

# Smoky Grapes: Why the Risk of Smoke Exposure Should Modify Grape Contracts

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## INTRODUCTION

Over the past decade, a record number of acres have burned from wildfires, creating a growing concern in the Western United States.<sup>1</sup> Although fires have become more frequent, a more concerning issue is that the average fire is getting larger, making fire seasons dramatically more expensive.<sup>2</sup> A variety of factors contribute to these trends, with climate change along the West Coast remaining a driving factor.<sup>3</sup> Specifically, the climate in the West has grown warmer and drier, facilitating both the creation and spread of fires.<sup>4</sup> “The effects are [particularly] hazardous, with millions of homes threatened and financial losses that add up to billions of dollars over the past [ten] years.”<sup>5</sup> Due to the frequency of wildfires in grape-producing areas along the West Coast, the wine industry has been directly affected.<sup>6</sup>

The recent wildfires have detrimentally impacted the wine industry in various ways, including damaging winemaking facilities, decreasing tourism, and displacing workers.<sup>7</sup> Moreover,

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<sup>1</sup> See Christopher Ingraham, *Wildfires have gotten bigger in recent years, and the trend is likely to continue*, WASH. POST (Aug. 14, 2018), [https://www.washingtonpost.com/business/2018/08/14/wildfires-have-gotten-bigger-recent-years-trend-is-likely-continue/?utm\\_term=.96af8e4daab3](https://www.washingtonpost.com/business/2018/08/14/wildfires-have-gotten-bigger-recent-years-trend-is-likely-continue/?utm_term=.96af8e4daab3) [<http://perma.cc/VB32-D73J>].

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

<sup>4</sup> *Id.*

<sup>5</sup> Katja Härtl & Wilfried Schwab, *Smoke Taint in Wine*, WINES & VINES MAG. (Feb. 2018),

[https://winesvinesanalytics.com/sections/printout\\_article.cfm?article=feature&content=195118](https://winesvinesanalytics.com/sections/printout_article.cfm?article=feature&content=195118) [<http://perma.cc/4VB5-46LT>].

<sup>6</sup> See Eric Asimov, *Wildfires Spared the Vineyards, but the Wines Could Suffer*, N.Y. TIMES (Oct. 20, 2017), <https://www.nytimes.com/2017/10/20/dining/drinks/california-wildfires-wine.html> [<http://perma.cc/DX2T-Z5CG>].

<sup>7</sup> See *id.*

the potential damage to unharvested grapes by smoke produces an additional significant, albeit less tangible, effect.<sup>8</sup> Grapes still on the vine when fires arrive become susceptible to a phenomenon the industry calls “smoke taint.”<sup>9</sup> Research regarding smoke taint concludes that only thirty minutes of smoke exposure to grapes may be sufficient to result “in smoke tainted wine that is noticeable to the human palate.”<sup>10</sup> Accordingly, smoke exposure may result in wines that contain an unpleasantly smoky or ashy taste.<sup>11</sup> Because consumers often reject smoke-tainted wines due to the unpleasant taste, therefore considerably reducing the market value of the tainted wine, smoke taint greatly concerns winemakers.<sup>12</sup>

Without a clear definition of smoke taint, and with the chemistry of smoke taint being only partially understood, smoke exposure to grapes poses a problematic issue for the wine industry.<sup>13</sup> Smoke taint may be undetectable for several months or years, adding an additional layer of difficulty for winemakers.<sup>14</sup> While the United States wine industry has accepted primary markers for indicating smoke taint—quantifying the amount of guaiacol and 4-methylguaiacol—research into smoke taint remains relatively new.<sup>15</sup> Scientists do know that when fires strike, they produce “free volatile phenols.”<sup>16</sup> These compounds can attach to the grape’s sugars and

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<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

<sup>10</sup> *How Does Smoke Damage Affect My Winery Insurance Claim?*, ARNOLD & ITKIN LLP (Dec. 3, 2017), <https://www.arnolditkin.com/personal-injury-blog/2017/december/how-does-smoke-damage-affect-my-winery-insurance/> [<http://perma.cc/MZ8K-RLSC>].

<sup>11</sup> *Smoke Taint*, THE AUSTL. WINE RES. INST., [https://www.awri.com.au/industry\\_support/winemaking\\_resources/smoke-taint/](https://www.awri.com.au/industry_support/winemaking_resources/smoke-taint/) [<http://perma.cc/XP5N-Y2WU>].

<sup>12</sup> Härtl & Schwab, *supra* note 5.

<sup>13</sup> Kerana Todorov & Cyril Penn, *Large Wineries Are Rejecting Smoke Exposed Lake and Mendocino County Grapes*, WINE BUS. (Sept. 22, 2018, 12:00 PM), <https://www.winebusiness.com/news/?go=getArticle&dataid=203607> [<http://perma.cc/9CA6-G5V5>].

<sup>14</sup> Asimov, *supra* note 6.

<sup>15</sup> Härtl & Schwab, *supra* note 5.

<sup>16</sup> Danielle Beurteaux, *Winemakers Worry Wildfires Will Leave Whiff of Ashtray In Their Wine*, NAT’L PUB. RADIO (Dec. 13, 2017, 1:52 PM), <https://www.npr.org/sections/thesalt/2017/12/13/570188980/winemakers-worry-wildfires-will-leave-whiff-of-ashtray-in-their-wine> [<http://perma.cc/FGL6-5KYF>].

may be difficult to smell and taste.<sup>17</sup> That no conclusive baseline exists for determining precisely if, and how, smoke will affect the resulting wine constitutes one persisting issue, partly because volatile phenols can already be found naturally in some wines.<sup>18</sup> Furthermore, oak barrels used for aging wine may contain volatile phenols naturally.<sup>19</sup> Because wine may contain these volatile phenols regardless of smoke, no industry standard currently exists for how much volatile phenols are tolerable.<sup>20</sup>

The complexity of smoke taint analysis combined with the lack of a clear-cut standard and subjective analyses has led wineries and grape growers to use a variety of methods, which in turn has led to disputes over whether the wine contains detrimental smoke taint.<sup>21</sup> The difficulty in determining whether or not the grapes contain smoke taint has led to recent controversies between viticulturists and wine producers.<sup>22</sup> In the wine industry, wineries commonly contract with vineyards to purchase grapes.<sup>23</sup> However, with the increase in wildfires, there have been disagreements over whether grapes are tainted with smoke and how smoke taint should be determined, and, as a consequence, wineries have canceled contracts with grape growers, therefore, leaving many small-scale farmers in stressed financial situations.<sup>24</sup> Additionally, wineries and viticulturists disagree about what constitutes irreversible damage to the grapes.<sup>25</sup> Because wildfires happen so often on the West Coast, concerns surrounding smoke taint, such as the cancelation of contracts by wine producers, must be addressed or grape growers will not be able to sustain their vineyards.

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<sup>17</sup> *Id.*

<sup>18</sup> *See id.*

<sup>19</sup> *Id.*; see also Asimov, *supra* note 6 at A14.

<sup>20</sup> *Id.*

<sup>21</sup> Esther Mobley, *Wineries, vineyards clash over how to handle grapes affected by wildfire smoke*, S.F. CHRON. (Oct. 5, 2018, 9:18 PM), <https://www.sfchronicle.com/wine/article/Wineries-vineyards-clash-over-how-to-handle-13285829.php> [<https://perma.cc/2YEC-37FV>].

<sup>22</sup> *Id.*

<sup>23</sup> Rachael E. Goodhue, Dale M. Heien, Hyunok Lee, Daniel A. Sumner, *Contract use widespread in wine grape industry*, 56 CAL. AGRIC. 97, 97-102 (2002) <http://calag.ucanr.edu/archive/?article=ca.v056n03p97> [<https://perma.cc/M8XR-3ERX>].

<sup>24</sup> Mobley, *supra* note 21.

<sup>25</sup> *Id.*

This note explains why there needs to be a specific industry-wide threshold for smoke taint, as well as why the current transactional paradigm needs to shift between grape growers and wineries. Part I will discuss the science of smoke taint and its general impact on the wine industry. This section also describes why smoke taint is not well understood and the different methods for determining levels that are acceptable for wine. Additionally, this section will examine the possible remedial methods for mediating the damage to the grapes and resulting wine. Part II will examine the transactional paradigm between vineyards and wineries and the disputes that have arisen after recent wildfires. Finally, Part III will argue why grape growers should not assume all of the risk of wildfire damage and will propose that grape purchase agreements address the threat of smoke taint explicitly. This section will also address possible contractual solutions as well as negotiation tactics to confront and alleviate conflicts between grape growers and wineries over smoke taint.

## I. IMPACT OF WILDFIRES AND SCIENCE OF SMOKE TAIN

### *A. How Wildfires Are Affecting the Wine Industry*

An increase in wildfires has resulted in devastating losses for wine-producing areas and the wine industry.<sup>26</sup> Not only did the 2017 wildfires along the West Coast caused fatalities, but there were also losses in the wine and tourism industries, including the destruction of several historic wineries.<sup>27</sup> The wildfires originated in California, the world's fourth-largest wine producer, which "generates \$15.2 billion in taxes annually."<sup>28</sup> The wine industry in Napa County, California, "supports 46,000 jobs locally through the 700 grape growers and 475 wineries operating

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<sup>26</sup> Ingraham, *supra* note 1.

<sup>27</sup> Tiffany Hsu, *In California Wine Country, Wildfires Take a Toll on Vintages and Tourism*, N.Y. TIMES (Oct. 10, 2017), <https://www.nytimes.com/2017/10/10/business/wineries-california-wildfire.html?module=inline> [https://perma.cc/P3AD-76RJ].

<sup>28</sup> *Id.*

in the area.”<sup>29</sup> On average, grape growers and wineries who have lost vineyards due to wildfire damage must wait three to five years for the soil to replenish and produce a viable crop of grapes.<sup>30</sup> While the majority of vineyards have survived wildfires, discerning if grapes are smoke tainted remains an issue.<sup>31</sup> The potential damage to the grapes may remain unknown for months or years and could affect both the supply and quality of the vintage from the year of the fire.<sup>32</sup>

Ultimately, the wildfires in 2017 did not cause detrimental short-term damage to the California wine industry. Only 4%, or 2,400 acres of the 60,000 acres of vineyards in Sonoma County were in the fire zones and faced any loss.<sup>33</sup> In Napa Valley, 126 acres burned, which is a small proportion of the vast amount of vineyards.<sup>34</sup> Despite few short-term effects resulting from the wildfires, the long-term impacts remain unknown.<sup>35</sup>

Not only did the 2017 wildfires impact the wine industry in California, but the resulting smoke from them has also affected some of the surrounding states. For example, in states such as Oregon, which has a multi-billion-dollar wine industry, the state’s economy faces a detrimental impact due to the potential of smoke tainted grapes.<sup>36</sup> Though the fires have not caused the same tangible losses in Oregon as they have in California, smoke exposure remains a significant concern for all grape growers on the West Coast.<sup>37</sup>

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<sup>29</sup> *Id.*

<sup>30</sup> *Id.*

<sup>31</sup> Asimov, *supra* note 6.

<sup>32</sup> *Id.*

<sup>33</sup> Kevin Fixler, *California Wine Country leaders say industry largely unscathed by October wildfires*, NORTH BAY BUS. J. (April 9, 2018), <https://www.northbaybusinessjournal.com/northbay/sonomacounty/8204844-181/napa-sonoma-wildfire-wine-tourism> [<https://perma.cc/N8BM-GPR4>].

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> Andrew Selsky, *Oregon vineyards face losses amid concerns about smoke taint*, AP NEWS (October 4, 2018), <https://apnews.com/31621ea4cee2486a8f0430888fb5bf8f> [<https://perma.cc/9LRU-K4Z9>].

<sup>37</sup> *See id.*

### *B. What is Smoke Taint?*

Smoke taint occurs when grapes are exposed to smoke, resulting in wine that has an unpleasant or smoky taste.<sup>38</sup> Smoke-exposed grapes may result in wines that have small concentrations of smoke-aromas that make the wine spicy.<sup>39</sup> However, increased concentrations of smoke will lead the wine to “taste like ashes and feel like sandpaper rubbing against the back of your throat.”<sup>40</sup> While smoke taint may result in unpleasant tasting wine, no evidence exists that consumption poses any health risk.<sup>41</sup> Consequently, the detection of smoke taint currently centers on the taste of the wine and the reputation of the winery.

Until recently, American oenologists lacked consistent experience with smoke taint, and research specific to American wines reflects this lack of data.<sup>42</sup> However, other countries like Australia, South Africa, Chile, and Portugal have confronted the issue in the face of severe wildfires over the last several decades.<sup>43</sup> Scientists in Australia began researching smoke taint after a particularly terrible fire season in 2003.<sup>44</sup> Following that production cycle, winemakers reported bad taints in wine, and thereafter, “researchers made the first connection between smoke exposure and taint in the wine.”<sup>45</sup> A correlation exists between smoke exposure and the unpleasant taste in wine, and scientific research plays a crucial role in determining if or how the smoke will impact the wine resulting from the grapes.

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<sup>38</sup> Beurteaux, *supra* note 16.

<sup>39</sup> Thomas Ulrich, *When the Smoke Cleared*, WINES & VINES MAG. (July 2009), [https://winesvinesanalytics.com/sections/printout\\_article.cfm?article=feature&content=65507](https://winesvinesanalytics.com/sections/printout_article.cfm?article=feature&content=65507) [<https://perma.cc/99PM-G5XJ>].

<sup>40</sup> *Id.*

<sup>41</sup> Lexi Williams, *Understanding Smoke Taint*, WINE SPECTATOR (Nov. 3, 2017), <https://www.winespectator.com/webfeature/show/id/Understanding-Smoke-Taint-in-Wine> [<https://perma.cc/R36B-QCGN>].

<sup>42</sup> See Tom Jarvis, *Searching for the Truth About Smoke Taint*, WINE-SEARCHER (Aug. 15, 2018) <https://www.wine-searcher.com/m/2018/08/searching-for-the-truth-about-smoke-taint> [<https://perma.cc/LZ4Z-D5K7>] [hereinafter *Searching*].

<sup>43</sup> Beurteaux, *supra* note 16.

<sup>44</sup> *Id.*

<sup>45</sup> *Id.*

The Australian Wine Research Institute relies on a few key variables to better determine whether smoke-exposed grapes will become tainted.<sup>46</sup> These variables include the grapevine growth stage, grape variety, smoke composition, and the length of smoke exposure.<sup>47</sup> During the grapevine growth stage, the closer the fruit is to harvest, the higher the risk of smoke exposure.<sup>48</sup> Additionally, different types of grapes have varying levels of sensitivity to smoke taint compounds.<sup>49</sup> For example, Sangiovese grapes are more sensitive to smoke taint than Cabernet Sauvignon grapes.<sup>50</sup> Further, low levels of smoke exposure are less likely to result in a detectable smoke taint in grapes or wine.<sup>51</sup> Other external variables may also affect the potential for smoke taint, such as the direction in which the wind blows, which could save a vineyard from the full effects of a fire in close proximity.<sup>52</sup> Newly created smoke, another external variable, is stronger than smoke that reaches a vineyard after more time.<sup>53</sup>

In addition to researchers identifying key factors leading to smoke taint, they have also identified which compounds are primarily responsible for the taint and how those compounds behave during the taint process. Guaiacol, 4-methylguaiacol, o-cresol, and p-cresol, among others (the “free volatile phenols”), primarily enter the grape via the waxy cuticle on the berries where “they can react rapidly with grape sugars to give the glycoside ‘bound’ forms of the phenols.”<sup>54</sup> This process, called glycosylation, creates nonvolatile phenols, which means that the smell or taste of smokiness is no longer perceptible.<sup>55</sup> But, once fermentation of the grapes occurs, the acidity in the wine will begin to break the bonds, making them volatile yet again.<sup>56</sup>

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<sup>46</sup> *Smoke Taint*, *supra* note 11.

<sup>47</sup> *Id.*

<sup>48</sup> *Smoke Taint Fact Sheet*, THE AUSTRALIAN WINE RESEARCH INSTITUTE (Dec. 2018), <https://www.awri.com.au/wp-content/uploads/2012/04/smoke-taint-entry-into-grapes-and-vineyard-risk-factors.pdf> [<https://perma.cc/Y398-58TV>].

<sup>49</sup> *Id.*

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> Jarvis, *supra* note 42.

<sup>53</sup> *Id.*

<sup>54</sup> Fact Sheet, *supra* note 48.

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

Consequently, smoke taint is challenging to detect until the grapes have resulted in wine.<sup>57</sup>

The process of phenols becoming volatile generally happens during fermentation, but may also continue to occur after the wine is bottled.<sup>58</sup> The process may even happen when someone takes a sip of the wine, as the enzymes in the mouth can break down any glycosides that remain.<sup>59</sup> Accordingly, the wine may smell acceptable but taste unpleasant.<sup>60</sup> This process illustrates both the difficulty of detecting smoke taint and the risks it poses for grape growers and wine producers.

Ultimately, research has demonstrated that “grapes are most susceptible to smoke damage from one week after veraison until harvest.”<sup>61</sup> During veraison, the beginning of the ripening phase, the red grapes turn from green to dark and then become sweet.<sup>62</sup> The fruit also begins to soften during this phase.<sup>63</sup> While certain factors indicate that smoke taint is more likely to occur, the question of how best to determine the effects of smoke exposure remains open.

### *C. Methodology for Smoke Taint Detection*

Smoke taint testing protocol has caused controversy when winemakers reject a growers product.<sup>64</sup> When wildfires occur, growers customarily send grape samples to laboratories to measure the volatile phenols, particularly guaiacol and 4-methylguaiacol.<sup>65</sup> Because the laboratory tests look for the unbound forms of the compounds, the bound forms that are

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<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Id.*

<sup>60</sup> Williams, *supra* note 41.

<sup>61</sup> Ulrich, *supra* note 39.

<sup>62</sup> Ellie Douglas, *What happens during véraison?*, DECANTER (Aug. 2, 2017), <https://www.decanter.com/learn/what-happens-during-veraison-373752/> [<https://perma.cc/RR9R-38TV>].

<sup>63</sup> Raquel Kallas & Tim Martinson, *What Happens from Véraison to Harvest?*, 34 APPELLATION CORNELL (August 2018), <https://grapesandwine.cals.cornell.edu/newsletters/appellation-cornell/2018-newsletters/issue-34-august-2018/grapes-101/> [<https://perma.cc/4972-RUSW>].

<sup>64</sup> Mobley, *supra* note 21.

<sup>65</sup> *Id.*



undetectable by smell may remain in the grapes and the resulting wine.<sup>66</sup> This issue has led many wineries to “conduct private sensory panels for smoke taint” in addition to the laboratory tests.<sup>67</sup> A small-scale ferment of potentially tainted grapes allows wineries to conduct a sensory assessment.<sup>68</sup> These panels can be seen as an imperfect method; however, due to differences in individual taste palates, as “one taster’s pleasant smoked-meat note may be another taster’s campfire ash.”<sup>69</sup> Consequently, this method is entirely subjective, and the results differ based on who tests the grapes.<sup>70</sup> Because an industry standard does not exist, a testing protocol for smoke taint remains contentious. Although these various tests can indicate with some reliability the possible presence of smoke taint, they do not conclusively guarantee the lack of smoke taint.<sup>71</sup>

#### *D. Mitigation and Reduction of Smoke Damage*

Since the possibility to mitigate against smoke itself is unlikely, winemakers bear the responsibility of overcoming the compounds that cause smoke taint. There are remedial methods for reducing the effect of smoke taint in wine such as blending, filtration, fining, and reverse osmosis.<sup>72</sup> These methods may help to reduce the effects of smoke exposure, but a complete cure to smoke taint has yet to actualize.<sup>73</sup> The Australian Wine Institute recommends some practical methods for handling smoke-exposed grapes, like hand-harvesting grapes to minimize breaking the skins.<sup>74</sup> Other suggested techniques include keeping the grapes

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<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> *Id.*

<sup>69</sup> Mobley, *supra* note 21.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

<sup>72</sup> Katherine Philippakis & Karen Yuen, *Legal strategies for grape growers when wineries talk ‘smoke taint’ after wildfires*, NORTH BAY BUS. J. (Oct. 31, 2018), <https://www.northbaybusinessjournal.com/opinion/8870818-181/legal-strategies-wine-grape-growers-smoke-taint> [<https://perma.cc/4HQB-AEWT>].

<sup>73</sup> *Id.*

<sup>74</sup> *The Impact of Wildfires on Wine*, WINE FOLLY (Sept. 7, 2017), <https://winefolly.com/update/the-impact-of-wildfires-on-wine/> [<https://perma.cc/R2V8-2WVG>].

cool so that less smoke-related compounds are extracted, excluding leaf material so that the smoke-related characteristics are limited, and handling the grapes more delicately than usual.<sup>75</sup> Additionally, more heavily charred barrels may be used by producers to age wines that contain smoke-exposed grapes.<sup>76</sup> Char gives the wine an oak flavor, and because oak contains the same compound found in smoke taint, the char can mask the potential unpleasant smoky taste.<sup>77</sup> However, as previously described, the smoke taint may not be apparent until after the wine is bottled, which makes discerning appropriate remedial efforts substantially more challenging.<sup>78</sup>

Beyond the remedial measures that can be taken to utilize the smoke-tainted grapes, the affected wine can also be sold off in bulk if it is not of sufficient quality.<sup>79</sup> Other producers may choose to sell the wine under a different label so that their reputation is not harmed by a lower quality wine.<sup>80</sup> Another alternative is for wine producers to sell the wine to wine clubs or other similar groups, which they can use as a proprietary wine.<sup>81</sup> By selling the wine this way, the wine producers will not earn as much as they would if they had bottled it themselves, but they will at least turn a profit.<sup>82</sup>

Smoke taint treatments are available through companies, such as WineTech in Napa Valley.<sup>83</sup> WineTech provides filtration services to treat smoke-exposed grapes.<sup>84</sup> The smoke-taint removal system was developed in response to extensive California wildfires that occurred in 2008 and used reverse osmosis technology.<sup>85</sup> This process is expensive, but insurance may cover

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<sup>75</sup> *Id.*

<sup>76</sup> Asimov, *supra* note 6.

<sup>77</sup> *Id.*

<sup>78</sup> Williams, *supra* note 41.

<sup>79</sup> Asimov, *supra* note 6.

<sup>80</sup> Williams, *supra* note 41.

<sup>81</sup> Asimov, *supra* note 6.

<sup>82</sup> *Id.*

<sup>83</sup> Arnold & Itkin LLP, *supra* note 10.

<sup>84</sup> *Id.*

<sup>85</sup> *WineTech's Smoke-Taint Removal a Solution for Fire-Impacted California Vineyards*, PRWEB (Aug. 31, 2015), <http://www.prweb.com/releases/2015/08/prweb12918180.htm> [<https://perma.cc/HJ3Z-SWGV>].

it.<sup>86</sup> While smoke taint remains a paramount risk for wineries and their reputations, some efforts can be taken to mitigate the damage of smoke taint.

## II. TRANSACTIONAL PARADIGM BETWEEN VINEYARDS AND WINERIES

### A. *Traditional Relationship and Contracts*

Viticulturists and wineries typically enter into long-term grape contracts.<sup>87</sup> For example, wine grape crush contracts usually last from three to five years and planting contracts often last longer than twelve years.<sup>88</sup> Allied Grape Growers, one of many wine grape marketing cooperatives, estimates that “more than 95 percent of the California wine grape supply is contracted on template agreements are written in” the winery’s favor.<sup>89</sup> In some contract negotiations between buyers and growers, wineries will elect to change the contract to adjust for grower’s concerns, though this is not always the case.<sup>90</sup> Grape contracts include key material concerns such as grape prices, payment terms, terms of the agreement, dispute resolutions and litigation costs, and proprietary information.<sup>91</sup> While contracts typically contain quality provisions and force majeure clauses, coverage for smoke taint from wildfires is noticeably absent from most contracts.<sup>92</sup> The recent wildfires along the West Coast have spurred many negotiations between growers and wineries, as well as contract disputes and litigation regarding the financial ramifications from smoke taint.<sup>93</sup> As a result, traditional grape contracts will likely

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<sup>86</sup> Arnold & Itkin LLP, *supra* note 10.

<sup>87</sup> Cary Blake, *8 Keys to a Better Wine Grape Grower Contract*, FARM PROGRESS (May 22, 2013), <https://www.farmprogress.com/orchard-crops/8-keys-better-wine-grape-grower-contract> [<https://perma.cc/JVS3-MLD2>].

<sup>88</sup> *Id.*

<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> Paul Franson, *Win-Win Grape Contracts*, WINES & VINES MAG, July 2009 <https://winesvinesanalytics.com/features/article/65501/Win-Win-Grape-Contracts> [<https://perma.cc/GL3Y-F2VB>].

<sup>92</sup> *Id.*

<sup>93</sup> *See* Mobley, *supra* note 21.

have to be revised as wildfires have become a fact of life along the Western United States.

### *B. Wineries Claim Right to Cancel Grape Contracts*

After the fires in 2017, many wineries took a more relaxed, “wait and see” approach. Recently though, wineries have become more proactive and are completely rejecting smoke-exposed grapes.<sup>94</sup> This differs from previous practices where wineries accepted grapes, crushed the grapes that were exposed to smoke into wine, and then separating that wine from the untainted wines.<sup>95</sup> The results of this method are unclear.<sup>96</sup> Both wineries and grape growers who have dealt with smoke-exposed grapes must find legal strategies to address this issue.<sup>97</sup>

Some wineries have taken a contractual approach that included express provisions providing them with the ability to reject smoke-exposed grapes.<sup>98</sup> Generally, these contracts contain quality standards, which include smoke as a reason for the wineries to “determine that the wine was of inferior quality and could be rejected.”<sup>99</sup> Other wineries have relied “on provisions of the Uniform Commercial Code, thus allowing a buyer to reject inferior or non-conforming goods.”<sup>100</sup> Another common industry practice winemakers have employed is holding back a certain amount of the purchase price of the grapes until the full cost of testing the wine for smoke taint is known.<sup>101</sup> However, the 1976 Clare Berryhill Grape Crush Report Act in California requires wineries to pay growers within thirty days of delivery of the grapes unless otherwise expressed in the contract.<sup>102</sup> This Act also requires grape-purchase pricing to be determined and set by

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<sup>94</sup> Philippakis & Yuen, *supra* note 72.

<sup>95</sup> *Id.*

<sup>96</sup> *Id.*

<sup>97</sup> *Id.*

<sup>98</sup> *Id.*

<sup>99</sup> *Id.*

<sup>100</sup> See Mobley, *supra* note 21.

<sup>101</sup> Jeff Quackenbush, *Sizable North Coast wine grape harvest, lingering smoke concerns: Better know your lender well*, NORTH BAY BUS. J. (Nov. 8, 2018), <https://www.northbaybusinessjournal.com/northbay/sonomacounty/8902077-181/napa-sonoma-mendocino-lake-wine-harvest-smoke-banking>, [<https://perma.cc/E4SG-GZE2>.]

<sup>102</sup> *Id.*

January 10th after harvest, which creates additional obstacles for wineries attempting to modify the prices of smoke-exposed grapes.<sup>103</sup>

A primary example of the grape rejection conflict occurred after the 2018 fires when Joseph Wagner, the owner of Copper Cane Wines & Provisions, made a blanket rejection of all of the grapes from thirty-five contracted vineyards in Rogue Valley.<sup>104</sup> Wagner is well known in the wine industry as he is a fifth-generation Napa Valley winemaker and his family founded Caymus Vineyards in Napa Valley.<sup>105</sup> Copper Cane Wines & Provisions produces a collection of brands including Elouan Wines, a Pinot Noir from Oregon.<sup>106</sup> The blanket rejection of the Oregon grapes amounted to \$4 million worth of grapes, a particular loss to the Elouan Wines label from Oregon, which Copper Cane Wines & Provisions produces.<sup>107</sup> After these rejections, grape growers tried to recoup their financial losses by selling off the grapes to other buyers or by filing insurance claims.<sup>108</sup> When looking to see if smoke tainted the grapes, some of the tests showed that the grapes did not have significant smoke taint.<sup>109</sup> Rather than conducting an individualized review of each vineyard, some winemakers cast a blanket cancellation of all of the potentially smoke-exposed grapes within a specified region.<sup>110</sup> Local laboratories along the West Coast tested the grapes but did not show a strong indication of smoke taint.<sup>111</sup> Joseph Wagner sampled the grapes through a sensory evaluation, which is the fermentation of a small sample of grapes, and determined that they were not satisfactory.<sup>112</sup> This test, however, is subjective. The inconsistencies in test results illustrate the

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<sup>103</sup> *Id.*

<sup>104</sup> Mobley, *supra* note 21; COPPER CANE WINES & PROVISIONS, <https://www.coppercane.com/> (last visited Jan 28th, 2019) [<https://perma.cc/PG62-JDXX>].

<sup>105</sup> COPPER CANE WINES & PROVISIONS, *supra* note 104.

<sup>106</sup> *Id.*

<sup>107</sup> Mobley, *supra* note 21.

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

<sup>110</sup> See Greg Stiles, *Smoke taint or smoke screen?*, MAIL TRIB. (Oct. 1, 2018), <https://mailtribune.com/news/top-stories/smoke-taint-or-smoke-screen> [<https://perma.cc/JF6E-UEVG>].

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

difficulty in determining whether or not grapes are, in fact, tainted.

As a reaction to the rejection of grapes in Oregon, a group of Willamette Valley wineries launched an industry-wide effort to help grape growers in Rogue Valley when winemakers canceled their grape contracts.<sup>113</sup> King Estate Winery and Willamette Valley Vineyards agreed to purchase as many of the region's grapes as possible at the original contract price.<sup>114</sup> Silvan Ridge Winery and The Eyrie Vineyards later joined the efforts and purchased a total of 140 tons of grapes from six growers for \$323,750.<sup>115</sup> These wineries are collaborating to produce a Rogue Valley Pinot Noir, a Chardonnay, and a Pinot Noir Rosé that will include an Oregon Solidarity label.<sup>116</sup> Additionally, the proceeds from these wines will be donated to the Rogue Valley Vintners Association to help support vineyards in the region that have been affected by the contract cancellations.<sup>117</sup>

Another example of the grape rejection conflict occurred when Constellation Brands rejected all of the Sauvignon Blanc grapes it had contracted to buy in Lake County, California.<sup>118</sup> Constellation is a Fortune 500 company that produces and markets beer, wine, and spirits, including brands like Meiomi, Robert Mondavi, Kim Crawford, and The Prisoner, among others.<sup>119</sup> Constellation's contract for grapes with Lake County would have been enough to make nearly 100,000 cases of wine.<sup>120</sup> Here, Constellation claimed that the Lake County grapes did not meet the applicable quality standards stated in the contract.<sup>121</sup> More specifically, Constellation sent a letter stating:

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<sup>113</sup> Joseph V. Micallef, *Oregon Wineries Rally To Support Rogue Valley Grape Growers*, FORBES (Oct. 21, 2018), <https://www.forbes.com/sites/joemicallef/2018/10/21/oregon-wineries-rally-to-support-rogue-valley-grape-growers/#2b6507ce1ec1> [<https://perma.cc/EQR5-LWHK>].

<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

<sup>116</sup> *Id.*

<sup>117</sup> *Id.*

<sup>118</sup> Mobley, *supra* note 21.

<sup>119</sup> *Wine*, CONSTELLATION BRANDS, <https://www.cbrands.com/brands/wine> (last visited Jan. 29, 2019) [<https://perma.cc/ZT58-4RRS>].

<sup>120</sup> Mobley, *supra* note 21.

<sup>121</sup> *Id.*

“[d]ue to the impact of excessive heat, ash and smoke caused by the Mendocino Complex Fire, and after careful analysis and a visit to the vineyard, we have determined that the grapes do not and will not meet the appropriate Quality Standard and other requirements as set forth in our contract[.]”<sup>122</sup>

Constellation Wines conducted in-house testing and rejected the grapes according to their analysis.<sup>123</sup> Clark Smith, a winemaker and consultant in Santa Rosa, California, responded to this rejection stating, “[Constellation’s testing] is not a standard method and so their contracts don’t really conform to the analysis they developed because they developed the analysis after they wrote the contracts[.]... This is a giant class-action lawsuit waiting to happen.”<sup>124</sup> Several of the grape-growers with rejected harvests independently tested their grapes and concluded that the grapes were useable despite their rejection.<sup>125</sup> This blanket rejection illustrates the problems within the current system, as vineyards and grape growers were unable to recoup the losses in several situations because it was too late to find another buyer for the grapes.<sup>126</sup>

While recent rejections have resulted in significant financial troubles for growers, the legality of the cancellations remains unclear. Winemakers are typically within their rights to cancel contracts for grapes that are lower quality, but all vineyards are not affected the same by smoke.<sup>127</sup> Since it is possible that the grapes were acceptable and not damaged as the growers have claimed, the resulting wine would have been unaffected by the smoke, and the winemakers would not have the

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<sup>122</sup> Kerana Todorov & Cyril Penn, *Large Wineries Are Rejecting Smoke Exposed Lake and Mendocino County Grapes*, WINE BUS. (Sept. 20, 2018), <https://www.winebusiness.com/news/?go=getArticle&dataid=203607> [<https://perma.cc/ZL4F-KXPA>].

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

<sup>125</sup> *See id.*; see also Mobley, *supra* note 21.

<sup>126</sup> *See* Mobley, *supra* note 21.

<sup>127</sup> Kathryn Unbehaun, *In The Grip Of The Grape: Smoke Taint And Contract Law*, SAMPATH LAW GROUP (Oct. 15, 2018), <https://www.sampathlawgroup.com/blog/grip-grape-smoke-taint-contract-law/> [<https://perma.cc/KK3C-8QU8>].

right to cancel the contracts according to quality standards.<sup>128</sup> If there is a “no-fault” cancellation clause included in the contract, however, then winemakers may be within their rights to reject the grapes.<sup>129</sup> Additionally, winemakers could cancel a contract for any grapes they were not satisfied with if the contract contained a “satisfaction” clause.<sup>130</sup> Another way of claiming the winemakers were within their rights may be through a force majeure or “act of God” clause.<sup>131</sup> If the contracts contained a “notice” provision, as Constellation’s grape contracts did, then winemakers would have to give proper written notice before rejecting the grapes.<sup>132</sup> Winemakers who canceled their contracts on the day that the grapes were supposed to be picked likely would have breached their contracts if they had notice provisions in their contracts.<sup>133</sup>

Because of the recent cancellations, Oregon Senator Ron Wyden fought to include compensation for grape growers whose crops were damaged by the wildfires in 2018 in Southern Oregon.<sup>134</sup> Oregon has become a major grape producer, and the wine industry is vital to the economy in Oregon. This funding would help to alleviate some of the hardship of grape growers due to the increase in wildfires.<sup>135</sup> Senator Wyden asked Congress to “include wine grape growers in the \$3 billion Wildfires and Hurricanes Indemnity Program in the fiscal 2018 spending bill,” which created in response to damage from natural disasters in 2017.<sup>136</sup> Further, Senator Wyden also has requested \$5.25 million in additional funding for research on the impact of smoke exposure to wine grapes.<sup>137</sup> The goal of this research is to limit future losses tied to smoke-exposed grapes.<sup>138</sup>

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<sup>128</sup> *Id.*

<sup>129</sup> *Id.*

<sup>130</sup> *Id.*

<sup>131</sup> *Id.*

<sup>132</sup> *Id.*

<sup>133</sup> *Id.*

<sup>134</sup> Greg Stiles, *Relief for wine: It might be time*, MAIL TRIB. (Dec. 3, 2018), <https://mailtribune.com/news/top-stories/smoke-damaged-vineyards-may-get-relief> [<https://perma.cc/RM5B-CLMF>].

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> *Id.*

<sup>138</sup> *Id.*



There has been some success in legislative protections for grape growers. On January 16, 2019, legislation was passed by the United States House of Representatives that would compensate North Coast grape growers for losses from smoke taint in 2018 through emergency funding.<sup>139</sup> Representative Mike Thompson from California suggested a legislative amendment that would make grape growers in Lake and Mendocino counties in California to be eligible for federal funding.<sup>140</sup> Recent wildfires directly impacted these areas and growers in these areas had their grapes rejected by wineries because of smoke damage from the Mendocino Complex fires that occurred in 2018.<sup>141</sup> More specifically, according to a survey by the Lake County Winegrape Commission, the grape growers in Lake County lost at least \$37.1 million from grapes affected by smoke in 2018.<sup>142</sup>

### III. SOLUTION

#### *A. Contract Provisions and Negotiations*

With wildfires increasing in frequency along the Western United States, the risk of smoke exposure must be allocated to the wineries as well as the growers.<sup>143</sup> This risk allocation would be most effective through grape purchase agreements entered into by growers and wineries, or more generally, buyers and sellers. By explicitly addressing the threat of smoke taint in the grape purchase agreements, buyers and sellers would be able to negotiate more effectively, and fewer blanket cancellations of grapes would occur. Smoke taint could also be addressed under the quality provisions that typically contain a general quality statement that grapes be “sound, merchantable, and suitable for

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<sup>139</sup> Bill Swindell, *House passes bill that aids grape growers impacted by smoke taint*, NAPA VALLEY REG. (Jan. 24, 2019), [https://napavalleyregister.com/news/local/house-passes-bill-that-aids-grape-growers-impacted-by-smoke/article\\_84136f44-39f5-570e-9e75-02d2d30ed789.html](https://napavalleyregister.com/news/local/house-passes-bill-that-aids-grape-growers-impacted-by-smoke/article_84136f44-39f5-570e-9e75-02d2d30ed789.html) [https://perma.cc/4UCA-8QMQ].

<sup>140</sup> *Id.*

<sup>141</sup> *Id.*

<sup>142</sup> *Id.*

<sup>143</sup> Ingraham, *supra* note 1.

making a particular quality of wine.”<sup>144</sup> Rather than a general statement, the grape purchase agreement could include a standard for the amount of detectable guaiacol and 4-methylguaiacol, the two most prominent indicators of smoke taint in grapes.<sup>145</sup>

The most effective solution would be to connect the quality standard and the price terms of the grapes.<sup>146</sup> Accordingly, the quality provision could specify that if the guaiacol and 4-methylguaiacol levels are below a particular threshold, then the grapes will be accepted “as is” and in accordance with the contractual price.<sup>147</sup> Conversely, if the levels are above the contractual threshold, then there could be a price reduction, rather than an outright rejection for all grapes.<sup>148</sup> This solution is appealing to sellers because the science of smoke taint is still relatively new, and the effects of smoke exposure on the grapes can remain unknown until the winemakers sample the resulting wine.<sup>149</sup> This solution is also advantageous for the buyer because the grape prices will be lower if there is a possibility of smoke taint, and there could be a provision stating that the buyer may reject the grapes if the levels of guaiacol and 4-methylguaiacol exceed a certain threshold.<sup>150</sup> While an explicit smoke taint provision regulating quality is appealing, there may be issues in California due to the Berryhill Act, which “requires final prices to be determined by January 10th in the year following the harvest,” and may not provide buyer and sellers requisite time to adjust prices according to quality.<sup>151</sup>

With the most recent concerns about smoke taint, growers and buyers have been confronted with problems when trying to modify the grape prices and contracts.<sup>152</sup> With this concern in

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<sup>144</sup> Brian D. Kaider & Kenneth Y. Lo, *Grape Purchase Agreements & Smoke Taint*, THE GRAPEVINE MAG., <https://thegrapevinemagazine.net/article/grape-purchase-agreements-smoke-taint/> [<https://perma.cc/YBD3-S3WD>].

<sup>145</sup> *See id.*

<sup>146</sup> *Id.*

<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> Beurteaux, *supra* note 16.

<sup>150</sup> *See* Kaider & Lo, *supra* note 144.

<sup>151</sup> *Id.*

<sup>152</sup> *See* Mobley, *supra* note 21.

mind, interested parties should test grapes as soon as the level of compounds that contribute to smoke taint can be detected. Despite the time constraints in California, explicitly addressing the concerns of smoke taint in grape purchase agreements would be a sizable improvement for both parties.<sup>153</sup> These parties typically entering into long-term contracts, meaning such provisions would allow for more negotiation and help preserve the relationship of the parties.<sup>154</sup> Since the current contracts do not address smoke taint explicitly, buyers have canceled their grape purchase agreements outright, which is bad for business and bad for their business relations.<sup>155</sup>

### *B. Crop Insurance*

Crop insurance is another possible solution wineries have put on the table.<sup>156</sup> After the California wildfires in 2017, insurance companies saw an increase in smoke taint claims.<sup>157</sup> The issue, however, is that insurance programs cover smoke taint under the rules of the U.S. Department of Agriculture's Risk Management Agency, which require a timely filed claim.<sup>158</sup> This process is problematic, as smoke taint may not be apparent for months after harvest, and growers may be unaware of the smoke taint until the winery has rejected the grapes.<sup>159</sup> As a consequence, grape growers will have to file a claim before they know if the grapes are tainted by smoke.<sup>160</sup> The Risk Management Agency guidelines ask growers to report a notice of loss within seventy-two hours of the event causing the damage.<sup>161</sup> The grower must also prove smoke taint through an independent laboratory, and provide proof of loss through a "rejection letter

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<sup>153</sup> See Kaider & Lo, *supra* note 144.

<sup>154</sup> See *id.*

<sup>155</sup> See Todorov & Penn, *supra* note 122.

<sup>156</sup> See Mobley, *supra* note 21.

<sup>157</sup> Kate Prengaman & Ross Courtney, *In the case of smoke, take quick action*, GOOD FRUIT GROWER (May 23, 2018), [<https://www.goodfruit.com/in-case-of-smoke-take-quick-action/>] [<https://perma.cc/XXK2-B8BH>].

<sup>158</sup> *Id.*

<sup>159</sup> *Id.*

<sup>160</sup> See *id.*

<sup>161</sup> *Id.*

from the winery stating the reason for rejection or price reduction” of grapes.<sup>162</sup> Due to the aforementioned proof-of-damages required to support an insurance claim, ultimately the claims themselves are burdensome and difficult to make. Crop insurance may be helpful in some scenarios, but often it will be too late for the grower to file a claim.<sup>163</sup> While crop insurance is advantageous with the increase in wildfires, it may not be the most effective way to compensate for smoke taint losses. Modification of the traditional grape purchase agreement is the most logical, compelling, and necessary solution to confronting smoke exposure issues. Explicitly addressing smoke taint in contracts will provide more certainty for the parties and promote long-term relationships amongst wine producers and grape growers.

*C. Uniform Industry-Wide Threshold and Methodology for Determination of Smoke Taint*

One of the primary disputes regarding smoke taint has been the testing procedures and threshold for indicators of smoke taint.<sup>164</sup> Because the grape purchase agreements have not explicitly addressed smoke taint in the past, sellers and buyers may take different approaches to test the grapes; moreover, the threshold for the levels smoke taint indicators vary widely across the wine industry.<sup>165</sup> The science of smoke taint is indisputably complex, yet there is little agreement about what constitutes unsalvageable damage, and grape growers’ laboratory outcomes often differ from the wineries’ results.<sup>166</sup>

With the increase in wildfires, more research has been dedicated to smoke exposure’s effect on grape crops and the possible methods of mitigating such exposure.<sup>167</sup> Research in this

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<sup>162</sup> *Id.*

<sup>163</sup> See Prengaman & Courtney, *supra* note 157.

<sup>164</sup> Mobley, *supra* note 21.

<sup>165</sup> See *id.*

<sup>166</sup> *Id.*

<sup>167</sup> See Maegan Murray, *Washington state wine research seminar to focus on smoke exposure*, WASHINGTON STATE WINE, <https://tricitie.wsu.edu/washington-state-wine-research-seminar-to-focus-on-smoke-taint> (last visited Mar. 31, 2019) [<https://perma.cc/GXL3-MYFF>]; see also Mobley, *supra* note 21.

area is crucial for determining what the threshold levels of smoke taint should be used to form the basis for a contractual smoke taint agreement. Addressing smoke taint in grape purchase agreements would not only reduce the amount of blanket cancellations and disputes but would also be effective if there were a uniform, industry-wide threshold, and testing protocol.<sup>168</sup> Accordingly, instead of drafting grape purchase agreements to allow the wineries to reject grapes based on subjective and independent testing, there should be a uniform testing protocol and an industry-wide threshold for guaiacol and 4-methylguaiacol.

Currently, a concrete, industry-wide threshold may prove to be impractical because the science of smoke taint is still undeveloped.<sup>169</sup> As the research into the effects of smoke on grapes increases, however, an industry-based standard would be beneficial to both the buyers and sellers.<sup>170</sup> The disputes that have arisen due to smoke exposure have largely involved the lack of a threshold or testing protocol for smoke taint indicators.<sup>171</sup> For example, in *Constellations Brand's* rejection of grapes, Constellation used personally selected labs to do the testing.<sup>172</sup> David Weiss, chair of the Lake County Winegrape Commission, commented, “[f]ar be it from me to say whether the results were right or wrong, but growers were using third-party commercial labs.”<sup>173</sup> Also, Joseph Wagner, owner of Copper Cane Wines & Provisions, rejected Pinot Noir and Chardonnay grapes based on testing he selected.<sup>174</sup> One of the vineyards that commissioned private lab tests reported that the guaiacol and 4-methylguaiacol numbers came back much lower than those of Wagner.<sup>175</sup> Recent disputes largely involve the lack of uniformity and knowledge about smoke taint. Consequently, a uniform standard would

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<sup>168</sup> See generally Todorov & Penn, *supra* note 122. (stating that the grape growers and winemakers are in a very difficult situation, and one that may lead to class-action lawsuits, because there are no standard methods for testing or translating results).

<sup>169</sup> Beurteaux, *supra* note 16.

<sup>170</sup> See Kaider & Lo, *supra* note 144.

<sup>171</sup> Beurteaux, *supra* note 16.

<sup>172</sup> Mobley, *supra* note 21.

<sup>173</sup> *Id.*

<sup>174</sup> *Id.*

<sup>175</sup> *Id.*

alleviate several of the issues that arise when there is the threat of smoke taint.

There has been a push to help create an industry standard for how much smoke taint will render the wine unacceptable. For example, the Lake County Winegrape Commission funded an extensive research project in collaboration with UC Davis and the Australian Wine Research Institute aimed at establishing baseline indicators for problematic smoke taint.<sup>176</sup> Hopefully, with the increase in funding for research, there will be enough knowledge about the effects of smoke exposure to grapes to determine an objective, industry-wide baseline for smoke taint.

### CONCLUSION

With increases in wildfire volume and strength along the West Coast, the U.S. wine industry will have to confront the issue of smoke exposure to grapes.<sup>177</sup> Although there is currently only a partial understanding of the chemistry involved with smoke taint, both grape growers and wineries are highly aware of the implications of smoke exposure to grapes.<sup>178</sup> With this in mind, it is vital for growers and wineries to negotiate and modify the traditional grape purchase agreements to include an explicit consideration of smoke taint. While the grape purchase agreements typically contain quality provisions and force majeure clauses, contracts rarely include smoke taint from wildfires.<sup>179</sup> Because smoke taint has rarely been addressed in agreements previously, there has been an increase in disputes surrounding smoke taint, as winemakers have recently canceled contracts due to even the remote possibility of smoke taint.<sup>180</sup>

Not only is it problematic that the grape growers bear the risk when there is a possibility of smoke exposure, but also there is a lack of uniformity with regards to testing protocol and what the acceptable levels of smoke taint should be.<sup>181</sup> While growers

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<sup>176</sup> *Id.*

<sup>177</sup> *See* Ingraham, *supra* note 1.

<sup>178</sup> *See* Mobley, *supra* note 21

<sup>179</sup> Franson, *supra* note 91.

<sup>180</sup> *Id.*; *see also* Mobley, *supra* note 21.

<sup>181</sup> Mobley, *supra* note 21.

typically send the grapes to independent laboratories for testing, winemakers may conduct a sensory panel of the grapes, which can be highly subjective.<sup>182</sup> Another challenge remains, as both the laboratory test and sensory panel tests are good indicators that smoke taint may be present but do not conclusively guarantee accuracy.<sup>183</sup> Furthermore, techniques mitigating and reducing smoke damage should be used if there is a possibility that the smoke tainted the grapes.<sup>184</sup> For example, remedial methods for reducing the effect of smoke taint in wine include blending, filtration, fining, and reverse osmosis.<sup>185</sup> While these techniques may not completely eradicate the damage from the smoke, there are possible alternatives for the wineries to use the grapes rather than altogether canceling the grape purchase agreements.<sup>186</sup>

Ultimately, the grape growers and wineries will have to negotiate in future grape purchase agreements to allocate the risk in a way so that the growers do not have to assume all of the risk when wildfires strike. Rather than a general quality statement in the contract, an effective solution would be to include a standard for the amount of detectable guaiacol and 4-methylguaiacol, the two most prominent indicators of smoke taint in grapes.<sup>187</sup> With this standard, the parties would be able to negotiate the acceptable levels of the prominent indicators of smoke taint according to price. Most importantly, explicitly addressing smoke taint in the contracts will provide more certainty for the parties and will promote more long-term relationships amongst wine producers and grape growers.

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<sup>182</sup> *Id.*

<sup>183</sup> Mobley, *supra* note 21

<sup>184</sup> See Philippakis & Yuen, *supra* note 72; *The Impact of Wildfires on Wine*, *supra* note 74.

<sup>185</sup> Philippakis & Yuen, *supra* note 72.

<sup>186</sup> See Asimov, *supra* note 6.

<sup>187</sup> See Kaider & Lo, *supra* note 144.

