

Ohio's Research Feed Mill

NEW CAMPUS MILL IS A DOZEN YEARS IN THE MAKING

Ohio Agricultural Research and Development Center
Wooster, OH • 330-263-3700

Founded: 1882
Feed milling capacity: 8,000 tpy
Feed mill products: Any livestock ration required for research
Feed mill employees: 9

Key personnel:

- Jack Bardall, mill manager
- Brandon Koch, assistant manager
- Keith Snyder, assistant manager
- John Phillips, mill operator
- James Scott, mill operator
- Randy Steiner, mill operator/driver
- Jeremy Wolbaugh, mill operator
- Ian Chapman, student employee
- Dustin Miller, student employee

Supplier List

Aeration system Safe-Grain, Inc.
Batch control system WEM Automation
Bearing sensors .. 4B Components
Bucket elevators .. Sweet Mfg. Co.
Conditioner CPM Roskamp Champion
Consulting engineer WLPorland Systems, Inc.
Contractor ... North Bay Construction
Conveyors (drag) ... Sweet Mfg. Co.
Conveyors (screw) Screw Conveyor Corp.
Distributor Hayes & Stolz
Dust collection system Aircon
Dust filters ... MAC Equipment Inc.
Elevator buckets ... Maxi-Lift Inc.
Engineering ... Abel Mfg. Co. Inc.
Feed cleaner CPM
Gates/diverters .. Abel Mfg. Co. Inc.
Grain temp. system ... Safe-Grain,
Hammermill CPM
Manlift Sidney Mfg. Co.
Microingredient system .. Abel Mfg.
Mixers Hayes & Stolz
Motion sensors.. 4B Components
Pellet crumbler CPM
Pellet mill CPM
Roller mill CPM
Scales (batch) .. Abel Mfg. Co. Inc.
Scale (truck) Apollo Scales Inc.
Scale load cells Rice Lake Weighing Systems
Screeners BM&M
Square bins Abel Mfg. Co. Inc.
Steel storage .. Brock Grain Systems



The new 8,000-tpy research feed mill nearing completion in July 2009 at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH. Photos by Ed Zdrojewski.

The Ohio State University (OSU) operates a small research feed mill, both to supply feed for its wide-ranging livestock research operations and to test new feed formulas. However, at the university's Ohio Agricultural Research and Development Center (OARDC) in Wooster, that mill was built in 1965, and it was clearly out of date.

"The mill had been designed to produce 1,200 tpy at the time of its dedication," says Jack Bardall, mill manager. "Today, we're producing 4,000."

University officials have been discussing a replacement mill since at least 1997. Things can move slowly in a major university's bureaucracy, so it wasn't until June 2007 that



groundbreaking took place on a new 8,000-tpy mill on the OARDC campus. When *Grain Journal* visited in early July 2009, construction on the \$5.5 million project was nearing completion.

Funding for the project was provided by the state of Ohio through capital funds and through its Third Frontier economic development program. Startup is scheduled for Sept. 1.

Design-Build Project

Part of the lengthy process of getting underway was finding the right contractors to meet the university's requirements.

"A consultant that we had recommended



The old 1965 mill at OARDC will continue to be used for a while but eventually will be converted to other functions such as storage.

a design-build project,” says Kenneth Scaife, assistant to the director for field operations at OARDC. “The state legislated funding as a design-build project. Over the years, the university had handled things differently, and administrators in Columbus didn’t feel they had enough expertise in the design-build approach.”

As a result, OSU turned to a design-build firm with a lot of experience in feed mill construction – WLPort-Land Systems, Inc., Pittsburgh, PA (412-344-1408) – to represent OSU in dealing with the contractors. Among them:

- North Bay Construction Inc., Westlake, OH (440-835-1898), served as design-builder of record.



Express Scale bagging line will bag between 15% and 20% of the research mill’s output for use at the OARDC or outlying stations.

- Abel Mfg. Co. Inc., Appleton, WI (920-734-4443), designed the mill flow and supplied square bins and other equipment.

- Middough Inc., Cleveland, OH (216-367-6000), performed site development and environmental engineering.

- Lake Erie Electric, Inc., Mansfield, OH (419-529-4611), served as electrical contractor.

Milling Operations

The new mill, located adjacent to the U.S. Highway 250 four-lane that runs through campus, is an all-steel structure. It contains 17 Abel ingredient bins, with a total capacity of approximately 400 tons, plus 10 bulk loadout bins totaling 130 tons, and two bins dedicated to the bagging line. In addition, an outside 5,000-bushel Brock steel tank holds corn.

Receiving and transfer operations include four legs and 12 round-bottom drag conveyors ranging from 3,000 to 6,000 bph from Sweet Mfg. Co.

All mill functions operate under a WEM Automation control system.

Those functions start with grinding by a CPM Model 11.5x44 Magnum hammermill or a CPM Model DP999-36 roller mill.

Feed will be mixed on a pair of Hayes & Stolz double-ribbon mixers. According to Bardall, they’ll operate an average of five minutes mix time at startup. The operation also includes a 24-bin Abel microingredient system for storage, but Bardall notes that micros and liquids mostly will be added by hand.

Smaller, more specialized batches



From left: Kenneth Scaife, assistant to the director for field operations; Jack Bardall, mill manager; and Will Kisner, project manager with WLPort-Land Systems, Inc.

will be mixed with a pair of Hobart benchtop mixers, one producing 30-quart and the other 140-quart batches.

Some 15% to 20% of this mixed feed will proceed to an Express Scale Model CM780-BF-D bagging system.

Much of the rest will be pelleted using a 7-tph CPM Model 1116 pellet mill. The pellet line also includes a Geelen Model RS counterflow cooler and a CPM 36x20 Gyro Sifter feed cleaner. Some feed will be routed to a CPM Model PC-837-SS crumbler, as needed.

While much of the feed produced will serve livestock research projects on the Wooster campus, some also will be trucked to the OSU main campus in Columbus or to livestock research operations at four other outlying experiment stations around the state.

In addition to supporting food animal research, Scaife notes, the new mill eventually will be put to use processing oils and proteins from field crops, especially soybeans, for research into biofuels and other industrial uses.

Ed Zdrojewski, editor



CPM Model 1116 pellet mill runs 7 tph of pellets. The line also includes a Geelen counterflow cooler and CPM screener and crumbler.