



Dairy Water Management

Efficient Strategies to Maximize Water Resources



The Leader in Precision Irrigation.®



The Water Challenge

As a dairyman, your primary focus is gaining greater volume and a higher quality of milk from your cattle. That's a big job in and of itself. But you also have other things to worry about – environmental requirements, runoff, lagoon capacity, water quality and nutrient management – not to mention accurate record keeping and satisfying “concerned neighbors.”

It's a lot to take on, but regardless of what regulators expect of you, your experience has prepared you to protect your operation and the environment by finding the best resources available to you.

Dairy Water Management

From the Ground Floor to the Grand Plan

Whether you're facing the challenges of starting up a new dairy, expanding your operation, re-evaluating your current setup or ensuring you're in full compliance, you have the opportunity to harness the resources of the most comprehensive water management company in the business: Valley.

We can help you validate your investment, complete due diligence, manage water resources, minimize environmental impact, and provide you with the equipment to make it all happen.

When you partner with Valley, you collaborate with a team working for you behind the scenes.

Your Water Source Specialists

Takes the lead to work directly with your dairy. Detects and develops your water sources, sustaining the viability of those sources and managing them all the way to your dairy operation and fields.

Your Environmental System Advisors

Guides you through complicated federal, state and local laws and regulations managing compliance risk, designs treatment systems, and creates effective nutrient/soil management strategies so you can advance productivity and reduce waste.

Your Precision Irrigation Experts

Provides irrigation solutions for any operation, delivering water and nutrients to your crops in the most efficient and effective way possible, closing the circle for water re-use.

The Team On Your Side

- Soil Scientist
- Geologists
- Hydrogeologists
- Agricultural, Chemical and Environmental Engineers
- Compliance Specialist
- Water Rights Specialist
- Pump Specialists
- Irrigation Specialists



By tapping into our resources, you save time and effort so you can regain your operational perspective. We'll do the heavy lifting – consulting, permitting, sourcing, compliance, design, construction and management – so you can make a positive contribution to the environment and make a lasting impact on the future and sustainability of water for agriculture.

You determine our level of involvement based on the challenges you face. It may be issues of catching greater runoff, evaluating lagoon liner seepage rates to meet state compliance for holding structures, increasing lagoon storage capacity, or development of a nutrient management plan.

Our experienced team can complete in-depth analyses to help you choose a new site or evaluate an existing site to maximize its potential. From aquifer studies to well and reservoir design to soil characterization, we'll make sure you're collecting water from the right places and delivering it where it needs to go.



Regulatory Record Keeping

No matter your situation, maintaining the proper records is crucial to your water management plan. With mounting pressure and increasing scrutiny of dairies, proper data collection, tracking, management and analysis is the best way you can demonstrate that you're complying with every regulation.

That's why our water management experts designed Water Sentinel®, a stand-alone online service that's easy to use on any computer with Internet access. Water Sentinel is compatible with BaseStation3™ and allows multiple authorized users to have access to safe and secure information and tools, such as:

- Simple and accurate point-and-click regulatory reports
- Automated data inputs from SCADA systems, irrigation base stations and other telemetry
- Customized setup for your site
- Map-driven data access
- Easy interface with spreadsheet and database software

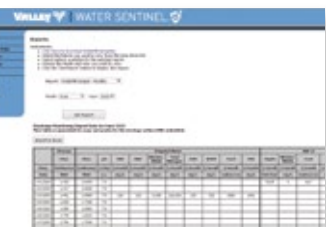
Dairy Water Management



Map-Driven Data Access



Wastewater Analysis Data



Regulatory Reporting

Operational & Environmental Gains

Water re-use management is positioned not only to comply, but also to boost operational progress for your dairy, both economically and environmentally.

Combines farming and feeding to lower operating costs

- Wastewater becomes a resource
- Reduces energy consumption and emissions

Protects the environment

- Safeguards water resources (groundwater and surface water)
- Prevents soil erosion

Improves crop yield

- Enhances soil fertility
- Reduces fertilizer inputs

Sustainable progress

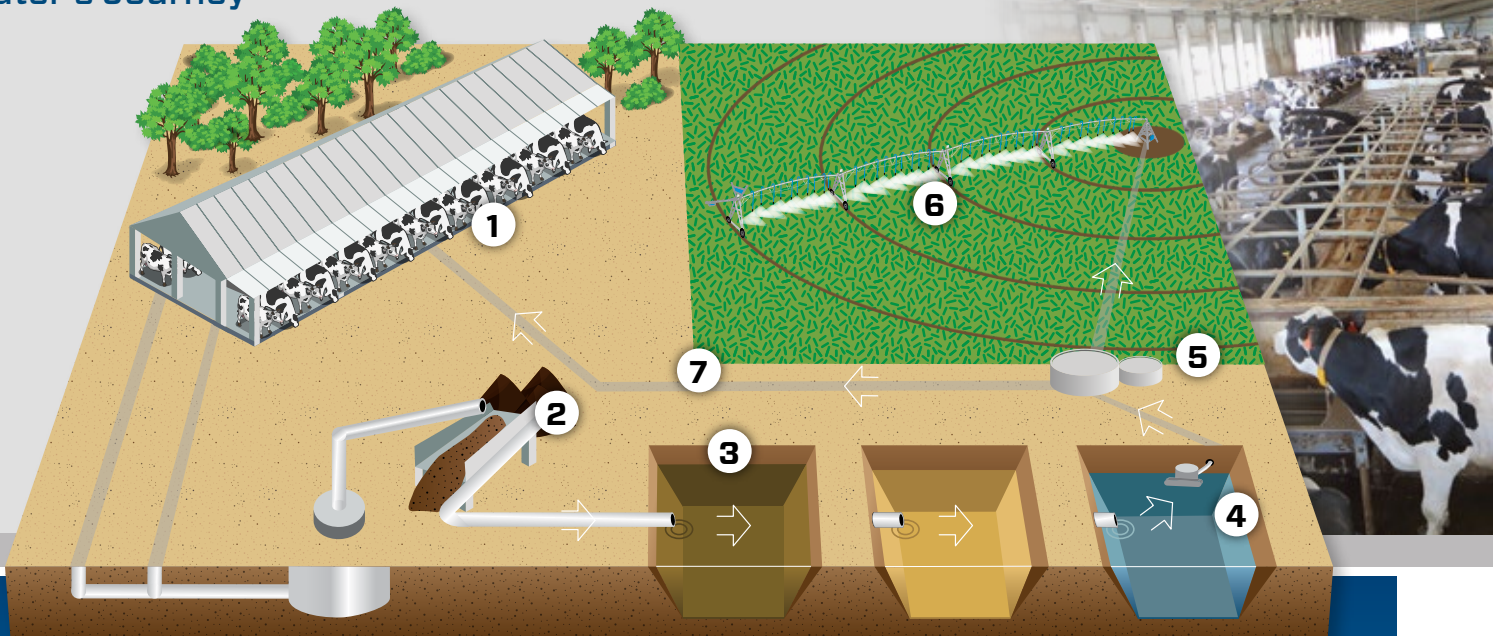
- Provides a balance between growing and feeding
- Strengthens water resource development

The Center Point of Full-Circle Solution

At Valley, we understand that dairies of all sizes face challenges that no other agribusiness does. They require some serious knowledge and practical know-how to overcome them all. In the best possible situation, improved management will allow you to get full use out of every drop of water, several times over.

Valley can be the center point solution to evaluating and creating a solid dairy water recycling program.

Water's Journey



1. Dairy Stalls and Barn

Manure, wastewater, runoff and cooling water are collected from the farm for treatment and re-use purposes.

2. Treatment System/Solids Separation

Wastewater is initially treated to remove solids and bedding material. Collected solids can be composted, used as bedding, or land applied.

3. Treatment Lagoons/Anaerobic Digestion

Screened wastewater is further treated using facultative lagoons and/or treated anaerobically to further reduce organic solids.

4. Post-Treatment Storage Pond

Treated wastewater is stored for on-farm use.

5. Pumping System

Treated wastewater can be diverted for irrigation or flush water makeup. Freshwater can be blended with wastewater to ensure crop water demands are met.

6. Land Application System

Treated wastewater is utilized as a moisture and nutrient source for crop production.

7. Re-Use Water

Treated wastewater is used as part of makeup water for flushing and cleaning.

Dairy Water Management

The Full-Circle Advantage

Re-using water right away

Some water can be used, captured, and used again almost immediately. Water that's used strictly for cooling milk can be captured in drains and stored in tanks to clean milking center floors. Valley can design and build the drains, flush tanks and prep stalls to make this happen seamlessly.

Collecting wastewater and runoff

Any water that comes in contact with dairy waste, and even stored feedstock, must be contained. We can design and create a system that will ensure that wastewater becomes re-use water, routing it to the proper place to store and treat it. Capturing runoff can involve terraces, drains, roof gutters and more. The storage lagoon should be large enough to hold required volume of runoff even in the wettest, stormiest year, while prohibiting unwanted leeching.

Developing a treatment plan

Water that is captured can be treated for re-use. Nitrogen levels can be balanced to meet federal and state requirements. Valley can provide the right nutrient management program to keep your re-use water safe for crops, cattle, nearby water sources and your soil. Our experts will develop a plan that's tailored to your operation, leveraging your site features, including ponds, lagoons, vegetative filters, separators, tanks, pipes, streams – whatever matches your dairy requirements.

Applying re-use water through irrigation

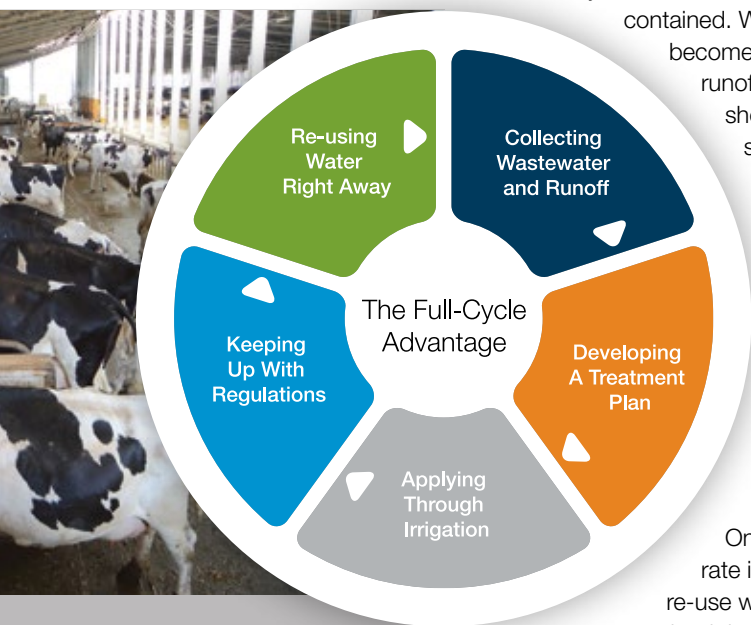
One of the best ways to re-use all that nutrient-rich water is through variable rate irrigation (VRI). Animal feeding operations produce manure and process re-use water, which can be partially treated, managed and properly applied to cropland through irrigation.

A dairy farm with 500 cattle typically produces nitrogen, phosphorus and potassium to fertigate or fertilize 5,000 acres (2,023 hectares) of corn, which can meet the silage demand for 1,000 head of cattle. With Valley VRI, you can program you pivot to apply your farm's re-use water exactly where you want it, where crops need it most, and avoiding unnecessary areas.

With the right irrigation plan, your cattle will benefit from healthier feed, you'll conserve fresh water, and you'll save money on fertilizer and wastewater disposal costs.

Keeping up with regulations

No matter where your dairy is located, you've got regulations – from the EPA, the state(s) in which you operate, and sometimes even county and city ordinances. Through the support of Valley Science & Engineering, our environmental advisors understand these regulations and manage them on a daily basis, and we will continue to look out for you and make sure you're in compliance now and for years to come. Plus, Water Sentinel will make record keeping easy for you, so you can quickly provide proof of your compliance and get instant information on system performance.



Trust Valley to help your dairy operation's water management from start to finish or at any stage in between.



See your local authorized Valley dealer for complete details.

valleyirrigation.com

Valmont® Irrigation has a policy of continuous product improvement and development. As a result, certain changes in standard equipment, options, price, etc. may have occurred after the publication of this brochure. Some photographs and specifications may not be identical to current production. Your local Valley® dealer is your best source for up-to-date information. Valmont Irrigation reserves the right to change product design and specifications at any time without incurring obligations.

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