UNIVERSITY OF OREGON

# Overview of the 2022 Vineyard and Winery Report Methods
**September 2023**

As part of its research mandate, the Oregon Wine Board (OWB) commissions an annual Oregon Vineyard and Winery Report. These studies were historically conducted by the U.S. Department of Agriculture. Between 2012 and 2016, the Southern Oregon University Research Center (SOURCE) produced the reports. Since 2017, the Oregon Wine Board has contracted the University of Oregon's Institute for Policy Research and Engagement (IPRE) to prepare the report.

## Intent of this Paper

The purpose of this overview is to provide readers who desire more information about the data collection and statistical modeling procedures used to compile the annual Oregon Vineyard and Winery Report with a general overview. The intent is not to provide a detailed description of all the methods and assumptions used to develop the report; rather we aim to answer a few basic questions that we commonly receive regarding the report. The overview assumes some level of knowledge about data collection and statistical modeling.

## Data Collection

This project attempts to collect data from all wineries and wine grape producers in the state of Oregon. The goal is to document the scope and breadth of Oregon's wine industry for each region and vintage over time.[1] Thus, the project is effectively a large-scale data collection and analysis effort that involves requesting data from every known vineyard and winery in Oregon. Maintaining a current mailing is list a significant part of this project as is working with wineries and wine grape producers to encourage them to respond.

With guidance from OWB, IPRE develops and administers the online winery and wine grape producer data collection instrument. IPRE uses the systematic approach to design and analysis developed by Dr. Don Dillman at Washington State University called the "Tailored Design Method for Mail and Internet Surveys." Dillman advocates a structured administration process with structured follow-up to boost response rates. IPRE uses a data collection instrument that was developed by USDA and refined by both SOU and IPRE (see appendix for the data collection instrument).

The process begins by building a database of all known wineries and vineyards in the state. IPRE uses data from the Oregon Liquor Control Commission (OLCC) on licensed producers supplemented by data from Wines & Vines, a private data management company. No complete central database exists of vineyards. IPRE relies on lists previously developed for the study, information from the Oregon Wine Board and its partner associations (including AVA associations), lists from Wines & Vines Analytics and Everyvine as well

[1] We have received repeated questions/requests regarding presenting data for AVAs. Our ability to model production at smaller geographies is limited by data. We began collecting AVA data for vineyards for the 2021 vintage and developed pilot AVA estimates for three AVAs using 2021 data. The 2022 report is the first time we have attempted to develop estimates for as many AVAs as the data allow.

as Internet research to develop the list of vineyards. IPRE now has acreage data on over 1,070 vineyards totaling over 38,000 acres.[2] IPRE expends considerable effort in reviewing and validating the lists each year. The unit of analysis is individual producers (business entities). Building and maintaining the database is a big part of the project—given how dynamic the wine industry is. Table 1 shows the number of wineries and vineyards in Oregon by region in 2021.

Table 1. Vineyards and Wineries in Oregon, by Region, 2022

| Region | Vineyards | | Wineries | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| North Willamette Valley | 890 | 60.3% | 730 | 65.4% |
| South Willamette Valley | 126 | 8.5% | 89 | 8.0% |
| Umpqua Valley | 85 | 5.8% | 53 | 4.7% |
| Rogue Valley | 207 | 14.0% | 137 | 12.3% |
| Columbia River | 151 | 10.2% | 79 | 7.1% |
| Other Oregon | 17 | 1.2% | 25 | 2.2% |
| **Total** | **1,476** | **100.0%** | **1,116** | **100.0%** |

IPRE's database includes 2,284 businesses. It is important to note the overlap that exists in the population—many entities have both a vineyard and winery; some are just vineyards; some are just wineries. A further complication emerges for vineyards and wineries that are linked, but do not share the same name. This is further complicated by the fact that the vineyard section disaggregates results by both region and variety. Many growers produce more than one variety, and many wineries produce more than one type of wine.

IPRE uses the online platform Qualtrics to collect data through a secure portal. Qualtrics allows management of all aspects of the administration of the data tool and provides data on who provided data, how long it took, as well as managing follow-up correspondence sending reminders only to individuals that have not provided data. Producers for which IPRE has an email contact receive a solicitation to submit data. to manage the mailings. In 2022, we contacted individuals on the list up to 30 times.[3] OWB also shared links to the data collection instrument several times through The Grapevine and other industry correspondence to ensure that any producers that IPRE did not have listed in its database had an opportunity to respond. To improve participation, we also called the largest wineries and vineyards that had not participated to encourage them to participate. OWB staff also helped encourage producers to participate in the 2022 study.

The data collection instrument is broadly divided into two sections: (1) the vineyard section; and (2) the winery section. It uses conditional branching to direct respondents to appropriate areas of the data

[2] For context, we estimate Oregon had 41,899 planted acres in 2021; our database reflects more than 90% of the estimated total planted acres.

[3] Ideally this would not be necessary, but due to limited participation rates and with each solicitation generating more participants, we continued solicitations as long as possible in 2023.

collection instrument. For example, if an entity does not grow grapes, the respondent will skip the vineyard section. Appendix A includes a copy of the 2022 data collection instrument.

## Analysis

The Vineyard and Winery Report is based on a sample. The results presented in the 2022 Vineyard and Winery Report were developed through statistical models that weighted up the sample data to represent estimates of the scope and extent of production across many different variables.

A total of 463 businesses participated in the 2022 vintage data collection process. This represented an increase from 450 businesses participating in 2021 and a decrease from the 486 businesses participating in 2020. Of those, 322 provided data on grape production. The overall response rate is limited as an indicator of the quality of the data IPRE uses to prepare the report. The industry is composed of businesses of all sizes, with a small number of large businesses that account for a significant proportion of total production.

Table 2 shows the number of data points collected for vineyards for all varieties by region (note that vineyards that grow more than one variety provide data for all varieties grown). For example, if a vineyard in the North Willamette Valley reported growing three varieties, it would account for three of the 486 data points collected for that region. These data points provide the foundation for Tables 1-3 in the vineyard section. The 2022 vineyard report is based on 945 data points; the 2021 report had 955 data points.

Table 2. Vineyard Section – Number of Data Points by Region for All Varieties

| Region | Number of Participating Businesses | Data Points by Variety |
|---|---|---|
| North Willamette Valley | 190 | 486 |
| South Willamette Valley | 41 | 134 |
| Umpqua Valley | 23 | 92 |
| Rogue Valley | 38 | 135 |
| Columbia River | 23 | 70 |
| Other Oregon | 7 | 28 |
| **Total** | **322** | **945** |

Producers reported 11,661 planted acres, or 26.2% of the 44,487 estimated total planted acres. The data reported for 2022 are not the sole source of data IPRE relies on to estimate total acres – we have data on over 1,070 vineyards that documented more than 38,000 planted acres. The harvested acres and production figures are estimated using ratios based on vineyards that provided data for all three variables, and by reviewing trends observed in previous reports. The IPRE Research Team makes estimates for harvest and production for vineyards that did not provide complete data, consistent with footnote 1 of the vineyard tables ("Includes estimates for incomplete responses"). These methods improve the overall accuracy of the results and compensate for incomplete responses.

The vineyard estimates reflect statistical relationships between planted acreage, harvested acreage, yield and price. Harvested acreage is estimated using the ratio between planted and harvested acreage as

reported by participating businesses. Production is harvested acreage multiplied by yield per harvested acre (again, as reported by participating businesses). Value of production is production times price per ton. We note that estimated production by region and variety may not sum to the reported total. Total production is harvested acreage times yield per harvested acreage. Figures by region and variety may not sum due to weighting based on reported yield.

Table 3 shows response to the winery section by region. Overall, 409 wineries provided data or about 39% of all wineries. Responding wineries reported crushing 46,694 tons of grapes in 2021 or 52% of the 89,566 total tons crush estimate for 2021. This is nearly double the 25,414 tons of grapes reported by wineries in 2020. The increase can be attributed to significant efforts by IPRE and OWB to encourage larger wineries to participate.

The price report presents average and median data from vineyards that report *external* grape sales (or sales to a 3rd party not affiliated with their business). IPRE modified the data collection form in 2018 to collect only data from 3rd party sales to reflect actual market conditions. Table 3 shows the number of data points by region and variety. Six data points are required to make average and median estimates. Averages are weighted by tons sold to better reflect sales prices. High values reported are the weighted averages of the three highest figures; low values reported are the weighted averages of the three lowet figures. IPRE received 398 price points in 2021 and 370 in 2020.

Table 3. Price Report – Number of Data Points by Region and Variety

| Variety | Statewide | North Willamette Valley | South Willamette Valley | Umpqua Valley | Rogue Valley | Columbia River | All Other |
|---|---|---|---|---|---|---|---|
| Albarnio | 2 | 1 | 0 | 0 | 1 | 0 | 0 |
| Cabernet Franc | 8 | 1 | 2 | 1 | 3 | 1 | 0 |
| Cabernet Sauvignon | 15 | 0 | 2 | 0 | 5 | 7 | 1 |
| Chardonnay | 58 | 42 | 9 | 2 | 1 | 4 | 0 |
| Chenin Blanc | 4 | 1 | 3 | 0 | 0 | 0 | 0 |
| Gamay | 9 | 8 | 1 | 0 | 0 | 0 | 0 |
| Gewurztaminer | 6 | 1 | 1 | 2 | 0 | 1 | 1 |
| Malbec | 8 | 0 | 0 | 1 | 4 | 3 | 0 |
| Merlot | 12 | 0 | 2 | 2 | 6 | 2 | 0 |
| Muller Thurgau | 3 | 0 | 1 | 2 | 0 | 0 | 0 |
| Pinot Blanc | 16 | 12 | 4 | 0 | 0 | 0 | 0 |
| Pinot Gris | 41 | 24 | 9 | 3 | 1 | 1 | 3 |
| Pinot Noir | 125 | 80 | 20 | 10 | 5 | 6 | 4 |
| Riesling | 27 | 11 | 5 | 5 | 0 | 4 | 2 |
| Sangiovese | 3 | 0 | 0 | 0 | 2 | 1 | 0 |
| Sauvignon Blanc | 10 | 3 | 2 | 2 | 2 | 1 | 0 |
| Syrah | 20 | 4 | 0 | 2 | 6 | 7 | 1 |
| Tempranillo | 15 | 3 | 2 | 7 | 1 | 1 | 1 |
| Viognier | 6 | 1 | 0 | 1 | 3 | 0 | 1 |
| All Other Varieties | 34 | 15 | 4 | 4 | 6 | 5 | 0 |
| **Total** | **422** | **207** | **67** | **44** | **46** | **44** | **14** |

The research team analyzes wineries by amount of production to develop industry-level models. A few large producers account for a substantial amount of overall production. The reason that 39% of wineries

reported 52% of the overall crush is explained by the fact that a higher proportion of larger producers provided data for the 2022 report. The 409 participating wineries reported 41,677 tons crushed or 43% of the total estimated tons crushed of 96,803.

Table 4. Winery Section – Response Rate by Region

| Variety | Wineries Reporting | Total Wineries | Percent Reporting |
|---|---|---|---|
| North Willamette Valley | 246 | 730 | 33.7% |
| South Willamette Valley | 48 | 89 | 53.9% |
| Umpqua Valley | 23 | 53 | 43.4% |
| Rogue Valley | 43 | 137 | 31.4% |
| Columbia River | 27 | 79 | 34.2% |
| Other Oregon | 9 | 25 | 36.0% |
| Total | 396 | 1,113 | 35.6% |

## Estimates of Planted Acres by County

IPRE prepares a separate, but related, analysis each year as part of the Vineyard and Winery Report. The estimates of planted acres by county are used by Travel Oregon in their disbursement of distributed funds from the Wine Country License Plates program. The rules and description of this program, along with the eight designated regions receiving direct fund disbursement, are described on the Oregon Secretary of State's website.

The county acreage estimates are a disaggregation of the regional estimates presented in Vineyard Table 2 of the Vineyard and Winery Report. The 2022 report estimates that Oregon had 44,487 planted acres statewide. The county estimates are based on analyzing multiple data sources: (1) our cumulative database of more than 1,400 vineyards, (2) data collected for the 2022 vineyard report that requests businesses provide data on vineyards (e.g., vineyard name, county and planted acres), and acres planted by varietal. We use this data to develop a statistical model that estimates planted acres by county.

## Limitations of the Methods and Results

This project is basically a census – IPRE requests data from all vineyards and wineries in Oregon. Ideally, we would collect data from all producers, however, many producers do not provide data. Thus, the Oregon Vineyard and Winery Report uses a sampling methodology to model the scope of Oregon's grape and wine production. As with all studies, IPRE observes considerable year-over-year variability in the sample data. This is due to the heterogenous nature of Oregon producers. This variability is considered in our modeling but creates challenges as the results are disaggregated by region, variety, and sales channels. An ongoing challenge is partial responses—many producers only provide part of the requested information, which compounds modeling challenges. IPRE is confident the industry totals presented in the report present a reasonably accurate estimate of vineyard and winery production in Oregon given what is reported. The accuracy of the data is reduced as it is disaggregated by region and other variables.

## About the Institute for Policy Research & Engagement

The Institute for Policy Research & Engagement (IPRE) is a research center affiliated with the Department of Planning, Public Policy, and Management at the University of Oregon. It is an interdisciplinary

organization that assists Oregon communities by providing planning and technical assistance to help solve local issues and improve the quality of life for Oregon residents. The role of the IPRE is to link the skills, expertise, and innovation of higher education with the transportation, economic development, and environmental needs of communities and regions in the State of Oregon, thereby providing service to Oregon and learning opportunities to the students involved.

The University of Oregon Economic Development Administration University Center is a partnership between the Institute for Policy Research & Engagement, RAIN @ UO, the Lundquist Center for Entrepreneurship, the Oregon Business Consulting Group, the Oregon Economic Forum, and UO faculty. The UO Center provides technical assistance to organizations throughout Oregon, with a focus on innovation, entrepreneurship, and rural economic development. The UO Center seeks to align local strategies to community needs, specifically with regards to building understanding of the benefits of sustainable practices and providing technical training to capitalize on economic opportunities related to those practices. The Center is partially funded through a grant from the U.S. Department of Commerce, Economic Development Administration.

# Appendix: Vineyard and Winery Report Data Collection Instrument