



OREGON PINOT CAMP
2023 BINDER

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OPC 2023

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SCHEDULE OF EVENTS

MONDAY, JUNE 26

6:00pm–9:00pm

Welcome Reception at Sokol Blosser

TUESDAY, JUNE 27

7:15am

Meet Your Bus

8:00am–10:00am

Breakfast and Opening Session

10:30am–12:15pm

Vineyard Workshop: Geology

12:45pm–1:45pm

Wine Country Lunch

1:45pm–3:30pm

Winery Workshop: Sense of Place

6:30pm–10:00pm

The Horstmann Dinner at Colene Clemens

WEDNESDAY, JUNE 28

7:15am

Meet Your Bus

8:00am

Breakfast

8:45–10:30am

Vineyard Workshop: Biology

11:00am–12:45pm

Winery Workshop: Hunting the Great White

12:45–1:45pm

Wine Country Lunch

1:45– 3:30pm

Winery Workshop: Variations in Style

6:30–10:30pm

PNW Dinner at Stoller Family Estate

THURSDAY, JUNE 29

8:00–10:00am

Shuttle Busses

8:30–10:30am

Day Three Brunch in Downtown McMinnville

11:00am - 3:00pm

Day Three Activities

DAY THREE EVENTS

OREGON BUBBLES CAMP

Participating Wineries: Raptor Ridge Winery, Ponzi Vineyards, Argyle, Sokol Blosser Winery, Left Coast Estate, Iris Vineyards

Location: Ponzi Vineyards, Sherwood

About: From base wines to tirage, aging and dosage, learn how the Willamette Valley produces Grower Sparkling Wine as you sample at different stages throughout the process. Get a behind the scenes look into dosage trials to include different sugars and vehicles, and sample the effects of tirage aging length. After a guided tasting and seminar, you'll sample through some of Oregon's best bubbles and enjoy a delicious lunch to include oysters (because, bubbles!) At the end, we think you will agree that sparkling wine deserves our everyday attention, and should not just be saved for celebrations!

THE VALLEY IS YOUR OYSTER

Participating Wineries: Soter Vineyards, Alexana Winery, Bethel Heights Vineyard and Resonance

Location: Soter Vineyards, Carlton

About: Join us at Mineral Springs Ranch where Tony Soter and Chris Fladwood of Soter Vineyards, along with fellow winemakers Ben Casteel of Bethel Heights Vineyard, Tresider Burns of Alexana Estate, and Guillaume Large of Résonance, will collaborate to bring you an incredible day in Oregon wine country. Start your day with a light hike to the top of Mineral Springs Vineyard where you'll be greeted with a beautiful assortment of local oysters. Enjoy a sampling of Oregon white and sparkling wines while our winemaking teams regale you with stories of terroir, and our oyster experts elucidate on the nuances of our local "mer-roir". When your palates and appetites have been sufficiently whetted, you'll make your way back to the Soter lodge for a tasting of magnums, including library selections, and discussion with the winemakers. Lastly, we welcome everyone to relax on the patio with a glass of wine (or a pint of ice-cold pilsner from our favorite local brewery), enjoy a game or two, and a feast worthy of celebrating your last day at Pinot Camp 2023.

ALTERNATIVE OREGON

Participating Wineries: Dobbles Family Estate, Union Wine Company, Hyland Estate, Apolloni Vineyards, Lange Estate Winery and Illahe Vineyards

Location: A private lake, Wilder Lake, hidden in the heart of the Dundee Hills

About: For all the renegades and pioneers out there, this is an event intended to show off some of the varieties and wines that are emerging from our dynamic regions separate from those that we focus upon during the main OPC curriculum. Join us to enjoy a beautiful

lake/park setting that is “hidden” in wine country. We’ll enjoy a wine tasting seminar and then move into an afternoon of outdoor “Oregonian” fun: paddle around the lake in a boat, or lounge and play yard games. Feeling sporty? Fishing lessons are an option (fly or regular)!

SO, YOU WANT TO BE A WINEMAKER!

Participating Wineries: Brittan Vineyards, Brooks, Shea Wine Cellars, Winderlea Vineyard & Winery

Location: Brooks Winery, Amity

About: It’s time to put all your new knowledge of Oregon Pinot Noir into action. You will be teamed up with winemakers from Brittan, Brooks, Shea and Winderlea as they share how decisions made planting their vineyards follow through into the final decisions they make blending their wines. You’ll taste through the AVAs as winemakers and viticulturists Robert Brittan, Chris Williams, Dick Shea and Bill Sweat share barrel samples of the same clones from four different AVAs. Then we turn it over to you to blend your own bottle of Oregon Pinot noir that you will get to produce, package, brand and market in teams to share with fellow campers.

After the heavy lifting is done, it’s time to open some Sparkling, Rosé and Chardonnay paired with raw oysters and more while surveying the Eola-Amity Hills out to the Coast Range. Then we’ll sit for lunch where we’ll all get the opportunity to taste your newly created Oregon Pinot noir along with a selection of current release and library wines from Brittan, Brooks, Shea and Winderlea alongside the perfect lunch in the vineyard. This could be the exclamation point on your OPC experience!

**A WILD FORAGING EXPERIENCE with Fire-Cooked Cuisine
and Oregon Organic & Biodynamic Wine Pairings**

Participating Wineries: Montinore Estate, Cooper Mountain Vineyards, Phelps Creek

Location: Tidalstar Vineyard

About: Come join us for a multi-sensory culinary experience hosted by Oregon sustainable, organic & biodynamic winemakers who view the act of making, growing, sharing, and enjoying wine as being interconnected with all things in nature. This magical afternoon will begin with an intimate class of botanical identification and forging within the Willamette Valley. We will then be led through an iconic lunch prepared over an open fire by Tournant PDX, incorporating the ingredients that we foraged from the earth. Tournant's seminal farm-to-fire approach to cooking celebrates time, place and purpose. Though ephemeral, this immersive experience will create a space for OPC campers to slow down, connect and savor their last moments surrounded by the beautiful Oregon landscape in deep connection with the land.

WINGS OVER WILLAMETTE

Participating Wineries: Coeur de Terre Vineyard, Foris Vineyard, Duck Pond Cellars and Bryn Mawr Vineyards

Location: McMinnville Airport

About: Seeing is believing and take what you have learned from OPC and see for yourself this amazing valley from the seat of a small plane flying low over the Willamette Valley? Join Winemaker/Owner/Pilot Scott Neal of Coeur de Terre Vineyard along with Foris Vineyard, Bryn Mawr and Duck Pond Cellars. for the chance to see the AVA's of the Willamette Valley from the window of a 6 seat Cessna. Along with a tasting with the wineries of interesting varietals, you will have a bird's eye view while Scott flies you over the AVA's of the North Willamette, discusses the geology of Oregon and you get a truly unique view of what makes our place so special.

THEY'RE MAGICALLY DELICIOUS: AN OREGON AVA TOUR

Participating Wineries: Lemelson Vineyards, Penner-Ash Wine Cellars, Stoller Family Estate, Chehalem Winery, Archery Summit and Irvine & Roberts Vineyards

Location: Lemelson Vineyards

About: Now that you've spent two days exploring the Willamette Valley in large group settings, join us for an intimate, deep dive into our AVAs with four exceptional winemakers. You'll begin the morning at the winery of Lemelson Vineyards, walking through four subterranean barrel rooms. Awaiting your arrival is a winemaker, or two, to intimately guide you through a specific AVA focused tasting. After 25 minutes the bell rings and your off to explore the next AVA.

Afterwards we will hop on a bus for 10-minute ride to the Penner-Ash Wine Cellars located in the northern part of the Willamette Valley. This vineyard boasts inspiring views and a beautiful oak grove that will provide a relaxing finish to a busy and education fueled weekend. Our guest chef is Brian Spangler, the co-owner and founder of Apizza Scholls. Brian has been described as one of the original pioneers of the artisan pizza movement, along with his peers, such as James Beard winner Chris Bianco. The restaurant has gained international attention and fame having appeared in many television shows such as Anthony Bourdain's No Reservations, as well has been written about in many books and news articles about pizza and bread around the country. Imbibe over good food, wine, and conversation with winemakers and walks through the vineyard or just sit quietly, admiring the view and digesting the weekend.

TACOS + TERROIR

Participating Wineries: Flâneur Wines, Antica Terra, Cristom Vineyards

Location: Flâneur Wines' Estate: La Belle Promenade Vineyard, Newberg

About: Besides being intrepid and talented winemakers, what do Maggie Harrison, Daniel Estrin, and Grant Coulter have in common? Why their steadfast love of tacos, of course!

Join Antica Terra, Cristom Vineyards, and Flaneur Wines at the stunning La Belle Promenade Vineyard high atop the Chehalem Mountains for this one-of-a-kind event inspired by the most downright delicious and approachable culinary creation: tacos.

Our winemakers will select some of their most compelling wines and “dish” on winemaking techniques, viticultural decisions, and the nuanced influences of their respective AVAs including: Dundee Hills, Eola-Amity Hills, and Yamhill Carlton. The taco analogies will be fierce.

Maggie, Daniel and Grant will also divulge their ultimate taco pairings. As a group we will answer critically important questions: Corn vs. Flour? Basalt vs. Marine Sedimentary? Carnitas, chorizo, or vegan? Exposure vs. elevation? Extended maceration? Wait, both hot sauce and lime. Ultimately, you, our OPC campers, will be the judge of the best pairing! Our culinary partner has assured us that taco-centric spread will not disappoint.

As the finale to your OPC experience, we would be honored to host you vineyard-side for this rare opportunity to connect with the winemakers directly. Don't just taco about it, grab your spot now so we have time to secure your commemorative Tacos + Terroir 2023 t-shirt.

PDX PAIRING PARADE - FINDING PERFECT PURPOSEFUL & PECULIAR PAIRINGS

Participating Wineries: Adelsheim Vineyard, Elk Cove Vineyards, Anne Amie Vineyards, Benton-Lane Winery

About: Join four heritage Willamette Valley wineries on this ramble through some of Portland's most iconic and/or bizarre spots for a mobile and epic meal as we determine what, if anything, is the right thing to drink with each venue's venerable dish. Adelsheim Vineyard, Anne Amie Vineyards, Benton-Lane Winery, and Elk Cove Vineyards will be your guides, and the rules are no holds barred (except to keep a brisk pace and positive attitude). Expect to be a judge, a fighter, a trainer, and possibly a medic as we dive deep into the Weirdmosphere together.

OPC 2023 WINERIES

Adelsheim Vineyard
Alexana Estate
Anne Amie Vineyards
Antica Terra
Apolloni Vineyards
Archery Summit
Argyle
Benton-Lane
Bethel Heights Vineyard
Brittan Vineyards
Brooks
Bryn Mawr Vineyards
Chehalem
Coeur de Terre Vineyard
Colene Clemens Vineyards
Cooper Mountain Vineyards
Cristom Vineyards
Dobbes Family Estate/ Wine By Joe
Domaine Serene
Duck Pond Cellars
Elk Cove Vineyards
The Eyrie Vineyards
Flaneur Wines
Foris
The Four Graces
Hyland Estates Winery

Illahé Vineyards
Iris Vineyards
Irvine & Roberts Vineyards
Ken Wright Cellars
Lange Estate Winery
Left Coast Estate
Lemelson Vineyards
Lingua Franca
Montinore Estate
Nicolas Jay
Penner-Ash Wine Cellars
Phelps Creek Vineyards
Ponzi Vineyards
Raptor Ridge Winery
Résonance
REX HILL
Roots Wine Co.
Shea Wine Cellars
Sokol Blosser
Soter Vineyards
St. Innocent Winery
Stoller Family Estate
Union Wine Company
Van Duzer
WillaKenzie Estate
Winderlea Vineyard and Winery

WORKSHOP PANELISTS

Panelists by location and wines tasted are posted to the OPC website following camp.

KELLI GREGORY, ADELSHEIM

After graduating with a Bachelor's of Science in Plant Science from the University of Missouri, Gregory moved west to attend Oregon State University where she earned her Masters of Agriculture degree in Viticulture studying under Dr. Patty Skinkis. Upon graduating in 2012, she joined Adelsheim Vineyard as their Grower Relations and Viticulture Technician. Soon thereafter she became Adelsheim's Assistant Vineyard Manager, and in 2017 Gregory was promoted to Vineyard Manager. Kelli oversees all aspects of vineyard operations & viticulture and has also continued in her role as the Grower Relations. Gregory is passionate about sustainable agriculture and has successfully converted all 175 acres of Adelsheim's vineyards to be farmed without the use of herbicides. She has recently been honored with the LIVE Excellence in Sustainability Award, featured in Good Grower Magazine, and presented at the US Sustainable Winegrowers Summit.

Gregory currently sits on several wine organization advisory committees, including the LIVE Board, the Oregon Wine Board Education Committee, the LIVE Technical Committee, and the Ahi Voy Recruitment Committee. In the past she has served on the Oregon Pinot Camp Committee, The Chardonnay Technical Tasting Committee, and the Oregon Wine Board Research Committee.

MIKE WILLISON, ADELSHEIM

Mike has been working with Oregon wines since 1997 as a sommelier, production intern, cellar hand, vineyard worker, educator, sales representative, marketing manager, and cheerleader, and yet still believes there is more to do. An educator at heart, holding a Masters in Curriculum & Instruction, as well as a degree in Viticulture and Enology, Mike is ever curious if not downright rapt. His heart beats for Oregon wines, and that heart is worn proudly on his sleeve. An OPC camper in 2006, Mike has been working with OPC in some capacity since 2010, and currently serves as a member of the steering committee.

JEFF LEWIS, ALEXANA

Raised in Lawrence, Kansas, Jeff studied industrial design at the University of Kansas where he developed numerous concepts for a local restaurant group, becoming chef/owner of the Midwest's first certified sustainable seafood restaurant. At 26, Jeff headed to Portland to study and earn certifications with the CMS, WSET and SWE, which evolved into international wine region vagabonding. Jeff spent 2011 to 2016 as sommelier/GM at Francis Mallmann's iconic Siete Fuegos restaurant before developing and managing hospitality/DTC programs for The Vines of Mendoza, Bodega Gimenez-Rilli and Dr. Revana's

Bodega Corazón del Sol. In 2016, Jeff returned to Oregon to energize the wholesale distribution program for the Revana Portfolio. Today, Jeff is the general manager of the Revana Portfolio and manages operations for all three of Dr. Revana's estate wineries (Alexana, Revana and Corazón del Sol).

TRES BURNS, ALEXANA

A native Oregonian, Tresider Burns took a circuitous route to winemaking with stops at the University of Virginia and eleven years in the tech industry between New York and San Francisco along the way. After returning to Oregon in 2008, and after some serious culture shock reentering the bucolic world of the Willamette Valley, he turned his focus to winemaking during his studies in the Oregon State University Fermentation Sciences Program.

His first harvest job landed him at Lemelson Vineyards under the tutelage of winemaker Anthony King—a place he would spend the next four years learning organic winegrowing. In 2015, he took the role of Associate Winemaker under industry veteran Robert Brittan which led to a four-year apprenticeship learning the finer arts of winemaking across almost thirty vineyards and five wine labels. Burns joined White Rose Estate in 2019 to continue the tradition of whole cluster winemaking developed by the late Jesus Guillen. For three years he managed winemaking and tasting room operations at the little winery at the top of the Dundee Hills.

Tresider joined the Alexana Winery team in May of 2022, and he looks forward to continuing the award-winning Alexana history!

JAY SOMERS, ANNE AMIE

Owner/Winemaker of J.C. Somers Vintner and native Oregonian Jay Somers has been making wine in the Willamette Valley for more than 30 years and established the J. Christopher brand in 1996. Working with great winemakers like his mentor John Paul of Cameron Winery as well as time spent at Adelsheim and Dry River in New Zealand Jay's wines are hand-crafted in small lots and are sourced from some of the best vineyards in the Willamette Valley. In 2022 Jay accepted the invitation from his friends at Anne Amie Vineyards to come lead the winemaking team.

The winemaking philosophy is to produce wines in an Old World style that emphasizes focus, length and balance. As Jay puts it, "We do not make fruit bombs. We want wines that have a fine balance of fruit, acidity and texture. We want wines that give you more than just a big mid-palate blast, wines that are complete." The key to this, Jay firmly believes, is patient winemaking, it is vital not to rush things and allow the wines to develop naturally. The wines should evolve at their own pace, with a minimum of intervention. He is taking inspiration from wines of the Old World and applying it to the terroir of the Willamette Valley.

When Jay is not busy making wine he is usually playing guitar and composing new music for his band Portland Cement, check out their new album ""The Road to El Groove"" on your favorite steaming app.

MAGGIE HARRISON, ANTICA TERRA

Having never set foot in a winery, Maggie Harrison, through dumb luck and an embarrassing show of tenacity, became the first assistant winemaker at Elaine and Manfred Krankl's Sine Qua Non. She apprenticed for eight wonderful and life-changing harvests and in 2004, made plans to strike out on her own and started a small syrah project called Lillian. These plans also included settling down in Santa Barbara, a place she never intended to leave.

Nonetheless, as is usually the case, most plans are in fact just inaccurate predictions. When she was invited to become the winemaker at Antica Terra she emphatically refused. But the vineyard owners were crafty. They asked Maggie if she would simply take a look at the vineyard and offer her opinion about the qualities of the site. She reluctantly agreed.

Twenty-six seconds after arriving among the oaks, fossils and stunted vines she found herself hunched beneath one of the trees, phone in hand, explaining to her husband that they would be moving to Oregon.

ALFREDO APOLLONI, APOLLONI VINEYARDS

Alfredo Apolloni began his wine and vine experience growing up and working in his family vineyards in Italy, south of Venice. His family's Oregon experience was formed by the desire for his children to share in the same traditions which he so treasured, and the opportunity to carry on the family's vineyard and winemaking craft. He co-founded Apolloni Vineyards with his wife, Laurine, in 1999, planting and tending the land. Apolloni Vineyards' commercial production began in 2002, with 200 cases of Pinot noir sourced from their original three-acre vineyard site. The estate winery now produces just over 6,000 cases annually, with more than 45 acres planted. The vineyards are farmed using organic practices and both vineyard and winery are certified LIVE and Salmon Safe. The winery includes a 500-barrel underground cave for traditional wine maturation. Alfredo's winemaking is formed by the marriage of the estate vineyards' unique Tualatin Hills AVA in the Willamette Valley and the Apolloni family's viticulture tradition, with the goal of bringing the joys of delightful wines reflective of this unique place to the table.

IAN BURCH, ARCHERY SUMMIT

Most oenophiles venturing abroad to get a taste of the Old World French wine culture bring home memories of unforgettable meals or a new favorite producer. Ian brought home his life-calling and a passion for Pinot noir and Chardonnay. His post-college winemaking stints abroad—propelled by a wine education degree from Cal Poly—instilled an undying appreciation particularly for cool-climate winemaking. Ian's reverence for these two noble varieties ultimately led him to Oregon's Willamette Valley and Archery Summit. After years of making wine on both sides of the equator, Ian made his Oregon winemaking debut at prominent Willamette Valley label Evening Land Vineyards. Ian considers Burgundian winemaker Dominique Lafon among his greatest mentors and is constantly impressed by the

sense of community in the global wine country, whether it's in the French countryside or on the crush pads of the Dundee Hills. Driven by the pioneering spirit of New World enology, Ian continues to help chart Archery Summit's iconic path while honoring the uniqueness and history of its Dundee Hills sites.

ERICA MILLER, ARGYLE

As vineyard manager, Erica oversees 375+ acres of grapevines for Argyle Winery. Erica has a BS in horticulture with an emphasis in viticulture and enology from Oregon State University. Erica worked under Dr. Patty Skinkis, viticulture extension specialist at OSU, as a research assistant for two years, where she was involved with various research projects, including Pinot noir fruitfulness studies, Pinot noir and Chardonnay crop estimate studies, and the Statewide Crop Load Trial. After learning details of vine physiology and viticulture through research, she began vineyard management work for eight years before becoming vineyard manager at Argyle Winery. Erica is an active member in the Willamette Valley Viticulture Technical Group, the LIVE Technical Group, ASEV, and other industry groups.

NATE KLOSTERMANN, ARGYLE

Nate was appointed as winemaker at Argyle Winery in March of 2013 after serving as Argyle's enologist since 2005. While studying food science at the University of Minnesota, he developed a budding interest in wine production. After getting a taste of the industry at Falconer Vineyards along the Mississippi River in Red Wing, Minnesota, he packed up his beat-up Acura Integra and drove west to Dundee, Oregon. Starting as a harvest intern and quickly promoted to enologist, Nate studied under the tutelage of the legendary Rollin Soles. Quickly falling in love with the sparkling winemaking process, Nate embraces the year-round challenges sparkling wine production entails. As he has learned from Rollin, he believes that making great sparkling wine carries over and improves the winemaking techniques for still Pinot noir, Chardonnay, and Riesling. A firm believer in ageability, Nate constructs wines that drink well when young, but also build depth and complexity with time. He has also worked in Australia at Petaluma and Knappstein wineries.

GEOFF HALL, ARGYLE

Originally from Idaho and destined to become a doctor, Geoff found his calling in horticulture while attending a Botany class at the University of Idaho. Stops in Washington, California, Italy and Tasmania eventually led him to Oregon and to Argyle Winery. Geoff has been with Argyle Winery since 2017 as Vineyard Manager where he oversaw the winery's 375 estate vineyard acres. In 2021, he became the Director of Operations where he helps the amazing cellar, vineyard, and packaging teams produce excellent sparkling and still wines.

AMAEL ORREGO, BENTON-LANE

Amael's story as a winemaker comes full circle at Benton-Lane Winery. He grew up in the countryside outside of Santiago, Chile—where wine had a regular place at the dinner table—and earned a degree as an agricultural engineer specializing in oenology and viticulture. Chasing a fascination with both the science of farming and the creativity of winemaking in

his early career, he cold-called Chilean wine industry legend, Agustin Huneeus. That conversation would shape his professional trajectory.

Amael was invited to work a harvest at Flowers on the Sonoma Coast, then returned the following summer to intern at Quintessa. This experience led to a position as assistant winemaker for Emiliana Vineyards in Chile, before becoming head winemaker for Kingston Family Vineyards, also in Chile, in 2015. He oversaw all winemaking and production operations for 7,000 cases annually, specializing in single-vineyard pinot noir and chardonnay. His work earned him Young Winemaker of the Year awards from La Cav and Tim Atkin, both in 2022.

When Amael was offered the position of winemaker at Benton Lane in late 2022, it felt like destiny. Not just because of his deeply rooted relationship with Huneeus Vintners—he had also met Sofia Araya, the woman who would become his wife, through his Flowers internship—but because of his longstanding love of the pure and noble character of pinot noir and chardonnay. For Amael, joining a classic brand like Benton-Lane is a dream come true, one that has gratefully brought him to Oregon’s Willamette Valley to work with his favorite varieties, while helping to bring this dynamic and biodiverse vineyard to its fullest potential and truest expression.

GRETCHEN BOOCK, BENTON-LANE

Gretchen’s inherited passions—wine and agriculture—have guided her professional career. Her family’s Oregon roots date to the pre-prohibition days of hop farming, while her relatives in Reims, France, operate fifth-generation vineyards. She put herself through Oregon State University by building wineries with her parents while completing dual degrees in Ag-Business and Spanish. Realizing that she was more interested in working in wineries than building them, in 1999 she took a job in the cellar at Willamette Valley Vineyards followed by a vintage at Torii Mor Winery. In 2003, she became the first employee of Wine by Joe. During her 17-year tenure, Gretchen worked her way from Cellar Master to CEO, where she led the team producing 200,000 cases of wine.

In 2021, Gretchen found the perfect next step with Huneeus Vintners, assuming the role of General Manager at Benton-Lane Winery. Working on the 140-acre estate vineyard and developing a new team of talented, dedicated individuals while cultivating a collaborative culture and drive for excellence has been a dream fulfilled.

Outside of the winery, Gretchen serves on the boards of Oregon Pinot Camp and the Willamette Pinot Noir Auction, and has held previous board roles on the Dundee Hills Winegrower’s Association and the Oregon Wine Council. She balances family life and career with the loving support of her husband, Mike, and their three children, Jocelyn, Addison, and Nico.

BEN CASTEEL, BETHEL HEIGHTS

Ben is a member of the second generation now coming on board at Bethel Heights Vineyard. Oldest son of two of the founders, Terry Casteel and Marilyn Webb, Ben grew up at Bethel Heights and worked in the vineyard during the summers. He graduated from the University of Oregon in 1999, then headed for Burgundy to work the 1999 vintage at Domaine des Perdrix. Upon return from Burgundy, he spent the next five years at REX HILL, working his way up from cellar master to assistant winemaker. In 2005, he finally came back to Bethel Heights where he is now winemaker.

ROBERT BRITTAN, BRITTAN VINEYARDS

A veteran of the wine industry since the early 1970s, Brittan began his career in the Central Valley of California. After managing a large wine production facility there for five years, Robert attended the University of California at Davis. Upon graduating with his degree in fermentation science in 1981, he relocated to the Napa Valley and became the first winemaker at Far Niente Winery, then moved to the winemaker position at St. Andrew's Winery. In 1988, Robert was recruited by Stags' Leap Winery, where he served as general manager and winemaker for 16 years. In 2004, Robert fulfilled a lifelong dream of owning his own Pinot noir vineyard when he purchased 128 acres in the North Willamette Valley, where he and his wife Ellen grow Pinot noir, Chardonnay and Syrah on a rocky, exposed site in the foothills of the Coast Range, within the McMinnville AVA. In addition to managing his own 30-acre vineyard and making the Brittan wines, Robert is the winemaker for Winderlea, Fairsing, La Biblioteca and Bacus Vineyards and the consulting winemaker for Ayoub, Youngberg Hill and De Lancellotti.

ELLEN BRITTAN, BRITTAN VINEYARDS

Ellen Brittan has always had a passion for food and wine, so after spending the first twenty years of her career working in Financial Services, she finally decided to give up the corporate world to do something she would do even if she didn't get paid to do it.

While Robert oversees the vineyard and winemaking, Ellen manages the business operations for Brittan Vineyards. In addition, Ellen has worked as General Manager for the Carlton Winemakers' Studio and as the Director of Wine Education at Linfield College. In order to give back to a wine community that has been so welcoming and supportive, she has also served as Chair of the Oregon Wine Board, President of the Oregon Winegrowers' Association, and President of the International Pinot Noir Celebration. She currently sits on the board of Visit McMinnville, the Linfield Wine Education Advisory Council and the McMinnville Economic Development Council. When she is not working, Ellen loves to spend time cooking, baking and taking care of their two adorable Doodles – Harold and Henry.

CLAIRE JARREAU, BROOKS

Claire Jarreau is the associate winemaker at Brooks Winery in the Eola-Amity Hills where she oversees winemaking operations and vineyard sources. Hailing from the Deep South, Claire grew up in a family of cooks and was introduced to wine over long family meals.

However, her professional interest in wine piqued in college upon realizing that her love of the outdoors, aromatic chemistry and food culture could merge into a joint pursuit. With her sights set on winemaking, Claire went on to graduate from Appalachian State University with a degree in chemistry and a concentration in enology and viticulture. Claire's winemaking experience includes stints in Austria's Wachau region, the Swartland in the Western Cape of South Africa, the Waipara Valley in New Zealand, and Oregon's Willamette Valley. After working four vintages in one year (not recommended!), she was ready to put down roots and joined the Brooks team in 2014. Her professional interests lie in low-intervention winemaking, biodynamic farming, all things Riesling, and increasing the varietal and clonal diversity grown in Oregon.

RACHEL ROSE, BRYN MAWR

Rachel started her professional career in the biotechnology sector with a Bachelor of Science in Molecular Biology from the University of California, Santa Cruz. Years later she would change course and attend the University of Adelaide in South Australia to double major in Viticulture and Enology. After her studies were complete, Rachel began apprenticing in the southern and northern hemispheres; working for Wirra Wirra and Yalumba in South Australia, Cloudy Bay in New Zealand, and Ponzi and Penner-Ash in Oregon. After years of travel, she fell in love with Oregon and knew she had to stay. She joined Bryn Mawr Vineyards in 2010 to lead the growth of the estate property and winery and develop the wine portfolio. Rachel is an adaptive winemaker who bridges the gap between natural and conventional winemaking. Her primary winemaking philosophy focuses on minimal use of SO₂, judicious use of new French oak, and continual experimentation. Through contemplative intervention in the vineyard and the cellar, she aims to express and elevate the unique characteristics of each site and vintage she works with.

KATIE SANTORA, CHEHALEM

Celebrating her 12th vintage at Chehalem this upcoming vintage, Katie Santora has facilitated every aspect of the winemaking process. Her expert knowledge of Chehalem's estate vineyard sites and house style made her the perfect candidate to assume the role of winemaker in 2018. In her position, Katie considers herself a conductor as she empowers her team, ensuring everyone feels happy and productive. Winemaking allows Katie to be in tune with the grapes as they progress through the season, allowing her to have a deeper understanding of the vintage and the world at large. Originally from Utah, Katie became interested in wine while attending UC Davis, where she graduated with a degree in enology and viticulture. She worked harvests in California, Australia, New Zealand, and Chile before deciding to call Oregon home.

SCOTT NEAL, COEUR DE TERRE

Scott Neal has been the winemaker/owner at Coeur de Terre Vineyard since its beginnings in 1998. Along with his wife Lisa as vineyard manager, they crafted a humble 57 cases in their inaugural 2002 vintage from which Coeur de Terre and Scott have grown to making over 5,000 cases a year of Pinot noir, Pinot gris, Riesling, Syrah and sparkling wines from grapes

exclusively grown on their estate vineyard in the McMinnville AVA. His wine style is focused on reflecting the time and place from which the grapes were grown by employing a gentle hand thus allowing the grapes their voice. Scott grew up on a beautiful southern Minnesota farm from which he learned a strong work ethic and gained a respect for the land and for the whims of Mother Nature. Scott, Lisa and their daughter and Tallulah live on the estate vineyard along with their dogs Blue and Cici.

STEVE GOFF, COLENE CLEMENS

Originally from Philadelphia, winemaker and vineyard manager Stephen Goff was exposed to fine wine while bartending at the Palladium restaurant on the campus of the University of Pennsylvania during his senior year of college. After moving to San Francisco and exploring the Napa and Sonoma Valleys, he quit his day job as a book publisher and decided to work harvest at Carneros Creek in the fall of 1998. This decision sparked Stephen's affinity for Pinot noir, and it led him to the enology and viticulture program at Fresno State University. After graduating from Fresno State in 2001, Stephen and his then-fiancée Laura relocated to the Willamette Valley, where he accepted the position of assistant winemaker at Beaux Frères. After working six vintages at Beaux Frères, he joined Joe and Vicki Stark in 2008 as the winemaker and vineyard manager for Colene Clemens. Stephen has been the only winemaker and vineyard manager at Colene Clemens, and he oversees all winery and vineyard activities.

DANIEL ESTRIN, CRISTOM VINEYARDS

Daniel found wine by way of his Uncle Mark, founder of Red Car Wines. After working a few harvests at Red Car, he traveled to the Northern and Southern Hemispheres, working harvests at Craggy Range, Mount Langi Ghiran, Domaine de la Cote, and Bodega Chacra. Daniel returned to California to attend Cal Poly–San Luis Obispo while working in restaurants to make ends meet and explore wine further. He completed his B.S. in Viticulture with a minor in Soil Science and Plant Protection. Post-graduation, he accepted an internship at Littorai with Ted Lemon, working nine harvests, including two at Burn Cottage in New Zealand. During this time, he became Associate Winemaker and helped develop Littorai's biodynamic program. In 2019, Daniel returned to his Oregon roots to work for Cristom Vineyards. Through a partnership with an incredible winegrowing team, he implements biodynamic and organic practices to help make Cristom a more self-sustaining farm and crafts wines that are an honest recording of the vineyard and vintage.

DEREK EINBERGER, DOBBES FAMILY ESTATE

Derek Einberger is an award-winning winemaker with over 20 years of experience making wine in California, Italy, British Columbia and Oregon. Derek joined Dobbes Family Estate as winemaker in 2022 to craft Oregon wines that honor tradition but are unbound by convention. A graduate of the University of the Redlands, Derek accepted cellar internships with northern Italian producer Vietti and heavyweight California Cabernet houses Silver Oak/Twomey and Joseph Phelps (where he actually made Pinot noir). A full-time role as cellar master under mentor winemaker Anthony King at Lemelson Vineyards in the

Willamette Valley solidified Derek's place among the great upcoming winemakers of Oregon. Derek then served for ten years as head winemaker at Patton Valley Vineyard, where he eventually became part owner and where his wines were routinely recognized and awarded by Wine Spectator, Josh Raynold's Vinous, and Wine Enthusiast. As winemaker for Dobbes Family Estate, Derek's minimalist approach in the cellar, when matched with the winery's careful fruit sourcing and celebration of the diverse grape varieties of Oregon, combine to make elegant and energetic Oregon wines of great promise.

MICHAEL FAY, DOMAINE SERENE

Born in Italy and raised in California Michael Fay was always intrigued by the outdoors. His first job ever was in Christmas Tree Farm which eventually led him to begin his education at the University of Washington studying Forestry Management. While falling in love with Oregon Pinot noir while working in restaurants in Seattle Fay began to think that it may be more fun to grow and sell wine than it would be to grow and sell paper. This began his journey to the Central Coast of California where he worked first in the vineyard, then as an enologist and lastly as the assistant winemaker at Cambria Estate Winery from 2001 to 2012, producing Pinot Noir and Chardonnay while leading a team of up to 25 employees in the lab and cellar. Fay graduated from Cal Poly San Luis Obispo in 2007 with a Bachelor of Science in enology and viticulture. In 2012, he became the winemaker for Goldeneye Winery in Anderson Valley — a sister-label to Duckhorn — where he focused on making distinguished, terroir-driven Pinot Noir from the Anderson Valley, making a name for himself in the world of wine. It was always Michael's dream to return to the Pacific Northwest and Oregon specifically as the Willamette Valley is the spiritual home and quality standard for Pinot noir in North America. He found a home at one of our industries leaders, Domaine Serene. In May of 2017, he started in his role of Director of Winemaking and Viticulture of The Evenstad Estates, overseeing the talented team of winemakers and viticulturalists at both Domaine Serene, located in the beautiful Dundee Hills of the Willamette Valley, and Château de la Créée in the Santenay region of Burgundy's historic Côte de Beaune.

JEN HENDRICKSON, DOMAINE SERENE

Jen Hendrickson is the Vice President of Growth Initiatives for Domaine Serene Vineyards and Winery. She has worked in the wine and hospitality industry for over 20 years in sales, service, events, marketing, writing and even production. Before her time at Domaine Serene, she was the food and beverage director for six years at the Yellowstone Club in Big Sky, Montana. She has a bachelor's degree in art education from San Francisco State University and a master's in business administration from the University of Missouri Kansas City. She is a Certified Sommelier through the Court of Master Sommeliers, a Certified Wine Educator and Certified Specialist of Spirits through the Society of Wine Educators and a Level One Beer Server, through the Cicerone organization.

JULIA CATTRALL, DUCK POND CELLARS

Julia Cattrall is the head winemaker for the Oregon wines of Integrated Beverage Group (IBG), crafting Pinot Noir, Pinot Gris, Chardonnay, and other varietal wines for a family of brands that includes Duck Pond, Rascal, Great Oregon Wine Company, Ransom, and Lifevine wines.

Julia's journey to winemaking spans her lifetime and beyond; as part of the fifth generation on her family's century farm and vineyard, Julia's work in wine began at the tender age of seven, learning viticulture from her father at their family's pioneering Organic vineyard.

Julia earned a degree in Anthropology from Reed College and wrote her thesis on winegrowing practices in Burgundy. After college, Ransom's Tad Seestedt, a client of the vineyard, suggested that she follow the grapes to harvest at Ransom. She loved the work, and in her first decade, she worked harvest at Escarpment Vineyard in New Zealand, and worked her way up through the cellar concurrently for three small Willamette Valley wineries: Ransom, Lumos, and Dominio IV, where she refined her winemaking skills on small-lot, sustainably farmed Pinot Noir, Pinot Gris, and Chardonnay.

While working as winemaker at Ransom and Lumos, Julia led significant growth in the reach and esteem of both brands. When Integrated Beverage Group acquired Ransom in 2020, Julia saw an opportunity to apply the principles of sustainable farming and terroir-driven winemaking she had been honing for years to a portfolio that could reach a broader audience. Julia now leads the winemaking team that makes all of the award-winning wines at Duck Pond Cellars. Julia is committed to crafting wines of both purity and distinction, and has worked to achieve Organic and Natural Path certifications for a number of the wines in her program.

ADAM CAMPBELL, ELK COVE VINEYARDS

A fifth-generation Oregon farmer, Adam grew up on his family's 40-acre vineyard and winery in the foothills of the coast range in Yamhill County. He joined the family business full time in 1994, heading up new vineyard development projects that has grown the Elk Cove Vineyard land holdings to over 400 planted acres on six distinct vineyard sites. Adam relies on low yields from meticulously farmed Estate grown fruit to give him excellent raw material and thoughtful winemaking methods provide the rest. Adam has a passion for sustainability including a large solar energy project at the winery, widespread use of organic farming methods as well as a commitment to providing living wage and healthcare for all agricultural workers. Adam has served on the Board of Directors for the International Pinot Noir Celebration (IPNC), Oregon Pinot Camp (OPC), Yamhill-Carlton AVA, Oregon League of Conservation Voters (OLCV) and the ¡Salud! Pinot Noir Auction. He also has a Political Science degree from Lewis and Clark College.

JASON LETT, THE EYRIE VINEYARDS

Jason Lett is the second-generation president, winemaker, and vineyard manager (and self-proclaimed curator) of The Eyrie Vineyards. As the son of vanguard producers David and

Diana Lett, Jason has had 40 years of experience with Oregon vineyards and winemaking, and has worked in Europe and New Zealand as well. He combines hands-on experience with a scientific background in research ecology. When he's not making wine, Jason and his wife tend a small farm of their own with livestock, including goats, sheep, chickens and three daughters.

GRANT COULTER, FLÂNEUR

Grant spent his childhood in and along the foggy shores of Monterey, California. Weekends were spent on his grandparents cotton farm in the central valley staring down cows and watching the cotton harvest come in. Four years in San Diego and a few misguided adventures later he dove head first into winemaking and received a degree in Enology from Fresno State University, (Go Bulldogs!). He worked a handful of harvests in California and Australia, learning from a variety of mentors. In 2006, he ventured north to Oregon to be assistant to Eric Hamacher at the Carlton Winemakers Studio. One year later he was hired as Assistant Winemaker at Beaux Freres and worked 9 years in the vineyard and cellar, eventually becoming winemaker in 2013. In 2016 Grant joined the team at Flaneur as Winemaker/ Director of Vineyards. He lives with his wife Renee and two children in the Eola- Hills farming their three acre vineyard.

STEPHANIE PAO, FORIS

Before joining Foris as winemaker, Stephanie worked two year at Double Canyon in Eastern Washington, and three years at Justin Vineyards in Paso Robles as enologist. Her experience with Pinot noir includes harvests with Bethel Heights, Lemelson and Saintsbury as well as a season with Dry River in Martinborough, New Zealand. She got her degree in molecular biology from the University of California, San Diego, prior to studying viticulture and enology at the University of California, Davis.

TIM JONES, THE FOUR GRACES

Born in Ashland, Oregon, Tim grew up in the small towns of Northern California and the Pacific Northwest. He first became interested in wine as a student at Willamette University. He has been making wine for 17 years in California, Oregon and Washington. Tim returned to the Willamette Valley in 2018 to make wine at The Four Graces. Tim earned an MS in viticulture from UC Davis and an MBA from Washington State. He lives with his wife and two boys in McMinnville, Oregon. Since his children are four and six years old he does not have a lot of time for hobbies, but his hide-and-seek skills are a wonder to behold.

ADRIAN MENDOZA, HYLAND ESTATES

“Mendoza is one of a small but growing group of winemakers who have worked their way up from vineyards — though he still works in vineyards full-time... Mendoza is a Jack of all trades: a chef, a farmworker, a musician in a band and now a businessman on the way to having his own wine label. He's excited about this next step, he said, but wine is as much a passion as it is a career goal. He wants to grow, but only so far as creative expression allows. 'I'd prefer to stay small-scale,' he said. 'I want to express what I want.' Mendoza is an

AHIVOY alumni, a member of its first graduating class. The program, which is an acronym for Asociación Hispana de la Industria del Vino en Oregon y Comunidad, educates vineyard workers about wine production and vineyard management at no cost to them.” - *From Shannon Sollitt, Salem Statesman Journal*

ANNE SERY, HYLAND ESTATES

Anne was born and raised in Réunion, a tropical French island in the middle of the Indian Ocean off the East Coast of Madagascar. When she was 14, her parents purchased a vineyard in the Côte de Nuits. As a teenager, she spent her summers in Burgundy at the family vineyard, and it was there that her affinity for wine first blossomed.

She left Réunion after high school to attend college in Dijon, where she received her degree in biology, physics, and mathematics. She then completed the master's program in viticulture and oenology at the ENITA of Bordeaux and received her National Diploma of Enology from the University of Bordeaux. During her years in school, Anne would return to Burgundy for internships with esteemed Pinot noir producers such as Domaine Jean-Francois Coche-Dury, Domaine Hubert Lignier and Maison Bouchard Père & Fils.

After graduating she traveled to the United States to perfect her English and experience another Pinot noir region of the world. While interning at Beaux Frères, she fell in love with the Willamette Valley and decided that she wanted to stay to start her career.

Anne landed the job as the assistant winemaker for Soléna Estate shortly after meeting owner and proprietor Laurent Montalieu. After two years at Soléna, Anne joined the team at NW Wine Co. as winemaker and became the face of Hyland Estates, as well as Westmount Wine Co., which was established in 2015.

JESSICA ENDSWORTH, HYLAND ESTATES

Jessica Endsworth is the Vice President of On Premise & Education for Hyland Estates and NW Wine Co. She has been in Oregon for nearly 20 years, specializing in sales, marketing, education and brand building. She is honored to serve on many committees and boards in the Willamette Valley AVA. She performs as a sommelier at many of the most prestigious Oregon wine events. Endsworth's origins started in the Midwest dining scene in St. Louis and Chicago before her sojourn to Portland in 2004. She is happiest with a bottle in her hand, teaching about Willamette Valley, brand building, traveling, mentorship, researching Oregon vineyard history, geology and viticulture. She currently helps develop many custom wines, labels and programs for both on and off premise as part of the NW Wine Co team. Lastly, she tries to balance her time at home with her partner, Shawn and is a proud dog mom of two stunning and rambunctious Boston Terriers, Hero & "Pendragon the Destroyer," aka Penny.

BRAD FORD, ILLAHE

Brad's job at Illahe is to make delicious wines that have a unique character. He hopes that by working with his grapes year after year, he will discover the little things that ensure each one is a special, hand-crafted product. He reaches back into the history of wine for hints and ideas on how to improve in the vineyard and winery. So far, this has included working with horses and fermenting in oak, acacia, concrete, and clay. He has spent hours on the pedal-powered wine pump moving the 1899 wine from the fermenter to barrels and has shipped Illahe wine in canoes for hundreds of miles (downstream). He is working with a home-built kiln and a large basket press so he can continue craft the most interesting wines from local terroir.

He holds degrees in classics and English. Brad has been a farm hand, bartender, carpenter, grant writer and poetry instructor. In 2004, he followed his dad into the vineyard and worked his first harvest. He went on to work with Russ Raney (Evesham Wood), Michael Lundeen (Lundeen Wines), Erich Berg (Ricochet Wines) and Gabriel Jagle (Scenic Valley Farms). He continues to work with an amazing group of people.

AARON LIEBERMAN, IRIS VINEYARDS

Aaron's interest in the Oregon wine industry started in 1990 while he was studying soil science at Oregon State University. After graduation, he spent three years in Guatemala with the Peace Corps. There he taught farmers how to improve crop yields through plant and seed selection. In 1996, Aaron landed a job at Amity Vineyards. He has managed and/or planted several notable vineyards in the Willamette Valley. In 2001 Aaron began working in commercial winemaking, starting with a harvest at De Ponte Cellars in the Dundee Hills under winemaker Isabelle Dutartre. In 2002 he began making wine for his own label while working at Walnut City Wineworks. Aaron accepted the assistant winemaker position at Owen Roe in the spring of 2003, where he worked with David O'Reilly through the 2007 vintage. Aaron was informed of the opportunity to work as the first winemaker at Iris Vineyards by a longtime industry friend in the spring of 2008. Having completed his fourteenth vintage at Iris, Aaron has a well-developed knowledge of the estate vineyard and enjoys the process of making wines appropriate to various blocks of the vineyard.

BRIAN GRUBER, IRVINE & ROBERTS

Raised in Minnesota, Brian received a bachelor's degree in economics from the US Air Force Academy and a master's in public policy from Harvard University. While serving in the Air Force, Brian felt the pull of the wine industry. He took a non-traditional path that included 11 years as an executive in HR, IT and finance roles at Capital One, but also bought a farm in Virginia and planted Walnut Grove Vineyard to learn the art of farming wine grapes. The pull of Oregon brought Brian west in 2007, and in 2009 he made a full-time transition to the wine industry. Brian first worked at Troon Vineyard in vineyard, winemaking and management roles before co-founding Barrel 42 Custom Winecraft, where he was most recently head winemaker for custom crush clients and Quady North Winery. In 2014 Brian founded Swallow Hill Vineyard, where he farms premium wine grapes in the rolling hills above Ashland. He recently moved to Irvine & Roberts Vineyards where he gets to oversee

winegrowing on 46 acres of estate vineyards and winemaking for a portfolio of premium Pinot noir, Chardonnay and sparkling wines. Brian lives in Ashland, in Southern Oregon's beautiful Rogue Valley, with his wife and three Dachshunds.

KEN WRIGHT, KEN WRIGHT CELLARS

The seed for a career in wine was planted squarely in Bourbon country of Lexington, Kentucky. While waiting tables to put himself through school, Ken was exposed to fine wines from regions around the world. The passion became avocation when Ken left the Bluegrass State to attend enology and viticulture classes at UC-Davis. Eight years were spent winemaking for Ventana Vineyards and Talbott Vineyards in Monterey County of California's central coast. Friends from the Willamette Valley piqued Ken's interest in the region when they would visit, and a trip to the Dundee Hills in 1982 convinced him that this was where the finest Pinot noir in North America was being grown. In 1986, with family, belongings and 10 barrels in tow, Ken moved to McMinnville and started Panther Creek Cellars. His concept of focusing on vineyard-designate bottling began during those years at Panther Creek and was cemented as a core philosophy in 1994 when Ken Wright Cellars was founded in historic downtown Carlton.

MARK GOULD, KEN WRIGHT CELLARS

Mark met Ken for the first time in March of 1992 at the first ¡Salud! event while he was the Executive Chef at Atwaters in Portland, they became friends that year. Fast forward to 1997, Mark left the restaurant he was working at on New Year's Eve. His plan for 1998 was to have a sabbatical year working with friends at their business's while he developed his own restaurant concept. Mark had planned to work for Ken over harvest that year, but Ken called Mark in January and asked if he would come to help out for 2 days. Those 2 days turned into 2 weeks and now 20 years. Mark says he won the lottery. Mark has had the opportunity to develop 7 vineyards from the ground up and redevelop another 3. He feels that each project is a legacy for him. He says, being connected to the land and the season, to the relationships with people that own the land and his coworkers and to the product that we make together makes his job very special. When Mark isn't in the vineyards with his sidekick Scout, he loves snowboarding, riding and competing with his cutting horse 'Lil' and working with his wife Alice on their farm property.

JESSE LANGE, LANGE ESTATE

Jesse is a second-generation winemaker and winegrower crafting wines of expression and typicity at his family's thirty-six-year-old, 60-acre Lange Estate in the Dundee Hills and 66-acre Lucky River Vineyard in the foothills of the Coast Range. Jesse had his start in viticulture by assisting his parents, Don and Wendy, in planting (read: pounding posts and weeding) the original eight acres of Lange Estate in 1988. Jesse's formal enology and viticulture training occurred at New Zealand's Lincoln University while on student exchange from Oregon State in 1999 (Go Beavs!). Jesse also spent two years under winemaker Bruce McGuire at Santa Barbara winery. He enjoys serving his industry and community by participating on the board of directors for Oregon Pinot Camp and with the Willamette

Valley Wineries Association, and he was former president of the Dundee Hills Winegrowers Association. Lange Estate was named Wine & Spirits Magazine Winery of the Year in 2012. Jesse enjoys hanging with his wife Jessica, chasing his two kiddos, fly-fishing or bow-hunting anywhere/anytime, and just about everything else halfway athletic and fully outdoors.

JOE WRIGHT, LEFT COAST ESTATE

Joe joined the Oregon wine industry in 1996 after leaving Aspen, CO where he had managed a fine wine shop for several years. When in Oregon he made wine at Willamette Valley Vineyards, which included the Griffin Creek and Tualatin Estate labels, for 6 years before becoming winemaker at Belle Vallée Cellars in 2002. There he spent the next 9 years producing and blending Pinot Noir from several of Oregon's premier vineyards. In 2011 Joe joined the Left Coast Cellars team in Rickreall, Oregon. Drawn by the diversity of Left Coast's 500-acre estate, of which 170 are devoted to the cultivation of wine grapes he now carefully crafts exclusively estate-grown Pinot Noir, Pinot Gris, Chardonnay, Pinot Blanc, Viognier and Syrah.

MATT WENGEL, LEMELSON VINEYARDS

Matt Wengel began making wine in his home state of California. Bitten by the wine bug during his first two years at UC Davis, Matt did several harvests in Sonoma County where he quickly became a true Pinotophile. Not long after he switched his major to viticulture and enology. Armed with a winemaking degree and a thirst for exploration, Matt traveled the world and made wines at reputable estates in Sonoma County, Napa Valley, the Sierra Foothills, Upstate New York, the Bio-Bio Valley of Chile and Stellenbosch in South Africa. Matt became the winemaker for Lemelson Vineyards in 2015. The Oregon wine industry, with its world-class Pinot noir, top-notch wine community and collaborative spirit is easily the greatest, most passionate wine region Matt has ever worked in... by far! He is honored to now call Oregon his home.

ROB SCHULTZ, LEMELSON VINEYARDS

Rob Schultz, vineyard manager for Lemelson Vineyards, has been growing premium, organic wine grapes for nearly 20 years. After growing up in Iowa, he led an exciting life of mysterious adventure before starting his career with an internship in Provence and then winemaking school in Catalonia. After six years of working at some of the best vineyards in California, he moved to Oregon in 2008 and has been working behind the scenes, growing some of the best grapes in the valley. Passionate about organic agriculture, when he's not farming grapes, he's either parenting his children or shepherding his flock of postmodern sheep on his family homestead in the coast range.

THOMAS SAVRE, LINGUA FRANCA

France native Thomas Savre is among the most accomplished and energetic young winemakers in Oregon. He joined Lingua Franca in May 2015 from his prior position at Evening Land, where he worked closely with Dominique Lafon to create Pinot noir and

Chardonnay from Seven Springs Vineyard, directly adjacent to the LS Vineyard. Thomas worked in several prestigious estates in Burgundy such as Domaine de la Romanée Conti, Domaine Dujac and Domaine Chevrot. At the University of Burgundy, from 2008 through 2012, he earned two master's degrees, one in viticulture practices and the other in enology and winemaking. As the director of winemaking and viticulture at Lingua Franca, Thomas and his team craft elegant wines that speak to the place from which they come, for which have earned early, yet significant, accolades.

STEPHEN WEBBER, MONTINORE ESTATE

Stephen has been an integral part of Montinore's winemaking team since he joined the winery as Assistant Winemaker in 2006. Stephen spent three years in this position before the promotion to Winemaker in 2009. In 2016 he took over the entire winemaking program as Head Winemaker.

Stephen came from DiStefano winery in Woodinville, Seattle, and had previously spent extensive time working and traveling in Australia, where he gathered much of his larger-scale winemaking experience, including Organic and Biodynamic experience at Cape Jaffa Wines in South Australia. An amazing vintage in Alsace, France, sealed his love of cool-climate white varieties, and this has worked out well for the production of Montinore's Gewürztraminer, Pinot gris, Müller-Thurgau, Riesling and Muscat Ottonel!

Stephen focuses on shepherding Montinore's excellent Biodynamic and Organic fruit into quality wines that exemplify brightness, depth of flavor and unique personality, drawn from the varied sites on which it is grown.

He is the winery's resident Brit, affectionately known as "Lord Webber," and without him, the Montinore team would not be so nearly as civilized as they are! When not making wine, he enjoys beer, travel, English fish 'n chips, the wonderful Oregon coast, and many sports, especially football (the proper version!), rugby and cricket.

CLAY WESSON, MONTINORE ESTATE

Originally from Alabama, Clay fell in love with Oregon the summer of 2007 during an internship at Bailey Nurseries in the town of Yamhill, Oregon. Upon graduation that fall from Auburn University with a degree in Horticulture with focus on nursery and greenhouse production, he moved back to Oregon for a role of assistant grower in their plant propagation department. After travels to Nepal, study in herbal medicine, biodynamics and permaculture to grow the highest quality plants for healing, in 2012 he went on to manage a native plant nursery on behalf of the Yamhill Soil and Water Conservation District. That led him to Brooks Winery as a consultant in 2014 where he began his immersion and passion for the Oregon wine industry. After departing Brooks, in 2017, he worked for a vineyard management company, went in the cellar with a harvest with Isabelle Munier at the Carlton Winemakers Studio and completed training to be an Organic and Biodynamic inspector. Through his work as a consultant, he was led to Willamette Valley Vineyards where he was

the Viticulturist for the 2018-2022 vintages. Clay is involved with the local Oregon Biodynamic Group as well as in his 6th year of Board of Directors for the Josephine Porter Institute for Applied Biodynamics(JPI), a 501c3 non profit based out of Floyd Virginia. As of 2023, Clay is the Head of Viticulture for Montinore Estates with Ackley Brands and excited to farm and harvest quality certified fruit from over 200 acres across three unique and beautiful vineyards.

TRACY KENDALL, NICOLAS-JAY

Born and raised outside of Seattle, Tracy Kendall fell in love with wine in her early 20s. She worked her first harvest at Oregon's Torii Mor Winery, where she learned from winemaker Jacques Tardy, a native of Burgundy. Tracy quickly fell in love with the camaraderie and collaborative spirit of winemaking, and found that she enjoyed its constant challenges, and its potential to be a part of creating something enduring and special. Eager to gain as much experience as possible, she began working both southern and northern hemisphere harvests—experiences that took her to Vasse Felix in Australia, Darby Winery in Washington State, and Felton Road and Seresin Estate in New Zealand, where she worked with noted winemaker Clive Dougall. In 2011, Tracy completed a master's in enology and viticulture at UC Davis and returned home to join winemaker David Paige's team at Adelsheim, where she spent more than four years as enologist, before leaving with David's blessing in 2014 to join Nicolas-Jay. Today, Jean-Nicolas, Jay and Tracy oversee every decision that goes into making the wines of Nicolas-Jay. "As a winemaker, this is a dream come true," adds Tracy. "Not only am I making Pinot noir from the finest vineyards in Oregon, I'm doing so side-by-side with one of the world's great Pinot noir winemakers. And what makes it even more special is that it is so collaborative. It's never about ego. It's always about the vineyards, the grapes and the wine."

KATE AYRES, PENNER-ASH WINE CELLARS

From a young age, Kate held a strong interest in the sciences. Growing up on the North Coast of Oregon, her younger years were spent fishing, crabbing, and gathering mushrooms. Kate's love of animals led her to UC Davis and the Animal Sciences department, but her interest became piqued by the winemaking department, and she quickly adjusted her major to viticulture and enology. In 2016, Kate traded in Cabernet Sauvignon for Pinot Noir and joined Penner-Ash Wine Cellars. Working in tandem with founder and winemaker, Lynn Penner-Ash, Kate quickly rose to her current role of winemaker at Penner-Ash Wine Cellars in the spring of 2018.

BOB MORUS, PHELPS CREEK

Robert "Bob" Morus founded Phelps Creek Vineyards in 1990 and is the President of Mt. Defiance Wine Company. The combined companies farm 41 acres of wine grapes on both the Oregon and Washington sides of the Columbia Gorge AVA, producing about 7000 cases of wine annually.

A native of New York, Bob was raised in Northern California, receiving a B.S. in Aeronautics from San Jose State University and M.S. in Industry and Technology from Northern Illinois University. He earned his wings in the Air Force and served as a transport pilot before joining Delta Air Lines in 1985. The pandemic brought about an early retirement from flying B-777s in international operations but facilitated his long time pursuit of growing a beard.

A former President of the Columbia Gorge Winegrowers Association, Bob was re-appointed by Oregon's Governor as a Director of the Oregon Wine Board, where he also serves as Chairman of the International Marketing Committee.

Bob and his wife Lynette live on their vineyard in Hood River with Rosie their chocolate lab, Duncan the cat and a brood of hens.

CARRIE KALSCHUEER, PONZI VINEYARDS

An industry veteran of over 20 years, Carrie transitioned from the restaurant industry in Kansas City, Missouri in 2010 to start a career in Oregon's thriving wine country with A to Z Wineworks & REX HILL, where she stayed for nearly 13 years, focusing on brand management of the boutique label REX HILL. Currently Carrie works with the pioneering team at Ponzi Vineyards as Chief Brand Officer.

In addition to a degree in Philosophy, Carrie has earned multiple certifications, including Certified Wine Educator through the Society of Wine Educators, Certified Sommelier through the Court of Master Sommeliers, and Level 3 Advanced Certification with Distinction through the Wine & Spirit Education Trust.

LUISA PONZI, PONZI VINEYARDS

Luisa has spent her entire life on vineyards and in wineries. Her parents, Dick and Nancy Ponzi, founded Ponzi Vineyards in 1970 and Luisa grew up working and learning from her winemaker father. She graduated from Portland State University in Portland, Oregon in 1990 with a Bachelor of Science and following her undergraduate studies, Luisa moved to Beaune, France where she continued her education in viticulture and enology.

Since 1993, Luisa has been at the helm of the wine production of Ponzi Vineyards and has brought her knowledge of Burgundian practices combined with her personal experience to the family-owned winery. Along with her sister, Anna Maria Ponzi, over the last three decades they expanded the vineyard acreage to 175 acres and the winery production to over 40,000 cases.

Luisa currently sits on the board of the Chehalem Mountain Winegrowers Association, is the current chair of LIVE, the regions sustainable vineyard certifier and organizes and participates in tastings and seminars throughout the world. For more than three decades, Luisa's passion and winemaking talent have helped sustain Ponzi Vineyards' over 50-year acclaimed tradition of producing some of the world's finest wines.

In 2021 Luisa and Maria successfully sold Ponzi Vineyards to the renown Bollinger family of Champagne and Luisa happily remains as the Director of Viticulture and Winemaking today. She, her husband, fellow winemaker Eric Hamacher, and their four children reside atop Chehalem Mountain with commanding views of the glorious valley and a collection of cows, bees, pigs, chickens, sheep, cats and three dogs.

SCOTT SHULL, RAPTOR RIDGE

Scott founded Raptor Ridge Winery in 1995, a sought-after producer of Willamette Valley Pinot noir, Chardonnay, Pinot gris, Grüner Veltliner, Auxerrois and Brut Rosé Methode Champenoise. Scott was president of Oregon Pinot Camp in 2019. Raptor Ridge produces about 10,000 cases of wine each year, with Scott as winegrower teaming with Shannon Gustafson (winemaker) and the help of his wife Annie, who manages sales, marketing and distribution. The Shulls strive to produce wines of complexity, of finesse and of place. Located in the Chehalem Mountains, Raptor Ridge is a 30-acre estate planted to Pinot noir and Grüner Veltliner. Additionally, ten distinguished regional vineyards supply fine wine grapes to Raptor Ridge under long-term contracts. Scott and Annie are founding members of Oregon Pinot Camp and Annie was president of OPC 2008 and has served on its board. Scott is president emeritus of the Chehalem Mountains Winegrowers Board and was a founding director of the Oregon Wine Board and the Oregon Winegrowers Association.

SHANNON GUSTAFSON, RAPTOR RIDGE

Shannon is a detail-oriented yet intuitive winemaker well-matched to the philosophy of Raptor Ridge Winery. She holds a degree in food science/winery production from California State Fresno (cum laude) and has been on “the wine route” since before graduating in 2003. She also minored in French and chemistry. Over these past two decades, Shannon has made wine on three continents (France, Australia, North America), including a 10-year stint on California’s Central Coast working for small family wineries. Shannon moved to Oregon in 2015 as winemaker at Hawks View Vineyard and joined Raptor Ridge in July of 2017. When she is not at the winery, Shannon enjoys hikes and exploring outdoors along with her energetic dog, Abby.

GUILLAUME LARGE, RÉSONANCE

Guillaume Large was born in the heart of the Pouilly-Fuissé appellation in 1982. His grandfather, who was a grower, shared with him his passion for vineyards and wine. Guillaume graduated with an Oenologist’s National Diploma from the Jules Guyot Institute of Dijon. In 2011, Guillaume joined Maison Louis Jadot in Beaune, as assistant technical director, working with Jacques Lardière and Frédéric Barnier. In August 2017, he moved to Oregon and joined Résonance, the first adventure outside of Burgundy for Jadot, and became the winemaker. He lives with his family on the beautiful Résonance estate, and he is a lover of history, hiking and cooking.

LEIGH BARTHOLOMEW, RESULTS PARTNERS

Ask Leigh where she was raised and you'll need to reach for a globe. A "Navy Brat", as she calls herself, home for her growing up was Virginia, Hawaii and exotic faraway places like the Philippines, Japan, Spain and London. After graduating from High School in London, she attended the University of Oregon, then University of California/Davis where she earned her Master's degree in Viticulture.

Leigh has worked in wine regions around the world, meeting a host of people from a variety of cultures along the way. She gained experience at such respected properties as Domaine Denis Mortet in Gevrey Chambertin; Seresin Estate, Marlborough New Zealand; Robert Mondavi Winery, California; Cain Vineyard and Winery, California; Caliterra/Vina Errazuriz in Chile and Andrew Will Winery in Washington.

Leigh joined Results Partners in 2014, after nearly fourteen years as Director of Vineyard Operations at Archery Summit Winery. Well-versed in organic and biodynamic farming practices, Leigh's philosophy is simple "I feel that beyond respecting the land, these methods also yield healthier and more expressive fruit."

Leigh and her winemaker husband, Patrick Reuter, co-own Dominio IV Winery in McMinnville. She still loves traveling, but her favorite hobby these days is being mom to two sons, getting them "here and there" and watching them grow and mature.

MICHAEL DAVIES, REX HILL

A New Zealander by birth, Michael came to work his first Oregon harvest in 1999 with a handful of vintages across the hemispheres and a postgraduate diploma in enology and viticulture from Lincoln University. Over the next five years he cut his teeth on cool-climate winemaking and viticulture as assistant winemaker and vineyard manager at Chehalem. Then after a gap year working vintages in New Zealand and Burgundy and starting his own label, Matzinger Davies Wine Co. (with his wife Anna Matzinger), he joined the A to Z Wineworks and REX HILL team as winemaker in 2006. Now as executive winemaker, Michael has helped oversee the significant increase in case production of all the A to Z wines, always striving to achieve the best quality as well as refocusing the REX HILL brand of ultra-premium terroir-driven Pinot noir and Chardonnay to even greater heights.

ANNA WELCH PROST, REX HILL

Anna serves an integral role in winemaking with a primary focus on A to Z white and rosé wines. Following her degree in Horticulture from Cal Poly, Anna studied at Lincoln University in New Zealand and later also completed the Chemeketa Winemaking program. She worked at Chappellet and Cardinale wineries in California, Delegats Wine Estates in New Zealand, and Vasse Felix Winery in Australia before coming to A to Z for the 2009 harvest. Subsequently, she has served as Lab Technician, Lab Manager, Enologist, and Assistant Winemaker before becoming Associate Winemaker.

CHRIS BERG, ROOTS WINE CO.

Born in Racine, Wisconsin, and raised in Idaho, Pennsylvania and Illinois, winemaker and winegrower Chris Berg didn't always know he wanted to make wine. In fact, when he graduated from the University of Kansas in Lawrence with a bachelor's degree in English, he wasn't sure what his future held, as far as a career. In 1999, the Bergs planted seven acres of Pinot noir and Pinot gris on the 20-acre property themselves, farming using organic practices. After several vintages of apprenticeships with Hamacher Wines, Elk Cove, Torlesse Wines (New Zealand), REX HILL and Archery Summit, he was ready to start his own project. In 2002, the Bergs picked their first harvest of a whopping three tons, which were made into 72 cases of Pinot noir. Now Roots produces approximately 6,000 cases.

PETER SHEA, SHEA VINEYARDS

Peter grew up watching his parents plant Shea Vineyard and start Shea Wine Cellars. As a teenager, he spent summers helping with racking, cleaning barrels, and whatever else needed to be done around the winery. He began full-time at the winery after graduating from the University of Oregon in 2012, starting as a harvest intern that same year. After that he split his time between working in the tasting room, the vineyard and the winery as needed. He spent several years as Director of Marketing for the winery before stepping into his current role as General Manager for both Shea Wine Cellars and Shea Vineyard.

ROBIN HOWELL, SOKOL BLOSSER

Robin Howell grew up in Michigan and discovered a love for wine and food attending wine dinners with her father at a local restaurant. She came out of Oregon in the early 2000s to study genetics at Oregon State University. After finishing her masters, she had the opportunity to work harvest for a large Oregon winery lab and thought it would just be a something fun and different to do for a few months. Many years later she is still here in the industry and enjoying the constant education that is winemaking. After 5 years of working in a winery lab she traveled to New Zealand and France to experience other winemaking opportunities before returning to Oregon permanently. Now winemaker for Sokol Blosser Winery she has enjoyed making these wines alongside Alex Sokol Blosser since 2012. Each vintage is a new experience, a new challenge and a lot of fun working within a dynamic winemaking team.

CHRIS FLADWOOD, SOTER VINEYARDS

As Winemaker at Soter Vineyards, Chris Fladwood is responsible for our entire winemaking operations. He oversees the productions of every wine we make from our Planet Oregon and Origin Series wines, to our limited production Sparkling Wines as well our Estate Pinot Noirs and Chardonnays. Chris' commitment to quality, focus, and precision are hallmarks of his work, and our wines are a reflection of his relentless devotion to the art of winemaking.

MARK VLOSSAK, ST. INNOCENT WINERY

Mark Vlossak founded St. Innocent Winery in 1988. It was his desire to create wines respectful of Old World-quality and tradition in Oregon's Willamette Valley. His food-

focused wines are made from four of Oregon's most well-known vineyards. These wines honor the vine and the vintage with balance and elegance.

Mark apprenticed with Fred Arterberry, Jr., the first Oregonian to make sparkling wine and one of the early producers of vineyard-designated Pinot noir. He was honored by the Wine Advocate in 2002, and again in 2004 as one of the "Wine Personalities of the Year." Now, with more than 170 90+ rated wines, he has become one of Oregon's most lauded winemakers.

Mark was on the OPC board from 2004 to 2012, has worked on the creation and development of three OPC workshops, and was OPC President in 2009.

After 31 years, Mark embarked on a new passion. In 2018 he purchased a 47-acre property in the South Salem Hills just off of the I-5 corridor, planted 16 acres—mostly of Dijon-clone Chardonnay—and built a new winery. This move was inspired by Mark's desire to be a true vigneron: one who guides a wine's life cycle from seed to bottle. He has downsized to 6,500 cases and continues to produce Pinot noir from Momtazi, Freedom Hill, Shea and Temperance Hill Vineyards as well as Chardonnay and Pinot blanc from Freedom Hill. He also produces three sparkling wines.

JASON TOSCH, STOLLER WINE GROUP

A native of Oregon's Tualatin Valley, Jason Tosch has made his career farming premium wine grapes. An Oregon State University graduate with a degree in horticulture, focusing on small fruits and berries, Jason has served in leadership roles for the Oregon wine industry's grape and wine research, and sustainability-focused communities.

In his role, Jason oversees 780 vine-acres across 6 estate properties, while cultivating relationships with fellow growers throughout the state. With his vineyard team, Jason grows high-quality wines that reflect the vintage. His love of Oregon drives his holistic approach to viticulture and the connectivity to the surrounding forests and biodiversity-rich areas. The growth of the Stoller Wine Group suits Jason's skillset. His shared core vision will allow the Stoller Wine Group to carefully scale while increasing wine quality and farm-land stewardship.

PAT HILEY, STOLLER WINE GROUP

Patrick Hiley has 25 years of experience in the wine industry. He caught the wine bug after many years working in fine dining restaurants in New Orleans, served as a buyer at a high-end grocery store, worked for a large wine supplier covering the Southeast, and eventually as a distributor holding multiple senior positions. When the opportunity to join a family of quality-driven wineries presented itself, Pat jumped at the chance to work for the Stoller Wine Group. He lives in Atlanta with his wife, Gretchen, and their three children. Pat enjoys traveling with Gretchen, listening to vinyl, and spending time with friends and family. He

holds Certified Wine Specialist accreditation from the Society of Wine Educators as well as Certified Sommelier credentials from the Guild of Master Sommeliers.

MEREDITH MCGOUGH, UNION WINE CO.

Her Italian mother and free-spirited father ensured that Meredith appreciated wine and travel early and often, leading her to dive headlong into a Viticulture and Enology education at UC Davis before she was of legal drinking age. The combinations of tradition and innovation, physical and mental, art and science sustain her passion for the craft of winemaking. A native Pacific Northwesterner through and through, Meredith found a home at Union Wine Co. after several years making decidedly pinkies-up wines in the Napa Valley working at Opus One and Screaming Eagle, a few formative vintages braving the Oregon elements with Archery Summit and A to Z Wineworks, and some time harvest-hopping and adventuring in France, Australia, and New Zealand. As Winemaker, Meredith works with the rest of the team to put impressive, unpretentious wine in the can or bottle.

ERIC MISIEWICZ, VAN DUZER

Eric grew up in New Hampshire and spent his teen years working on a vegetable production farm, which led him to study agriculture at Cornell University. While at Cornell, Eric's interest in the wine was sparked through a course he took in Viticulture and Enology. He enjoyed the learning about wine so much that he found a summer internship working for a winery in Spain and from that point on was committed to becoming a winemaker. Eric graduated with a degree in Viticulture and Enology and pursued his goal of learning about wine working for wineries in the Finger Lakes, Australia, and California before coming to Oregon. Eric has been making wine for Van Duzer since 2019.

LETI CATORIA, WILLAKENZIE ESTATE

A native of Mendoza, Argentina, Leti had an early interest in wine and agriculture which led her to obtain a Bachelor of Science in enology and viticulture from Universidad Nacional de Cuyo in her hometown. After beginning her profession in the wine industry of Argentina, she broadened her experience by working in California and New Zealand, ultimately arriving in Oregon to pursue her true passion: growing premium-quality Pinot noir and Chardonnay grapes. She has been developing her winegrowing career in the Willamette Valley since 2010, working for Argyle and Stoller Family Estate and joining the Jackson Family Wines' team in 2014.

ERIK KRAMER, WILLAKENZIE ESTATE

Erik Kramer grew up in South Florida, a very long way from the hills and vineyards of Oregon's Willamette Valley. A scientist by training, Erik worked for several years as a hydrogeologist in the petrochemical industry long before he realized he could apply his passion for precision and balance to a subject that he was more enthusiastic about: wine. Erik's career in winemaking began over 20 years ago and most of his time in the profession has been spent in Oregon's Willamette Valley. He joined Jackson Family Wines as the Winemaker for WillaKenzie Estate in 2017. Before taking the helm at WillaKenzie, Erik was

Director of Winemaking and Viticulture for Domaine Serene, a position he held for six years. Erik was also part of the winemaking team at Adelsheim Vineyard for many years and his experiences with their estate vineyards helped foster a deep appreciation for the intricacies of Willamette Valley terrior. Erik holds a B.S. in Geology from Florida State University and a Postgraduate Diploma in Viticulture and Oenology from Lincoln University in Canterbury, New Zealand.

DAN WALSH, WILLAKENZIE ESTATE / PENNER-ASH WINE CELLARS

As a Sonoma County native, Dan was immersed in wine culture from an early age. Growing up in the region fostered his interest, which landed him working in restaurants where he was introduced to many wines of the world. This sparked a curiosity to delve deeper into the local wine scene, eventually leading Dan to his role as a wine specialist at Bottle Barn, a well-established wine merchant in Santa Rosa.

Recognizing the potential in the wine business, Dan decided to pursue a bachelor's degree in Wine Business at Sonoma State University. During this time, he gained valuable experience working with a number of wineries in the area as an estate lead, VIP Wine Educator and Tasting Room Manager. In 2016, Dan embarked on a pivotal journey to the Willamette Valley, exploring the diversity offered from 25 producers over 6 days. This visit solidified his desire to establish himself in the region. Finally, in 2019, he seized the opportunity to make Oregon a permanent home and became the Oregon Wine Educator for Jackson Family Wines.

BILL SWEAT, WINDERLEA VINEYARD & WINERY

Bill Sweat and his wife Donna Morris are co-owners of Winderlea Vineyard and Winery in Dundee, Oregon. Bill moved to Oregon in September of 2006, managed his first crush a few weeks later, and purchased Dundee Hills Vineyards, which was planted in 1974, in November. Winderlea immediately began the transition to organic farming and in 2009 began farming biodynamically. Winderlea received LIVE certification in 2007 and in 2015 applied for and received Organic, Biodynamic and B Corp certifications. Winderlea's current focus is on carbon reduction. Bill is a past chairperson of the Oregon Wine Board, a statewide organization focused on marketing, research and education. He is also a past president of the Oregon Winegrowers Association, a statewide industry advocacy group. He has served on the Steering Committee for ¡Salud!, an organization that provides healthcare services to Oregon's vineyard workers and their families, as well as on the board for the Newberg Habitat for Humanity. Most recently Bill has been a member of the Willamette Valley Wineries Association Diversity, Equity, Belonging, and Inclusion committee and is a founding board member of the Willamette Valley Wine Foundation. Bill and his wife, Donna Morris, reside in Dundee, Oregon.

2023 CAMP COUNSELORS

David Adelsheim, Adelsheim Vineyard
Brandon Allen, Van Duzer Vineyards
Laurine Apolloni, Apolloni Vineyards
Jess Arnold, Soter Vineyards
Tyson Bernhardt, Duck Pond Cellars
Jay Boberg, Nicolas-Jay Estate
Michelle Bolliger, Dobbles Family Estate
Anne Marie Borgman, WillaKenzie Estate
Cyndi Buehler, Montinore Estate
Kyle Byram, Illahe Vineyards
Kellie Campbell, Flâneur Wines
Ashley Campion, Penner-Ash
Margo Caramella, Dobbles Family Estate
Mindy Casteel, Flâneur Wines
Annika Collins, Domaine Serene
Amanda Conley, Dobbles Family Estate
Will Craigie, Bryn Mawr Vineyards
Julia Cresto, Ponzi Vineyards
Amelia Dobbles, Flâneur Wines
Mike Duffy, Alexana Winery
Sam Dungan, Alexana Winery
Susie Dunleavey, St. Innocent Winery
Colin Eddy, Hyland Estates Winery
Jessica Endsworth, Hyland Estates Winery
Craig Erion, Argyle Winery
Lisa Fahrner, Benton-Lane Winery
Shane Farnor, Elk Cove Vineyards
Bethany Ford, Illahe Vineyards
Britta Gentle, Domaine Serene
Kelli Gregory, Adelsheim Vineyard
Craig Havlinek, Stoller Family Estate & Chehalem Winery
Stephanie Hofmann, Stoller Family Estate & Chehalem Winery
Tim Holst, Alexana Winery
Andrew Imboden, Alexana Winery
Dionne Irvine, Irvine & Roberts Vineyards
Doug Irvine, Irvine & Roberts Vineyards
Julianne Kennedy, Ken Wright Cellars
Joylin Kent, Ken Wright Cellars
Josh Knudson, Roots Wine Company

Carter Krevanko, Colene Clemens Vineyards
Jonathan Lampe, REX HILL
Suzanne Larson, Left Coast Estate
Russell Lichtenthal, Flâneur Wines
Aaron Lieberman, Iris Vineyards
Nathan Litke, Illahe Vineyards
Jayme Lowe, Montinore Estate
Kari Mahe, Dobbles Family Estate
Bill Matthes, Lange Estate Winery
Brad Mayer, Union Wine Company
Amy McCandlish Esper, The Eyrie Vineyards
Wallace McKeel, Raptor Ridge Winery
Ivory McLaughlin, Ken Wright Cellars
Lee Medina, Sokol Blosser Winery
Colin Moore, Antica Terra
Donna Morris, Winderlea Vineyard and Winery
Scott Neal, Coeur de Terre Vineyard
Debby Neong, Archery Summit
Rebecca Oliver, Lemelson Vineyards
Sarah Pearson, Dobbles Family Estate
Miriam Peterson, Brittan Vineyards
Alexa Pittmon, Stoller Family Estate
Libbyola Rankin, Foris Winery
Betsy Reed, Bethel Heights Vineyard
Kristin Rice, Dobbles Family Estate
Beth Runnels, Phelps Creek Vineyards
Jim Sadlon, Soter Vineyards
Kevin Schlachter, Nicolas-Jay Estate
Silke Schuh, Union Wine Company
Catarina Simoes, Phelps Creek Vineyards
Mark Smith, REX HILL
Dyana Thomas, Colene Clemens Vineyards
Dee Torres, Duck Pond Cellars
Karl Weichold, Stoller Family Estate
Hallie Whyte, Soter Vineyards
Mike Willison, Adelsheim Vineyard
Colin Wood, WillaKenzie Estate
April Yap-Hennig, Dobbles Family Estate
Emily Zegar, Sokol Blosser Winery

2023 STEERING COMMITTEE

Mike Willison, Adelsheim Vineyard
Tresider Burns, Alexana Winery
Gretchen Boock, Benton-Lane Winery
Ben Casteel, Bethel Heights Vineyard
Thomas Sichta, Brittan Vineyards
Katie Santora, Chehalem Winery
Scott Neal, Coeur de Terre Vineyard
Dyana Thomas, Colene Clemens Vineyards
Jennifer Hendrickson, Domaine Serene Winery & Vineyards
Todd Stewart, Elk Cove Vineyards
Colin Eddy, Hyland Estates Winery
Aaron Lieberman, Iris Vineyards
Jesse Lange, Lange Estate Winery
Shardul Ghogale, Left Coast Estate
Rebecca Oliver, Lemelson Vineyards
Carrie Kalscheuer, Ponzi Vineyards
Scott Shull, Raptor Ridge Winery
Robin Howell, Sokol Blosser Winery
Justin Hoffman, Union Wine Company
Erik Kramer, WillaKenzie Estate

GREEN STATEMENT

Welcome to Oregon! As you know, our state has a well-earned reputation for being on the cutting edge of green thinking. Many of our wineries have adopted best ecological practice in all aspects of their operations.

The organizers of OPC have also done their best to pursue green options wherever possible: communal events with mandatory ridesharing, refillable water bottles as an alternative to endless disposables, recycled products, and recycling wherever possible are all a part of our effort to accomplish more while wasting less. We know that every step matters!

DIVERSITY STATEMENT

INCLUSION IS HOW WE UNLEASH THE POWER OF DIVERSITY.

Oregon Pinot Camp is committed to fostering a culture of diversity, equity, and inclusion. We recognize that each camper's unique experiences, perspectives, and viewpoints are critical to creating a camp that will engage and inspire all who are in attendance. By bringing together a diverse group of campers, we all benefit from a stronger set of ideas, perspectives and life experiences that will allow us to make a positive impact throughout the global wine community.

OUR COMMITMENT AND OUR VALUES

- We welcome a diverse mix of minds, value our different backgrounds, and celebrate our campers' unique perspectives.
- We value the visible and invisible qualities that make you who you are.
- We believe in the rights of all individuals and in eliminating any bias based on one's differences.
- We strive to build a camp where campers feel valued, appreciated, and free to be who they are.
- We commit to an unremitting effort towards the elimination of discrimination and to the equitable treatment of others.

MISSION

Oregon Pinot Camp elevates the brand value of Oregon Pinot Noir by bringing diverse and influential restaurant and retail wine buyers to Oregon for a series of collaborative educational and social events designed to create an emotional link to our vineyards, wines and terroir, promoting lifelong advocacy.

THE OREGON PINOT NOIR STORY

Welcome to Oregon! We are pleased you have joined us to investigate the New World home of Pinot noir—to explore Oregon’s uniqueness in climate, geology and people. Oregon is different. We have a relatively small wine industry, even though the state is third in number of wineries and fourth largest in wine volume in the U.S. Our approach to viticulture, winemaking and marketing is personal and handcrafted. There is a pioneer spirit here that speaks of the vision, innovation and independence required to succeed in a challenging cool-climate growing region. There is camaraderie and collaboration that values common good over individual benefit. There is accountability to the environment and for the well-being of our neighbors.

Assets for the Oregon Pinot Noir Story were written, gathered, curated and adapted by Jason Lett, and are used during Oregon Pinot Camp and in this document with his permission.

WORKSHOP DETAILS

More information including the panelists by site and wines tasted is available following OPC at oregonpinotcamp.com/workshops.

POINTS TO INVESTIGATE

Basic questions need to be answered to begin to understand *Why Pinot noir?* and *Why here?*

- What is special about our climate and what does it mean for our wines?
- What distinguishes the places Pinot noir grows best in Oregon, and are there real “terroir” differences in those places attributable to the site?
- What innovations in vineyard and winery practices have made it possible to make great wine in Oregon?
- What kind of people made the Oregon industry what it is today—pioneers, new waves, first and second generations?

CONTENTS

- Oregon Pinot Noir Country – the Willamette Valley and more
- The Cool Climate – latitude, sunshine, temperature and rainfall
- Geologic History of the Willamette Valley
- Diversity of Viticultural Areas within the Willamette Valley
- Innovations in Cool-Climate Viticulture and Winemaking
- A General History – who, what, when and how
- Oregon Wine Milestones

OREGON PINOT NOIR COUNTRY – THE WILLAMETTE VALLEY AND MORE

Oregon is a large state with seven major growing regions and 23 approved American

Viticultural Areas (AVAs).^{*} Pinot noir is the most important variety in the Willamette Valley, though there are plantings in the Umpqua and Rogue Valleys, Columbia Gorge and Columbia Valley. Approximately 81% of the state’s Pinot noir is produced in the Willamette Valley. Those who try Pinot noir from Oregon most likely will be drinking a wine from this area. For the purposes of this discussion we will adopt, with apologies to the rest of the state, the common usage “Oregon,” even as we recognize that we might be speaking accurately of only a much smaller area.



- | | |
|-----------------------------|---|
| 1. Willamette Valley | 13. Southern Oregon |
| 2. Yamhill-Carlton | 14. Umpqua Valley |
| 3. Chehalem Mountains | 15. Red Hill Douglas County |
| 4. Tualatin Hills | 16. Elkton Oregon |
| 5. Laurelwood District | 17. Rogue Valley |
| 6. Ribbon Ridge | 18. Applegate Valley |
| 7. Dundee Hills | 19. Columbia Gorge |
| 8. McMinnville | 20. Columbia Valley |
| 9. Eola-Amity Hills | 21. Walla Walla Valley |
| 10. Van Duzer Corridor | 22. The Rocks District of Milton-Freewater |
| 11. Mount Pisgah (proposed) | 23. Snake River Valley |
| 12. Lower Long Tom | |

Oregon AVA Map from Oregon Wine Resource Studio, trade.oregonwine.org

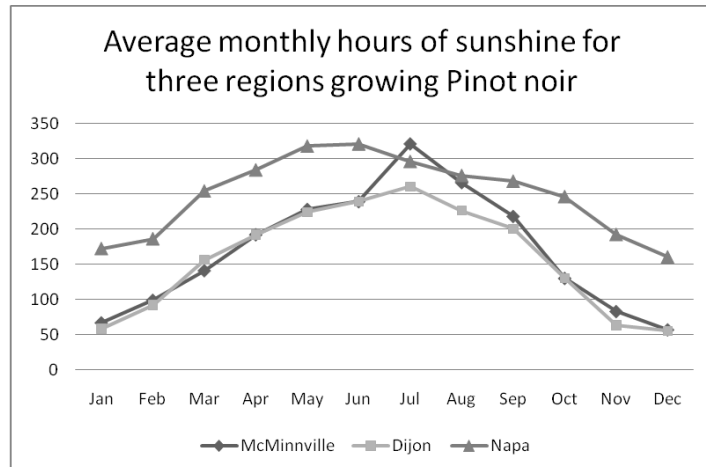
Oregon’s wine pioneers came to the Willamette Valley looking for the perfect place to grow

Pinot noir—a place where long hours of summer sun combined with cool temperatures at the beginning and end of the growing season. Wine grapes ripen slowly here, with a long period of flavor development at the end of the growing season and harvest in late September or early October.

THE COOL CLIMATE – LATITUDE, SUNSHINE, TEMPERATURE AND RAINFALL

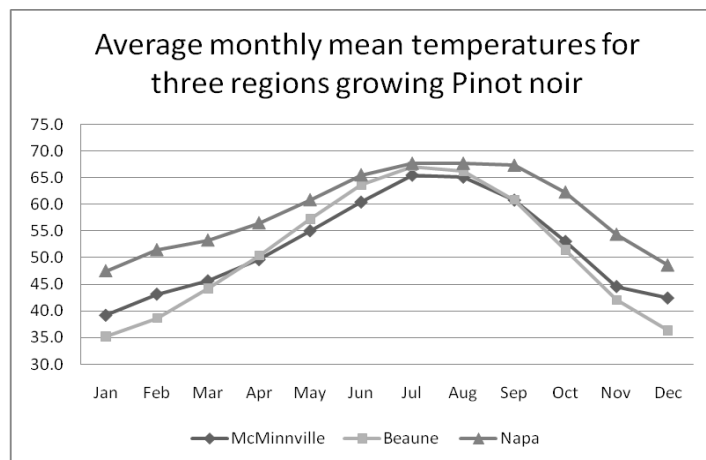
The weather conditions of the Willamette Valley—and of most places in the rest of the state where Pinot noir is grown—are described as cool-climate.

- **Latitude:** The 45th parallel cuts through the Willamette Valley just north of Salem. We are sitting halfway between the equator and the North Pole, but so is Newfoundland. So what does that mean? Being so far north, between March 21 and September 21, we have more daylight hours than growing regions further south. On June 21 we have 1.5 hours more sun than in Napa.



- **Sunshine:** Latitude supplies a convenient, but only hypothetical calculation.

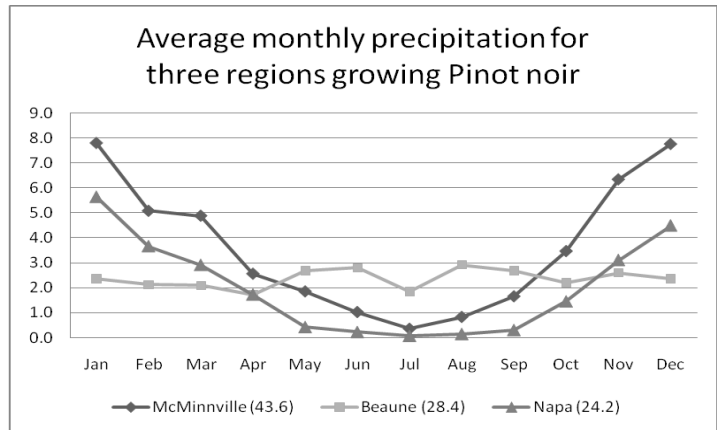
When one looks at the hours of sunlight, the real uniqueness of Oregon’s climate starts to emerge. Up through June, our vines get about the same amount of sun as those in Burgundy. Then suddenly, from July through September, we have more—in July, we actually have more sun than northern California. That very spiky growing season may explain why Oregon Pinot noirs have more fruit intensity than most Burgundies.



- **Temperature:** Ripening requires heat sufficient to physiologically mature grapes, but not so much as to deprive the grapes of acid, finesse and complexity. Northern latitude plus proximity to the ocean brings moderate temperatures year-round with no vine-killing cold in winter or serious frost in spring. Ocean breezes bring cool nights that are especially important for Pinot during the ripening period. The Cascade Mountains to the east protect us from the hot and cold extremes of the continental interior.

- Our winters are very mild with a mean January temperature of 42°F.
- Our summers are cool with July's average temperature being 68°F.

Harvest in the Willamette Valley usually occurs in late September to early October, compared to mid-September in Burgundy, and late August to early September in California. Big implications for Pinot noir style!



We have less heat than Burgundy through almost the entire growing season—our Septembers are similar and we’re only warmer in October. Thus, the events during our growing season—bud break, bloom, veraison and harvest—take place a week or two after Burgundy in most years. Oregon depends on a long, but cool, period of flavor development at the end of the growing season. This is a key difference between cool- and warm-climate wines.

Precipitation: Moderate rainfall at the right time is the second key to the cool-climate advantage. The Willamette Valley is protected from extreme coastal rainfall (80" annual) by the Coast Range. It’s still a lot of rain: 44" per year (compared to 28" in Burgundy). However, most of it falls in the winter. Average monthly rainfall in January is 7", but only 0.5" in July and August. Dry summers, compared to even rainfall through the year in Burgundy, mean low pressure from diseases like downy mildew and botrytis, but more issues with drought and irrigation.

CLIMATIC CHALLENGES AND GLOBAL CHANGES

- Timing of bud break: early bud break can mean increased risk from spring frosts and can lead to earlier bloom and harvest. Late spring bud break can mean late bloom (leading to excess crop) and late harvest (in the rain!).
- Rain at critical points in the growing season: cool and rainy weather during flowering can lead to excessively small crops. Early fall rains can reduce wine quality and can threaten winegrower blood pressure levels.
- Global climate change poses the greatest long-term threat to Oregon viticulture. The uncertainty of how badly it may affect us is sobering and should prompt us to action to mitigate its effects.

GEOLOGICAL HISTORY OF THE WILLAMETTE VALLEY

Until about 12 million years ago, Western Oregon was on the floor of the Pacific Ocean. Before that, for 35 million years under the sea, it was slowly accumulating layers of marine sediment,

the bedrock of the oldest soils in the Willamette Valley.

Starting about 15 million years ago, the pressure created along the coast by the collision of the Earth's Pacific and North American Plates gradually pushed Western Oregon up out of the sea, creating the Coast Range and the intensely volcanic Cascade Mountains further inland. The Willamette Valley thus began as an ocean floor trapped between two emerging mountain ranges.

During this period of uprising, from about 15 million to 6 million years ago, rivers of lava erupting from volcanoes on the east side of the Cascades flowed down the Columbia Gorge toward the sea, covering the layers of marine sediment on the floor of the emerging Willamette Valley with layers of basalt.

The Willamette Valley continued to buckle and tilt under pressure from the ongoing coastal collisions, forming the interior hill chains that are typically tilted layers of volcanic basalt and sedimentary sandstone, such as the Dundee Hills and Eola Hills.

The next geologic activity to add to our soils was the creation of a layer of windblown silt (called Loess) on the northeast-facing hills west of where Portland sits today. This started as long ago as a million years and may have continued until about 50 thousand years ago. These silts were blown in from the valley floor, but they originated from the severely weathered basalts and sediments.

Much, much later, about 18 thousand to 15 thousand years ago, at the end of the last ice age, the melting of a glacial dam near the location of Missoula, Montana, repeatedly flooded the Willamette Valley, creating a lake up to the 400-foot contour level, with only the tops of the two-tone hills sticking out, and leaving behind deep silts.

Thus we have in the Willamette Valley a complex series of soils with interesting and diverse origins:

- **Marine sediments** that were laid down on the floor of the Pacific Ocean. Examples: Willakenzie, Bellpine, Chuhulpim, Hazelair, Melbourne, Dupee
- **Basalts** that originated as lava flows from eastern Oregon. Examples: Jory, Nekia, Saum
- **Windblown Loess**, silt blown up from the valley floor onto northeast-facing hillsides. Example: Laurelwood
- **Missoula Flood** deposits brought down the Columbia Gorge as the result of a repeatedly melting glacial dam. Examples: Wapato, Woodburn, Willamette

DIVERSITY OF VITICULTURAL AREAS WITHIN THE WILLAMETTE VALLEY

Much is said about how and why the Willamette Valley is the perfect place to grow Pinot noir.

But once that most fundamental choice has been made, it must be added that not every acre in the Willamette Valley is suitable for growing great Pinot noir. Indeed, most of the acres of the Willamette Valley are deep, rich valley floor soils that are paradise for a great diversity of crops, but they can spell trouble for Pinot noir. Pinot noir at low elevations is subject to frost damage in the spring.

In almost all cases, great Willamette Valley Pinot noir grows on hillsides, often quite rocky, facing southeast, south or southwest, at least 200' above sea level and avoiding cooler hilltop microclimates over 900'. This is a common factor amongst the eleven nested AVAs within the Willamette Valley, regardless of soil types and weather patterns.

The hillsides within the Willamette Valley are composed of a complex series of soils formed at different stages of geological history. There is no doubt that the fascinating diversity of Pinot noir wines grown in the Willamette Valley depends in part on the diverse origins of the soils in which our vineyards are planted.

INNOVATIONS IN COOL-CLIMATE VITICULTURE AND WINEMAKING

Innovation, invention, curiosity, keen observation, energy and dedication are all characteristics of the Oregon wine industry. In the vineyards, every phase of grape growing, from the dirt itself to consideration of the weight impact of tractors on the dirt, has been and continues to be examined in serious, sometimes painful, detail. Inside the wineries, the same sort of reevaluation, rethinking and searching is constant. Many vineyard and winery practices now common in the U.S. were originally explored, innovated and refined in Oregon.

Site Selection and Matching Clones: Oregon pioneered the now accepted practice of matching site, climate, variety and clone.

Trellising, Canopy Management and Spacing: Vertical trellising has been standard Oregon practice from the first vinifera plantings. The goal is to maximize the amount and effect of sunlight on individual leaves and minimize shading. It also enhances airflow and aids in prevention of mildew. Leaf pulling around the clusters, an idea from Switzerland, is widely practiced—with thoughtful variations—to enhance ripening and prevent mildew. The effect of dappled sunlight heightens flavor and aroma development, while decreased leaves increase the efficacy of sprays to prevent mildew. There will probably never be consensus on the correct spacing between vines and rows. However, to compensate for low tonnage per vine—and perhaps get increased body and flavor in the grapes—there has been general movement toward tighter spacings over the years.

Harvest and Processing: In Oregon, every aspect of winegrowing and winemaking is permeated with the fundamental finding that gentle handling is intrinsic to the production of premium cool-climate varieties, Pinot noir in particular. Some of those gentle handling techniques, perhaps reinvented from old practices but certainly identified and valued in Oregon, include:

- Handpicking fruit into very small containers rather than gondolas.
- Moving grapes with conveyor belts rather than augers.
- Using sorting tables to remove any damaged fruit.
- Destemming while keeping each grape berry whole rather than crushing.
- Cold maceration (after all, Oregon's harvest is usually in October; the cellars are cold).
- Moving must and wines with gravity or gas rather than pumps.
- Fermenting in small containers (commonly 1.5- to 5-ton capacity) rather than huge tanks to provide appropriate temperature control and a manageable cap.

A GENERAL HISTORY OF THE OREGON WINE INDUSTRY AND OREGON PINOT NOIR

Pre-History

Vinifera winegrapes have been grown in Oregon since the first settlers put down roots in the nineteenth century. Accounts of vines being grown in the Oregon Territory go back as far as 1825. (By comparison, winegrapes were introduced into California in 1779, New Zealand in 1819 and Australia in 1832.) Over the next decades, settlers poured into Oregon lured by the tales of fertile open farmland, water, moderate weather and the excellent quality of the Oregon Territory's produce. Many early pioneers came from Europe, bringing dreams of producing wine in the "Promised Land." Indeed, by the 1890s, Oregon wines were winning awards and general acclaim.

Oregon's early adoption of Prohibition (1914) effectively put an end to that early chapter of Oregon winegrowing. After 1933, there remained no demand for local table wines. The wineries that started up focused on sweeter fruit wines.

The California industry managed to survive the socio-political-economic crisis, but just barely, and certainly not with an emphasis on quality table wines. Even by the 1950s and 1960s, the majority of California wines were of the bulk and sweet types produced from undistinguished varieties. Premium wines were in the future; Pinot noir was essentially unknown.

As the California industry refocused on quality in the 1960s, Oregon quietly began an era, not of revitalization, but actual discovery and birth of a wine region. In the early 1960s Richard Sommer planted vinifera vines in the Umpqua Valley, while both David Lett and Charles Coury founded vineyards in the Willamette Valley. More wine pioneers joined in: the Eraths, Ponzis, Blossers, Adelsheims, Campbells, Vuylstekes and Fullers in the Willamette Valley; the Wisnovskys in the Rogue Valley; and the Bjellands and the Giradets in the Umpqua Valley. In 1970 there was one vinifera winery in Oregon and fewer than 100 acres of vines planted. By 2010, there were 418 wineries with over 20,300 acres planted in 848 vineyards.

The wine industry in Oregon has changed the face of the land. Hillsides in the northern Willamette Valley—the nucleus of the industry—that once were planted with walnut, hazelnut, prune, peach and cherry orchards, and dotted with prune and nut dryers, are now

covered with vineyards and architecturally imposing wineries as well. The transformation began in the last decades of the twentieth century as canneries closed, and fruit and nut processing was transitioned to more efficient commercial dryers. Land use laws passed in 1973 limited residential building in agricultural zones, raising the value of farmland dramatically and encouraging vineyards to be planted. A new wine economy thrived. In the 2004 elections, a new threat surfaced as a state measure was approved by voters to roll back the land use laws. Three years later, Oregonians reaffirmed their desire to keep development off of farmland and maintain the tradition of valuing farmland as a resource.

The wine industry has improved the quality of life in Oregon on many fronts. Vineyards are scenic, as well as being one of the most environmentally friendly agricultural sectors. Most vineyards are farmed with a very conscious goal of sustainability. Oregon has earned a fine reputation for its excellent wines now sold nationally and internationally. The wineries themselves have become tourist destinations, attracting visitors from all over the world who come in order to appreciate the beauty and quality of Oregon wine country. The wine industry brings millions of dollars into the state in wine sales, and has a total annual economic impact on the state of more than \$1 billion.

The Pioneers

The primacy of Pinot noir was super-imposed on the state of Oregon by a group of people who had done their homework in the late 1960s and early 1970s. The early pioneers studied the potential for vineyards in Oregon at UC Davis and at research centers in Colmar, France and Wädenswil, Switzerland. They used that background to select the North Willamette Valley as the prime place for superior New World Pinot noir production. Their sights were set on the flavor ripening capacity and low disease pressure provided by long, warm sunny summer days. Of equal importance, acid and structure-building derived from cool nights also made the region ideal. Abundant moisture during the dormant season to establish deep roots and mitigate irrigation issues added to the appeal of the Willamette Valley. Most of the first wave came from California, and they never looked back, because their science told them that they were planting the right grape in the right place and their heads told them that they were home.

The early wine pioneers were individualists. They didn't necessarily share a defined common goal: their original motivations varied with each stubborn, overly confident person. There has never been a single crusader, champion or leader in Oregon. Instead there has always been a collaborative approach, based on mutual respect, admiration and friendship. Whatever their personal reasons for placing themselves in Oregon, the early pioneers quickly recognized their interdependence. As a group they were highly educated, strong and resourceful, but short on experience. Naïve dreams of making quintessential Pinot noir in a land where no one knew or wanted Pinot noir bonded them like blood brothers and sisters. In truth, no one really knew how to grow or make wine in Oregon. The awareness of this somehow made the whole project even more attractive to that early odd lot.

They had more in common than unsupported ideals. They shared the common experience of

limited finances and were forced to begin on very low budgets, buying used equipment and working other jobs to make ends meet. Having found each other, they met often to share information as they adapted and invented techniques to deal with their uncharted terrain. They learned to farm, incorporating the finer aspects of viticulture; they discovered the details of delicate winemaking; they navigated their way through bureaucracies and legislation. They learned that they had to learn how to promote and sell.

New Waves

By the mid '80s, the word about Oregon wines, especially Pinot noir, had gotten out. New wineries, vineyards and out-of-state investments flowed in. Outside confirmation of Oregon as a wine region was welcome and exciting. In 1988, the wine world sat up and took notice when Robert Drouhin, of the prominent Burgundian producer Maison Joseph Drouhin, bought a large property and started vineyards and a winery in the Dundee Hills. Drouhin declared there were only two places in the world he would grow Pinot noir: Burgundy and Oregon. This investment proved the catalyst for a series of increasingly expensive and sophisticated winery facilities. Individuals with personal fortunes built many of these facilities, like WillaKenzie Estate, King Estate, Domaine Serene and Lemelson Vineyards. Others, like Archery Summit and Willamette Valley Vineyards, were built by groups of investors. The days of used equipment and individual owner sweat equity were long gone. The original pioneers found they needed to keep up, or be left in the dust. The state-of-the-art, both in viticulture and winemaking, had evolved considerably, and the new players had all the bells and whistles—grape sorting conveyors, gravity flow processing, actual barrel caves, commercial kitchens, culinary staff, entertainment facilities, gracious guest housing and more.

Many of the older wineries stepped up to the bar. Sokol Blosser engaged Oregon's prestigious architect, John Storrs, to design its new tasting room. Elk Cove Vineyards, Chateau Benoit and REX HILL Vineyards constructed attractive hospitality facilities to accommodate large corporate and private events. David Adelsheim researched winery design throughout Europe before building his impressive new winery. Ponzi Vineyards established their wine bar and restaurant in Dundee to attract and accommodate wine country tourism. Most wineries reviewed and strengthened their marketing programs with renewed seriousness.

On the sustainability front, Sokol Blosser led the way to earth-friendly building with an underground barrel cellar that became the first winery building in the world to earn the U.S. Green Building Council's prestigious LEED (Leadership in Engineering and Environmental Design) certification. At almost the same time, the Carlton Winemakers Studio won LEED certification for the entire new winery. Stoller Winery followed with the first Gold LEED certification for a winery in the United States. It integrates gravity-flow winemaking techniques, energy-efficient heating and cooling and wastewater reclamation to reduce negative environmental impact.

Outside Confirmation

Two major wine tasting events, in 1980 and 1985, focused the world's wine press attention on

Oregon. In Paris, in 1979, Gault Millau sponsored an international Olympiad of wine. An Oregon Pinot noir, The Eyrie Vineyards 1975 South Block Reserve, scored in the top ten in its category. In 1980, the winners of the Olympiad were challenged to a rematch, and the same wine placed second. This surprising achievement was widely publicized. Wine writers and consumers became aware of Oregon, and its place as a wine-producing region was confirmed. In New York, in 1985, the International Wine Center held a “Burgundy Challenge” to compare 15 of the top Oregon Pinot noirs with a similar number of high quality Burgundies. All were from the 1983 vintage. The tasters were all experts. When the wines were revealed, the august tasters learned they could not distinguish Oregon Pinot noir from Burgundy; moreover, the top five scoring wines were all from Oregon. The tasting had an immediate impact on the prestige and actual sales of Oregon Pinot noir. The combination of press attention and the demonstration of a critical mass of top quality Oregon wineries set the industry leaping forward.

Steamboat Conference

In 1979, two devotees of both Pinot noir and fly-fishing, Stephen Cary and Mick Richmond, came up with the idea of combining their obsessions with other like-minded folk in a sort of retreat/seminar/party. Their idea was to invite Pinot noir winemakers only for three summer days at an idyllic fishing lodge on the wild North Umpqua River in Southern Oregon to talk (incessantly) about, and drink, Pinot noir—at least when they weren’t fishing. Amazingly, there were like-minded winemakers, and the annual Steamboat Conference has developed into the international font of knowledge for the production of Pinot noir. No press is allowed. Winemakers from around the world—honored to be invited—candidly discuss their observations, discoveries and difficulties with this fickle variety. From these honest exchanges, the quality of Pinot noir around the world has soared.

Oregon Wine Advisory Board

Established in 1983, Oregon growers and producers elected to tax themselves at the highest rate in the world, \$25 per ton. These funds, still relatively minor from a small region, have enabled Oregon to conduct vital viticultural and enological research and creative marketing programs. In 2004, the Oregon Wine Board replaced the Oregon Wine Advisory Board.

The International Pinot Noir Celebration (IPNC)

IPNC was founded in 1987, the brainstorming result of a small group of Oregon wineries and business people from the city of McMinnville. Their idea was to develop an event based not on competition, but on celebration. It has proven a continuing overwhelming success. Pinot noir producers, consumers and trade have responded with enthusiasm. The IPNC has gently and joyfully enhanced the position of Pinot noir, and Oregon, in the wine world.

¡Salud!

In 1992, the Oregon wine industry, joining with a hospital located in the wine area and with local businesses, stepped up to the plate in recognizing their responsibilities for the health care needs of vineyard workers and their families. ¡Salud! (meaning health and a toast “to your

health” in Spanish), an event and program very loosely modeled on the Hospice de Beaune Auction, was developed and set into action. The wineries who were invited to participate agreed to produce and donate a half barrel of Pinot noir each vintage...a half-barrel of not just Pinot noir, but their very finest, an exceptional, exclusive cuvée. The wine is presented by barrel tasting and purchased at an elegant, lively auction each fall. Pinot noir lovers and collectors have responded with enthusiasm and generosity. All proceeds go to the ¡Salud! Health Care Program that provides dependable and consistent services for vineyard workers and their families throughout the wine region. Administered through Tuality Hospital, ¡Salud! supports a full-time Spanish-speaking medical staff, clinics, classes and mobile health vans that go directly to the wineries and vineyards. The innovative and effective ¡Salud! program has received numerous awards and recognition throughout Western states, serving as a model for other agricultural industries attempting to meet the needs of their valued workers.

LIVE

The LIVE program was created by a group of winegrowers in the Willamette Valley led by Ted Casteel of Bethel Heights Vineyard and Carmo Vasconcelos of Oregon State University, with the goal of defining and promoting environmental stewardship with rigorous independent third-party certification for sustainable grape-growing and winemaking practices. LIVE has grown to become the most widely adopted certification program for winegrowers Oregon.

Oregon Pinot Camp

Realizing the very best way for people to learn about Oregon wines, vineyards and winemakers is to see and experience the region firsthand, a group of winemakers dreamed up Oregon Pinot Camp. The idea was to invite people actually involved in selling Oregon wines—people who already knew and often loved Oregon wines—to come learn even more. Rather than a series of social tastings and marketing spiels, it was understood the campers deserved serious, substantive information and experiences—with a little fun on the side. The first Oregon Pinot Camp in 2000 proved a great success from all perspectives. Begun as an experiment, it has become an annual event, booking up as soon as invitations are received, with requests for invitations coming in from all over the country.

Willamette: The Pinot Noir Auction

In 2016, the Willamette Valley Wineries Association launched its first trade-only wine auction, raising nearly \$500,000 for the association in its first year. The auction is now an annual event, promoting the Willamette Valley’s most important grape variety, Pinot noir. Buyers from the wine trade attend the weekend immersion into the Oregon wine community and bid on unique, inimitable Pinots and Chardonnays from a single vintage.

Willamette Valley Wine Foundation

In 2022, the Willamette Valley Wineries Association announced the establishment of the Willamette Valley Wine Foundation. This unprecedented philanthropic initiative enhances the wellbeing of winegrowing communities in the Willamette Valley through the development of program-enriched affordable housing and collaborative support of health services, family

services, and personal development.

The Future

The Oregon industry is a story by itself, but it is also a significant part of an international wine industry rebirth, which occurred simultaneously throughout the United States and in Australia, New Zealand, South Africa, France, Italy and Germany. It began in the early 1970s with countries working individually. Now the wine industry has become genuinely global. This is evidenced not only through international ownership of wine brands, but also through cooperation, friendship, international symposia and joint research that have been helpful to all. In addition, touring “wine country” has become a popular international pastime, stimulating the development in every nation of wine country inns, bed and breakfasts, related tourist attractions and fine restaurants serving wine-friendly cuisine.

As the Oregon wine industry continues to expand, most of the early winegrowers who developed the industry are still around. What a success story they have to tell! Out of nothing, an industry was built, one that has given Oregon a reputation as a visitor destination more romantic and glamorous than its stereotypical rugged outdoorsiness. It’s an industry that contributes substantially to Oregon’s economy through its many facets: agriculture, winemaking, support services and equipment, tourism and sales. The proximity of metropolitan Portland to the Willamette Valley winegrowing region has mutually enhanced wine country tourism, the hotel industry, top-quality restaurants and markets committed to all manner of locally grown and produced items.

For a lucky few of the early winemakers, the second generation is stepping up to the helm, working with their parents in some cases and taking over in others. They have a rich inheritance. When their parents started, no one noticed or cared what they were doing up in the northwest corner of the U.S. somewhere between California and Washington. Today, Oregon wine, especially Oregon Pinot noir, is recognized internationally.

The early winemakers are also substantiated and supported by hundreds of younger, talented, well-trained and energetic people who revel in the continuing spirit of discovery and possibilities of Oregon. This next generation’s challenge is to keep the momentum moving forward, to build on the earlier successes without losing the passion and focus on quality that fueled the pioneers and to continue the commitment to sustainability so they can in turn pass it on to their next generation. The world will be watching.

Historical info edited by David Adelsheim and Nancy Ponzi. Drawn from An Overview: A History of the Oregon Wine Industry and Oregon Pinot Noir, by Diana Lett, for OPC 2000; The On-Going Experiment: Innovations and Revelations in Cool Climate Viticulture and Enology, by Nancy Ponzi, for OPC 2000; The Rallying Call to Pinot Noir: How Pinot Noir Came to be Understood, Admired...and Sold, by Nancy Ponzi, for OPC 2000; The Oregon Wine Industry: An Insider’s Perspective, by Susan Sokol Blosser, Introduction to Oregon Winegrapes Grower’s Guide 5th Edition, 2002; The Oregon Pinot Story short film, written and edited by Diana Lett, Harry Peterson-Nedry and Nancy Ponzi for OPC 2004. Updated by David Adelsheim and Annie Shull for OPC 2010. Ongoing minor updates 2017–2022 by Julia Burke.

OREGON WINE MILESTONES

1961 Richard Sommer plants Oregon's first post-Prohibition vinifera grapes, including Pinot noir, in the Umpqua Valley.

1965 David Lett plants Pinot noir and related cool-climate varieties in the Willamette Valley.

First Oregon Pinot noir, from Hillcrest Vineyards in the Umpqua Valley, becomes available in Oregon market.

1970 Five bonded Oregon wineries with 35 vineyard acres.

1973 Senate Bill 100 is passed, which created Oregon's revolutionary comprehensive statewide land use planning goals and the great legacy of Governor Tom McCall. Many people involved in the then infant Oregon wine industry actively worked on the passage of this legislation. Their work is credited—in large part—for keeping the hillsides in agricultural rather than residential use. The result, even near urban centers, is acres of vineyards and orchards.

1974 The existence of clones of wine grape varieties—and their potential importance—is first recognized by growers in the Willamette Valley. In the 1960s and early 1970s, growers only knew that they needed to match the variety to the climate. They simply ordered the cool-climate variety they wanted; no one mentioned a specific clone. By blind luck, Oregon started its Pinot noir plantings with the “Wädenswil” and “Pommard” clones, which happened to combine low production and high quality. Clones of other varieties were not as perfect. In 1974 Dick Erath helped bring more clones of Pinot noir and Chardonnay from UC Davis for potential study. Dr. Ron Cameron at Oregon State University agreed to set up a grapevine quarantine program so material could be brought to Oregon from outside the U.S. David Adelsheim first saw the clonal selection programs for Pinot noir and Chardonnay in Burgundy and arranged for the importation of a few clones of Chardonnay, Pinot noir and Gamay noir from a research station in Espiguette. With the help of Charles Coury, Jr., 15 clones of Alsatian varieties were sent to Oregon State University.

1975 L'Omelette Restaurant, the trendy Portland spot in the '70s, introduces the first wine list featuring an Oregon wine section. The wine list was created by David Adelsheim, then sommelier, now president of Adelsheim Vineyard. Other restaurants soon followed suit.

The first coffee table book about the wines of the region, *The Winemakers of the Pacific Northwest* by Elizabeth Purser, is published. Though perhaps way before its time, this book with its full-page color photographs (and naïve text) is now considered a rare wine collector's item.

Table Wine Research Advisory Board is established to conduct needed research support for the

young but growing wine industry. It received \$12/ton levied on grapes harvested in Oregon.

Oregon's strict wine labeling regulations, proposed by the industry, are adopted by the Oregon Liquor Control Commission. The innovative regulations are a bold component at the foundation of the Oregon wine industry, and required the consent of every Oregon winery to be adopted. They continue to be the strictest wine labeling standards in the United States.

A handful of Oregon winery owners gather over a kitchen table to create the first "Discover Oregon Wines" brochure, to function as both a backgrounder and as a tourist guide.

Oregon Winegrowers Association is founded, a statewide trade organization merging the former Winegrowers Council of Oregon (representing the Willamette Valley) and the Oregon Wine Growers Association (of Southern Oregon).

1979 Gault-Millau French Wine Olympiad places The Eyrie Vineyards 1975 South Block Pinot Noir in their top ten in the Pinot noir category, resulting in the first international recognition of Oregon.

Hugh Johnson visits Oregon. His discussions with Oregon vintners convinced him to add an Oregon map to his definitive World Atlas of Wines.

The Steamboat Conference is established by Stephen Cary (now at Yamhill Valley Vineyards, OR) and Mike Richmond (now at Bouchaine Vineyards, CA) and others. It is an annual three-day summer gathering of just winemakers. Initially, only winemakers from Oregon and California attended, but now they come from all around the world. The approach is simple: tastings of the best wines—and problem wines—from all the winemakers in attendance with in-depth, honest discussions on the true nature of Pinot noir wines and best practices to get there. This conference increased the wealth of knowledge about Pinot noir production and, incidentally, created a worldwide brotherhood of Pinot noir producers. The conference was named for the setting, Steamboat Inn, a world famous fly fishing lodge on the wild, remote North Umpqua River in Oregon.

1980 Thirty-four bonded Oregon wineries with 1,100 vineyard acres.

A Robert Drouhin-sponsored French blind tasting reconfirms the high rating of The Eyrie Vineyards 1975 Pinot Noir. International coverage of the upset brought widespread attention to Oregon Pinot noir.

The dramatic volcanic eruption of Mt. St. Helen's brings world focus to the region. Feature stories speculated on the fate of grapevines and wines. In fact, some vines were damaged and a major industry-funded research project was launched to study the effect of volcanic ash on juice and wine. Oregon vintages are never normal, but this one was spectacularly unique.

1981 Ponzi Vineyards is the subject of the first New York Times exclusive profile/review coverage of Oregon. Frank Prial featured the Ponzi 1979 Willamette Valley Pinot noir.

1982 International Wine Competition, London: Double Gold medals are awarded to Tualatin Vineyards 1980 Estate Pinot noir and 1980 Estate Chardonnay.

The Willamette Valley American Viticultural Area is approved.

1983 Cary Oregon Wines, the first national brokerage for Oregon wines, is established by Stephen Cary (now winemaker at Yamhill Valley Vineyards) and Reuben Rich. This was the first attempt to systematically find wholesalers for Oregon wines outside the Pacific Northwest. Stephen presented premium Oregon wines—and the story behind those wines—to distributors in many parts of the United States. Wholesalers in Chicago, Boston, New York, California, Texas, Minneapolis and Kansas City took on multiple Oregon brands and became early adopters. Although the business no longer exists, many of the distributor/winery relationships developed then remain intact and successful today. The efforts of Cary Oregon Wines established acquaintances and set the foundations for many of the pivotal media events of the future.

Publication of the first edition of Oregon Grape Growers' Guide, the only basic handbook on cool-climate viticulture written by growers—Marilyn Webb, Ted Casteel, David Adelsheim, Susan Sokol-Blosser and others—for growers.

The Oregon Wine Advisory Board is established with the mission to promote marketing and research for the wine industry. Oregon growers and producers elected to tax themselves at the highest rate in the world, \$25 per ton, to fund the OWAB.

The Yamhill County Wineries Association is formed, beginning with 11 member wineries. Those wineries opened their doors for the first Wine Country Thanksgiving celebration that year, inviting visitors to taste and purchase wines from the source.

Rachel Starr (founder of the Portland wine shop, Great Wine Buys) sends samples of Oregon wine to Robert Parker of The Wine Advocate. The samples sparked an exploratory trip to Oregon by Parker, during which he toured, tasted and subsequently discovered Oregon wine. Parker's story and his enthusiastic review of the 1983 vintage brought the wine world's focus to the region.

Oregon State University and Oregon's wine industry envision, organize and host the first International Cool Climate Wine Symposium. The quadrennial event continues to be held in various cool climate regions of the world.

"Dijon clones" of Pinot noir and Chardonnay arrive at Oregon State University as a result of international collaboration. Their arrival has resulted in a profound improvement in Oregon

Chardonnay, and greater complexity of flavors and earlier ripening times in Oregon Pinot noir.

The exceptionally cold, wet summer of 1984 leads to the latest and, by all accounts, the worst harvest season in Willamette Valley history.

1985 Willamette Valley Pinot noir outshines French at the Burgundy Challenge at the International Wine Center in New York, at which the expert judges' top five wines consisted entirely of Oregon bottlings.

The first mention of Oregon wine in the Wine Spectator features the astonishing results of the Burgundy Challenge, including photos exhibiting the beauty of Oregon vineyards.

1987 The International Pinot Noir Celebration debuts at Linfield College, McMinnville, Oregon. Organized by a collaboration of local business people and wineries, the goal was to bring together the great Pinot noir producers of the world for a weekend of wine education, culinary excellence and friendship. Winemakers from Burgundy, California, New Zealand and Oregon rubbed shoulders with consumers and industry folk from across the United States.

The Drouhin family, owners of the important Burgundy negociant, Maison Joseph Drouhin, purchases 100 acres for vineyards and a winery in the Dundee Hills. Robert Drouhin had made several visits to Oregon, earning the respect and friendship of the larger wine community. His daughter, Véronique Drouhin, who worked harvest in Oregon in 1986 with three wineries, was appointed winemaker for the new venture. They made their first wine in 1988 from purchased grapes in a leased facility. This extraordinary Franco-Oregon venture was widely reported, underscoring the seriousness of Oregon wines and increasing the credibility of the Oregon wine industry. The flow of established winemakers from other regions to Oregon continues, from Australia, New York, Canada and California (among other corners of the world).

1988 Governor Neil Goldschmidt presents Oregon wine to Burgundy. Goldschmidt, always a wine lover and later a winegrower in Dundee, elegantly traversed a minefield of potential social, cultural, economic and trade challenges to lead a group of winery owners on a mission to the heart of Burgundy. Roz Seysses of Domaine Dujac and Robert Drouhin were particularly helpful in overcoming the challenges of getting the cream of Burgundian wine society to show up at the tasting of Oregon wines. The wines were warmly and enthusiastically received. The Governor cemented a relationship between the two Pinot noir regions that thrives today, not only in friendships, but also exchanges of grape growing and winemaking techniques. There is also a continuing exchange of interns with young winemakers in Burgundy being able to list Oregon on their Curricula Vitae, and vice versa.

1989 Pinot Noir: America, a collaborative effort of California and Oregon Pinot noir producers, begins a series of trade tastings around the country to popularize Pinot noir among chefs and sommeliers.

Jim Berneau, founder of Willamette Valley Vineyards winery near Salem, offers public stock to build his winery. Willamette Valley Vineyards is Oregon's first and only publicly held winery.

Seventy bonded Oregon wineries with 5,682 vineyard acres.

The Trappist Abbey in Lafayette opens the Abbey Wine Warehouse, offering important storage solutions to Willamette Valley wineries.

Phylloxera, a very small insect attacking the roots of grape vines, is identified for the first time in Willamette Valley vinifera vineyards.

1991 The Hotel Vintage Plaza opens in downtown Portland with an Oregon wine theme, naming each luxury suite after an Oregon winery.

The ¡Salud! Wine Barrel Auction, the first U.S. hospital initiated and financed collaboration with local wineries, is founded. All proceeds provide health care for vineyard workers and their families.

The Oregon chapter of Women for WineSense is formed.

1994 The Oregon Wine Marketing Coalition is founded. The cooperative marketing group of more than 40 wineries took Oregon on the road. For nine years, the Coalition presented educational seminars and tastings of Oregon wines throughout the United States.

1996 Salmon-Safe, an environmental marketing program, is started by the Pacific Rivers Council and directed by Dan Kent.

1997 The LIVE program is created by a group of winegrowers in the Willamette Valley led by Ted Casteel of Bethel Heights Vineyard and Carmo Vasconcelos of Oregon State University, with the goal of defining and promoting environmental stewardship with rigorous independent third-party certification for sustainable grape-growing and winemaking practices. LIVE has grown to become the most widely adopted certification program for winegrowers Oregon, with over 34% of total Oregon vineyard acreage certified LIVE in 2012.

2000 One hundred thirty-five Oregon bonded wineries with 9,000 vineyard acres.

The first Oregon Pinot Camp (OPC) is held. Forty Oregon wineries combine their talents and resources to organize a remarkably creative and successful event. Selected retailers, sommeliers and distribution sales representatives from throughout the U.S. are invited to the vineyards and wineries of the north Willamette Valley. They learn about the region's grape growing and winemaking practices from its vineyard managers and winemakers. Along the way, they get a taste of the region's hospitality. Their enthusiastic response transformed this one-time experiment into an annual event. OPC has become one of the most beloved wine trade events

in America and is credited with having radically increased support and sales of Oregon wines in the wine stores and restaurants of the U.S. and increasingly in other countries.

2002 The first U.S. Green Building Council LEED (Leadership in Energy and Environmental Design) certification for a winery building is awarded to Sokol Blosser for its barrel cellar.

The Carlton Winemakers Studio is founded as the first multiple-winery facility in Oregon, creating an innovative model for sustainability and collaboration.

2003 Oregon State University Press publishes the fifth edition of Oregon Winegrape Growers' Guide, now titled Oregon Viticulture.

2004 The Northwest Viticulture Center opens at Chemeketa Community College in Salem, offering hands-on instruction in winemaking and vineyard work.

The streamlined Oregon Wine Board replaces the Oregon Wine Advisory Board, with the same funding as the WAB but no longer under the auspices of the Department of Agriculture. Members of the board are appointed directly by Oregon's Governor.

The release of the film Sideways sparks widespread interest in Pinot noir.

2005 The first four American Viticultural Areas (AVAs) within the Willamette Valley AVA, of the six petitioned for in 2003, are approved. They are Dundee Hills, Yamhill-Carlton, Ribbon Ridge and McMinnville.

2006 Ste. Michelle Wine Estates, Washington's oldest winery, announces that it will acquire the assets of Erath Vineyards, one of the Willamette Valley's pioneer wineries.

Two more new Willamette Valley AVAs, Eola-Amity Hills and Chehalem Mountains, are approved.

2008 Fourteen wineries join forces with the Oregon Environmental Council to kick off the Carbon Neutral Challenge, the first wine industry carbon reduction program in the United States.

2009 The Allison Inn & Spa, Willamette Valley wine country's first luxury hotel, opens in Newberg. Built within the urban growth boundary and featuring its own vineyard, walking trails, kitchen garden and greenhouse, The Allison offers award-winning accommodations and dining to the wine country visitor.

2010 Four hundred eighteen Oregon bonded wineries with 20,300 vineyard acres.

Destination Races, a national half marathon series sponsoring races in America's beautiful wine

regions, launches the first Oregon Wine Country Half Marathon, drawing participants from around the country to run 13.1 miles in the northern Willamette Valley.

2011 Linfield College inaugurates an Oregon wine history project to preserve, study and celebrate the state's wine history.

2012 Wine Spectator magazine features Oregon wine as the cover story, highlighting the perfect match between the Willamette Valley climate and the Pinot noir grape. Harvey Steiman's extensive review of Willamette Valley Pinots concludes, "Pinot noir has found an American home" in Oregon.

2013 California-based Jackson Family Wines purchases 1,385 acres of property in Oregon, including existing vineyards in the Eola-Amity Hills and Yamhill Carlton AVAs, as well as the vineyard and winery that were home to Soléna Estate.

Burgundy producer Maison Louis Jadot purchases the Resonance Vineyard in the Willamette Valley, marking only the second time a French negociant has purchased land in Oregon (Maison Joseph Drouhin was first, in 1987). Jacques Lardière, Véronique Drouhin Boss, Dominique Lafon, Louis-Michel Liger-Belair and Jean-Nicolas Méo now all have winemaking projects in the Willamette Valley.

Ste. Michelle Wine Estates, Domaine Drouhin, Laurent Montalieu, Elk Cove Vineyards, Domaine Serene and Precept Brands all make major vineyard purchases in the sell-off of sites owned by Premier Pacific Vineyards.

2016 The Willamette Valley Wineries Association launches its first trade-only wine auction, raising nearly \$500,000 for the association in its first year. The auction is now an annual event, promoting the Willamette Valley's most important grape variety, Pinot noir. Buyers from the wine trade attend the weekend immersion into the Oregon wine community and bid on unique, inimitable Pinots from a single vintage in 5, 10, and 20 case lots.

2019 A seventh nested Willamette Valley AVA, Van Duzer Corridor, is approved.

2020 Amid a global pandemic beginning in the spring and wildfires across the West Coast in the fall, the Oregon Wine Industry bands together to support hospital staff, maintain health care and services for vineyard workers, care for displaced families, keep each other employed and safe, and stay afloat. A bright spot comes with the addition of two new Willamette Valley nested AVAs, Laurelwood District and Tualatin Hills.

2021 In the culmination of over a decade of hard work led by Harry Peterson-Nedry, the Willamette Valley becomes the second of only two American Viticultural Areas (joining Napa Valley) to receive Protected Geographic Indication (PGI) status from the European Union. The Willamette Valley also welcomes its tenth nested AVA, Lower Long Tom, which is also the first

AVA established in the South Valley.

2022 Mount Pisgah, Polk County, Oregon becomes Oregon's twenty-third AVA and the Willamette Valley's eleventh nested AVA. The Willamette Valley Wine Foundation is established with the goal of enhancing enhance the wellbeing of winegrowing communities in the Willamette Valley through the development of program-enriched affordable housing and collaborative support of health services, family services, and personal development.

GEOLOGY

Digging Deeper into Oregon Pinot Noir

No grape variety is as reflective of site differences as Pinot noir. This in-the-vineyard workshop examines Oregon's cool-climate viticulture practices and the soils in which we grow wine grapes. Much of Pinot noir's magic rests in its ability to communicate a sense of the place where it was grown. While soil is not the only factor that gives Pinot noir its sense of place, there is no doubt that the fascinating diversity of Pinot noir wines grown in the Willamette Valley depends in part on the diverse origins of the soils in which our vineyards are planted.

We will focus on the two main soil types most commonly found in Willamette Valley vineyards. Two soil pits have been dug, **one of marine sedimentary origin and one of volcanic basalt origin.**

These provide a close look at the soil characteristics that contribute to sense of place in Oregon Pinot noir.

WORKSHOP DETAILS

More information including the panelists by site and wines tasted is available following OPC at oregonpinotcamp.com/workshops.

POINTS TO INVESTIGATE

- What are the origins and physical characteristics of the different soil types in Willamette Valley vineyards? How do these affect the root system, the vine and the grapes grown in those soils?
- Can specific flavor characteristics in Pinot noir wines be correlated to specific soil types? How is the wine affected by the nutrient and water resources available to the vine?
- What is the relationship between soil types and AVAs within the Willamette Valley?

GEOLOGICAL HISTORY OF THE WILLAMETTE VALLEY

[See Andy Gallagher's presentation, "Oregon Rocks: The Story of Our Soil and Wine" from 2016 Oregon Wine Symposium, for more information!](#)

Until about 12 million years ago, western Oregon was on the floor of the Pacific Ocean. Before that, for 35 million years under the sea, it was slowly accumulating layers of marine sediment, the bedrock of the oldest soils in the Willamette Valley.

Starting about 15 million years ago, the pressure created along the coast by the collision of the earth's Pacific and North American Plates gradually pushed Western Oregon up out of the sea, creating the Coast Range and the intensely volcanic Cascade Mountains further inland. The

Willamette Valley thus began as an ocean floor trapped between two emerging mountain ranges.

During this period of uprising, from about 15 million to 6 million years ago, rivers of lava erupting from volcanoes on the east side of the Cascades flowed down the Columbia Gorge toward the sea, covering the layers of marine sediment on the floor of the emerging Willamette Valley with layers of basalt.

The Willamette Valley continued to buckle and tilt under pressure from the ongoing coastal collisions, forming the interior hill chains that are typically tilted layers of volcanic basalt and sedimentary sandstone, such as the Dundee Hills and Eola Hills (see figure 2, page 3).

The next geologic activity to add to our soils was the creation of a layer of windblown silt (called Loess) on the northeast-facing hills west of where Portland sits today. This started as long ago as a million years and may have continued until about 50 thousand years ago. These silts were blown in from the valley floor, but they originated from the severely weathered basalts and sediments.

Much, much later, about 18 thousand to 15 thousand years ago, at the end of the last ice age, the melting of a glacial dam near the location of Missoula, Montana, repeatedly flooded the Willamette Valley, creating a lake up to the 400-foot contour level, with only the tops of the two-tone hills sticking out, and leaving behind deep silts.

Thus we have in the Willamette Valley a complex series of soils with interesting and diverse origins:

Marine sediments that were laid down on the floor of the Pacific Ocean

Examples: Willakenzie, Bellpine, Chuhulpim, Hazelair, Melbourne, Dupee

Basalts that originated as lava flows from eastern Oregon

Examples: Jory, Nekia, Saum

Windblown Loess, silt blown up from the valley floor onto northeast-facing hillsides

Example: Laurelwood

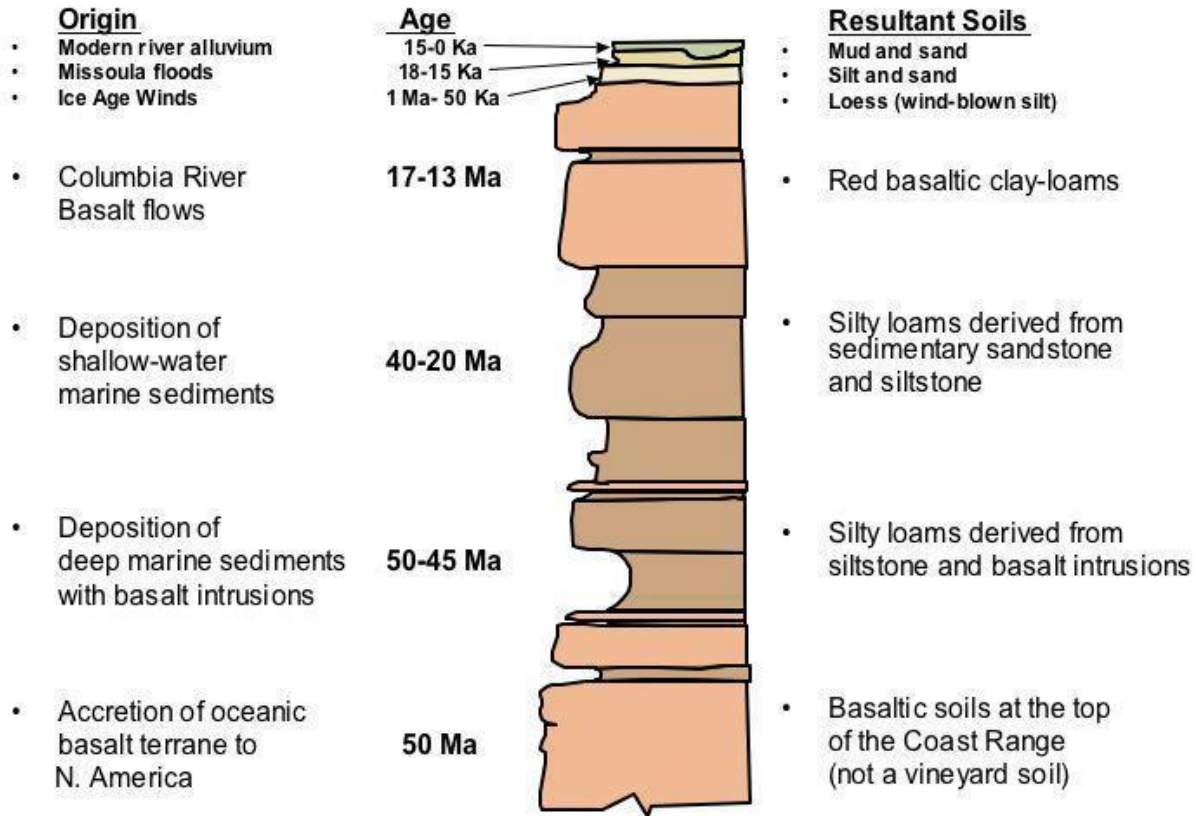
Missoula Flood deposits brought down the Columbia Gorge as the result of a repeatedly melting glacial dam

Examples: Wapato, Woodburn, Willamette

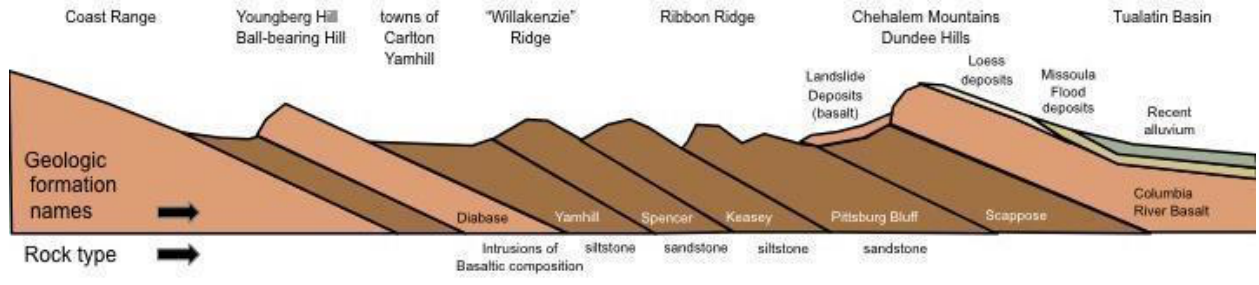
SW

NE

Rock Sequence in NW Oregon and the Derivative Soils



GEOLOGY PROVIDES THE LANDSCAPE: ROCK LAYERS TILTED SIDEWAYS



Idealized cross section

Figures from *Oregon Geology—Parent of the Soil, Foundation for the Wine*, Ray Wells, 2006.

WHY ARE WE FOCUSING ON VOLCANIC, MARINE SEDIMENTARY AND WINDBLOWN SOILS?

Much is said about how and why the Willamette Valley is the perfect place to grow Pinot noir. But once that most fundamental “long-term vineyard decision” has been made, it is important to understand that not every acre in the Willamette Valley is suitable for growing great Pinot noir. Indeed, most of the acres of the Willamette Valley are those deep, rich valley-floor soils brought to us all the way from Montana by the Missoula Floods at the end of the last ice age. These valley floor soils are paradise for a great diversity of crops, but they can spell trouble for Pinot noir. Pinot noir at low elevations is subject to frost damage in the spring, and in such deep soils it becomes overly vigorous, prolifically growing new canes and leaves throughout the growing season and paying little attention to maturing fruit. The end result is that the vine is unable to ripen its fruit properly.

In almost all cases, great Willamette Valley Pinot noir grows on rocky hillsides facing south or southeast, at least 200' above sea level and avoiding cooler hilltop microclimates over 900'. This is a common factor amongst ten of the eleven nested AVAs within the Willamette Valley (Van Duzer Corridor's lowest point is just below, at 180' above sea level) and other favorable hillside areas for viticulture within the region, regardless of soil types and weather patterns. As it turns out, sites that meet these qualifications are generally found on volcanic, marine sedimentary or windblown soils, just because of the way the valley was formed in the first place. Favorable sites with windblown soils are found especially on slopes in the northern part of the valley, especially in Washington County.

SOIL PITS

“Soil is initially formed when decomposed organic material is encompassed into weathered mineral material at the earth’s surface. The climate, the organisms living in the soil, the type of parent material, the local topography and the amount of time the soil has been developing all influence the resulting soil characteristics.” *Magill’s Survey of Science: Earth Science Series*.

Soil is more than just weathered rock. Whether you are looking at volcanic, marine sedimentary or windblown soils, when you get to the “A” and “O” horizons (see figure above), soil is a living system, a community of organisms that convert nutrients from one form to another and make them available to plants and to other soil organisms.

The focus of this workshop is on the physical characteristics of the soil.

QUESTIONS TO EXPLORE

- How does the structure of the soil affect root penetration, drainage, moisture storage capacity, fertility, erodibility?
- Why do volcanic soils warm up later, hold moisture longer, ripen more slowly?
- Why do sedimentary soils warm up faster, dry out faster, ripen earlier?
- What are the specific farming characteristics of windblown soils?
- How does viticulture respond to these different soil characteristics?
- How does fruit development respond to these soil characteristics?

TASTE THE DIFFERENCE

The opportunity at Oregon Pinot Camp is to try to taste whether differences in the soil type in which the grapes are grown produce distinct and consistent differences in the wines made from them. Obviously, stylistic winemaking variability, as well as vintage variation, make definitive judgments impossible with small samplings, but the thread of soils differences should still be of interest and will hopefully prompt you to further investigate the comparisons with your own tastings.

Over the past several years, hundreds of Pinot noir wines were submitted for consideration from more than 50 wineries. The wines were divided by their soil type: “volcanic” and “marine sedimentary” along with a more limited number of Loess or “windblown”. The wines were separated by vintage and then tasted blind by the workshop tasting panelist and OPC campers. These are the descriptors commonly used to describe the wines:

Volcanic soil wines: “lush” “perfumy” “pure” “sweet” “pretty” “succulent” “soft” “candy” “bright red” and “mixed berry”

Marine Sedimentary soil wines: “bold” “chewy” “big tannin” “black pepper” “spicy” “truffle” “licorice” “black fruit”

Windblown soil wines: “blueberries” “licorice” “plum” “briary” “chocolate cherries”
“spices” “expansive, round tannins”

We then incorporated those descriptors with broader descriptions of texture and balance. Here is the general description of how soil type affects Pinot noir in Oregon:

Pinot noir wines from Volcanic soils

Usually exhibiting a style that accents the high-toned, floral and “perfumed” aromatics with brighter and expressive red and dark red fruits flavors layered with sweeter baking spices and softer, round and succulent tannins. Can retain good acidity even in warm years.

Pinot noir wines from Marine Sedimentary soils

Usually exhibiting a style showing the voluptuous and denser dark red berry and blue/black fruit with darker floral, earth tones and bigger, heavier and chewier tannins.

Pinot noir wines from Windblown soils

Usually exhibiting a style that shows mixed berry fruits, exotic spices, licorice, cedar and briary components. Can show a round, voluptuous tannin structure. Generally these fall midway between the Volcanic and Marine Sedimentary soil descriptors.

RELATIONSHIP BETWEEN SOIL TYPES AND AVAS

There is not a direct correlation between specific soil types and the eleven nested appellations of the Willamette Valley. This can be clearly seen on the Willamette Valley AVA map in the Reference Section. Some have one predominant soil type; others have two or three different types. Additionally, the depth of the soil over parent material and the specific type of parent material varies between the AVAs. For most AVAs, the geographic and climatic factors are as important as soil type in defining the unique characteristics of the appellation.

Dundee Hills AVA

Mostly basaltic but marine sedimentary at the lower elevations on the western and northern slopes. Vines are often planted on very deep soils. This area is more insulated from daytime heat in the central Willamette Valley by the Willamette River just to the east. Further from the Van Duzer Corridor, it also cools more slowly. Generally a “gentler” place to grow Pinot noir.

Eola-Amity Hills AVA

Mostly basaltic but marine sedimentary at the lower elevations on the western and northern slopes. Vines are usually planted on thinner soils strongly affected by late afternoon winds blowing through the Van Duzer Corridor. Also moderated by daytime temperatures by the Willamette River just to the east.

Chehalem Mountains AVA

Basaltic and marine sedimentary on the southern and western slopes; windblown on the

northeastern slope. This is the AVA with the most diverse soils, exposures and environmental variability, making it impossible to generalize.

Yamhill-Carlton AVA

Marine sedimentary predominant. This “upside-down u”-shaped group of hills has no exposure to central valley heat, being mostly surrounded by other hills.

Ribbon Ridge AVA

Entirely marine sedimentary and separated from the Yamhill-Carlton AVA by a narrow valley. Some areas can be very droughty in late summer, advancing grape maturity compared to the other AVAs.

Laurelwood District AVA

Laurelwood soil (basalt base with loess top layer). High-elevation and younger vineyards can produce red-fruited and floral Pinot noirs. Lower elevations and older vines often result in brooding, blue-fruited Pinot noirs. Distinctive rustic and chalky tannins can be found in most Pinot noirs.

Tualatin Hills AVA

Predominantly Laurelwood soils. These loess soils combined with Pacific Ocean influence yield fruit with thick skins, high phenolic extract and elevated levels of acidity.

Mount Pisgah, Polk County, Oregon AVA

Marine sediment and silty loams. Mount Pisgah was formed 65 million years ago as a sea floor volcano, and has since been covered by marine sediment which pushed up out of the ocean. This AVA is characterized by the warmth of the nearby Willamette River, the mild influence of the Van Duzer winds, and the rain shadow of Laurel Mountain to the west. This unique geology allows the grapes to develop a deep complexity in the region’s shallow soils.

McMinnville AVA

Primarily marine sedimentary with some basalt and alluvium. The AVA lies above a large hot valley just to the south that radiates heat into the hills during the day. It is the most strongly affected by late afternoon winds blowing through the Van Duzer Corridor, as it forms the northern mouth of the Van Duzer opening into the valley. One of the warmest areas in the day, it cools very quickly as the sun sets.

Van Duzer Corridor AVA

Mostly marine sedimentary. The Van Duzer Corridor is an anomaly in the Coast Range through which oceanic winds funnel into the Valley, creating a cooling effect. As a phenomenon of wind protection, the grape skins thicken, leading to an abundance of anthocyanins (color) and tannin. The buffering effect is highly noticeable and varies from one vintage to another.

Lower Long Tom AVA

Bellpine (shallow clay loams lifted from ancient marine sediment) predominate. While Pinot noir is the predominant grape of the region, with wines leaning toward blue and black fruits and plush tannins for graceful aging, around a dozen white grape varieties are grown as well, including Chardonnay, Riesling, Pinot Gris, and Sauvignon Blanc.

QUESTIONS TO INVESTIGATE AND DISCUSS

- Are there consistent similarities among wines from the same soil type?
- If yes, how can those similarities be described?
- Are there significant differences between wines from the same soil type but from different AVAs – e.g. volcanic soils in the Dundee Hills vs. volcanic soils in the Eola Hills?
- Are wines that express site characteristics more interesting than those that don't?

WILLAMETTE VALLEY AVAS

Chehalem Mountains

The Chehalem Mountains AVA is a single uplifted landmass southwest of Portland in the northern Willamette Valley, extending 20 miles in length and 5 miles in breadth. These mountains stretch from the town of Wilsonville in the southeast, snake between Sherwood and Newberg, and reach almost to Forest Grove in the northwest. They include several discrete spurs, mountains and ridges, such as Ribbon Ridge and Parrett Mountain. The highest point within the Willamette Valley is the Chehalem Mountains' Bald Peak, at 1,633', which affects weather for the AVA and helps to distinguish it from the adjoining grape-growing hillsides and surrounding lowlands, less appropriate for grape growing.

The geography and climate largely differentiate this AVA from others; that notwithstanding, the variety of soils within the AVA helps to play host to different grape varieties. Soils on the southern and western slopes are basaltic (including Saum and Jory) and marine sedimentary (including Melbourne and Willakenzie). Soils on the north face of the mountains are windblown Loess (Laurelwood). Inappropriate heavier alluvial soils are largely excluded from the AVA by virtue of its minimum elevation of 200'.

A wide range of Pinot noir can be produced in this AVA, from more lightly red-fruited, elegant and balanced stylings, to black-fruited, briery, earthy and highly structured wines carrying brown spice and wood notes, plus most gradations in between.

Dundee Hills

The first grapes in the Willamette Valley were planted in the Dundee Hills. It remains the most densely planted locale in the valley and state. The 6,500 acres of this almost exclusively basaltic land mass run north-south and overlook the Willamette River to the south and the Chehalem Valley to the north, rising to 1,067' in elevation. It is approximately 30 miles to the southwest of Portland and 40 miles east of the Pacific Ocean, with protection from the ocean climate provided by the higher Coast Range of mountains.

Dundee Hills soils are reddish, silt, clay, loam soils derived from Columbia River basalt flows and, as such, are easily decomposed to provide moderately rich, deep and good water-holding soils. Soils and climate differentiate this AVA. The hillside planting regions above 200' provide good water and air drainage, good frost protection, moderate fertility and moderate temperatures for adequate ripening, but with acid retention.

Pinot noir from this AVA is characteristically red to dark-red fruited, with raspberry to black cherry ranges, offering bright floral, cola, sweet earth, truffle and perfume aromatics and flavors, with sweet spice notes and a core of juicy, bright fruit on the palate and supple, round and integrated tannins.

Eola-Amity Hills

The name of this AVA is derived from a ridge of hills adjacent to the Willamette River. The ridge is actually composed of the Eola Hills, straddling the 45th latitude on the southern end, and the Amity Hills on the northern spur. The proposed minimum elevation for the AVA is 200'.

Two of the predominant influences on the characteristics of wines from the Eola Hills are shallow soils and the Van Duzer Corridor. The soils of the Eola Hills contain volcanic basalt from ancient lava flows. The basalt is combined with a preponderance of marine sedimentary rocks and/or alluvial deposits. These soils: Nekia, Woodburn and Steiwer, are generally much shallower and rockier relative to most other Oregon AVAs. These shallow well-drained soils tend to produce smaller grapes with greater concentration.

The Van Duzer Corridor essentially provides a break in the Coast Range that allows cool ocean winds to flow, dropping temperatures dramatically, especially during late summer afternoons. These late afternoon and evening breezes help provide the cool nights that keep acids firm and are essential for optimal ripening.

The wines tend to be bigger, more full-bodied wines. The fruit components tend toward raspberry, blackberry, black cherry and plum contrasted with raspberry, strawberry and cherry flavors, which may predominate in wines from deeper soils. The mineral content of the terroir is often present both on the nose and on the palate. The wines often display considerable focus and clarity of fruit. They also favor primary fruit character over spice, tending toward the darker black fruit spectrum (black cherries and blueberries). Compared to other North Willamette Valley regions, the wines often exhibit brighter acidity and firmer structure, along with considerable longevity. This is due to the cooling effect of the Van Duzer Corridor. Wines from lower elevations tend to lean more toward plum and bramble fruit, showing slightly more secondary flavors such as earthy, mineral and spice/herbal tones (e.g. white pepper and dried flowers).

Laurelwood District

The Laurelwood District AVA, one of Oregon's newest AVAs, was approved in June 2020. Principals from Ponzi Vineyards and Dion Vineyards championed its petition. This AVA, which is nested within the Chehalem Mountains AVA, comprises more than 25 wineries and 70 vineyards.

The Laurelwood District's boundary is the predominance of a unique soil series recognized as Laurelwood, found on the north- and east-facing slope of the Chehalem Mountains. The Laurelwood District AVA encompasses over 33,000 acres and includes the highest elevation in the Willamette Valley, at 1,633 feet. Laurelwood soil is composed of a 15-million-year-old basalt base with a loess (windblown freshwater silt) top layer accumulated over the past 200,000 years and at depths of 4' to 0" depending on the elevation.

Lower Long Tom

Established in November 2021, the Lower Long Tom AVA sits within the west side of the Lower Long Tom Watershed, between Corvallis and Eugene. Vineyards are located on stream-cut ridge lines running east to west, with Bellpine as the predominant soil type. These clay-loams are formed from up-lifted ancient marine sediments, primarily sandstone. With Bellpine topsoils usually shallow, grapevine roots have to penetrate the sandstone below to find water and nutrients.

To the west, the region is flanked by significantly higher elevations of the Coast Range which serve to form a weather shield. The rain shadow of the peaks to the west reduces precipitation and, combined with the prevailing winds, creates a macroclimate with less disease pressure during the growing season and consistent fruit maturity, even in more difficult vintages. While Pinot noir is the predominant grape of the region, with wines leaning toward blue and black fruits and plush tannins for graceful aging, around a dozen white grape varieties are grown as well, including Chardonnay, Riesling, Pinot Gris, and Sauvignon Blanc.

McMinnville

The McMinnville AVA sits due west of Yamhill County's wine country home, the city of McMinnville. It extends approximately 20 miles south-southwest toward the mouth of the Van Duzer Corridor, Oregon's lowest Coast Range pass to the Pacific Ocean. The AVA is a blend of geo-climatic factors that make it unique among Yamhill County's AVAs. Specifically, the appellation encompasses the land above 200' and below 1,000' in elevation on the east and southeast slopes of these foothills of the Coast Range Mountains. Geologically, this region is dramatically different in soil profile from other winegrowing areas in Yamhill County. The soils are primarily uplifted marine sedimentary loams and silts, with alluvial overlays. Beneath is a base of the uplifting basalt. Clay and silt loams average 20"-40" in depth before reaching harder rock and compressed sediments, shot with basalt pebbles and stone. The uniqueness of the soils for winegrowing is in the 20"-40" depth. Climatically, this AVA is, again, in its own class. These primarily east and south facing slopes sit in a protected weather shadow of the Coast Range Mountains. Rainfall is lower (33" annually) than sites only 12 to 20 miles to the east. The foothills also provide protection from chilling winds in the unstable air conditions of spring and fall. Winegrowers also have the option of placing vineyards on more southerly facing sites to take advantage of the drying winds from the Van Duzer Corridor. Of greatest

note are the flavor qualities of the Pinot noir wines from this area. Unlike the wines from hillsides to the east, the Pinot noir from these soils are highly pigmented, with a strong backbone of tannin and acidity and a massive palate of black fruit and earthy flavors.

Mount Pisgah, Polk County, Oregon

Located in Polk County, the Mount Pisgah, Polk County, Oregon AVA is characterized by the warmth of the nearby Willamette River, the mild influence of the Van Duzer winds, and the rain shadow of Laurel Mountain to the west. It is the Valley's second smallest AVA but one of its most densely planted. Mount Pisgah was formed 65 million years ago as a sea floor volcano, and has since been covered by marine sediment which pushed up out of the ocean. This unique geology allows the grapes to develop a deep complexity in the region's shallow soils.

The most common grape varieties in the AVA are Pinot noir, Pinot gris, Pinot blanc, Chardonnay and Tempranillo. Mount Pisgah, Polk County, Oregon AVA is located 15 miles west of Salem, Oregon, and is the second most southern nested AVA within the Willamette Valley AVA, next to Lower Long Tom, which was newly established in November 2021. To differentiate from another "Mount Pisgah" in Oregon's Lane County, it was necessary for the AVA to be named Mount Pisgah, Polk County, Oregon—now Oregon's longest-named AVA.

Ribbon Ridge

Ribbon Ridge is a very regular spur of ocean sediment uplift off the northwest end of the Chehalem Mountains, comprised of a relatively uniform five square miles (3,350 acres) of land in a breadloaf-like shape. The AVA is distinguished by uniform ocean sedimentary soils and a geography that shows that it is protected climatically by the larger and taller landmasses surrounding it. Paucity of aquifers forces many vineyards to be dry farmed. The AVA's elevation minimum is 200', with its highest point at 683'.

Pinot noir characteristics from Ribbon Ridge include predominantly black fruit (black cherry, blackberry and black currant), moderate to high structure sometimes bordering on rustic, good acidity especially in higher elevations and good extraction. Wines contain fine tannins, a range of brown and wood spices, fresh-turned earth and chocolate dependent on vintage. Wines are thought to ultimately age very well.

Tualatin Hills

This 15-mile slice is tucked into the northwesternmost corner of the Willamette Valley and is home to the very first commercial vineyard in Oregon, with a long agricultural history. Recognized by its distinctive soil and climate, the AVA is named for and principally defined by the watershed of the Tualatin River.

It offers the largest concentration in Oregon of Laurelwood soil, a windblown volcanic soil mixed with basalt known as loess that was deposited by the Missoula Floods 12,000 years ago. At an elevation range between 200 and 1,000 feet, the area benefits from the rain shadow of the Coast Range with slightly lower rainfall, cooler temperatures in springtime and more

temperate and dryer conditions during the critical fall harvest period. It is sheltered to the west by some of the highest peaks of the Coast Range mountains and shielded to the south by the large mass of the Chehalem Mountains.

Yamhill-Carlton

North of McMinnville the land slowly rises to the hamlets of Carlton and Yamhill. Low ridges surround the two communities in a horseshoe shape. The free-flowing North Yamhill River courses through the center of a lush patchwork quilt of nurseries, grain fields and orchards. The neatly combed benchlands and hillsides of the Yamhill-Carlton AVA are home to some of the finest Pinot noir vineyards in the world.

Historically nourished by forestry and farming, this area is rapidly emerging as a global center of Pinot noir production. This pastoral corner of Oregon's northern Willamette Valley creates a unique set of growing conditions. The Coast Range to the west soars to nearly 3,500', establishing a rain shadow over the entire district. Additional protection is afforded by Chehalem Mountain to the north and the Dundee Hills to the east.

The coarse-grained, ancient marine sediments native to the area are the oldest soils in the valley. These soils drain quickly, establishing a natural deficit-irrigation effect. Thus, the vines stop vegetative growth earlier here than elsewhere, leading to more complete ripening, even in cooler growing seasons. This allows Pinot noir to develop deep ruby colors and broad, silky tannins. The mouth-filling wines exude powerful fruit aromas of raspberry, blackberry and black cherries complexed by minerality reminiscent of pipe tobacco, espresso, clove and dark chocolate and accented by scents of rose, violet, lavender and sweet wood smoke. These are alluring, complex, supple gems of Pinot noir to sip and savor.

Van Duzer Corridor

The Van Duzer Corridor is an anomaly in the Coast Range through which oceanic winds funnel into the Valley, creating a cooling effect that occurs as early as 2:00 in the afternoon. This breeze dries out the vine canopy and decreases fungus pressure, making the area highly attractive for grape growing and supporting sustainable practices by drastically reducing the need for fungus spray. As a phenomenon of wind protection, the grape skins thicken, leading to an abundance of anthocyanins (color) and tannin.

The buffering effect is highly noticeable and varies from one vintage to another. When nearby regions of the Willamette Valley face overly warm conditions, this area is usually slightly cooler. The opposite is also true; when the nearby regions of the Willamette Valley face below-average temperatures during the growing season, this area receives generous mild air from the ocean, tempering the cold. These combined effects allow for near-perfect growing conditions with highly consistent quality.

Within the 35.9 square mile triangle that composes the Van Duzer Corridor, nearly 1,000 acres are occupied by 18 commercial vineyards and 6 bonded wineries.

SENSE OF PLACE

Terroir in Oregon Pinot Noir

The purpose of this workshop is to examine the intent of the winemaker and understand how winemaking choices affect the entire process from vine to wine, in an interactive tasting and discussion with Oregon Winemakers to explore and demystify the Oregon *terroir*. While we mostly share the same plant materials, we will discuss the differences and the complex interactions between soils, sense of place and effect of the microclimate. Tasting will illustrate these factors that influence winemaking goals, style and of the end wines that are the landmark of Oregon.

Where we grow Pinot noir makes a difference and creates the Oregon paradox.

WORKSHOP DETAILS

More information including the panelists by site and wines tasted is available following OPC at oregonpinotcamp.com/workshops.

POINTS TO INVESTIGATE

- Deciding when to harvest based on intent
- Fruit handling from the vineyard to the fermenter
- Modifications to the grape must
- Fermentation management and its relation to the winemaker's intent
- Aging decisions and their impact on stylistic goals
- Finishing, filtering and bottling

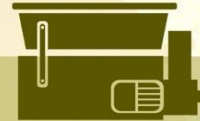
WINEMAKING

OREGON
PINOT
CAMP



HARVEST

- Determining Ripeness
- Picking



RECEPTION

- Equipment and Processing



FERMENTATION

- Management of Extraction
- Managing Tannins and Textures
- Pressing



PRE-FERMENTATION

- Modification of Must
- Additions to Must



AGING

- Maturing
- Barrels



FINISHING

- Blending
- Stabilization
- Bottling

INTRODUCTION

At its essence, winemaking begins in the vineyard. Some vineyard factors are fixed and are decided at planting. These will not change over the life of the vine, and such decisions must be made carefully because they will affect wine quality for 60 or more years. Vineyard location, clone and rootstock selection, spacing, trellising and row orientation will all affect the fruit grown at that site. Those choices set the basic structure of a vineyard and the wines.

The winemaker will have input and some control over seasonal variables in the vineyard. Pruning, crop load, canopy management, spray programs and soil management can all be manipulated in response to seasonal conditions. The timing of picking will affect the specific wine chemistries and flavor profile. Each of these decisions in the vineyard will affect the flavor spectrum, tannin development, color intensity and wine chemistries; primarily pH, acidity and sugar content (Brix).

At its most basic, winemaking is simply allowing the natural process of fermentation to occur. Juice is the liquid extract of fruit composed of water, sugars, acids, a wide variety of flavor molecules and a category of extracts of the skin and seeds known as phenolics. Juice can be fermented with just the liquid portion, or, in the case of Pinot noir, with the juice, skins, seeds and sometimes the stems. The mixture of liquids and solids is known as “must.” Yeasts are able to consume sugar and convert it to carbon dioxide (CO₂) and ethanol in roughly equal quantities by weight.

It is the winemaker’s job to integrate the factors in his or her control with the ones outside that control. The vine grows in response to its genetic code, the place where it is planted and the weather. By making varietal and clonal selections, we control the genetics. We choose the vineyard location and the vineyard layout. The weather varies from season to season and is the most significant uncontrolled variable in winemaking. Winemakers know that the weather patterns over the growing season will vary and will affect the fruit composition, maturity, fruit condition, tannin development and flavor profile. Fortunately, winemakers have the ability to respond in a multitude of ways to the specific fruit that we harvest, and to influence the wines that are made.

The timing of harvest determines the raw material that the winemaker will transform into wine. Once picked, the winemaker decides how the transformation process will proceed. In the winery, the use of stems, percentage of whole berries, kinetics of the fermentation, cap management, timing and intensity of pressing, cooperage choices, blending and timing of bottling can be altered to reflect specific choices by the winemaker in response to conditions of the vintage, development of the wine and stylistic goals. At each stage, a specific choice guides the wine down a different path, with each subsequent choice further defining the flavor and style of the final wine.

Before, during and after fermentation, flavor, color and tannin molecules can be extracted, retained or lost by decisions made by the winemaker. The extracts of skin and seeds will

dissolve into wine by allowing the skins and seeds to remain in contact with the wine must. The length of time, the temperature and the alcohol level all affect the level and balance of these compounds. This can occur before the fermentation (low alcohol) and is referred to as pre-fermentation maceration. If the skins and seeds are allowed to remain in contact with the juice after the end of fermentation (high alcohol), it is called post-fermentation maceration.

After fermentation, the must is pressed to separate the wine from the seeds, skins and stems (if used). The timing and intensity of pressing affects the level of extract and the balance of tannins, establishing the basic body of the wine. Extract too little and it can never be replaced. Extract too much and fining agents may need to be added to remove the unwanted tannins. Unfortunately, there is no fining agent that removes only undesirable compounds—some positive attributes are stripped out as well. Ideally, winemakers extract exactly as much flavor and tannin as they want, which can be very difficult to achieve.

After pressing, the wine is aged before bottling. The choice of aging vessels, the size and construction of these vessels, the amount of time the wine is aged and the way the wine is handled during the aging process all affect the development of the wine.

At every step of the way, from vineyard to bottle, the winemaker will make decisions that guide the wine in the direction he or she chooses. To aid in understanding how a specific decision is made, the outcome of that decision and how those decisions fit into the entire winemaking process, we have separated winemaking decisions into the following general stages:

- a. Harvest
- b. Reception
- c. Pre-fermentation
- d. Fermentation and Pressing
- e. Aging
- f. Finishing and Bottling

HARVEST

The timing of harvest is probably the most critical decision made by the winemaker.

As the warm summer days in western Oregon's cool-climate growing regions begin to cool in mid- to late-September, Pinot noir and other wine grape varieties are reaching the final stages of ripening. Winemakers and vineyard managers begin making decisions about when to harvest specific blocks of grapes. Testing the fruit on a regular basis helps to determine the date of harvest that best suits an individual winery's house style. Earlier harvested Pinot noir can give bright, focused, red-fruited wines with higher acidity and lower alcohol levels, whereas late-harvested Pinot noirs can be more dense and opulent in style with higher alcohol levels, lower acids and darker, more brooding flavors.

As fruit matures, the berries swell, with sugar levels rising and acid levels dropping. This

process is enhanced with warmer weather and conversely, slowed with cooler weather. Warm weather increases the rate of sugar accumulation, pulp softening, skin fragility and the loss of acidity. Warm nights decrease the acidity more quickly than cool nights. Flavor development requires time and is less influenced by temperature. Early warm harvests allow less time for complex flavors to develop and can produce more fruit-forward wines. Long cool falls allow the development of more complex and layered flavors and can produce more nuanced wines. The winemaker will decide to pick the fruit when it has reached a balance in the levels of sugar, acids, phenolic ripeness (i.e. tannins) and flavors that they seek.

Determining Ripeness

Winemakers randomly sample fruit from each vineyard block to achieve an accurate representation of the diverse ripeness that may be found throughout the block. Walking through several different rows within the same vineyard block, they pick individual berries or clusters from different parts of the plant and from many different plants within that block. Berries and clusters are visually examined for color, texture and condition. Seeds are examined both visually and by tasting to see how the level of tannin ripeness is developing.

The sample can be pressed to obtain the juice from the berries, and the juice is tested for sugars (Brix), acids, and sometimes tannin content. Most importantly though, the juice is tasted by the winemaker to see if the sugars, acids and berry flavors have achieved the desired balance or if the fruit needs to hang on the vine longer for additional ripening. Once the fruit has been harvested, winemakers can adjust the acid and sugar level of the juice, but they cannot change the natural flavors. The individual style, the site and the specific use for those grapes all affect the balance of flavor and ripeness that the winemaker is hoping to achieve.

Grape maturity does not take place in a linear fashion. The grape has very few positive flavor attributes until about two weeks after veraison, the time when Pinot noir grapes change color. At this point almost 70 days have elapsed since the flowers were pollinated (“set”). Pinot noir is usually picked between 100 and 110 days post-bloom. Careful sensory studies have demonstrated that in the early phase, the flavors are simple with herbal and green tannin notes. As the fruit gains maturity, the flavors become riper and more complex with the green notes fading away. At some point, maximum complexity and intensity is achieved. After that, the diversity of flavors decreases and the overripe flavors of prunes and raisins begin to dominate. Picking by flavor is complicated by the fact that all of the berries do not set on the same date. The vineyard is thus a mixture of fruit at slightly different stages of maturity. The job of the winemaker is to decide when the balance is correct and pick. This variability and fertilization varies from vintage to vintage.

In western Oregon’s cooler climate, winemakers do not always have the luxury of making a picking decision based solely on ripeness of fruit. Winemakers are faced with several factors that can affect picking decisions: weather predictions, risk of disease and level of fruit maturity. Fortunately, there are usually sunny gaps between fall weather fronts that create the opportunity to pick dry fruit that has recovered from the effect of rain. Recovery from a

significant rain event usually occurs within three to five days, depending on temperature, sun and soil permeability.

Picking

Once the decision has been made to harvest, winemakers, vineyard managers and picking crews gather in the specific vineyard block, usually in the morning hours, to harvest the fruit in the cool of the morning air. Cool berry temperature helps protect the fruit from physical damage and decreases the need to cool the grapes prior to fermentation. This labor-intensive activity requires a larger number of workers than at any other time during the growing season. The regular vineyard staff is often augmented by crews provided by labor contractors to allow the harvest to proceed in an efficient manner. A 40-acre vineyard can produce a hundred tons or more of grapes.

The grapes are usually picked by hand. This allows the whole cluster to reach the winery intact. The pickers manually cut each cluster that is ripe from the vines, leaving unripe and diseased fruit behind. The clusters are collected in five-gallon pails or rectangular trays and carried to sorting crews that either stack the trays onto a trailer or empty the buckets into larger picking bins. The alternative is to machine-harvest. Automated harvesters move over the vines and remove the berries by agitating the vines to separate the berries from the stems. The freed berries drop onto conveyors and into large containers that are transported immediately to the winery.

RECEPTION

Sorting

Once the fruit is removed from the truck, it needs to get from the picking boxes or bins into the fermenter. Field sorting of the picked fruit is not always effective in removing unripe fruit, diseased fruit or MOG (material other than grapes). Winemakers often choose to make a more careful selection once the fruit arrives at the winery. This is accomplished by using a sorting line to make a final triage of the fruit before it enters the tank or destemmer, allowing the careful removal of unripe or diseased fruit. This can be as simple as a flat surface the fruit is dumped onto and moved by hand to the destemmer or tank. It can also be very complicated, with bin dumpers, shaker tables, conveyers and elevators to give the winemaker a chance to remove any debris or damaged fruit.

Destemming

The winemaker may choose to have some or all of the clusters go through a destemmer that removes the individual berries from the stem. This is simply a device that tumbles the clusters inside a perforated drum, allowing the berries to fall through the perforations and the stems to exit separately out the other end into a bin for disposal. Some winemakers choose to use a percentage of whole clusters in their fermentation. This is achieved by bypassing the destemmer and simply dumping the chosen amount of clusters directly into the fermenter or by adding selected stems into the tank.

From the destemmer, the berries are transferred to the fermenter. This can be as simple as locating the destemmer above the tank, with the must dropping vertically into the tank. It could also involve conveyors, pumps and hoses or bins that are forklifted and dumped into a remotely located tank. The most important thing is that the berries are protected from any damage during the transfer process.

Cooling

As the fermentation tank is being filled with fruit from the sorting/destemming operation, the winemaker will choose whether to cool the tank either by glycol cooling jackets attached to the tank or with the addition of dry ice to the must, which has a direct impact on berry structure and cell walls. This is the time the winemaker may choose to add sulfites to the juice to prevent oxidization and limit fermentation by indigenous yeasts and bacteria.

PRE-FERMENTATION

Modification of Must

Once the grapes are in a fermenter there are several things that may be added or subtracted from the must. “Must” is what the mixture of skins, seeds, juice and, in some cases, stems is called.

At this stage, the winemaker has the opportunity to adjust the composition of the must in order to better suit their intent based on vintage parameters. Some common modifications include concentrating the must and increasing sugar in cool years or diluting the must to reduce sugar in warm years. Acid may also be adjusted to better balance the wine. Winemakers may also choose to modify extraction through the use of dry ice, enzymes or heat. Finally, they may manage the ferment through their choice of yeast strain and microbial nutrient management.

Concentration is simply the removal of water from the must. Removing pure water requires advanced technology such as reverse osmosis (RO) and vacuum evaporation. All of these systems involve draining juice from a fermenter, dramatically concentrating that juice and returning that concentrated juice to the fermenter, thereby enabling a modest concentration of the entire must. A much more common practice in Oregon is the technique known as saignée, the removal of some almost-colorless juice from the must in the fermenter at a very early stage—it is also known as “bleeding” the fermenter. The red wine is intensified as a result of the bleeding because the volume of juice in the must is reduced relative to the surface area of remaining grape skins.

Chaptalization is the process of adding sugar to unfermented grape must in order to increase the alcohol content after fermentation. The technique was promoted by the French chemist Jean-Antoine-Claude Chaptal, for whom it was named. Contrary to popular belief, this process does not make the wine sweeter but only increases the

alcohol potential of the must. The sugar added to chaptalized wine cannot be tasted. The Oregon Liquor Control Commission (OLCC) regulations strictly limit the amount of sugar that can be added to musts.

Reduction of Alcohol: the most common way to reduce alcohol potential in wine is by adding small amounts of water to the must prior to fermentation. This is occasionally used to modify alcohol in warm vintages. Alcohol reduction may also be achieved through technology in the finished wine. Vacuum evaporation (and a version of it called “spinning cone”) and reverse osmosis can be used to remove some of the alcohol from the finished wine.

Addition of Acid: tartaric acid is unique to grapes and is the most abundant acid in wine musts. Tartaric acid is often added to musts to modify the sensory attributes of the wine. Heat, especially at night, reduces acidity in the grapes. Tartaric acid can be added to ensure that the pH of the must and wine stays within an acceptable range, a range that helps protect the health of the wine and helps provide the balance typical of Oregon wines.

Dry Ice is frozen carbon dioxide (CO₂). It can be used at higher rates to cool and rupture berry skin cell walls to facilitate extraction of color pigments and skin tannins. Dry ice can be added as pellets or as large blocks. Smaller pieces increase the surface area and increase the number of berries that are affected by freezing and cell wall disintegration, releasing more pigments and tannins into the must. Adding dry ice also excludes air and therefore oxygen from the juice at this early stage, starving many potential spoilage organisms of a vital growth factor. Colder temperatures slow the fermentation and allow a longer pre-fermentation maceration. For this reason, the decision to use dry ice can affect the style of the wine, and very different results are achieved with varying amounts.

Sulfur Dioxide (SO₂) is added to almost every must and wine and is one of the most basic and important quality control measures available to the winemaker. SO₂ acts as both an oxidase enzyme inhibitor and as a microbial growth inhibitor. SO₂ is added to the must early (within minutes or hours) to prevent browning and to inhibit native flora. If the native bacteria and yeast grow out of control, the result can lead to higher volatile acidity, “off” flavors and aromas and possibly fermentations that stop with sugar still in the wine (stuck fermentation). The impact of SO₂ additions is strongly affected by the pH of the must. If tartaric acid additions have been made, the acidity and pH will change, affecting the activity of the SO₂. Almost all of the SO₂ added to the must will be bound up during the fermentation and eliminated at pressing. It is almost always added again at the end of malolactic fermentation to reduce the risk of oxidation and microbial growth. The timing and rate of SO₂ addition varies widely and is dependent on the condition of the fruit and the type of extraction desired by the winemaker. Damaged fruit requires more SO₂ to control the growth of unwanted

bacteria and prevent oxidization of the must. High levels of SO₂ will slow the initial growth of yeast, delaying the onset of fermentation and, at very high levels, increase the extraction of color molecules, which can lead to increased color in the wines. The way SO₂ is used varies widely between winemakers and according to the conditions at harvest.

Addition of Tannin: the skins and seeds contain large quantities of naturally occurring tannins. The winemaker may choose to add additional tannin to augment the natural tannin level in the must. Commercially available fermentation tannins act as antioxidants in must in the early stages of fermentation because they react with oxidative free radicals more readily than the grape-derived pigments and tannins. Tannin also binds to damaging enzymes found in Botrytis and other molds. They are available in many forms and can be derived from grapes or oak (usually toasted). The decision to add tannin is based on the health of the fruit and is used to protect the color and phenolic structure of the wine in musts with damage from botrytis. Tannin additions can also be used to affect wine structure and mouthfeel.

Enzymes: various types of enzymes can be used in the winemaking process. The simplest are pectic enzymes. The addition of pectic enzymes increases the clarity of the wine and may help color extraction. These enzymes can have the added benefit of leading to wines with less haze and suspended matter, which facilitates greater clarity and easier filtration if that becomes necessary. Other commonly used enzymes during fermentation are those with cellulase activity. These help break open cell walls, allowing the skin pigments and tannins to dissolve into the juice. These enzymes increase the level of color pigment and tannin in the wine and can increase color extraction and alter the phenolic profile of the wine. The decision to use enzymes or not is ultimately a stylistic choice and will be determined by the character of the vintage, the fruit from a particular vineyard and the winemaker.

Heat may be used to elevate the temperature of the must, which increases extraction and enhances fermentation. Heat is added through the use of jackets fixed to tanks or heat exchange panels inserted into fermentation vessels. Heated glycol or hot water is circulated through the jacket or panel, slowly increasing the temperature of the must.

Yeast and Yeast Nutrients: the winemaker may choose to utilize the natural microbiome of the must to start the fermentation, or they may select a commercial yeast strain. There are many types of commercial yeast available to winemakers, all with their own special characteristics, from aromatic enhancement to high alcohol tolerance. The timing and quantity of yeast additions affects how quickly the fermentation starts and how rapidly it progresses.

Yeasts require a wide variety of nutrients to grow and perform their job of converting sugar to alcohol. High temperature, competing flora and alcohol may stress the yeast

and can lead to “off” aromas and yeast death. Grape musts can vary dramatically in the level of these nutrients and are often deficient in one or more essential elements. An analysis can be done to determine if the must is deficient in the major nutrients required for a healthy fermentation. Once fermentation begins, the required amounts of nutrients can be added to ensure a healthy, clean and complete fermentation.

The types of nutrients that are added depend on the winemaker’s preference and what is required by the must. Yeast nutrients fall into three categories: inorganic nitrogen, organic nitrogen/amino acid complexes (normally derived from yeast) and vitamin/micronutrient formulas. The timing and quantity of nutrient additions affect the speed and efficiency of the fermentation.

FERMENTATION

Fermenters

The most basic equipment choice in producing Pinot noir is the fermenter. Pinot noir is fermented in a wide variety of vessels. The size, shape and material of construction vary widely. Each of these variables will affect the kinetics of the fermentation: the temperature profile, the rate of fermentation and the level of extraction.

The choice of fermenter is based on the style of wine being produced, production volume, and specific resources of the winery. Here are the most common options used in Oregon:

Plastic Bins: these lightweight fermentation vessels have been the backbone of the Oregon wine industry since the first Pinot noirs we made. They are inexpensive, easily handled and come in a variety of sizes. The smallest hold one-half ton of grapes and consist simply of a plastic liner that fits into a picking bin (4' x 4' x 2'). Larger sizes are available that are self-supporting and have two to three times the capacity. Some are insulated and others are simply a single layer of plastic. Unless they are insulated, the short height of plastic fermenters tends to lead to cooler fermentations because they have a large surface area compared to their volume. The wines often have brighter and more forward fruit characteristics.

Stainless Steel Tanks: these have become the industry standard. They vary widely in size, from those containing as little as two tons to those holding 15 or more tons. Their advantage is that they are strong, easy to clean, come in an infinite number of sizes, can have fixed temperature control jackets and have doors to make must removal simple. They can be open top or closed. A number of wineries have chosen to use moderate size, portable open-top stainless tanks with a capacity of 2.5 to 3 tons. They have enough capacity to create and hold moderate temperatures (in the 80°F range), considered to be the ideal range for extraction. They are small enough to make cap management simple and gentle (punchdowns) and light enough to still be portable. Larger tanks allow for

more capacity in a smaller space and are critical for large-capacity wineries. Because they have less surface area, they are jacketed to allow for temperature control of the must. Some are large enough that hand punchdowns are impractical. Other methods of keeping the fermentation cap moist have been developed that do this job efficiently, including pneumatic punchdown devices, Pulsair systems and pumpovers.

Roto-fermenters are horizontal, closed tanks that can be rotated to mix the cap with the must in a pre-programmed manner.

Wood Fermenters are usually of moderate capacity—from two to seven tons—and offer extraction of oak character when young, which affects the texture of wine. They are also more insulative, which affects the kinetics of the fermentation and often results in different management strategies.

Concrete and clay fermenters are gaining popularity in the Oregon wine industry. One advantage of these tanks is the slow rate of temperature exchange; thus, the must is slow to warm up and then slow to lose its accumulated heat, which affects extraction and fermentation kinetics. These vessels can be lined or unlined and are available in various shapes and sizes.

MANAGEMENT OF EXTRACTION

Temperature and Maceration

The juice in Pinot noir grapes is colorless. Thus, white wine can be made from black grapes that are quickly pressed. The color of red Pinot noir wine comes from the pigments in the skins of the berries. In the vineyard, the skin cells remain unbroken. Once the grape must enters the fermenter, the cell walls in the skins begin to break down and phenolic extraction begins.

The tannins contained in the skin are dissolved into the wine more readily than seed tannins during the early stages of fermentation. Meanwhile, the rate of extraction of skin tannins slows as fermentation progresses, but the rate of extraction of seed tannin increases.

Fermentation by yeasts proceeds very slowly at temperatures below 60°F, and the yeasts are almost inactive below 40°F. By lowering the temperature, the onset of fermentation is delayed. If the initial temperature of the must is reduced, the length of the low-alcohol phase can be increased. This is called pre-fermentation maceration or cold soak. The length of the cold maceration can range from a few days to a dozen or more. Control of the temperature profile may be used to enhance sensory attributes. This same technique affects the entry of color compounds into the wine, all of which are present in the skins.

Once the fermentation is allowed to begin, the temperature will begin to rise as the process of fermentation creates heat. As activity of the fermentation increases, more heat is produced. Initially the yeast population is quite low. Under low alcohol conditions, the yeast begins to

divide and its numbers increase rapidly. With more yeast available, more sugar can be converted to alcohol and the rate of fermentation increases, creating even more heat. By manipulating the temperature, the activity of the yeast can be controlled and the length of fermentation increased or shortened. Higher temperatures also increase the rate of extraction of skin and seed tannins.

Winemakers have specific ideas about fermentation kinetics and may vary the temperature through the course of the fermentation in order to shape the wine and provide the color, structure and flavor that they desire.

As fermentation nears completion, less heat is produced and the must begins to cool. Eventually the sugar is consumed and the fermentation finishes, at which point many winemakers choose to press.

Post-fermentation maceration occurs when winemakers choose to postpone pressing beyond the completion of fermentation. During this period, wine texture and flavor continues to evolve due to the complex reactions of phenolic compounds. This gives winemakers the opportunity to achieve the shape, structure and mouthfeel that they desire.

Cap Management

When fermentation begins, grape skins are buoyed up by the carbon dioxide that is produced by the yeast. Once the skins become dry, the extraction from those skins stops. The winemaker decides how often to re-immerses those skins and what technique should be used for the re-immersion. For Pinot noir, the key is to extract gently. Tearing, ripping or shredding of skins releases large amounts of bitter tannins into the wine. The specific technique used is based on fermenter volume, production volume, level of tannin extraction desired and winemaking style. Those techniques include:

Punchdowns: the grape skins are physically pushed back into the liquid below, re-moistening them. As the fermentation rate increases, the cap becomes thicker and denser and harder to work. The frequency and intensity of punchdowns changes the level of extraction and is a stylistic decision. For small tanks, a manual plunger is used to resubmerge the cap. For larger tanks, fixed devices may be suspended over the tanks, allowing semi-automatic operation.

Pumpover: fermenting juice can be pumped over the top of the cap to keep it moist and manage extraction. Pumpovers are often selected as a way to minimize extraction while still wetting the cap. Pumpovers can consist of a simple pump and hose setup or may involve a more complex system of irrigators.

Pigeage (literally “by foot”), involves walking on the fermenting must to mix the cap in a shallow tank. In larger tanks, it involves immersing most of your body in the wine and mixing in any way possible as you swim or crawl around.

Délestage (“rack and return”): the winemaker removes some of the juice from the fermenter into another vessel and then returns that juice over the top of the fermenter. It can be very gentle as there is literally no manipulation of the skins. It can also provide the opportunity to reduce temperature.

Pulsair is commonly used in large tanks. It uses a very large bubble rising from the bottom of the tank to break open the cap and cause mixing. Along with the bubble, a large volume of wine rises, wetting the cap and aiding in its breakup. The bubble can be air, re-oxygenating the yeasts, or can be nitrogen avoiding further air contact. Because there is no physical contact and no pumping, it is considered to be a fairly gentle option.

There are also a range of “automatic” fermenters, such as the roto-fermenters mentioned previously, that incorporate systems to break up and mix the cap.

Pressing

When the winemaker has achieved the texture, mouthfeel and flavor that they desire, they make the decision to press off of the skins. This timing is an important stylistic decision made by the winemaker.

When the desired balance is achieved and the wine is ready to be pressed, the winemaker has the option to separate the young wine from the pomace in a variety of ways. The free-run can be separated from the press wine or mixed in any portion. The wine can be settled in tank or put directly to barrel. The pomace that is placed in the press can be separated at any stage of pressing into different lots. This allows the winemaker to maintain as many blending options for later might be desired. This regime can provide a large number of lots with different press characteristics. The final blend can then be constructed so that the desired tannin profile is reached.

Presses

There are several types of presses used in wineries. The simplest is a basket press. Essentially a cylinder with finely perforated sides, the basket is filled with must, allowing much of the free run wine to drain out. The wine is then pumped into tanks for settling or directly into barrels. Once filled, a ram compresses the must, forcing the liquid through the perforations, leaving the dry solids in the basket. The cylinder can be oriented vertically with the ram descending from the top (traditional basket press) or horizontally with the ram entering from one or both ends. The ram can be operated mechanically or hydraulically. Because the surface area is low compared to the volume, the pressure needed to press the must is relatively high. This extracts tannins differently from lower pressure presses.

The other common press is a bladder or tank press. Shaped like a large horizontal capsule, these presses are filled either from a valve in one end or from a door in the middle. These presses use a flexible, lightweight air bag attached to the interior sidewall. After filling with must, the area

behind the bladder is slowly filled with air, pressing the must against perforations on the opposite side allowing the juice to escape. Because the retained solids are spread over a very large surface area, the thickness of the solids is minimized, allowing all the wine to be separated from the seeds and skins at very low pressures. These presses are very gentle, produce very few solids and give excellent yields. They can be programmed to press at various pressures, rotate after pressing to re-mix the remaining pomace and run for specific time periods.

AGING

Settling in Tank

The purpose of settling in tank is to diminish the percentage of solids (including yeast, bacteria, grape solids and other miscellaneous organic matter) that will settle out in the barrel during the aging process. This is an important stylistic consideration that diminishes the potential for off aromas and flavors. However, some winemakers may choose to leave some amount of solids in their wine when going to barrel which can contribute to texture and flavor.

Aging in Tank or Barrel

The purpose of aging is to allow the wine to mature slowly over time. The flavors and textures that develop change the wine from the primary grape flavors of young wines into more complex and nuanced flavors and textures. This takes place through complex and poorly understood oxidative and reductive reactions that occur spontaneously during the aging process. They are also influenced by small amounts of oxygen that result in a softening of the tannins and acids and polymerizations of the hundreds of compounds present in wine.

The same wine aged in barrel versus tank will develop differently. Barrel aging is a stylistic decision that adds flavor, aroma and texture to wine. Wines of the highest quality are generally aged in small oak barrels.

Aside from the flavors and aromas that will be gained from oak barrels, the defining element of difference between barrel and tank aging is the amount of air the wine sees and the way it is exposed to the air. Wines aged in barrel are more round, soft, and yielding. Wines aged in tank, without any external integration of oxygen will be leaner, crisper, and more fruit-forward. Some of the attributes of barreled wine can be incorporated into wine aged in tanks. These include exposure to oak products, metered amounts of oxygen, and lees stirring.

Alternatives to Barrel Aging

Oak alternatives are methods to allow wine to be exposed to the tannins present in oak and the resulting flavor effects without aging the wine in barrels. A winemaker may choose to employ oak alternatives based upon a number of factors, such as wine price point, budget, fruit conditions at harvest, tannin levels of the wine and the desired effect from oak exposure.

In order to add the flavor components derived from the wood extracts of small French oak barrels without using the barrels themselves, a number of alternative oak products have been developed. Their purpose is to infuse the wine in tank, or in barrel, with new wood, essentially putting the wood into the wine instead of the wine into the wood. Their main advantage is price and ease of utilization. Adding these alternatives during Pinot noir fermentation allows the early integration of oak character into the wine and is another way to expose wine to oak without the use of barrels.

Micro-oxygenation involves injecting extremely small measured amounts of pure oxygen into the wine in tank. The oxygen is injected through a filter that forms microscopic bubbles so that the oxygen gets absorbed into the wine instead of bubbling up to the top. The oxygen added provides the raw material for the development and polymerization of tannins. Micro-oxygenation can be used to shape and impact flavors and aromas, allowing the winemaker to achieve their stylistic goals.

Lees Contact and Lees Contact with Stirring

Lees are the deposits of dead yeast cells and other particles that fall to the bottom of a container of wine during aging. The purpose of lees contact is to allow for the yeast cells to autolyse, or break down, into the wine. This may result in added richness, creaminess and elevated mouthfeel. Stirring of the lees accelerates autolysis and increases the exposure of the lees to the wine by periodically re-suspending the lees within the wine. This is an oxidative process and a stylistic decision.

The winemaker initiates the process of lees contact after pressing when deciding how long to settle in tank. The amount of lees in the barrel and the resultant effect of lees contact are determined by how many solids are removed during the initial settling time. If the goal is to increase the wine's body, texture and richness, then more and longer lees contact will be employed in barrel, and the settling time will be minimized before barrel down. Lees contact leading to autolysis of the yeast is accomplished over a number of months in tank or barrel. A secondary result of stirring the lees while the wine is in barrel is oxygen pickup into the wine, which will accelerate aging. By agitating the wine while suspending the yeast, residual CO₂ is blown off from primary and secondary fermentations, thus furthering the aging process.

Racking

Racking is the movement of the wine from barrel to tank and back to barrel, or from barrel to barrel through various means, leaving the settled solids behind. The decision to rack and the method used may or may not include air contact. Racking may result in softening of tannins, blowing off of any H₂S/sulfides, fermentation and malolactic characters and separating the wine from its lees in preparation for bottling.

Malolactic Fermentation

The purpose of malolactic (ML) fermentation is to soften and round out the wine through the conversion of malic acid to lactic acid, a weaker acid. This conversion takes place through the

action of ubiquitous malic acid bacteria. As the acid is reduced, the pH is elevated. Almost every Pinot noir produced completes malolactic fermentation, which makes it more microbially stable.

Winemakers' attitudes and practices on the use, or non-use of ML cultures vary widely from cellar to cellar. Many winemakers do not inoculate for ML while others inoculate the wine in barrel or fermenter. Some winemakers prefer a protracted ML fermentation because they believe it makes better wines. By delaying ML and the accompanying pH shift, the wine may achieve better color stability by allowing the polymerization of anthocyanins and tannins to occur at a lower pH.

Barrel Aging

The primary effect of the barrel is to allow the wine to develop body and flavors that help achieve the desired style. Oak barrels contain natural sugars and alcohols and other phenolic derivatives that structure wines and add flavor. Tannins in the wine and tannins in wood molecularly bind with each other and with flavor and color components, which naturally occur in the wine, to form new and larger molecules. These complex chemical reactions take place in the presence of very small amounts of oxygen introduced through the wood itself and during the topping process when the barrels are briefly opened. The tannins soften and the flavors integrate during this aging (or "élevage") process. Managing a barrel program is an art form of its own. Small lots of wine can be managed individually to maximize quality. Barrel choice can be tailored to specific lots and vineyard sites.

Choice of Barrels

The standard barrel is 225-228 liters (60 gallons). It contains around 25 cases or 300 bottles of wine. Barrels considerably smaller and larger are also available. Traditionally, fine Pinot noir has been aged in small French oak barrels after fermentation. The staves are split from logs and stacked and aged on pallets out in the weather anywhere from 18 to 40 months. The rain and sun cause a reduction in the raw, green flavors and a reduction of harsh tannins. Barrels typically are specified by forest, length of aging/drying time, grain width, toasting level, and shape. Other oak sources include Hungarian, Russian and other Eastern European forests, as well as American and Oregon sources.

The cooper, or barrel maker, builds barrels within a "house" style. The flavors are influenced by the details of construction: e.g. using a hot fire to toast and bend the barrel staves vs. using hot water to bend the staves. The goal is to have a curved stave that does not crack. The way it is bent will change the flavor and aroma imparted by the barrel, impacting the aroma and flavor of the wine aged in that barrel. Barrels can be specified with toast levels from light to heavy with multiple levels between those extremes. The heat used during the toasting caramelizes the wood sugars, creating variations in flavor and aromas from slightly toasty through heavily smoked. The toast level dramatically changes the flavors imparted to the wine. A heavy toast imparts the most intense oak flavors and can mask some more delicate wine flavors and aromas. A lighter toast may reveal more nuances, especially in a delicate wine.

Winemaker stylistic goals strongly influence the types of barrels used, the forests, the toast levels, the percentage of new barrels and the length of time the wine is kept in barrel. The vineyard and vintage also have an effect on how the wine will develop in barrel. The same wine will vary in how it reveals the details of its flavor, aroma and texture as well as how well-integrated it is in different barrels. Finding just the right barrel for a specific vineyard may take many vintages to achieve. Many winemakers will make different barrel choices for specific wines and alter the length of time in barrel based on how the wine develops in specific vintages.

Barrel Aging Regimen

The specific way barrels are handled and used varies widely from winemaker to winemaker. Everything from the preparation of new barrels (hot water soak, steam or rock salt and water) to length of time the wine spends in wood can have an impact on wine style. Most Pinot noirs will spend at least 10 months in barrels. Wines may be held in barrel past the vintage for as much as 20 or more months.

Cellar temperature and humidity are important. Most cellars will follow the season's temperatures in a broad sense, warming in spring and cooling a bit in winter. A range of 55°F to 63°F is normal for most aboveground cellars. Cold temperatures will slow the rate of microbiological activity, whether it is the completion of alcoholic or the malolactic fermentation. Barrel rooms can be heated to encourage the malolactic fermentation to finish, usually to the mid-60s. There is a lower rate of activity in barrels during the winter in Oregon.

Cellar humidity has a significant impact on wine aging in barrel. Evaporation of water from barrels occurs through the wood pores. All of the other components of wine stay in the barrel. The net effect is that the wine is concentrated during barrel aging. The portion lost has been called the "angels' share." This is usually about one-quarter of a percent per month. Below 80% relative humidity the barrel will lose a higher proportion of water into the air. Some volume will evaporate during aging and requires "topping" barrels with wine every one to four weeks depending on the temperature, humidity and winemaker style.

FINISHING

After the aging time is completed, it is time to prepare the wine for bottling. Finishing provides the final opportunity to modify the wine before it is placed in the bottle. Finishing can be divided into three categories: blending, fining and filtration. Final adjustments or additions to the wine may also be made at this time.

Blending

Blending is probably one of the most important tools that a winemaker has. Oregon winemakers commonly separate and age as many lots of Pinot noir as they can. This allows them to see how different vineyards, different parts of vineyards, different age of plants, different clones of plants and different winemaking choices develop in their cellars. From these

distinct lots, the winemaker creates the final wines. Experience plays a key role in these decisions. The winemaker tastes and evaluates diverse lots of wine and decides how these can be combined to create a finished wine that maximizes the positive attributes and minimizes the negative ones.

Stabilization

Laboratory Analysis: just prior to bottling, the winemaker runs tests to determine the wine's pH, acidity, alcohol and SO₂. If SO₂ needs to be adjusted, it is done now. The activity of SO₂ depends on the wine's pH and quantity of the active form of SO₂ in the wine. SO₂ levels drop over time, and the exact level at bottling is determined by the style of wine, its tannin profile and the expected duration of aging.

Fining is a tool used for clarification and for modification of structure and flavor. Some wines have bitter and unpleasant tannins or other negative flavor compounds that need to be removed or modified. The decision to fine a wine depends on the specific problem that needs to be addressed, such as bitterness or astringency. The most common fining agents are egg whites, gelatin, casein (a milk protein) and isinglass (protein from the air bladder of a sturgeon). These are often effective in extremely small doses, measured in ounces per one thousand gallons.

Filtration is a tool for clarification and microbial stability. In certain circumstances, filtration is preferred. Every wine with a partial or no malolactic fermentation or residual sugar must be filtered due to the potential for microbial growth and refermentation in bottle. Crossflow membrane filtration is the current industry standard, as it is believed to have lower sensory impact.

BOTTLING

Closures

A plethora of closure options are currently available. From a winemaking perspective, it is a question of how much or how little oxygen is able to move through the closure over a span of years. When properly applied, screw caps can be selected for variable oxygen permeability to meet the style goals of the wine.

Natural cork contains air cells and has been shown to allow the entry of very small amounts of oxygen over the span of years. A wine sealed by cork will age differently over many years than a wine sealed with a screw cap. The amount of air transfer varies with the particular cork and is likely to account for some of the variation between bottles, especially after many years of aging. Natural cork is the most common closure for premium Pinot noir in Oregon.

Synthetic and conglomerate corks eliminate the possibility of TCA contamination or "corked" wines. They vary widely in their specific permeability to oxygen.

Glass closures are another option. Originally developed in Germany, they provide a very secure seal, do not absorb aromatic compounds and provide an almost anaerobic seal.

Bottling Machines

The critical task of the bottling line is to fill the bottles gently, cleanly and with a minimal amount of oxygen uptake during the bottling process. Bottles are most commonly sparged with nitrogen to reduce the amount of oxygen in the bottle. Vacuum corkers are commonly used to reduce the pressure in the headspace during corking. Because of the specialized nature of the bottling equipment, many wineries in Oregon use mobile bottling services.

CONCLUSION

Winemakers direct the style of Pinot noir they produce by making a wide variety of vineyard management, picking, fermentation, aging and finishing decisions. Vineyard decisions, from planting to harvest, strongly influence the flavors, tannin development and soundness of the fruit that the vine will produce. The winemaker's response to fall weather conditions and disease pressure allows for fine-tuning of fruit maturity and cluster health even in difficult harvest conditions. It is not a question of rain or heat, rather a question of how the fruit in a particular block is responding to the conditions and when is the best time to pick the best quality and ripest fruit.

Once the fruit has been picked, the winemaker evaluates the condition, flavor profile and tannin development and decides how to sort and handle the clusters. The decision to use whole clusters, to destem and to break the berry skins begins the process of extraction. That process continues as the winemaker decides the temperature profile of fermentation, whether to inoculate and how to manage the fermentation cap. At the end of fermentation, the winemaker decides when to press, how hard to press and how to manage the press fractions. These decisions determine the balance of fruit, tannins, color and body of the young wine.

After pressing, the wine may be settled and then is racked to containers to age. The use of barrel or tank, the type and amount of oak the wine sees and in what form affect the flavor and tannin profile further. Additional techniques such as lees contact, micro-oxygenation and use of oak alternatives further guide the wine's development.

After aging, the wine is prepared for bottling. Depending on the specific needs of the wine, this may be as simple as racking to blend various lots or may involve fining or filtration. Specific problems have a variety of solutions, and the winemaker decides on the course of action that maximizes the positive outcome and minimizes any negative impact on wine quality. Finally, the wine is bottled.

At every step of this process, the winemaker makes an evaluation of the wine at that moment in time. Through evaluation, decision, and action, the winemaker is able to achieve intent, with each step further defining the wine.

BIOLOGY

Growing Inspired Wines

This workshop is an in-the-vineyard experience of Oregon's cutting edge, cool-climate viticulture practices. You will see firsthand the innovative techniques and technologies coupled with sound farming wisdom learned over generations that modern Oregon winegrowers employ to produce premium Pinot noir. All of our efforts in the vineyard are carried out with the goal of expressing a precise statement, which varies depending on the land in which the grapes are grown to the hands that bring the wine into being. We will discuss clonal selections, trellis systems, rootstocks, spacing decisions, cultural practices and our efforts toward maintaining biodiversity and improving the sustainability of our activity.

POINTS TO INVESTIGATE

Adapting to the permanent physical environment

- Farming at the margins of acceptable climatic conditions
- Site selection for specificity
- Clonal selections
- Rootstocks
- Density adaptations

Adapting to a year of moments

- Managing for vine balance
 - Canopy management
 - Crop yields
 - Water management
- Managing for pests and disease pressure

Adapting to the uncertain future

- The farm in the landscape

Much is said about Pinot noir's unique propensity for expressing the truth of a place. First and foremost we point to what is typically referred to as terroir, that special combination of the factors of the physical environment: geology, topography, climate and soils. Save for the one-time decision to plant Pinot noir in a certain place, these are the limiting factors. However, terroir does not end there. Beyond these limiting physical realities, the grower and the winemaker impose complex layers of social and cultural institutions relating to viticulture and winemaking that develop in a particular region over time. All of these factors combine to define the character of a region, a vineyard, a block and a vine. That Pinot noir will communicate this all-encompassing sense of place in the end product is not a foregone conclusion, however. It is a study in balance and adaptation.

ADAPTING TO THE PERMANENT PHYSICAL ENVIRONMENT

Farming at the margins of acceptable climatic conditions

Anywhere Pinot noir is grown you will find that great effort and expense are dedicated to its production. It is very difficult to find the grower who got in the business to produce “mediocre” Pinot noir. But the nature of Pinot noir dictates that the level of finesse will vary greatly depending on the climatic conditions.

Pinot noir, like all varieties, has an inherent climatic threshold for achieving optimum quality. This niche is particularly narrow for Pinot noir, and it is only when grown in these precise conditions that it achieves the best expression of terroir for which it is known. A long, cool growing season ensures a period of flavor development that is perfect for Pinot noir, and we are fortunate to have just those conditions here in the Willamette Valley.

Our vineyards are located along the 45th Parallel North, in the valley formed between the very tall Cascade Mountain Range to the east, and the lower Coast Range to the west, abutting the Pacific Ocean. This reality determines a fairly mild macroclimate, with fair resemblance to a very northern Mediterranean climate, with wet, mild winters and warm and dry summers. While this may sound delightful and not marginal at all, what we lack is the grace of season. In most years, every last moment of sunshine is critical, and when the rains begin in October we can usually assume that our season has come to an end. Therefore, every single decision we make along this path of the vintage has immense implications for the wines.

Beyond the topographical and geographical framework, our year-to-year climatologic realities are heavily influenced by water temperature oscillations in the eastern Pacific. During an El Niño the temperature in the eastern Pacific is higher than normal, whereas in a La Niña the easterly trade winds increase and there is an upwelling of cold ocean temperatures in the tropical Pacific. This El Niño/La Niña occurrence has been both more frequent and intense over the past 20 years, with fewer “Niño neutral” years. For us this means that from one year to the next we can experience vast fluctuations in the timing of and conditions during all the phenological stages, from budbreak to bloom to veraison to harvest. At each stage we make critical decisions as growers in order to achieve the quality and style of the end product. Experience, education and international and local collaboration have all led to this moment, when Oregon is consistently making great wines even in the face of an increasingly unstable climate.

Site selection for specificity

For the reasons already introduced to you in the first chapter, the Willamette Valley provides a unique opportunity for growing premium Pinot noir. While the macroclimate and its influences have been generally described, the mesoclimates within the valley and the soil composition and depth vary greatly with elevation and aspect. Berry development, flavor and composition are heavily affected by site-specific exposure to wind and sun. Furthermore, soil variation (type, depth and water holding capacity) is commonly expressed in vine vigor, canopy density and

fruiting habits. Therefore, this one-time decision of site selection is critical to the expression and character of the wine.

The vast majority of the vineyards in the Willamette Valley today have been planted in the low to mid-slope elevation hillsides with southern exposure, between 300'-800'. These rocky hillsides tend to have shallower soils, and to be less vigorous than the deep and rich soils of the valley floor. The hillsides are less prone to frost, but slightly later to ripen than the valley floor. As new categories and styles are explored for Oregon, and as our climate fluctuates, we are seeing more and more exploration with plantings of Pinot noir in both the lower and higher elevations.

Clonal selections and rootstocks

The species *Vitis vinifera*, responsible for all the commercially important varieties from which we make wine, shares the characteristic of adaptability with those who endeavor to grow it. Its ancient heritage has meant a very long period of evolution, which is responsible for some of its most alluring and frustrating characteristics.

Vinifera can adapt to its growing conditions quite rapidly. It is very heterozygous, meaning that the already complex gene makeup can be combined and recombined easily and exponentially. Furthermore, at some point in its long history, *vinifera* conveniently became almost exclusively hermaphroditic. Its propensity for vegetative reproduction and bud mutation has been responsible for many of the varieties we know today, and amongst other varieties of *vinifera*, Pinot noir is particularly mutable.

The process of clonal selection has evolved from simple to complex, with varying results. Essentially, via generations of careful observations (historical) or by complicated measurements (modern), individual vines are selected for a particular trait or traits, such as cluster size, being early or late ripening, growth habit, disease resistance, yield, etc. These vines are then propagated through cuttings (historically) or from tissue cultures (modern) from the base material. The resulting selections, theoretically genetically identical, are often referred to as clones, and are assigned a name or number (113, 114, etc). In the U.S. there are strict protocols of ensuring the sanitation of clonal selections before the plant material can be made commercially available.

Initial plantings of Pinot noir came almost exclusively from the Wädenswil group of clones (UCD1 and UCD2) which came from Switzerland (with perhaps a Burgundy origin,) later joined by the "Pommard clone" (UCD5) originally from Burgundy.

Beginning in 1974, David Adelsheim led an initiative to bring new selections to Oregon directly from research programs around Europe. This culminated in the importation of Pinot noir and Chardonnay clones from the Office National Interprofessionnel des Vins de Table in 1984, the result of years of selection by Dr. Raymond Bernard from various vineyards in Burgundy.

This plant material was finally made available to growers in 1988, after a period of quarantine and evaluation, and has provided growers with many options to enhance diversity and winemakers with different components in the cellar. Today new selections are being tested, indexed and released, expanding the diversity of plant material and therefore our ability to learn and adapt even further.

Rootstocks

The pioneers of Oregon viticulture put their vineyards down on their own roots, before the discovery of Phylloxera in Oregon in 1990. Since that date, many vineyards have been replanted and almost all new plantings are put on phylloxera-resistant rootstocks. The last remaining own-rooted heritage plantings in the Willamette Valley are tended with great care, and continue to produce beautiful fruit under careful management.

Beyond providing resistance to this tenacious pest, the most profound effect these rootstocks have is on the vigor of the scion. Rootstock selection is a tremendous tool for adapting to site diversity. Where a more vigorous rootstock like 3309 can be useful on a very weak slope with little to no soil, a devigorating rootstock can be critical on deeper soils where excess vigor can be an issue. Rootstock also certainly affects the vegetative cycle of the plant and may advance ripening.

Density and trellising adaptations

Plant density and trellis systems vary greatly throughout the world, but are both critical tools in vineyard design and should not be discounted for their influence on yield and quality.

How many plants an acre of ground can support depends on both water availability (whether by irrigation or just a moist climate) as well as the soil quality. In early Oregon vineyards, much of the trellis and spacing decisions were again borrowed from California and Swiss protocols of the time, around 500-800 vines per acre. Where these early plantings are still in the ground, there was often experimentation in divided canopy trellising to manage vigor where it was an issue. This resourceful management of trellis (Geneva Double Curtain, Lyre and Scott Henry) is more common in older, lower density plantings, whereas vertical trellis, also known as VSP or Vertical Shoot Positioning, is the norm in more recent plantings.

During the years between the first plantings of the late '60s (10'x10', 10'x12') and the '80s, vine spacing trends in Oregon tightened up, representing a period of "intermediate spacing". The late '80s and early '90s saw much more dense, Burgundian style plantings in Oregon, bringing a new generation of equipment as well. Concurrently, of course, was the spread of phylloxera, and thus these plantings were also on rootstock. In high-density plantings vines compete with one another for moisture and nutrition, which in theory hastens ripening and also may affect the size of the clusters.

In the Willamette Valley we have very diverse soils in terms of their strength or weakness, their ability to hold water and their depth. The availability of water is more critical in Oregon than

many realize due to the very dry, hot summers we experience. We get plenty of water during the winter, but that water dissipates quickly under dry, hot, sunny conditions and more so in some soils than others. At any rate, Oregon has hugely different soils and growing season conditions than either California or northern Europe. Therefore, spacing decisions must be thoughtfully made and experimentation, when possible, is warranted in order to fine tune.

Capture of light by leaves, managing sun exposure of the fruit, disease pressure and the fruitfulness of a vine: these are all goals of trellis systems. For our climate and growing conditions most growers feel that some form of vertical trellising is the most appropriate for maximizing quality and managing disease.

ADAPTING TO A YEAR OF MOMENTS: THE QUEST FOR VINE BALANCE

Winter pruning

Winter pruning is an oft-overlooked art in viticulture. It is our first tangible influence on the next vintage. One cannot stress enough the influence this practice has on a vineyard's productivity. Grapes are only produced on shoots that grow from one-year-old canes, and more so on canes that had good sun exposure. This art is informed by *Vitis*' unique evolutionary history and its complete dependence on birds for seed dispersal. In the Cambrian period, grapes had to climb trees to get to the sun, as their buds will only express cluster primordia if they have been exposed to sunlight. A bud that did not see sunlight would produce a tendril, to cling to trees to get to the sunlight. Having reached the canopy of the tree, the following season the vine would produce fruit. Therefore, selecting the proper canes to lay down for the following vintage has a tremendous influence on your potential crop even before bloom.

Canopy management

Canopy management is essentially the series of decisions made by the viticulturist during the growing season to achieve particular goals for leaf volume, leaf area, shoot position/orientation, spray efficiency and fruit exposure to sunlight. Countless research projects have studied the relationship between canopy (health, density, orientation) and resultant corresponding fruit quality. This "balance" is the holy grail of viticulture, and current research is looking at Oregon-specific metrics for balanced canopy/crop ratios.

As photosynthesis is the engine that drives fruit maturity, capturing sunlight is of utmost concern. Too few leaves will not have the energy necessary to ripen fruit. Overly dense canopies do not maximize photosynthetic potential, do not provide proper exposure of the fruit to sunlight and do not allow proper airflow and spray penetration for disease control. Canopy density directly affects the canopy microclimate. Furthermore, current research suggests that many critical stages of berry development and true ripeness may be linked to UV exposure, not necessarily heat.

After budbreak, adjusting the number of buds and shoots via bud and shoot thinning are ways we manipulate canopy density. We remove second and third buds at each node, excess shoots and the suckers at the base of the plant. Once shoots are out, training young shoots between

catch wires and actively positioning shoots for sunlight capture and airflow are repeated throughout the growing season. Ideally, vegetative growth would stop around veraison and all the plant's energy would be directed toward fruit ripening. In the absence of the ideal situation, shoots are often hedged once to several times to prevent excess shading by managing excess growth.

Pulling basal leaves is widely practiced to open the fruiting zone for both the exposure to sunlight as well as for having an efficient spray program, but it can also dramatically affect the retention of acids in the grapes, especially in warmer vintages. A spray program is only effective if the material penetrates the canopy for adequate coverage. Having an open canopy also allows for UV exposure (a natural enemy of many fungal pathogens and good for phenolic development too!) and airflow, as disease pressure increases in moist conditions. Most growers employ some level of leaf pulling, but the amount and timing is a personal decision and depends entirely on the goals for both canopy management and wine style.

Vineyard floor and soil

A vineyard system extends far beyond the vines themselves. What we see above ground of a plant is but a fragment of its total self, and its interaction with the above-ground environment is only the leading edge of the system to which it belongs. Go below and the system literally bursts into a complex web of life, circulating and cycling. And the soil, like us, has a history and a story to tell. Soil, like any natural thing, evolves with the influence of many things and events over time. Our interaction with it, brief as it is, creates impacts down a very long chain.

The makeup of the vineyard floor can have dramatic impacts on the microclimate as well as the biology (beneficial insects, soil flora and fauna, pests, disease, even wildlife) of the whole farm. Vineyard floor manipulation is a very effective tool for managing a host of concerns, but conscientious growers will always consider the impacts on both the vines and the system as a whole.

Having vegetation growing between the vines, whether permanent or seeded annually and at some point tilled into the soil, has numerous benefits, including:

- Minimizing soil erosion during rainy season
- Improving rainfall penetration
- Reducing compaction effects of equipment
- Reducing vine vigor (increasing competition)
- Recycling nutrients
- Preventing leaching
- Increasing soil health and diversity

Furthermore, maintaining some cover and diversity within the vineyard and its borders can provide invaluable continuity for beneficial insect populations, provided there are protected and uncultivated areas nearby. The presence of cover crops may also promote effective

colonization by mycorrhizal fungi, symbiotic fungi that can improve nutrient and water intake; research has shown that contact between grapevine roots and cover crop roots is important for efficient colonization. Cover cropping and/or permanent vegetation can also be quite effective tools for managing pests like rust mites and spider mites, which thrive in dusty conditions.

Whether and when to remove or till in a cover crop depends on the goals of the grower and the situation. High cover crops can increase frost pressure during early spring and late autumn. The presence of cover crops can also encourage pesky vertebrates like voles and gophers. Lastly, depending on the soil, vine age and water status, a cover crop may prove to be too much competition for a vine during critical stages of growth, at which point the viticulturist will remove it by cultivating it into the soil.

Most growers are at least somewhat occupied with the issue of weeds growing under the vines during the growing season. Not only are these weeds sometimes invasive, when they grow very near the plant they can compete for critical water and nutrition. Undervine weeds can be managed either chemically or mechanically, but either way timing is critical for control.

The soil, linking bedrock to the world above, is the very foundation of what we do. How we act upon the soil is perhaps our most significant impact, as winegrowers and as stewards of the land.

Crop yields

Alas, Pinot noir, though referred to as noble, has literally no concern for its role in the magnificent alchemy of winemaking. The prime directive of this excellent specimen of evolution is to reproduce, and grapes are perfectly successful at reproducing prolifically at ripeness levels no winemaker would accept.

Since the beginning of our history, growers have sought to understand the relationship between yield and quality, and we have learned a great deal. In many years, but especially in high crop years, reducing yield, or green thinning, ensures a dedication of the vine's resources to the remaining fruit that can be the difference between good and great, obvious and subtle. In a late vintage, crop thinning is an insurance policy that most winegrowers depend upon.

As with all things Pinot, however, this is about learning to adapt, to find the balance that gets you what you want at the end of vintage. The hand you are dealt is different every year. If a vigorous vine carries too little crop, it can become overly vegetative and this, too will negatively affect quality. Having a higher crop in warmer, longer vintages (provided there is adequate soil moisture) can mitigate some of the effects of very high temperatures, when the accumulation of brix is wont to outpace flavor development, and waiting for proper flavors results in very high sugars.

Water

It has long been observed that in winegrapes, some water deficit is beneficial for fruit quality.

In fact, maintaining some level of plant water deficit after an appropriate canopy is established can help regulate vegetative growth, as well as assist in directing carbohydrates toward berry development.

This is not to say, however, that “a stressed plant produces the best fruit”. Stressed plants make stressed fruit. Plant water deficit does not equal drought stress. When a plant is under excessive drought stress, photosynthesis is inhibited and the movement of carbohydrates is arrested. The timing and degree of water deficit determine the effect on fruit quality.

In Oregon, with our wet winters and springs, we generally enter the growing season with adequate soil moisture to grow a robust (!) canopy. But even in our “cool” climate, we have hot, dry conditions during the summer months. As the canopy expands, the evaporative demand increases. At this point the plants accelerate their drawing down of soil moisture. Typically, with normal winter/spring precipitation, we approach veraison with adequate soil moisture to maintain very mild plant water deficit.

Post veraison, we often enter the hottest and driest part of our season, and the canopy and climatic conditions push water demand to its highest. Mostly this is still good, as it helps to arrest vegetative growth and assists berry development at a very critical stage. However, very young vineyards, weak rootstocks and shallow, fast-draining soils can all be risk factors at this point of the season. Excessive drought stress can certainly affect fruit quality in the current season. Extended drought post harvest can have grave consequences for shoot and fruit production the following year. Many growers have drip irrigation installed during planting as a valuable insurance policy for hot vintages and young plants.

Generally speaking, the use of irrigation is limited in Oregon and often used for plant establishment and very high drought conditions. This is a critical component of the sustainability of our farming, and we are very fortunate that our crop is so prudent in its water preferences.

Pests and disease

Oregon, and the Willamette Valley especially, enjoy a great diversity of agricultural crops. The landscape is a patchwork of varying crops, orchards, nurseries and forestland. This, coupled with our cold winters, is an important reason why we have heretofore experienced very modest disease and pest pressure. Our main disease challenge is powdery mildew, and botrytis to a lesser extent. Vertebrate pests like gophers, voles and birds can be commercially important in some years, but are generally just an annoying part of doing business. Invertebrate pests are more or less limited to mites, but the appearance of disease-transmitting mealybugs in vineyards in Oregon suggests that we will face more pressure in the future.

Controlling for powdery mildew is the reason for most of our spray activity in the vineyard. The cultural practices of maintaining a healthy, open canopy go a long way in helping control for both powdery mildew and botrytis, but some level of preventative spraying is universally

practiced. Most spray programs use low concentrations of organic and soft fungicides, rotated to reduce resistance development. The spray interval varies based on the products used and the amount of pressure, but for most growers between 6 and 10 sprays are done for powdery mildew and botrytis prevention.

All growers want to reduce the number of times they spray, and many of us have been working with researchers at Oregon State to develop new techniques for monitoring sporulation of powdery mildew. The ability to detect outbreaks may enable us to spray only when there is detection of spores. Also, advances in spray technology are making worlds of difference in the amount of material used and even recovered.

ADAPTING TO THE UNCERTAIN FUTURE

The farm in the landscape

Roughly five percent of our nation's great land base is set aside (for now) to protect what is "natural" and "wild" from industrial influence. Much of this is in Alaska. Twenty percent of the total land base in the U.S. is under cultivation of crops. If you add lands that are public and private but used for grazing livestock, that number grows to well over 50%. While the urban/rural interface grows in importance, it remains true that agriculture, not urbanization, has had, by far, the greatest impact on water resources (especially in the West), habitat and species fragmentation. As land managers in agriculture, we cannot underestimate our potential impacts on the future of the American land base.

All other idealistic causes aside, we have a tremendous opportunity to affect the health, longevity and continuity of the landscape. Small efforts we make on our farms to promote biodiversity, protect soil, reduce chemical and other inputs (including water) and generally create less of a disturbance can have very positive impacts. As a high-profile agricultural community, we have an opportunity to lead by example. Maintaining uncultivated and continuous areas for wildlife cover and passage, creating insectaries for beneficial insects, efforts to reduce tractor passes, restoring, protecting and maintaining healthy watersheds; these sometimes require sacrificing some plantable area, some effort and dedication of resources, but the benefits far outweigh the output required.

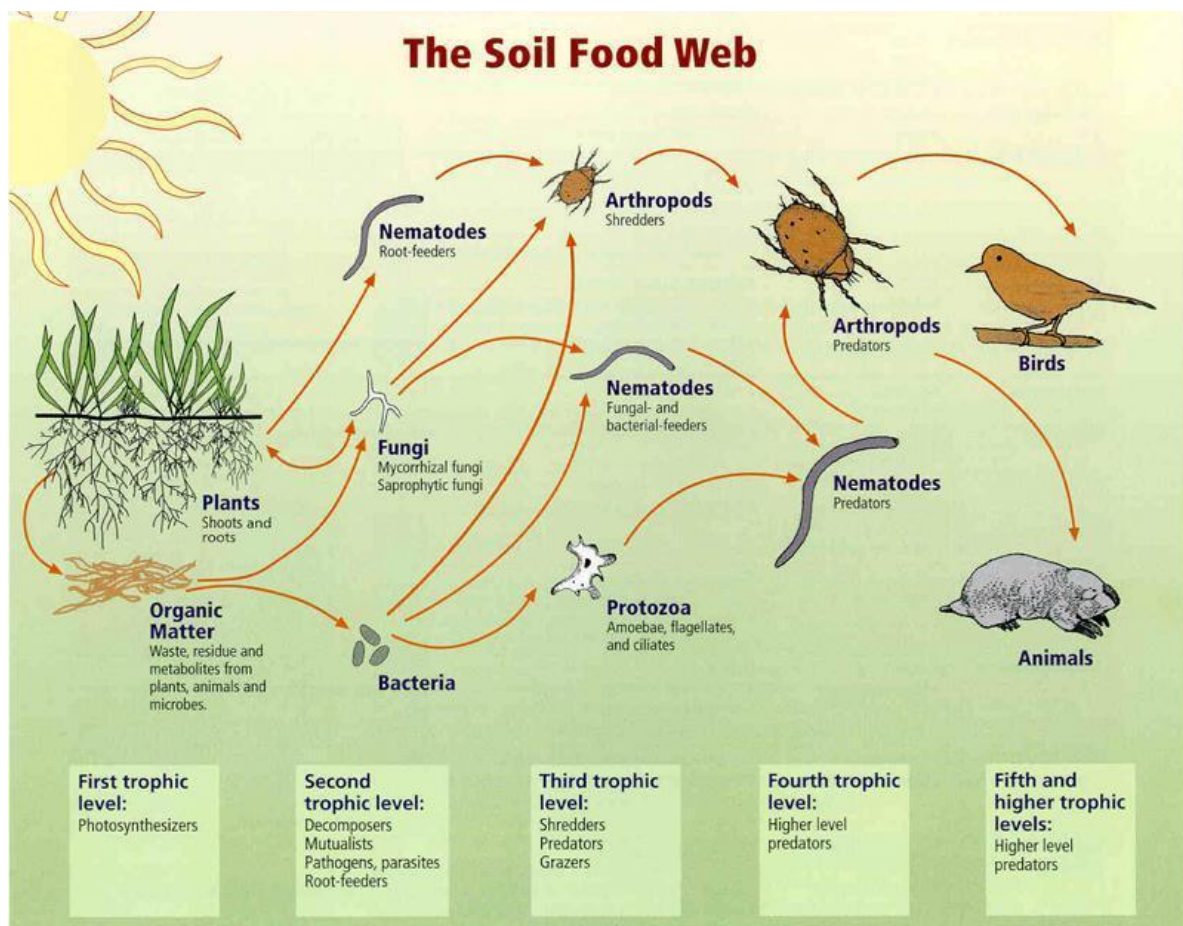
"Stewardship: the careful and responsible management of something entrusted to one's care." Oregon viticulture stands out in the tradition of stewardship. Before it was "en vogue" we scrutinized our practices for gaps in sustainability and continue to demand an ever-higher standard of transparency for our workers, our customers and ourselves. Taking care of the land that we farm and the people who work with us has been part of our identity since the first hippies broke ground for planting vineyards here in the mid-'60s.

Visit almost any vineyard in the Willamette Valley. You may have to ask the question, "what are you doing about sustainability," as we are not known for flaunting or self-promotion, but you will get an answer. Nearly 50% of all vineyard land in Oregon is certified by a third party

sustainability program. While we recognize that we cannot do what we do and also preserve a completely natural system, we can continue to ask ourselves what we can do better to make it possible for natural systems to function in the presence of agriculture.

It is not revolutionary to make a connection between having a diversity of life on your farm and the farm’s ability to resist pests and disease. In farming, it is easy to focus on all the ways that biodiversity interferes with what we are trying to accomplish: the birds eat your grapes, the weeds compete for nutrition and water, the gophers and voles chew on the trunks and roots, the bugs chew on your leaves and shoots, the deer keep a tidy four-inch canopy on your end rows. All our efforts to maintain a pristine end result seem at odds with nature’s endeavors. But remove just one element...

Pinot noir is about balance. When we maintain a diverse landscape, we come a little closer to achieving balance with nature. When our farm supports a diversity of life, our vines thrive and are better able to access the secrets, the truth, of this place, and deliver them in the wine.



FARMING FOR QUALITY

| vine density | low | medium | high |
|---------------------|------------|---------------|-------------|
| vine spacing | 6' x 12' | 5' x 7' | 3' x 6' |
| vines per acre | 605 | 1245 | 2420 |
| row feet per acre | 3630 | 6223 | 7260 |
| tons per acre | 2.0 | 2.5 | 2.8 |
| gallons per ton | 150 | 150 | 150 |
| gallons per barrel | 60 | 60 | 60 |
| barrels per ton | 2.5 | 2.5 | 2.5 |
| gallons per case | 2.38 | 2.38 | 2.38 |
| cases per barrel | 25 | 25 | 25 |
| cases per ton | 63 | 63 | 63 |
| cases per acre | 126 | 158 | 176 |
| bottles per acre | 1513 | 1891 | 2118 |
| bottles per barrel | 300 | 300 | 300 |
| bottles per vine | 2.5 | 1.5 | 0.9 |
| tons per vine | 0.0033 | 0.0020 | 0.0012 |
| pounds per vine | 6.6 | 4.0 | 2.3 |
| pounds per cluster | 0.2 | 0.2 | 0.2 |
| clusters per vine | 33 | 20 | 12 |
| clusters per bottle | 13 | 13 | 13 |

HUNTING THE GREAT WHITE

Pinot noir is easily the singular red wine focus in this great cool climate, but white wines are a source of equal passion for many Oregon winemakers. In this workshop, we will investigate the bright, fresh fruit of these complex and imminently age-able white varieties that have captivated many of us. More and more these wines will define our region as it evolves to be as well-known for white as red.

During our investigation we will discuss varieties, clones, and the grapegrowing and winemaking decisions that help us take advantage of our climate. A tasting of varied vintages of Pinot gris, Chardonnay and an exciting mix of other white varieties will illustrate these decisions.

WORKSHOP DETAILS

More information including the panelists by site and wines tasted is available following OPC at oregonpinotcamp.com/workshops.

POINTS TO INVESTIGATE

- History of white grape varieties in Oregon and where these varieties are now planted, with an emphasis on their compatibility with the cool climate of Oregon
- The growing conditions, climates, and soils for white varieties in the Willamette Valley and Southern Oregon
- How white wines differ from red
- Development of a uniquely Oregon style
- Oregon Chardonnay
- Oregon Pinot gris
- How other white varieties showcase Oregon's cool climate
- White wines can age

HISTORY OF WHITE GRAPE VARIETIES IN OREGON

Early winegrowing in Oregon always involved white wines. Although retired French-Canadian fur trappers planted the first grapes in the 1840s, many settlers in the second half of the nineteenth century had German heritage, and German white varieties, particularly Riesling, were favored. One of the early growers was Adolph Reuter with grapes on David Hill outside Forest Grove. His wines received acclaim when his Clevner (a German name for Pinot, though the wine was probably Pinot blanc) won a silver medal at the St. Louis World's Fair in 1904. Reuter claimed that the region would become the Rhineland of America.

In southern Oregon, there was more influence from California. Peter Britt came to Jacksonville from Switzerland in 1862. He brought grape cuttings from California and produced Claret,

Muscat, and Zinfandel wines. The Von Pessl brothers added Riesling and Sauvignon. Adam Doerner got Riesling and Sauvignon cuttings from the Beringer brothers and planted them near Roseburg in the 1890s. And it was near Roseburg that the rebirth of Oregon wines took place in 1961, when Richard Sommer planted Riesling at Hillcrest Vineyard.

The plantings in the 1960s and 1970s focused on Pinot noir, Riesling and Chardonnay; however, Riesling was gradually eclipsed by Chardonnay in the mid-1980s. By 1986, Chardonnay accounted for 23% of Oregon's acreage, Riesling 19%, and Pinot gris 3%. Oregon growers were pulling out Pinot noir to plant Chardonnay and Müller-Thurgau. Pinot noir acreage remained relatively flat until 1996. By 1994, Pinot gris had become more widely planted than Riesling, and in 2001 Pinot gris replaced Chardonnay as the most planted white grape variety in Oregon.

Today, here's the way things stand (numbers from 2020): in all, white varieties make up 24% of the grapes planted in Oregon. Of these, Pinot gris accounts for 58% of all white varieties in Oregon with 5,460 acres planted. Chardonnay accounts for 27.6% of all white varieties (2,610 acres). The next three white varieties in terms of acreage are Riesling (4.8% of the total white varieties planted in Oregon), Viognier (4%), and Pinot Blanc (2.5%). Other whites planted in Oregon include Müller-Thurgau, Albariño, Grüner Veltliner, and Sauvignon Blanc.

THE GROWING CONDITIONS, CLIMATES AND SOILS IN THE WILLAMETTE VALLEY

Climate

There are four critical aspects to the Willamette Valley growing season:

- Moderate temperatures
- Dry growing season
- Day length
- Sunlight intensity

Our winters are very mild (mean January temperature of 42°F), and our summers are reasonably cool with July's average temperature being 68°F. Generally, there is just enough heat and sunlight intensity to fully ripen cool-climate grape varieties at the end of the growing season. The Willamette Valley has a very dry summer growing season. Although the average annual rainfall is 40" most of it falls in the winter. Average rainfall in January is 7" but only 0.5" in July and August. This is in stark contrast to Burgundy, where rainfall is more evenly distributed throughout the year at about 3" per month. This means that we have no downy mildew and few problems with botrytis in the Willamette Valley, but we have a greater incidence of drought-related issues.

The 45th parallel cuts through the Willamette Valley just north of Salem. Being that far north, between March 21 and September 21, we have more daylight hours than growing regions further south. On June 22 we have 1.5 hours more daylight than in Napa; this is a key difference between cool- and warm-climate whites. Conversely, day length shortens rapidly in the fall, registering strong hormonal signals of the growing season's end to the vines.

Small improvements in our viticulture lend themselves to big quality differences in a cool, maritime climate like that of Oregon.

Soils and Geology

Oregon was created by the collision of the Pacific Plate with the North American Plate almost 200 million years ago. The Willamette Valley, and the Coast Range that protects it from the ocean, were created by uplift caused by that collision. The Willamette Valley is 150 miles long and up to 60 miles wide. It is an old volcanic and sedimentary seabed that has been overlaid with gravel and silt from Montana and Washington. During the final period of the last ice age, hundreds of floods occurred when an ice dam holding back massive lake waters near present day Clark Fork River gave way. Flood debris filled the Willamette Valley to depths of 400' as many cubic miles of water washed down the Columbia River Basin and into the Willamette Valley. (Read Cataclysms on the Columbia by John Logan Allen and Marjorie Burns for more insight on some truly dramatic geology.)

Early plantings focused on the deep red, basaltic-origin clay-loam soils, such as Jory, Saum or Nekia that overlay a basalt volcanic rock base. Recently, interest has developed in planting on the shallower silty clay-loams, such as Willakenzie and Peavine that overlay sedimentary rock, and in the wind-blown Loess soils of the flood era in the hills of the northern Willamette Valley.

THE GROWING CONDITIONS, CLIMATES AND SOILS IN SOUTHERN OREGON

The motto of Southern Oregon is that it is a “world of wine.” Nearly all temperate-climate grape varieties can be successfully grown somewhere in the Umpqua, Rogue and Applegate appellations. This is a diverse winegrowing region with a range of soils, aspects and climatic conditions.

Historically, to differentiate the region from the Willamette Valley, the tendency has been to emphasize the more arid areas where Bordeaux and Rhone varieties excel. However, Southern Oregon vineyards feature a very wide range of soils (from sandy loam to clay), precipitation (from 12"–60" per year), elevations (600'–2800') and heat units (2,100–3,100).

The warmest areas, the Bear Creek and Applegate Valleys, are predominately planted to Merlot, Cabernet Sauvignon, Cabernet Franc, Chardonnay and Syrah, while the “cooler” areas, the Illinois and Umpqua Valleys, grow Pinot noir, Pinot gris, Gewürztraminer, Tempranillo, Riesling and Chardonnay.

THE GROWING CONDITIONS, CLIMATES AND SOILS OF THE COLUMBIA RIVER GORGE AVA

The Columbia Gorge AVA is a two-state appellation stretching from Hood River, Oregon across the river through Underwood and Lyle, WA, and back across the river to The Dalles, Oregon. Grapes are grown from 200' to 1,825' elevation. Rainfall drops dramatically; traveling east along the 120-mile-long Gorge, within 25 miles 31" of precipitation at Hood River drops to 15"

at The Dalles. Soils are dependent upon elevation, a result of Missoula Floods of 20,000 to 12,000 years ago, with a rough dividing line at 1,000'—above which the soils are volcanic in origin and below are glacial and Missoula Floods deposits. This region is proving an exciting place to grow cool-climate varieties (Pinot noir, Pinot gris, Chardonnay, Gewürztraminer, Riesling and Grüner Veltliner) in the western end, and warm climate varieties (Merlot, Syrah and Zinfandel) in eastern portions around The Dalles. The Columbia River Gorge has an important and unique influence on both the Willamette Valley and Columbia Basin climates, as it is the only sea level passage through the Cascade Mountain Range.

HOW WHITE WINES DIFFER FROM RED

White wine grapes grow side-by-side with Pinot noir, receive the same handwork and attention to grapegrowing detail and are harvested over the same period. They all have clear juice—Pinot noir too, unlike some other red varieties—and are known for bright fruit character and food-friendly acidity.

Differences rest in red wines being fermented on their skins and seeds to extract color, fruit tannins for more structure and slightly different aromas and flavors. Typically, white wines are pressed away from their skins and stems immediately, and fermentation is slow and cool, compared to a warmer and actively worked mass of pulp, skin, seeds and sometimes stems in Pinot noir. All reds and some whites age in barrel. Time in barrel, lees contact and malolactic fermentation are all employed in red and often white wine vinification.

Although there are similarities, the makeup of white wine is different by being generally higher in acid, lower in pH, less alcoholic and ripe and may or may not be influenced by malolactic fermentation. To achieve perfect balance, a minor amount of natural residual sugar is sometimes left in white wines. As often as not, white wines are allowed to ferment to total dryness, just like Pinot noir. Textural enhancement also helps balance. Wine color is mainly dependent on skins and barrel. Pinot noir pulls color and structure during maceration and fermentation, which is fixed with the help of barrel tannins. White wines in barrel pull some golden color from the barrel and from oxidation over time in bottle, where the color deepens, especially under cork.

THE STYLES OF WHITE WINES IN OREGON

As viticulture and winemaking have improved in Oregon, a sense for better definition of balanced ripeness has evolved to reflect Oregon's unique ability to offer both the New World's vibrant fruit characteristics and the Old World's mineral structure and complexity.

White wines from the same variety, even from the same vineyard, can be produced in a range of styles. Winemakers are quick to say that their wines are “made in the vineyard”, and ideally all white wines will reflect the vineyard and the region where they are produced. However, techniques employed by the winemakers have an important effect as well. To help understand the winemakers' influence on style, we can divide wine styles into two basic categories: those that emphasize fruit and those that emphasize texture. These styles can be applied to any white

grape variety in any winegrowing region. Looking at Pinot gris in Alsace and Friuli for example, we see the fruit-emphasizing style of Pinot gris coming from Trimbach in Alsace and from Livio Felluga in Friuli. Contrast those wines with the texture-emphasizing style produced by André Ostertag in Alsace and Jermann in Friuli.

Fruit Emphasis

Most non-Chardonnay white wines in Europe and the New World are produced by fermenting ripe grape juice in stainless steel or large, neutral oak ovals. Some Oregon winemakers are beginning to ferment white varieties in concrete eggs as well. The intent is to capture as much of the primary fruit character as possible while (ideally) allowing the nuances of the vineyard site to be clearly reflected in the finished wines. Frequently, the juice is also fermented at low temperatures and malolactic fermentation is often limited. These wines have intense aromatics and purity of fruit. In many cases, a measure of residual sugar will be left to soften the impression of acidity and richly fill the mid-palate. Wines that emphasize fruit have aromatics that recall the flavors of bright, fresh fruit. Descriptors for these wines are usually fruit-oriented—citrus, pear, melon, peach, kiwi, etc.

Stylistic differences in fruit-emphasized wines arise from vineyard site, ripeness at harvest, selection of yeast strains, length of fermentation and the levels of residual sugar and malic acid that are retained in the final wine. Wines with a fruit emphasis are often aged on lees for less time than those that emphasize texture, going to bottle typically about six months after harvest.

Texture Emphasis

Texture and aging impart important characteristics for traditionally vinified Chardonnay, but other varieties can follow this path as well. As with the fruit-emphasizing style, fermentation strains (whether indigenous or selected), malolactic fermentation (either total or partial), the degree of lees contact, skin contact before pressing, vessel decisions (barrel, stainless or both) and length of aging (usually 6 to 11 months) all help determine the expression of the final wine. Winemakers define their style by employing all of these parameters to a greater or lesser degree. For example, wines that have undergone ML have greater mouth feel, are more textural and have softer acidity. They also have a less overt fruity character and more secondary flavors. Barrel fermentation adds richness and body in the mid-palate, and more lees contact contributes non-fruit flavors. By employing processes that emphasize texture, resultant wines can have more evolved aromatics accompanied by suppleness and body on the palate.

OREGON PINOT GRIS

While Josh Jensen and the ghost of Dick Graff might debate the statement, “Oregon is the home of New World Pinot noir,” no one can deny that Oregon was the first place in the New World to produce Pinot gris wine. While the variety was in the grape collection at UC Davis in the 1960s, no one had planted it commercially until David Lett did so in the Dundee Hills at his Eyrie Vineyard in 1966. The first wine to carry the Pinot gris label in the New World appeared with Eyrie’s 1970 vintage. Ponzi Vineyards released their first Pinot gris in 1978, followed by

Adelsheim Vineyard in 1984. Lett, Ponzi and Adelsheim traveled together to promote Oregon Pinot gris around the country in the 1980s and early 1990s, introducing people both to a new variety and a “new” growing region (starting with a quick geography lesson: “Oregon: second down on the left”).

Over the 1990s, Pinot gris acreage overtook that of any other white variety. The most significant increase in Oregon Pinot gris production came when King Estate made the variety a significant part of their portfolio. In 1991, Ed King III and his family started planting extensive acreage to Pinot gris and buying grapes from existing plantings. Grape prices jumped and more growers got into the act. Pinot gris acreage in Oregon continues to grow, increasing 88% in the last 10 years. Additionally, King Estate devoted significant marketing dollars to the variety. An early tool was a Pinot gris cookbook with recipes from many of America’s top chefs.

Since 2003, as Pinot gris/grigio became the second most-purchased white wine in America, Oregon has become the growing region most associated with fine wines from this variety.

OREGON CHARDONNAY

As noted earlier, the once dominant white grape in Oregon, Chardonnay, was eclipsed by Pinot gris in the early 2000s. However, Oregon Chardonnay plantings are once again on the rise as the state’s Chardonnay offerings gather recognition and acclaim. By pioneering Pinot gris and Pinot noir in the United States, Oregon had the great fortune of being able to set the national standard. However, an American Chardonnay style was well in place by the time Oregon wines started to gain visibility on the national stage in the 1980s. The established American style was based on warm-climate viticulture, and the ultra-ripe, soft flavors that resulted were often further augmented by new oak, residual sugar and the more buttery strains of malolactic. In contrast, Oregon’s cool-climate Chardonnays were often comparatively mineral and structured in their youth, requiring time to reveal themselves. Many vintners stayed the course to make Chardonnay with a distinctively Oregon character, and this approach has proven its worth; those wines have shown themselves to age magnificently. However, others attempted to emulate the “established” American Chardonnay style, de-acidifying, aging in high percentages of new oak and using fatter strains of malo. These approaches were not always harmonious with the essential mineral character of cool-climate viticulture. A complicating factor in the Oregon Chardonnay story has been clone. The Willamette Valley’s founding clone was the Draper Selection brought by David Lett in 1965. Draper Selection traces directly to the “Old Wente” clones of Chardonnay imported from France in the early 1900s. Many of the Willamette Valley’s pre-1974 plantings of Chardonnay are Draper Selection. In the mid 1970s, new high-yielding selections of Chardonnay became available from California. UC Davis clones 4 and 5 together became known as Clone 108. Like the Draper selection, Clone 108 can make good wines if properly managed for yield. The natural inclination of 108 is to produce huge, late-ripening clusters. In a warm climate like Napa’s, this can lend needed acidity. In our climate, the acidity can be very much out-of-balance if yields are not vigilantly tended. In 1984 and 1988, a series of Chardonnay clones were brought into Oregon from Burgundy. These clones had been selected in the 1960s by a branch of the French Ministry of Agriculture whose

office was in Dijon, and have numbers like 76, 95 and 96. These “Dijon clones” bloom and ripen two to three weeks earlier than others, and have added more options to match plantings to soil, site and winemaking style. Today, the breadth of available Chardonnay selections has created new excitement among Oregon Chardonnay growers. Planted acreage is once more beginning to climb.

The combination of attentive vineyard practices and a greater availability of clones is fueling a renaissance of Chardonnay made from both older and newer plantings. Winemakers are experimenting with various coopers and stainless steel, wild and commercial yeasts, lees stirring and extended barrel aging. There are styles that emphasize fruit through cool fermentations, stainless steel fermentation and aging and inhibited malolactic. Others vinify for texture through the use of barrel fermentation, malolactic fermentation and lees aging (sometimes with lees stirring regimens). Some wineries enjoy success blending both styles together in the making of their Chardonnay. In either case, the goal has become to make wines that reflect their place. To an American palate that has become fatigued with blousier versions of Chardonnay, Oregon offers many refreshing alternatives. Good Oregon Chardonnays have the same transparency as Pinot noir, and like Pinot noir have the ability to eloquently reflect site, place and vintage. Our cool, marine climate was never suited to growing the pillowy style of Chardonnay. The expansion of a subset of American wine drinkers who appreciate more food friendly, mineral-structured wines has led more and more consumers to explore the Oregon style.

OTHER WHITE VARIETIES, SOME IN THE PINOT FAMILY ... SOME NOT

In the 1960s and 1970s, when there was no surety about what grape varieties would succeed in Oregon, a range of white grapes was planted. These plantings included Riesling, Gewürztraminer, Müller-Thurgau and Muscat Ottonel in the cooler regions, and Sauvignon blanc, Viognier and Semillon in the somewhat warmer regions of the state.

Another early white variety with which growers experimented was Pinot blanc. It was discovered, however, that those plantings were in fact Melon. The mistake was actually made at UC Davis where they had inadvertently gotten rid of all selections of Pinot blanc and misidentified Melon de Bourgogne (aka Muscadet) as Pinot blanc. In 1976, Oregon State University imported two clones of Pinot blanc from Colmar, along with a slew of other Alsatian clones. It took a while to get these clones through quarantine process, but by the mid-1980s, growers could plant Pinot blanc for first time. We slowly started to plant and to make wine. Cameron Winery made America’s first true Pinot blanc in 1988 from a small test block of the new clones. Others soon followed.

Small plantings of a whole range of other white varieties can be found throughout the state. They include Albariño, Arneis, Auxerrois, Grüner Veltliner, Tocai Friulano, plus others that have not yet surfaced as wines. Those adventurous few who have chosen to plant these varieties face the same stylistic choices. Clearly, these producers have been inspired by wines they have tasted of these varieties from Europe. Their challenge will be to make the correct

vineyard choices and then to find the winemaking approach that allows their project to be uniquely Oregonian.

WHITE WINES CAN AGE

Ageability is the icing on the cake... a reputation for making wines that stand the test of time enhances the image, at least among wine geeks willing to spend more.

- Harvey Steiman, Wine Spectator

Ageability helps to define a wine region more than many other aspects. It seems to be the final recognition that validates a growing region as more than good, as possibly great enough to make wines that live from one generation to another. Not all wines are ageable, but the age-worthy ones are remembered and can lift an entire region's reputation.

Red wines are known for aging. They accomplish this by balancing fruit and alcohol with structure largely from tannin and polyphenolics. White wines can age equivalently by substituting good acid levels as the structural element in this three-legged stool (in sweet wines the sugar adds a fourth leg to be balanced). In both cases, balance is the key and structure of some kind is required.

Most of us don't drink older wines a lot, but we should cellar enough to experience the added dimension given by aging. As with reds, aged whites have often lost primary fruit to more tertiary, bruised fruit or savory characters, and gain textural richness and length.

However, the beauty of age has seldom been seen by most wine consumers, who may dismiss a lost bottle in the cellar or random bottle bin at a retailer as being highly oxidized and bland.

Two things are required for optimum aging of white wines: wines grown to perfect balance in a climate where acid and flavors peak at the end of the season, and conditions to minimize premature oxidation. Growing classic varieties like Riesling and Chardonnay in the cool climate of the Willamette Valley and making wines under oxidative protections give us confidence that our white wines will age exceptionally. Even under cork and with less winemaking experience, our Chardonnays, Rieslings and Pinot gris from the mid-90s have shown beautifully in recent tastings in London, Tokyo, San Francisco and New York.

We encourage the media and trade to recognize age-worthiness as an important measure of wine quality, to see in young wines the attributes needed for a wine to age, not just immediate drinkability, and to excite consumers about the attractiveness of elegant, aged wines so that they demand them from restaurants, retail shops and wineries—and possibly return to the culture of cellars and wine collection.

CONCLUSION

Oregon's cool climate is unique in North America, perhaps in the world. Oregon's white wine

producers have moved from trying to imitate the white wines of Europe or California (and not having much success at either) to finding the confidence to produce wines that are the unique products of Oregon's climates and sites.

VARIATIONS IN STYLE

Discovering Our Human *Terroir*

An interactive tasting and discussion with Oregon winemakers to explore the influences of vintage, place and philosophy on Oregon Pinot noir.

The Variations in Style workshop integrates information from the Geology, Biology and Sense of Place workshops to show how soil, site, vintage and specific winemaking decisions can combine to create a wine personality. In each of the three sections of this workshop, an accompanying flight of wines is tasted and discussed:

WORKSHOP DETAILS

More information including the panelists by site and wines tasted is available following OPC at oregonpinotcamp.com/workshops.

PERSONALITY OF THE REGION

There are two broad descriptors that have emerged as keys to describing Oregon Pinot noir.

The first is “**Fruit.**” Fruit can be perceived by smell (aroma) or by taste. (But fruit can only be “tasted” if you are not holding your nose.) “Fruity” is an area on the aroma wheel, but we are not describing specific fruit aromas. Rather, we think of fruit quality in a wine in two general ways:

- By “freshness”
- By general “fruitiness” i.e. the intensity of that fruit

As we taste a range of Oregon Pinot noirs, focus on your impression of fruit quality, often referred to as “freshness” that is used to describe Oregon wine. After tasting the wines in the flight, contemplate where your impression of Burgundy (taken from your mental library of such wines) might fall in relationship to the Oregon wines. Do the same for your impression of California Pinot noir. Is the Burgundy more or less about fresh fruit than the Oregon examples (or roughly the same?) Where would it fall on the “jammy” scale? What about the California Pinot?

The second category is “**Texture.**” Here we are talking about how you perceive a wine in your mouth, as distinct from the wines aromatics.

- Acidity (grapes have acid and wines need acid for freshness and ageability)
- Tannin (grape skins and oak have tannins; tannin can be bitter, astringent or mouth-filling.)
- Richness (this refers to a range of wine components that make a wine feel “big” – alcohol, complex sugars called polysaccharides, oak sugars, etc.)

After several years of doing this workshop, a consensus has developed that these general attributes can be used to identify what is unique in Oregon Pinot noir.

- On the “freshness” scale, Oregon Pinots are likely fresher than their generally jammier California counterparts.
- On the “intensity” scale, Oregon Pinots are going to be more intensely fruity (as a general statement) than Burgundies.
- On the “acidity” scale, Oregon Pinots often seem like they have a little more acidity than California Pinots.
- On the “tannin” scale, Oregon Pinots are generally between the less tannic Burgundies and more tannic Californians.
- On the “richness” scale, Oregon Pinots have a similar middle position between Burgundy and California.

BACKGROUND

In order to understand how Pinot noir is affected by the winemaker, the vintage and the region in which it is grown, one must first comprehend a few fundamentals: the details of a specific site, the vintage, the winemaker, how growing conditions affect grape vines and how winemaking decisions affect finished wine. We will begin with very broad concepts and then focus on the details.

Oregon Pinot Noir

Pinot noirs made in Oregon are different from those made in other areas in the world. The basic geography, the balance of climatic influences from continental and marine weather patterns and the seasonal variations are different. If we accept that Pinot noir is reflective of its place, and there is a broad consensus that this is a valid assumption, then the real question is how to describe Pinot noir’s response to being in Oregon. One method of understanding the regional characteristics of Oregon Pinot noir is to evaluate a large group of Oregon wines and compare them to large groups of wines produced elsewhere in the world. This can be complicated. Which groups do you choose? If vintage is a factor, which vintages do you compare? How do you choose the sites? Do you compare wines of similar price points? Do you only look at the most highly rated wines? What about winemaker choices? How many wines do you taste? How do you quantify “different?” Does the specific order of wines being tasted affect how they are perceived?

By gaining an overview of the diverse aromas, textures and flavors of Oregon Pinot noir and then comparing your mental picture of those wines to the Pinot noirs of another region, you can identify and describe regional differences. One of the fundamental questions posed by

Oregon winemakers in the early years was whether Oregon Pinot noirs indeed had a distinct personality. It was possible that the range of Oregon Pinot noir might mimic the range of Burgundy or California. As more wines were produced and tasting experience increased, a consensus developed that there was indeed a distinct personality to Oregon Pinot noir when taken as a group. It is crucial to understand that a specific wine from a specific producer might be very different than the average of the group and be perceived as actually similar in style to another region. These individual distinctions do not invalidate the general perceptions of a region. Rather, they validate the powerful influence of vine mesoclimate, vintage and winemaker.

Pinot noir has been made in Oregon for more than a half century. It is the most important variety produced in Oregon and is accepted as an important regional wine by sommeliers and wine merchants throughout the world. There is now a general agreement about what “Oregon style” encompasses and how Oregon Pinot noirs differ from wines made in other parts of the world.

PERSONALITY OF THE WINEMAKER

A major influence on the personality of Pinot noir is the winemaker. Given the responsiveness of Pinot noir as a grape to the region, site and vintage, it is not surprising that the personality of the winemaker plays a role in the wines they make. Winemakers make a wide range of decisions affecting the way grapes are grown and the way wine is produced. Each decision moves the wine in one direction or another, subtly or dramatically affecting its evolution into finished wine. These decisions, individually and as a group, evolve out of a winemaking philosophy. Sometimes that philosophy is carefully considered and rigorously analyzed, and sometimes it is instinctual. It is always a reflection of the personality of the winemaker.

Style Influences

Winemakers vary widely in their background, training, cultural traditions and basic personality. A European transplant coming from a family of vigneron will have a different approach to the winemaking process than someone with a graduate degree in enology from UC Davis. Someone with a Type A personality approaches fermentation decisions differently than an ex-theology student. Life experiences and palate differences, even genetics, can play a strong role in how a winemaker approaches the decision process, even if their philosophies are very similar. Each of us has taste buds that are wired differently, and we do not perceive the same aromatic compounds in the same way. There are a significant number of compounds that a subset of the population cannot taste or smell. This is specifically true for compounds that are associated with reduction in wine. What may be a noxious odor indicative of a major wine flaw for some is imperceptible to others.

Basic approaches to controlling the winemaking process vary. It is not uncommon for winemakers to want to control each step and intervene if things deviate from the path they see as optimal. They may want grapes to be picked at specific sugar levels, acids, and pH. If they are not within those parameters, they may make adjustments. They control fermentation

temperatures; they control the microbiology by adding sulfur dioxide, yeast or other microorganisms. They may decide to adjust tannins, acidity, and use varying amounts of new oak to modify the wine's flavor profile. Other winemakers will pick grapes when they are ripe, let the fermentation proceed at will and rarely intervene at any stage of the process. Both can make excellent Pinot noir—they are just different in personality.

Some winemakers are very focused in the vineyard. They are, at heart, farmers who make wine. Nurturing vines, watching the seasonal patterns and responding to Mother Nature are their primary concentrations. The details of winemaking are less important to them. They believe that if the fruit is grown correctly, the wine will be good.

Others focus on the winemaking process. While they have specific ideas on crop level, fruit exposure and picking parameters, they relinquish the growing of the grapes to viticulturists. Once they decide to pick, they go into high gear, examining the fruit in all its nuances and visioning the process of transforming the grapes into wine. They care about the details of fermentation, how the tannins and color compounds will make the transition into wine. By using all their skills, they balance the level of tannin and flavor with the ripeness of the fruit and have a specific vision about how they will guide the winemaking process. These approaches produce different types of wines, and both have an important place in the world of Pinot noir.

Regardless of their background, winemakers make choices at various stages of the winemaking process. They make decisions about yield, fruit exposure, leaf pulling and harvest timing. They decide whether to delay fermentation by cooling the must or letting it proceed naturally. They may leave the wine in barrel for many months or bottle it early. Each decision is made to achieve a certain goal or effect. The choice may have a dramatic effect or be very subtle. In the end, the finished wine is guided by the sum of all the decisions made by the winemaker.

The choices winemakers make are based on their individual philosophies. These decisions direct the transformation of grapes into wine in very specific ways. The end result is presented in a bottle that reflects their hopes, aspirations and personality.

PERSONALITY OF THE VINTAGE

The vintage effect is not simple. Vintage can affect wines in their youth differently from the way it affects wines that have been aged. We know that some vintages produce wines that are showy as young wines. Other vintages produce tight and awkward wines when young that blossom beautifully with age. Although often dismissed as simply better or worse vintages, the way Pinot noir responds to vintage can defy such simple analysis.

Wine grapes grown in marginal conditions will inherently have vintages in which optimal harvest chemistry varies. Small changes in average nighttime temperature can significantly change the acidity level and balance in the wines. The date of flowering significantly affects the timing and expected weather conditions at harvest. More or less sun will impact the quality and intensity of the fruit. Warmer or cooler conditions at the end of ripening can have a dramatic

effect on sugar and the resulting alcohol levels in the wine. How Oregon's vintages affect the way Pinot noir ripens creates structural differences in acidity, tannin, sugar levels and flavor profile. These small differences in the fruit at harvest impact the basic personality of the wines we produce. It is clear to both Oregon winemakers and consumers that our wines are influenced by vintage, both specifically and in general.

The timing of bloom varies significantly in Oregon, from late May through early July. The time from bloom to harvest is fairly consistent, from 100 to 110 days. Early bloom means the grapes will usually be harvested in September and late bloom can delay harvest well into October. The later the harvest, the shorter the day length, the cooler the conditions during the final ripening phase and the greater the risk of rain. Unfortunately none of this is predictable. July blooms resulted in many of the best Oregon vintages (1993, 1996, 1999, 2008 and 2010).

Conditions during the summer mainly affect the vegetative phase of the vine: the growth and development of the canopy. The pace of development is very steady and is only minimally affected by sun, heat, clouds and rain. The major effect of weather is the risk of disease, mainly mildew. Mildew damages both the leaves and developing clusters, reducing the ability of the canopy to provide energy to the vine. Clusters with significant mildew will not ripen properly or at all. Controlling disease is a major task of the grapegrower. Localized heat in the canopy over 90°F destroys mildew, while moderate temperatures encourage its growth.

At the midpoint of the 100-day season for the berry comes "seed hardening" or "lag phase." The size of the crop is about 50% of that at harvest, and this is the time when decisions about thinning to adjust the final vineyard yield can most accurately be made. Winemakers and viticulturists vary in how they thin, when they thin and how much they thin, but all agree that this is the last time that thinning will affect the way the crop matures. The goal of thinning is to find a crop level that will allow the fruit to fully ripen before the growing season ends. A large crop needs more thinning. A late season is less likely to have adequate sun and heat to ripen a large crop and the thinning is more severe. Later thinning does not appear to alter ways the flavors develop in the fruit or the acid/sugar/pH balance in the berries.

The real action begins at veraison, when the Pinot noir clusters change color. This is the time when the berries begin to soften, the acids drop, the sugar rises and the skins begin developing the complex phenolic compounds that create the color and flavor of Pinot noir. It takes one to two weeks for complete coloring to occur. At this point the final ripening stage begins. Photosynthate transport focuses on the fruit maturity and carbohydrate storage, not vine growth. This is the time flavors develop. The way this occurs in each site and growing season creates balance of sugar, flavor and acidity that defines the vintage.

The interaction of site, farming practices and variations in temperature and rainfall create such a complex pattern of grape maturity that labeling a vintage as good or bad and either condemning or lauding all of the wines of a region is absurd. In reality, the vintage provides an opportunity to create wines that either reflect or do not reflect the particular nature of the

grapes as they matured in that vintage.

This becomes even more complex because winemakers have different goals. These goals are often based on picking grapes with a specific level of maturity and flavor profile. There is not one “perfect” level of Pinot noir maturity. In fact, winemakers vary widely in what they consider optimal maturity. Vineyards are often picked over two or three weeks, not so much because of varying maturity within the vineyard, but rather because winemakers look at ripeness differently. If your goal is to make a rich, fruit-dominated wine with a high level of concentration, then a low-yielding vineyard picked at a high level of ripeness will provide the material you seek. Warm, sunny conditions during the final ripening phase, more common in an early season, will make it more likely to achieve that goal.

Another winemaker makes wines with a solid backbone of acidity, more nuanced flavors, less intense color and a desire for slow, steady evolution of their wines over many years. A low yielding, hot, early vintage will mature the fruit too quickly, the acids will drop precipitously, and the flavors will be relatively simple, making it difficult to pick the fruit that winemaker seeks. A cooler, cloudier fall with a more moderate crop level can provide that winemaker with nuanced flavors and a better backbone of acidity to achieve those goals. Given identical seasons, these two winemakers will experience the vintage very differently.

The conditions in which Pinot noir ripens in a specific vintage are not consistent within the Willamette Valley. There is no uniform maturity that describes the grapes picked in a specific vintage. “Vintage” is not a homogeneous concept. Over the decades some patterns of maturity or seasonal similarities, however, have emerged. We can describe the conditions at harvest and make some generalizations about how Pinot noir matured that are helpful in gaining an overview of the wines and how they evolve over time. While the range of wines made in a particular vintage is broad, a great deal of the variation is dependent on the quality of the site and the skill of the winemaker.

“Great” vineyard sites are great mostly because they produce the best grapes in the most challenging vintages. “Great” winemakers are great because they make the best and most consistent wines when the fruit is less than perfect. They say that if you cannot make good wine in a great vintage, you should get another job. In a more difficult vintage, the best winemakers make the best wines.

WHAT DO WE MEAN BY “OREGON”?

Oregon is a large state with several major growing regions and 23 approved American Viticultural Areas. Pinot noir is the most important variety in the Willamette Valley. There are also plantings in the Umpqua and Rogue Valleys, and Columbia Gorge and Walla Walla Valley. The vast majority of Oregon’s Pinot noir comes from the Willamette Valley, an elongated region stretching from west of Portland to the hills just south of Eugene. For the purposes of this discussion, however, we will adopt the common usage “Oregon,” even as we recognize that we are often speaking of a much smaller area.

How can we speak of defining characteristics for the thousands of Pinot noirs made in Oregon each year? Even after admitting that Oregon has many different places—and climates and soils—it also has many winemakers with their own ideas about style.

Regional Growing Conditions

In Oregon's Willamette Valley, Pinot noir is considered to be an excellent match for the climate. Pinot noir is a cool-climate variety thriving in regions with moderate accumulation of heat during the growing season. Given the required cooler and shorter growing season, it blooms relatively late, often in mid- to late-June. Maturing about 100 to 110 days after mid-bloom, Pinot noir achieves optimal ripeness in early- to mid-fall.

The Willamette Valley is located in the northwest corner of Oregon and is centered 50 miles east of the Pacific coast. It is situated between two mountain ranges, the Coast Range to the west and the Cascade Mountains to the east. The northern border is the hills surrounding the Columbia River Valley and the southern boundary is the hills just south of Eugene. It is an oval about 100 miles long by 35 miles wide. The 2,000-3,000 foot mountains in the Coast Range provide a barrier protecting the Willamette Valley from cool marine air during daytime hours. The valley heats up during the day with expanding air preventing an incursion of cool air from the coast.

In the evening, cool breezes begin blowing over the Coast Range eastward into the valley. This rapidly cools the warm valley air, and the temperature often drops 30°F over a span of one to two hours in the early evening. These cool evenings and nights slow the vine's metabolism, retaining acidity. This higher acidity is a fundamental characteristic of Willamette Valley Pinot noir.

The most direct and rapid diurnal change of temperature is around the Van Duzer Corridor, a natural pass through the Coast Range 20 miles west of Amity. In addition to its namesake AVA, established in 2019, the McMinnville AVA (American Viticultural Area) forms the northern mouth of the Van Duzer and experiences the most rapid temperature drop. The Eola-Amity Hills lie directly east of the Van Duzer mouth and experience a similar effect. Although the other nested AVAs of the Willamette Valley cool significantly in the evening, the temperature change is less abrupt.

The Willamette Valley is essentially arid after bloom until the return of the rains in mid- to late fall. Coastal weather patterns come from the Pacific and the Gulf of Alaska. The jet stream forces those fronts far to the north during the summer and early fall. It is not unusual for there to be less than one inch of precipitation between early July and late August, which reduces disease pressure.

Sited at or slightly above the 45th Parallel, the day length in Oregon is significantly longer than in California around the time of bloom, in mid-June. Compared to California Pinot noir-

growing regions, like Russian River and the Sonoma Coast, Oregon in early summer experiences an additional 75 minutes of sun each day. This provides a boost during the grapes' vegetative phase. However, Oregon's day length is significantly shorter in October compared to Sonoma. In the fall season, vineyards farther north intercept the sun at a lower position in the sky, with the resulting reduction in the intensity of the solar radiation. This slows down the vine during the ripening phase (post veraison or color change) allowing longer period for flavor development. The temperatures are often cool, especially at night, allowing the grape to retain more of its natural acidity. This provides a natural advantage for ripening Pinot noir in Oregon. The accumulation of sugar in the berry is caused by sun and heat. The development of flavor requires time.

Rapidly decreasing day length in the fall sends a strong "message" to the vine to shift its hormonal regulation from vegetative growth to fruit ripening and seed hardening. The cooler, shorter days with a lower angle of incidence to the sun slow down the plant's metabolic cycle. This allows the flavor to mature before the sugar level becomes excessive. These cool, short and usually sunny days allow Pinot noir to develop a complex flavor profile while maintaining a good balance of sugar and acid. The combination of cool temperatures, shortening day length and low-intensity sunlight provides the perfect ripening conditions for Pinot noir. In most years, the cycle of fall rains does not begin until after Pinot noir is harvested in October. From July to September, the Willamette Valley has low humidity and warm daytime temperatures with few clouds and no fog. The region is essentially protected from the Pacific Ocean.

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APPENDIX

OREGON WEATHER AND HARVESTS: A VINTAGE REVIEW

1985: The vintage was hot and dry from beginning to end. Harvest was in late September, under ideal conditions. Crop was a bit short. Also noteworthy was frost on May 11th and 12th, which affected many locations near the valley floor. Quality was good to excellent.

1986: The year started early, with buds bursting around March 20th. Bloom was somewhat early. The summer was hot, with the year tracking very close to 85°F until 3" of rain fell in September. Good weather returned at the end of the month, but the poor weather during fruit maturation diminished the quality of the Pinot noir vintage somewhat. Some excellent Chardonnays were made. Quality was average to good.

1987: Very hot, dry vintage with a September harvest. Grapes harvested in hot conditions. Sugars sometimes reached maximums before flavors developed. Quality was poor to very good.

1988: The lack of rain in the fall and early winter of 1987 led to a peculiar malady in 1988 called "late fall drought-induced Boron deficiency." The result was a very poor set and resulting small crop. Nonetheless, 1988 was a classic Oregon Pinot noir vintage, with cool temperatures and a long, dry fall. Quality was good to excellent.

1989: In the late winter of 1989, Oregon suffered a severe freeze with temperatures at below -5°F. The consequence was moderate to serious vine damage and bud damage in the spring of 1989. Crops were significantly reduced. The vintage was characterized by a late bud break, but a hot summer and fall. Harvest was in September. Quality was good to very good and the quantity was short.

1990: Very cold conditions in December of 1989 caused bud damage, which led to the third straight year of short crops in Oregon. The vintage resembled 1988, with a long cool year and a dry fall. Quality was very good to excellent.

1991: A long, cool spring pushed bloom into late June and early July. The rest of the season was, however, ideal with an extraordinary, long, warm fall. The crop was good. Because of the late harvest, quality was enhanced by severe thinning. Quality ranged from average to very good, depending on cultural practices.

1992: This was the hottest year in Oregon's brief modern viticultural history. The harvest ranged from early to mid-September. Fortunately, the heat relented somewhat at the end of maturity, allowing many producers to make wines of outstanding quality. The experience of 1987 may have aided producers in making their cultural and picking decisions. Crop was good. Thinning was required to be successful. (The earliest harvest to date.) Very fruit-

forward, many did not age well.

1993: This may become another classic Oregon vintage. Bloom was in late June. Harvest was relatively late, but the fall was warm and relatively dry. The crop was average. Thinning generally enhanced wine quality. The wines developed slowly, but are some of Oregon's best after a decade or more of aging.

1994: A highly ballyhooed vintage, this was a short, dry and warm harvest. Thinning was unnecessary, with most vineyards having crop loads under two tons per acre. Alcohols are moderately high, extraction huge and the reception by press predictably strong. Seen as the best vintage released to date by some, with 1998 rivaling it. Ageability was variable, wines with better acidity have stood up well. Those picked very ripe with lower acids were better consumed in their youth (which most were). The very small yields and production made both these vintages financially challenging for wineries and growers. (The driest growing season to date.)

1995: A vintage with rain at harvest ending a good growing season shy of full maturity at many sites. A moderate to good yield and heavy rains for a week or more in the middle of harvest meant many wines lack the depth of fruit and color that others have. The vintage made some very elegant-styled wines at the single vineyard and reserve levels. Unfortunately, following on the heels of 1994, it was reviewed poorly by many critics. It also has evolved well over the long term.

1996: The second rain-affected harvest in a row, fruit in this year was closer to fully ripe when a few days of rain arrived, resulting in almost normal size and richness in the Pinot noirs. The vintage yields were slightly below normal levels but not as low as 1994 and 1998, plus in all years since 1994 more winemakers are choosing to crop-thin to achieve intensity. A fat, rich vintage considered the best of the rain years by critics.

1997: The last of the three rain vintages, this year showed great promise until the skies opened. Crop loads promised the largest harvest yet and they were almost ripe when rains came. Unlike the prior two vintages when the rains stopped for post-rain ripening, 1997 remained wet. Botrytis pressure was high and earlier-picked vineyards and those who sorted and crop-thinned fared better. Very good structures bordering on tannic, plus slow-to-evolve fruit have made this vintage unpopular with critics, although excellent producers made stellar wines that have aged well.

1998: Glorious wines, just not many of them. A large 1997 crop sapped vine energy and damp, cool weather at bloom doomed this vintage to short crops. But, that meant with a normal ripening season and no early rains, deeply extracted and highly structured wines could be produced. Crop loads were even smaller than 1994 and the wines were big, but would require time in bottle to regain their lushness and finesse. Possibly the best vintage to date.

1999: Bloom was very late and was followed by a very cool growing season. There was much concern about whether the crop would ever ripen, and a full crop load hung in most vineyards. We would need two months of almost perfect weather to fully ripen the fruit. Many vineyards were severely crop-thinned as a precaution, but the weather was perfect through early November. If growers and winemakers were patient, the fruit was perfect. Many of the best wines are as good as 1998, some claiming to be better. Some variability can be expected, as some panicked and picked early, not trusting Mother Nature. An almost Burgundian level of acidity will make this vintage ageworthy.

2000: The 2000 growing season was almost perfect, starting early in both bud break and bloom, setting a full crop in vineyards and thus giving a chance to precisely choose optimum yields with crop thinning. During harvest, which started the last week of September and lasted until the last week of October, only 1.1" of rain fell, with very good ripeness and moderate to good acids. Colors and extractions on the Pinot noir cuvees were excellent, acids good but not as firm as 1999 and fruit totally ripe without disease pressure. Third-in-a-row, 2000 was an average of the prior two vintages' characteristics. In a word, a "pretty" vintage.

2001: This year produced a soft, big vintage. It saw almost ideal growing and ripening weather and less than an inch of rain during harvest. This is not a typical cool-climate vintage, since acids are as low and ripeness as full, despite above average yields before crop thinning, as we've seen since perhaps 1987. The Pinot noirs will be soft, fleshy and early appealing, with moderate colors. Whites will be full and broad, and early maturing. The alcohols are restrained slightly by yields that didn't force extreme extraction. The wines were lighter, slightly harder and not as well-reviewed by critics. Perhaps the weakest vintage of the excellent 1998–2003 string.

2002: An extended, dry and moderately warm harvest put the finishing touches to what may be one of the best two or three vintages Oregon has seen—perhaps best ever for whites, close to best for reds. A slightly early bud break ushered in a warm, dry growing season with excellent heat summations, but not heat spikes. An inch of rain in mid- to late-September corrected imbalanced high sugars and low pH and set the stage for an extended harvest of well over a month for Pinot noir. Harvests of young fruit prior to this only rain event may give some elevated alcohols. Crop loads were full, requiring precise green harvesting for full ripeness and extraction. Excellent acidities due to moderate temperatures throughout the growing and harvest period make this a richly ripe but structured vintage, both for whites and reds.

2003: This is an excellent vintage, albeit unusual in the fiery nature of the growing season. The same dry and warm growing and ripening seasons held for 2003, with Region II (not cool-climate!) heat accumulations of 2,500 units, average highs of 78°F July-October, and half the normal rainfall with 2.75". Fruit was disease free, crop set was generous enough for easy honing to desired levels and soil moisture was adequate due to good pre-season winter

rains. Concerns regarding this vintage center on high sugars, resultant high alcohols and low acids. Most comparable past vintages, like the excellent 1992, may urge us not to worry.

2004: This vintage started out as a carbon copy of 2003, but thankfully cooled off and got needed rains in late August and then again in mid-September before most vineyards' final ripening phase. What a difference some rain makes! Young and early vineyards that were almost ready to harvest the first week of September could have done without the rain, but the rest thought it a blessed relief and assured nutrient mobility in the vines. A short crop due to poor weather at set, extreme temperatures the prior vintage, and vineyard growth irregularities, plus growing season heat (2004's Degree Day 2404 compared to 2003's 2535 in McMinnville) make 2004 properly plump and extracted, but with restraint—average Brix down 1%. An interesting vintage—almost an average of 2001, 2002 and 2003, with perhaps a little more variability in reds and more structured, brighter whites similar to 2002.

2005: Although moderate in temperature, this was the coolest vintage of the last six years. It got off to a very early start (March bud break), but the weather turned cool and rainy in late May and June, leading to a late bloom and reduced crop due to poor set. A warm and dry July and August followed. Fall was cool and it rained significantly late in September. Although most winemakers fear rain just prior to harvest, in Burgundy they say a good rainstorm in early September is a basic ingredient of a great vintage. 2005 was a classic example of fall rains providing balance to the fruit after a dry summer. There was almost no damage to the fruit from splitting or rot, and harvest followed in dry conditions over the next few weeks. There is significant excitement and pleasure over the quality of wines produced in this unusual vintage. The wines are well balanced and have moderate alcohol, good acidity and supple tannins.

2006: Thanks to favorable weather at bloom and an extended growing season, Oregon's 2006 vintage was characterized by that rare combination of plentiful crop, a warm and dry growing season with little precipitation and modest disease pressure. A hot, dry, eastern wind just prior to harvest caused dehydration at many sites, boosting acid and sugar levels. Some panicked at the high sugar levels and picked before the grapes developed full physiological maturity. The resulting wines were rich and hedonistic. Higher than average alcohols were common. 2003 was the only vintage in recent times warmer than 2006, as measured by heat unit accumulation.

2007: This was a challenging Oregon vintage. Bud break and bloom occurred "on time," followed by a summer of above normal temperatures (over 100°F). September was slightly below normal, setting up the possibility of long hang times. A series of rain fronts progressed weekly across Oregon's vineyards, delaying harvest by two weeks or more. As flocks of migratory birds invaded the vineyards with each successive storm front, growers used bird netting for the first time. Harvest went in spurts in the dry windows between weekly weather events. Growers who thinned to lower yields and rigorously maintained spray schedules were rewarded with balanced and elegantly ripened fruit. It was possible, but

not easy to pick with ripe tannins, layers of complex and subtle flavors and a solid backbone of acidity. Many of the white wines achieved significant critical acclaim; the best of the Pinot noir wines have benefited from bottle age and are expected to age very well.

2008: Hailed by many as the “best vintage of the last 20 years,” Oregon’s 2008 started with a very late bud break—almost a full month late. It rained just enough in September to keep the vines working steadily. The weather throughout October was perfect: moderate temperatures during the day and cool nights allowed fruit to ripen slowly and evenly, with no real disease pressure. Surprisingly, the vintage ended with very low accumulated Degree Days—a mere 1976. Extremely well-balanced wines were produced with complex fruit flavors, excellent acidity, well-developed tannins and moderate alcohols. The downside was very low yields and small quantities of wine.

2009: Excellent weather during bloom created unusually large clusters with very high berry counts. Vineyards thinned to one cluster per shoot still achieved record yields. Weather during harvest was warm and dry. There was a distinct difference between vineyards located above McMinnville where there was significant dehydration and loss of acidity. Vineyards below McMinnville had little dehydration, normal acidity and a later harvest window. High yields and good quality fruit will help wineries recover from the small volume of 2008.

2010: Overall, this was the coolest growing season in the past 30 years. After a brief period into the 70’s in mid-May, there was no real warmth until mid- and late-June. There were a few brief bouts of heat into the 90’s in August, but September and October were mostly in the 60’s and 70’s. Our saving grace was an extended period of sun in October, 13 days, which allowed the skins to mature their tannins. Low sugars at harvest resulted in moderate alcohols. The wines have good acidity and the vintage also produced very good white wines. The Pinot noirs have well-developed flavors, especially given the relative coolness of the growing season. They are very textural in the mouth, unusually so, are capable of clear expressions of site and will be great food wines. Bird predation was a huge issue near harvest time.

2011: A very cold spring resulted in delayed bud break and the latest bloom in Oregon’s history, occurring in early July. The summer was warmer than normal producing a good canopy and lower than normal disease pressure. Veraison occurred in September and at some sites, the grapes were not fully colored until early October. Cloudy and wet weather in early October increased the disease pressure, but then the weather cleared and was sunny into early November. For most Willamette Valley sites, this was the latest harvest on record. Low sugar, solid acidity and decent flavor development produced surprisingly generous wines from the better sites, especially if picked late in October and early into November.

2012: A cool spring with record moisture in June resulted in a slightly delayed bloom that was interrupted by cool, wet weather. This resulted in an extended period of flowering, diminished berry fertilization and some bunch stem necrosis. Consequently, the clusters had

reduction both in absolute number and in the number of berries per cluster, significantly reducing the crop. Spring was followed by a beautiful, sunny, warm and dry summer, with the longest dry period in the Willamette Valley's history, over 100 days. The lovely weather continued into October with harvest occurring in mid-month. The grapes achieved ideal ripeness and wines have lovely ripe tannins, moderate alcohols and nice acidity. This is potentially one of Oregon's best harvests.

2013: A Tale of Two Harvests—one very early and one normal, with rain in between. They started as one very early harvest thanks to a very consistent, warm growing season, the warmest on record up to final ripening mid-September. An unanticipated 30-year rain event of 5" then appeared the last days of September, made of remnants from a typhoon that had hit Japan days before, ushering in a spate of cool weather, interrupting the season, slowing ripening and turning it into two discrete picks, with early Pinot noir ferments already in barrel before remaining grapes were ripe and picked! Although grapes ripe during the rain were vulnerable to botrytis, earlier and later picks showed very good quality, with many considering the coolness and longer hang-time a big benefit, preserving acidity and flavors, while minimizing alcohol. Color, texture, balance and acidity on the whole were good for the vintage. Croploads were moderate to high, except for blocks and varieties lost to the rain.

2014: 2014 was one of those rare vintages when everyone is excited—writers and winemakers love the quality, grape growers had no handwringing to do and yields pleased bankers, which also means customers will see reasonable prices! Wine quality is excellent, based on full ripeness, probably the cleanest fruit we've seen in decades, and restrained extractions in fermentation to compensate for the warmest growing season on record assure balance. Despite the warmth of over 2800 degree days, driven by many very hot summer days (almost double the over 90F highs we've recently seen at 29) and warmer lows, good cropload balance and harvest timing gave reasonable alcohols, averaging just under 14%. Whites are lush and gorgeously fruited. Pinot noir colors are appropriately rich but not too deep, wines not tannic or over-extracted, and all's right with the world.

2015: Here, have a cigar! We just had twins, one year apart. The 2015 vintage was slightly different in early growing season timing from 2014, but the final effect was the same, with big heat, big crop and big expectations. The acids are down, the alcohols are slightly over 14% on average and the work many did to minimize over-extraction resulted in more elegant wines than a hot vintage deserves. Similar to 2014. Also as in 2014, the fruit was impeccably clean and devoid of disease, with only a little sunburn being tossed from the sorting conveyor. Whites again look fully ripe, texturally rich, and yet balanced. Pinot noirs will rival 2014 for rave reviews.

2016: This is the year of *Earliest Ever*. The winter was warm, budbreak was early and 2016 never looked back—bloom, veraison, and harvest all early records, beginning harvest in August and done before October. Although early, the growing season wasn't as hot as the prior three, but still in the same new, warm norm. Fruit is fully ripe but not overripe, with

moderate alcohols, good enough acids and intense, easily extracted, dense wines, from 15% smaller berry sizes and yields. Potentially an excellent-to-classic vintage. Finally dialed back a little.

2017: At first, 2017 looked like an extreme opposite to 2016, with very late budbreak and bloom following a wet rainy season. However, abnormally warm and dry months then took over, and the heat gave full ripeness to the fruit despite a large crop load. September's 2.06 inches of rain had only a refreshing impact, and the rain coincided with cooling weather, which means acid brightness was well retained. Normal harvest timing and excellent picking weather yielded complexity along with the riper favors.

2018: We cruised into the 2018 harvest after an early budbreak and bloom, a comfortably warm spring, and those precious, cool summer evenings that make our eyes light up. The stellar prospect of the vintage was heightened by a "cool" final ripening compared to most of the previous five, and zero disease pressure, thanks to coastal and ridge-top breezes and the absence of rain. Rich favors with an edge of restraint, combined with the lift of gentle acidity, made 2018 textbook perfect from our vantage—and worthy of all the hype.

2019: 2019 was a cooler, slightly damp vintage resembling the good old days. Rain hasn't been typical recently, yet rain was the cause of 2019's flattened heat accumulation from late September on, yielding a harvest that accumulated only 15 degree-days of heat while dropping almost an inch of rain. Concentration, depth of flavor, color and structure are present with restraint in Pinot noir, if protected from botrytis and held to gain complexity with hang-time. White wines loved the bright, tense, sea and mineral ripeness of the year. We're pleased to see an old friendly vintage again—to confirm medium-term memory passes the test!

2020: Winemaking gets tested some years, like 2020. All the climate and grapegrowing underpinnings for greatness were there, with little rain and sufficient but not overpowering heat. The test for wineries in 2020 was not weather but wildfire. Depending on where the grapes were grown relative to the fires and their smoke, varying degrees of impact affected aromas, flavors and textures. As a result of winemaking methods, pick date and site, some wines were unaffected, while others needed ingenuity to dodge wildfire effects. White wines pressed immediately were unscathed if made well, while red wines benefited from a lighter touch in extraction. How good 2020 will be—with a close-to-perfect growing season and concentrated fruit from low yields—may depend on how a complex wisp of campfire is eliminated, or if not, embraced. Grapegrowing is farming after all, and winemaking sometimes an attempt at alchemy.

2021: 2021 has the makings of a hard-won bullseye. Despite a growing season with searing heat spikes (116F), 2021 was a moderate vintage, thanks partly to a quick harvest response to rapid ripening. Hot and dry, 2021 sported a 5-day stretch that averaged 103F highs and a three-month growing season dry spell of 92 days, with a mere 0.02 inches of rain. Drier

vintages bless us with reduced disease pressures and generally picture-perfect fruit clusters. Yields were variable, due to interrupted flowering by the last rain of early June and small berries from near-drought conditions of the growing season. With full ripeness and, ironically, very good acidity, 2021 wines may ultimately resemble 2018 in concentration and 2014-17 in size. Winemaking decisions will determine the finesse and grace with which the latter is carried.

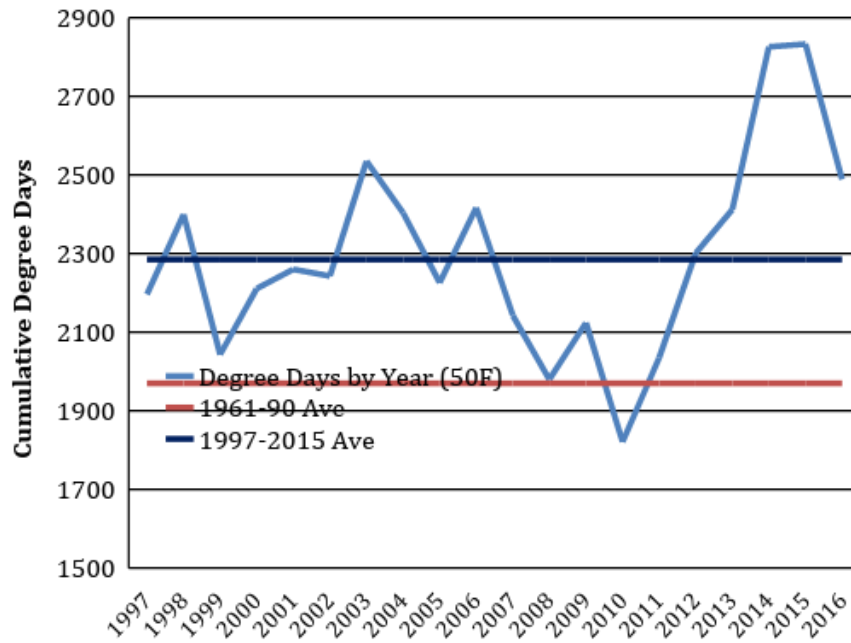
| TEMPERATURE MEAN AND EXTREMES, PLUS RAINFALL | | | | | | | | | |
|---|----------------------------|-----------|-------------|-------|------|--------------|-------------|------------------|-------|
| | McMinnville, OR Airport | Day Count | | | | | | | |
| | | Mean High | Max Temp | > 80F | >90F | Rainfall(in) | Mean Low | Diurnal Delta | |
| 2008 | May | 67 | 97 | 4 | 1 | | | | |
| | June | 71 | 99 | 5 | 1 | 0.98 | 45.3 | 25.7 | |
| | July | 82 | 96 | 20 | 6 | 0.02 | 50.2 | 31.8 | |
| | August | 80 | 102 | 14 | 5 | 0.46 | 52.8 | 27.2 | |
| | September | 79 | 92 | 15 | 3 | 0.23 | 45.6 | 33.4 | |
| | October | 63 | 75 | 0 | 0 | 1.98 | 39.8 | 23.2 | |
| | | | | 58 | 16 | | | | 28.26 |
| 2009 | May | 69 | 89 | 5 | 0 | | | | |
| | June | 74 | 87 | 6 | 0 | 0.15 | 50.1 | 23.9 | |
| | July | 86 | 105 | 23 | 11 | 0.42 | 52.8 | 33.2 | |
| | August | 80 | 96 | 15 | 5 | 0.5 | 51.2 | 28.8 | |
| | September | 77 | 95 | 12 | 2 | 0.57 | 48.1 | 28.9 | |
| | October | 62 | 70 | 0 | 0 | 1.82 | 40.6 | 21.4 | |
| | | | | 61 | 18 | | | | 27.24 |
| 2010 | May | 62 | 76 | 0 | 0 | | | | |
| | June | 69 | 82 | 4 | 0 | 2.36 | 46.5 | 22.5 | |
| | July | 81 | 96 | 17 | 5 | 0.1 | 49.5 | 31.5 | |
| | August | 80 | 99 | 14 | 6 | 0.04 | 50.2 | 29.8 | |
| | September | 74 | 89 | 7 | 0 | 1.84 | 50 | 24 | |
| | October | 64 | 80 | 1 | 0 | 4.98 | 41.6 | 22.4 | |
| | | | | 43 | 11 | | | | 26.04 |
| 2011 | May | 61 | 72 | 0 | 0 | | | | |
| | June | 70 | 85 | 2 | 0 | 0.77 | 49 | 21 | |
| | July | 78 | 90 | 12 | 0 | 0.71 | 51.4 | 26.6 | |
| | August | 83 | 97 | 24 | 6 | 0 | 53 | 30 | |
| | September | 81 | 96 | 17 | 8 | 0.65 | 41 | 40 | |
| | October | 63 | 76 | 0 | 0 | 2.25 | 46.5 | 16.5 | |
| | | | | 55 | 14 | | | | 26.82 |
| 2012 | May | 68 | 87 | 3 | 0 | | | | |
| | June | 69 | 84 | 3 | 0 | 2.89 | 49.9 | 19.1 | |
| | July | 80 | 90 | 19 | 0 | 0.16 | 43.9 | 36.1 | |
| | August | 85 | 102 | 20 | 9 | 0.03 | 52.7 | 32.3 | |
| | September | 80 | 96 | 14 | 3 | 0.05 | 46.6 | 33.4 | |
| | October | 65 | 88 | 2 | 0 | 6.1 | 45 | 20 | |
| | | | | 61 | 12 | | | | 28.18 |
| 2013 | May | 69 | 86 | 7 | 0 | | | | |
| | June | 76 | 96 | 10 | 2 | 1.14 | 50.6 | 25.4 | |

| | | | | | | | | | |
|-------------|-----------|----|-----|----|----|------|------|------|-------|
| | July | 86 | 96 | 23 | 7 | 0 | 51.8 | 34.2 | |
| | August | 83 | 95 | 22 | 4 | 0.68 | 55.6 | 27.4 | |
| | September | 73 | 96 | 9 | 2 | 5.22 | 53 | 20 | |
| | October | 64 | 77 | 0 | 0 | 0.7 | 38.6 | 25.4 | |
| | | | | 71 | 15 | | | | 26.48 |
| | | | | | | | | | |
| 2014 | May | 71 | 89 | 5 | 0 | | | | |
| | June | 74 | 86 | 5 | 0 | 2.35 | 49.6 | 24.4 | |
| | July | 87 | 98 | 25 | 14 | 0.41 | 56 | 31 | |
| | August | 87 | 98 | 26 | 10 | 0.15 | 55.6 | 31.4 | |
| | September | 80 | 97 | 15 | 5 | 1.33 | 52 | 28 | |
| | October | 69 | 89 | 5 | 0 | 6.49 | 49 | 20 | |
| | | | | 81 | 29 | | | | 26.96 |
| | | | | | | | | | |
| 2015 | May | 71 | 85 | 4 | 0 | 1.19 | 47 | 24 | |
| | June | 83 | 99 | 21 | 9 | 0.45 | 52 | 31 | |
| | July | 88 | 106 | 25 | 12 | 0 | 55 | 33 | |
| | August | 85 | 103 | 26 | 5 | 0.67 | 54 | 31 | |
| | September | 76 | 96 | 9 | 2 | 0.86 | 48 | 28 | |
| | October | 69 | 96 | 3 | 0 | 4.58 | 47 | 22 | |
| | | | | 88 | 28 | | | | 29.00 |
| | | | | | | | | | |
| 2016 | May | 71 | 89 | 7 | 0 | 0.89 | 47 | 24 | |
| | June | 77 | 92 | 9 | 2 | 1.44 | 51 | 26 | |
| | July | 81 | 97 | 15 | 3 | 0.35 | 54 | 27 | |
| | August | 86 | 102 | 24 | 13 | 0.33 | 53 | 33 | |
| | September | 76 | 90 | 9 | 2 | 0.48 | 46 | 30 | |
| | October | | | | | | | 0 | |
| | | | | 64 | 20 | | | | 29 |

Vintage notes provided with significant assistance from Ted Casteel, Harry Peterson-Nedry, Scott Shull and Mark Vlossak. Heat accumulation data provided by Harry Peterson-Nedry.

| | DEGREE DAYS BY YEAR (50F) | | | | | | | | |
|------------|--------------------------------------|--------------|---------------|---------------|---------------|---------------|-------------|-------------|------------|
| | McMinnville, OR Airport | | | | | | | | |
| | | 1-Jun | 16-Aug | 12-Sep | 12-Oct | 31-Oct | Aug to Sept | Sept to Oct | End of Oct |
| | 1961-90 | 203 | 1283 | 1635 | 1936 | 1970 | 352 | 301 | 34 |
| | 1997 | 363 | 1462 | 1902 | 2158 | 2196 | 440 | 256 | 38 |
| | 1998 | 293 | 1564 | 2030 | 2332 | 2400 | 466 | 302 | 69 |
| | 1999 | 213 | 1231 | 1676 | 1977 | 2043 | 445 | 301 | 67 |
| | 2000 | 309 | 1430 | 1782 | 2149 | 2211 | 352 | 367 | 62 |
| | 2001 | 411 | 1445 | 1823 | 2110 | 2260 | 378 | 287 | 150 |
| | 2002 | 312 | 1471 | 1843 | 2138 | 2243 | 372 | 295 | 105 |
| | 2003 | 343 | 1610 | 2064 | 2391 | 2535 | 454 | 327 | 144 |
| | 2004 | 367 | 1652 | 2080 | 2342 | 2404 | 428 | 262 | 62 |
| | 2005 | 327 | 1486 | 1897 | 2109 | 2226 | 411 | 212 | 117 |
| | 2006 | 358 | 1642 | 2115 | 2376 | 2417 | 473 | 261 | 42 |
| | 2007 | 355 | 1504 | 1958 | 2121 | 2143 | 454 | 163 | 22 |
| | 2008 | 252 | 1320 | 1683 | 1936 | 1980 | 363 | 253 | 44 |
| | 2009 | 244 | 1426 | 1852 | 2066 | 2124 | 426 | 214 | 58 |
| | 2010 | 164 | 1162 | 1478 | 1795 | 1821 | 316 | 317 | 26 |
| | 2011 | 94 | 1101 | 1634 | 1959 | 2035 | 533 | 325 | 76 |
| | 2012 | 340 | 1492 | 1888 | 2224 | 2301 | 396 | 336 | 77 |
| 4 of top 5 | 2013 | 385 | 1666 | 2189 | 2364 | 2412 | 523 | 175 | 48 |
| | 2014 | 398 | 1766 | 2283 | 2702 | 2826 | 517 | 419 | 124 |
| | 2015 | 439 | 1941 | 2373 | 2698 | 2833 | 432 | 325 | 135 |
| thru 10/10 | 2016 | 558 | 1787 | 2240 | 2489 | 2489 | 453 | 249 | 0 |
| | mean | 326 | 1508 | 1939 | 2222 | 2295 | 432 | 282 | 73 |
| | std dev | 101 | 209 | 234 | 238 | 259 | 58 | 63 | 43 |
| | | | | | | | | | |
| | 2016 Rank in DD | 1 | 2 | 3 | 3 | | 8 | 15 | |

Degree Days by Year (50F)
 Growing Season April-October 1997-2015 (Ave = 2254)
 McMinnville Airport



FURTHER RESOURCES

OREGON WINE RESOURCE STUDIO

<https://trade.oregonwine.org/>

AMERICAN VITICULTURAL AREAS OF OREGON

https://trade.oregonwine.org/resources/?fwp_topic=ava

WILLAMETTE VALLEY SOILS: THE DIRT ON OREGON WINE

<https://trade.oregonwine.org/resources/the-dirt-on-oregon-wine/>

SUSTAINABLE WINEGROWING IN OREGON

<https://trade.oregonwine.org/resources/environmental-stewardship/>

2021 OREGON VINEYARD & WINERY REPORT (SEPTEMBER 2022)

<https://industry.oregonwine.org/resources/reports-studies/2021-oregon-vineyard-and-winery-report/>