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## KEGGED WINE: CURRENT PERCEPTIONS AND EXPERIENCES WITHIN THE U.S. WINE INDUSTRY

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# **Kegged Wine: Current Perceptions and Experiences within the U.S. Wine Industry**

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## **Abstract**

- The purpose of this paper was to investigate perceptions and current experiences with kegged wine (also known as wine-on-tap). Winery owners, winemakers, and other winery employees from various U.S. wine growing regions responded to an online survey.
- Some wineries produce kegged wine on their own, while others use third-party kegging facilities. Eco-friendliness and wine quality preservation were considered important, yet not identified as primary motivators. Increasing sales volume and competitive advantages, on the other hand, were driving the adoption of kegged wine.
- On average, the estimated sales price for a keg (5.16 Gallons) of white wine was US\$ 174 and for a red wine keg US\$225. Kegged wine accounted for almost 9% of the wineries' annual production volume. Most wineries used the same brand for their kegged wine as for their bottled wine.
- The findings of this study provide initial insights into experiences, reasons, and perceptions related to the adoption of a recent wine packaging innovation: kegged wine. The sample was mostly comprised of California wineries, a market where distances between wineries and third party kegging specialists are relatively short; therefore, the generalization of the results may be restricted.

**Keywords:** Survey research, Wine-on-tap, Innovation, Packaging

## **1. INTRODUCTION**

Innovations are a driving force of success and competitiveness (Dressler, 2013); therefore, understanding innovative behavior and current industry dynamics is crucial. Dressler (2013) highlighted that trends affect innovative activities in the wine industry. Filling wine in stainless steel kegs as opposed to glass bottles was first trialed in the 1970's and failed (Pregler, 2013; Neal and Gunn, 2011). It is currently unclear whether kegging wine is a short term fad or a viable, long term solution for matters like waste management and oxidation prevention in the wine and foodservice industry. The "early market" (Moore, 1994) seems to embrace it: between 2011 and 2013, the number of U.S. wineries using kegs as alternative packaging increased from 45% to 83% in a sample of 256 wineries (Franson, 2013; Rieger, 2012).

In general, prior wine industry innovation research is without consensus regarding how innovative decision-making takes place and what factors influence innovation adoption (Hall and Baird, 2014). Trade publications reported wine-on-tap's diffusion in the marketplace (Slade, 2014; Pregler, 2013; Rieger, 2012, Neal and Gunn, 2011); however, little academic research seems to exist. Therefore, the present study investigates wineries' implementation of kegged wine, also known as wine-on-tap (see Diffusion of Innovation framework; Rogers, 2003). One purpose of this study is to explore owners' and winemakers' perceptions of kegged wines' characteristics. Secondly, the drivers behind the innovation-decision process were examined. Additionally, a goal was to learn about the implementation of kegged wine in the U.S. wine industry.

## **2. LITERATURE OVERVIEW**

### **2.1. Innovation in the wine industry**

Within the global wine industry, the U.S. is an important consumption and production market, as shown by its acreage dedicated to vineyards (International Organization of Vine and Wine, 2013) and the total sales of 345.1 million nine-liter cases, worth 34.6 billion dollars (Wine Institute, 2014), in 2013. In 2013, over 800 million gallons of wine were produced in the U.S., a 10 year increase of 200 million gallons (Wine Institute, 2012), while the number of wineries increased from 3,469 in 2002 to 8,806 by 2012 (Wine Institute, 2012).

The OECD (Organization for Economic Cooperation and Development) defined innovation as developing or introducing a new or meaningfully improved product, idea, or process (OECD,

2005). Even though innovative ideas are supposed to provide advantages relative to preceding technologies, goods, products, or services, acceptance of a new idea in the marketplace is difficult to obtain and innovations often fail (Gourville, 2006; Rogers, 2003). Innovation is also a topic of interest in the global wine industry (see for example Hall and Baird, 2014; Dressler, 2013; King and Forbes, 2013; Atkin et al., 2006; Mortensen and Marks, 2002).

Studies with the goal of better understanding innovation have been conducted internationally, for example in Germany (Szolnoki et al., 2014; Dressler, 2013), Italy (Gilinsky et al., 2008), Canada (Doloreux and Lord-Tarte, 2013), and New Zealand (Nuebling and Behnke, 2015; Hall and Baird, 2014; King and Forbes, 2013). Various innovation aspects have been studied such as effects on production improvement (Gilinsky et al., 2008), knowledge exchange (Bou et al., 2008; Gilinsky et al., 2008), collaboration and clusters (Touzard, 2010; Bou et al., 2008), social media (Szolnoki et al., 2014), and tourism (Mitchell and Hall, 2006). Touzard (2010) pointed out that clusters and networks were the most widely researched topic in wine innovation research (see also Hall and Baird, 2014; Bou et al., 2008; Taplin and Breckenridge, 2008).

Over time, various theoretical frameworks have been applied and several innovation categories and strategies were proposed. Dressler (2013) for example, summarized four innovation categories: investment and financing (e.g. new machinery), product and services (e.g. new label design), process and human resources (e.g. new administrative approaches), as well as marketing and sales (e.g. involvement in social media). Another approach was taken by King and Forbes (2013) who utilized a general marketing approach and categorized wine industry innovations into: product innovations (e.g. low alcohol wine), promotion innovations (e.g. sustainability), price innovations (e.g. kegged wine), and distribution innovations (e.g. collaboration). King and Forbes (2013) referred to wine-on-tap as a price innovation, because foodservice establishments in New Zealand offered kegged wine at lower prices than wine-by-the-glass from bottles (see Krause, 2012). In the United States, kegged wine is treated as an alternative packaging (Pregler, 2013; Rieger, 2012); hence, a product innovation.

## **2.2. Wine packaging innovations**

In search of competitive advantage and wine preservation improvements, the wine industry has been investing resources in research and development of alternative packaging and closure solutions, for years. Since the turn of the 19th century, glass bottles have been the status quo for

wine packaging (Lukacs, 2012). Beginning in the 1950's, cork taint spurred closure research (Atkin et al., 2006; Mortensen and Marks, 2002) and a number of alternative packaging solutions have since been introduced. Most popular among alternative options are bag-in-box (BIB), polyethylene terephthalate (PET), cans, and TetraPak. Research shows that each of these solutions bear advantages and disadvantages. In the case of box wine and PET, less breakage and weight result in distribution cost reduction, which is particularly beneficial in light of the increasing globalization of the wine trade (Goode and Harrop, 2011). Over time, wine in these alternative packaging options is more negatively affected by transport and storage temperature variation, compared to bottled wine (Hopfer et al., 2013; Ghidossi et al., 2012; Fu et al., 2009; Doyon, et al., 2005). Sensory research showed that white and red wines were affected differently when packaged in PET (Ghidossi et al., 2012) and that PET with a higher oxygen barrier was more effective in maintaining wine stability (Giovanelli and Brenna, 2007). Fewer research studies have been conducted regarding cans and TetraPak (Goode and Harrop, 2011). In summary, various packaging options have unique benefits and challenges (Ghidossi et al., 2012). Despite the aforementioned sensory research, benefits and challenges of using alternative packaging materials in the winery, hence the perspective of winemakers and winery owners remains under-researched. One reason might be that innovation research is often based on the number of innovations adopted by a winery within a certain time frame (Dressler, 2013; Rogers, 2003). Looking at one innovation in particular, however, can provide valuable insight into innovative dynamics (see Mortensen and Marks, 2002). In 2012, it was estimated that about 400 U.S. wineries keged wine (Rieger, 2012). Estimations constantly change so that the precise number is difficult to obtain. Some companies keg their own wines while others outsource; hence, the implementation and execution of keging wine appears to be different across the U.S. wine industry and warrants further exploration.

### **2.3. Characteristics of winery owners and winemakers**

Rationale for how and why some wineries choose to produce keged wine, while others do not is currently unknown. Rogers' (2003) innovation-decision process, one element of his Diffusion of Innovation framework that has frequently been used in innovation related research, suggests that characteristics of the decision-making unit (e.g. winemaker) and perceived characteristics (e.g. relative advantage) of an innovation (e.g. keged wine) significantly impact the decision to adopt

or reject the new idea. As far as the individual characteristics of winery owners and winemakers are concerned, literature suggests that attributes such as innovativeness, opinion leadership, the propensity to take risks, and communication behavior have an impact on the decision-making process (Rogers, 2003).

*Innovativeness.* Based on a person's background and socialization some people are more interested in experimenting with new things (Mudd, 1990; Midgley and Dowling, 1978). In wine business research, Gilinsky et al. (2008) highlighted that among other factors, winery personnel's views and inherent beliefs affected their innovative behaviors. Lumpkin and Dess (1996) understood entrepreneurial innovativeness as a predisposition to support novel ideas. From an entrepreneurial research perspective, Jambulingam, Kathuria, and Doucette (2005) developed a 4-item-scale of innovativeness which was modified to fit this study's purpose.

*Opinion leadership.* People who frequently, willingly, and enthusiastically exchange information with others can be considered opinion leaders (Rogers, 2003). Reading about industry trends, new equipment, attending trade shows, and talking to others about their wine enthusiasm, are related opinion leadership activities (Bruwer and Thach, 2013). The study of opinion leadership goes back to the 1940's and 1950's (Katz and Lazarsfeld, 1955; Lazarsfeld, Berelson, and Gaudet, 1944). Generally, opinion leaders are known as credible sources of information for others. In context with innovations, Rogers (2003) proposed that opinion leadership positively affects innovative activities. Thus, an existing opinion leadership scale developed by Flynn, Goldsmith, and Eastman (1996) measuring wine consumers' level of opinion leadership was modified to fit this study's context.

*Risk taking.* During the decision making process associated with the potential adoption of a novel idea information is used to reduce risk (Rogers, 2003), therefore it was deemed appropriate to measure winery professionals' risk taking aptitude. In their exploration of entrepreneurial orientation, Jambulingam et al. (2005) proposed that greater willingness to take risks was related to higher levels of innovativeness; this scale was modified to fit this study context.

*Communication channel usage.* Ties to other individuals and using those ties, were found to be important antecedents of innovative behavior in the wine industry (Doloreux and Lord-Tarte, 2013; Bou et al., 2008; Gilinsky et al., 2008). Additionally, the internet, books, and magazines are considered important sources of information. A number of interpersonal and mass media information sources were explored to find out how frequently winery personnel use them.

Literature suggested that, especially in the beginning stages, when individuals first learn about an innovation gathering information plays an important role.

#### **2.4. Perceived characteristics of kegged wine**

Despite the novelty image of kegged wine, from a historical perspective, this is not the first time wineries decided to keg wine. In the 1970's, when it was trialed in the U.S. for the first time, "jug" wine quality, unsuitable filling and cleaning practices, as well as inappropriate packaging and dispensing materials resulted in unsatisfactory outcomes (Franson, 2011; Neal and Gunn, 2011). Meanwhile industry sources, particularly kegging specialists, have endorsed the following benefits: reduced packaging cost, increased freshness, lower shipping weight, reduced waste creation and therefore, greater eco-friendliness, as well as better value (Pregler, 2013; Rieger, 2012; Franson, 2011). Exploring the perception of these advantages in order to understand the dynamics and potential of this recent wine industry innovation appeared warranted.

Rogers (1962, 2003) considered relative advantage, compatibility, complexity, trialability, and observability to be important characteristics of an innovation. Moore and Benbasat (1991) renamed some of Rogers (1962, 2003) proposed attributes and developed an instrument to measure the perception of these characteristics. In consideration of the nature of this study, the following attributes were selected and modified to fit the kegged wine context: *relative advantage* (e.g. kegged wine reduces waste, speeds up service in restaurants, maintains wine quality better than bottled wine), *ease of use* (e.g. it is easy to clean and maintain kegs, wine-on-tap is less cumbersome for restaurant staff), and *result demonstrability* (e.g. the benefits of wine-on-tap are apparent).

### **3. RESEARCH METHODOLOGY**

Guided by the review of literature, this study aims to answer the following research questions:

1. Which attributes influence winemakers' and winery owners' decision to adopt kegged wine?
2. How are the characteristics of kegged wine perceived by U.S. winery personnel?
3. How is kegged wine implemented and executed in U.S. wineries?

To answer these research questions a survey was administered to a sample of the U.S. wine industry in December 2014. In the first stage of survey development, the survey was reviewed by

academic and industry experts (winemakers): several changes were made based on feedback that affected the survey flow, wording, and the number of questions. In the second stage, a preliminary survey was provided to winemakers from the Midwest, California, and Colorado. A total of 12 usable pilot surveys were subjected to preliminary data analysis leading to further layout and wording adjustments. For the final data collection, the 2014 Unified Wine and Grape Symposium directory of registrants was purchased. Approximately 2,000 U.S. based enologists, winemakers, assistant winemakers, winery owners, cellar masters, viticulturists, wine production staff, and vintners were contacted via email in three stages (Dillman et al., 2009). Consequently, 163 wine industry professionals participated and 138 surveys were fully usable. The data were analyzed using a combination of descriptive statistics, ANOVA, and correlation analysis using SPSS software (Version 21.0, SPSS Inc. IBM).

#### 4. RESEARCH RESULTS

The data showed widespread awareness of kegged wine in the U.S. wine industry. Among the participants, 97% had heard about wine-on-tap. In the past 12 months, 82 winemakers had kegged wine. Regarding wine industry tenure, respondents had about 17 years of experience and ranged between 25 and 73 years of age, with an average of 49 years (see Table 1 for further socio-demographic information about the sample).

**Table 1 Socio-demographic characteristics of the sample**

Trait	Frequency [ <i>n</i> =163]	Percent
<b>Position at Winery</b>		
Owner	46	28
Winemaker	71	44
Assistant Winemaker	23	14
General Manager	8	5
Other <sup>a</sup>	15	9
<b>Education</b>		
Winemaking Certificate (UC Davis)	7	4
Bachelor's	63	39
Master's	35	21
Other <sup>b</sup>	19	12
Chose not to respond.	39	24
<b>Gender</b>		
Male	92	56
Female	33	20
Chose not to respond.	38	22

**Location**

CA	93	57
Other (WA, OR, IN, etc.)	31	19
Chose not to respond.	39	24

**Note:** <sup>a</sup> Positions such as R&D, Viticulturist, COO, Cellar Hand, Vineyard Manager. <sup>b</sup> PhD, WSET, CSW, certificates from other institutions than UC Davis, self-taught.

Prior to data analysis, the usable surveys (n=138) were divided into two groups: the first group included respondents who recently kegged wine (adopters, AD) and the second group those who did not (non-adopters, NON-AD). The terms wine-on-tap and kegged wine are used interchangeably.

*Research Question 1.* Based on Rogers innovation-decision process, the individual characteristics of the winery personnel was explored to learn more about their decision (not) to adopt kegged wine. Based on the review of literature, the attributes under investigation were: innovativeness (4-items;  $\alpha = .87$ ), opinion leadership (4 items;  $\alpha = .85$ ), risk taking (4 items;  $\alpha = .93$ ), and communication behavior (10-items;  $\alpha = .72$ ). Most items were measured with a 7-point-Likert-scale (1 = strongly disagree, 7 = strongly agree) and summarized to scores. Communication behavior was measured with a 5-point-Likert scale (1 = never, 5 = a lot). Higher mean scores indicate higher levels of agreement/usage. Adopters and non-adopters of kegged wine significantly differed (see Table 2) in regard to their levels of innovativeness ( $p < 0.05$ ), opinion leadership ( $p < 0.01$ ), risk taking ( $p < 0.01$ ), and interpersonal communication behavior ( $p < 0.01$ ). No differences were found for the frequency of using mass media information sources such as books and magazines.

**Table 2 Mean scores of winery professionals' characteristics**

Trait	Mean	Sample size
Adoption Status		
<i>Innovativeness*</i>		
AD	21.15	n=71
NON-AD	19.23	n=64
<i>Opinion leadership*</i>		
AD	20.84	n=70
NON-AD	18.92	n=65
<i>Risk taking*</i>		
AD	16.50	n=70

NON-AD	13.78	n=65
<i>Interpersonal Communication*</i>		
AD	17.25	n=67
NON-AD	15.63	n=63

**Note:** Sample size variation due to missing values. AD = adopter of wine-on-tap, NON-AD = non-adopter of wine-on-tap. Significant at: \*  $p < 0.05$  (one-way ANOVA)

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Correlation analysis showed the following significant positive associations: between innovativeness and opinion leadership ( $r = 0.254$ ,  $n = 137$ ,  $p < 0.01$ ), between innovativeness and risk taking ( $r = 0.415$ ,  $n = 137$ ,  $p < 0.001$ ), and between innovativeness and interpersonal information exchange ( $r = 0.243$ ,  $n = 131$ ,  $p < 0.01$ ). Data suggested that adopters received information that convinced them to start kegging wine from interpersonal sources (trade fair, peers, distributor) more often than from mass media sources (magazines, internet). Overall, the most frequently used sources of information were: exchange with peers ( $\mu = 4.06$ ), internet ( $\mu = 3.79$ ), trade fairs ( $\mu = 3.76$ ), trade magazines ( $\mu = 3.58$ ), and newsletters ( $\mu = 3.56$ ).

*Research Question 2.* Based on the review of literature (Rogers, 2003; Moore and Benbasat, 1991), three main attributes were measured with a 7-point-Likert-scale (1 = strongly disagree, 7 = strongly agree) and summarized to scores: relative advantage (8-items;  $\alpha = .93$ ), ease of use (4-items;  $\alpha = .76$ ), and result demonstrability (2-items). Higher mean scores indicate higher levels of agreement. For example, higher levels of result demonstrability suggest that respondents perceived kegged wine's benefits to be more obvious than non-adopters. Significant differences in the perception of wine-on-tap's relative advantage ( $\mu_{\text{adopter}} = 44.67$ ,  $\mu_{\text{non-adopter}} = 40.22$ ;  $p < 0.05$ ), ease of use ( $\mu_{\text{adopter}} = 20.03$ ,  $\mu_{\text{non-adopter}} = 18.05$ ;  $p < 0.05$ ), and result demonstrability ( $\mu_{\text{adopter}} = 10.95$ ,  $\mu_{\text{non-adopter}} = 9.27$ ;  $p < 0.05$ ) emerged from the comparison of adopters and non-adopters. In other words, those who recently produced kegged wine at their winery believed it to be more beneficial than non-adopters. These perceptual differences of kegged wine's advantages provide some reasoning that likely impacted the wine industry professionals' decision to produce wine-on-tap when they first learned about the innovation.

*Research Question 3.* As far as the implementation of kegged wine in the U.S. wine industry is concerned, the survey questions were inspired by trade articles and conversations with

winemakers. Data indicated that the average experience with kegging wine in U.S. wineries was almost three years ( $\mu=2.68$ ). Adopters stated that (7-point-Likert scale; 1 = much worse, 7 = much better) the following aspects had changed after implementing kegged wine: waste management ( $\mu=4.83$ ), sales volume ( $\mu=4.75$ ), wine quality preservation ( $\mu=4.75$ ), production cost ( $\mu=4.73$ ), and profit margin ( $\mu=4.57$ ). As far as ranking reasons for kegging wine was concerned (7-point-Likert scale; 1 = least important, 7 = most important), it appears that bottom-line considerations play an important role: (1) increasing sales volume, (2) improving competitive edge, (3) improving profit margin, (4) improving waste management, (5) improving wine quality preservation.

The average sales price for a white wine keg was US\$174, with a maximum of US\$433.20, and for a red wine keg US\$225, with a maximum of US\$600. It was estimated that, on average, kegged wine accounted for almost 9% ( $\mu=8.83$ ) of annual production volume. The majority of adopters (86%) use 19.5 L kegs. Sixty-one winery professionals offer their kegged wine under the same brand name as their bottled wine; six respondents indicated using a different name due to concerns regarding their reputation. Nineteen participants use a third party kegging specialist (Free Flow Wines  $n=13$ ; N2  $n=2$ ; Top-it-off  $n=1$ ); whereas, 44 fill kegs directly at the winery. Fifty-one respondents use stainless steel kegs; otherwise, the following kegs types are used: PubKegs ( $n=9$ ), KeyKeg ( $n=8$ ), PET kegs ( $n=5$ ). The following gas mixtures were recommended for dispensing wine from kegs: nitrogen/ $\text{CO}_2$  ( $n=26$ ), nitrogen ( $n=17$ ), and nitrogen/argon ( $n=11$ ). Forty-six winery professionals indicated not treating their kegged wines different from their bottled wines. Conversely, 16 participants disagreed, indicating the need to adjust additions, stabilization, and filtration for their kegged wines due to various reasons. The most popular varietals used for kegging are Chardonnay, Sauvignon Blanc, Cabernet Sauvignon, and Pinot Noir. Some wineries that kegged wine also use other alternative packaging such as: BIB ( $n=16$ ), PET ( $n=7$ ), Tetra Pak ( $n=5$ ), and cans ( $n=3$ ), which might suggest a greater curiosity for innovative approaches in these wineries.

## **5. DISCUSSION AND FUTURE RESEARCH RECOMMENDATIONS**

This research fills a vacancy in the body of knowledge regarding kegged wine in the United States. With the emergence of innovative packaging solutions and the rise in competitive

pressure, these findings provide valuable insights into understanding how wineries deal with innovation.

### **5.1. Participants' characteristics and the decision to adopt kegged wine (RQ 1)**

As expected, adopters considered themselves significantly more innovative, more influential in affecting others' opinions, more willing to take risks, and more active in regard to interpersonal communication behaviors. The findings showed that opinion leadership, risk taking, and engaging in interpersonal information search behaviors were significantly related to winemaker's innovativeness. Even though the relationships were not particularly strong, interpersonal communication should be highlighted as other people were the most important source of learning about this innovative packaging. Additionally, previous research has demonstrated that knowledge exchange in the form of collaboration has a significant impact on innovative behavior in the wine industry (Touzard, 2010; Bou et al., 2008; Gilinsky et al., 2008).

### **5.2. Perceptions of kegged wine's characteristics (RQ 2)**

Winemakers and winery owners of wineries that currently keg wine perceived its relative advantages, ease of use, and result demonstrability more positively than non-adopters. These findings were in line with previous research (Jambulingam et al., 2005; Rogers, 2003; Moore and Benbasat, 1991) suggesting that those who view innovation characteristics positively are more likely to embrace adoption. The wine industry is a global and interconnected trade environment; therefore, wineries' kegged wine implementation alone will not lead to a full diffusion of this innovation in the wine industry. Especially in the United States, distribution companies play an important role due to the three-tier-system. It appears relevant to expand this research and examine other stakeholders' perceptions of kegged wine.

### **5.3. Implementation of kegged wine in U.S. wineries (RQ 3)**

As far as current experiences with kegging wine are concerned, it can be concluded that the majority of wineries prefer 19.5 L stainless steel kegs for their kegged Chardonnay, Sauvignon Blanc, Cabernet Sauvignon, and Pinot Noir. Red wine kegs are sold to foodservice establishments at an average of US\$225 and white wine kegs at an average of US\$174. Winery professionals preferably use pure nitrogen or nitrogen/CO<sup>2</sup> mixes, also called Guinness gas. At

this point, kegged wine production is rather small at about 9% of the total annual production volume. Despite some concern about using the same brand for kegged and bottled wine, the majority of respondents release their kegged wine under the same name. Some discrepancy emerged in regard to winemaking philosophy. The majority of winemakers treat their kegged wine as they would their bottled wine; however, some were concerned about microbial stability and filtration. Overall, the findings showed that economic reasons such as an increase in sales volume and competitive advantage were the main drivers of producing kegged wine.

#### **5.4. Future research recommendations**

This paper investigated innovative characteristics of U.S. winery professionals in addition to perceptions and current experiences with kegging wine. The comparison of adopters and non-adopters suggested differences in their personalities and communication behavior that in turn influenced their decision. At this point, it cannot be concluded that those who recently decided not to keg wine, might not become adopters later and vice versa. Based on the strength of the relationship between the measured characteristics, it can be suggested that there are likely other, possibly more influential, factors that should be explored by future research.

Furthermore, the importance of interpersonal information sources emerged. Interpersonal sources of information, such as peer-to-peer exchange, are frequently used to acquire and share industry knowledge. Supported by previous research stressing the benefits of collaboration for innovative behavior, future research could consider the application of interpersonal communication theories for a more detailed exploration of communicative exchange between wine industry professionals (e.g. Theory of Motivated Information Management). Particularly, qualitative research exploring how, when, and why information is exchanged interpersonally could be helpful in understanding the diffusion of innovation in the wine industry.

In regard to the perception of kegged wine's innovative attributes, findings suggested a need for further research. At this point, kegged wine's benefits have not been subject to academic research. Prior alternative packaging research (Revi et al., 2014; Hopfer et al., 2013; Ghidossi et al., 2012) showed trade-offs between advantages and disadvantages of various methods as well as differences between materials regarding oxygen permeability and shelf life. Future research

seems warranted, especially sensory research comparing red and white wine development, shelf life and oxygen permeability over time, temperature variations, and across various keg formats. Additionally, environmental and waste management considerations warrant further exploration. Once more information about the benefits are available, the cost associated with making keged wine should be explored to complete a thorough cost-benefit-analysis. As suggested by this study, some wineries decide to keg wine on their own while others work with third parties; however, at this point (economic) reasons for this behavior have not been explored.

Overall, the goal of this research was to provide first insights into the perceptions and experiences with keged wine in the U.S. wine industry. According to the data, it emerged that some winemakers and winery owners perceive keged wine more beneficial than others which in turn impacted their behavior. However, at this point we do not yet fully understand why the perceptions are different. The exploration of personal characteristics suggested that varying levels of opinion leadership, risk taking, and exchange with other industry representatives positively impacted the willingness to adopt keged wine and possibly other innovative approaches. Potentially, it could mean that more interpersonal exchange with others leads to a better understanding of how keged wine works and a more realistic comprehension of the benefits and challenges associated with its production. After all, the adoption of keged wine at the winery is only one of various aspects in the diffusion of this alternative packaging solution. Wine-on-tap will only spread across the entire marketplace if wineries, distribution companies, and foodservice operators perceive the innovation as economically beneficial; hence, future research is warranted.

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