

THE STARGAZER

A NEWSLETTER FOR MEMBERS OF THE ADASTRA WINE CLUB

SPRING 2022

In this issue we review your Wine Club selections, the 2019 Adastra Merlot, the 2019 Boundless Optimism “America, America” Chardonnay, and the 2019 N’Oak Chardonnay, all wines made from certified organic grapes grown at the Adastra vineyard in the Napa Valley Carneros. We’ll summarize the 2019 growing year, provide two tasty recipes, and talk about “tears” - the vinous kind. Finally, Chris offers some tomato-growing tips. Thank you for your support. Cheers!

Chris Edwin

WHAT’S IN THE BOX?

2019 Adastra Merlot *Carneros, Napa Valley*

Brilliant ruby red in color, the 2019 Adastra Merlot has aromas of plum, cherries, sage, and spice. On the palate there are flavors of plum, vanilla, and clove, with notes of blueberry muffin, and a hint of black olives. Gentle, velvety tannins make this wine pleasant to drink now, though it will benefit from aging.

2019 Growing Year with Reference to our Merlot and Chardonnay

Over 18 inches of rain fell in the first three months of 2019, a welcome, but unusually moist start to the year. Chardonnay buds began to open in mid-March, with Merlot buds opening towards the end of the month. Frost caused some damage in the Chardonnay, but the Merlot escaped unscathed. April was warm and largely dry: roots well-supplied by moisture, the vines grew vigorously. May was a relatively wet—one week, we had 2.5 inches of rain.

Rain usually brings cooler weather, and the pace of vine growth diminished in response, but as soon as the rain stopped, the temperatures rose and the vines resumed their vigorous path. June brought some hot days, with temperatures peaking on June 10 at 102.3° Fahrenheit, the hottest day of the year. Normally we strategically remove some of the leaves around the cluster on the east-facing “morning side.” We try to leave an “umbrella” leaf above the cluster, but on vigorous vines we also remove laterals, sub-shoots growing (laterally) off the main shoots. This “canopy” management improves air circulation, which reduces the threat



2019 Adastra Merlot—Just the Facts

Grapes: Clone 6 Merlot
Yield: 4.4 tons per acre
Harvest Date: October 15, 2019
Bottling Date: June 3, 2021
pH: 3.53 **TA:** 6.0g/L
Alcohol: 14.9% by volume
Barrel Aging: 19 months in oak
Barrels: 100% French oak (33% new oak)
Cooperage: 1 new Taransaud, 1 second-fill Taransaud, 1 second-fill Demptos
Production: 88 cases
Additional Notes: 55-day extended maceration.
When Best to Drink: Now through 2035

of mildew and exposes the grapes to sunlight, which helps with color and flavor development, especially in red varieties. We are careful not to remove leaves on the west-facing “afternoon” side, because in the afternoon the temperature is usually hotter and the grapes can get sunburnt. The combination of very moist soils at the start of the growing season, along with the May rains, meant that more canopy management was necessary than in most years.

After June, the weather calmed down somewhat. There was a little rain in September (0.05”), which didn’t have much effect beyond keeping the dust down. We harvested Chardonnay on September 26. October had some cool nights, but the days were generally conducive to gentle ripening, so we were able to bring in flavorful grapes at reasonable sugar levels when we finally harvested Merlot and some Syrah in the early hours of

What's in the Box? *continued from page 1*

levels, and their pleasing flavors.

Once at the winery, the Merlot grapes were destemmed and placed in two S-Bins. The berries were very unjuicy, which meant though the yields of grapes were quite high, the yield of juice from those grapes was relatively low. The advantage of this is that the wine was more concentrated than might have been expected because of the relatively high skin to juice ratio. After two weeks, the wines had completed fermentation, at which point we sealed the bins for a period of extended maceration, allowing the formation of complex flavors and gentle tannins. The wine was pressed on December 9 and racked to barrel the following day. Prior to bottling, the wine was racked twice. Racking, which refers to the movement of wine from one place to another, exposes the wine to oxygen, which can help soften tannins, which is why we do it.

Having had 9 months to mellow in the bottle, the 2019 Adastra Merlot is ready to drink now, though it will continue to develop for a number of years. (We recently opened a bottle of 1995 Merlot, the first Adastra wine. It was a very pleasant, light, balanced wine. We wouldn't necessarily recommend waiting 25 years to drink the 2019 Adastra Merlot, but if you do, you may well enjoy the experience.)

2019 Boundless Optimism “America, America” Chardonnay *Carneros, Napa Valley*
**2019 Boundless Optimism “America, America”
Chardonnay Carneros, Napa Valley**
— Just the Facts

Grapes: Chardonnay Old Wente, Dijon 96 and 76 from the Adastra Vineyard

Yield: 2.28 tons per acre (3.04 tpa average)

Harvest Date: September 26, 2019

Bottling Date: August 12, 2021

pH: 3.40 **TA:** 5.4g/L

Alcohol: 14.7% by volume

Barrel Aging: 16.5 months in barrel, 6 months in tank.

Barrels: 100% American oak, 66% new oak

Cooperage: 3 Tonnellerie Ô barrels coopered in Benicia, two from Missouri-grown oak, one from Virginia-grown oak.

Production: 73 cases

Additional Notes: unfined, but filtered, because the wine did not complete malolactic fermentation. Cold stabilized.

When Best to Drink: Now through 2024.

The 2019 Boundless Optimism “America, America” Chardonnay is made from Adastra-grown grapes aged in American oak barrels. Possessing a beautiful golden hue, its predominant aromas are lemon, sour cream, maple syrup, oatmeal, nutmeg, roasted almonds, and roasted hazelnuts. On the palate there are citrus and stone fruit flavors along with a hint of minerality. Rich, creamy, and full in texture, the wine also has elements of buttered cinnamon toast, coconut and roasted nuts.

This wine was fermented in barrels and stirred on the lees. After 16.5 months, the wine was transferred to a tank, where it spent six months harmonizing flavors. In a departure from our normal practices, the wine was also cold-stabilized, chilled to allow for precipitation of excess tartrates. Bottled on August 12, this is a versatile wine, enjoyable on its own or with a wide array of food.



Tears

Let's say you are sitting in a room that's at least 68° Fahrenheit and you have a glass of wine in front of you of similar temperature. We'll call the wine in the glass the “bulk” of the wine. We'll call the surface of the wine “the meniscus.” If you carefully swirl the wine, a film of wine will form a ring around the inside of the glass, a distance above the bulk of the wine. After a few moments, streaks, commonly known as “tears” or “legs” will start to flow down from the ring. What is sometimes difficult to see is that the wine is also flowing upward to the ring. What is happening?

**PAIRING RECIPE 1 - 2019 BOUNDLESS OPTIMISM
CHARDONNAY “AMERICA, AMERICA”**

Vegetable Moussaka *Recipe adapted from Bon Appétit*



This is a delicious meal that requires a lot of chopping and other prep. It’s therefore best made when you have time and can devote yourself to the task. Once you’ve tasted the moussaka and the wine, you will realize the effort was more than worthwhile.

Active Time: about 1 hour 30 minutes

Final Baking Time: 45 minutes Total Time: 2 hours 15 minutes

Ingredients

3 1/2 pounds	Eggplant, cut into 1/4 inch rounds	28 ounces	Crushed tomatoes (Canned are okay)
1/2 cup (approx)	Olive oil	3 ounces	Tomato paste/puree
1	Large onion, finely chopped	1/4 cup	Chopped Italian parsley
1 cup	Finely chopped peeled carrot	1 cup	Grated Parmesan cheese
1 cup	Finely chopped celery	3/4 stick (6 table- spoons)	Butter
4	Garlic cloves, minced		
12 ounces	Portobello mushrooms, cut into 1/2 inch pieces	7 tablespoons (Just under 1/2 cup)	All purpose flour
1 teaspoon	Dried oregano	3 1/2 cups	Whole milk
1/2 teaspoon	Ground cinnamon	4	Large egg yolks

Preparation

1. Cover 2 baking sheets with paper towels. Sprinkle both sides of eggplant rounds with salt. Arrange eggplant in a single layer on paper towels. Let stand for 30 minutes.
2. Position first rack in bottom third of oven and second rack in top third of oven and preheat to 425° F.
3. Remove eggplant and paper towels from baking sheets. Pat eggplant dry.
4. Oil baking sheets. Brush both sides of eggplant rounds with 1/4 cup oil. Arrange in a single layer on baking sheets. Bake 10 minutes.
5. After 10 minutes, turn eggplant and rotate pans in oven. Continue baking for c.15 minutes more until tender.
6. Remove from heat and place to cool. Turn oven down to 350° F.
7. Meanwhile, heat 1/4 cup oil in a heavy large skillet or wok over medium-high heat.
8. Add onion, carrots and celery. Sauté until onion is very tender, about 12 minutes.
9. Mix in garlic, then mushrooms. Sauté until juices evaporate, about 10 minutes.
10. Mix in oregano and cinnamon. Add tomatoes and parsley. Cook until mixture is thick, about 10 minutes. Season with salt and pepper. (The cinnamon smells quite strong at this stage, but blends in nicely to the final dish.)
11. Lightly oil glass/pyrex baking dish(es). 13”x 9” x 2” should be adequate. If you intend to freeze some moussaka for later, you could make two dishes.
12. Arrange half of eggplant rounds in single layer in dish. Spoon half of tomato mixture evenly over eggplant. Sprinkle with 2 tablespoons cheese. Repeat layering with remaining eggplant, tomato mixture and 2 tablespoons cheese.
13. Melt butter in heavy medium saucepan over medium heat. Whisk in flour. Stir 2 minutes.
14. Gradually whisk in milk. Simmer until sauce thickens, stirring constantly, about 5 minutes.
15. Whisk in half cup cheese. Season with salt and pepper.
16. Whisk egg yolks in a large bowl to blend. Gradually whisk these into the sauce.
17. Pour sauce over vegetables in dish. Sprinkle 1/4 cup cheese over sauce.
18. Bake moussaka until heated through and sauce is golden brown on top, about 45 minutes. Cool for 15 minutes.
19. Serve with 2019 Boundless Optimism “America, America” and maybe a light salad. Cheers.

PAIRING RECIPE 2 - 2019 N’OAK CHARDONNAY

Croque Monsieur

Active Time: 65 minutes
Total Time: 75 minutes

This is a slightly sophisticated variation on the classic French bar staple: the addition of Mornay sauce and mushrooms elevates it above the standard grilled ham and cheese sandwich. This tangy parmesan version accentuates N’Oak’s peach elements. We found the parmesan too sharp for the 2019 Adastra Merlot; a milder cheese, such as



Ingredients: Mornay Sauce

- 1 1/2 tablespoons Butter
- 1 1/2 tablespoons All purpose flour
- 1 1/2 cups Whole milk
- 1 Bay leaf
- 1/2 cup Finely grated parmesan
- Pinch Nutmeg (freshly-grated if you have it)

Monterey Jack or Fontina should work well with that. Please see bottom left of this page for a quick reference cheese

1 For the Mornay sauce:

1. Melt butter in heavy-medium saucepan over medium heat.
2. Add flour, stirring until pale golden, about 2 minutes.
3. Whisk in milk.
4. Add bay leaf.
5. Increase heat to medium-high. Whisk until mixture begins to boil.
6. Reduce heat to medium and stir until sauce coats back of spoon, about 5 minutes.
7. Remove from heat. Add cheese and nutmeg. Season with salt and pepper.

Ingredients: Sandwiches

- 8 ounces Crimini or button mushrooms (trimmed)
- 7 tablespoons Butter (room temperature)
- 2 tablespoons Minced onion (or shallot if preferred/ available)
- 12 slices Bread of your choice (we used a sourdough loaf and whole grain ready-sliced—both worked well)
- 6 thin slices Ham (Black Forest and Applewood smoked worked well)
- 12 ounces Gruyère cheese (9 ounces thinly sliced, 3 ounces grated)
- 2 tablespoons Parmesan cheese, grated

2 For the Sandwiches:

1. Finely chop mushrooms using a knife or a processor.
2. Melt 3 tablespoons butter in a large skillet over medium-high heat.
3. Add mushrooms and onion. Stir until mushrooms are browned and dry, about 8 minutes.
4. Transfer to plate to cool.

3 For the Assemblage:

1. Preheat broiler. Lightly grease a baking sheet.
2. Spread remaining butter over 1 side of bread slices.
3. Place bread buttered side up on baking sheet.
4. Broil until golden. Watch closely and rotate sheet about 1 1/2 minutes into broiling. Total broil time: about 3 mins.
5. Remove bread and cool.
6. Preheat oven to 350°F.
7. Turn 6 slices of bread over. Top with ham and sliced cheese. Top with remaining bread slices, broiled side up.
8. Spread about 2 tablespoons sauce over sandwiches, leaving a border.
9. Divide mushroom mixture on top of sauce.
10. Sprinkle with grated Gruyère and Parmesan.
11. Bake sandwiches until cheese inside melts and cheese on top turns golden, about 10 minutes. Serve with 2019 N’Oak Chardonnay.

Quick reference cheese chart!

Cheese	19 N’Oak	19 BO AA Ch	19 Merlot
Monterey Jack	✓ Nice	✓	✓ Very nice
Domestic Gruyère	✓ Nice	✓	✓ Very nice
St. André	✓	✗	✗
Wisconsin Extra Sharp Cheddar	✓	✓	✓
Parmesan	✓ Nice	✓	✗

2019 N'Oak Chardonnay *Carneros, Napa Valley*

N'Oak is an unoaked Chardonnay, made from grapes grown at the Adastra vineyard, and aged in stainless steel, hence the name N'Oak—“No Oak” - pronounced to rhyme with Coke™.

The 2019 N'Oak has an inviting nose with tangerine, grapefruit, and floral notes mingling with green apple, and honeyed accents. Citrus fruits predominate on the palate, which is fullish, smooth, and lightly-honeyed, with a mouth-watering finish. This wine is refreshing and easy to enjoy on its own or with food.



Like the 2019 “America, America” the grapes for N'Oak were harvested on September 26, pressed and settled. Unlike “America, America” the juice was fermented and aged in two stainless steel barrels. The wine was stirred on the lees, which contributes to its fuller mouth feel, and was bottled after 8.5 months on June 4, 2020.

The concept behind N'Oak is to create a Chardonnay that showcases the vibrance and freshness of our grapes without the influence of oak. Ideally N'Oak ferments

to dryness, but is stopped from going through malolactic fermentation in order to maximize its crispness. Over the years, the sugar to alcohol fermentations have sometimes taken so long (months) that the wine has gone through malolactic fermentation before reaching dryness. With the 2019 N'Oak, we used commercial yeast and stopped the wine fermenting close to dryness, with the result that it has a slightly sweet, honeyed finish.

2019 N'Oak Chardonnay Carneros, Napa Valley

— Just the Facts

Grapes: Chardonnay Old Wente, Dijon 96 and 76 from the Adastra Vineyard

Yield: 2.28 tons per acre (3.04 tpa average)

Harvest Date: September 26, 2019

Bottling Date: June 4, 2020

pH: 3.40 **TA:** 5.6g/L

Alcohol: 14.8% by volume

Barrel Aging: 8.5 months in stainless steel

Barrels: 100% American stainless steel

Production: 63 cases

Additional Notes: unfinned, but filtered, because the wine is non-malolactic. Cold stabilized.

When Best to Drink: Now through 2024.

Tears Continued from page 2

Wine is composed mainly of water and alcohol, and, of course, a little bit of magic. For this discussion, the magic is not important. What is important here is that although water and alcohol are together in wine, their molecules have different properties in relation to surface tension and vapor pressure.

Surface tension describes the tendency of liquids to shrink to the smallest possible surface area. Water has a higher surface tension than alcohol. It's better at shrinking. In a surface tension gradient, a liquid will move from a region of lower surface tension to region of higher surface tension.

Vapor pressure (or equilibrium vapor pressure) describes the tendency of liquids to evaporate. Alcohol has a higher vapor pressure than water. This means that under the same temperature, alcohol will evaporate more quickly than water.

Under normal conditions, water and alcohol are evaporating from the surface of a glass of wine. This evaporation is faster at the top of the ring of film, where the liquid is thinner, because there is a higher surface area to volume ratio, so both the alcohol and water evaporate more readily than they do from the surface above the bulk of the wine.

The evaporation of the alcohol near the edge of the liquid raises the surface tension in the liquid (it contains more water and less alcohol). This creates a gradient heading upwards on the thin film (an upward flow of liquid), an example of the Marangoni Effect.

So why doesn't the wine just keep heading upwards along this gradient? Initially the surface tension gradient (causing the upward flow of liquid) is stronger than gravity. However, as more liquid accumulates near the top of the film containing alcohol that has yet to evaporate, the surface tension gradient is reduced. Droplets form until gravity's pull exceeds that of the surface tension and liquid flows back down to the bulk in rivulets (tears).

Continued on page 6

TOMATOES! *As long-term Wine Club members know, Chris doesn't just grow grapes, he grows tomatoes, and other fruits and vegetables. Here he offers some tomato-planting guidance.*



“Those Adastra tomatoes are the best I’ve ever tasted...the wines are great too.” So spoke chef Keith Luce on receiving complimentary tomatoes as thanks for carrying Adastra wines at Press restaurant in St. Helena, CA, some 25 miles north of Adastra’s Carneros, Napa Valley vineyard. Keith had access in other jobs to excellent tomato purveyors, e.g. as sous chef in President Bill Clinton’s White House, so we are happy to report that the tradition of tomato growing at Adastra Vineyards continues in 2022. Our greenhouse is sprouting new plants currently with over 100 starts in pots. As club members visiting the farm in tomato season, you will be obligated to take a bag or two of ripe fruit. We can’t let them go to waste.

If you can’t make it to Napa, but want to try growing plants yourself, we are mailing seeds of favorites all over the country, while supplies last. Seeds of Red, Yellow, and Black Brandywines, Green Zebra, Muscovich (early cold tolerant), Costoluto, Black Krim, Amana Orange, Black Cherry, Ace, Heatmaster and Cherokee Purple can be sent to you. A couple of hints about successful plant management follow.

Start plants in good commercial medium (soil) e.g. Ace Black Gold. I use simple large paper cups and punch a water drainage hole into the bottom. Provide heat and light as much as possible and support plant stalks as they mature. When the risk of frost is over, acclimate plants outside for a couple of days before putting them in the ground. Dig a hole, deep enough to accommodate the existing roots and about half the plant stalk (strip the leaves off the half to be buried prior to burying). That buried stalk will grow roots making plant development more vigorous, but will need deep watering. Stake the plant as it grows upward.

To avoid a disease called “verticillium wilt” developing in the soil, it is wise to not plant every year in the same ground. Three year crop rotation is an effective preventive strategy, whereby you wait four years before planting tomatoes in the same patch of land again.

Tears Continued from page 5 Why do droplets/tears form? Why doesn’t the wine just flow back down in sheets? In 2020 Andrea Bertozzi *et al* of UCLA created mathematical models to explain this. Apparently, upwardly flowing film in our wine glass can be described as a reverse undercompressive shock wave, which Bertozzi and colleagues observed as a ridge in the liquid. Because the wave is unstable, any of its inhomogeneities (non-uniform parts) grow into thick drops that eventually fall as tears. So, the tears result from waves.

At least that’s the present understanding. The first documented scientific discussion of these “phaenomena” was by James Thomson in 1855 in his paper “On certain curious Motions observable at the Surfaces of Wine and other Alcoholic Liquors.” However, the summary of the process, known as the Marangoni Effect, “the mass transfer along an interface between two fluids due to a gradient of the surface tension” gets its name from Carlos Marangoni, who studied the topic for his doctoral dissertation, awarded in 1865 by the University of Pavia.

Incidentally, tears indicate nothing about the taste of the wine, merely that alcohol is present. The stronger the alcohol, all other things being equal, the greater the tears; perhaps another argument for moderation.

Many sources were useful in the compilation of this account. Of course, Wikipedia; Comsol.com, various YouTube videos explaining the Maragnoni Effect, particularly *The Maragnoni Effect: Tears of Wine* by Hannah White and Michelle DiBenetollo (the jarring music stops after about 40 seconds). Michael Schirber’s summary of Bertozzi’s work in *Physics* 13, s36 March 17, 2020 was a model of clear science writing. Be careful if you experiment: glass breaks, wine spills. Martini glasses are apparently easier than wine glasses. Certain cleaning materials, particularly dishwasher rinse aids, can rob glass of its ability to form tears...