

Dairy Center Construction Under Way At Virginia Tech

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Virginia Correspondent
BLACKSBURG, Va. — A new dairy center featuring water-recycling and odor control at Virginia Polytechnic Institute and State University will be a showcase of 21st century dairy science technology.

The air will be fresh and clean for some 26,000 undergraduate students next year on the beautiful Virginia Tech campus when the \$4.5 million project is up and running.

According to Dr. Steve Nickerson, head of the Virginia Tech Dairy Science Department, the fulfillment of this dream after eight years of planning is owing to the support of the Virginia State Dairymen's Association (VSDA), the Virginia Farm Bureau, the Virginia Agribusiness Council, and Sen. John Chichester.

An additional \$1.1 million was granted by the state for an office building, three bunker silos, hay storage barn, commodity storage barn, feed storage mixing area, and other renovations.

The Dairy Center is set to open in January of 2004.

Charles "Chuck" Miller, the dairy center superintendent, described the new barn as a "complete flush barn," employing the latest water-use technology.

At one end of the barn, two 22,000-gallon recycle flush tanks similar to silos will flush the barn's six manure alleys three times a day. The flushing system will take advantage of pressure both from the height and volume of 12-inch water lines.

From the reception pit, enroute to becoming odor-free, the manure will go through stages of separating water from solids. First, a mechanical separation sends the solid mass into a dry manure stacking facility. Settling basins are followed by aeration-separation and odor reduction in three concrete tanks. It's really a five-stage separation process, according to Miller.

The gray water will be pumped back to the tall tanks and also into 5,400 feet of irrigation lines that serve the fields.

Miller said the 336-foot long freestall barn is designed to accommodate 232 stalls. It also features a special-needs research area, a holding pen, and a double-eight, rapid-exit herringbone milking parlor.

Each side of the parlor will have a 1,000-gallon capacity water-filled tank. This water will cool the milk and ensure compliance with the Pasteurized Milk Ordinance (PMO) that the milking parlor is flushed with clean water.

"We have in this facility the ability to (monitor) individual feed intake for 48 cows," said Miller, adding that although the cows will be in loose housing, a computer transponder on each will guide her to her own door.

Students will be able to conduct research in nutrition, endocrinology reproduction, management, and genetics in the new center.

"We've got to figure out how to get as much milk out of

those udders as we can," said Dr. Nickerson.

In addition to dairy science, opportunities for research in biological engineering, crop and soil environmental sciences, entomology and plant pathology, physiology and weed service, will be expanded in the new Dairy Center.

"This herd also serves the college of veterinary medicine," said Miller.

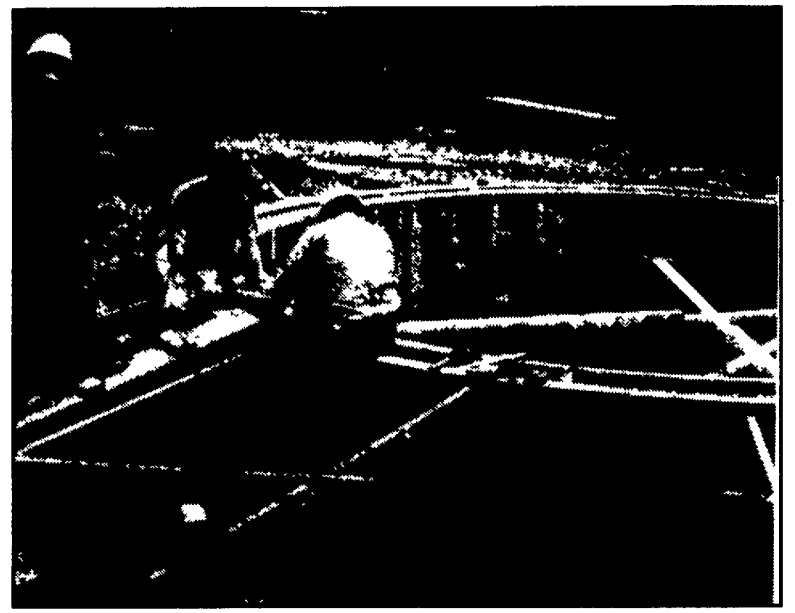
He indicated the dairy center will impact the nearby Maryland/Virginia Regional College of Veterinary Medicine's ongoing research projects. For example, these studies would involve topics such as mastitis, reproduction, and de-worming heifers. The veterinary students working with the dairy herd will develop skills in learning about the diagnosis of sick animals, pregnancy palpation, and hoof-trimming.

The enhanced research, according to Nickerson, will ultimately be communicated to the world as research information is evaluated and disseminated through the extension service and the dairy science department's three arms: its two-year program in animal production; four-year bachelor's degree program, and the advanced degree programs.

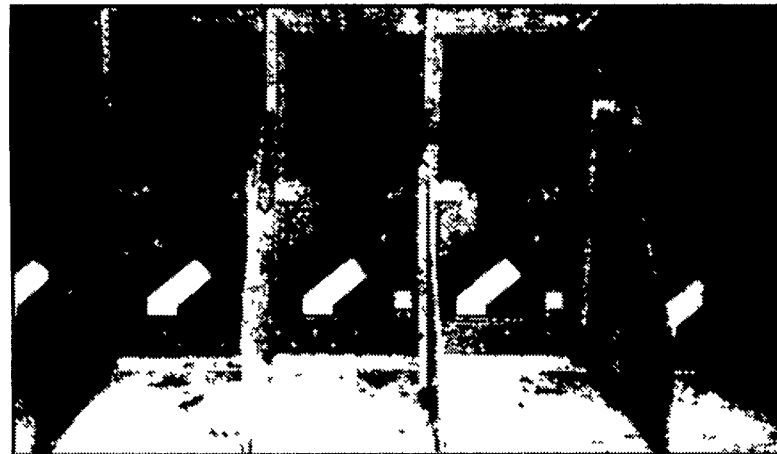
The two-year program has an enrollment of 30-35 students with 55-60 undergraduates pursuing bachelor's degrees.

The predecessor of the new barn was a stanchion model equipped with a pipeline milking system. After being built in 1956, this barn supported the nutrition trials and research of the dairy science department for 44 years.

Harold Nester will serve as the Dairy Center's herd manager. About a dozen employees will work a full time schedule, and a



The construction team is at work on the 14,000-gallon manure reception pit, located at the end of the future freestall barn. Tall water tanks will assist the flushing process through six alleys in the 336-foot barn that will be built on a 2-percent slope.



The Calan door system, used in Virginia Tech's heifer barn is praised by dairy science officials for its efficiency in providing feed intake information on each animal trained to eat only at its own door. The new dairy barn will feature the Calan Door System as well.

work-study program will assist students seeking part time work. Graduate students, undergraduate students, and professors will converge to tackle the necessary work.

Three vital issues of the project are those of eliminating runoff, preserving nutrients for the fields, and controlling odor.

Corn for silage and high moisture corn is grown on about 200 acres. Barley on 60 acres is harvested as grain and straw. Alfalfa/orchardgrass is harvested as haylage on 75 acres. Orchardgrass on 170 acres is harvested as hay and used as pasture land..

Two companies involved in the

project are located in Chambersburg, Pa. Integrity Waste Management Systems designed the waste system and Sollenberger Silos has contracted to construct the tanks and the concrete storage pits.

Nickerson said the manure separator, the pulse jet irrigation pump and the pulse jet irrigator will be installed by the Integrity company. Dairymen Specialty Co. Inc. of Harrisonburg, Va. is supplying Germania equipment for the milking parlor.

The existing milking cow facilities will be remodeled as a facility for fresh cows, dry cows, and spring cows, the men said.

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