



BLUEBERRY WINERY INSIGHTS

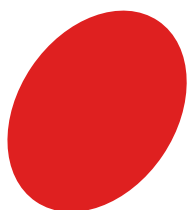
CODE ANALYTICS

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JAN 08/2021

YOUR QUESTIONS FOR YOUR WINERY STARTUP

- HOW CAN WE BUILD A SUCCESSFULL WINE BUSINESS BASED ON SCIENTIFIC DATA?
- Which Information for Marketing and Business Intelligence Does Data Provide Today?
 - Product
 - Place(ment)
 - Promotion
 - Price
- How Can Data Analytics / Data Science and Even AI (Machine Learning) Support Us in Making Best Decisions Possible?



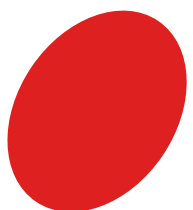
WHICH DATA DO WE **NEED**?

WHICH DATA DO WE **HAVE**?

Building a new business demands
a lot of information.

FUNDAMENTAL MARKETING QUESTIONS

- Market
 - Which Markets and Potentials Are Out There?
 - How Do the Markets Develop – Lately and in the Future?
 - Where is My Market?
 - Who Are the Competitors and is There Anything to Learn From Them?
- Who Are My Target Groups?
- Which Product is (Still) Needed or Suited in Which Market or Niche at Which Price?
- So Which Market Strategy So We Choose and Follow?



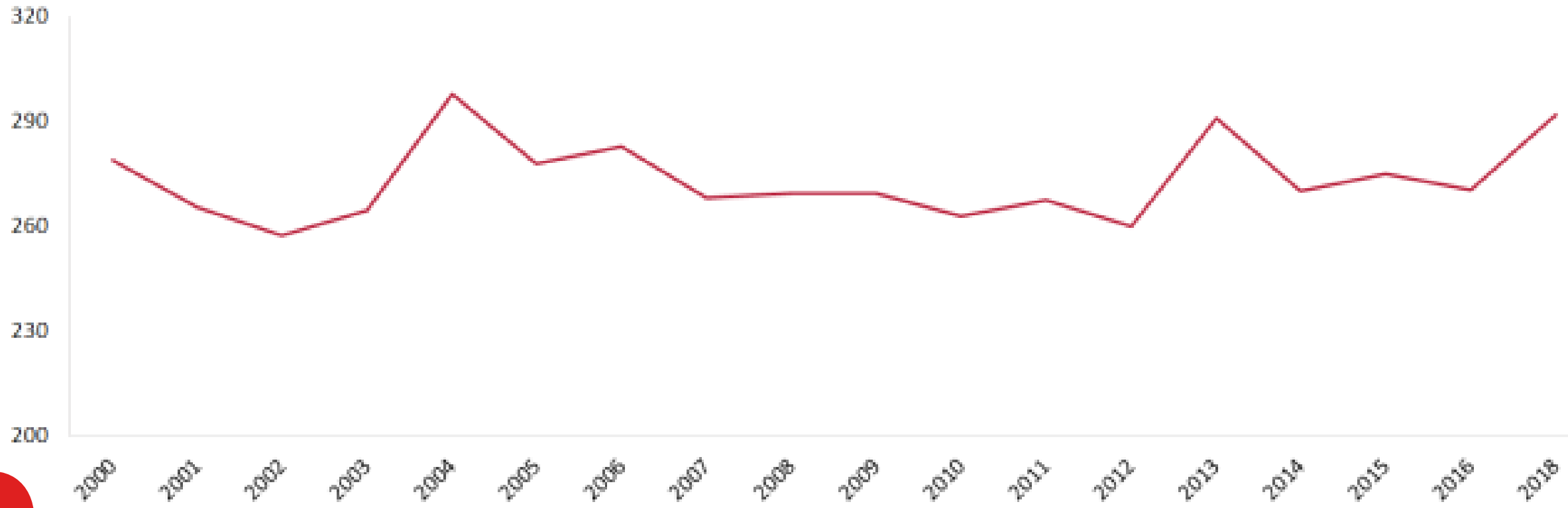
MARKET INFORMATION



WORLD WINE PRODUCTION: 292 MHL

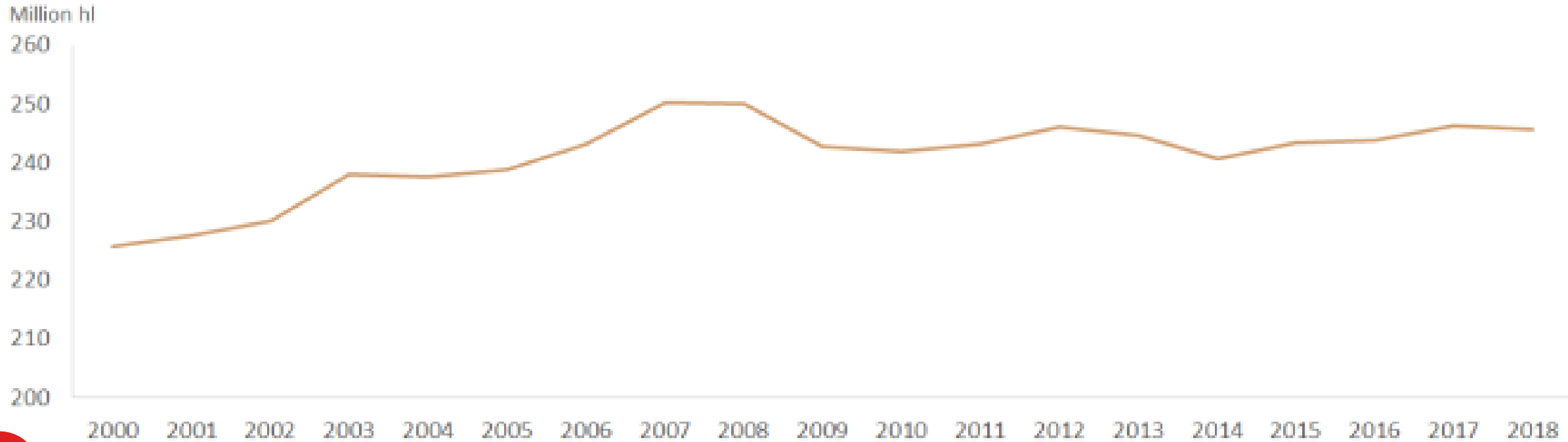
INCLUDING SPARKLING AND SPECIAL WINES

million hl



WORLD WINE CONSUMPTION: 246 MHL

INCLUDING SPARKLING AND SPECIAL WINES



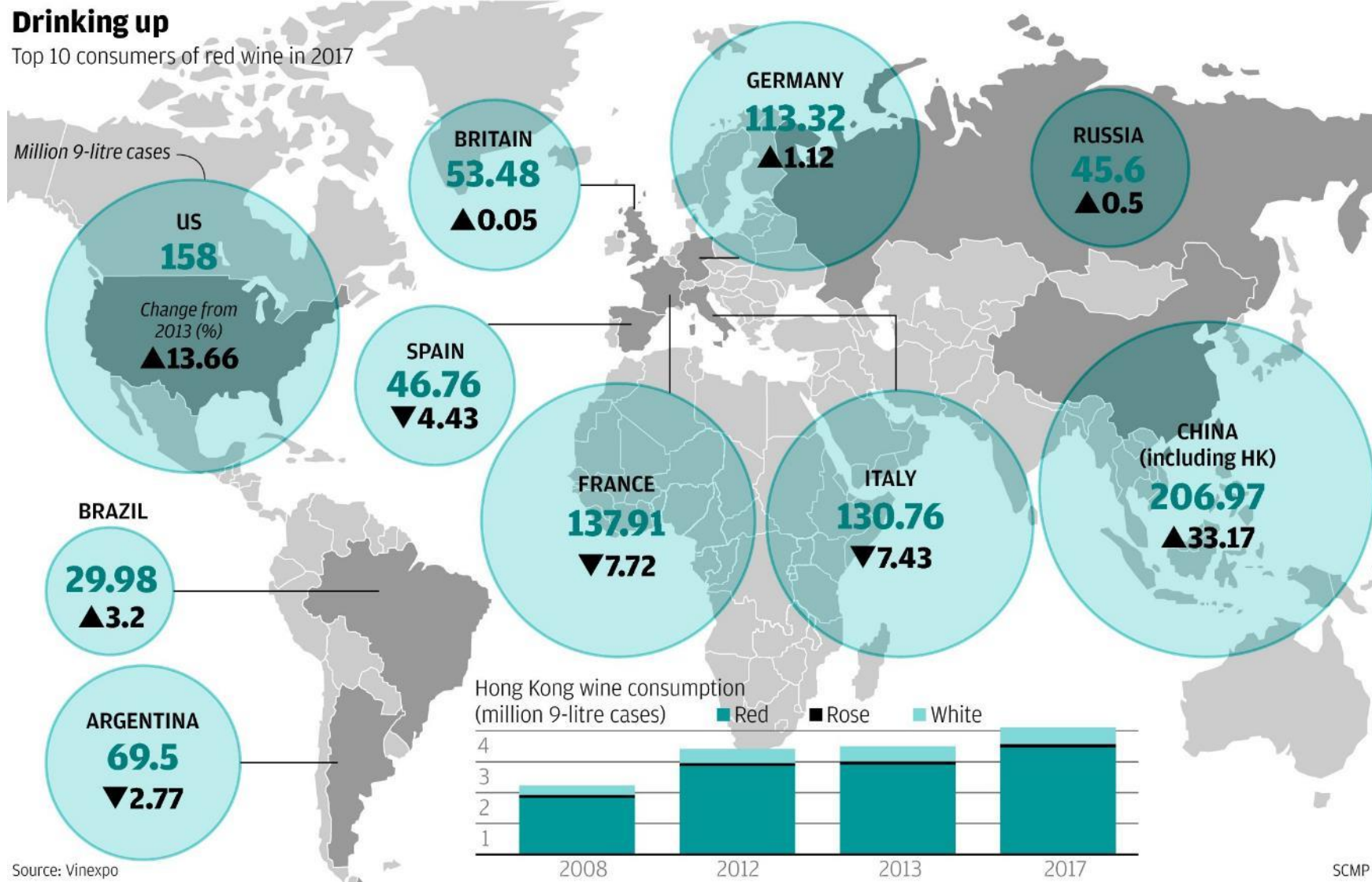
MAJOR WINE CONSUMERS

| | million hl | 2014 | 2015 | 2016 | 2017 | 2018 | 2018/2014 Variation in volume | 2018/2014 Variation in % |
|--------------------|------------|------|------|------|------|------|----------------------------------|-----------------------------|
| USA | | 30.6 | 30.9 | 31.7 | 32.6 | 33.0 | 2.3 | 7.6% |
| France | | 27.5 | 27.3 | 27.1 | 27.0 | 26.8 | -0.7 | -2.6% |
| Italy | | 19.5 | 21.4 | 22.4 | 22.6 | 22.4 | 2.9 | 14.9% |
| Germany | | 20.3 | 20.5 | 20.2 | 19.7 | 20.0 | -0.3 | -1.5% |
| China | | 17.4 | 18.1 | 19.2 | 19.3 | 17.6 | 0.2 | 1.3% |
| United Kingdom | | 12.6 | 12.7 | 12.9 | 12.7 | 12.4 | -0.2 | -1.7% |
| Russian Federation | | 11.1 | 10.8 | 10.5 | 11.1 | 11.9 | 0.9 | 7.7% |
| Spain | | 9.8 | 9.8 | 9.9 | 10.5 | 10.5 | 0.7 | 6.7% |
| Argentina | | 9.9 | 10.3 | 9.4 | 8.9 | 8.4 | -1.5 | -15.5% |
| Australia | | 5.4 | 5.5 | 5.4 | 5.9 | 6.0 | 0.6 | 10.7% |
| Portugal | | 4.3 | 4.8 | 4.7 | 5.2 | 5.5 | 1.2 | 29.0% |
| Canada | | 4.6 | 4.8 | 5.0 | 5.0 | 4.9 | 0.2 | 4.8% |
| Romania | | 4.7 | 4.0 | 3.8 | 4.1 | 4.5 | -0.2 | -3.9% |
| South Africa | | 4.0 | 4.3 | 4.4 | 4.5 | 4.3 | 0.4 | 9.2% |

TOP 10 CONSUMERS OF RED WINE IN 2017

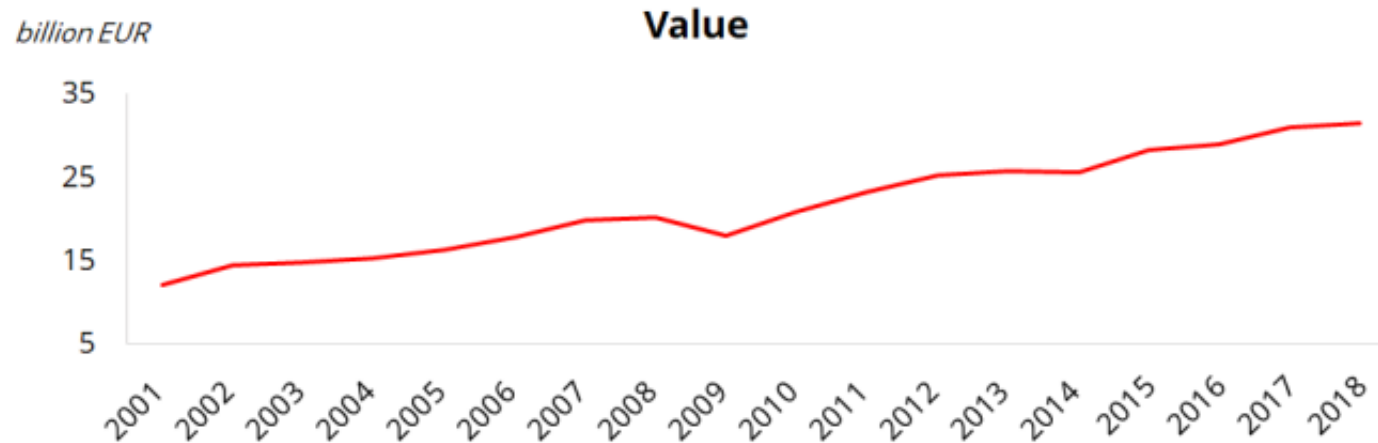
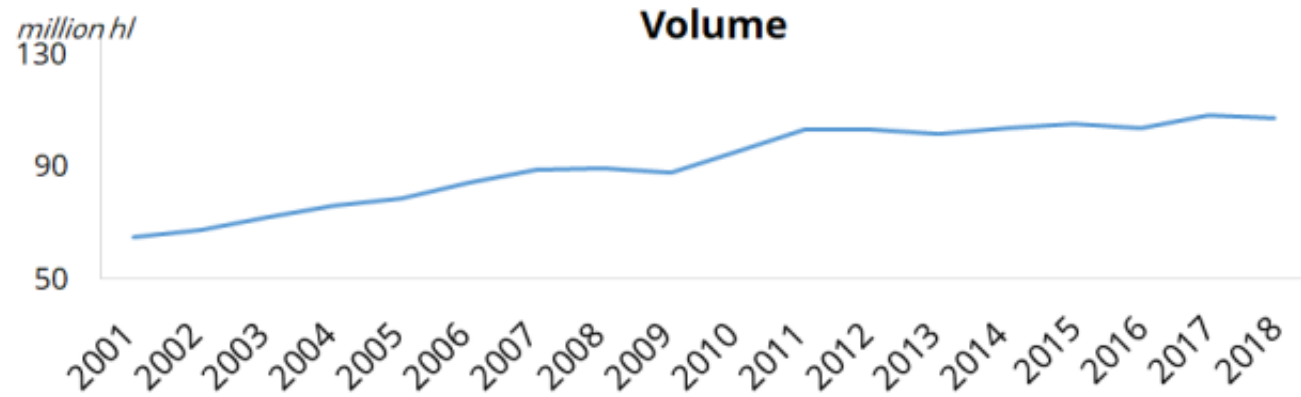
Drinking up

Top 10 consumers of red wine in 2017



INTERNATIONAL WINE TRADE

EXPORT ALL COUNTRIES



WORLD WINE TRADE BY TYPE OF PRODUCT

Volume

| million hl | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------|------|------|------|------|------|
| Sparkling | 7.2 | 7.6 | 8.1 | 9.4 | 9.3 |
| Bottled | 57.5 | 57.3 | 56.3 | 58.6 | 57.9 |
| Bulk + BiB | 39.4 | 40.7 | 39.5 | 40.4 | 40.3 |

| 2018/2014 Variation (mhl) | 2018/2014 Variation in % |
|------------------------------|-----------------------------|
| 2.1 | 29% |
| 0.4 | 1% |
| 1.0 | 3% |

Value

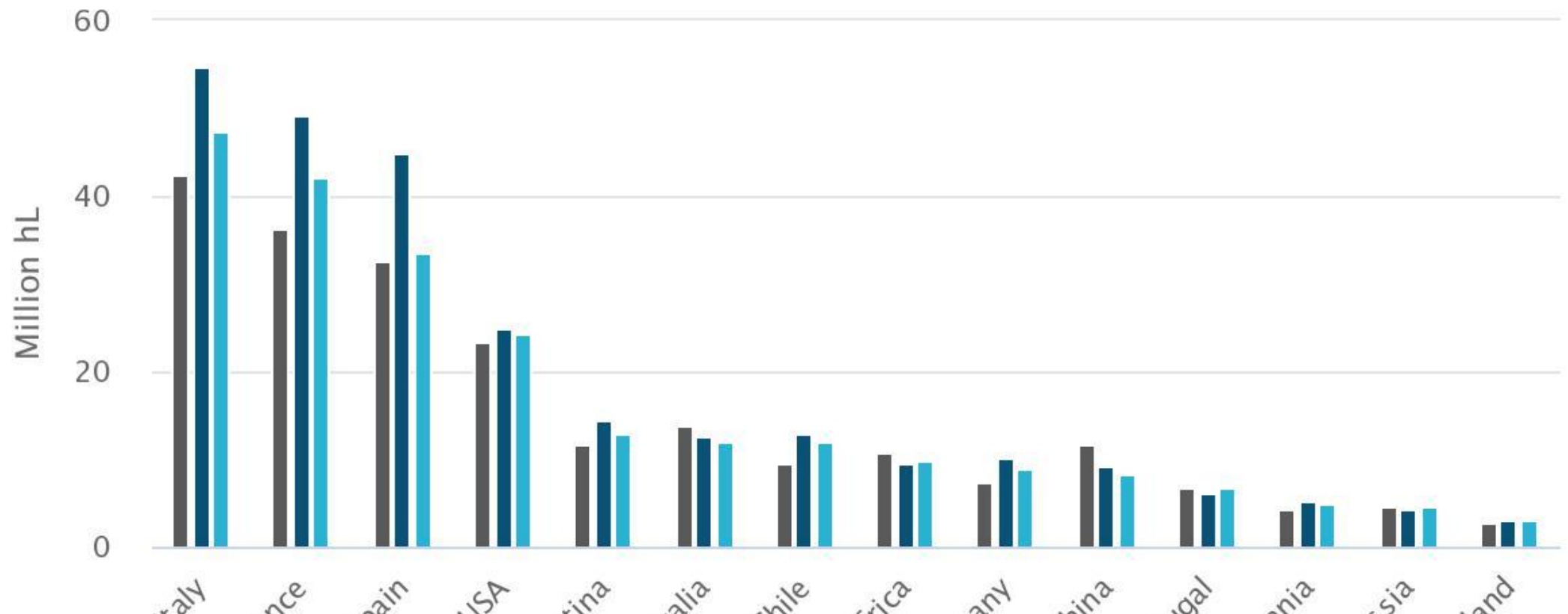
| billion € | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------|------|------|------|------|------|
| Sparkling | 4.7 | 5.2 | 5.4 | 5.8 | 6.2 |
| Bottled | 18.4 | 20.4 | 20.9 | 22.1 | 21.9 |
| Bulk + BiB | 2.7 | 2.8 | 2.8 | 3.1 | 3.3 |

| 2018/2014 Variation (bn €) | 2018/2014 Variation in % |
|-------------------------------|-----------------------------|
| 1.5 | 33% |
| 3.5 | 19% |
| 0.6 | 21% |

TOP WINE-PRODUCING NATIONS

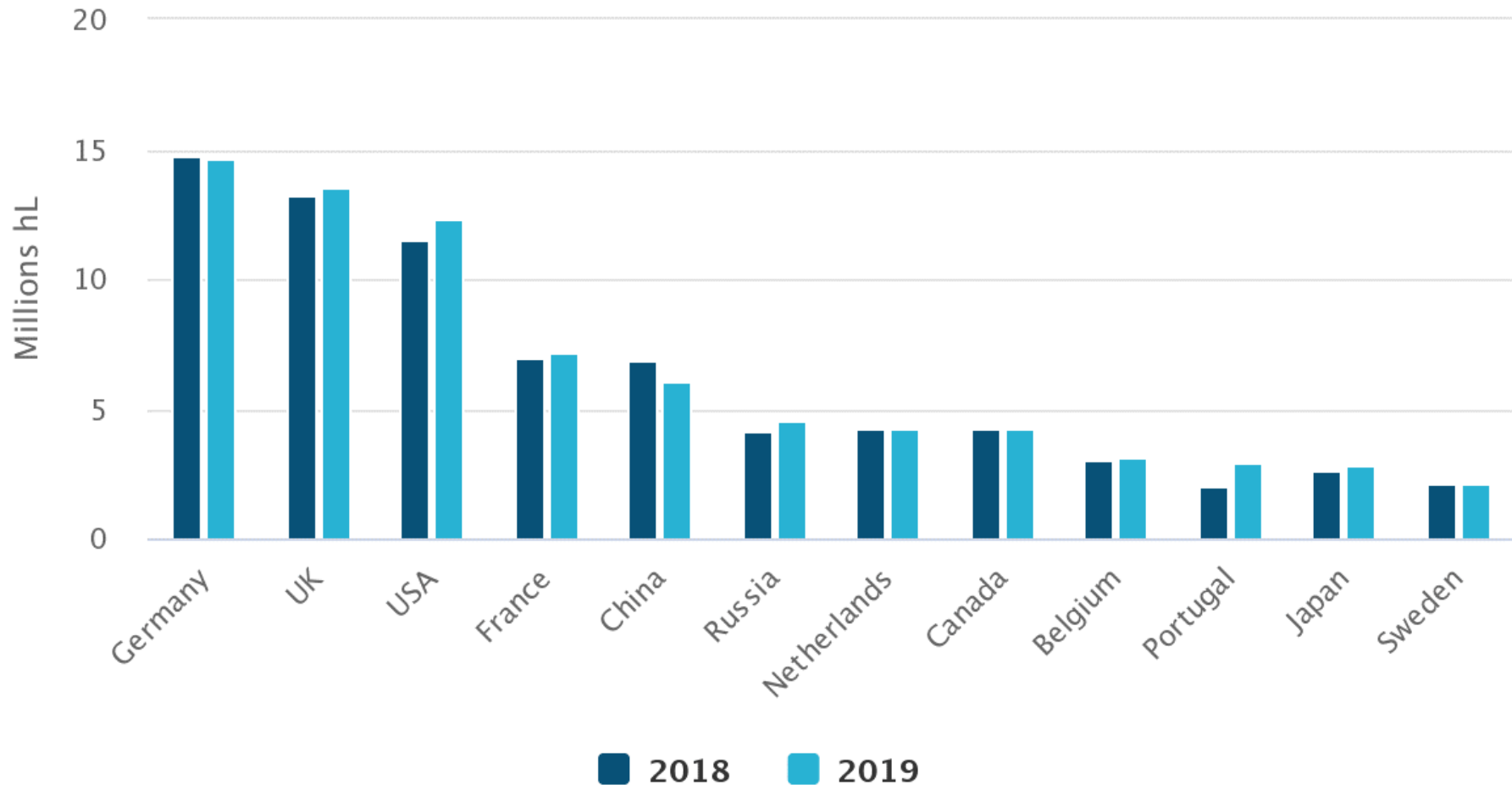
Top Wine-Producing Nations

Source: OIV, 2019 preliminary figures



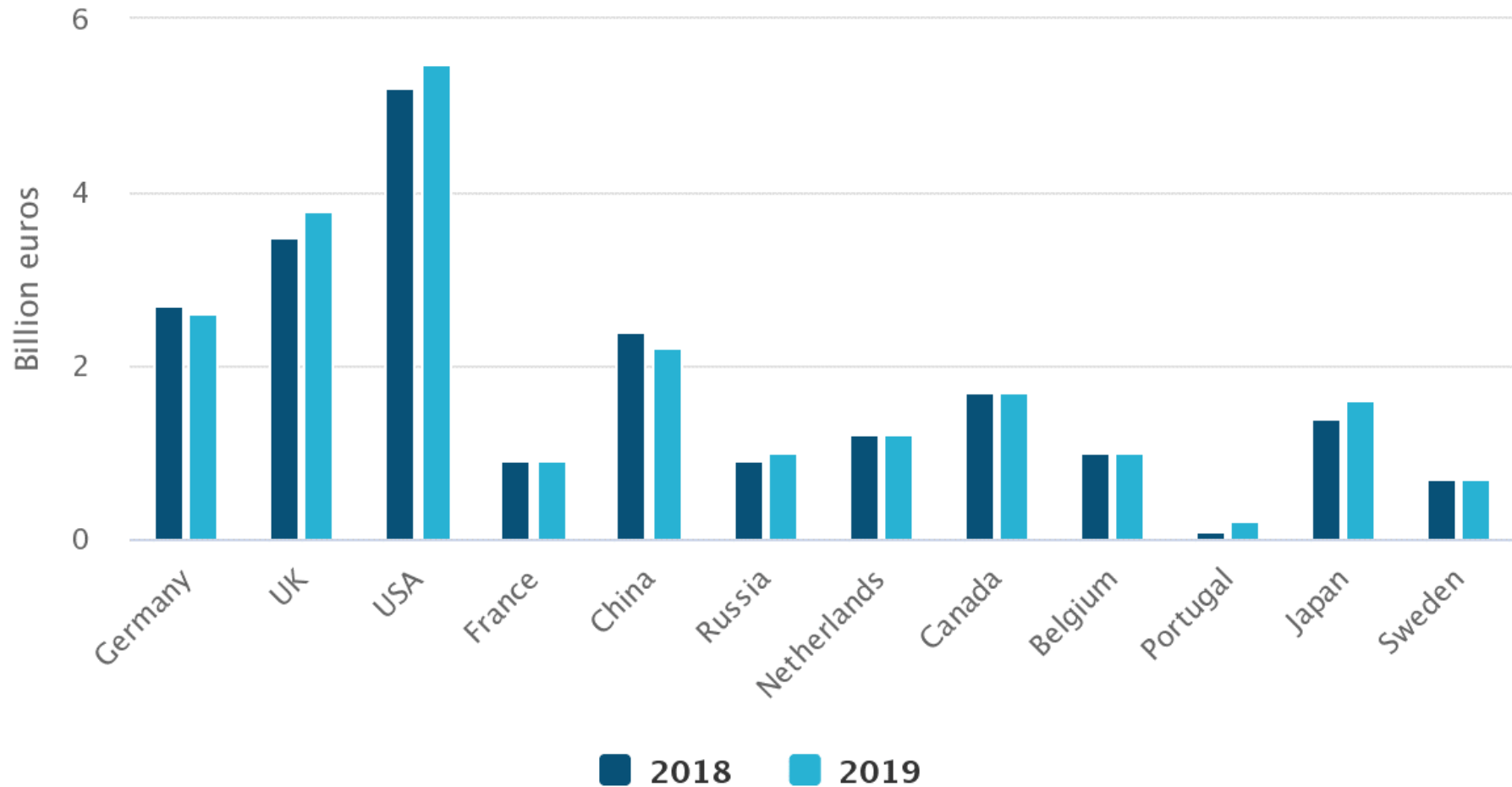
TOP WINE IMPORTERS BY VOLUME

Source: OIV, 2019 preliminary figures and includes estimates



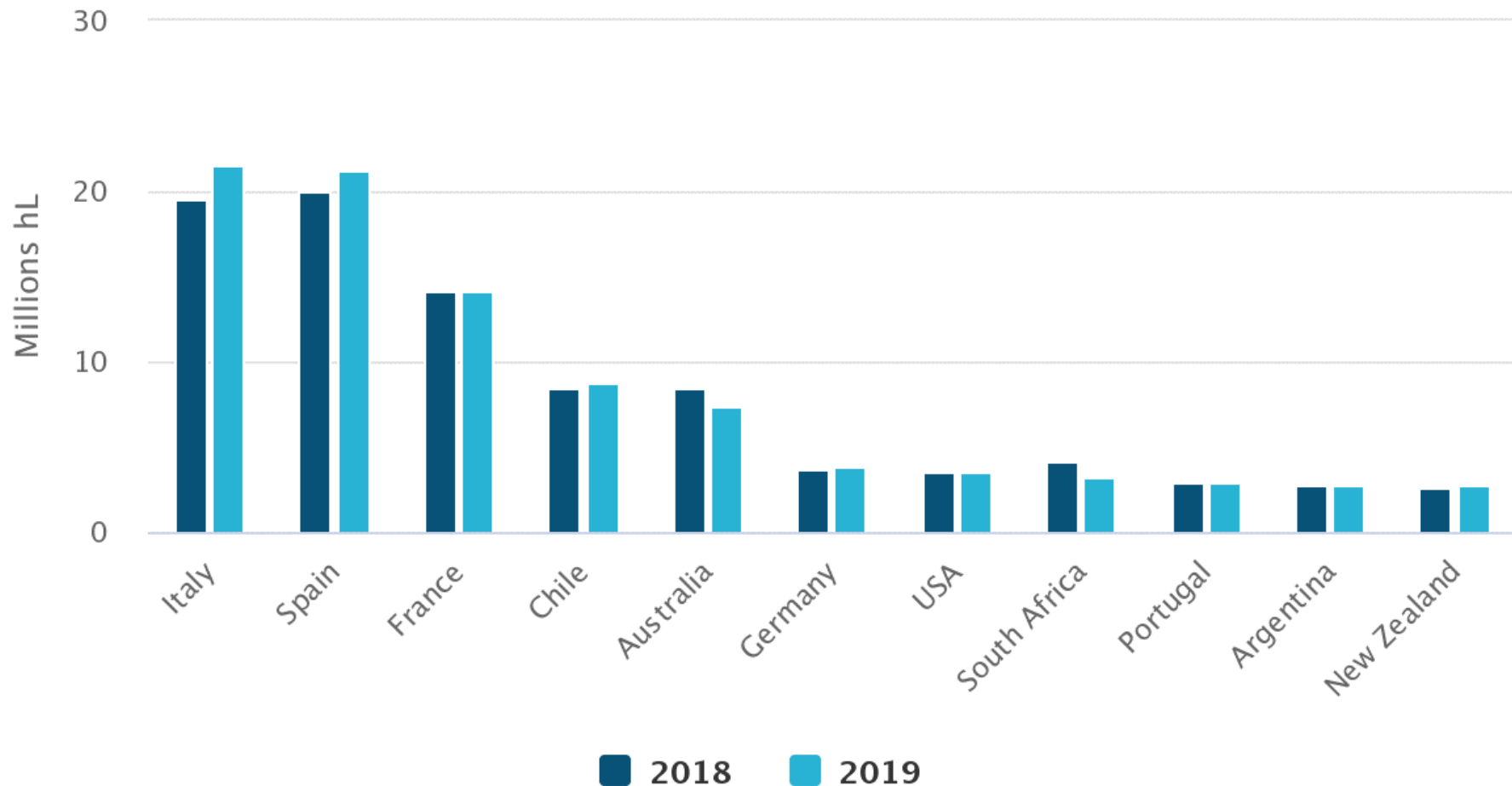
TOP WINE IMPORTERS BY VALUE

Source: OIV, 2019 preliminary figures and includes estimates



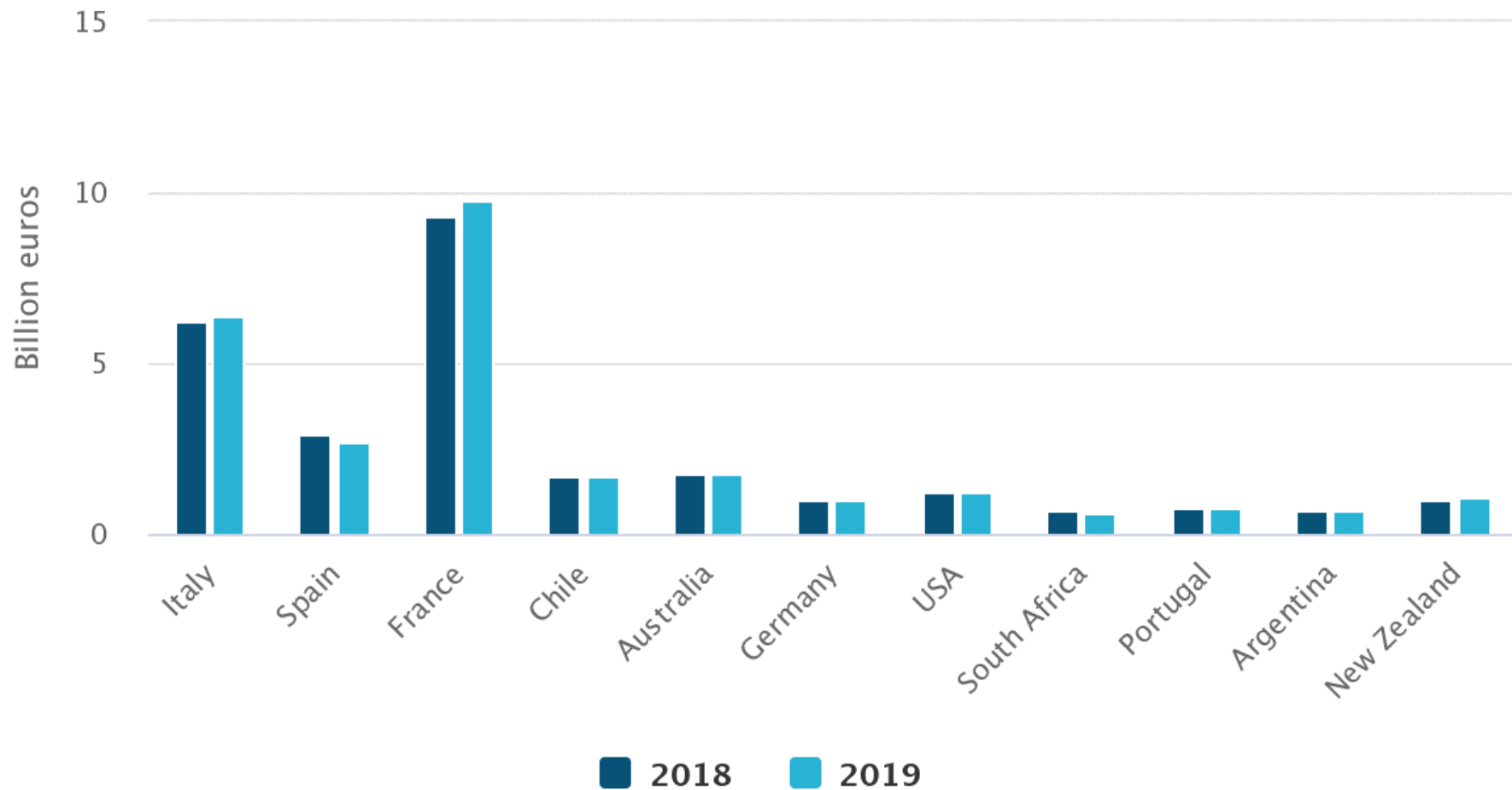
TOP WINE EXPORTERS BY VOLUME

Source: OIV, 2019 preliminary figures and includes estimates



TOP WINE EXPORTERS BY VALUE

Source: OIV, 2019 preliminary figures and includes estimates



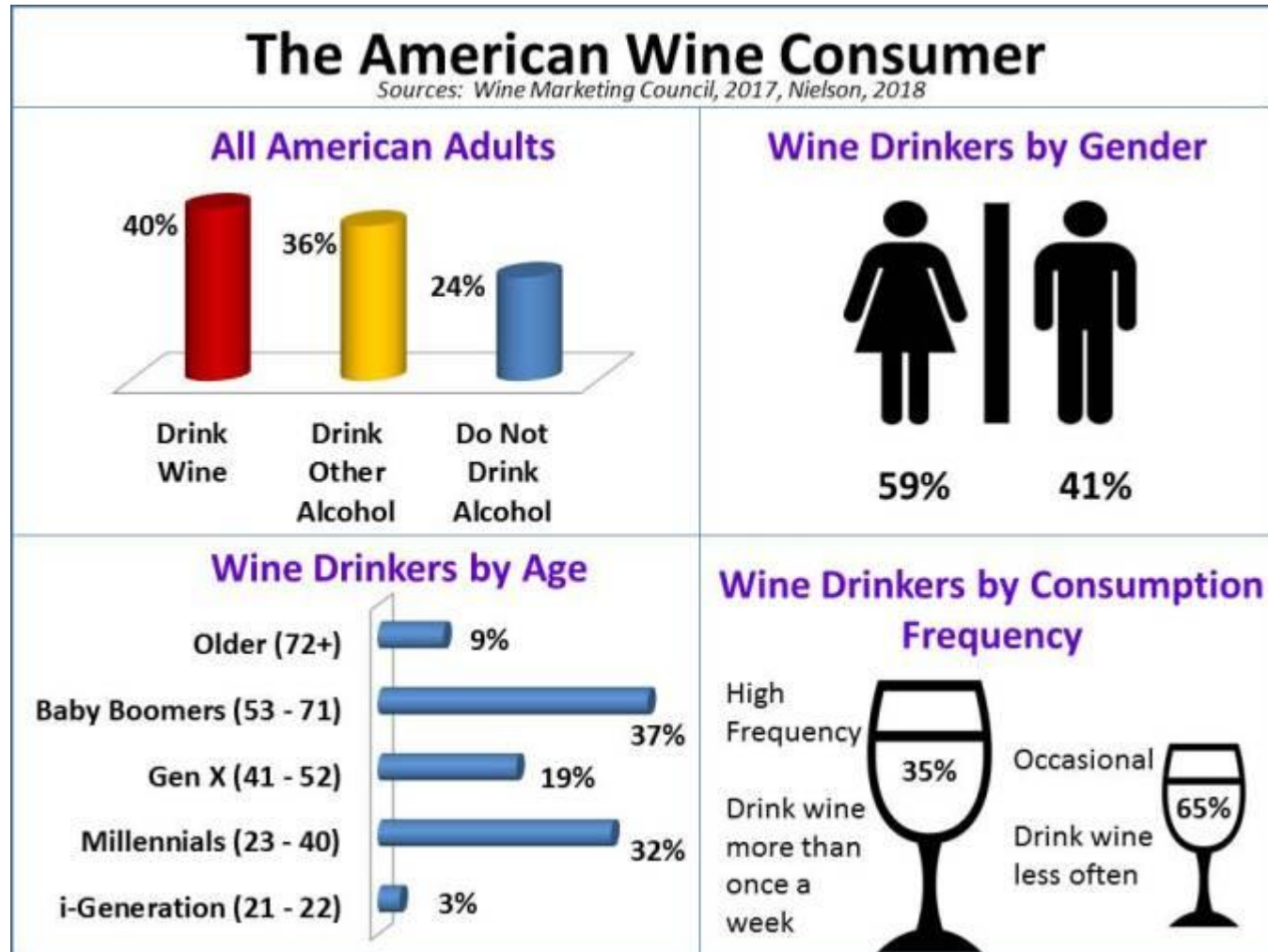
WINE STATISTICS IN US IN 2018 / 2019

- Wine Production: 24.3 m hl
- Total Wine Consumption: 36.6 m hl
- Market Share of Red Wine 44%
- Annual Growth: 8,5%
- Total Retail Value of Wine Sales: 68.1 bn USD
- Average Revenue Per Capita (est. 2021): 50.56 USD
- Daily Wine Consumption Among Americans: 5%
- Per Capita Consumption of Wine: 10.22 l

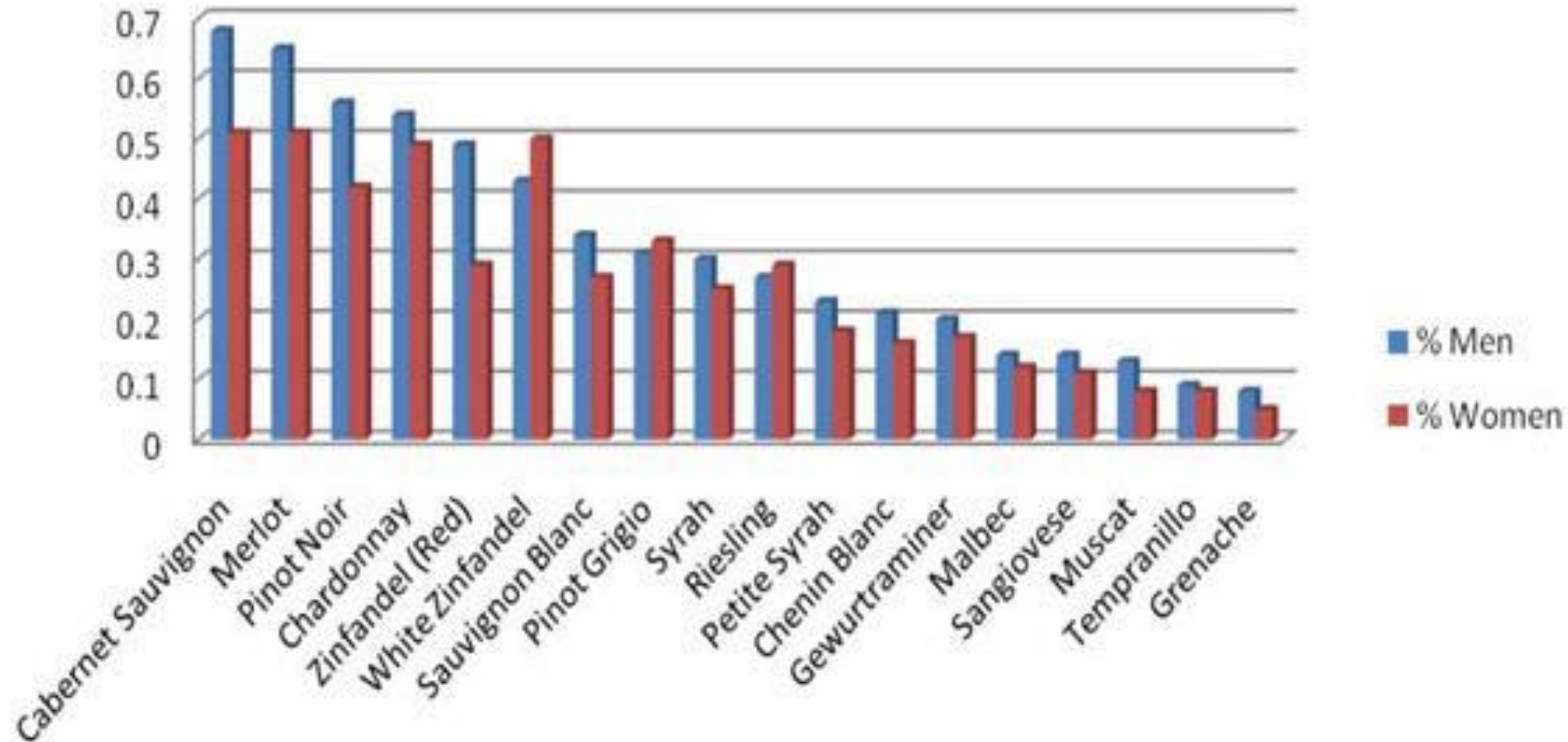
AMERICAN'S LOVE FOR EUROPEAN WINES IN 2018



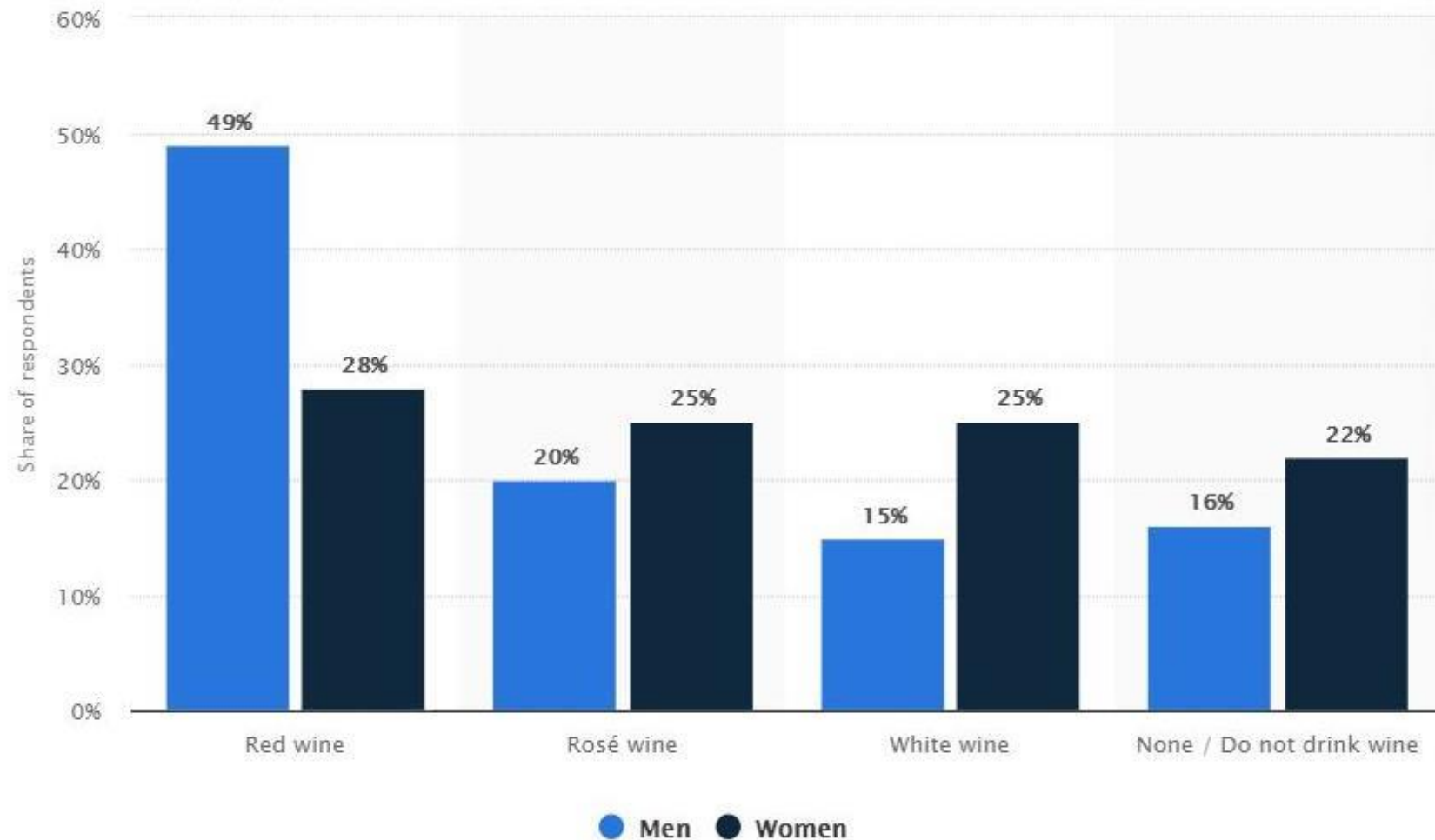
DISTRIBUTION OF WHITE AND RED WINE IN GIVEN DATASET BY QUALITY



WINE PREFERENCES IN USA BY GENDER



PREFERRED WINE TYPE IN FRANCE IN 2015 BY GENDER



GENDER SPECIFIC MARKETING



GENDER SPECIFIC MARKETING



GENDER SPECIFIC MARKETING

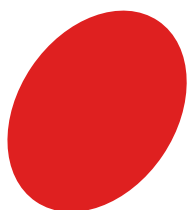


ETHNICITY + GENDER



WINE STATISTICS IN CHINA IN 2018 / 2019

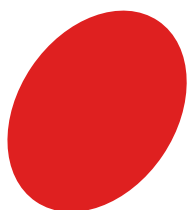
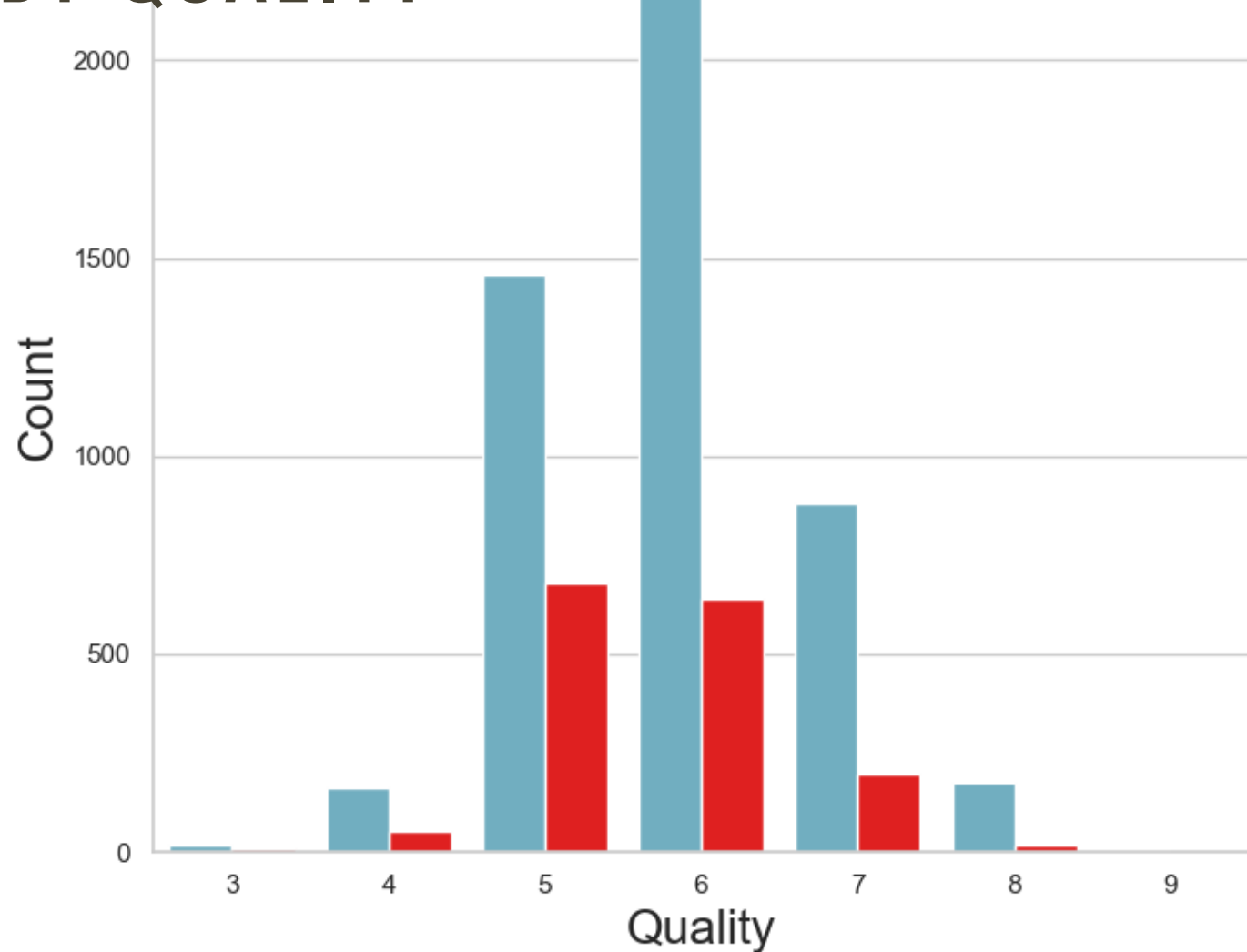
- Wine Production Volume 8.3 m hl
- Wine Import Volume: 6.1 m hl
- Total Wine Consumption: 17.8 m hl
- Market Share of Red Wine 97%
- Wine Import Value: 2.2 bn EUR
- Estimated Market Growth Per Year: 9%
- Per Capita Consumption of Wine: 3.5 l
- Share of Consumers Drinking Wine for Health Reasons: 60.3%



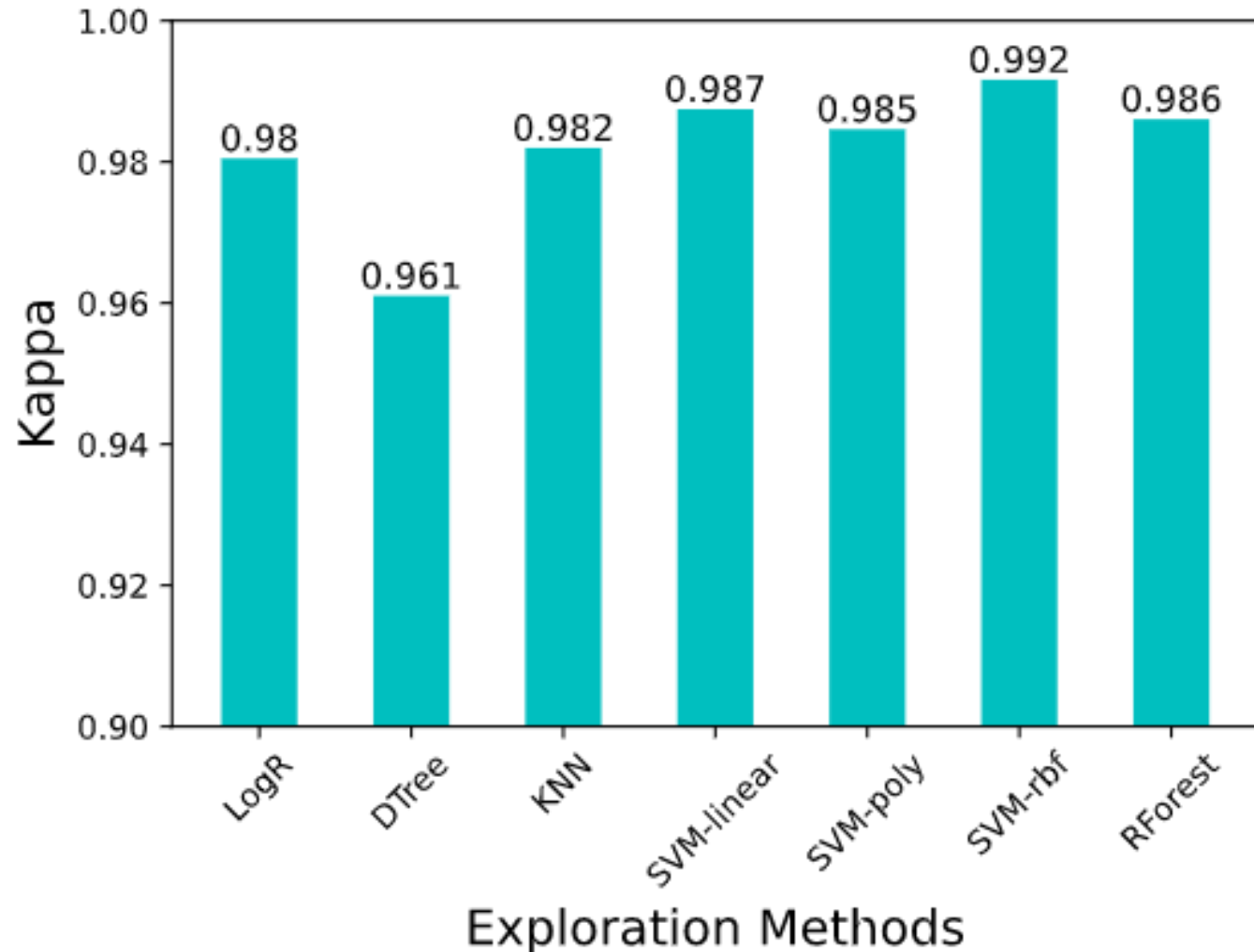
WINE, DATA AND MACHINE LEARNING



DISTRIBUTION OF WHITE AND RED WINE IN GIVEN DATASET BY QUALITY

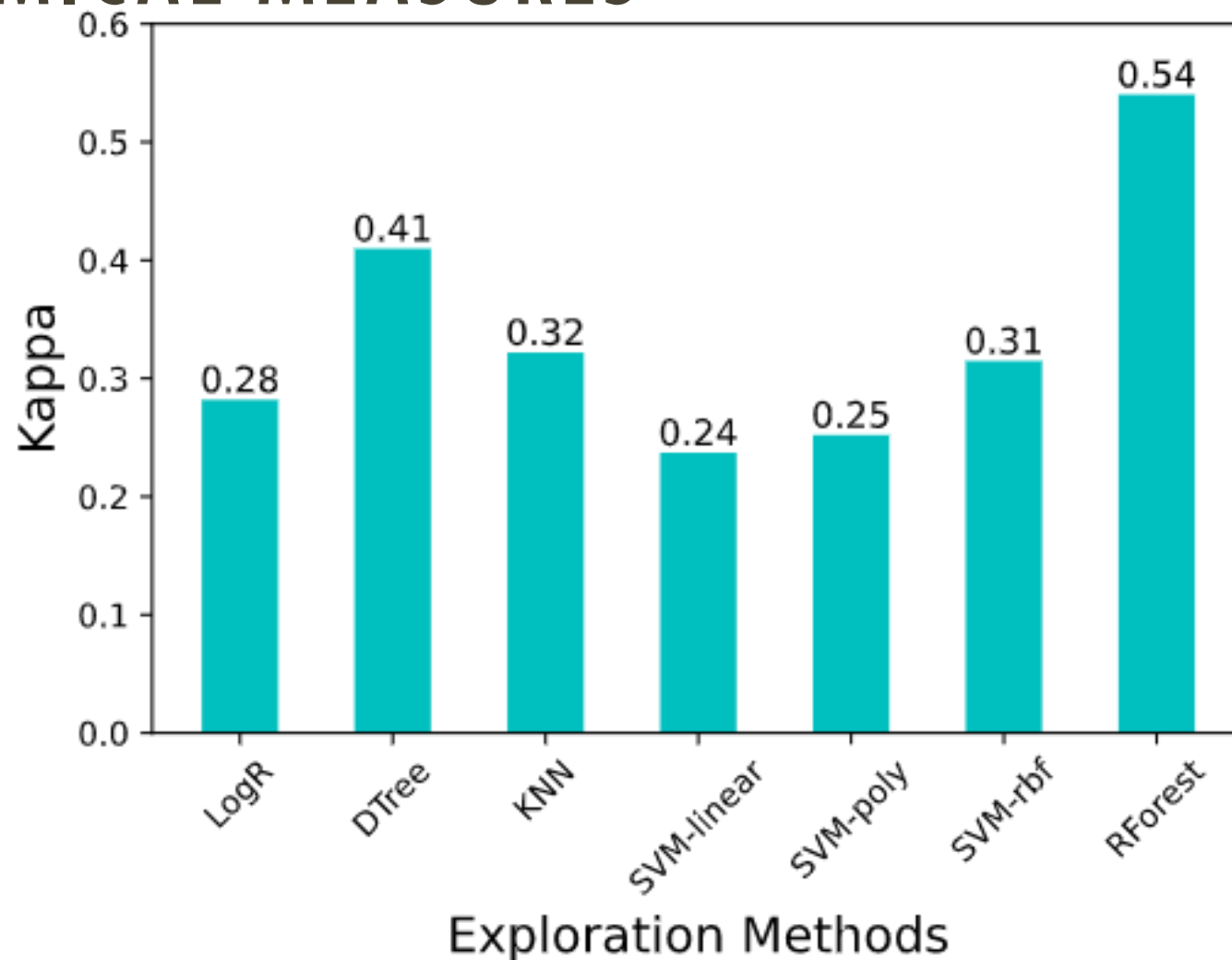


CAN A COMPUTER TELL WHITE FROM RED WINE ONLY BY CHEMICAL DATA?

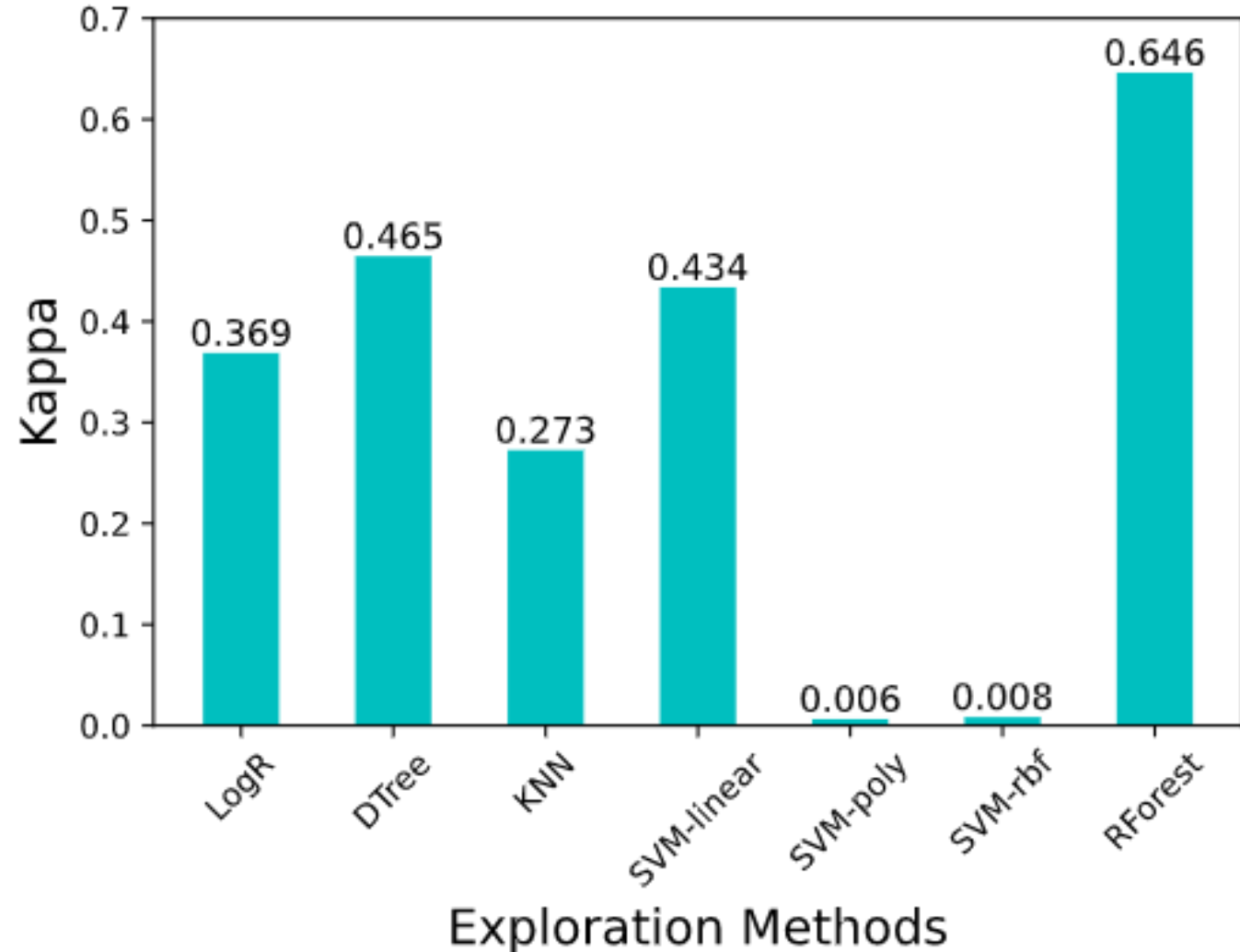


EFFICIENCY OF ML IN PREDICTION OF QUALITY

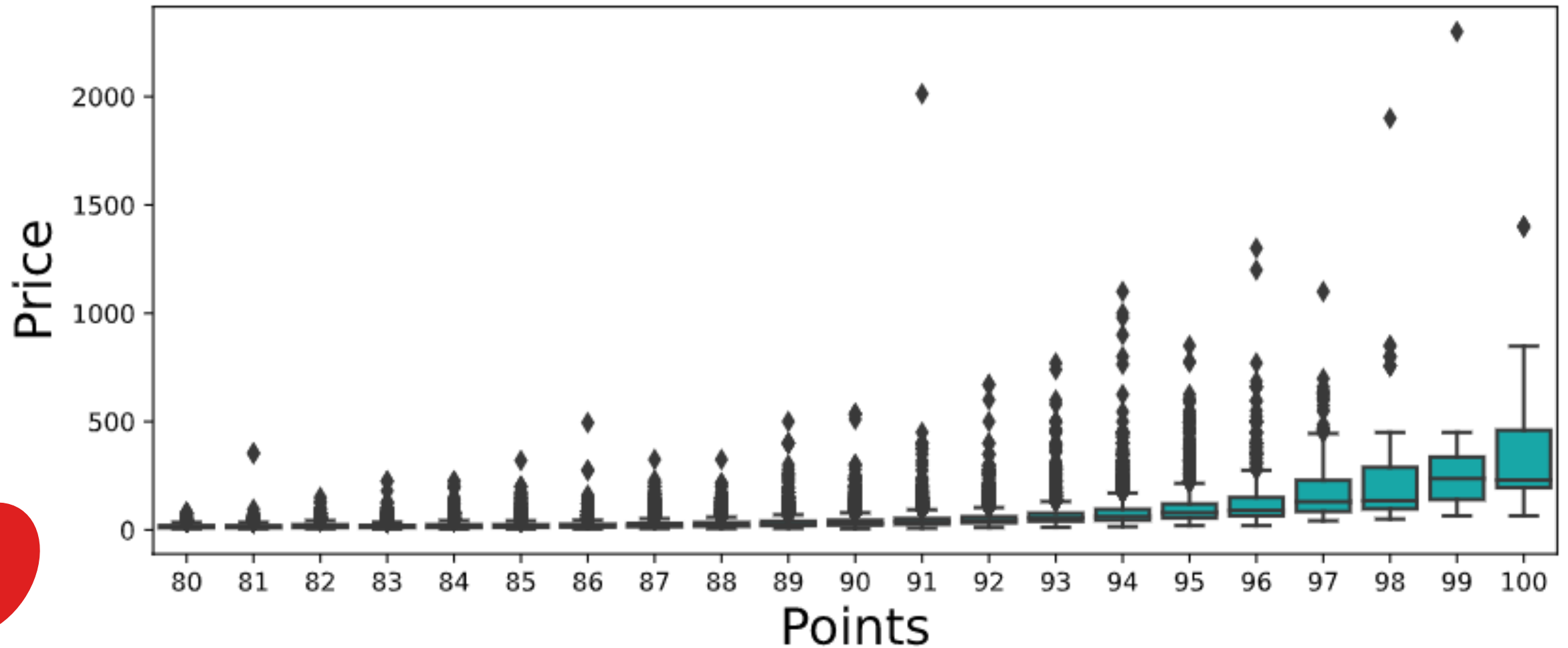
- 3 – 9 - BY CHEMICAL MEASURES



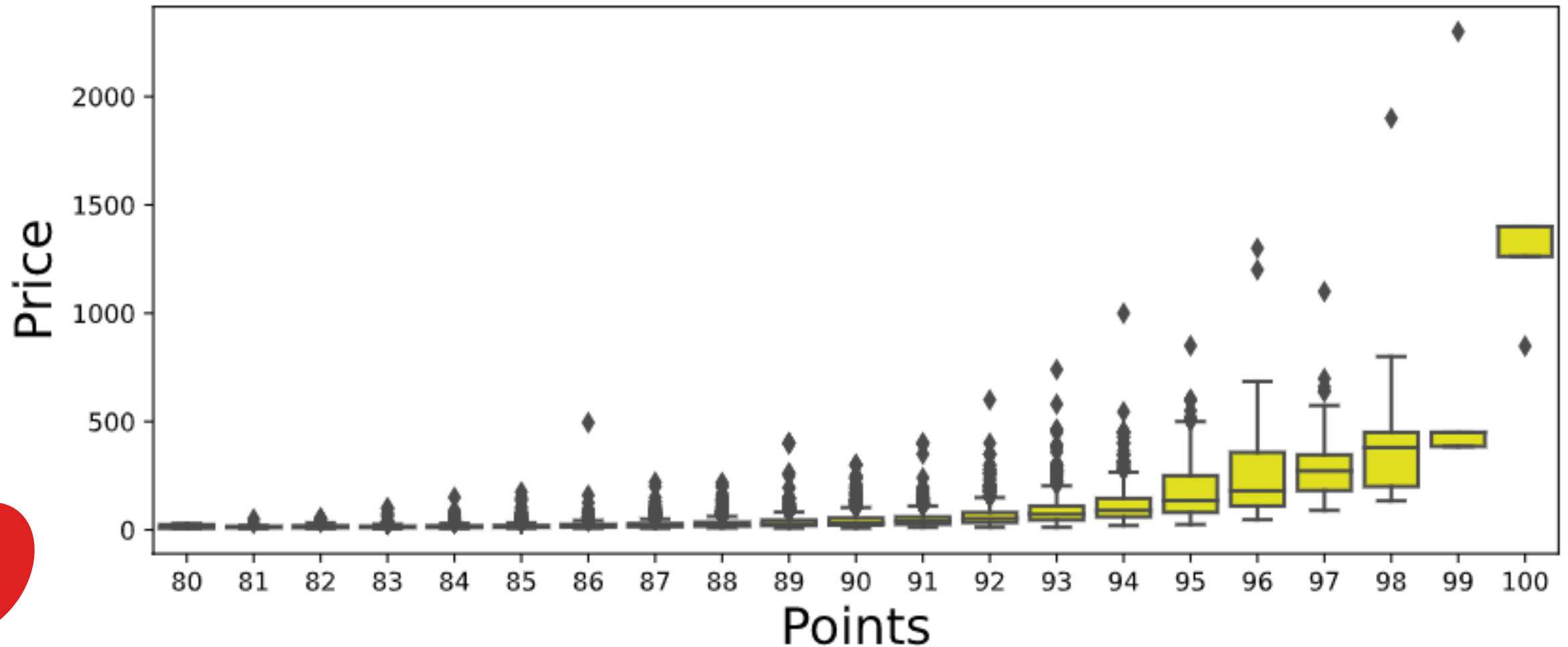
EFFICIENCY OF ML IN PREDICTION OF QUALITY TYPE - **H-M-L** - BY CHEMICAL MEASURES



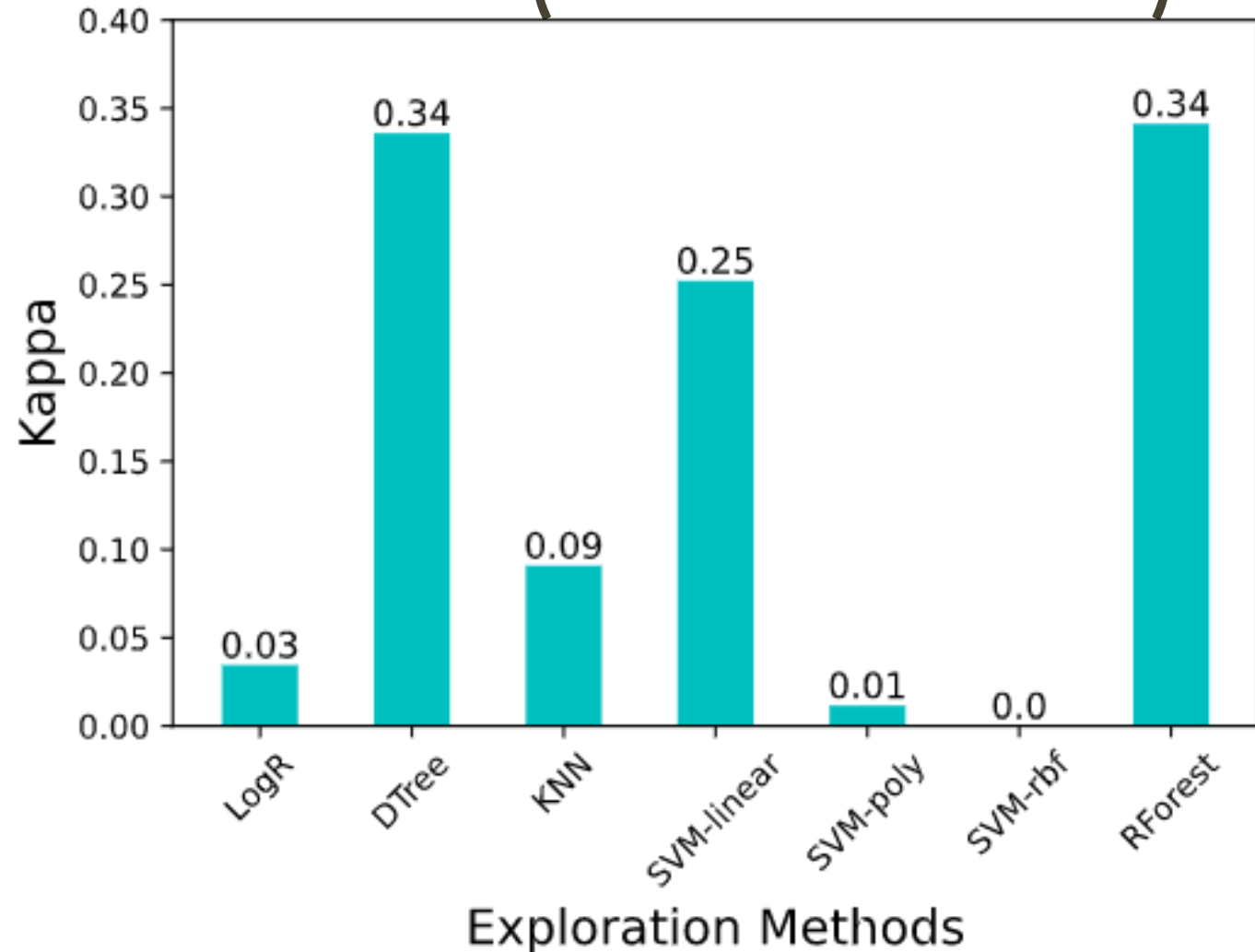
PRICE DATA — WORLD



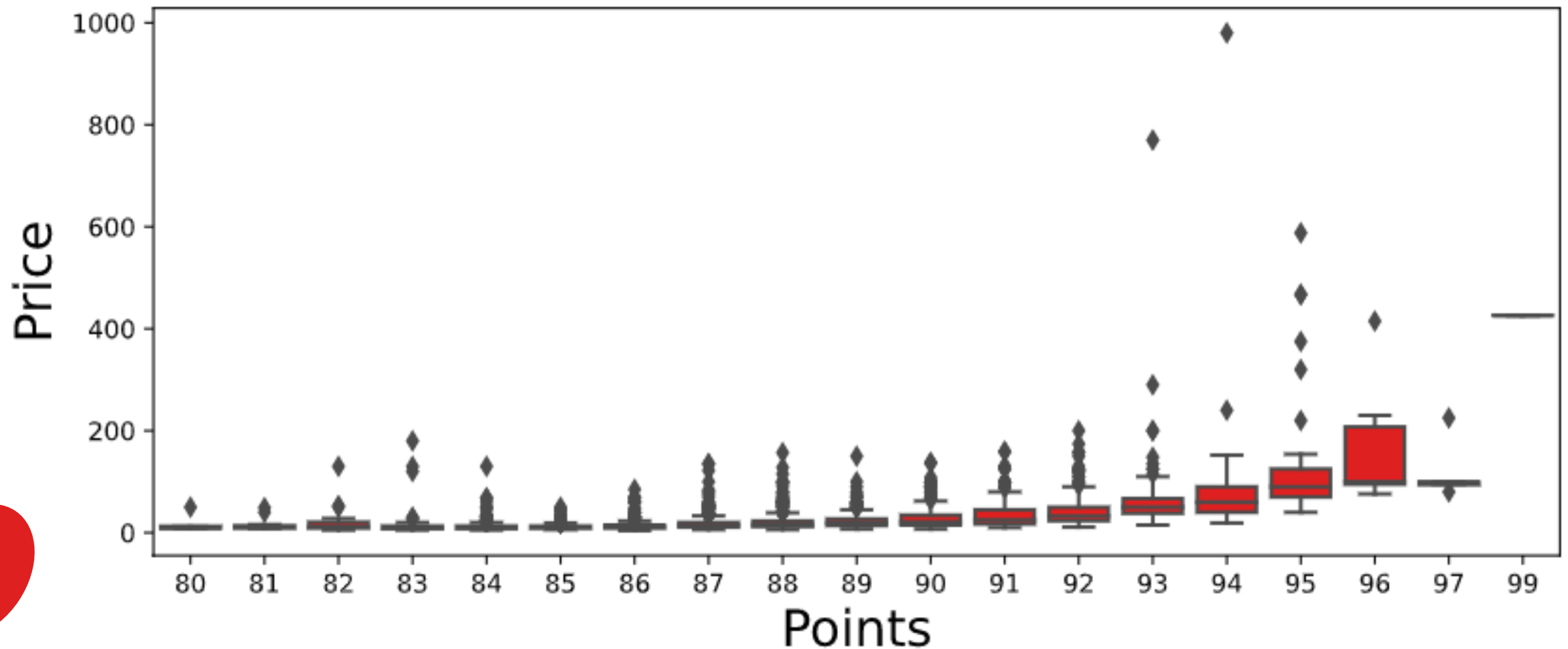
PRICE DATA — FRANCE (14785 SAMPLES)



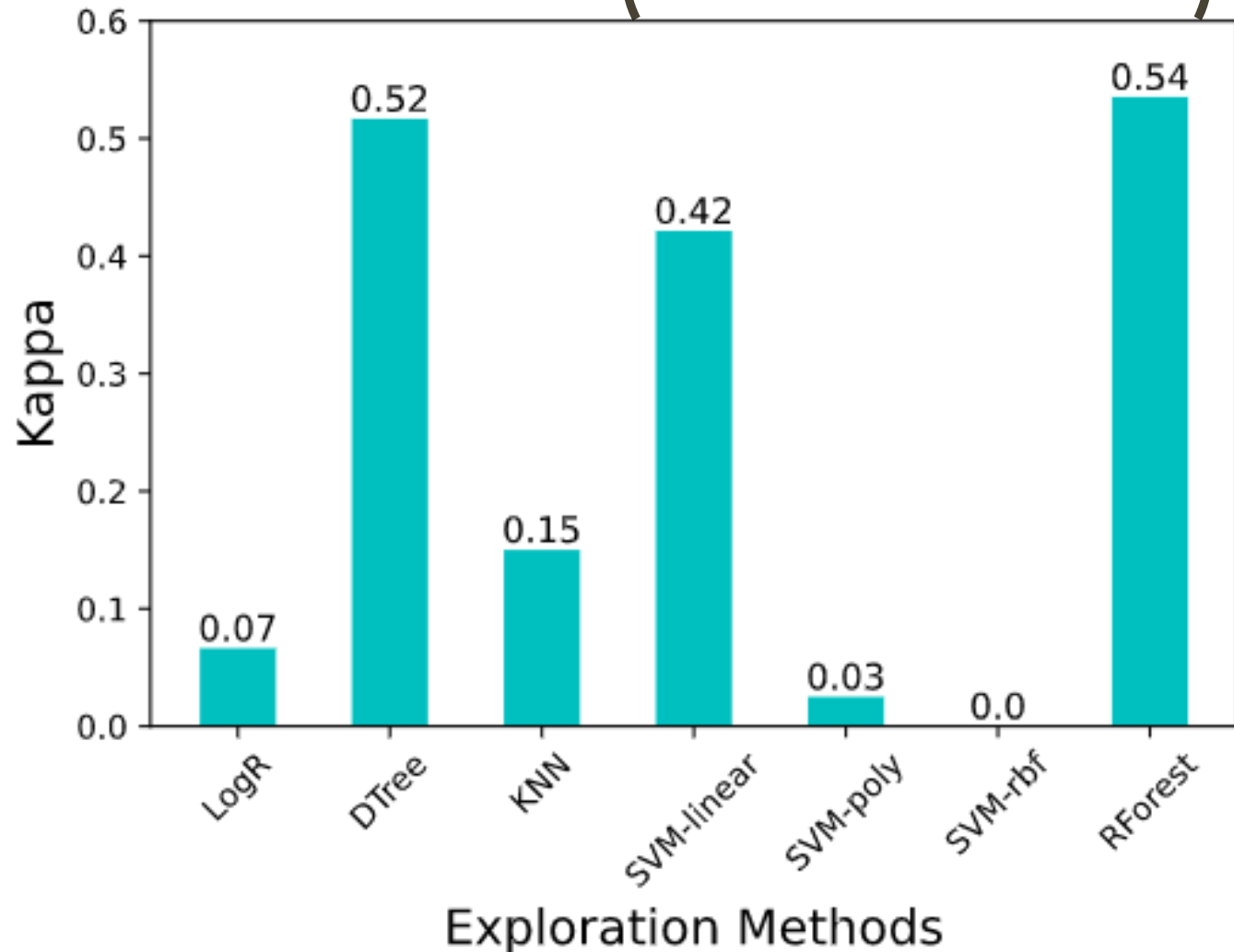
EFFICIENCY OF ML IN CORRELATING WINE QUALITY TO PRICE — FRANCE (14785 SAMPLES)



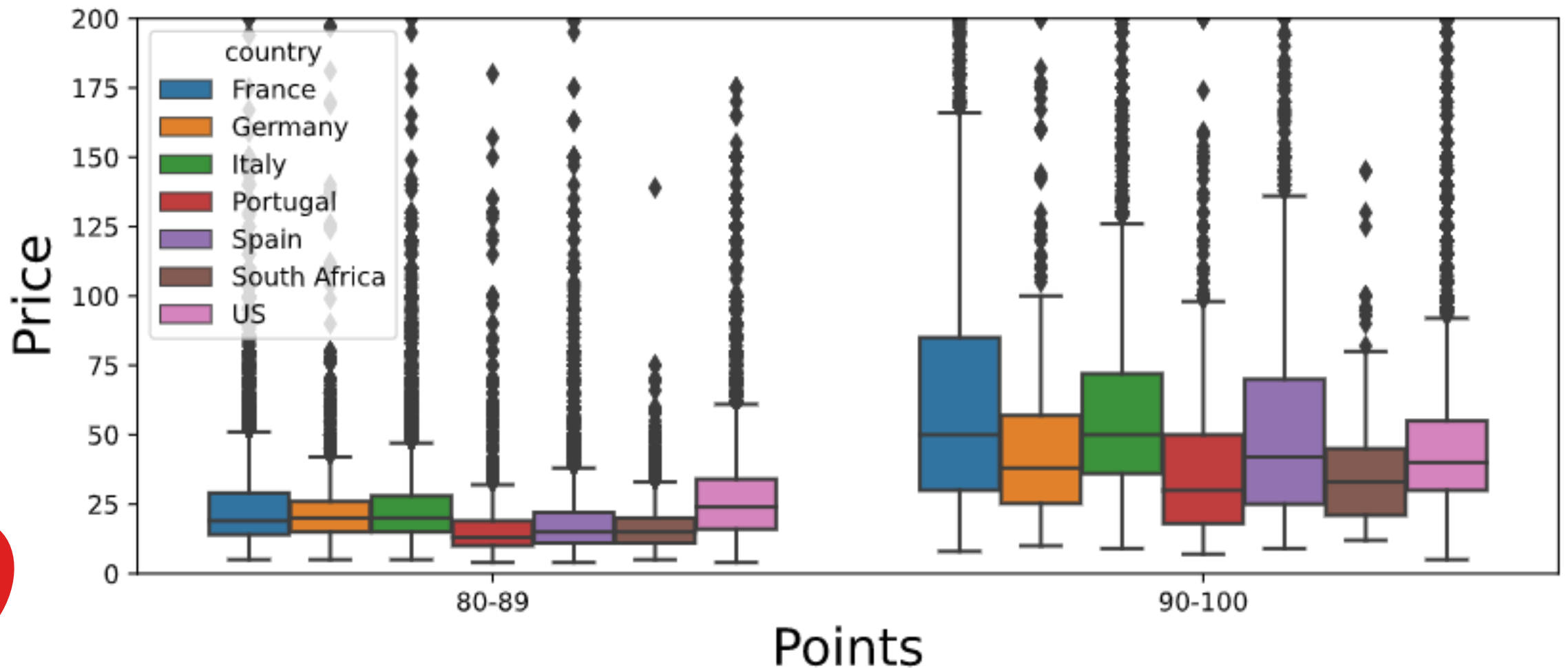
PRICE DATA — PORTUGAL (4176 SAMPLES)



EFFICIENCY OF ML IN CORRELATING WINE QUALITY TO PRICE — PORTUGAL (4176 SAMPLES)



PRICE DATA — INTERNATIONAL COMPARISON

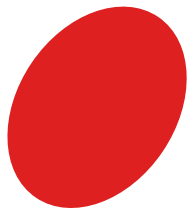


RECOMMENDATIONS



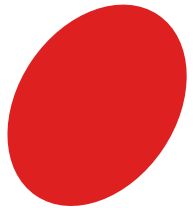
RECOMMENDATIONS - MARKET

- Wine export business is thriving globally. This trend will grow even further.
- Target Markets:
 1. USA
 2. China
 3. UK (Low – Medium Price Strategy) or Japan (Medium – High Price Strategy)



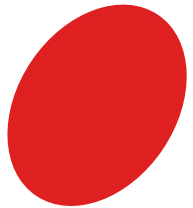
RECOMMENDATIONS — TARGET GROUP

- Differ From Market to Market
- USA: Gender, Ethnicity, Age, Social Group, Location
- China: Age, Social Group / Financial Class, Big Cities
- UK: Gender, Social Group
- Japan: ?



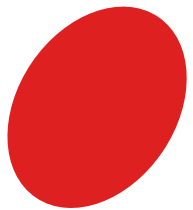
MOST IMPORTANT GENERAL WINE TRENDS

- Sparkling Wine Branches Out (10% World Market Share)
- From Rosé' to Brosé (10% World Market Share)
- Natural, Organic, and Biodynamic Wines Emerge (only 4,5% of vinyards certified in 2017)



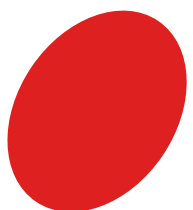
RECOMMENDATIONS - PRODUCT

- Follow the Wine Trends: Sparkling, Rosé, Organic
- Stick to the Common Most Popular Wines in Your Target Markets if Their Popularity is Still Growing
 - US: Growing Potentials for White, Rosé, Red and Sparkling Wines
 - China: 97% of all Consumption is Red Wine!
- China: Wine Color is Very Important! Red and Gold are Popular.



RECOMMENDATIONS - PRICE

- Data Shows: Price and Perceived Quality Are By Far Not Always Correlated.
- Maybe There Are Other Quality Factors (e. g. Chemical).
Maybe We Can Find More Information on More / Better Data.
- But: Portugal Can Raise (Mean) Prices When Compared to Other Exporting Countries.



CONCLUSION:
GOOD DATA IS VITAL FOR BUSINESSES



THANK YOU !