

Dairy Owners Find Innovation Is Key to Environmental and Economic Success

Unconventional partnership brings new ideas

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at the Nickerson family's 10-Mile Grade Dairy are grass-fed under a rotational grazing system that has reduced the dairy's costs and environmental impacts. (Photo: Courtesy Scott Wallin)

"You want me to join a council with who?" A few Florida dairy groups unfamiliar with Environmental Defense wondered if the enemy had arrived under the guise of cooperation when, in fall 2003, the organization's Center for Conservation Incentives teamed with California-based Sustainable Conservation to launch a new approach to the nation's dairy industry manure management challenges.

Fortunately, Art Darling of Sunshine State Milk Producers and other dairy representatives from around the country gave the enviros a chance. As often happens when we leave our assumptions at the door, a productive relationship followed. To identify economically and environmentally feasible manure management methods, the new partners formed the National Dairies Environmental Stewardship Council, an alliance that also includes university researchers, cooperative extensions, the Natural Resources Conservation Service and the Environmental Protection Agency. For more about the council, see www.suscon.org/dairies/ndesc.asp.

Meeting both environmental and business goals

Visiting just three Florida farms demonstrates that dairies can use fundamentally different approaches to satisfy both business goals and state environmental regulations, while achieving individual goals for environmental stewardship and a role in the community.



"Cow comfort, cow health and employee friendliness are very much a part of our daily goals," says M&B Dairy owner Dale McClellan. The dairy's modern milking parlor is one of his many innovations. Credit: Courtesy Scott Wallin

Manure management on dairy farms — and all animal operations — is a key component in protecting water and air quality. Although nutrients in properly managed manure can be valuable fertilizers for crop and forage growth, the same nutrients and pathogens from poorly handled manure impair water quality when they enter waterways through leaching or runoff. Improperly managed manure also contributes to air quality problems by releasing hydrogen sulfide, ammonia, methane and other harmful gases. Depending how it is stored and used, manure is either a valuable resource or a waste product.

10-Mile Grade Dairy: Focus on grass

One of the nation's largest grass-based dairies, 10-Mile Grade Dairy in Hardee County, Florida, is owned by the Nickerson family. The farm follows a rotational grazing management approach that rotates cows through multiple paddocks. Grass supplies most of the herd's nutrition, and as they graze, the cows distribute their manure, which fertilizes the forage pastures and reduces runoff and leaching to groundwater. To save their business financially, the Nickersons shifted to rotational grazing in 1992. Even though grazed cows typically produce less milk than grain-fed cows in a confinement system, the costs of feeding cows on grass are much lower. The change significantly reduced the dairy's costs, making the farm's 2,200-cow herd profitable. "We look at the bottom line," says Chris Nickerson. "We have the lowest production per cow, but our cows are profitable."

A community approach to conservation

Going beyond the individual farm approach to conservation, agricultural community members in north-central Florida's 7,640-square-mile Suwannee River Basin joined forces in 1999 to protect the environment and public health. To address increasing nitrate-nitrogen levels in the Suwannee and Santa Fe River Basins, more than 50 federal, state, regional and local agencies; private agricultural associations; and others coordinate programs and resources through the Suwannee River Partnership. Shenandoah Dairy and other dairies, poultry farms and hay and row crop producers implement and maintain best management practices on a long-term basis with technical assistance and cost share funding from the Partnership.

Thus far, the group has leveraged more than \$30 million from federal, state and local governments and farmer contributions. The goal is to implement conservation plans and best management practices on 80% of the region's dairy, poultry and row crop farms by 2008. Find out more information on this [innovative partnership](#).

The change has paid off environmentally as well. The milking parlor is the only area where manure must be collected and managed. It is pumped underground to a neighbor, who uses it to fertilize and irrigate hayfields and in turn sells the hay to the Nickersons.

Says Norm Nickerson, "The state environmental regulators really like this grazing concept. It satisfies a lot of their concerns, such as how we spread the manure, and the cows aren't concentrated in one area. The threat of pollution with us is almost nil."

M&B Dairy: Advocating innovation

Each of the 600 cows in the two open-air barns at M&B Dairy in Lecanto, Florida has an individual stall with a foam mattress and ready access to feed and water. Mist sprayers and fans keep cows comfortable year-round, and recycled water flushes the alleyways three times daily. All effluent flows into a deep, concrete-lined lagoon, and what isn't flushed is applied to 216 acres of grass fields. The grass is harvested on a rotational basis and fed back to the cows or sold to other farmers. Separate storm water drainage systems direct rainwater runoff from the barns to a nearby oak hammock.

Like many dairy farmers, M&B Dairy owner Dale McClellan continually looks at what works and what could work better. An agronomist helps evaluate crop fields for ways to improve manure nutrient applications for optimal crop quality and yield and environmental performance gains. The dairy has applied for a grant to separate solids and to add a methane digester to generate energy from manure. The solids would be sold as a soil mix enhancer, which, unlike native peat, is a renewable product that would benefit several industries and the environment.

"A straightforward operation that is nutrient-balanced and enjoyable to work at is what we try to accomplish," McClellan says. "Cow comfort, cow health and employee friendliness are very much a part of our daily goals. I feel like I am an environmentalist, as I have worked to improve my knowledge and practices. As time goes on, I know more and can help educate the public and media that farmers are good stewards of the environment."

Shenandoah Dairy: Making herd comfort paramount

In 1987 the Henderson family launched Shenandoah Dairy in Live Oak, Florida with 100 cows. Eighteen years later, 2,100 cows live on the farm. Half of them are housed in free stall tunnel barns where they are not tied up or confined to a single stall, but free to roam. When the Hendersons complete renovations, the remaining 1,050 cows will also be in tunnel barns. These barns are bedded with sand and are flushed with recycled water three times daily, maintaining extremely clean conditions. Large fans and misters cool the cows by evaporation and circulate fresh air in the barn, which is open at one end.



Ed Henderson knows that comfortable cows are healthier and more productive. In the tunnel barns at Shenandoah Dairy, cows are not tied up, but free to roam, and they are provided with clean bedding and cool, fresh air. Credit: Courtesy Scott Wallin

"Cows housed in the tunnel barn are healthier and more productive," said Ed Henderson, who handles the farm's finances. "Healthier cows have fewer problems, which leads to a longer productive life."

To manage nutrients and odors properly, the Hendersons carefully monitor manure application on the land by regularly sampling soil and plant tissues and analyzing forages. Their feeding program protects water quality by using forage as much as possible and employing manure nutrients as organic crop fertilizer. The dairy is a member of the Suwannee River Partnership (see above sidebar) and has participated in the [Environmental Quality Incentives Program](#), a voluntary USDA incentive program. Community outreach is another important goal for the Hendersons, who host many school groups and are initiating efforts to address any concerns and inform neighbors how the dairy operates.

Some people criticize Shenandoah Dairy for its growth, but the Hendersons believe expansion has enabled them to stay economically viable and address environmental issues. 'By increasing the size of our business, we have increased our opportunity to meet demanding challenges,' says Henderson. 'We keep our focus on cows and people. Our system is built with the environment at the forefront.'

Read more about [Shenandoah Dairy](#).

Differing methods achieve good results

Using individual approaches, each dairy meets its business and environmental goals, as well as local challenges and regulatory requirements. The bottom line? An economically and environmentally successful dairy operation doesn't follow any one particular model.

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