

Is Wine Still Fine?

Introduction

Wine has been a staple of high-society living for centuries. Whether it is accentuating a meal or officiating a toast, consumers are very fond of this alcoholic beverage. Wine does not come in just one color, type, or flavor. But if all wine comes from grapes, how can they be so different? Variations come from the grapes used, removal or retention of grape skins, length of fermentation, the wood used for the barrels, and the age of the wine upon consumption¹. By manipulating these steps, winemakers can change the flavor, color, and alcohol content to craft the unique flavors of your favorite wines. Wine varieties include red wines, white wines, rosés, dessert wines, and sparkling wines². Consumers have been avid wine drinkers since ancient times. However, times are changing; research shows that wine consumption fell by 1% from 2018 to 2019³. Younger generations are starting to prefer seltzers and higher alcohol content drinks to wine and beer. A neo-prohibition era has begun where people are concerned about the health effects of what they are putting into their bodies, and alcohol is on the chopping block⁴. Despite the ideals and wants of consumers evolving, there is still a large market and home for wine in the discussion around consumable products.

Need for Transparency

Today's consumers require more transparency than any other generation has before. Transparency includes knowing where their food comes from and that it is produced safely and ethically. With all of the work done by federal and industry regulators to alleviate the fears of immediate harm such as foodborne illness, consumer fears are now focused on the long-term effects of

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contaminants such as heavy metals and plasticizers. Ensuring that everything within a product is on the label is important to the modern consumer⁵. Along with others, the adult beverage industry has taken these consumer desires seriously and implemented expanded labeling into their current practices.

But how can you trust what is on a label? Or even worse: what's not on a label? Simple answer- you can't unless it has been certified or verified by an unbiased third-party. Any product can be tested for harmful contaminants and some adult beverage companies have taken steps to become certified by certification bodies such as Clean Label Project, which offers certificates based on purity, transparency, and being pesticide-free. Unfortunately, only a select few brands carry this certification. Claims such as “pesticide-free,” “non-GMO,” and “all-natural” are high selling marketing focus points; but some products become contaminated by faulty and unsafe practices throughout the winemaking process, regardless of the claim on the outside of the bottle.

Industrial Wine Production: Where the Problem Starts

In order to efficiently meet consumer demand, wine makers use industrial farming to mass-produce grapes to make more product. Industrial agriculture is growing a high ratio of crops with less land and in less amount of time as compared to conventional agriculture production⁶. These practices can be deemed unnatural due to their use of pesticides, fertilizers, and other chemicals⁷. While these practices do produce a large amount of product in a short amount of time, they are starting to take their toll on consumers and the environment. Pesticides are applied to fields to control the influx of various insects, pests, and weeds that could harm the plants or disease them⁸. However, these pesticides can linger within the grapes as a residue that can cause harm to humans. In levels above regulation, pesticide residues have been linked to increased chances of developing cancer and Parkinson's Disease⁹. Also, pesticide use and industrial farming can harm the environment. Some pesticides have been found to harm the native pollinators such as bees. They can weaken the bee's immune system and make it difficult for them to harvest nectar¹⁰. But why should anyone care about a bee if it means growing and producing more? Bees, among other pollinators, pollinate one-third of the daily food that humans consume¹¹. That means that as humans depend on agriculture to supply food to our tables, agriculture is counting on pollinators to survive and meet the demand.

Clean Label Project's Testing Methodology

In order to verify the purity and safety of the wine consumers buy, Clean Label Project conducted a study of over 400 of the top-selling red and white wines. To ensure that the wine being tested was the same wine that consumers were drinking, not an altered batch for testing, the wine used came straight from the same stores and outlets consumers are getting their wine from. This process is referred to as 'Consumer Chain of Custody Sampling and Testing.' Once purchased and sent to an ISO-Accredited Analytical Chemistry

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Laboratory, scientists conducted tests to understand the product contents better and discover any detectible levels of heavy metals or pesticide residues. Testing products on such factors as heavy metals and residues gives the consumer a broadened scope on authenticity and helps them decide which product is safest for them.

Key Finding #1: Pesticide Residues

Upon testing over 400 wines, the lab discovered that at least one pesticide was found in 88% of all wines tested. That means that in a group of 400 wines, over 350 have at least one pesticide detected. Of the pesticides detected, 45% were Myclobutanil, 28% were Imidacloprid, and 27% were Pyrimethanil. Myclobutanil is a chemical used as a fungicide that is moderately toxic to humans with a moderate water runoff risk¹². Imidacloprid is one of the most popular insecticides used but also can cause Acute Pesticide Poisoning in humans if ingested in noticeable amounts¹³. Acute Pesticide Poisoning can lead to atrial fibrillation, respiratory arrest, nervous system depression, etc¹³. While this insecticide is only moderately toxic, large deposits can be quite dangerous to human health. The last chemical detected was Pyrimethanil, used as a fungicide. Pyrimethanil is classified as a Group-C chemical, indicating it is a possible human carcinogen¹⁴. The task of monitoring pesticide residue levels falls to the FDA, which has defined limits as to how much residue can be within a food product¹⁵. However, they do not test every product for residues.

Who's to say that some may have slipped past their monitoring? According to a USDA report, "Residues of many types of bug-killing pesticides, fungicides and weed-killing chemicals have been found in roughly 85 percent of [the] thousands of foods

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tested.¹⁶The use of pesticides is so widespread in the agriculture industry that it is a growing safety concern as negative long-term effects are being discovered. In the comparison of red wines to white wines in the study, red wine test results showed to be “dirtier” than white wines in the case of increased pesticide residues. This may be due to the process of how white wine is made compared to red wine. White wines are produced with the removal of the grape skins¹⁷. The majority of pesticides are applied by spraying it onto the surface of the plant¹⁸. However, if the grape skin is removed during the production of white wine, this would lower the chance for pesticide residue contamination.

Key Finding #2: Heavy Metals Detected

While some heavy metals are essential to life, others can be toxic if high levels deposit in the body over time. Arsenic, cadmium, chromium, lead, and mercury are highly dangerous to humans and can lead to Heavy Metal Poisoning¹⁹. Within the over 400 wines tested by Clean Label Project, at least one heavy metal was detected in 76 percent. A major heavy metal, lead, was found in 72 percent of all wines tested. While lead is naturally occurring, it is an element that can be toxic to humans²⁰. Lead exposure has been linked to negative impacts on the cardiovascular system, reduced kidney function, and reproductive problems²⁰. Even more frightening, 93 percent of the white wines tested had detectable levels of lead within them. While the levels of a single glass may not cause immediate harm, over time, the deposition of lead within the body can be harmful.

How Do Pesticides and Heavy Metals Get in My Wine?

There are many modes in which contamination can occur within produce production. Major areas of possible contamination are found within the soil and in the water supply. But what makes the soil so unnatural and dirty? Soil contaminants can be classified as substances that cause the soil to exceed its naturally occurring levels with the possibility of having health risks for humans²¹. These contaminants can be introduced to the soil through leaching of wastes, pesticide use, fuel and oil spills, landfills, urban development, etc²². The same processes can also contaminate a water supply that is used for irrigation.

Industrial practices such as fracking and mining have increasingly risked the health of surrounding soil and water, also increasing the possibility of contaminating the food supply. The process of fracking includes pumping millions of gallons of water into the ground to fracture the crust layer to harvest the hydrocarbons²³. However, this water, now contaminated with carcinogens from the hydrocarbons, can travel through fissures into the human water supply²⁴. Another source of contamination is the industrial farming practices used to grow the produce.

Instead of following a traditional crop rotation style of farming that protects soil health, industrial farming focuses on a continuous single-crop cycle²⁵. As the soil is depleted of nitrogen and other essential nutrients to crop health, they are replaced by fertilizers along with pesticides and other chemicals²⁵. These chemicals can stay within the resulting harvest and make it to the consumer in the form of residues.

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On the other hand, some produce contaminants can be naturally found in the soil and derived from the earth's crust. According to the Penn State Extension, "Lead occurs naturally in soils, typically at concentrations that range from 10 to 50 mg/kg²⁶." Unfortunately, the past use of lead paints and leaded gasoline has increased this beyond naturally occurring levels²⁶. Lead is absorbed by the grape plant where it settles²⁷. During the washing and processing stage, this lead cannot be entirely washed out and remnants will remain²⁷.

What Should a Concerned Brand Do?

With the results of CLP's wine study indicating values of pesticide residues found in 88 percent of all wines tested and the high indication of heavy metals detected, any wine brand should be concerned with the safety and quality of the wine they are producing. First and foremost, if a brand does not have a safety testing regimen in place, one should be developed to test for such things as heavy metals and pesticide residues. These two classifications of contaminants are potentially dangerous to the consumer and should be treated as such. Another path to follow is to become certified as being pesticide-free. If you already have ingredient sourcing and testing checks and balances in place, consider applying for the Clean Label Project Purity Award. These are based on laboratory testing to ensure the authenticity, quality, and safety of products. These certifications increase consumer confidence in a product and allow a consumer to feel safer when purchasing because they know they do not have to worry about whether or not their product has pesticides or other harmful components within them. Also, these certifications are great ways to market wines and enter a new market.

What Should a Concerned Consumer Do?

If a consumer is concerned with the safety and quality of the wine they are consuming, they should look on the company website to research the current safety precautions and procedures in place and what tests they run on their products. If no such information is listed, consumers should contact the company and ask about their procedures as well as ask them if they run specific safety tests. Also,

they should communicate to the company what is important to them and what they look for in a safe and wholesome wine product. Based on Clean Label Project's testing, there are brands that follow a higher standard and take extra precautions to ensure consumer safety. A list of such products can be found on cleanlabelproject.org.

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