



# Viticulture or Pop Culture?

CULTURAL FACTORS IN THE CALIFORNIA WINE MARKET  
(2003 - 2024)

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- 03** Overview
- 04** Data Question
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The “*Sideways Effect*”
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Grape Investment
- 08** Questions



# About Me



- 01 Wine sales professional
- 02 Creative vision, analytical precision
- 03 Show me the numbers!

# Primer



01

California wine is a massive global market, going as far back as the 1800s

02

Different varieties have different characteristics and perceptions

03

Preferred varieties drive the market and influence market trends

04

Every year since the 1990s, the state of California and the USDA produces a grape acreage report in Excel detailing changes by county and variety

Detailed data as far back as the 1970s

# Overview

## Terminology

01

Bearing Acreage

Marketable (mature vines)

02

Non-Bearing

Plantings (immature vines)

03

Total Acreage

Overall Investment (total vines)

Vines need **3-4 years** from planting to bear fruit

Mature vines produce grapes for **25-30 years**

## Variables

01

Acreage

02

Variety

Cabernet, Chardonnay, Pinot Noir, Merlot

03

Years

2003-2024

04

Google Trends API

Proxy for Consumer/Cultural Engagement

Region: US for all data

## Metrics

01

Acreage % or Value

Increase/Decrease

02

Search Frequency

0-100, 0 being no searches

# **How has wine acreage changed over the past 21 years in California, and could cultural events be a factor in changes?**



# Broad Analysis



# Overview



**2004**

Release of *Sideways*

**Bearing**

**875,111** | **938,205**

minimum

maximum

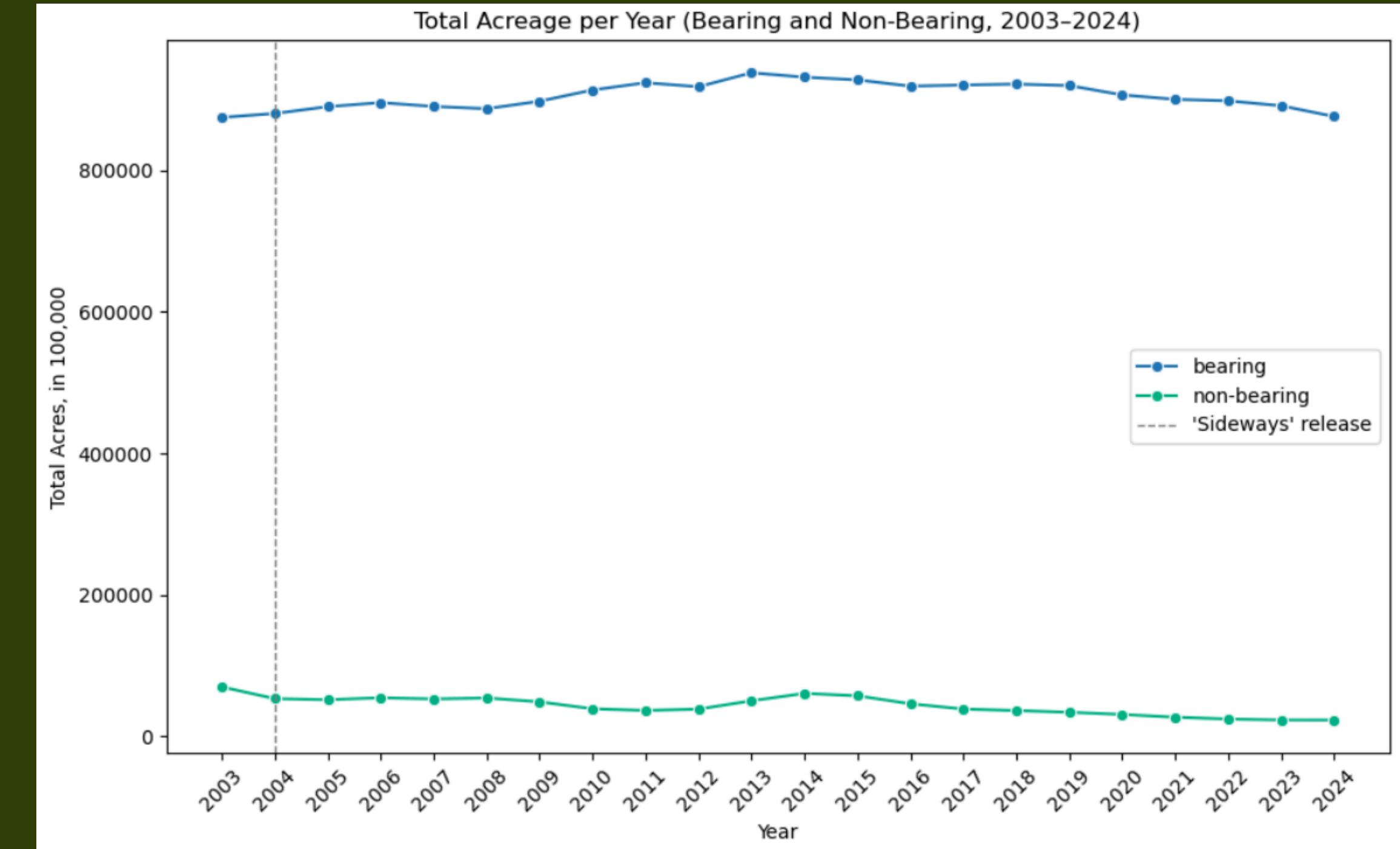
**Non-bearing**

**23,062** | **69,854**

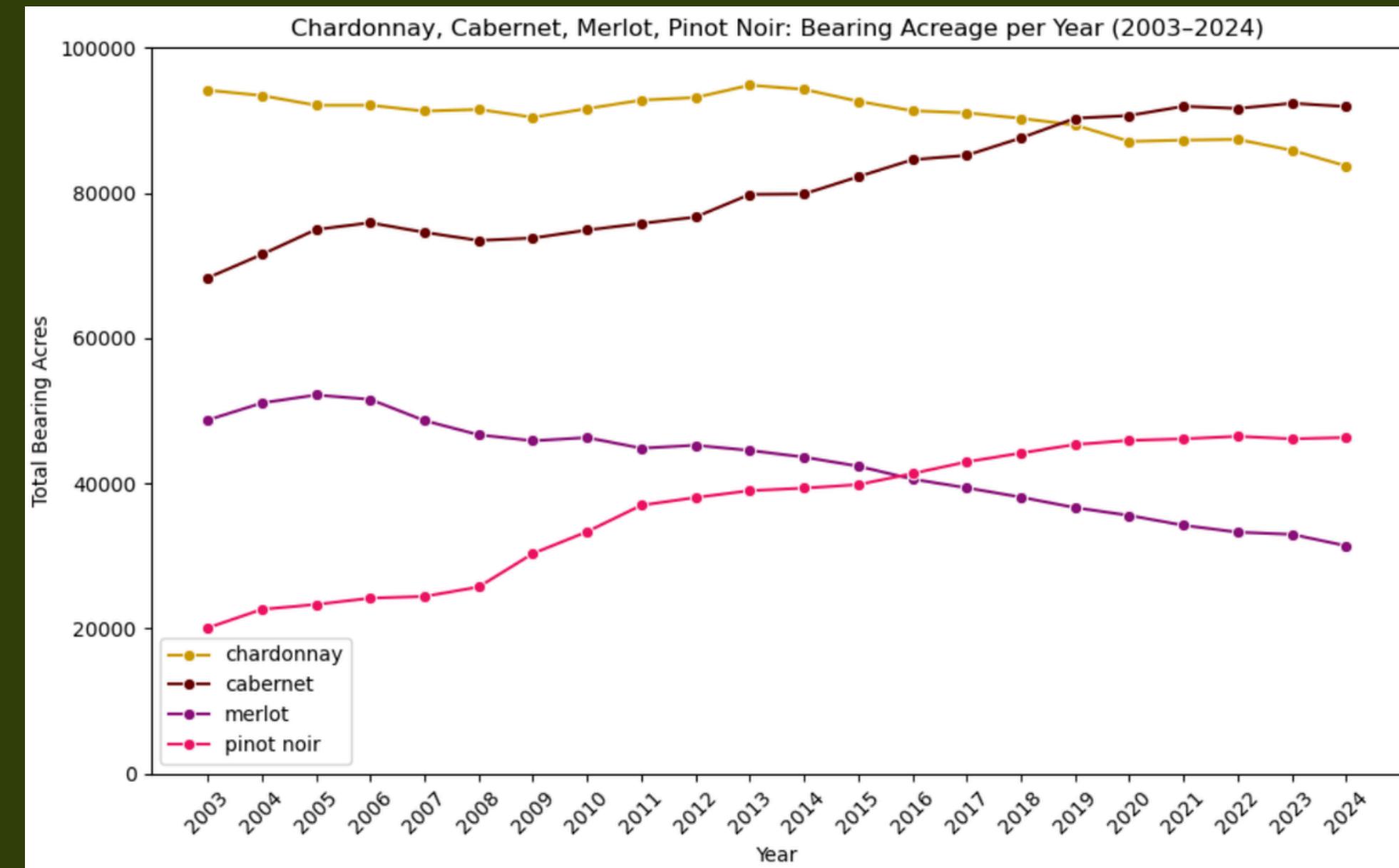
minimum

maximum

Ranges overall are very small, showing stability



## Grapes in study, overall Bearing Acreage (200-2024)

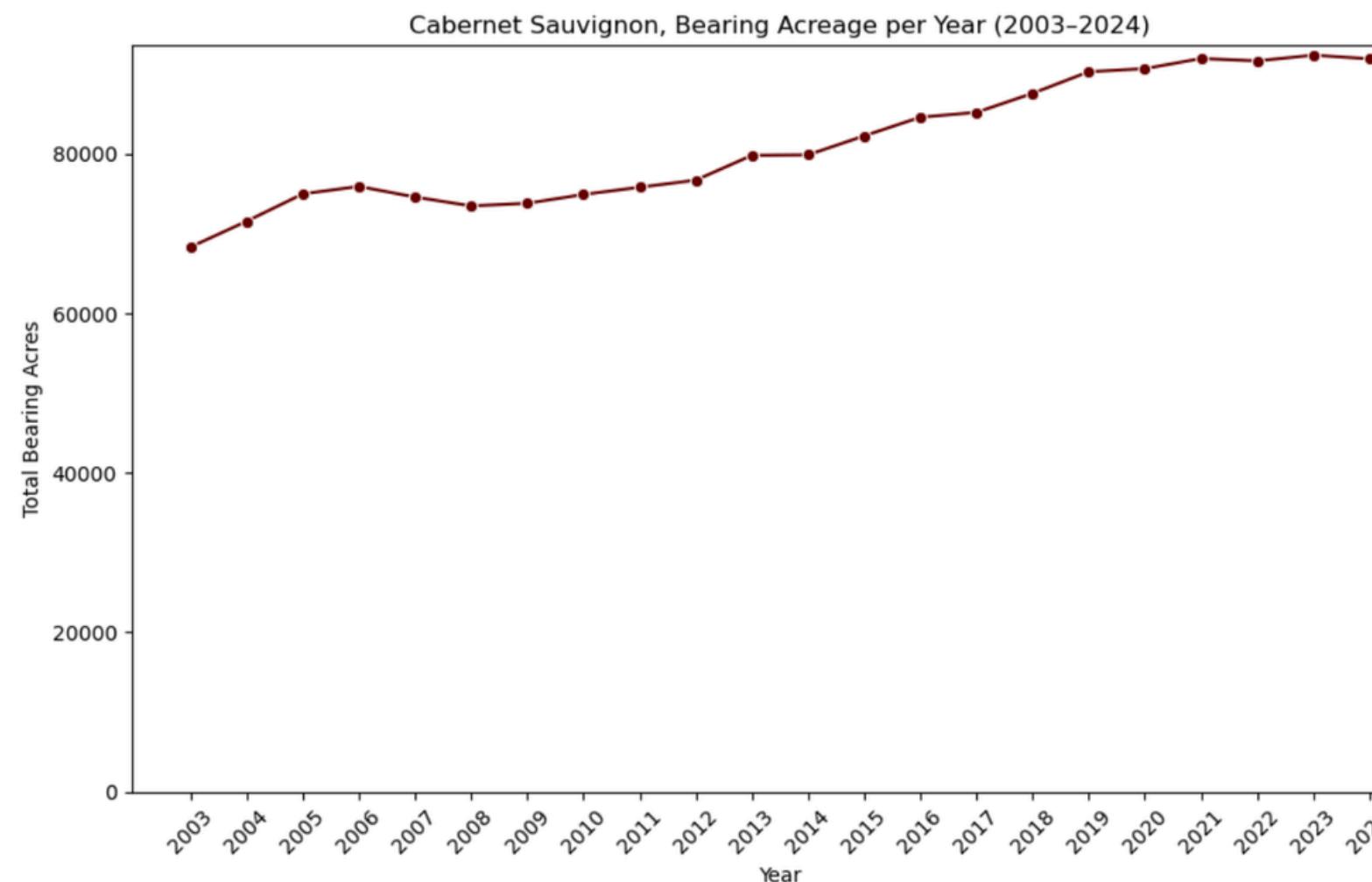


**Chardonnay**  
**94,848**

**Cabernet Sauvignon**  
**87,116**

**Merlot**  
**44,879**

**Pinot Noir**  
**42,059**



**Low Variability**

**± 1.86%**

standard deviation across years

**Consistent, Gradual Growth in a Small Range**

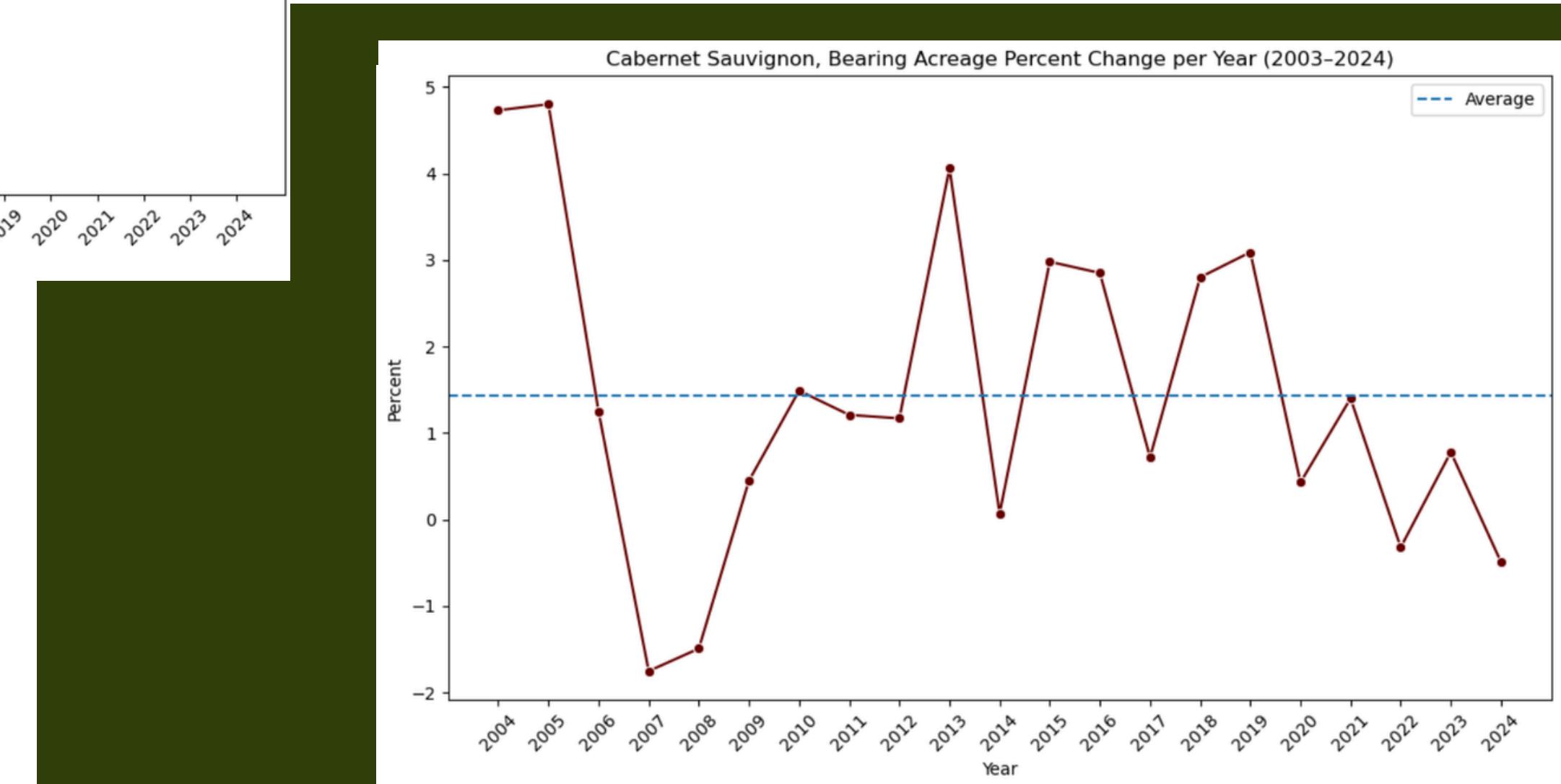
Acres

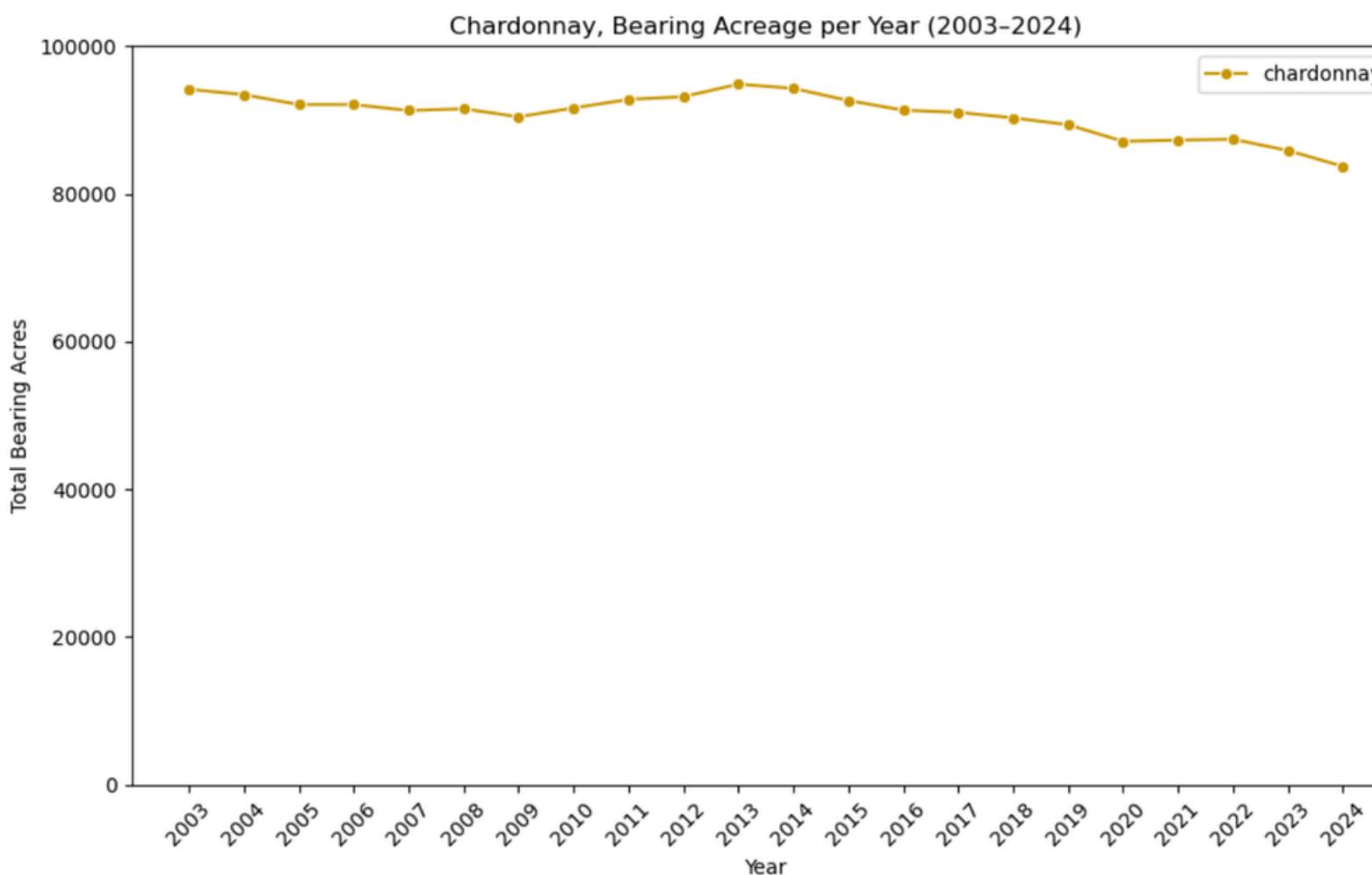
**1124**

average **increase** per year

Acreage %

**1.44%**





**Low Variability**

**± 1.19%**

standard deviation across years

**Consistent, Gradual Decline with Small Range**

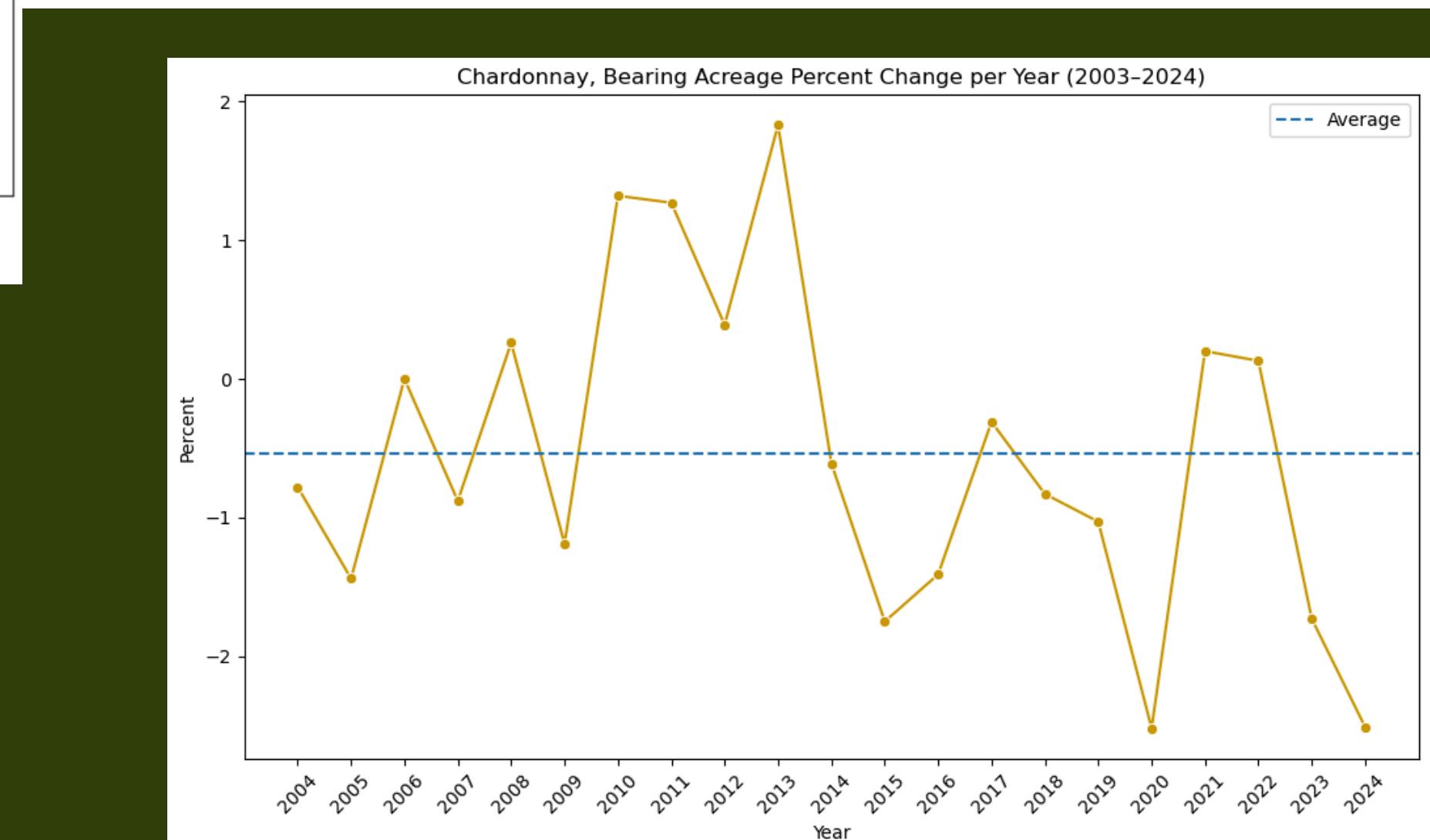
Acres

**-497**

average **decrease** per year

Acreage %

**-0.55%**



**Chardonnay****29.8**

minimum

**64.5**

maximum

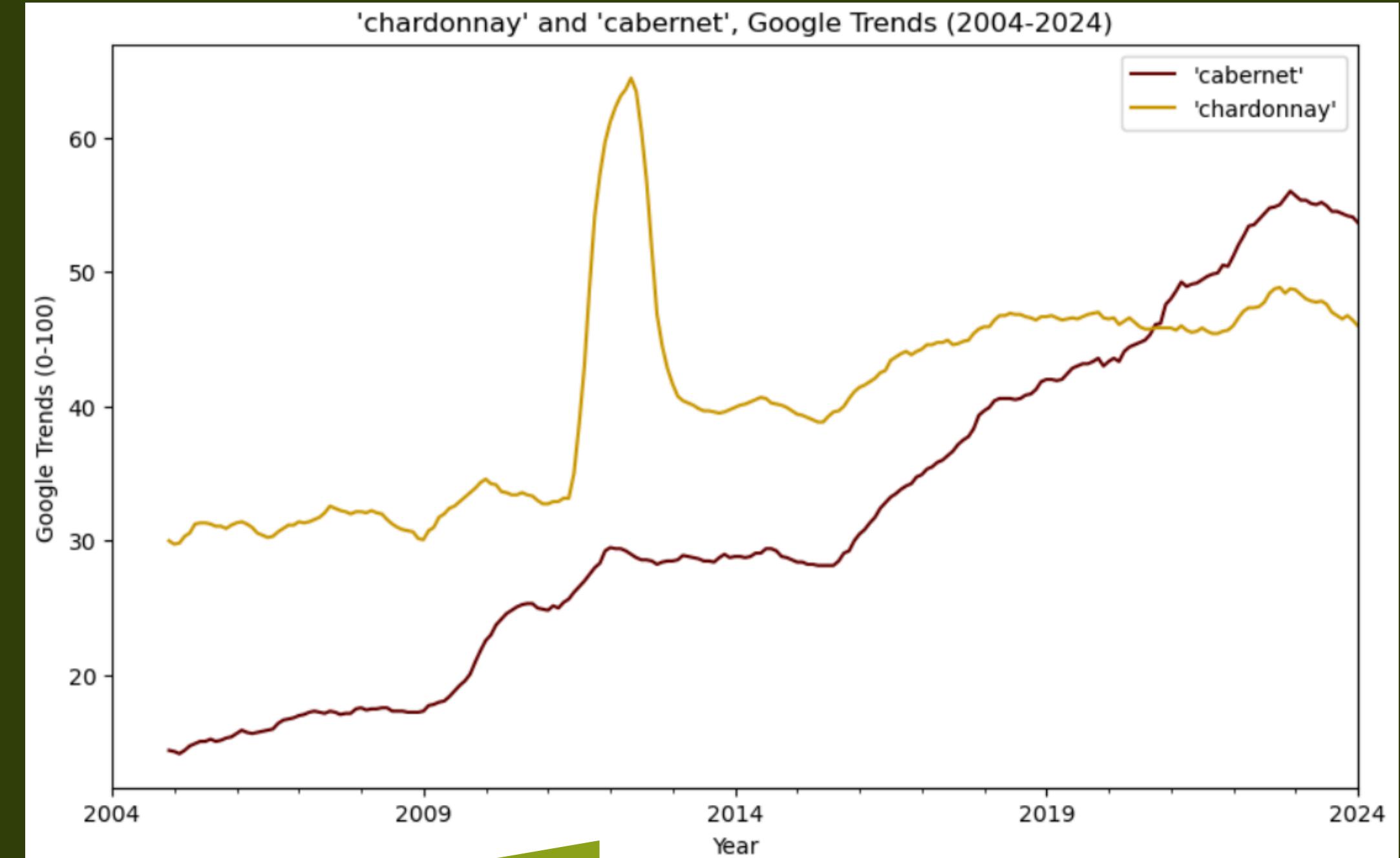
**Cabernet****14.1**

minimum

**55.9**

maximum

Rolling averages used for simplification



2011-2013: Three different songs with “Chardonnay” in the name debut

# Deep Dive



# Did the movie *Sideways* actually cause Pinot Noir to increase and Merlot to decease?



# The “Sideways Effect”

2004

*Sideways* hits theaters, famously trashing Merlot and complementing Pinot Noir

## Analysis

- 01 Online Engagement
- 02 Bearing Acreage Changes
- 03 Comparisons for Context
- 04 Non-Bearing Acreage Changes
- 05 Insights



01

## 'pinot noir' Engagement Increases Overall...

### Pinot Noir

**25.5**

minimum

**60.2**

maximum

### Merlot

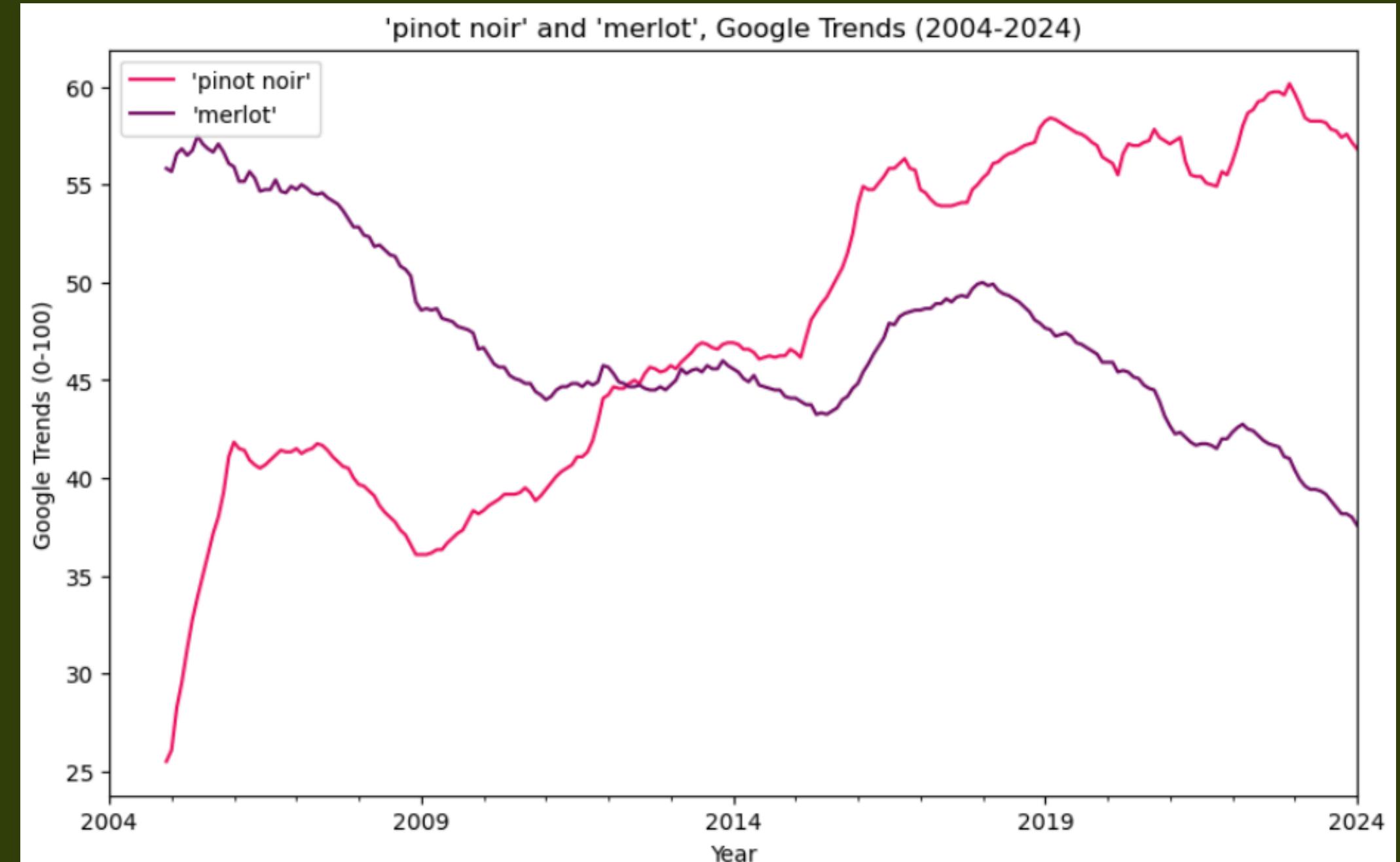
**37.6**

minimum

**57.5**

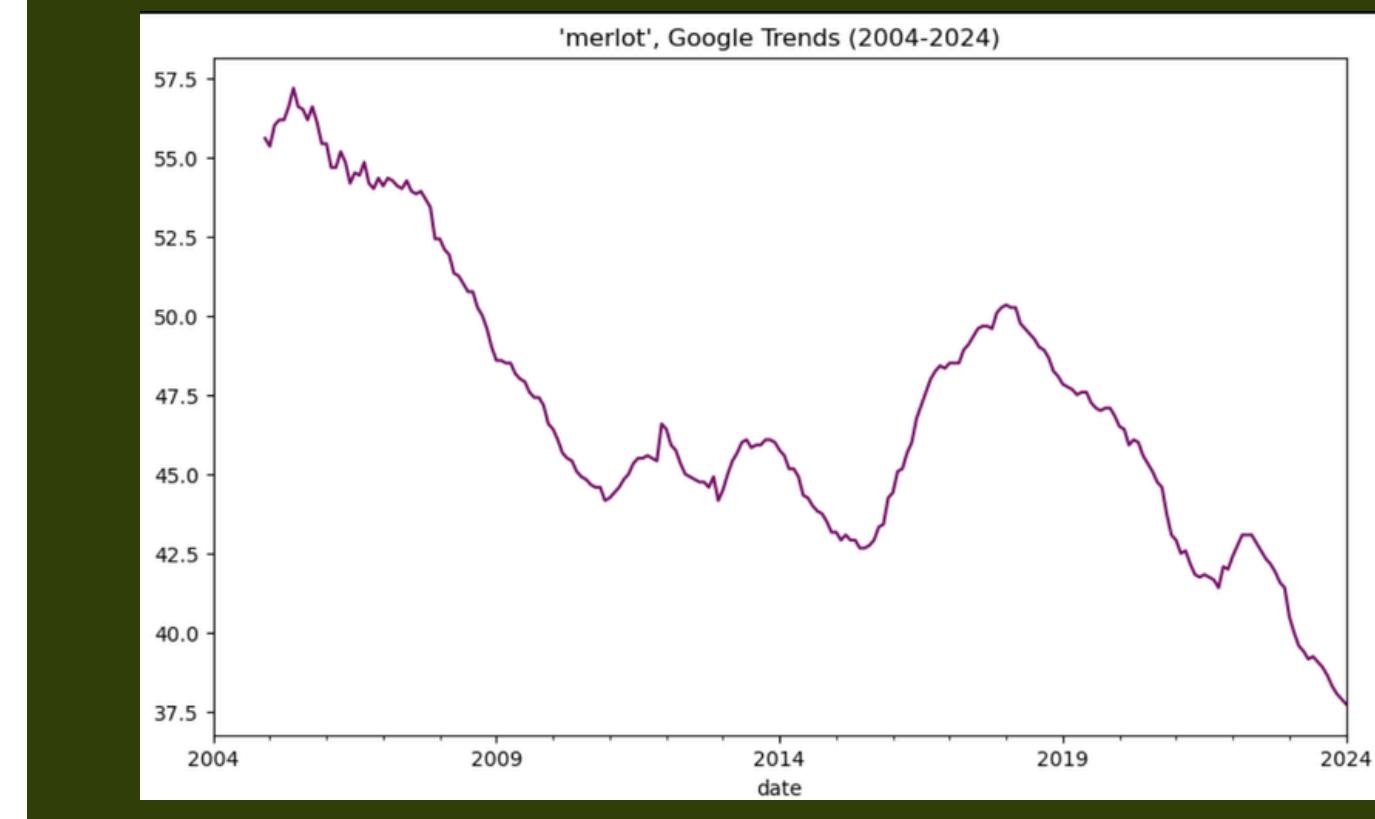
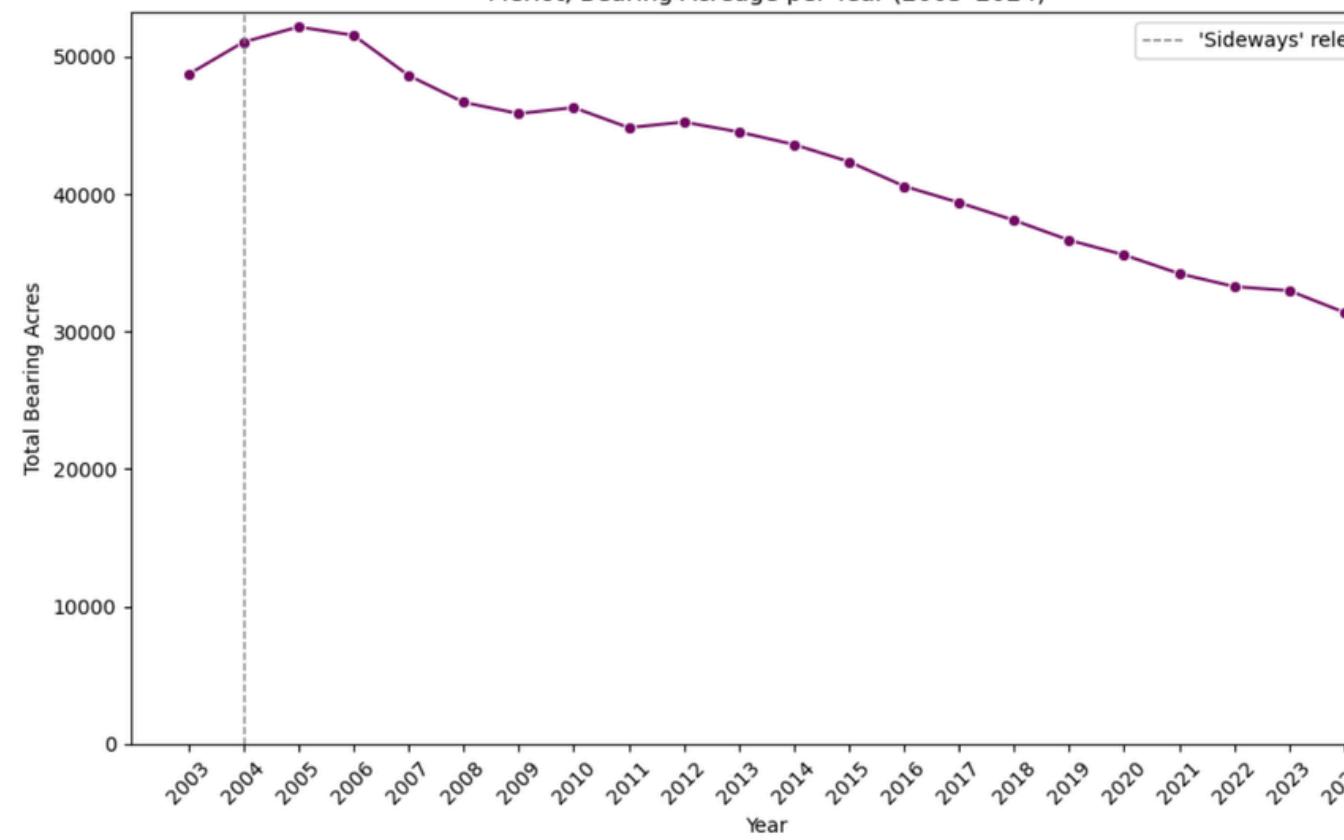
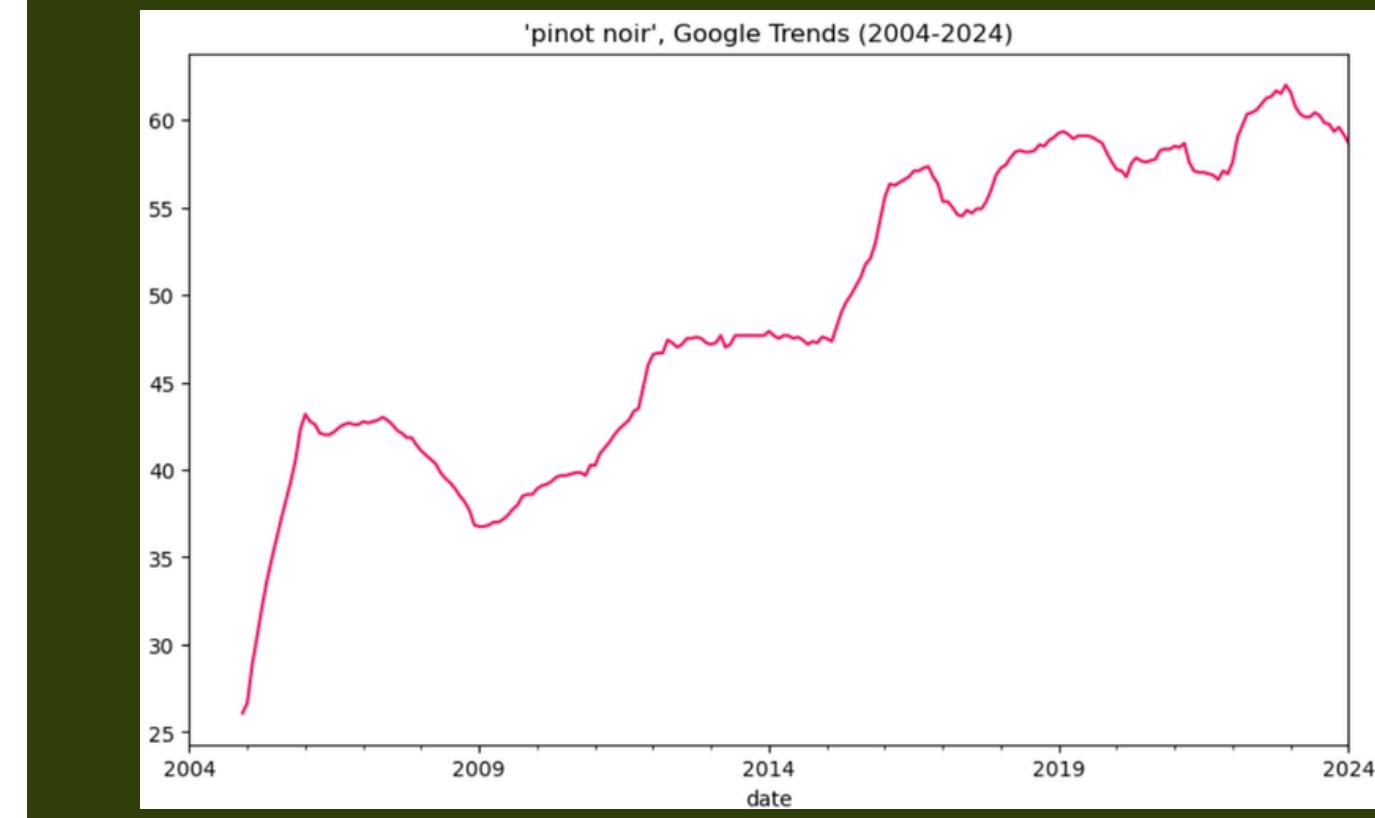
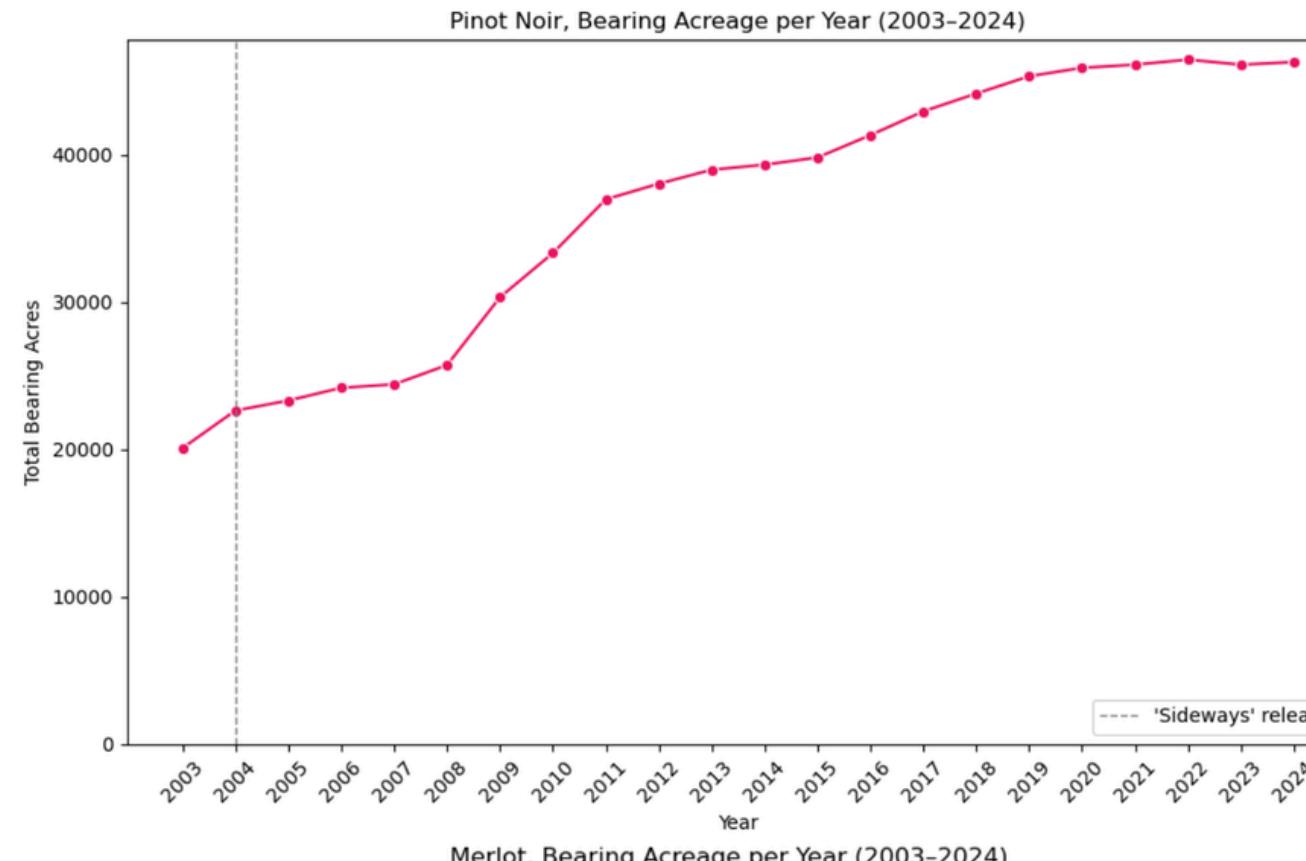
maximum

Rolling averages used for simplification

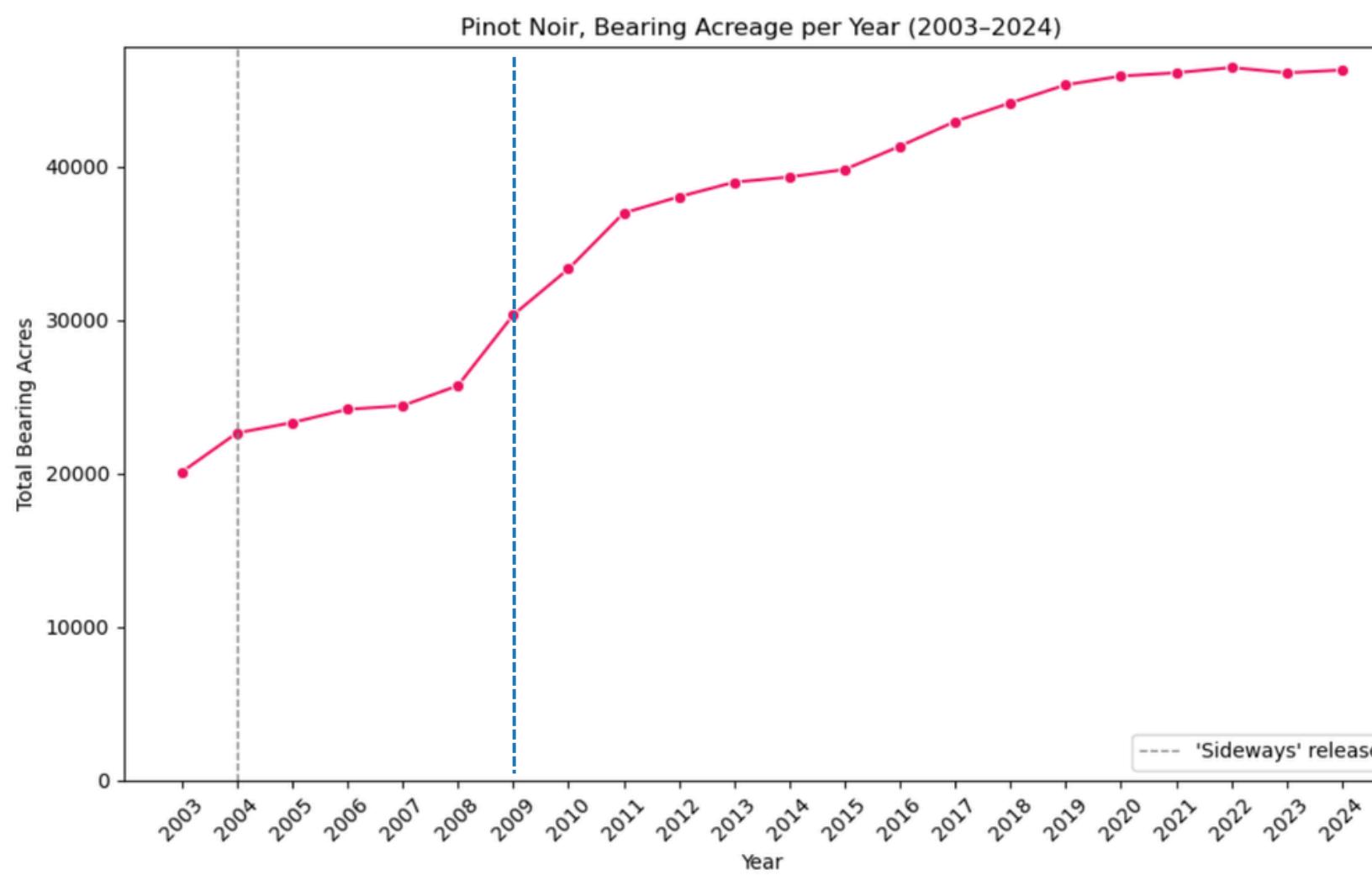


... and 'merlot' Engagement Decreases Overall

# Pinot Noir Bearing Acreage Increases Along with Search Frequency...



... and Merlot Bearing Acreage Decreases Along with Search Frequency



**Very High Variability**

**± 4.76%**

standard deviation across years

## Consistent, Dramatic Growth with Wide Range

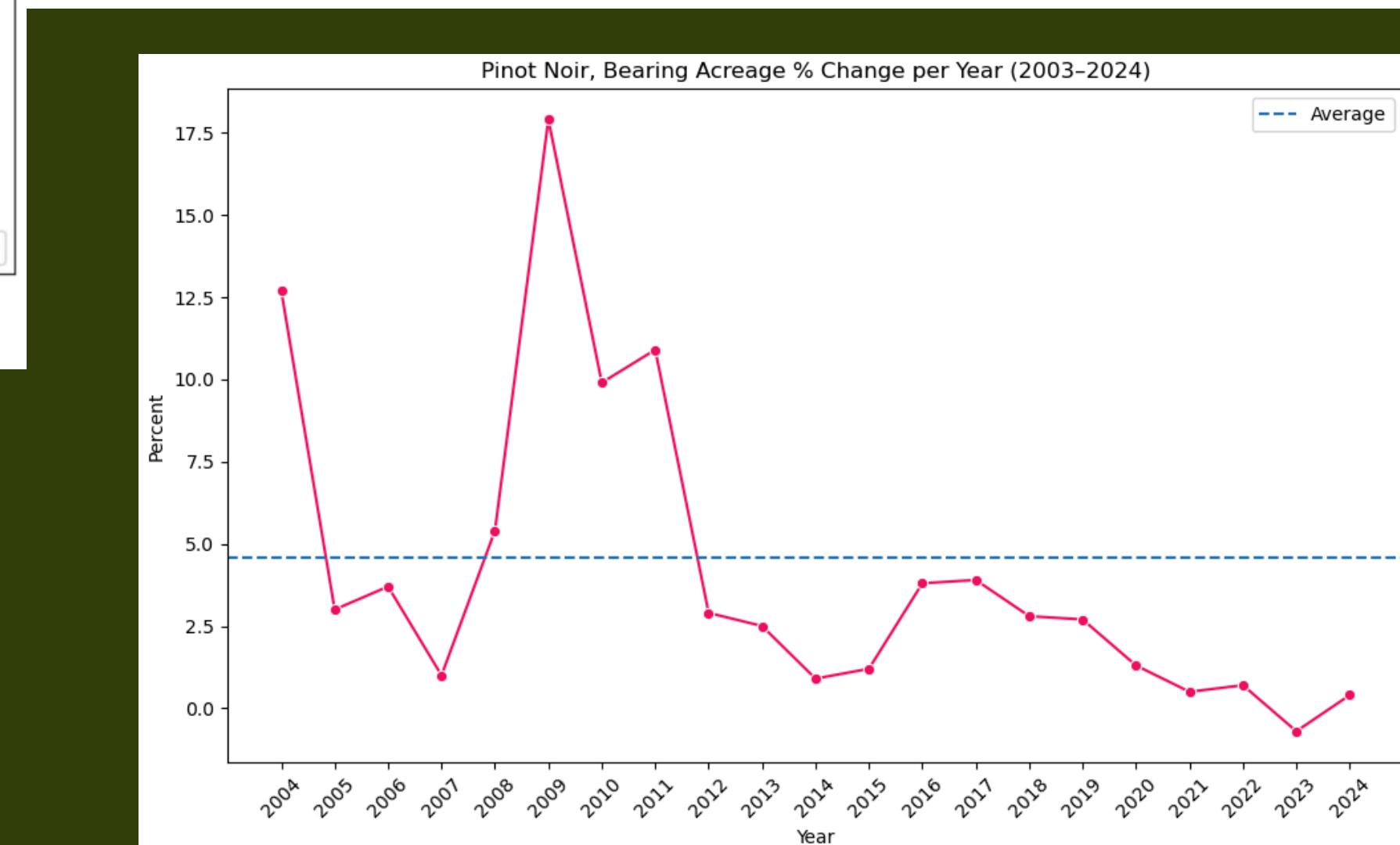
Acres

**1229**

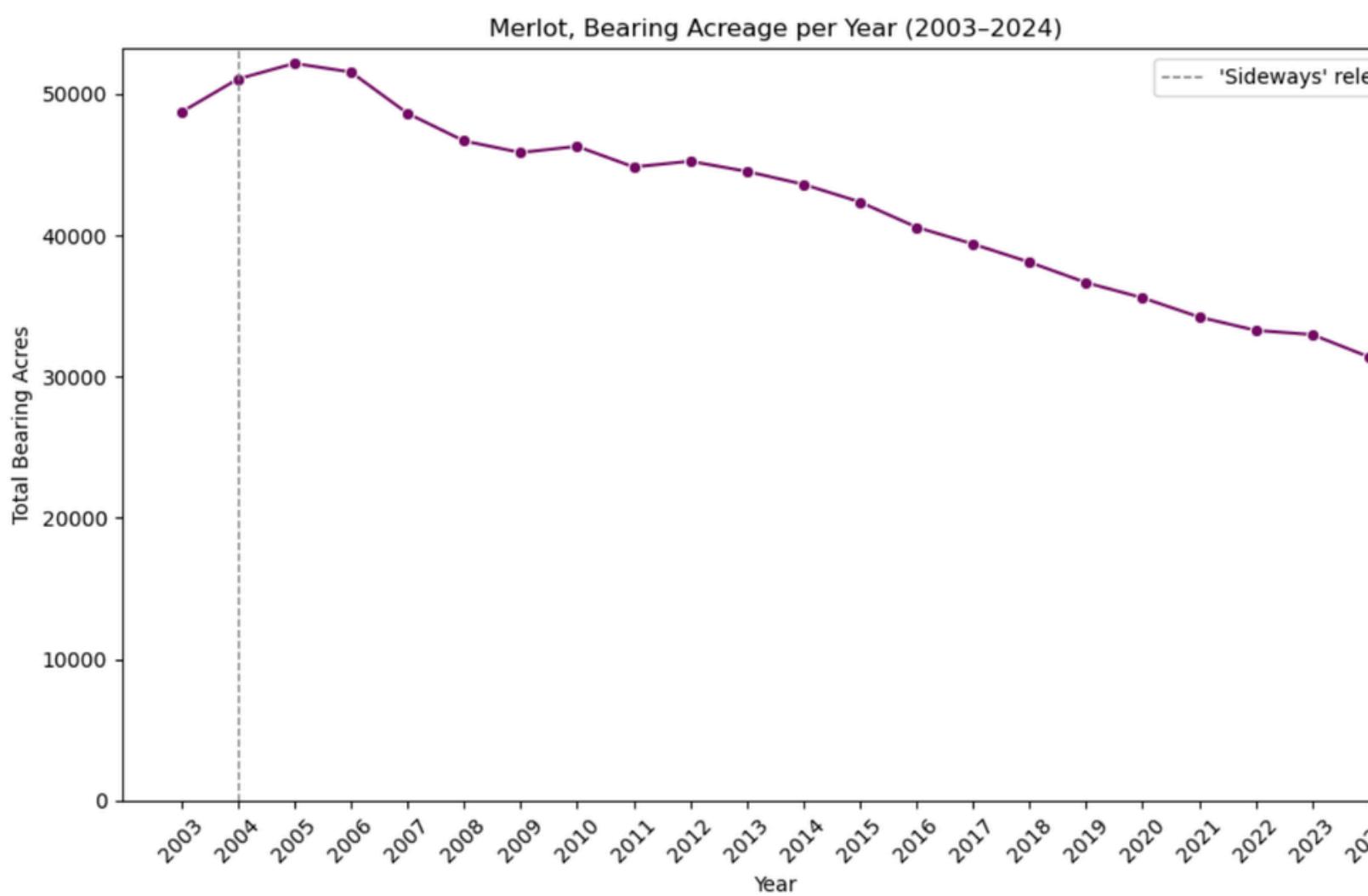
Acreage %

**4.16%**

average **increase** per year



# Merlot, Bearing Acreage Changes



**High Variability**

**± 2.51%**

standard deviation across years

**Consistent, Notable Decline with Wide Range**

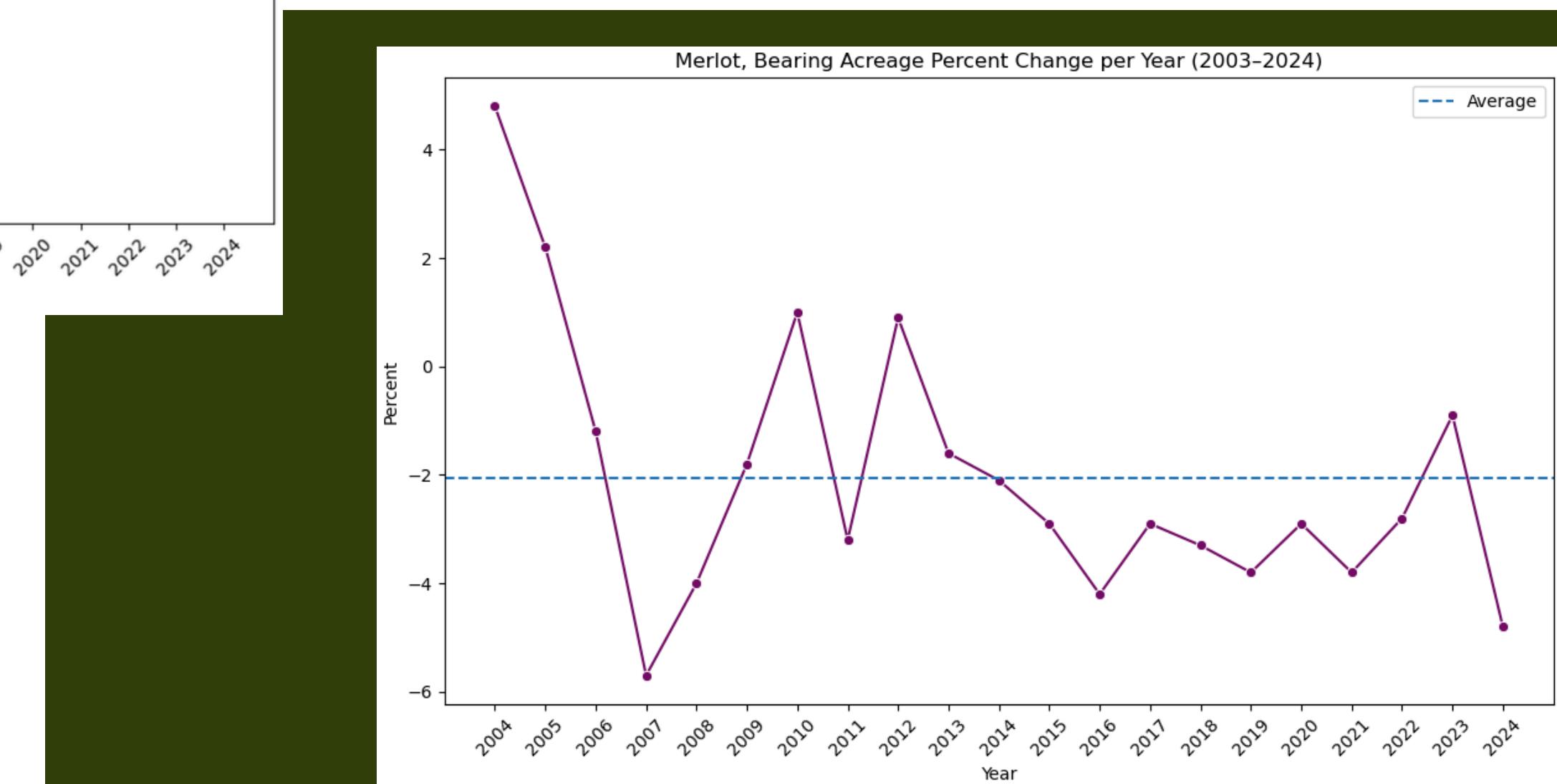
Acres

**-825**

average **decrease** per year

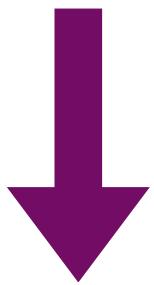
Acreage %

**-2%**

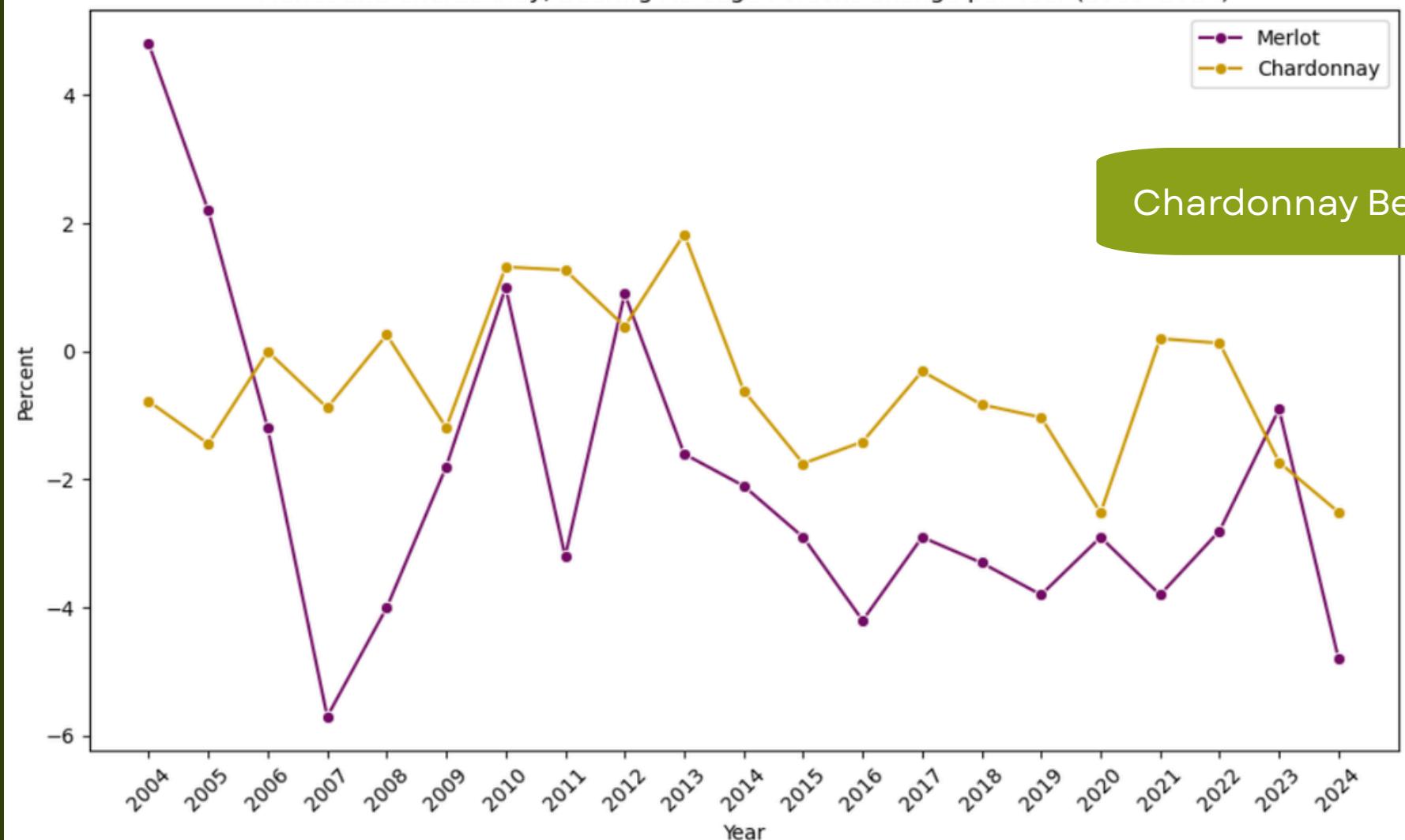


Merlot, Bearing Acreage Changes (as Percentage)

# Merlot



Merlot and Chardonnay, Bearing Acreage Percent Change per Year (2003-2024)



Chardonnay Bearing Acreage is over double that of Merlot

Acres  
**-825**

average **decrease** per year

**± 2.51%**

standard deviation across years

Acreage %  
**-2%**

Acres

**-497**

average **decrease** per year

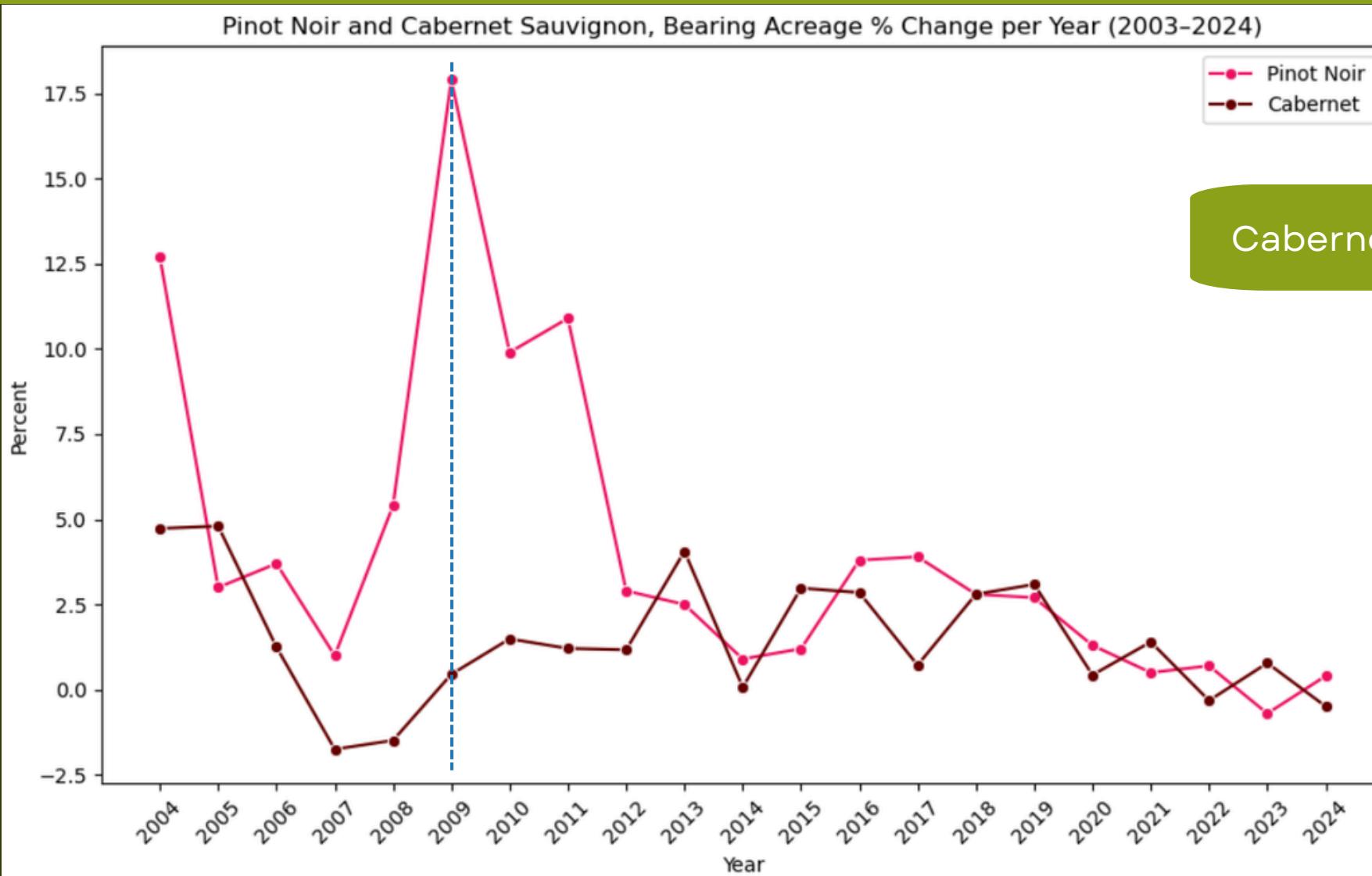
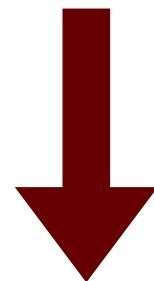
**± 1.19%**

standard deviation across years

Acreage %  
**-0.55%**



Chardonnay



Cabernet Bearing Acreage is double that of Pinot

Acres  
**1124**

average **decrease** per year

**± 1.86%**

standard deviation across years

Acreage %  
**1.44%**

Acres  
**1229**

average **decrease** per year

**± 4.76%**

standard deviation across years



Pinot Noir

**So, what can we learn from the increase of  
Pinot Noir bearing acreage in 2009?**

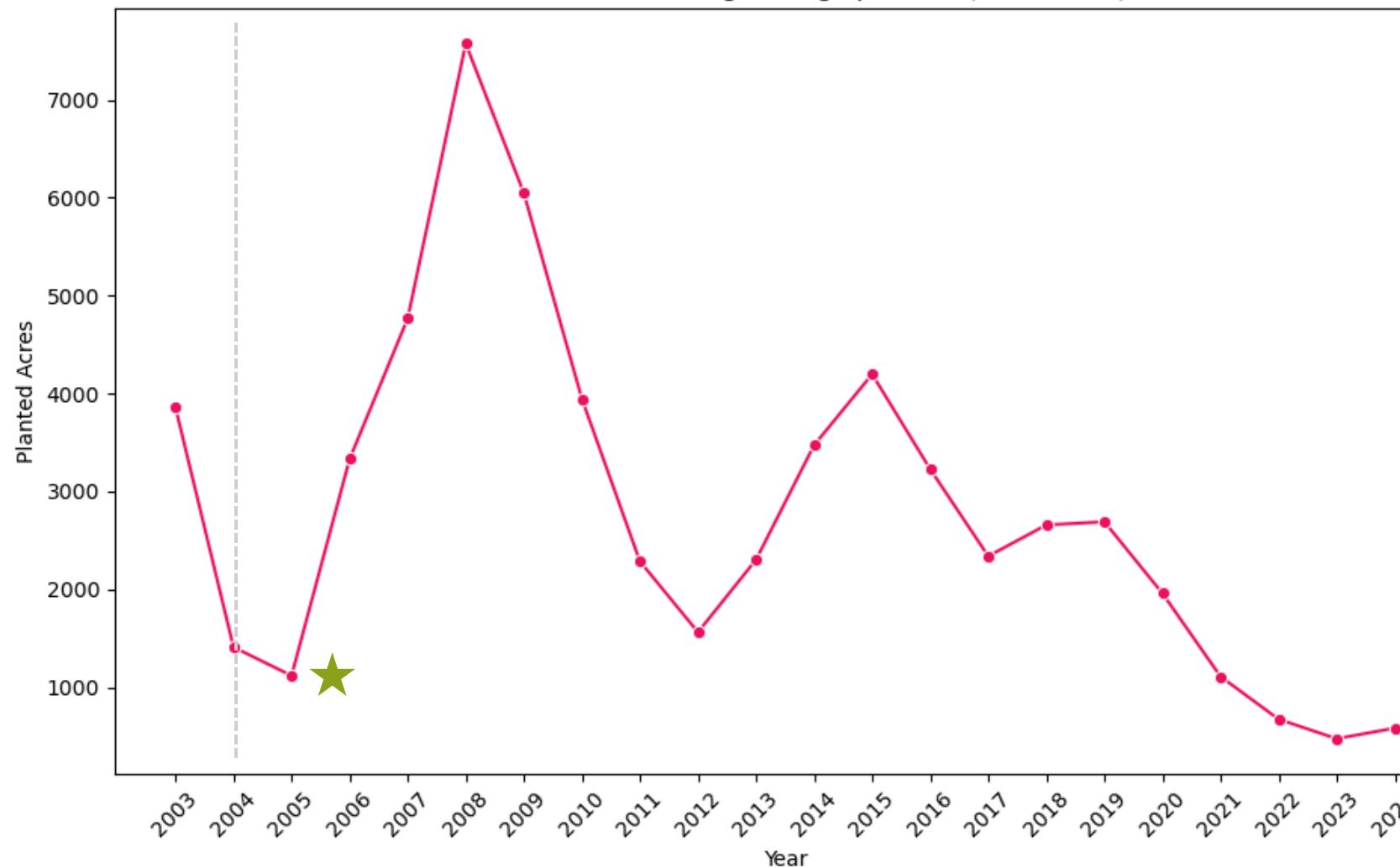
# Insights



★ = highly relevant

# Pinot Noir, Non-Bearing Acreage Changes

Pinot Noir, Non-Bearing Acreage per Year (2003-2024)



★ 2006 Increase

**198%**

acreage percent **increase** from 2005

## Highly Unusual Acreage Trend in 2006

2005

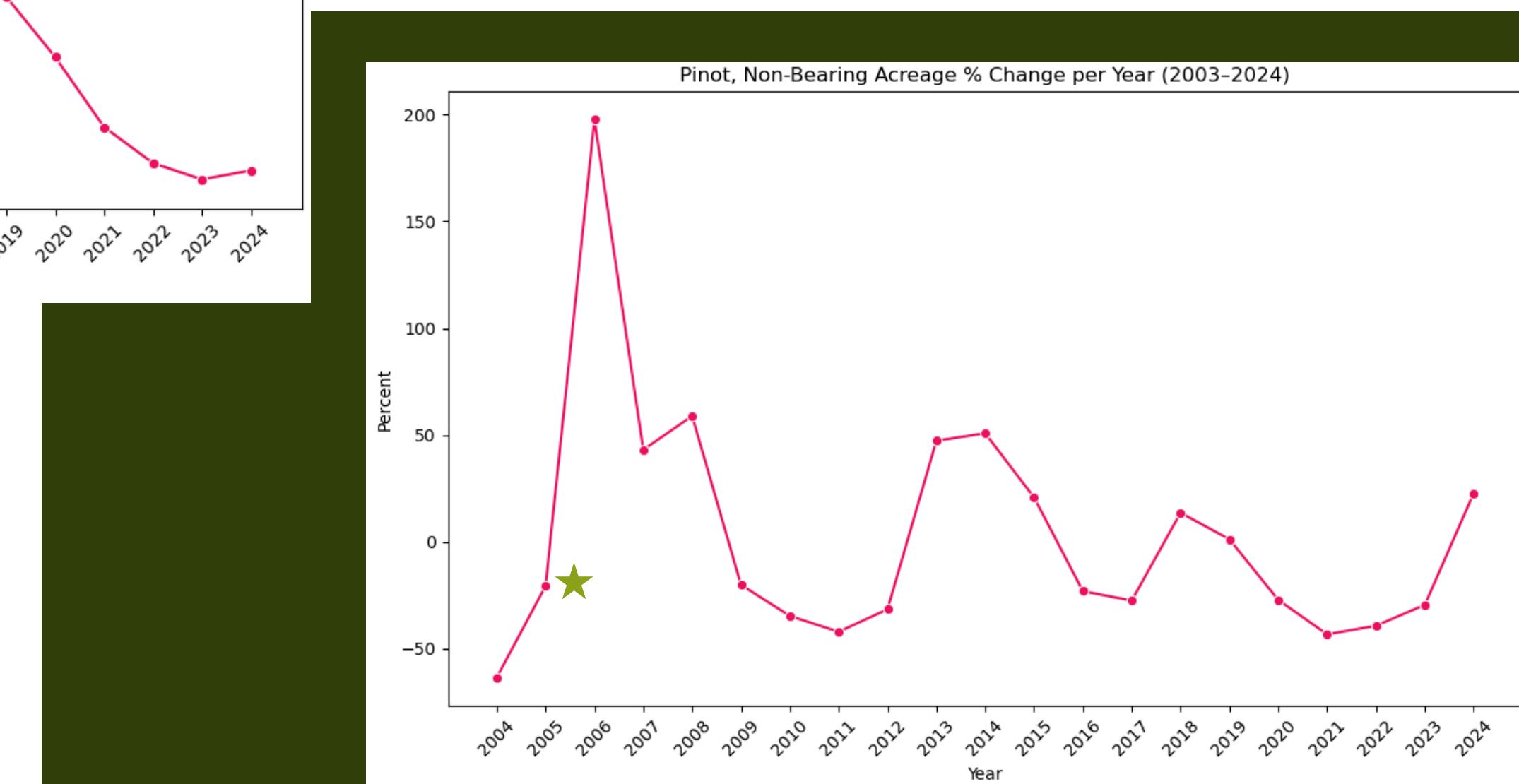
**1119**

absolute **increase** in acres

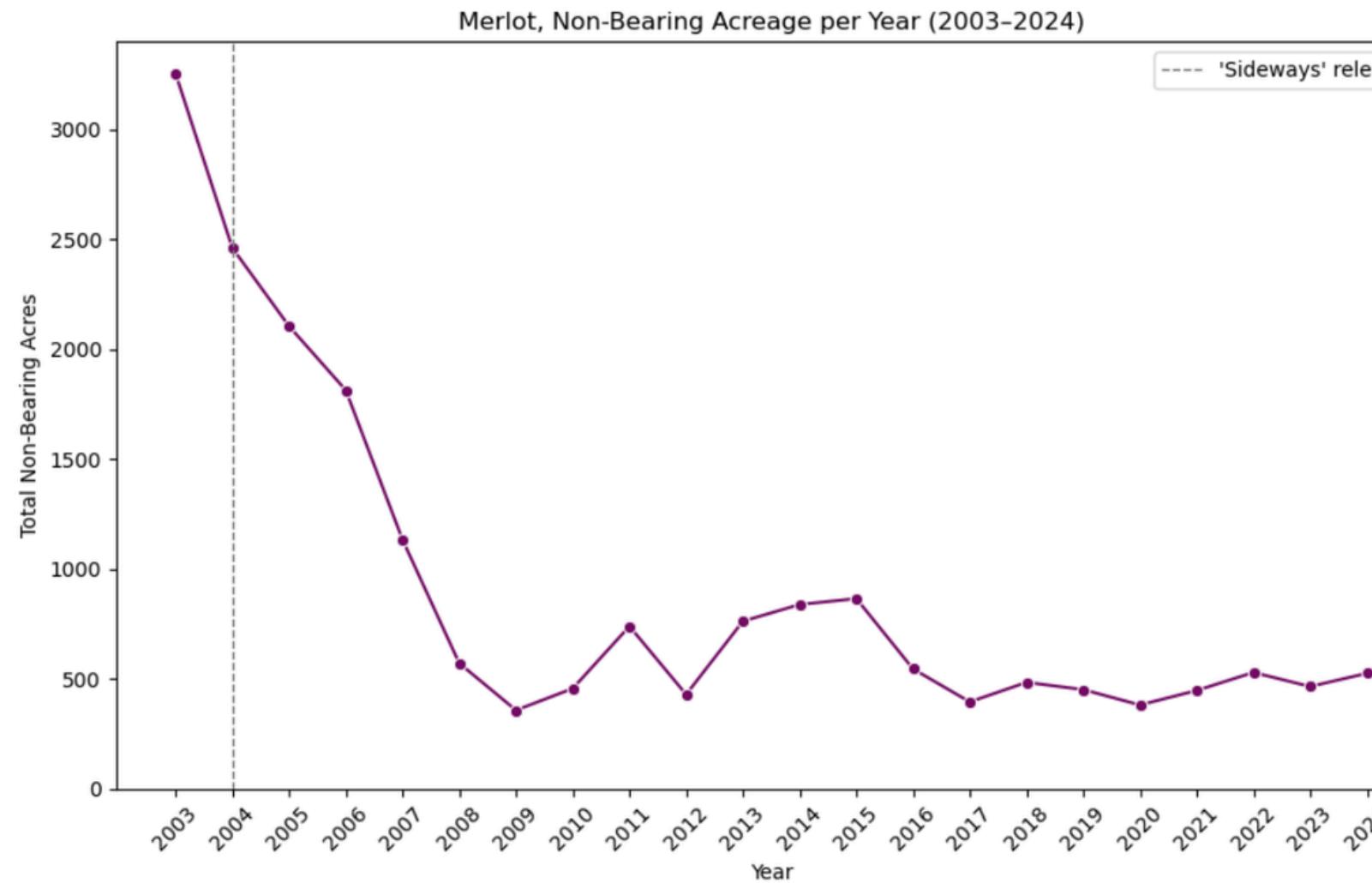
2006

**3331**

Pinot, Non-Bearing Acreage % Change per Year (2003-2024)



Pinot Noir, Non-Bearing Acreage Changes (as Percentage)



### ★ 2006-2008 Decrease

**-13.8%** | **-37.5%** | **-49.6%**

2006

acreage percent **decrease** from 2006

### Unusual Acreage Trend in 2006-2008

2006

**1813**

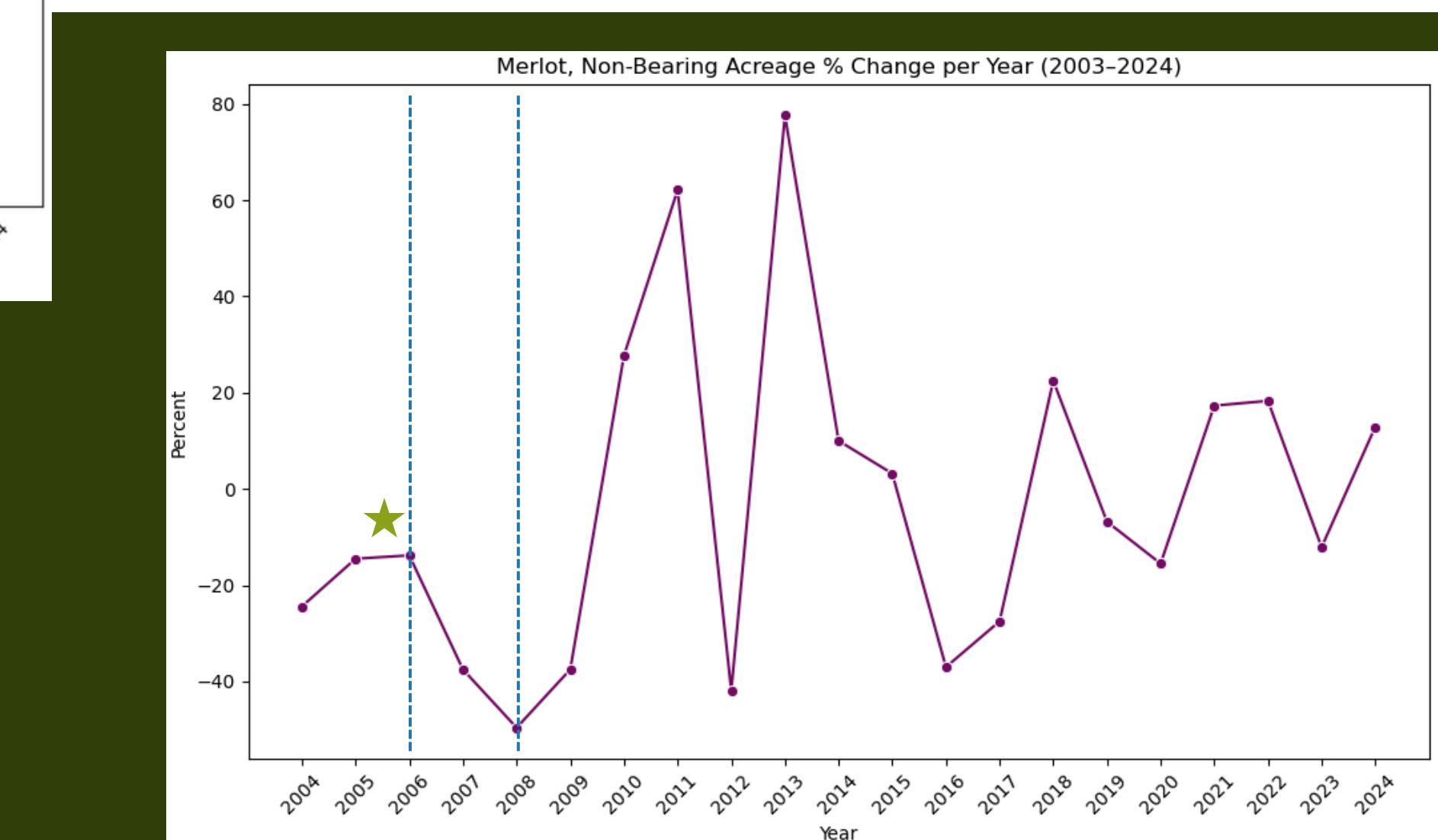
2007

**1133**

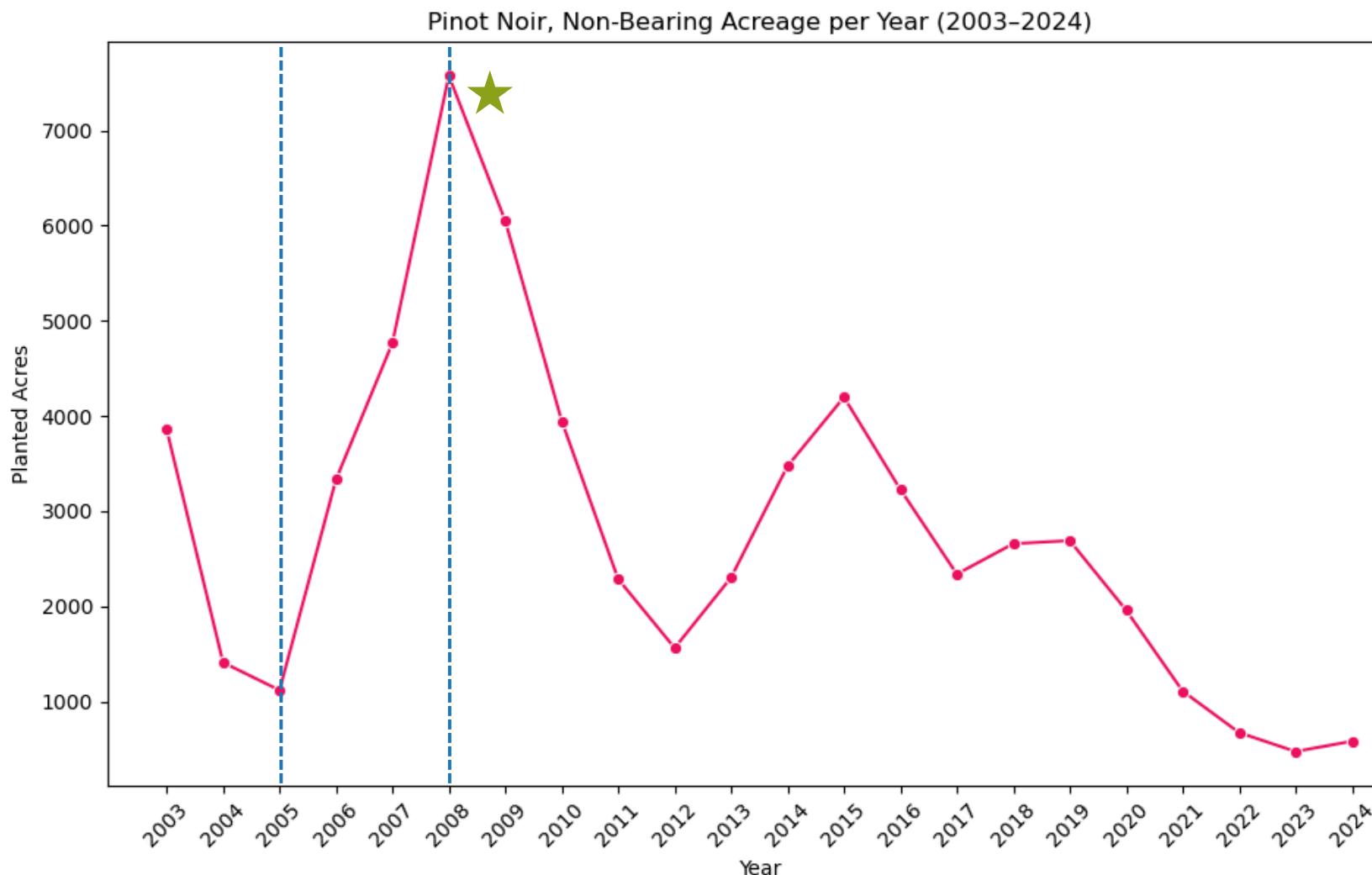
2008

**571**

absolute **decrease** in acreage



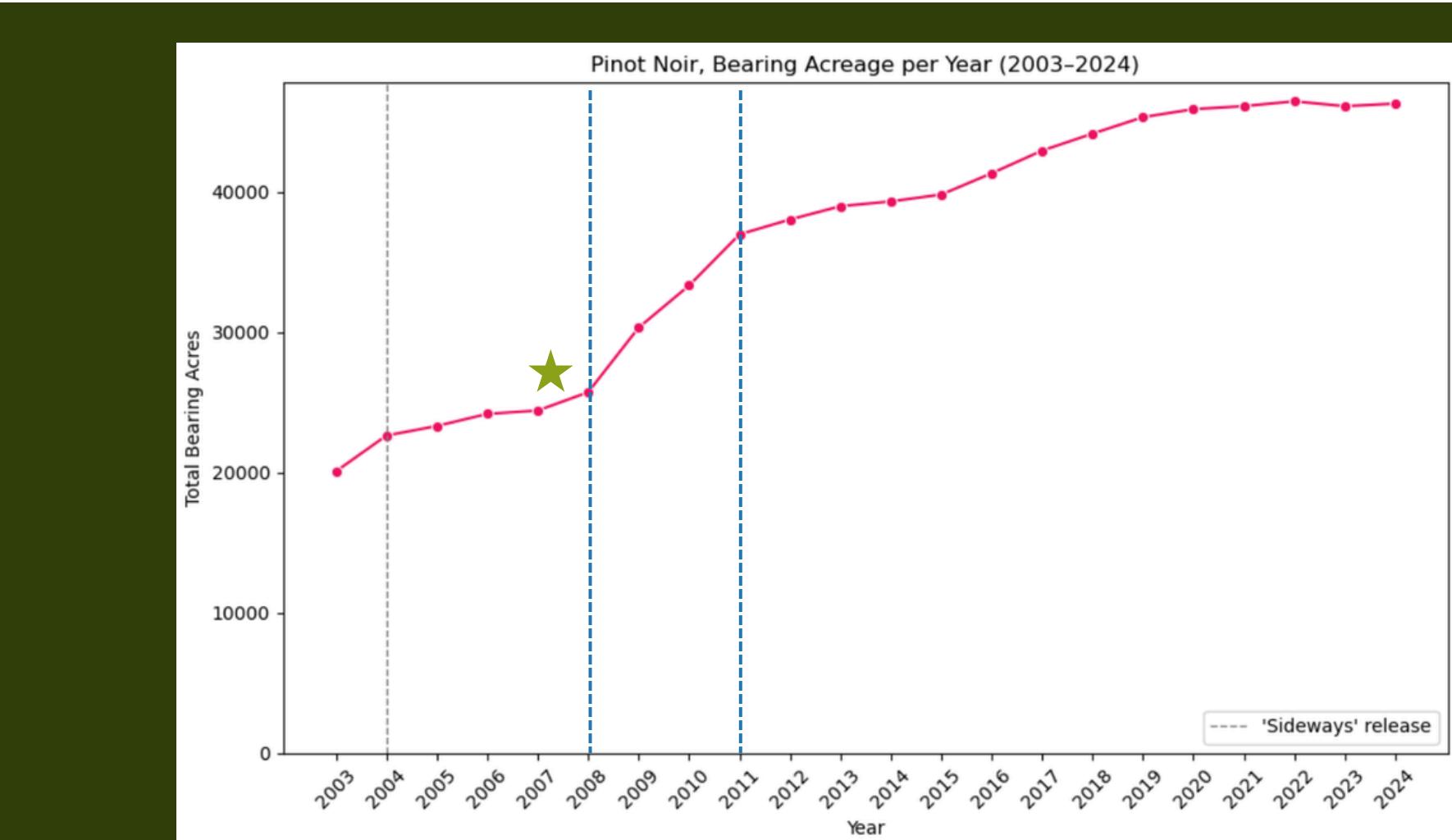
## Pinot Noir Non-Bearing Acreage Increases 2005-2008



Starting at 2005, plantings increase dramatically

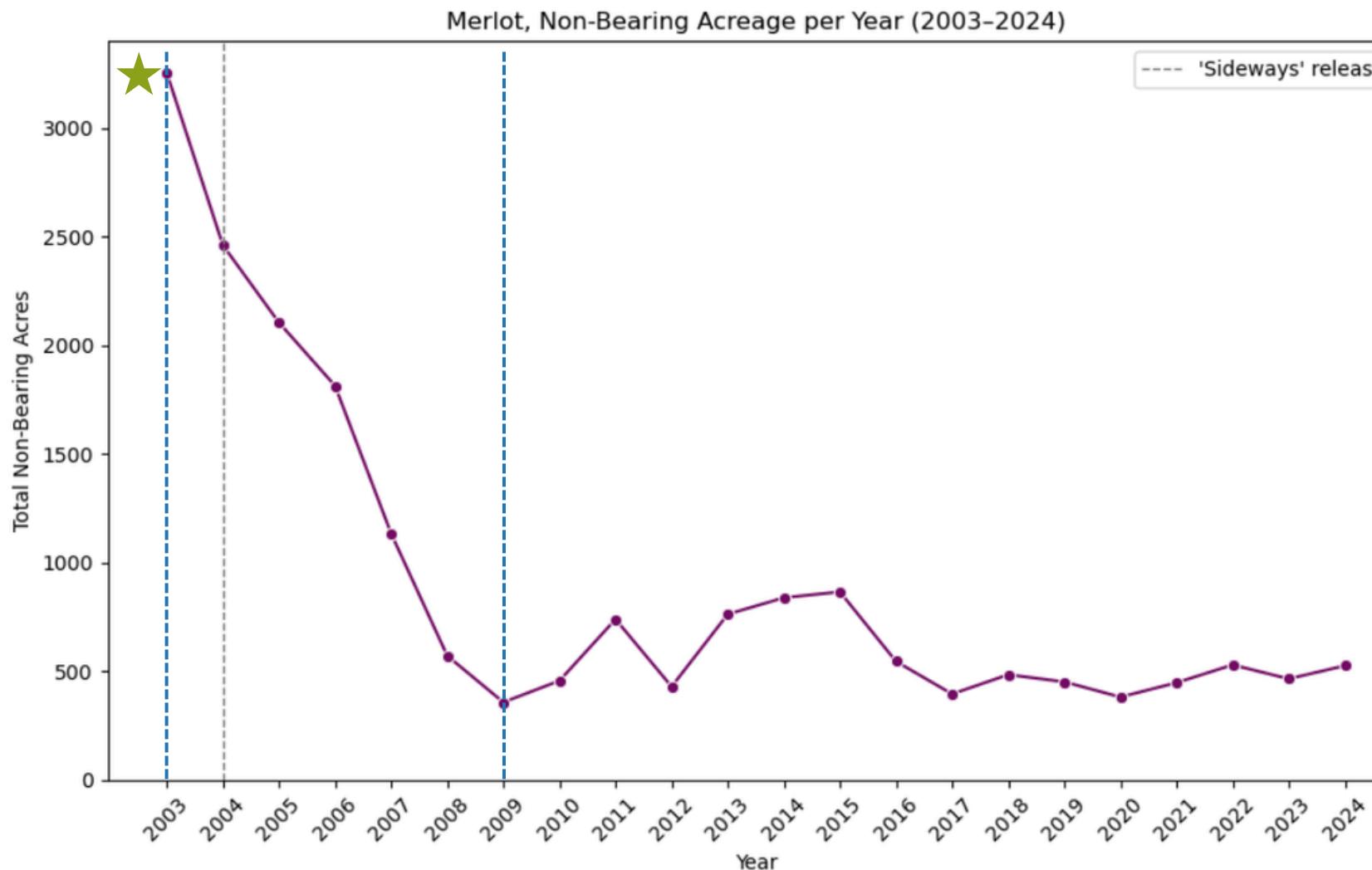
By 2008, previously planted vines are beginning to bear fruit

Remember, vines need **3-4 years** to start fruiting!

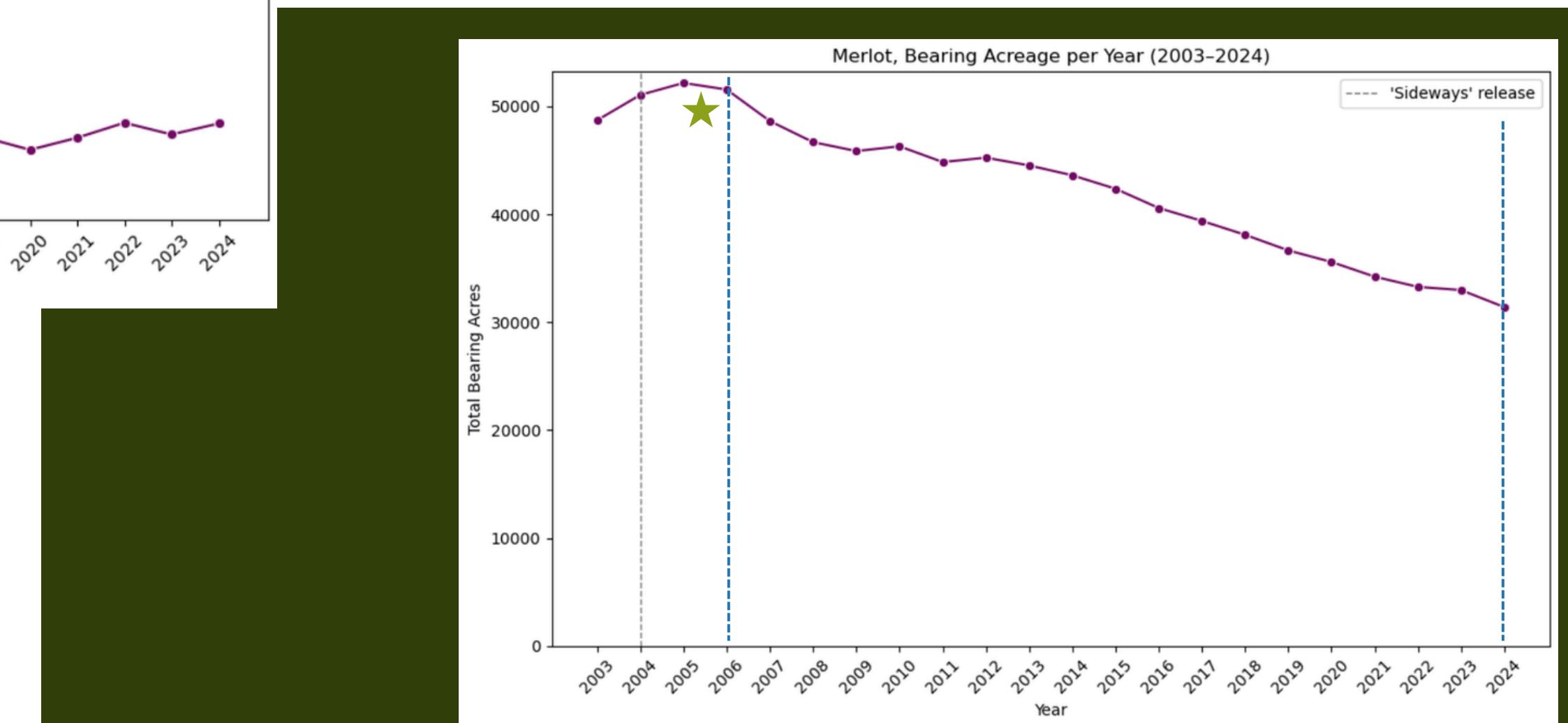


Pinot Noir Bearing Acreage Increases 2008-2011

## Merlot Non-Bearing Acreage Decreases 2003-2008



2003-2009, plantings decrease dramatically



In 2006, Bearing Acreage starts to notices the severe drop in plantings from previous years and doesn't recover at any point after

Merlot Bearing Acreage Decreases 2006-2009

**Are there any statistical correlations or relationships in this data?**

## Cabernet Sauvignon Bearing Acreage Increases...

**r-value**  
*no relationship*

Pearson

**0.05**

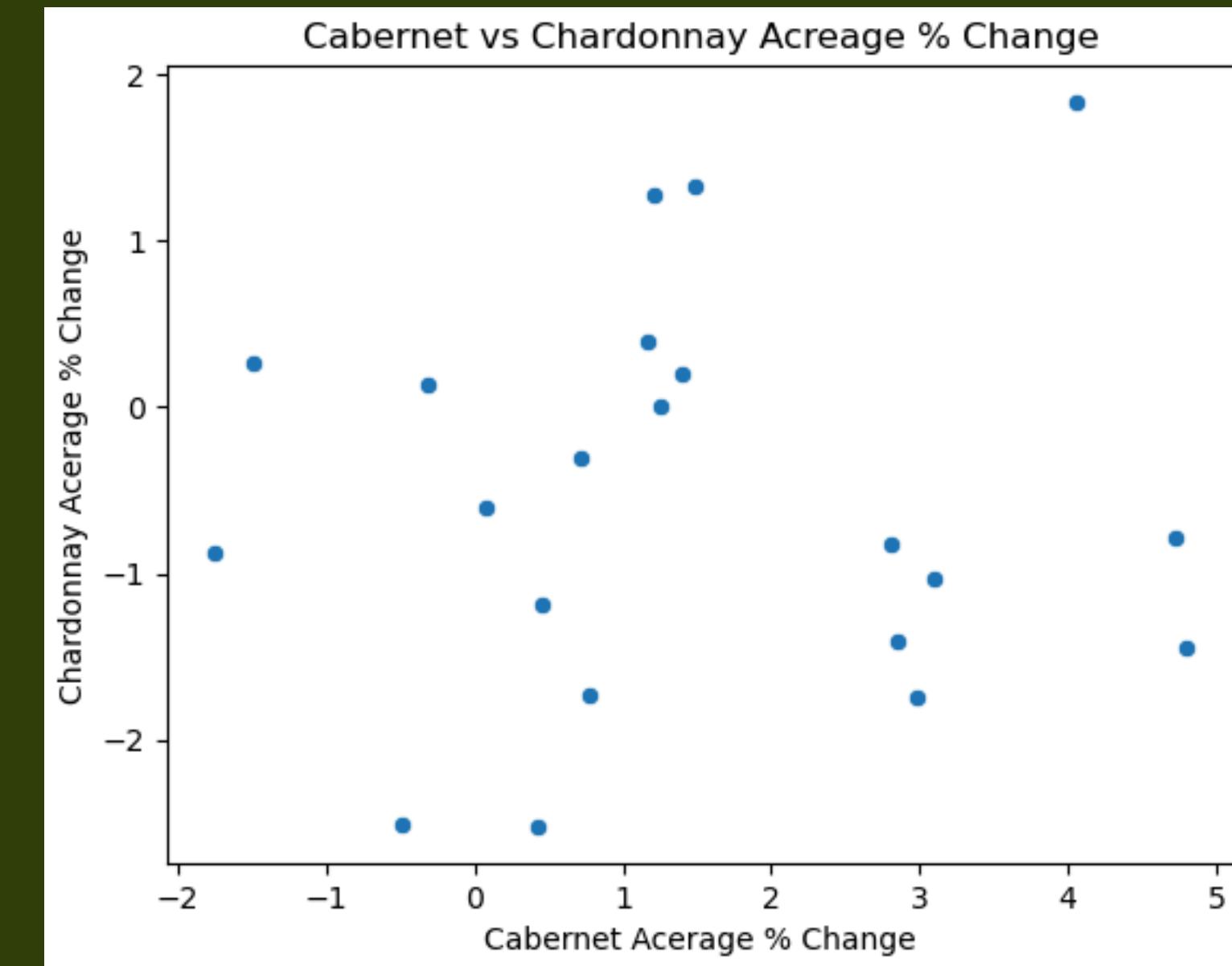
very low  
correlation

Spearman

**0.04**

very low  
correlation

There is no indication that where Cabernet **increases**, Chardonnay will **decrease** at the same time.



... and Chardonnay Bearing Acreage Decreases

## Pinot Noir Bearing Acreage Increases...

**r-value**

*no obvious relationship\**

Pearson

**0.4**

moderate  
correlation

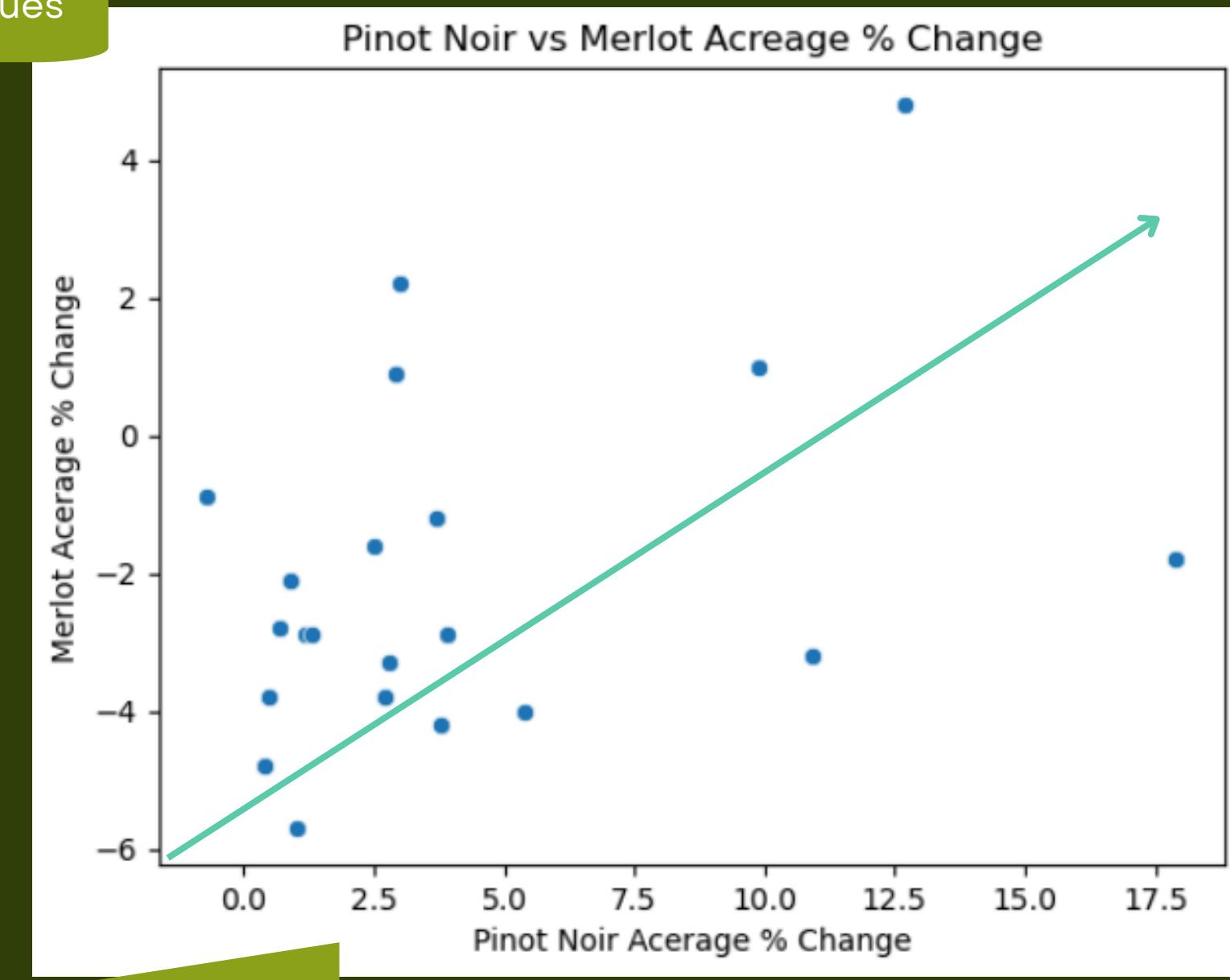
Spearman

**0.27**

low  
correlation

★ There is some indication that where Pinot Noir **increases**, Merlot will also **decrease** at the same time.

Factors for extreme outliers by ranking values



\*Clustering around -Merlot, +Pinot does suggest an inverse relationship

... and Merlot Bearing Acreage Decreases

# Conclusion



**Did the movie *Sideways* actually cause Pinot Noir to increase and Merlot to decease?**

**Did the movie *Sideways* actually cause Pinot Noir to increase and Merlot to decrease?**

Probably - but Merlot may have already been going down

# Conclusion

01

Overall, Pinot is trending up and Merlot is trending down

02

Google Searches possibly indicate interest in Pinot, not Merlot

03

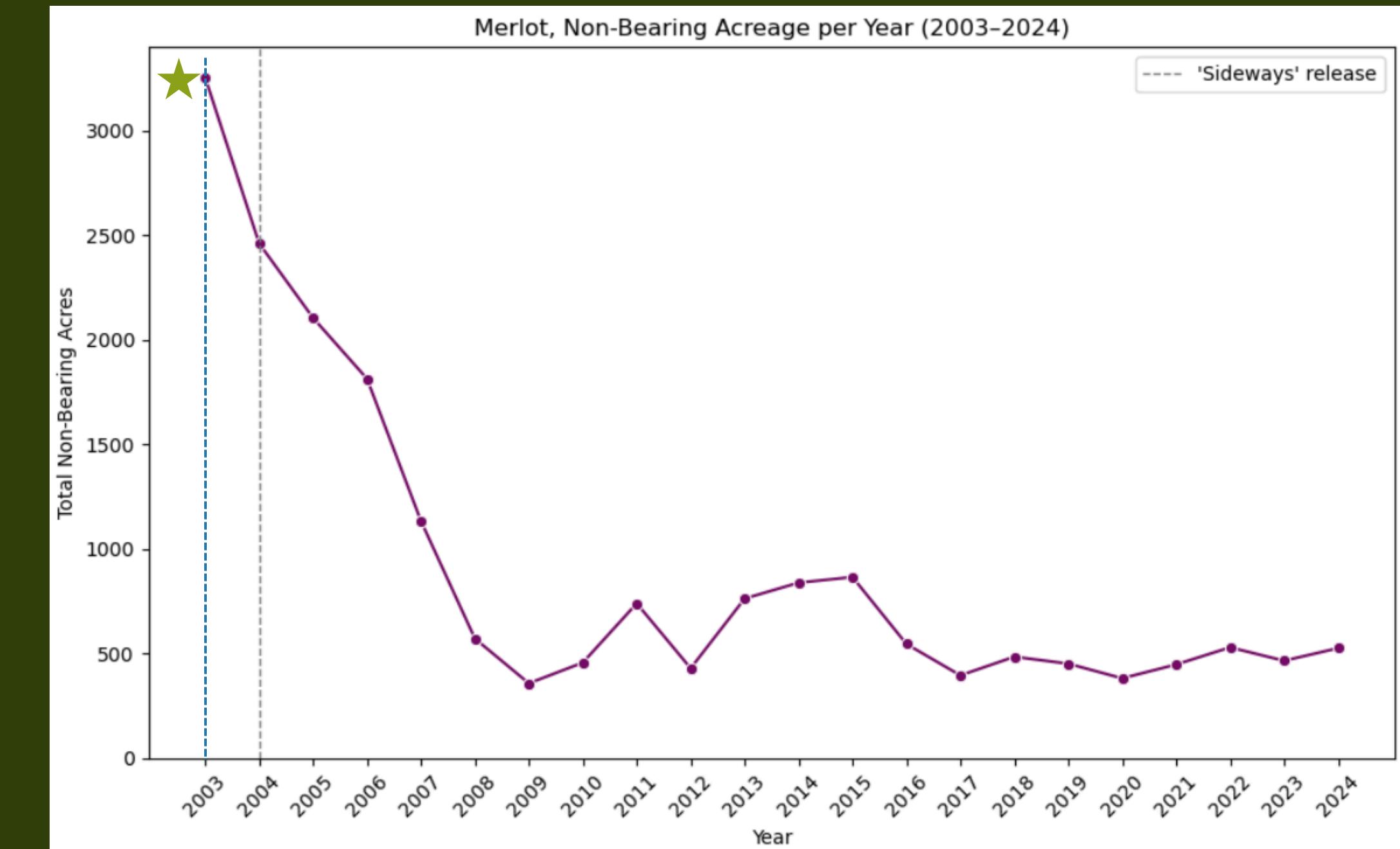
Non-bearing for Pinot increases 198% in 2006 with Merlot also decreasing, but not at the same intensity

04

Bearing for Merlot was already declining in 2003, a year before the movie came out

05

Correlation Coefficient (r-value) suggests no obvious trend, but scatterplot might



# Going Forward

01

Investigate Merlot and Pinot in years previous to 2004, and make projections going forward

02

Incorporate USDA Crush Reports to gain fiscal layer of depth

03

Determine if Merlot and Pinot had differences in regional dispersion, not just statewide

04

Use of more discrete consumer sentiment data on wine

05

Make a dashboard to articulate county-level data and **all** varieties



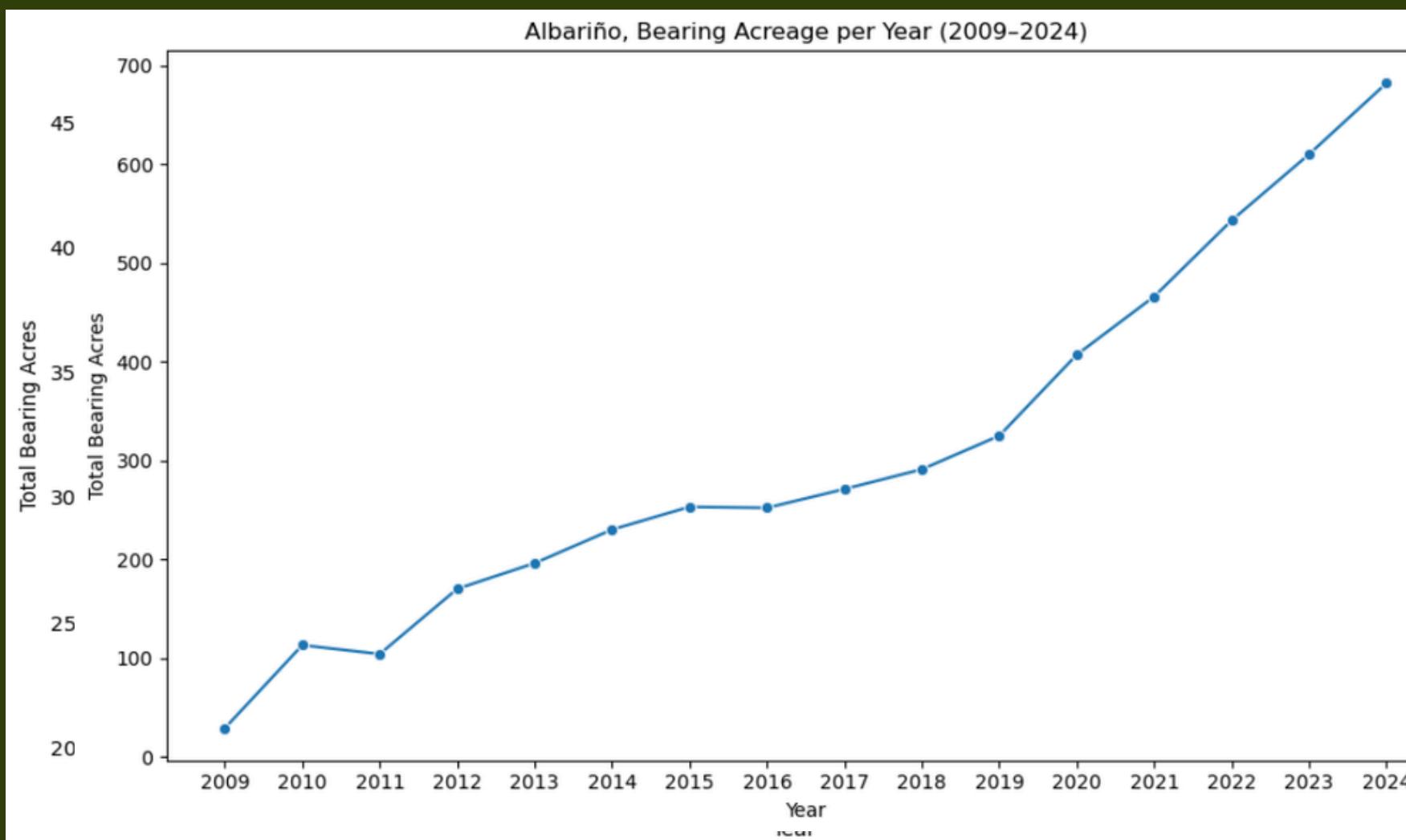
# BONUS:

If you were a vineyard investor, what land/  
variety would I recommend you invest in?

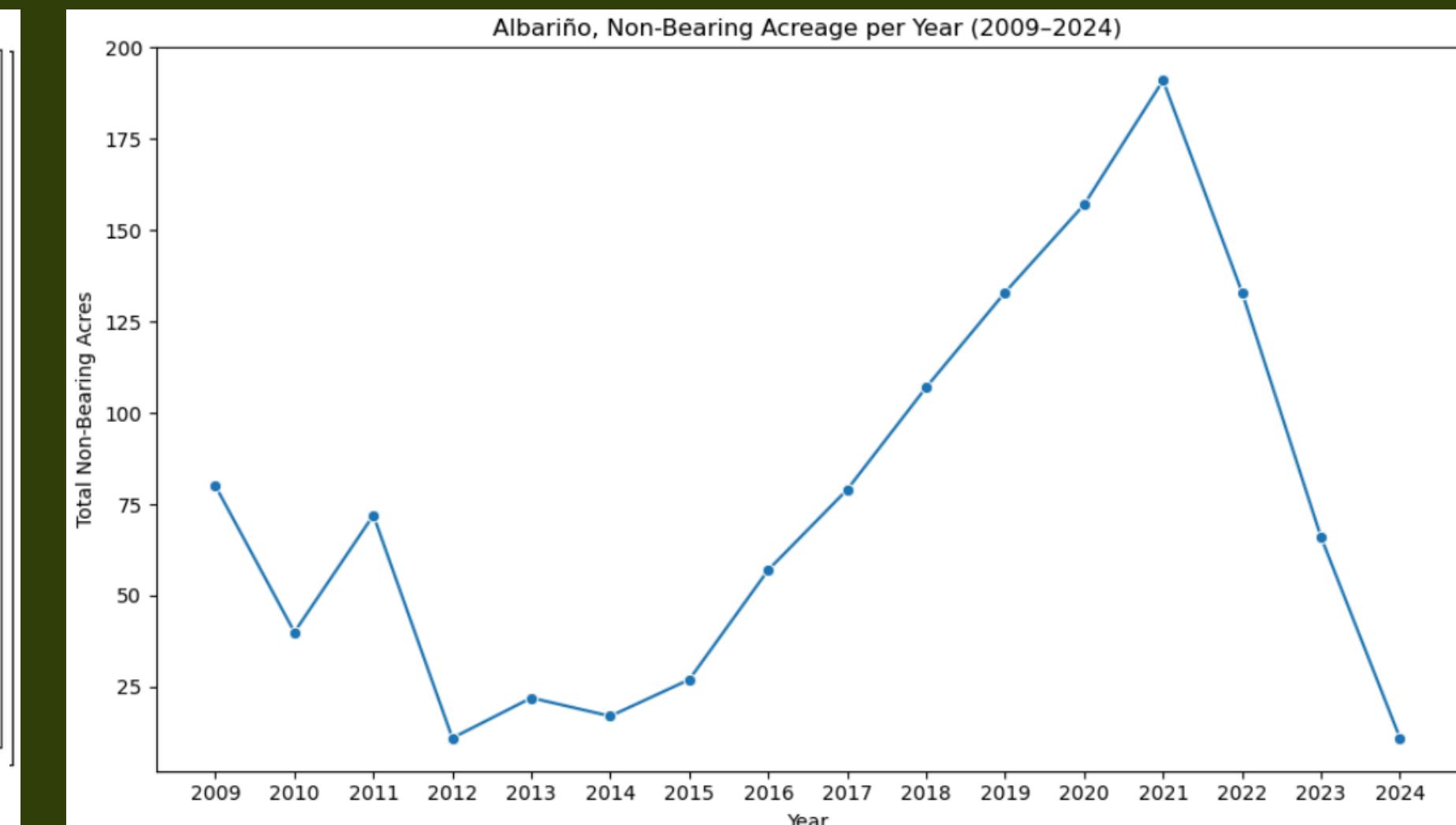
# Albariño

- 01 Rising star in California - new grape (first shows up in 2009)
- 02 Explosive **Increase** in Market Acreage and a notable **Decrease** in Planted Acreage
- 02 Reductions in plantings had a minimal effect on bearing acreage, showing steady growth

### Bearing Acreage (Market)

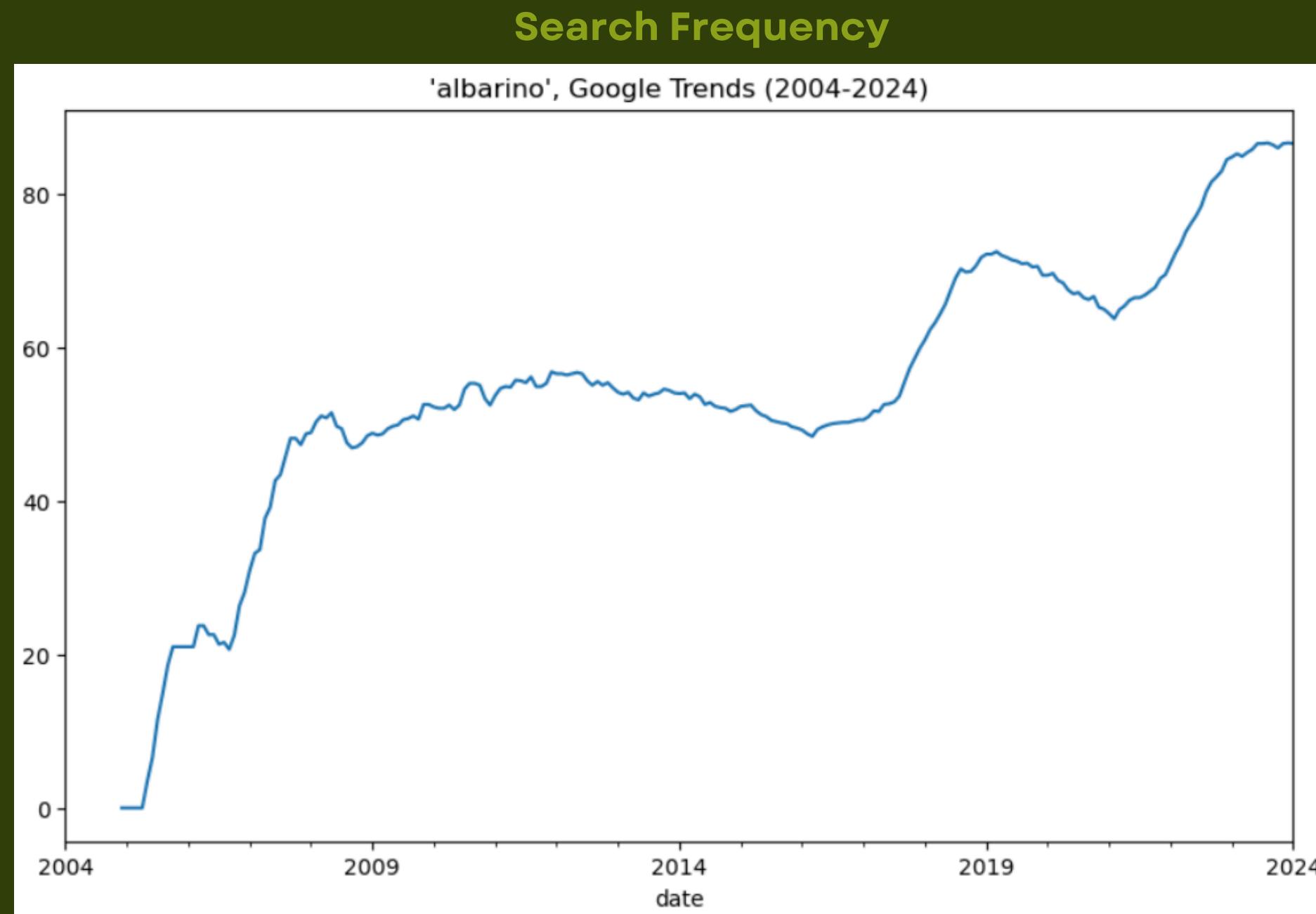


### Non-Bearing Acreage (Planted)



# Albariño

- 01 Maintains **Increase** in Online Interest despite losses in Planted Acreage
- 02 Potentially suggests the gap in the market can be filled can be filled with new plantings
- 03 Pricing data on crushed Albariño + similar market grapes would offer more granular insights





# Questions?



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[github.com/lillianargang](https://github.com/lillianargang)

## Data Sources:

*USDA Agricultural Data - Grape Acreage Reports  
Google Trends API*