

Folklor Wine & Cider
Monitoring Grape Growing Conditions in Charlevoix County
Final Technical Report

1. The original goals and objectives of the overall project.

The goals of the “Monitoring Grape Growing Conditions in Charlevoix County” project were to:

1. Provide sustainable weather-based information that helps wine grape and other fruit growers in Charlevoix County to make pest, plant production, and natural resource management decisions
2. Identify site suitability for future plantings of wine grapes including cold hardiness data and growing degree days
3. Empower Charlevoix County growers to utilize Enviroweather and MSU Extension tools to inform their vineyard management practices

Short term/ongoing:

- Improve the quality of wine grapes grown in Charlevoix County
- Inform vineyard and pest management practices in Charlevoix County
- Provide regional data for multiple crops for decision making and management

Long term:

- Inform site suitability and cultivar selection for future vineyard plantings in Charlevoix County; long-term data about winter lows and growing degree days will inform which grape varieties can successfully be grown
- Document and report long-term changes in climate.
- Yearly comparison of current data to 30-year climate normals (local averages of climatic variables).

2. Results and Conclusion

The data from the weather station has been invaluable this growing season as we implement an organic vineyard management plan at Folklor Wine & Cider during a season which has brought above-average rainfall, humidity, and high disease pressure. It is also showing interesting trends in growing degree days for the season and allowing for comparing conditions to regional weather stations. We have been tracking the difference between our 10 closest stations (below), including the two closest weather stations in Eastport (10 miles away) and Petoskey (17 miles away).

To date, data collected from the weather station is indicating we are seeing distinct differences in heating units from our closest weather station in Eastport, and starting to see differences from the two weather stations in Petoskey. We will continue to monitor the growing degree days through the end of the year and correlate to harvest dates and

grape chemistry. Data for the full growing season will provide a full picture of pest and disease pressure and cumulative growing degree days.

Regional Growing Degree Day and Rainfall Comparison as of 8/9/2022

Station	Distance (miles)	DD Base 50F since 1/1 (Current)	Rainfall Since 1/1 (inches)
Average of 10 stations	0	1516.1	16.39
Charlevoix	0	1448.4	17.5
Eastport	10	1550.2	19.53
Petoskey	17	1503.9	17.25
Northport	18	1389.1	15.69
Petoskey (NCCMC)	20	1411.8	17.68
Kewadin	21	1774.9	9.0
East Leland / Suttons Bay	23	1504.4	16.14
Old Mission	24	1516.7	15.22
Gaylord	28	1486.8	22.1
Elk Rapids	29	1574.4	13.8

There are currently 6 vineyards representing approximately 28 acres of wine grapes within 10 miles of the new Charlevoix weather station. The acreage is approximately 60% vitis vinifera varieties and 40% hybrid grape varieties. During the grant period, 18 acres of vineyards were planted in Charlevoix County representing 12 acres of vinifera and 6 acres of hybrids. The Charlevoix station is providing data to help these producers manage their crops, and will help existing and new growers in the area determine site and cultivar selection based on cold hardiness and ripening potential.

3. The period of time during which the research was conducted, and how the study fits within the multi-year investigation (timeline).

The project took place over the grant period of May 2023 - August 2024. The weather station was installed on 9/8/2023 and began collecting data in September 2023. Folklor Wine & Cider hosted a free education session in partnership with MSU Enviroweather and MSU Extension titled “Weather for Agriculture” on 4/24/2024. Calendar year 2024 will be the first full growing season during which data will be collected. The station will continue to collect and report data long-term.

4. Work accomplished during the period, including methods.

The team from Michigan State University Enviroweather installed the weather station at the Folklor Wine & Cider vineyard, located at 16820 Ferry Road, Charlevoix, MI 49720 on 9/8/2023. The station is collecting and reporting the following data:

- Temperature
- Growing degree days
- Wind speed and direction
- Rainfall
- Humidity
- Leaf wetness
- Soil temperature and soil moisture
- Solar radiation

Data from the weather station is publicly available on the MSU Enviroweather Platform, including predictive analytics on disease and pest pressure. You can view the data from the station under the “Charlevoix” station at enviroweather.msu.edu. Folklor Wine & Cider also hosted a free education session in partnership with MSU Enviroweather and MSU Extension titled “Weather for Agriculture” on 4/24/2024.

Pictured below: MSU Enviroweather team installing the weather station on 9/8/2023.



5. Communication Activities, Accomplishments, and Impacts:

On 4/24/2024, Folklor Wine & Cider hosted a free education session in partnership with MSU Enviroweather and MSU Extension titled “Weather for Agriculture” including the following presentations:

- “Weather for Agriculture from the Enviroweather Platform” Keith Mason, PhD, Program Coordinator, MSU Enviroweather
- “Using Enviroweather Data to Build Your Vineyard Management Plan” Derrick Vogel, Grape Grower/ Owner, Folklor Wine & Cider
- “Can Hybrid Grapes Survive Warming Winters?” Esmaeil Nasrollahiazar, Viticulture Extension Educator, MSU Extension NW Michigan
- Q&A with the panelists

We coordinated with the Straits Area Grape Growers Association to host their April meeting in conjunction with the presentation. 12 individuals representing 4 local vineyards, 2 prospective vineyard owners, and several community members attended the event. Event slides and information were further disseminated by email and shared on social media with more than 2,500 social media followers and e-newsletter subscribers.

Pictured below: Folklor Wine & Cider hosted a free education session in partnership with MSU Enviroweather and MSU Extension titled “Weather for Agriculture” on 4/24/2024.



6. Budget Narrative:

The project was conducted consistent with the budget proposed by the principal investigator and approved by the State of Michigan. The grant supported the purchase and installation of a research-grade Campbell Scientific weather station and an educational session for growers for a total grant expenditure of \$9,756.80.

In-kind matching support for the program included:

- Folklor Wine & Cider contributed a quarter acre of land to host the weather station on its vineyard site
- Keith Mason, Program Coordinator for Enviroweather contributed his time to install the weather station and facilitate the workshop
- Esmaeil Nasrollahiazar, Viticulture Extensions Educator contributed his time to help promote and present at the workshop
- Folklor Wine & Cider is provided the use of its tasting room as a venue for the workshop

The grant project represented a one-time capital investment which will contribute to long-term data collection and help to inform projects previously funded by the Craft Beverage Council including the Michigan Grapevine Cold Hardiness Model, late season disease management, and supports educational programming available through MSU Extension offices. Support for Enviroweather's formation and continued operation comes from Project GREEN, MSU AgBioResearch (formerly the Michigan Agricultural Experiment Station) and MSU Extension. Enviroweather also receives operational funding from generous contributions from users, commodity groups, agribusinesses, and through external grants.