



amaea

# Wine: Smoke Remediation Technical Tasting Results

SOUTHERN OREGON | JANUARY 2024





# REPORT SUMMARY

The 2020 U.S. wildfires resulted in a \$3.7 billion problem for the wine industry.

With climate change increasing the severity and frequency of smoke events, **amaea** developed **amaea VPx** – an innovative, smoke remediation technology designed specifically for the treatment of smoke impacted wine.

Using molecularly imprinted polymers, **amaea VPx** targets the removal of smoke markers while preserving the varietal character and body of the wine.

In January 2024, 13 winemakers were invited to Southern Oregon to taste and provide their sensory feedback on smoke impacted wines treated using **amaea VPx**.

With over 80% of participants indicating they would use **amaea VPx**, the results revealed the following key insights:

- The treatment **improved sensory outcomes** for all wines, while significantly **reducing smoke markers**;
- The opportunity to use the wine either as is or as a component of a larger blend increased with treatment; and,
- Adjustable treatment rates enabled **tailored sensory outcomes**.



# SURVEY RESULTS

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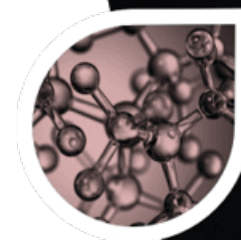
## 2020 Mendocino Syrah

- › flow rate comparison
- › dose rate comparison

## Oregon Pinot Noir comparison

# WINE DETAILS: 2020 Mendocino Syrah

<b>AVA:</b>	Mendocino County (CA)
<b>Treatment timing:</b>	May 2023
<b>Smoke impact:</b>	Low-Medium
<b>Notes:</b>	The winery originally planned to use this wine and continued with a standard barrel regime after fermentation. However, after barrel aging, it was determined this wine was too smoke impacted to be used in the intended program.
<b>Tasting:</b>	7x samples of the Syrah were presented during the tasting. This included: <ul style="list-style-type: none"><li>• 1x control</li><li>• 3x wines treated using different flow rates</li><li>• 3x wines treated using different dose rates</li></ul>



## analytical results



**Summary:** Smoke marker compounds were reduced by 23 – 39% after being treated with **amaea VPx**.

## Flow Rate Changes

Dose Rate (g/L)	Flow Rate (CV/hr)	Guaiacol	4-Methylguaiacol	m-cresol	o-cresol	p-cresol	Sum VP	Removal (%)
Control		32.6	13.6	1.6	2.3	2.3	52.4	
10	50	23.1	9.0	1.0	1.3	1.3	35.7	32%
10	75	25.9	9.9	1.2	1.7	1.5	40.1	23%
10	100	25.5	9.8	1.1	1.6	1.5	39.5	25%

## Dose Rate Changes

Dose Rate (g/L)	Flow Rate (CV/hr)	Guaiacol	4-Methylguaiacol	m-cresol	o-cresol	p-cresol	Sum VP	Removal (%)
Control		32.6	13.6	1.6	2.3	2.3	52.4	
10	100	25.5	9.8	1.1	1.6	1.5	39.5	25%
20	100	23.1	8.3	0.8	1.3	1.0	34.4	34%
30	100	22.9	7.6	0.8	1.3	1.0	33.6	39%

# SURVEY RESULTS

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2020 Mendocino Syrah

- › flow rate comparison
- › dose rate comparison

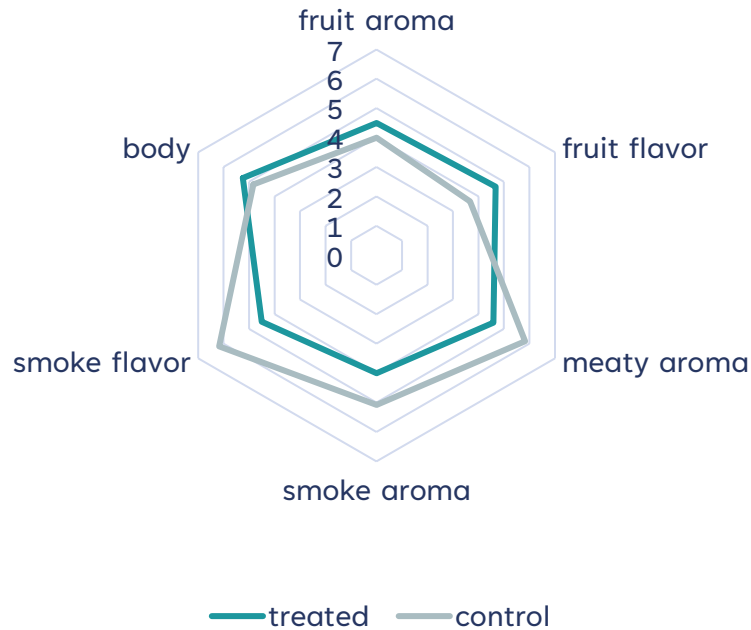
Oregon Pinot Noir comparison



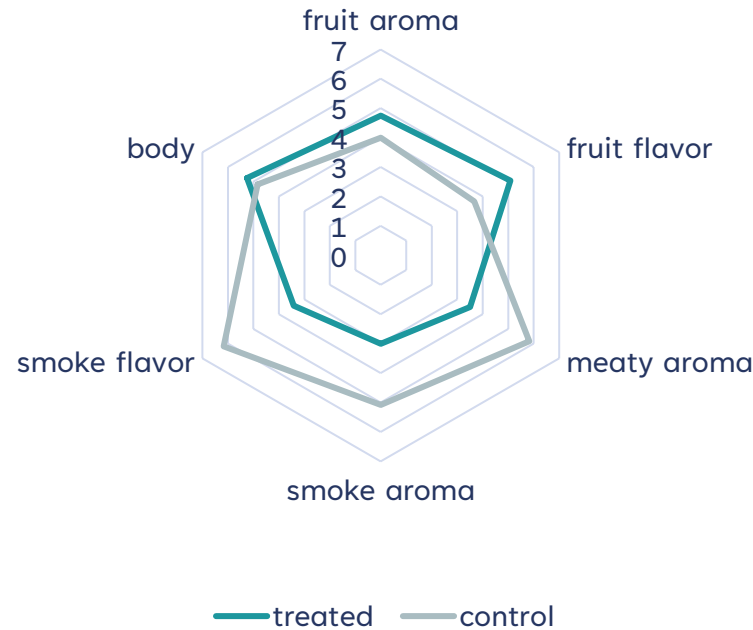
# flow rate sensory attributes

**Summary:** Across all treatments, the body, fruit aroma and flavor was enhanced if not preserved, while all smoke markers reduced.

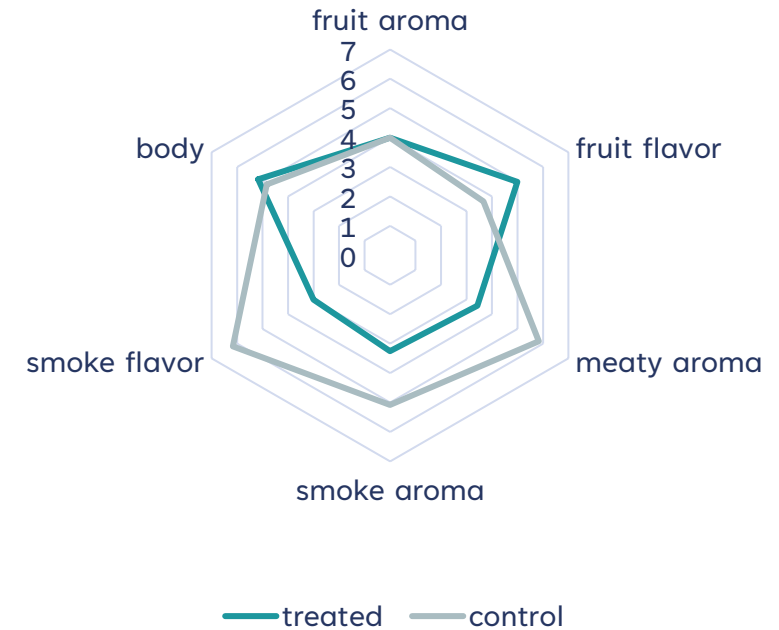
**slow** flow rate (50 CV/hr)



**moderate** flow rate (75 CV/hr)



**fast** flow rate (100 CV/hr)

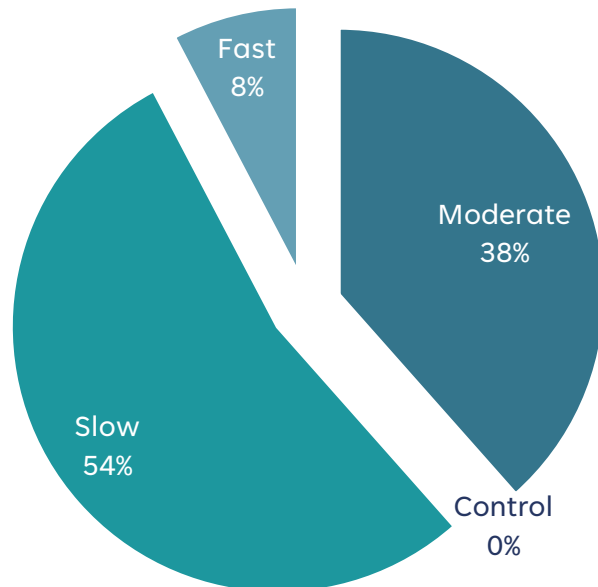


# flow rate preference

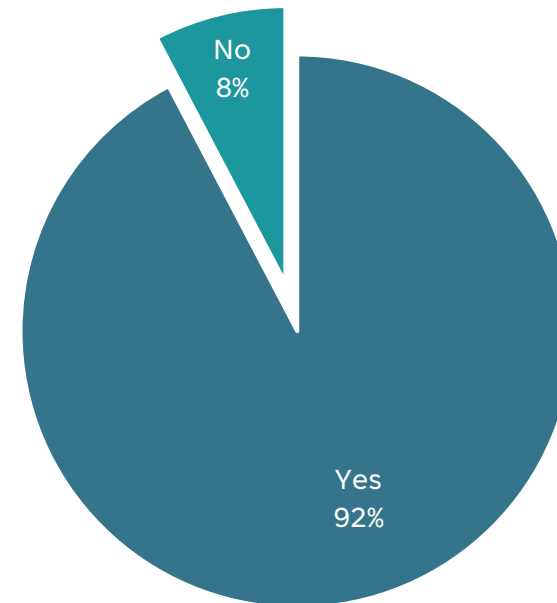


**Summary:** The wine treated at a slow flow rate (50 CV/hr) was preferred with 92% of participants indicating they would use **amaea VPx** to treat smoke impacted wine.

Which treatment flow rate did you prefer?



Would you consider using this treatment\*?



\*indication based on participant's preferred flow rate



# SURVEY RESULTS

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## 2020 Mendocino Syrah

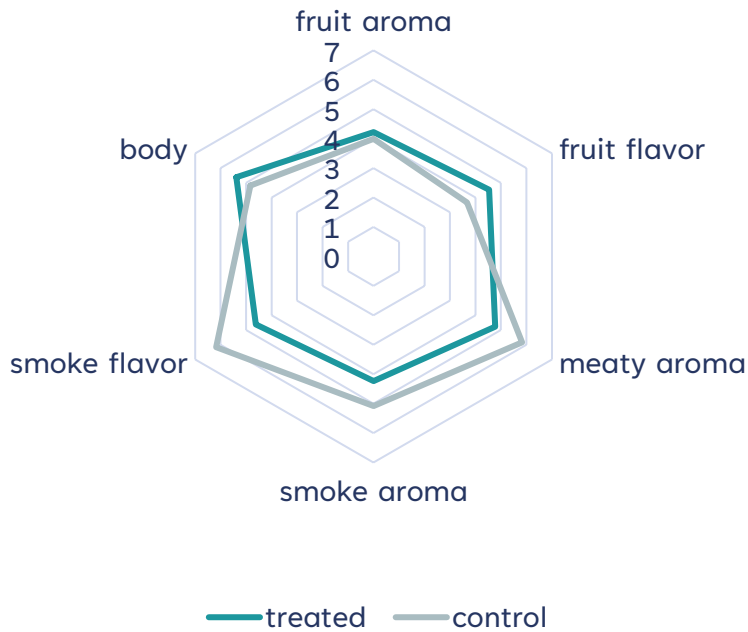
- › flow rate comparison
- › dose rate comparison

## Oregon Pinot Noir comparison

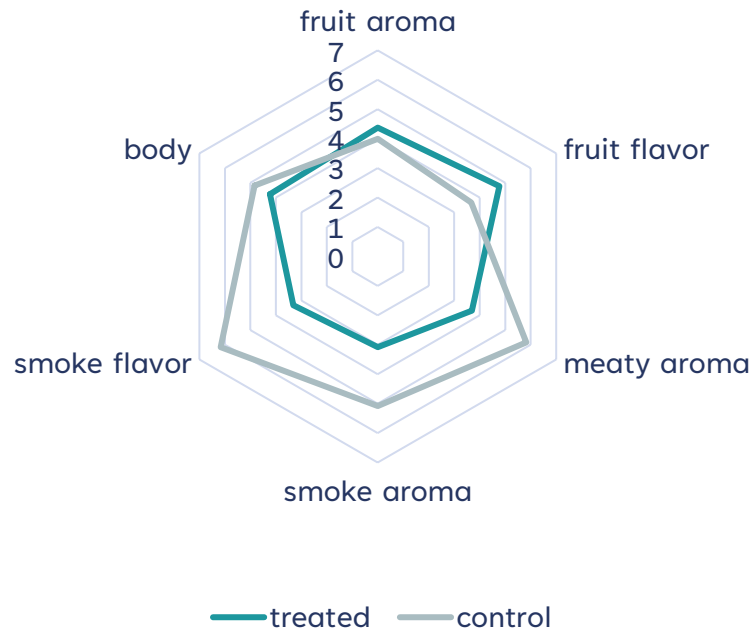
# dose rate sensory attributes

**Summary:** Across all treatments, the fruit aroma and flavor was preserved, while all smoke markers reduced.

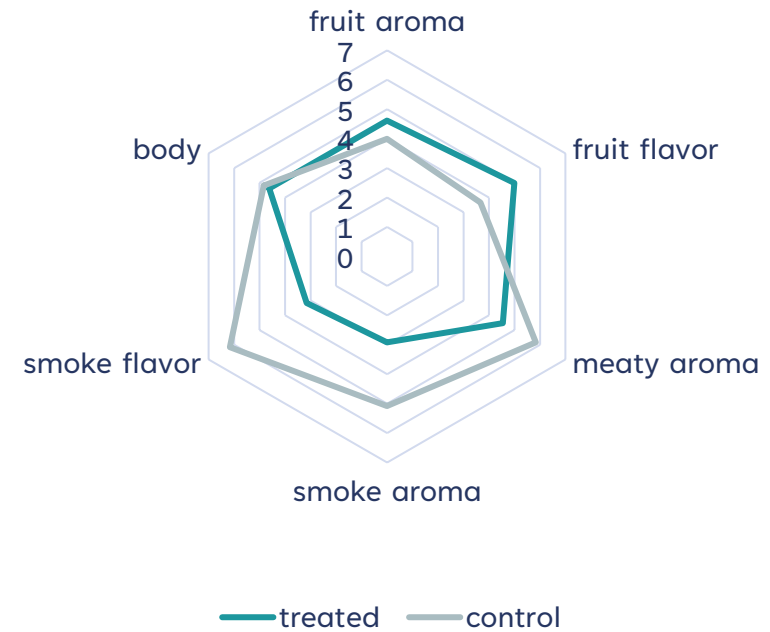
### high dose rate (30 g/L)



### moderate dose rate (20 g/L)



### low dose rate (10 g/L)

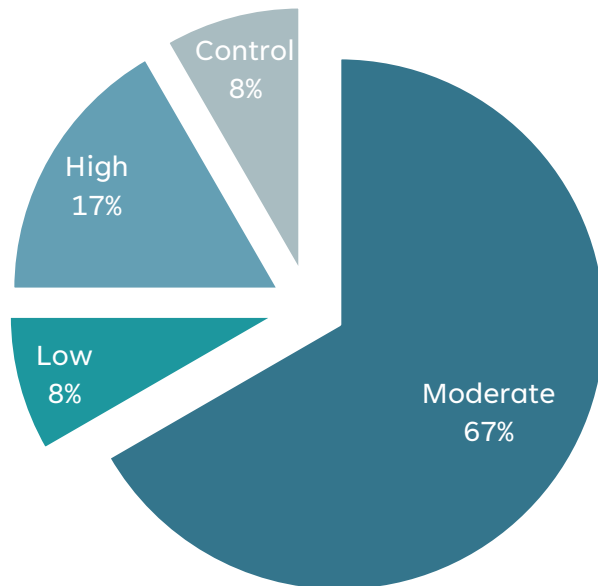


# dose rate preference

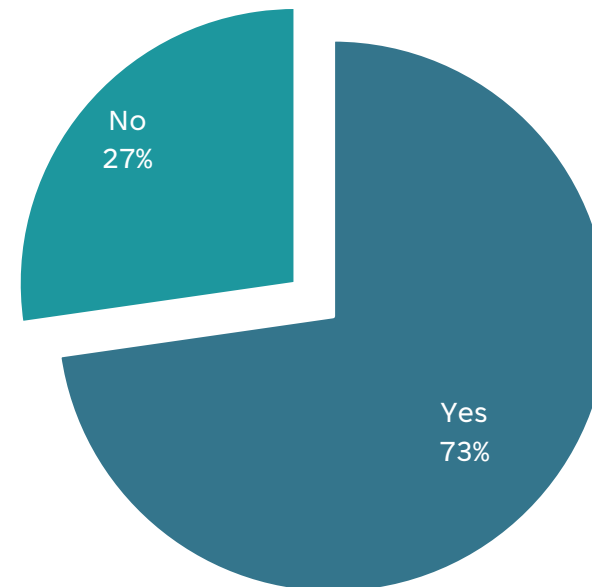


**Summary:** The wine treated at a moderate dose rate (20 g/L) was preferred with 73% of participants indicating they would use **amaea VPx** to treat smoke impacted wine.

Which treatment dose rate did you prefer?



Would you consider using this treatment\*?



\*indication based on participant's preferred flow rate

# SURVEY RESULTS

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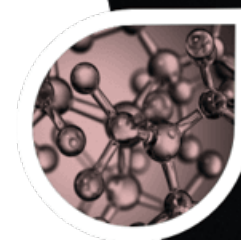
2020 Mendocino Syrah

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Oregon Pinot Noir comparison

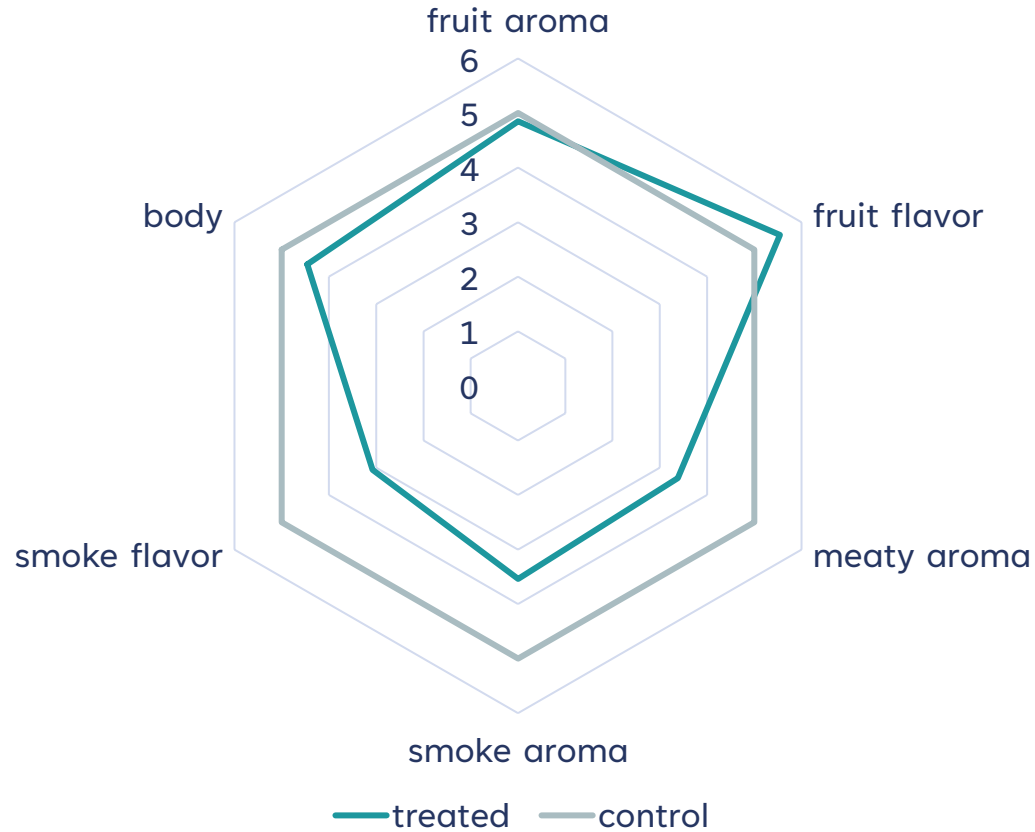
# WINE DETAILS: 2023 Oregon Pinot Noir

<b>AVA:</b>	Oregon
<b>Treatment timing:</b>	January 2024
<b>Smoke impact:</b>	Medium
<b>Notes:</b>	Limited time on skins
<b>Tasting:</b>	2x samples of the Pinot Noir were presented during the tasting. This included: <ul style="list-style-type: none"><li>• 1x control</li><li>• 1x treated</li></ul>



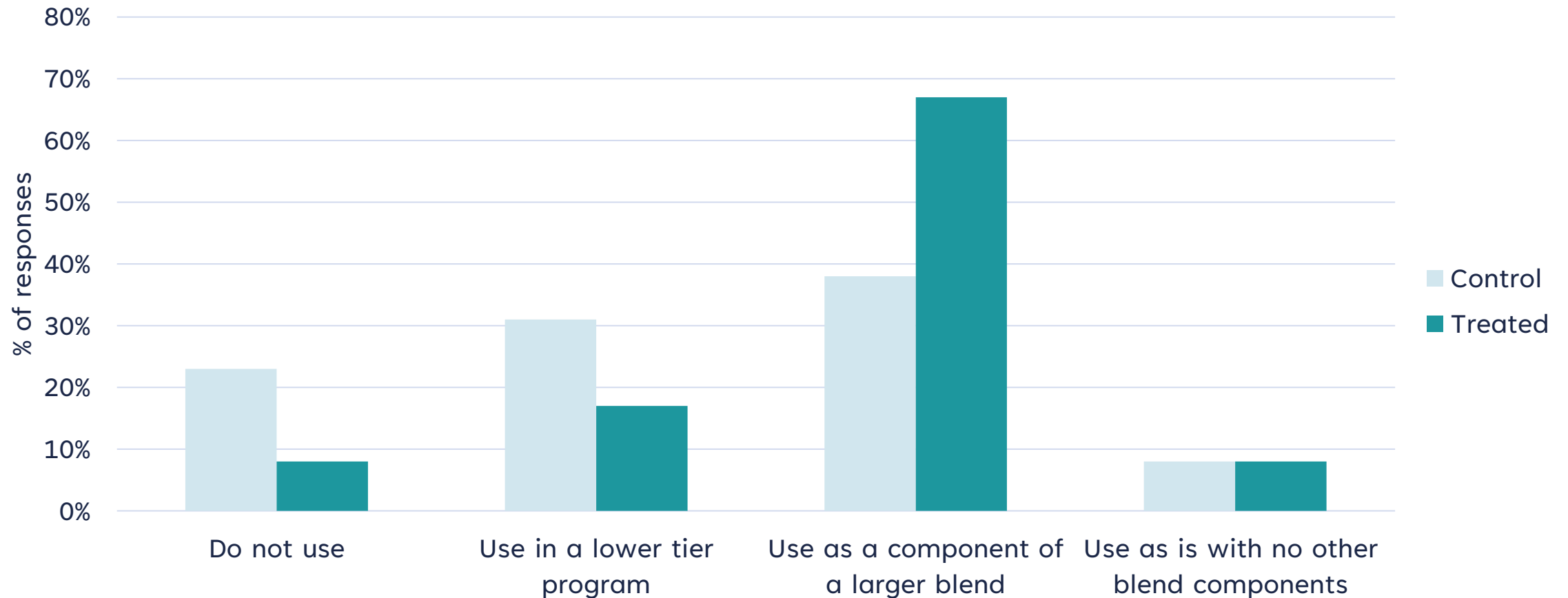
# sensory attributes

**Summary:** The fruit aroma and flavor was preserved, while all smoke markers reduced.



# how would you use this wine?

**Summary:** The overall usability of the wine increased after treatment with 75% indicating the treated wine could be used either as is or as a component of a larger blend.





# Further Insights

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## research



[study on the retention of smoke impact removal using amaea VPx](#)

## molecular filtration technology



[amaea VPx for smoke remediation](#)



[amaea's molecular filtration process](#)



[amaea for winemaking](#)

# About amaea

Having started in New Zealand in 2011 as a science research facility, **amaea** has evolved into a deep-technology organization focused on developing and commercializing molecular filtration technology.

Working with the wine industry, we have pioneered **amaea VPx** filtration technology to minimize smoke impacts in wine.

## Introducing amaea VPx

Available for use in the USA, Canada and New Zealand, **amaea VPx** uses cleverly designed molecularly imprinted polymers to target the removal of smoke markers while preserving the varietal character and sensory quality of your wine.

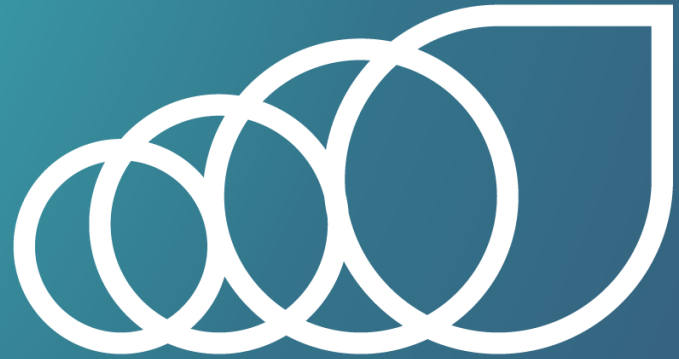
Treatments are selected to suit the wine varietal and smoke severity, enabling you to achieve **tailored sensory** outcomes with **low impact** on the character of your wine.

By choosing **amaea VPx** you choose a solution proven to:

- Recover value from smoke impacted wine;
- Retain key sensory qualities of the wine's character and body;
- Target the removal of smoke markers at scale and pace.

*Let's keep the conversation going*

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molecular filtration technology

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*tailored sensory. low impact*