New Penn State Facility 'Customized' For Poultry Research

ANDY ANDREWS
Lancaster Farming Staff

UNIVERSITY PARK (Centre Co.) — You can "customize" your home. You can customize your car. One day, scientists may even be able to customize the egg, in reducing the overall size of the yolk or by finding some way to intercede in the growth of the egg to limit the amount of cholesterol inside the yolk.

Studies of how to make a better bird, and a better egg, are under way in force at the new Penn State Poultry Education and Research Center.

This week, hundreds of visitors to Ag Progress Days were able to see first-hand the inside and out of a the new $6 million center, dedicated in spring this year, to replace an old facility built in the 1930s.

Six buildings make up the facility, measuring 50,000 square feet and designed to conduct "cutting edge" studies in support of the state's $500 million poultry industry. The total area under roof equals about 49,000 square feet, according to Penn State records, with a total bird capacity, if full, of about 15,000 birds.

At the Tuesday morning tour, about 30 visitors, many of them poultry, beef, and dairy farmers, were able to view a great portion of the finished facility and learn about some of the ongoing university research.

Tour guide Dr. Roland Leach, Penn State professor of nutrition and poultry science, said that the university opened the new facility with completely new birds. No birds from the older facility were carried over.

The facility is built with plastic walls and concrete floors that can be easily sanitized and kept clean. Visitors on the tour were required to wear special hats, coats, and boots for biosecurity.

What is unique about the facility is the ability to simulate environmental conditions to conduct studies on growth and performance of turkeys, broilers, and laying hens.

Fundamental Research Building

New incubators in this facility, which comprises a conference room, environmental chambers, hatchery, feed mixing area, battery rooms, surgery suite, laboratory, student housing and manager offices, were custom-ordered from an outfit in England to specifications. The incubators are completely computer-controlled to allow precise measurement and monitoring of temperature and humidity, according to Leach.

This 8,700 square foot building, with a capacity of 1,000 birds, includes a 12-foot by 16-foot environmental chamber which can also be closely controlled and monitored. This precision monitoring is a factor when checking on certain genetic strains of birds and their growth and health under certain types of conditions.

The incubator has customized trays which can turn the eggs until hatching. Total capacity of birds at time of incubation is about 1,800 per case, for a total of about 3,400 birds. According to Leach, the trays can be divided to look at different genetic strains of birds.

The facility contains a small mixing room for small batches of experimental feeds, said Leach. "For our general populations, where nutrition is not a variable, we don't try to mix all our feed," he said. "It's cheaper for us to buy from one of our larger feed manufacturers. But where nutrition is a variable, then we'lll mix our own feed."

One experiment being conducted includes research on trying to reduce the nitrogen and phosphorous in chicken manure using different feed additivies, such as enzymes, to improve utilization of the phosphorous in feed.

Large battery rooms, one measuring 19-foot by 29-foot, and small rooms measuring 13-foot by 16-foot, are used to measure growth rate of the birds, according to Leach. Also included is a special surgical suite with a separate air handling system from the rest of the building.

Meat Bird Building

The meat bird building, measuring 5,700 square feet, is shaped like the letter "H." Each wing has its own storage and change room. One wing could be isolated for starting turkeys. The building, equipped with a laboratory, has the capacity for four bulk bins if different diets are used.

This "customized" building is used to study different strains of genetic stock for peak broiler growth and to study certain product markets.

Ongoing in this facility is a research effort with a major broiler suppliers to look at "the optimum cross of different strains" by certain producers, according to Leach. "As you know, there is a market for fresh-dressed poultry . . . and a big market for breast filets."

The breeding companies are trying to design a bird to sell to the major processors, and processing companies are looking at specific bird genetics "to find out what is optimum for their operation," said Leach.

The building contains four quadrants with 24 research pens each and a laboratory.

Pullet Building

Would it be possible to "customize" an egg — to make an egg yolk smaller per unit size or to substantially reduce the levels of cholesterol per egg? Research conducted in this facility may prove that not only possible, but probable in the years ahead.

The pullet rearing building, measuring 9,000 square feet with a capacity of about 3,600 birds, contains six small floor/cage rooms measuring about 13-foot by 20-foot each. The building contains a laboratory, four large floor/cage rooms (measuring 20- by 20-feet each) equipped with light control and temperature control above ambient. Pullet cages include two decks with a capacity of about 2,000 pullets. Included is a large feed mixing capability with a one-ton capacity horizontal mixer.

The leghorn laying hen, now

(Turn to Page A25)

The 8,700 square foot fundamental research building, with a capacity of 1,000 birds, includes a 12-foot by 16-foot environmental chamber which can also be closely controlled and monitored. Dr. Roland Leach, left, provided a tour of the facility at Ag Progress Days on Tuesday.

This week, hundreds of visitors to Ag Progress Days were able to see first-hand the new $6 million center, dedicated in spring this year, to replace an old facility built in the 1930s. Tour guide on Tuesday morning was Dr. Roland Leach, Penn State professor of nutrition and poultry science, far left in glasses.

Visitors on the tour were required to wear special hats, coats, and boots for biosecurity.

The facility contains a small mixing room for small batches of experimental feeds, said Leach. "For our general populations, where nutrition is not a variable, we don't try to mix all our feed," he said. "It's cheaper for us to buy from one of our larger feed manufacturers. But where nutrition is a variable, then we'lll mix our own feed."