An **Innovative Approach** to Water Use in Dairy Farming

How Riverview is building on rain and snow capture at Campbell Dairy as it develops Abercrombie Dairy in North Dakota

By Riverview, LLP

Water is essential to dairy farming. Cows need a dependable supply of clean water, and water is used throughout a dairy to support animal care, sanitation and milk production.

That makes water planning an important part of designing and operating a dairy. The question is not simply how much water is needed. It is also where that water comes from and whether resources already available at the site can reduce the amount drawn from the ground.

At Riverview's Campbell Dairy, one answer begins with the rain and snow that fall across the farm.

Precipitation that lands on barn roofs and other hard surfaces is collected in an on-site pond and put to productive use. The captured water becomes part of the water supply for the dairy, including helping keep cows cool during the summer.

"We're always looking for ways to do more with less," says Chris Blauch, head of Riverview's innovation team. "At Campbell Dairy, capturing rain and snow that fall on hard surfaces has reduced our groundwater use by nearly 40%. That's millions of gallons."

MAKING THE SYSTEM WORK

Turning precipitation into a reliable water source requires planning across the entire dairy. Rooflines and drainage systems must direct the water where it needs to go, while pumps and distribution infrastructure make it available for use.

Captured rain and snowmelt must also remain separate from water that has come into contact with manure, feed or other materials. Maintaining that separation preserves it as a useful part of the dairy's water supply.

The result is a system that addresses two needs at once: managing precipitation across a large agricultural site and providing water that supports cow care.



SUPPORTING COW COMFORT

One important use for the captured water at Campbell Dairy is helping keep cows comfortable during hot summer weather.

Cows naturally generate body heat, and high temperatures and humidity can make it more difficult for them to remain comfortable. Dairies use a combination of shade, ventilation, fans and water-based cooling systems to help manage heat.

Using captured water for cooling allows Campbell Dairy to meet an important animal-care need while reducing its reliance on groundwater. Water conservation and cow care are not competing priorities. With thoughtful planning, the same system can support both.

Rain and snowfall naturally vary, so captured precipitation cannot replace every gallon of water a dairy needs. Cows must always have access to a reliable water supply, regardless of weather conditions. Campbell Dairy's experience demonstrates, however, that precipitation can replace a significant portion of the groundwater traditionally required to operate a dairy.

BUILDING ON CAMPBELL'S SUCCESS IN NORTH DAKOTA

The experience gained at Campbell Dairy is now helping shape Riverview's approach at Abercrombie Dairy in North Dakota, which is currently under construction and expected to open in summer 2027.



BUILDING ON WHAT WORKS

Campbell Dairy's water system reflects Riverview's broader approach to innovation: start with a real operational need, evaluate the resources already available and find a solution that delivers measurable benefits.

Colleagues working directly with dairy systems are an important part of that process. Their experience helps Riverview understand how systems perform in everyday conditions, where improvements may be possible and how emerging technologies could be used effectively.



Riverview is incorporating a similar rainwater capture system at Abercrombie, building on what has worked at Campbell while expanding the system for the new site. The rainwater storage basin planned for Abercrombie will be 30% larger than the basin at Campbell Dairy.

The approach illustrates the value of considering water management during the design process. Buildings, drainage systems, storage and water infrastructure can be planned together from the beginning rather than adapted later.

North Dakota receives both rain and snow, creating opportunities to make precipitation part of a dairy's overall water management strategy. At the same time, every dairy must be designed around the conditions of its location, including weather patterns, soils, available water resources and operational needs.

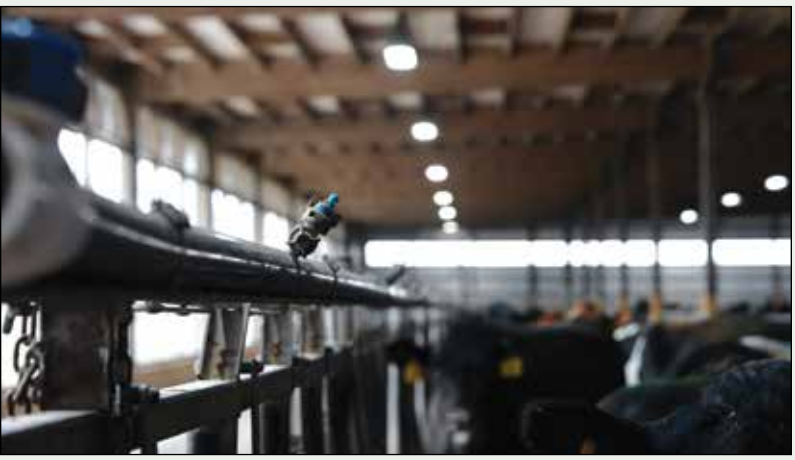
For Riverview, that means using Campbell as a working example rather than a fixed blueprint. The lessons learned there can inform future projects while allowing each site to be designed for its own circumstances.

Abercrombie represents the next step in that process: taking a system that has demonstrated measurable benefits at Campbell and applying those lessons on a larger scale.

The progression from Campbell Dairy to Abercrombie Dairy also demonstrates that innovation does not have to mean starting over. It can mean studying what is already working, learning from experience and finding ways to improve upon it.

The results at Campbell provide something to build on, rather than an endpoint.

"Good innovation means continuing to learn," Blauch says. "We'll keep embracing new technology, improving the systems we already have and looking for better ways to care for cows while using water responsibly."



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