

State's First Solar Dairy Barn At New Bolton Center

KENNETT SQUARE (Chester Co.) — The University of Pennsylvania School of Veterinary Medicine has completed plans and signed contracts to start construction of a 200-head solar dairy barn for teaching and research at New Bolton Center in Chester County.

The Allam Dairy Facility solar dairy barn will be a first in Pennsylvania. This type of barn, usually built in the Northern states and Canada, has proved to be a big boon to the dairy industry.

A solar barn is energy efficient, naturally bright, and easy to keep dry, all essential conditions for productive cows. Also, it is cost effective in terms of manpower and building expense.

The Allam Dairy Facility solar dairy barn is named after emeritus dean, Dr. Mark W. Allam, Class of '32. Dr. Allam was interim dean of the School of Veterinary Medicine from 1952-1953. In 1953 he was appointed dean and remained in that capacity until

1973. Dr. Allam was instrumental in the development of New Bolton Center and still takes a great interest in it.

The new Allam Dairy Facility at New Bolton Center will serve as a living laboratory for the School of Veterinary Medicine.

"It is a commercial dairy with modifications for extensive and intensive research. We recognized that in order for us to do relevant research we needed the environmental setting that emulates the real world," said Dr. William Chalupa, professor of nutrition at the School's Center for Animal Health and Productivity (CAHP).

"It's like having an on-site patient for us to study," said Dr. David Galligan, associate professor of animal health economics at the school. "In this case our patient is the farm. We now can explore ways to keep the dairy farm healthy and productive while keeping costs at a minimum through the use of a living model."

The new facility will serve as a

research and teaching site in such fields as epidemiology and preventative medicine, nutrition, reproduction, infectious and chronic diseases, and dairy cattle health economics.

In addition, the new Allam Dairy Facility will provide the region a resource with potential for commercial applications and enhance the teaching environment for veterinary and graduate students interested in the medical and managerial aspects of dairying.

"In order to adapt to our climate we've made design modifications to reduce heat build-up," Dr. Galligan said.

"The shell of the building is pre-manufactured as a solar agriculture building, in essence, a plastic greenhouse." In the summer, the sides of the barn can be rolled to facilitate cross ventilation.

The facility consists of an administration area that includes a room with view of the double-10 herringbone milking parlor; four

sections of 40 free stalls where cows can lie down; and, a space for 48 comfort stalls or traditional tie stalls.

A commodity building and bunker silos will be located on the north side of the barn.

"The layout of the free stall area enables us to care for and milk approximately 160 cows with relatively little labor," Galligan said. Through the use of electronic gates the cows can be herded to the milking parlor and milked requiring the labor of only one person.

The tie stall area accommodates 48 cows which are tied up at feed bins in a traditional dairy farm fashion. This set-up will be used primarily for nutritional studies. Each cow can be fed a different mix and monitored by computer. The tie stall area of the barn can be converted to a free stall-style barn, if needed.

Manure from the entire barn is deposited into an 8-month holding tank and is periodically and strate-

gically spread onto fields which reduces the need for chemical fertilizer, cutting the overall farm cost.

The new dairy facility is made possible by a grant from the Commonwealth of Pennsylvania and through the generosity of the following: American Cyanamid Company, Princeton, N.J.; The Bedford County Farmers Association, Bedford; Church and Dwight Company Inc., Princeton, N.J.; Mr. Emerson C. Frey, Millersville; and, Mr. W.B. Dixon Stroud, Media.

Penn's Center for Animal Health and Productivity at New Bolton Center, the school's large animal facility, was established in 1986 to implement teaching, research and service programs directed toward the improvement of health and productivity in food animal herds and flocks. The focus of CAHP is improved production through the maintenance of physical and economic health in the whole animal population.

Weed Species May Improve Golf Greens

UNIVERSITY PARK (Centre Co.)—On the lush turf of golf greens, the presence of a weed is about as jarring as a sneeze in church. Then why is a researcher in Penn State's College of Agricultural Sciences working on adapting a species of bluegrass that is classified as a noxious weed for use on golf greens?

According to David Huff, assistant professor of turfgrass breeding and genetics, certain strains of the bluegrass species *Poa annua* exhibit such desirable traits as upright growth, high shoot density, and high tolerance to the extremely low mowing heights most top golf courses use on their greens.

Creeping bentgrass is grown on most northern golf courses. Huff

explains that, as its name implies, bentgrass grows flat rather than straight up. The flattened grass can unpredictably influence the rolling path of a putted golf ball—a condition professional golfers call "grain." Creeping bentgrass can be groomed to grow straight, usually by raking the greens and dressing the surface with sand.

Poa annua establishes itself in patches on greens planted with creeping bentgrass and has been a pariah to greenskeepers for decades. "Typically, soil will become exposed from balls hitting the green or from spike marks, allowing the *Poa* to take hold," Huff explains.

Over a period of years, the bluegrass strain expands, usually out-competing the bentgrass. Huff said golf courses that are more

than 80 years old often have greens made up exclusively of *Poa annua*. "If the greens are mowed very short—5/32 to 3/32 of an inch—creeping bentgrass becomes very stressed at those heights and the *Poa* does very well," he says.

"The variety of *Poa annua* reminds me of breeds of dogs," Huff says. "It's all one species, yet there are a lot of different strains—some good and some bad."

Over the past year, Huff has been collecting samples of *Poa annua* from golf courses across the country, primarily from courses more than 100 years old. From these samples, he hopes to produce a breed of *Poa annua* that can be developed into a commercial product.

"I see this product being used for renovations of older courses where the greens are already comprised of *Poa annua* strains," Huff said. "Of course, some course superintendents may prefer to plant *Poa annua* on newer greens and I think it produces a much superior putting surface."

Once Huff has selected several varieties for breeding, he hopes to produce a cultivar that is resistant

to heat and disease. He estimates his work could produce a commercial seed in about five years. "At the very least we'll be able to develop a variety that is uniform in color, growth rate and texture," he said.

As part of his research, Huff is constructing an experimental golf green to be planted entirely with *Poa annua*. The green, located near Beaver Stadium, will allow him to observe how the grass performs under realistic conditions. He even plans to go out and putt

on the green. All in the interest of science, of course.

"We have to evaluate the turf quality and its putting surface to see which varieties will be best suited for use on greens," Huff said. "For years scientists worked to try to get rid of *Poa annua*. We will still have to convince people that what we are doing is a good thing, but once they compare creeping bentgrass and the selected strains of *Poa annua*, the advantages of *Poa annua* should be clear."

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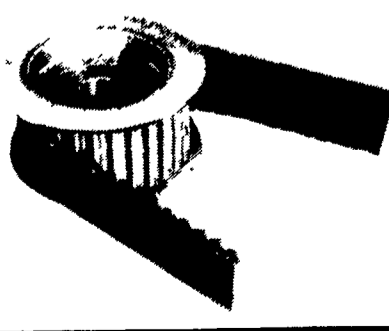
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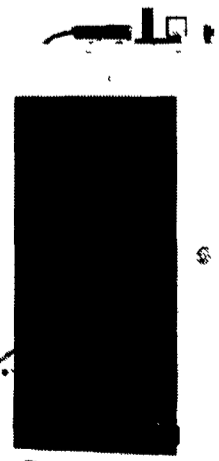
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