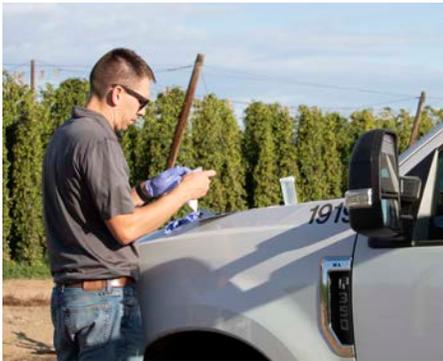


CASE STUDY

IRRIGATION AND WATER MANAGEMENT: Virgil Gamache Farms



OVERVIEW

Founded over a century ago, Virgil Gamache Farms, Inc. (VGF) is a leading hop farm in the heart of the Yakima Valley. The family is well known for their chance discovery of VGXP01/ Amarillo® brand hops, popular among brewers for its complex and delightful aromatic characteristics.

As an industry leader, VGF understands that water is a precious and limited resource. They have adopted numerous tools to improve water efficiency through data-driven irrigation systems, including; high efficiency drip irrigation and wireless controlled valves, while protecting and sustaining the natural water supply through thoughtful recycling and environmental stewardship.

CHALLENGE

Irrigation Practices:

With over 1,000 acres of premier hop production, water is the most critical resource in ensuring the success of each year's harvest. Under watering can result in crop stress and yield loss, while over watering can result in excessive vegetative growth, unnecessary waste, and the potential for added pest pressure. Excessive irrigation can lead to leaching, specifically pushing nitrates into the groundwater, and potentially cause contamination of domestic potable water wells. In addition, aging systems and technology managed by the local irrigation district make delivery and accurate measurement of water quality and supply challenging for numerous farms throughout the local area.

Virgil Gamache Farms took initiative to identify and research systems to ensure each plant received the precise amount of water needed to balance productivity with conservation, as well as to help sustain farming efforts throughout the Yakima Valley.

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WATER QUALITY

VGF addressed issues such as the need for dust control for environmental and pest suppression purposes and a clean water delivery system to reduce high organic matter, debris, and other contaminants to help reduce potential high bacteria load.

The focus on these preventive measures shifted the organization from a reactive mindset to a proactive approach to water quality. VGF began implementing methods that reduced the opportunity for pathogen contamination in its irrigation sources while protecting natural habitats and local watershed population.

Organic matter filtration and sand filtration systems were installed at each of VGF's pumping stations to ensure water met quality standards for use in irrigation. At the same time, VGF implemented key steps to ensure the protection of natural habitats and the local watershed populations.

Goal 1:

Shift the organization from responding to potential foodborne pathogens in irrigation water to preventing them; become proactive vs. reactive.

Goal 2:

Build and implement sustainable farming practices while being a good steward of precious natural resources.

Goal 3:

Implement best practices for determining irrigation needs.

STRATEGY

Irrigation Practices:

To ensure plants receive just the right amount of water, VGF used satellites with infrared cameras to identify areas of the hop field where plants were experiencing strain from low water or over watering. Through high-efficiency drip irrigation, wirelessly controlled water valves directed the water specifically to the areas of need—in just the right amounts for optimal production.

Water Quality:

To protect the valuable and limited water from contamination, VGF shifted from open irrigation to closed irrigation piping. VGF added cover crops of triticale, planted in between rows, to prevent erosion, control dust and dust-borne pests, and keep nitrogen in the soil from leeching into the groundwater supply. To prevent further erosion and keep water temperature cool, VGF carefully chose native plant species to grow along the water canals. In addition, as a certified organic farm, VGF eliminated the use of harmful inputs, such as sewage sludge and most synthetic fertilizers and pesticides. VGF implemented a comprehensive recycling strategy to ensure all hazardous waste, including heavy metals and motor oil, was captured and repurposed rather than relying on other disposal methods that may pose a threat to the groundwater supply.

OUTCOME

VGF's efforts to implement best practices for irrigation and water use, as well as other good agricultural practices have led them to achieving third-party food safety and sustainable certifications, such as USDA Organic, GLOBALG.A.P., Kosher, and Salmon-Safe. They are known as a forward-thinking leader in the hop industry. Their efforts honor the legacy of founder Virgil Gamache and protect the beautiful Yakima Valley, while providing sustainable farming practices for future generations.

