Building the Iowa wine culture through improved quality

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Abstract
Iowa’s first “State of the Viticulture Industry” quality report was prepared by the ISU Extension Value Added Agriculture Program and the Midwest Grape and Wine Industry Institute to identify quality benchmarks for the industry.

Keywords
Value Added Agriculture Extension, Midwest Grape and Wine Institute, Grapes, wine and viticulture

Disciplines
Fruit Science | Horticulture | Viticulture and Oenology

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Q What are the state averages and ranges for various quality traits used in the grape and wine industry?

A This report on the state of Iowa’s wine and grape industry outlines a variety of measures and analyses of quality issues for the state’s wineries and vineyards.

Background

The ISU Extension Value Added Agriculture Program (VAAP) and the Midwest Grape and Wine Industry Institute (MGWII) developed the inaugural “State of the Viticulture Industry” quality report for Iowa. This report identifies benchmarks of quality to help determine where the industry needs to allocate additional resources and provide technical assistance to collectively raise the quality of wine produced and processed in Iowa. The study gathered preliminary data to support varietal differences and characteristics across various soil profiles. It laid the groundwork for thorough assessments of the entire process from vineyard production practices through the bottling of the finished product.

Data from this study and future such reports will be critical in building and maintaining the reputation of Iowa’s American Viticultural Areas (AVAs) as sustainable “quality” wine-producing regions. A secondary objective was to introduce the use of quality analysis to improve profitability to winemakers who currently did not use lab analysis as part of their quality management protocol.

Approach and methods

ISU Extension VAAP and the MGWII staff surveyed 20 Iowa wineries and collected and analyzed 55 wine samples from across the state to determine the current norms against which future comparisons will be made. The MGWII staff conducted a regimen of standardized lab tests to develop a composite picture of the state’s current wine quality profile. The MGWII evaluated the wines based on the standard Vintners Quality Alliance (VQA) protocol available through their wine quality lab services.

Because grape composition is influenced by both the terroir and the genetic makeup or varietals characteristics, each winery was asked to submit samples of cold-climate varietal wines made predominantly from Iowa-grown grapes. (Terroir refers to the special characteristics that the geography, geology and climate of a certain place impart to particular varieties.) Production and processing data collected from these varietal wines provided initial insight about sustainable production issues related to climate, soil types, production methodology and other standard operating procedures.
Major Land Resource Areas (MLRA), as defined by the U.S. Department of Agriculture, were used to isolate these soil-based terroirs. Additionally, climatic data were collected from these regions to correlate the impact on rainfall and Growing Degree Units (GDU) on quality attributes.

Variatel wines that had five or more submissions also were compared in the datasets. Production and processing data collected from these varietal wines will provide valuable baseline data about sustainable production issues related to soil types, varietal selections, production methodology and other standard operating procedures that affect quality.

The 55 wine samples were obtained from wineries that traditionally have not participated in the MGWII VQA program. These data were combined with data collected by MGWII’s VQA-participating members to provide a comprehensive snapshot of the baseline quality parameters of the Iowa wine industry. The combined dataset consisted of a total of 163 samples from 47 wineries, representing 49 percent of the 95 licensed Iowa wineries at the time of the study.

Results and discussion

All wines were analyzed and charted for seven different qualities. Each of these sets was subdivided into dry and off-dry categories. A volunteer panel of trained sensory evaluators used the 20-point Davis method as a guide to evaluate and provide feedback to the wineries on all submitted samples. All blind samples were administered to the panel whose members included individuals with enology, chemistry, hospitality and wine retail backgrounds. A score between 0 and 20 was assigned to each wine and the majority of the panel determined whether the appropriate label was “commercially acceptable” or “needs improvement.”

Conclusions

Red wine: Each of the evaluated categories exhibited great variability, and although the average across all 72 samples was close to the acceptable range for each criterion, none of the averages actually fell within industry-recommended parameters with the exception of OH (alcohol) percentage. With careful evaluation and comparison by the individual vintners and targeted technical assistance provided by MGWII, however, the comprehensive findings can probably be adequately refined in terms of the standard deviation within each category.

White wine: Each of the evaluated white wine categories exhibits some variability; however, the resulting average evaluation scores across all 73 samples were in the acceptable range for each category tested.

Priority needs to be given to addressing samples with results at or near the respective minimum and maximum limits. Results for the 15 dry whites divided into MLRA zones showed consistency in meeting the recommended ranges in all categories except TSO2. (Total sulfur dioxide--SO2-- inhibits growth of micro-organisms, but
can impact taste if present in excess.) Limited sample numbers in each zone do not provide adequate information to draw conclusions between zones and terroir. When divided into MLRA zones, the 58 off-dry whites also showed acceptable averages except for TSO2.

Sensory analysis was conducted on 55 wines surveyed for the study. The overall quality of Iowa wine was deemed good for a young industry with limited experience in grape and wine production. This survey was drawn from the 60 percent of samples that were found to be commercially acceptable by the sensory panel. The sensory data revealed that wineries are making better white wines, with 78 percent of whites deemed acceptable, while only 58 percent of reds gained the same recognition. Around 50 percent of the rose’ wines passed muster. The limited number (18) of rose’ wines did not allow conclusions to be drawn between regional trends or tendencies.

Impact of results

The study introduced several wineries to resources and services they had not previously used. Results will allow the Iowa wine industry to track quality and improvements in the future. Data from the study also will serve as a starting point to monitor environmental factors such as climate and soil. Quality and sensory data gave insight to the strengths and weaknesses of certain varieties and pointed up where future research efforts should be focused, and will inform Extension and outreach programs.

Education and outreach

An individual report and comprehensive lab analysis reports were made available to all participating wineries. The MGWII Institute also provided sensory analysis notes. Copies of the comprehensive report are available to individuals and professional organizations looking to improve production quality. The MGWII has offered training sessions and workshops based on findings on quality control issues identified by the study.

Leveraged funds

No additional funds were leveraged by this grant, however, the study will be critical in leveraging funds for additional research based on the findings of the project.

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