

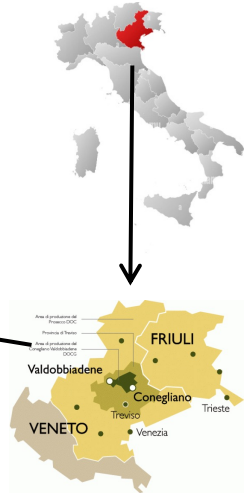
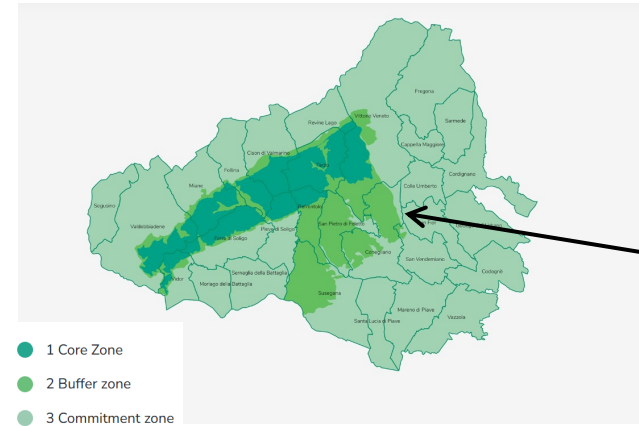


Influence of slope and topography on aroma composition and sensory profile of Glera grapes in the Conegliano Valdobbiadene DOCG denomination

Marcuzzo P., Romano A. , Lovat L. ,
Capovilla F. , Panighel A. , Gaiotti F.

Council for Agricultural Research and Economy Analysis ·

Viticulture Research Centre (Conegliano TV)



- Does growing grapes in geographically close vineyards located on **hillsides compared with nearby valley-floor** sites lead to **wines with distinct aromatic and sensory profiles?**

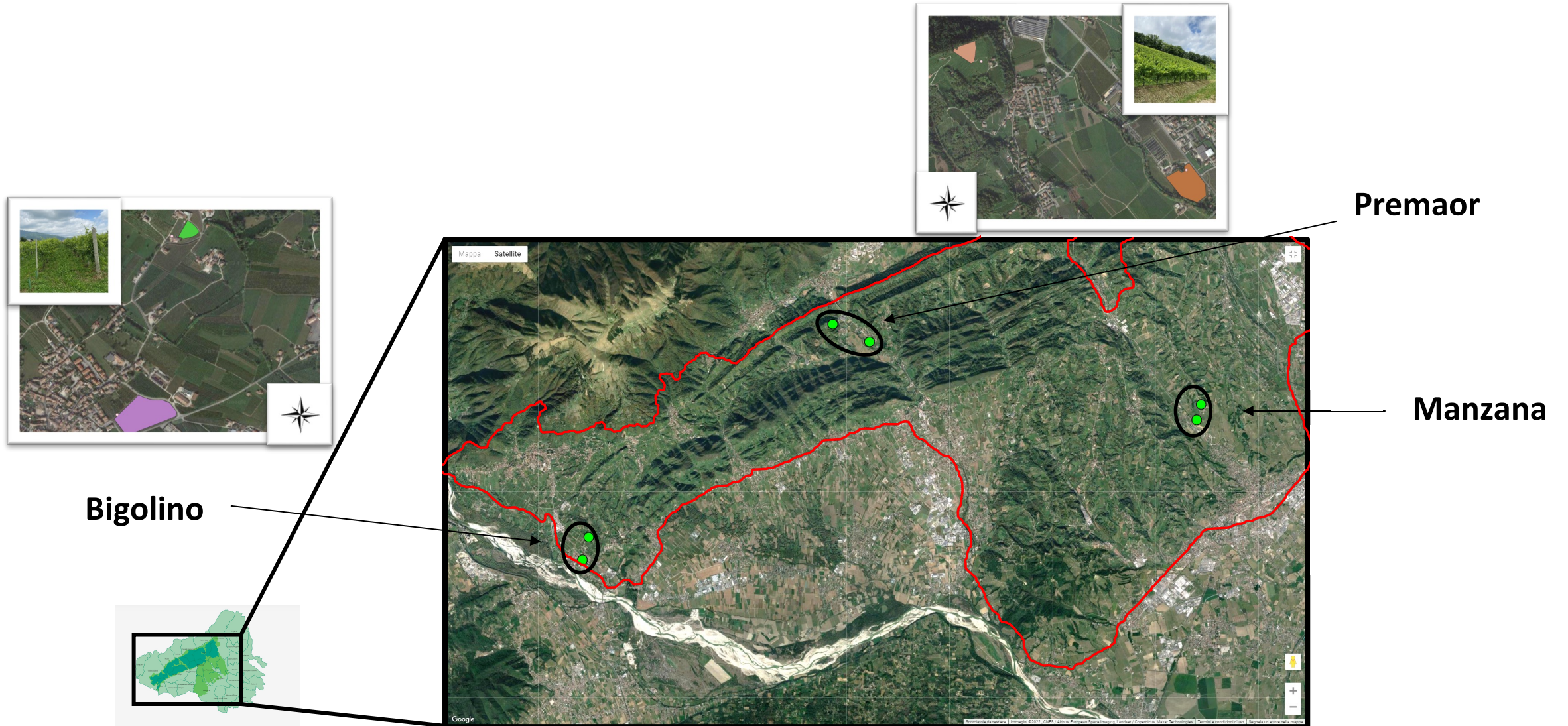
Influence of climate at different altitudes on grape aroma composition and wine sensory profile in Glera variety.

Alessandrini et al. 2017

Effects of altitude on the chemical composition of grapes and wine: a review.

Mansour et al., 2022





vineyard features

Location	Morphology	Acronym	Latitude	Longitude	Slope (%)	Elevation (m a.l.m.)
Bigolino	Hillside	BICO	45.87633	12.01842	2,4	190
Bigolino	Flatland	BIPI	45.86958	12.01569	0,3	170
Premaor	Hillside	PRCO	45.93983	12.12358	15,3	270
Premaor	Flatland	PRPI	45.93430	12.13852	0,3	160
Manzana	Hillside	MACO	45.91594	12.27994	13,0	125
Manzana	Flatland	MAPI	45.91125	12.27875	0,4	80

VINTAGES 2021-2022-2023

Grape variety: Glera

Uniform bud load per vine

Comparable planting age > 10 years

Rootstock: 1103 Paulsen

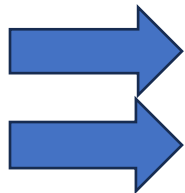
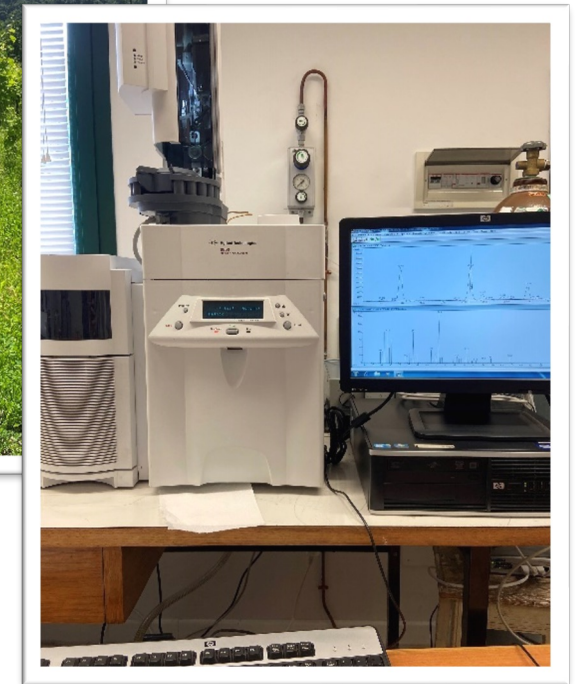
Vine spacing and training system (1.20 m × 3 m) – Double Guyot

Comparable row orientation

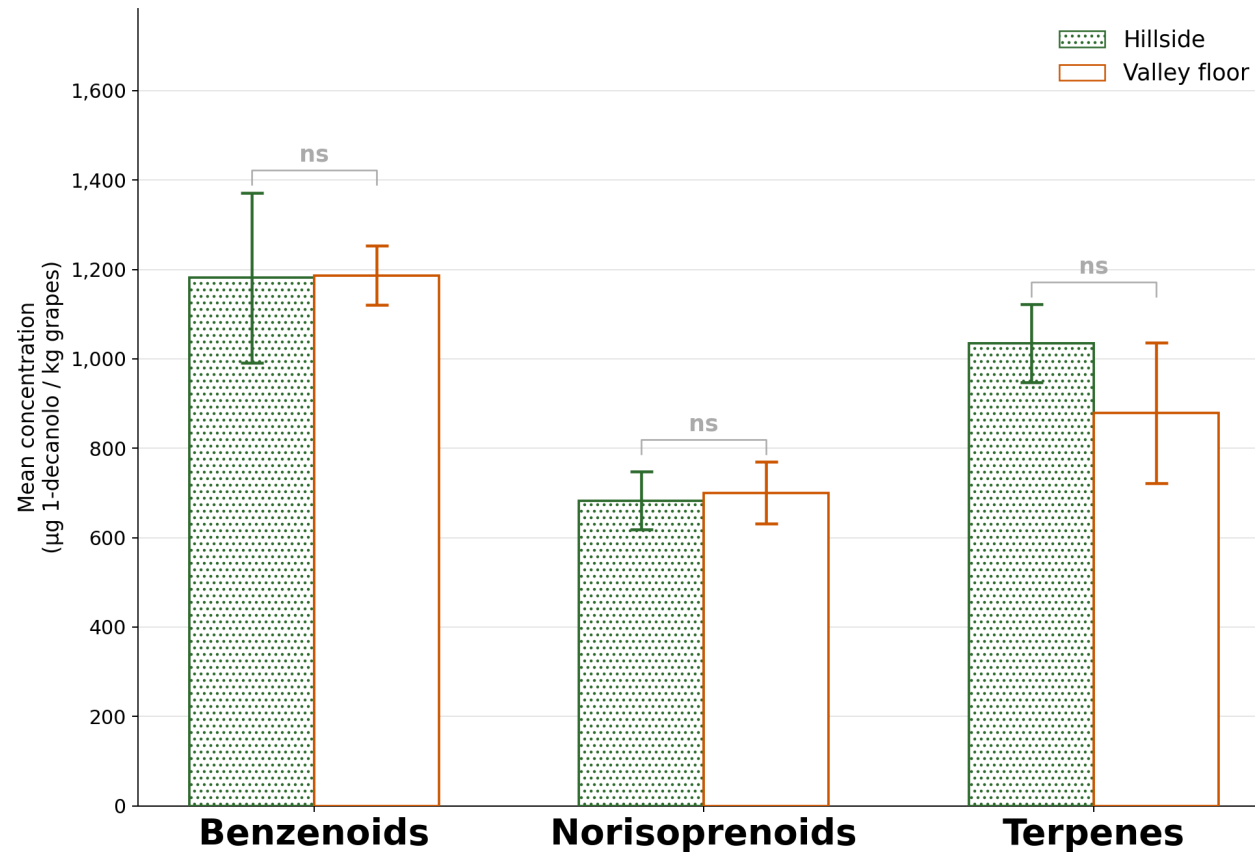
Standardised agronomic practices

Assessments

1. Climate
2. Phenology
 1. Bud-break
 2. Flowering
3. Yield
 1. Cluster weight
 2. yield / vine
 3. Berry weight
 4. Number of clusters / vine
4. Quality
 1. Maturation curve: sugar (TSS), pH e Titrable acidity(AT)
 2. Grape/Wine Aroma Compounds analysis (bond) throw gas-chromatography
 3. Microvinification + Sensory evaluation

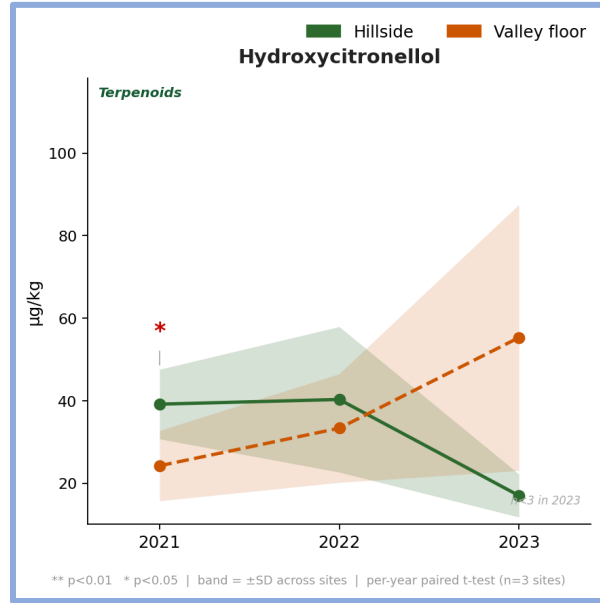


grape's aroma compounds

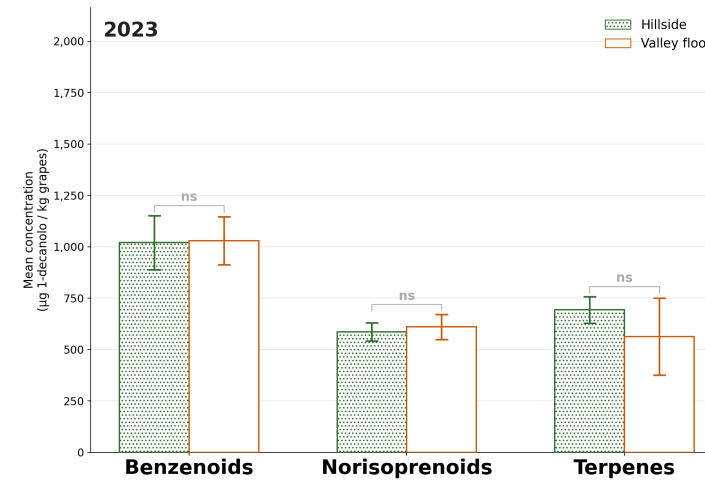
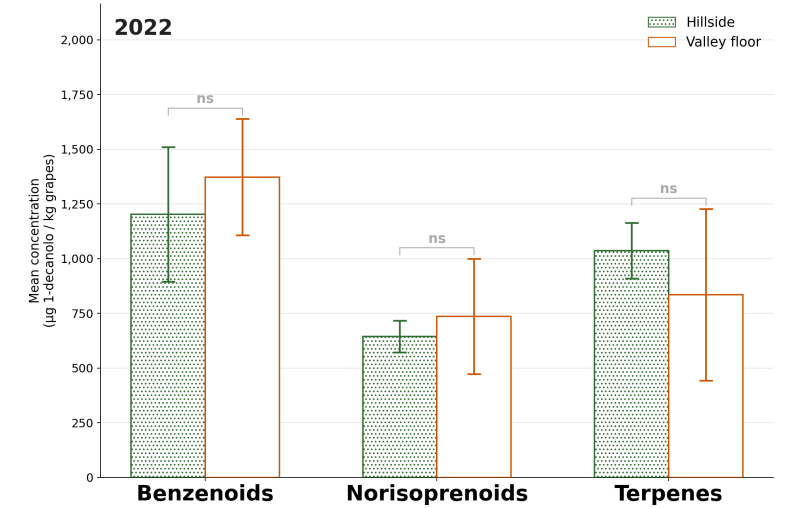
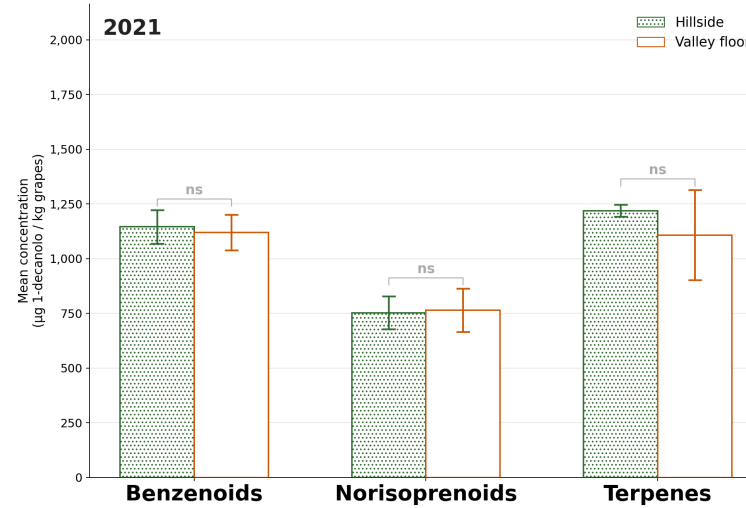


Error bars = SE (n = 3 locations) · **p < 0.01 *p < 0.05 ns = not significant (Welch's t-test)

**DATA ARE
AVERAGE OVER
THREE YEARS:
2021/2022/2023**



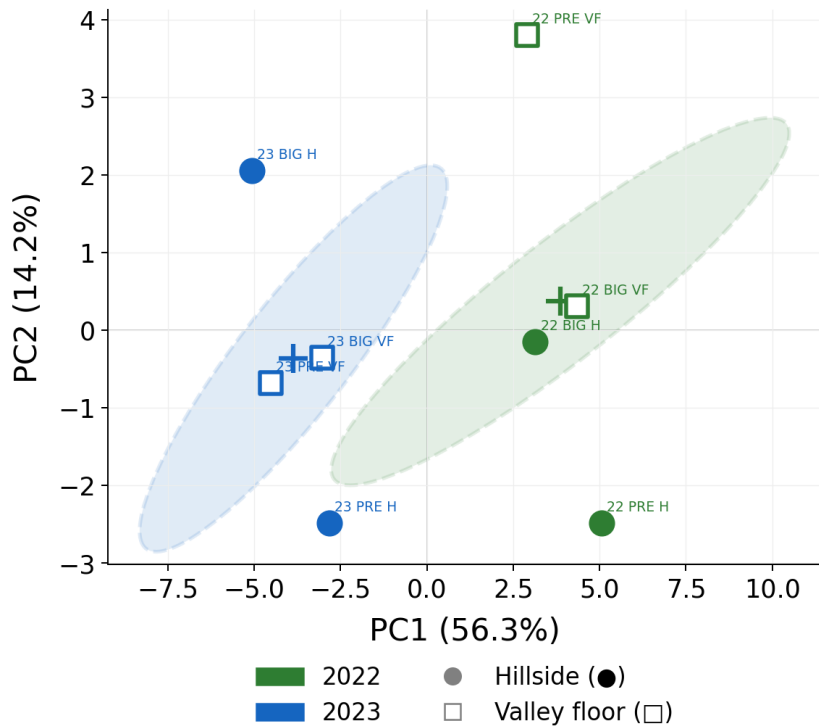
grape's aroma compounds



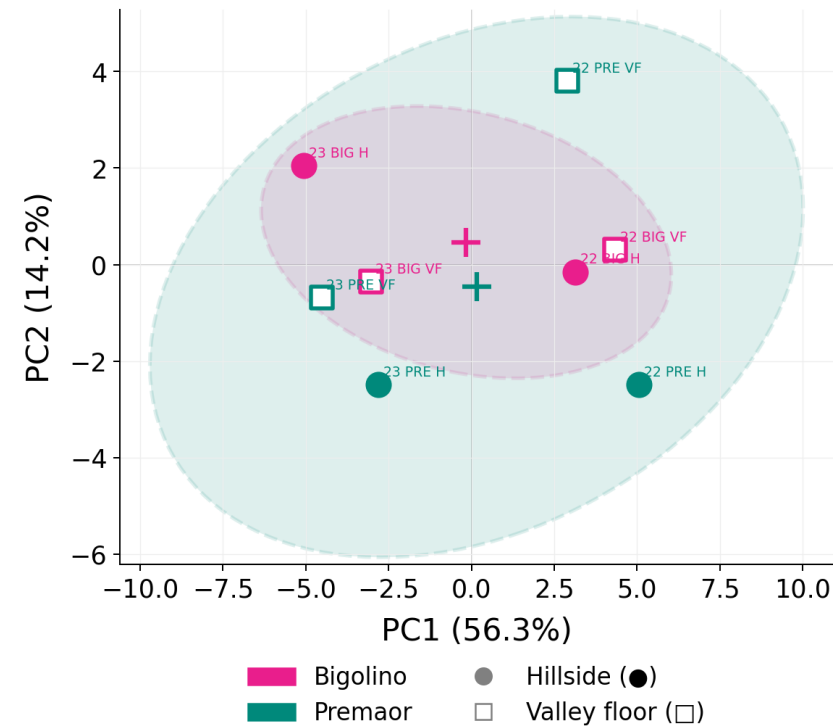
Error bars = SE (n = 3 locations) · **p < 0.01 *p < 0.05 ns = not significant (Welch's t-test)

Wine's Aroma Compounds 2022-2023
PC1: 56.3% · PC2: 14.2% · Total variance: 70.5%

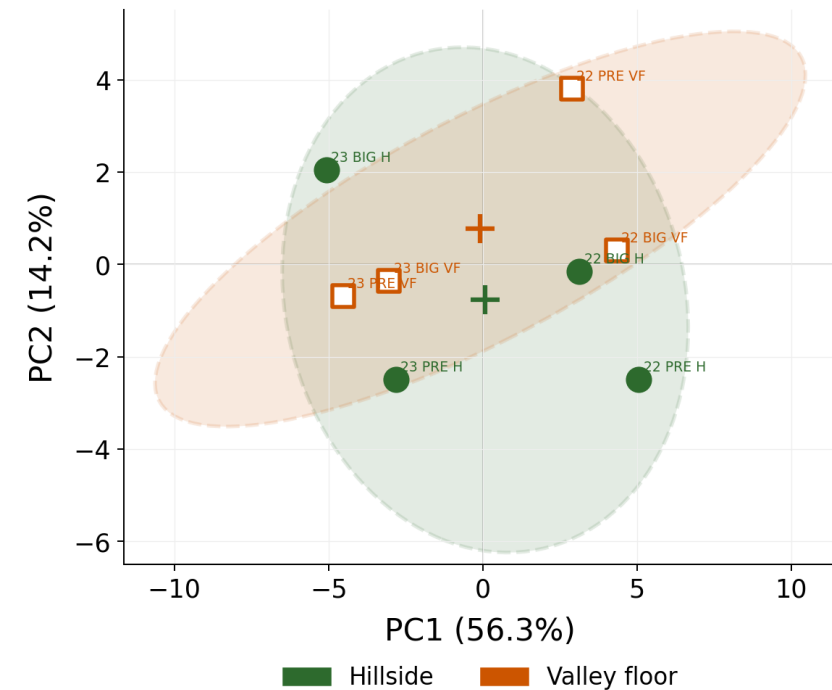
① Year effect



② Site effect

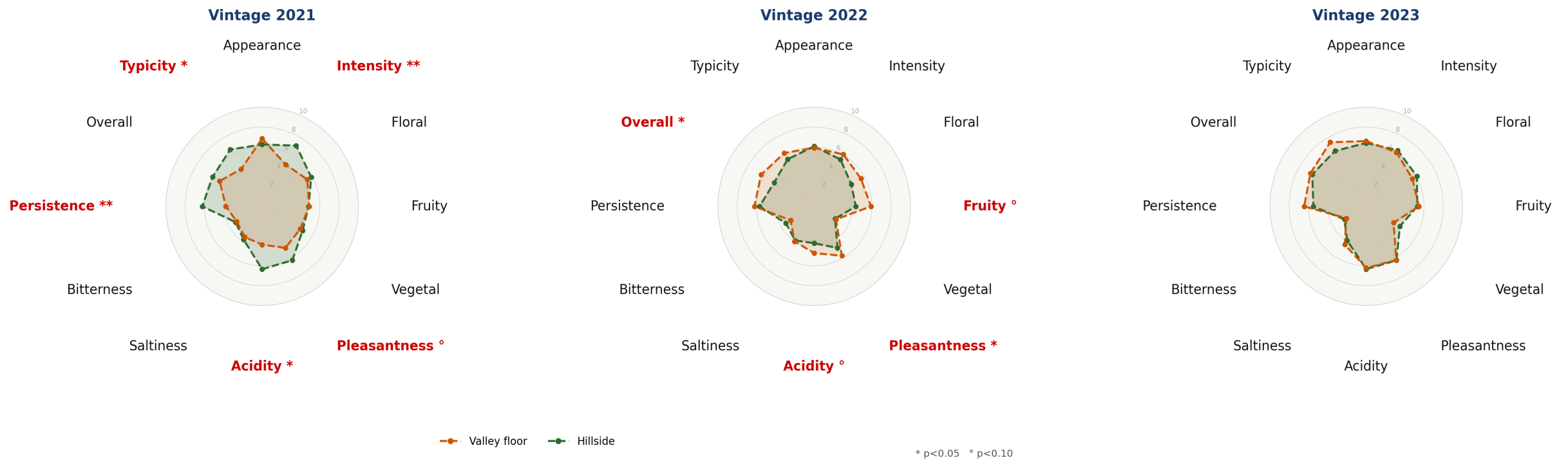


③ Terrain effect



wine's aroma compounds

SITE 1 - "BIGOLINO" WINE SENSORY

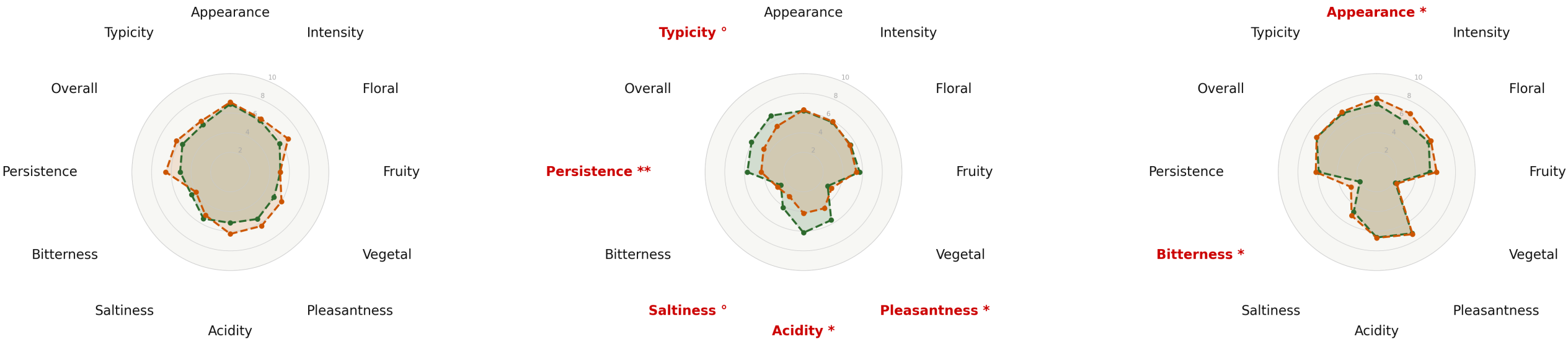


SITE 2 - "PREMAOR" WINE SENSORY

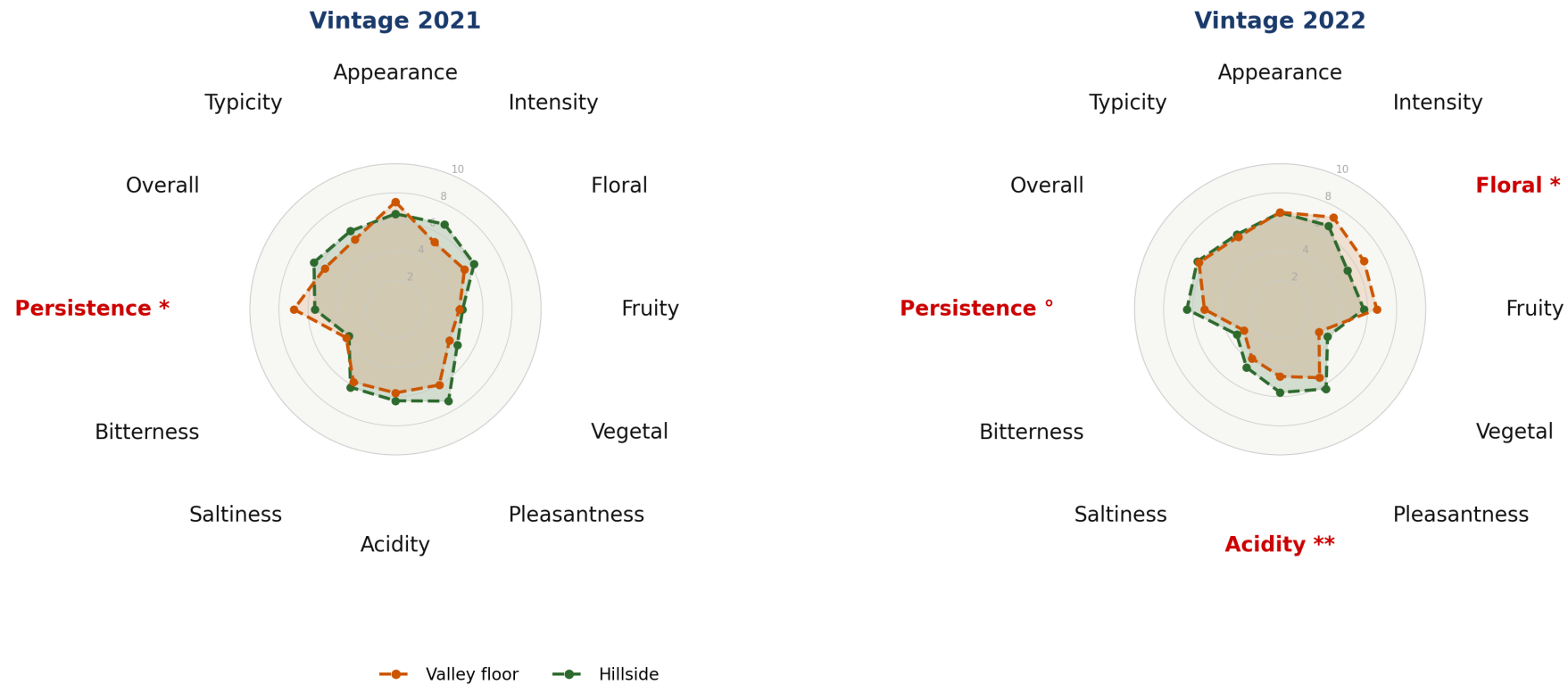
Vintage 2021

Vintage 2022

Vintage 2023



SITE 3 - "MANZANA" WINE SENSORY



- **No consistent difference at aromatic class level** — when benzenoids, norisoprenoids and terpenes are compared as groups, hillside and valley floor show no statistically significant separation, due to high within-class variability → **A positive trend in terpenes concentrations was observed at hilly sites across all vintages**
- **Wine aroma compounds** – PCA highlights that samples cluster more distinctly **according to vintage than to site or terrain**. This indicates that year-to-year climatic conditions strongly shape the overall aromatic profile and enhance the separation between groups, rather than increasing within-group variability.
- **Sensory profile reflects terrain more clearly than chemistry** — tasters perceived significant differences in saltiness, floral character, intensity and typicality between hillside and valley floor wines, with Premaor showing the most consistent discrimination across vintages.



Thank you for your attention

Contacts

patrick.marcuzzo@crea.gov.it

<https://www.crea.gov.it/home>

