

WATER RECYCLING SOLUTIONS



See improved water use efficiencies and reduction in wastewater on your lines

By Joe Kertzman, managing editor, *Badger Common'Tater*

The motivation for potato and vegetable growers, as well as processors, to recycle their water or wastewater commonly comes from



two main factors, according to Wyma Solutions, manufacturer of post-harvest vegetable and fruit handling equipment.

Those factors are the need to reduce freshwater consumption, and the need to reduce wastewater discharge.

The operating region—urban or rural, and the state where the operation is located—and whether it is a fresh market and/or processing facility will determine whether one or both factors drive a grower's or processor's decision to increase water recycling on site.

“Commonly, the motivation to reduce freshwater consumption is driven either by supply costs [\$/gallon] or the local authorities restricting total consumption,” says Leighton Hill, North American territory manager for Wyma Solutions.

“Similarly, drivers to reduce wastewater discharge are commonly the cost to discharge, either by volume or contaminant levels, or both, or local authorities restricting discharge characteristics,” Hill states.

For example, in Wisconsin, the total discharge volume limit for an “Industrial Liquid Waste to Subsurface Soil Absorption System Permit” is 15,000 gallons per day. (<https://dnr.wisconsin.gov/sites/default/files/topic/Wastewater/55611FS.pdf>).

Depending on a facility's operation

Above: The Wyma Solutions Micron Filter is an ultra-fine, high-capacity, self-cleaning, compact, and cost-effective first stage water treatment solution. It filters to levels much finer than traditional first stage filters, removing a significant amount of organic matter and debris from the water in the first pass so the water can be easily reused.

size, it is common that no water recycling systems are in place for water discharge levels to be over this limit.

“Based on previous experiences, we have seen approximately 500-1,000 gallons per hour of water being discharged per 2,000 pounds/hour of fresh market potatoes being processed when no water recycling systems are in place,” Hill relates.

DISCHARGE LIMITATIONS

“Using this metric, it places most potato wash lines over the discharge limitations,” he adds. “With the Wyma water recycling system, we could likely reduce the total discharge volume to be within these requirements, depending on the line size, and reduce permit costs for the operator.”

Many operators spread wastewater over farmland, where the restriction of discharge is controlled by a “Land Spreading of Industrial Liquid Wastes

General Permit,” which is 13,500 gallons per acre/day.

To learn more, visit <https://dnr.wisconsin.gov/sites/default/files/topic/Wastewater/55867fs.pdf>.

“Although spreading wastewater over farmland provides an outlet with the ability to discharge larger volumes, it is dependent on accessibility to land, and weather and field conditions,” says Peter van der Loo, North American territory manager for Wyma Solutions.

“It is also prone to crop disease spreading,” he states. “Therefore, if total wastewater can be reduced, it is still likely to be a more cost effective and robust option.”

“There is a global trend toward local authorities becoming stricter on both freshwater consumption and discharge characteristics,” Hill adds, “with some countries now requiring the discharge water to be of the same quality as the incoming water.”



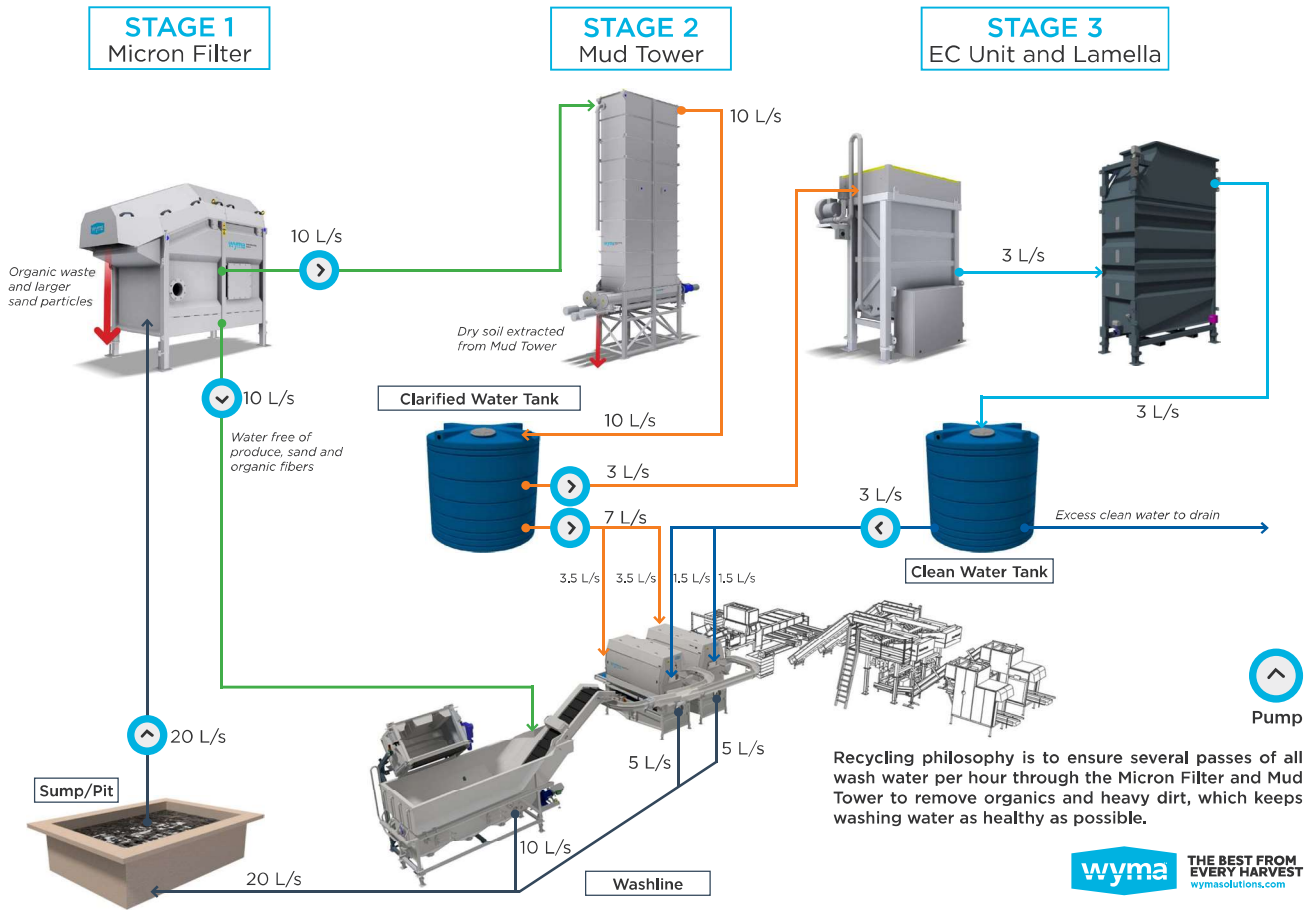
The Wyma Solutions Mud Tower removes solids from vegetable wash water and discharges them in a semi-solid form able to be easily conveyed or transported.

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“Therefore, it is important for growers to consider future proofing their operating facilities,” he suggests. “If it doesn’t benefit them now financially, it likely will in the future.”

Through treatment systems, water

is transported via flumes and/or pumps to the various machines, with the location of water treatment equipment depending on the space available within a processing plant or packhouse. In some installations, the water treatment is outside of the main wash line facility.

Above: The diagram shows water treatment flow rates using Wyma Solutions equipment to remove organics and heavy dirt and keep water as healthy as possible.

Bottom Left: In using the Wyma Solutions Micron Filter, submersible or external pumps are provided to pump the filtered water back to the processing or wash line for recycling. Other features include auto emptying, auto water and dirt removal, automated self-cleaning, and a system to prevent solids build-up in the tank

In North America, any on-demand Wyma equipment servicing or parts inquiries are managed by Volm Companies, with technicians and parts stores based throughout the region.

SKILLED TECHNICIANS

Wyma has skilled technicians who schedule preventative maintenance visits to customer sites annually.

Services include comprehensive equipment inspections in which experienced Wyma factory-trained



technicians carry out invasive checks on all equipment and produce a detailed report on the condition of customer machinery.

Recommendations are provided to the customer on any maintenance items or parts replacements requiring attention.

Wyma is currently gauging customer appetite for annual service trips to North America, having just completed an eight-week dedicated service trip.

“We often have Wyma Technicians in the region for new installation jobs and are flexible about traveling to other customer sites to resolve issues that cannot be solved remotely,” Hill says.

“Any Wyma equipment fitted with onsite automation and video enables our global support teams to remotely connect, monitor and trouble shoot from afar,” he states.

“There is a global trend toward local authorities becoming stricter on both freshwater consumption and discharge characteristics.”

– Leighton Hill,
*North American territory manager,
Wyma Solutions*

Many growers are open to recycling water. There is a growing global awareness of the use of water and water quality in food processing. The largest benefits to growers are reduced freshwater usage, control of wastewater, and retaining quality soils on site.

The cost to create a water treatment solution for a vegetable wash line depends on how many tons per hour

of produce is processed, the line size, processing steps, soil types, amount of waste to be managed, and the water flow required.

For more information, contact Wyma Solutions, Mike Coker, marketing specialist, mike.c@wymasolutions.com, <https://www.wymasolutions.com>, or contact Volm Companies by calling 715-627-3626 or visiting www.volmcompanies.com. **BCT**



Above: The Wyma Solutions Rotary Drum Filtration System is used to remove organic matter and other debris from a water stream for water reuse or before finer filtration by the Micron Filter. The Rotary Filter reduces freshwater consumption in vegetable washing, food processing and industrial use by up to 95%, depending on the application.



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