

Biosecure Fortress

AVIAGEN ADVANCES ITS TECHNOLOGY AT ITS NEW TENNESSEE POULTRY FEED MILL



Aviagen, Inc.

Huntsville, AL • 256-890-3800

Founded: 1923

Products: Broiler breeding stock

Feed production: 220,000 tpy at three locations

Number of employees: 8,000+ globally

Key personnel at Pikeville:

- Richard Obermeyer, director of feed production
- Kasey Wilson, feed mill manager
- Chris Anderson, maintenance supervisor
- Zach Rule, process control supervisor
- Eugene Evans, shift supervisor
- Alan Bell, shift supervisor

Supplier List

Air compressor..... Ingersoll Rand
Automation system..... CPM Automation Group
Bearing sensors..... 4B Components Ltd.
Bin level monitors..... Monitor Technologies LLC; Endress Hauser
Bin unloaders .. Laidig Systems Inc.
Boiler..... Cleaver Brooks
Bucket elevators..... GSI
Catwalks Warrior Mfg. LLC
Contractor..... WL Port-Land Systems, Inc.
Conveyors..... GSI
Distributors Hayes & Stolz Ind. Mfg. Co. Inc.
Dust collection system..... IAC; Aircon Corp.; Bühler Inc.
Elevator buckets Maxi-Lift Inc.
Engineering WL Port-Land Systems Inc.
Feed cleaner..... CPM
Gates/diverters . The Essmuller Co.
Hammermills..... CPM
Hygienisers CPM
Liquid tanks Assmann Corp.
Magnets SMC Corp.
Mass flow meters..... Micro Motion
Microingredient system..... CPM Automation Group



Aviagen, Inc.'s new 3,000-tpw poultry feed processing facility in Pikeville, TN features an enhanced level of biosecurity. Photos by Ed Zdrojewski unless otherwise indicated.

Back in 2012, when Aviagen, Inc. updated with new heat treatment technology its first U.S. biosecure feed processing facility in Athens, AL, the company said the mill was on the leading edge of keeping harmful pathogens out of its chicken feed.

Ten years later, Aviagen has opened its newest feed mill in Pikeville, TN, with a rated capacity of 3,000 tpw. That works out to 156,000 tpy at the new \$35 million feed processing facility, which has been in operation since its ribbon cutting May 27, 2022. (In between the Athens and Pikeville facilities, Aviagen also opened a biosecure feed mill in Sallisaw, OK in 2018.)

Biosecurity protocols at Pikeville, which began production in March 2022, represent a decade worth of advances, says Richard Obermeyer, director of feed operations, who



Richard Obermeyer

has been with Aviagen since 2006. He notes that Pikeville now is the home to the most advanced biosecure feed processing facility in the United States:

- Various feed manufacturing operations have been divided between several different steel-walled structures. In the photo above, from right to left, is corn and soy meal receiving and an 80,000-bushel grain elevator; a batching building for storage of ingredients in sealed bins, grain grinding, and mixing; a process building where mash is heated, pelleted, cooled, and some of it crumbled; and a truck loading building.

Everything up to the top half of the process building is considered “dirty” or “unobtained” and only accessed by employees designated for those areas. Everywhere after the pathogens

Millwright..... Jesco, Inc.
Mixer Hayes & Stolz Ind. Mfg. Co. Inc.
Motion sensors 4B Components Ltd.
Motors Toshiba International
Pellet cooler Geelen Counterflow
Pellet crumbler CPM
Pellet mill..... CPM
Scales B-Tek
Screeners..... EBM Mfg. Inc./Rotex

Screw conveyors..... Conveyors Inc.
Speed reducers Dodge Industrial, Inc.
Square bins Chief Agri
Steel storage..... Chief Agri
Steel tank erection Jesco, Inc.
Tower support system Warrior Mfg. LLC
Truck probe..... Gamet Mfg. Inc.
Truck scales..... B-Tek Scales LLC
Vacuum system Hi-Vac Corp.



Hayes & Stolz 3-ton double-ribbon mixer.

have been eliminated utilizing a hot start steam conditioner and hygieniser retention vessel, are all extended areas designated “clean” or “obtained” and restricted to only authorized employees after showering and changing into clothes the company provides.

This design allows the movement of people and products to be controlled carefully. Fencing around and through the grounds reduces access and helps regulate traffic flow, reducing the chances for contamination. Signs and closed-circuit cameras that monitor traffic and activity further enhance biosecurity.

- Dust collection is more comprehensive in the new mill. In addition to the usual Aircon and IAC baghouse collection systems, each transition in the product flow, such as between the mixer and the mixed feed leg, is outfitted with an Bühler spot filter. Housekeeping is performed using a Hi-Vac vacuum system. Each production stage is served by its own ventilation system and HEPA filtration equipment.

- Finished feed is screened for stray foreign material using EBM Gentle Roll screener and Rotex rotary screeners.

- Aviagen worked closely with suppliers to design process equipment for easy cleaning in a biosecure environment. For example, Aviagen and CPM modified the pellet mills to eliminate ledges and other places where product can collect. CPM Beta Raven did the same with its 20-bin microingredient system and re-



Small grain elevator holds locally-grown corn in two 40,000-bushel Chief hopper tanks with a Warrior 12-foot-x-18-foot-x-148-foot support tower and a 10-foot-x-8-foot-x-89-foot box bridge.



Geelen counterflow pellet cooler. Photo courtesy of Aviagen, Inc.

programmed its automation control system to maintain biosecurity protocols.

- The Beta Raven automation system is designed to simplify operations and improve efficiency. The automation is overseen from a centralized biosecure control room. Before entering the control room, employees must shower in and change clothing and shoes following strict hygiene practices.

Mill Design and Flow

Obermeyer says Aviagen chose a site

in Pikeville, in part, because of its relatively isolated location in a mountain valley, the better to maintain biosecurity. The site has no rail service, which he says is a plus. All ingredients are delivered by truck, and corn is grown locally.

To engineer and construct the Pikeville facility, Aviagen hired WL Port-Land Systems, Inc., Pittsburgh, PA, as general contractor.

“We’ve had a history with them at Athens,” says Obermeyer. “The thing we like best about WL Port-Land is ►

they don't design cookie-cutter mills. With our level of biosecurity, we have some very specific needs, and they were willing to work with us on that."

Jesco, Inc., Fulton, MS, served as millwright and erected the tanks in the batching section.

That elevator includes a pair of Chief 40,000-bushel corrugated steel hopper tanks for holding corn. Storage also includes a pair of 5,000-cubic-foot cone-bottom, welded steel tanks equipped with Laidig bin unloaders for handling soybean meal.

Everywhere after the pathogens have been eliminated utilizing a hot start steam conditioner and hygieniser retention vessel, are all extended areas designated "clean" or "obtained" and restricted to only authorized employees after showering and changing into clothes the company provides.

Trucks deliver these ingredients through an airtight sealed chute into the receiving pit. Product then travels up a GSI 200-tph leg outfitted with a single row of Maxi-Lift 14x7 buckets on a 16-inch belt. At the top, a multi-duct Hayes & Stolz rotary distributor delivers ingredients to storage.

Corn is ground with a Champion 40x38 hammermill with a variable frequency drive that allows the operator to vary the particle size.

Next door, the batching tower stands on a 42-foot-x-42-foot footprint and is 119 feet tall. It includes 21 ingredient bins that can hold up to 48,000 tons of ingredients.

These ingredients are mixed in a 3-ton Hayes & Stolz double-ribbon mixer, currently at an average of a four-minute cycle time producing 45 tph of mash feed. Liquid ingredients are added at the mixer, as well as microingredients from a 20-ton CPM Beta Raven system.



CPM Beta Raven 20-bin microingredient system.



CPM Model 7932-12 pellet mill produces 30 tph.

Mash feed can be stored in four 25-ton mash bins, two of each are dedicated to one of two pellet lines.

Prior to going into the "clean" area of the mill, feed is in the CPM hot start conditioner with steam generated by a 350-hp Cleaver Brooks boiler and then held for a target dwell time in the CPM hygieniser to eliminate all

pathogens before going into one of the two pellet lines.

Feed is pelleted on either a CPM Model 7932-12 pellet mill at 30 tph or a CPM Model 7726-7 pellet mill at 10 tph. Pellets from the larger mill are coarser.

From there, pellets are cooled in a Geelen counterflow cooler. The

cooling step removes excess moisture and heat.

The pellets next are screened to remove fines. The fines are circulated back into the mash feed for repelleting. Some pellets are sent through a CPM crumbler to become chick feeds.

Finished feeds are held in 29 bins with 1,000 tons capacity each. Aviagen operates four biosecure trucks that are loaded with a WL Port-Land lorry scale. They travel to Aviagen's internal production farms around central and eastern Tennessee, Alabama, and Georgia, which are equipped with their own biosecure receiving equipment.

Additional Biosecurity Protocols

In addition to the measures listed previously, Aviagen has continued protocols that proved successful in its older mills:

- Trucks are loaded remotely. No one except the driver is in the loading bays.
- All operations can be monitored and initiated from the control room, which is in the clean area of the mill. Mill operators must shower in and change clothes before they can reach the control room.
- Eighty closed-circuit cameras have been placed around the facility. Real-time pictures can be viewed from the control room.
- Throughout the mill, any design details that can make cleaning easier to perform are incorporated. These include a hard floor surface with rounded edges.
- Quality control samples are tested by two independent firms located outside of Pikeville.

Ed Zdrojewski, editor



Above left: A special transition between pieces of equipment contains a spot filter for removing fines from the product flow. **Above right:** Hi-Vac vacuum systems powers cleanup throughout the plant. **Below:** Cleaver Brooks boiler is rated at 350 hp.



Some Facts About Aviagen

- Aviagen employs nearly 8,000 people worldwide and serves customers in 100 countries.
- Based in Huntsville, AL, Aviagen has operations across the United Kingdom, Europe, Turkey, Latin America, India, Australia, New Zealand, Africa, and the United States.
- Aviagen was the first poultry breeding company in the United States to design and build its own feed processing facilities to eliminate contamination and ensure high levels of biosecurity.



Read our 2012 article on Aviagen's Athens, AL biosecure feed mill at grainnet.com/aviagenathens or scan the QR code



Watch a video of Aviagen's new Pikeville, TN biosecure feed mill

