

# Sustainable Solutions to Help Brewery Reduce Environmental Footprint



## Challenge

Buried Acorn wanted to identify more ways that the brewery could reduce its environmental footprint.

## Solution

NYSP21 and CEEL performed an assessment to obtain metrics for a baseline. The evaluation helped to identify additional methods for sustainable brewing which Buried Acorn could choose to implement.

## Results

- Implemented sustainable practices such as sending spent grain to local farmers, capturing and utilizing CO<sup>2</sup> generated during operations, and reusing hot water from a heat exchanger and hot liquor tank for preheated water in next brew.
- The Brewery Sustainability Initiative assessment identified opportunities including the usage of water meters, reusing rinse water, and creating SOPs to standardize sustainable operating practices.

## Buried Acorn Brewing

Buried Acorn Brewing is a small brewery located in Syracuse, NY. Last year the brewery's annual production was 2,800 barrels of beer for consumption in the taproom and local distribution. The COVID-19 pandemic created an obstacle for Buried Acorn's plans for increased production; nevertheless, the brewery is still on track to increase its annual production. Additionally, Buried Acorn is continuing to strive for increased environmental excellence as its business continues to expand.

*“Working with Ken and his team was extremely fluid. Given that it was 2020, virtual site visits and socially distanced site visits were productive and very educational. We are working together to this day to further modernize our facility and bring it up to date with current environmental protection standards.”*

**Timothy Lucien Shore,**  
**Buried Acorn Brewing**

## Challenges

Buried Acorn wants to reduce its environmental impact to continue to strive for environmental excellence. This small brewery has already implemented several methods to reduce its environmental footprint. New York State Pollution Prevention Institute (NYSP21) paired with Cornell Enology Extension Laboratory (CEEL) performed an assessment as part of the Brewery Sustainability Initiative to assist Buried Acorn's effort to increase sustainability.

## Solutions

The objective of this project was to evaluate the brewing process for potential areas of improvement. NYSP2I and CEEL collected metrics for a baseline then created a list of opportunities for Buried Acorn to consider.

## Results

Buried Acorn already had several practices in place to decrease the brewery's environmental footprint before the evaluation performed by NYSP2I and CEEL. Some of these practices include

- Sending spent grain to a local farmer
- Reusing yeast to reduce waste
- Utilizing a retrofitted system to use super sacks to cut down on plastic bag waste
- Capturing CO2 produced in kegging and cleaning to use for future carbonation
- Installing a hop torpedo to lower the volume of hops required for flavoring. This saves on material expenses and reduces waste.
- Utilized a standard concentration for cleaning solutions to avoid waste.
- Performs pH check of rinse water to ensure it is neutralized before disposal.
- Installation of LEDs and insulation on pipes and tanks.
- Reuses hot water from the heat exchanger and hot liquor tank to preheat water for the next batch.



The assessment performed by NYSP2I and CEEL identified some opportunities for implementation of new practices regarding conserving water/energy, reducing the usage of toxic chemicals, and managing brewery waste. Some of the opportunities Buried Acorn can choose to implement include

- Usage of water meters to specifically identify high water usage areas
- Installation of low flow nozzles and hoses
- Installation of plastic storage container for the last rinse of one cycle to be used as the first rinse in the next.
- Composting any solid waste that farmers do not accept
- Rotating detergents and cleaners to prevent resistance bacteria buildup and remove debris.
- Create standard operating procedures (SOPs) to standardize the cleaning methods
- Install plastic strips over the backdoor to prevent loss of heating and cooling due to a draft.
- Insulate the hot liquor tank to prevent energy loss and decrease the load on the electric heaters
- Evaluate some type of mechanical intervention to evaluate beer loss.



## Implementation

- Since the assessment report, Buried Acorn installed a dry hopping device to their fermenter to reduce beer loss. This change has resulted in recovering an additional 15 barrels/year of beer which equates to annual savings of \$3,000.
- Buried Acorn now uses final rinse of tank cleanings to act as the pre-rinse for other necessary cleanings. This change has resulted in the reduction of neutralizer use, in the amount of 20 gallons/year and 2,400 gallons of water per year.
- Buried Acorn has also installed water meters to monitor water use as part of a continuous improvement program to reduce their environmental footprint.

## Partners



## Buried Acorn Brewing

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