & Electricity saved in Alabama
\$120 million	Annual Impact on Feed Efficiency in U.S.
\$12.0 million	Annual Impact on Feed Efficiency in Alabama
\$150 billion	Poultry Industry Generates for the U.S. Economy
850,000	Jobs in the U.S.