Last Resort Farm not Stalled by Dairy Barn Conversion for Produce

Silas Doyle-Burr is managing Last Resort Farm in Monkton, VT, transitioning the farm he grew up on from his parents. The farm was purchased in 1987 and transitioned from dairy farming to vegetable production in 1993. They now grow 26 different crops split evenly between retail and wholesale.

Silas Doyle-Burr, General Manager of Last Resort Farm

About Last Resort Farm

- Location: Monkton, Vermont
- Total of 15 acres
- 10 acres in vegetable and fruit production
- 5 acre in cover crops each year
- 90 acres of hay
- 1,200 Maple taps
- USDA Sales Bracket: $100,000-249,999
- Crops: Berries and mixed veg, Strawberries and Garlic are the biggest specialties
- Markets: Pick-Your-Own, Retail, CSA, farmers market & wholesale
- Crew: 4 Full-time & 4 part-time Workers (April - Nov) , 1 Full-time Worker (Dec - March)
- Wash/Pack operation: Dunk tank, barrel washer, triple bay greens washing with DIY Salad spinner, 5 walk-in coolers, (4-CoolBots and 1-split refrigeration)

About the Project

Overview

The area of the barn transformed is 1,950 ft² which includes 4 new coolers all controlled and monitored by a system from Vermont Energy Control Systems.

The key features that were a priority for Silas were:

1. Slope to drain. “Being able to remove all the wash water immediately and making it easy and convenient.”

2. Wash water discharge management. Having a safe place for wash water to go, and keeping it easy to maintain was an important factor to reduce food safety risk. Cleaning out the sediment trap is a labor intense job that has to be done periodically when washing heavily loaded crops.

One goal of the expansion was to increase organization by having dedicated space to store harvest containers, packaging materials or shipping boxes.

The previous milking parlor is now the farm’s retail space, decorated with garlic braids and other artwork to make it welcoming.

About the Project

Overview: Renovation of an existing dairy barn. Turning an area of 23’x68ft (1,950 sq. ft) into washing, packing and storage space.

Cost: Approx. $60,000 ($31 per sq. ft.)

This space is large enough to hold frequently used wash equipment including a triple bay sink, greens spinner, smaller dunk tank, and barrel washer all inside, protected from the elements.

Ceilings are finished with Trusscore, covering up existing flaking paint and enclosing new insulation. Cooler walls painted white, large south facing windows, and an "open" floor plan makes for a bright and useful working environment.

Flow

Silas was thinking about intentional flow at the start of the project. He wanted a space where product comes in at one end (gets cleaned, packed, stored) and is delivered out the other. The addition of a loading dock provides the ability to move pallets and pallet bins of product which was not possible before.

The improved flow resulting from the project has, indeed, reduced labor costs. It used to take 45 minutes to set up the barrel washer to clean a batch of roots. Now, having space, they can just roll it over and be ready to go in just a few minutes.

THE WHY

There were a several motivations for this renovation. Primarily, increasing efficiency and ease of production and retail sales by separating the washing and packing from the farm stand. Secondly, Silas wanted to improve the produce safety practices on the farm. Additionally, insulating, heating, and expanding the working space into a larger area of the barn enabled work to be more feasible and comfortable without worrying about freezing conditions bursting pipes or damaging stored crops. This conditioned space has extended the shoulder season greens production later into the fall due to increased ease of washing.

The renovation has allowed growth of the business. Even with a few remaining kinks still to be worked out, a 15% increase of sales has been gained from expanding the cooler capacity. The additional space allows more crops to be stored and sold into the winter and even the next spring.

This conditioned space also provides the ability to increase new, specialty crop production like sprouting ginger and turmeric.

This cooler is equipped with a commercial split refrigeration system and used when there needs to be a lot of field heat removed quickly. Shelves are planned, but temporary organization is accomplished with masking tape.

A custom DIY rack for drying and storing totes. Both the rack and the barrel washer on wheels for flexibility and easy mobility.

COST

The cost of the project was approximately $60,000 which included chiseling out concrete, adapting drainage, building 4 new coolers, insulating, instrumenting (temp and humidity controls for coolers), and building a covered loading dock.

BEST DECISIONS

A "gutter" style trench drain and floors pitched to it. Using a 2% slope, water and debris easily find their way to the gutter which can be cleaned out on a routine basis. "I think that that's actually the most important feature that we have here," noted Silas pointing to the drain.

Another key feature was cleanability. Installing smooth cleanable surfaces allows the space to be cleaned well on a regular basis. He used Trusscore as a finish material on inside walls. This is easy to install and doesn't require any sheathing behind it. It's not cheap but Silas worked the numbers and noted, "Based on labor savings it seemed to come up on top."

Installing casters on the main equipment (tables, barrel washer, greens spinner) makes the set-up of different jobs in the wash-pack space quick and easy to transition between crops.

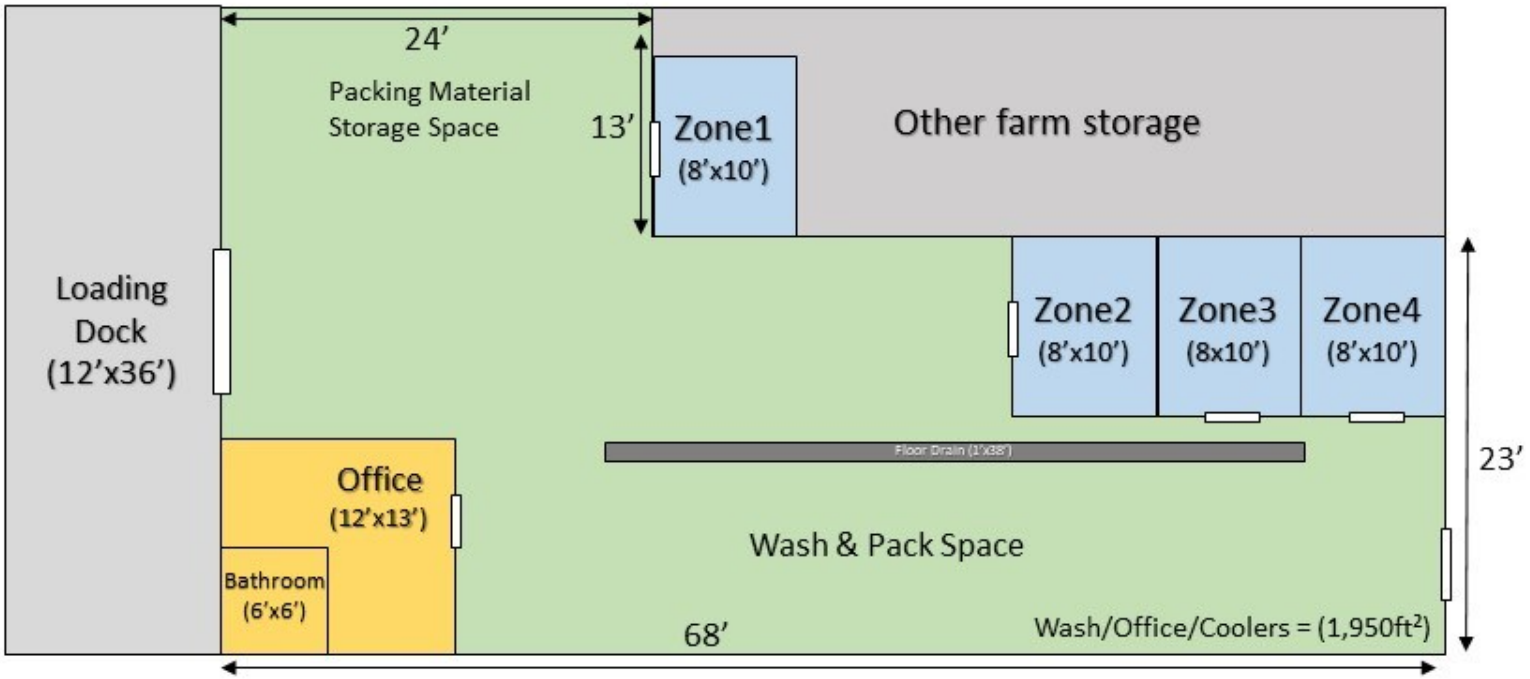
CONCERNS

"Retrofitting into the dairy barn does have its challenges and so there was a lot of labor on our end that factors into that cost," Silas reflected. Examples include breaking up existing concrete, figuring out the best ways to insulate, and the management of water were all challenges that had to be faced. Some of these challenges may not have been as difficult if this was a new construction project from the start.

"It's more of the entire system in itself that will be the major cost saver for us"

Another concern is the longevity of the custom-built coolers. In such high-humidity conditions. moisture management and condensation are key considerations. The use of smooth and cleanable finish materials and vapor barrier behind them helps to manage this challenge.

Silas also noted how he can see within a couple of years he may be outgrowing the space and begin to wish he planned for a larger space from the start.



This floor plan shows the basic layout and use of about half of the barn use for vegetable washing, packing and storing.

The renovations included installing a covered loading dock, with a dock leveler. This enables easy wholesale transactions and adds additional outdoor covered storage.

CONTRIBUTORS TO THE PROJECT

UVM Extension Ag Engineering and Produce Safety Team

UVM Extension Farm Viability and Richard Wiswall

Vermont Agency of Agriculture through the VT Produce Safety Improvement Grant

To watch an interview with Silas about this project, visit our YouTube Channel. go.uvm.edu/agengyt

Favorite Things

- Slope to drain concrete floors (go.uvm.edu/floors)
- Trench Drains - Two 12”x38’
- Bright Cleanable Walls and ceiling - Trusscore - go.uvm.edu/smoothnclean
- Installing casters on the main equipment (tables, barrel washer, greens spinner)
- Multiple accurately controlled cold storage zones
- Loading Dock

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The DewRight Humidity sensor accurately measures and reports the relative humidity to a computer which controls humidifiers to optimize storage conditions to ideal set points for storage crops.

Silas utilized the existing gutter of the dairy barn for wash water catchment. Some chiseling/grading and installation of a clean-out was needed to manage the sediment.

Agricultural ENGINEERING

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