



Pre-breeding strategies for obtaining new resilient and added value berries

WORKSHOP

Advancing Berry Breeding: From Phenotyping to Genomic Innovation

April, 2-3, 2025, Ancona, Italy

## **SENSORY QUALITY AND CONSUMER ACCEPTANCE OF BERRIES: Panel and consumer contribution to characterize and valorize berry GenRes**

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## Panel and consumer contribution to characterize and valorize berry GenRes

### Panel test common aims:

Create a group (panel) of **trained** individuals providing **reliable** data about perceived **sensory attributes'** intensity.

- Training
- Evaluation (selection)
- Reference standards, Lexicon
- Experience-Skill
- > Sensory profile (Descriptive Analysis, Temporal Dominance of Sensations, Time Intensity, T-Cata)

- Judges have a common training
  - Consensus on attribute definition and relative intensity, Consistency and repetibility of judgement
  - Individual and Panel performance
- AIMS**
- Validation of laboratory analyses
  - Prediction of consumer acceptance

### Implementation thanks to the international partnership:

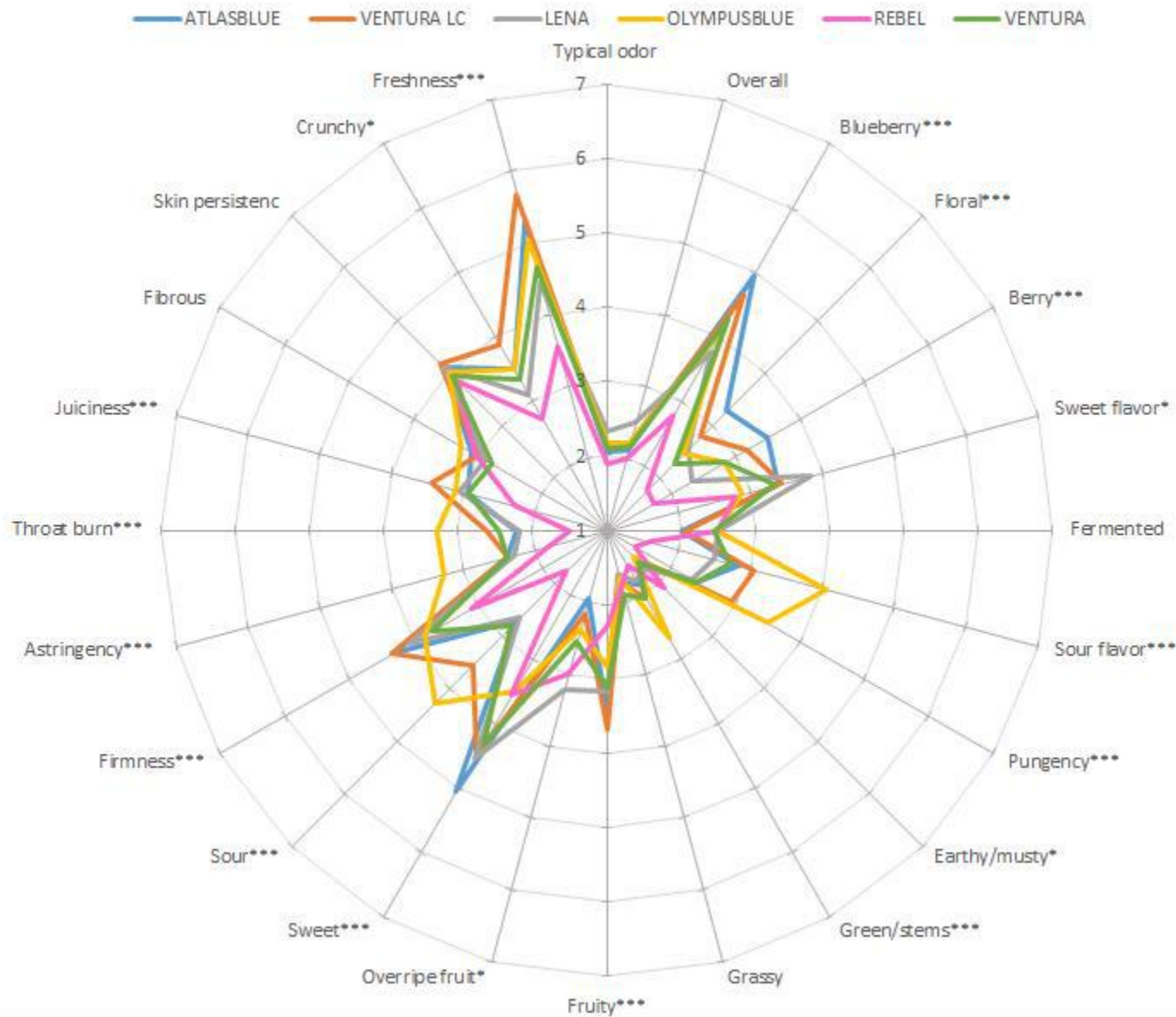
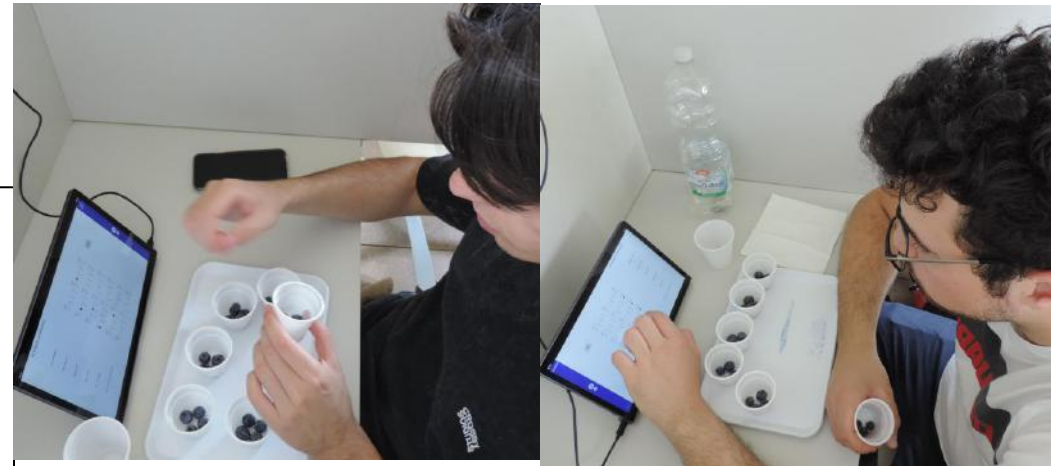
- **Standardization:** Establishing consistent methodologies across borders for reliable comparisons
- **Expert Panels:** Leveraging diverse sensory experts for robust evaluations.
- **Socio-Cultural Differences:** Understanding how taste, smell, and texture preferences vary globally.



**Consumer test aim:** involve consumer to define individual appreciation and hedonic drivers

- Specific tests e.g. CATA (Check-All-That-Apply) or RATA (Check-All-That-Apply)

# Blueberry from Sant'Orsola SCA, TN, Italy



Article

## Development and Validation of a Multilingual Lexicon as a Key Tool for the Sensory Analyses and Consumer Tests of Blueberry and Raspberry Fruit

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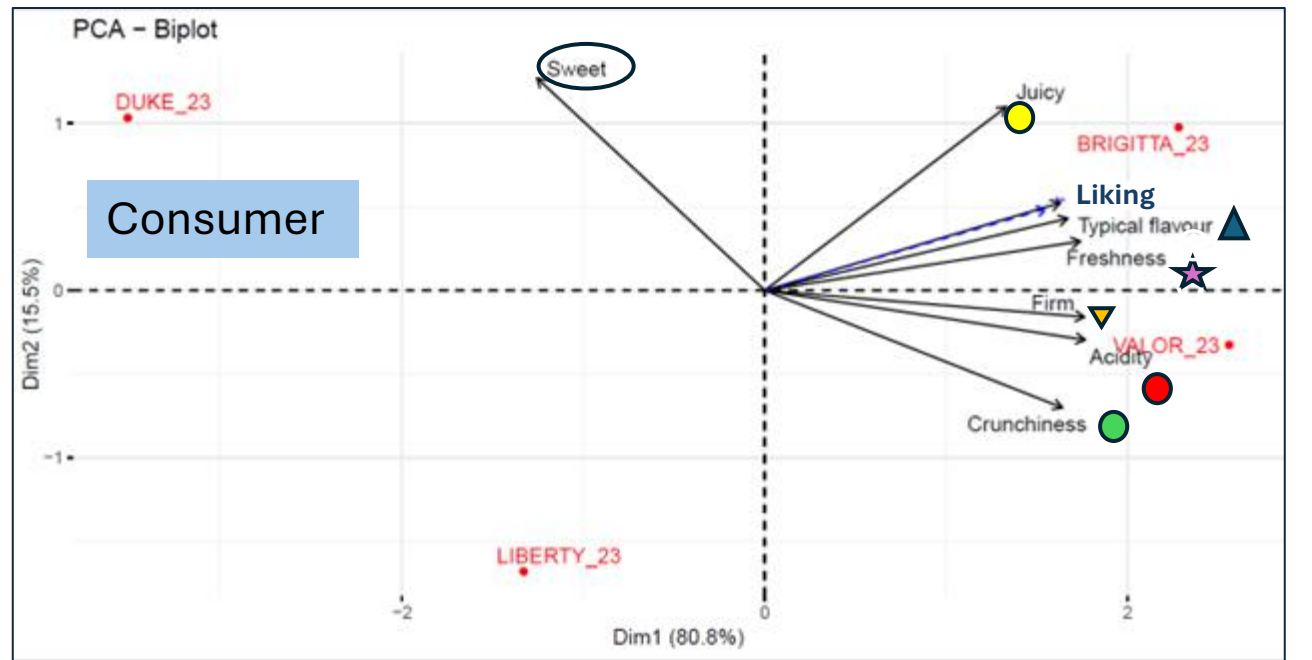
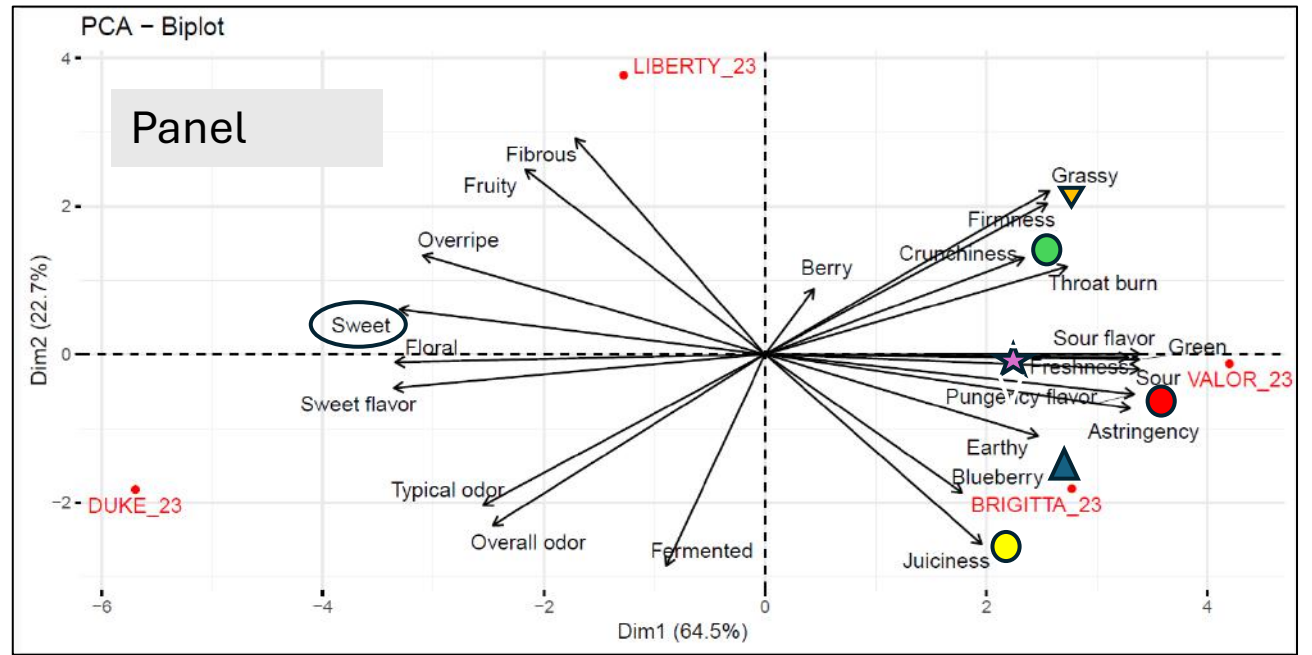
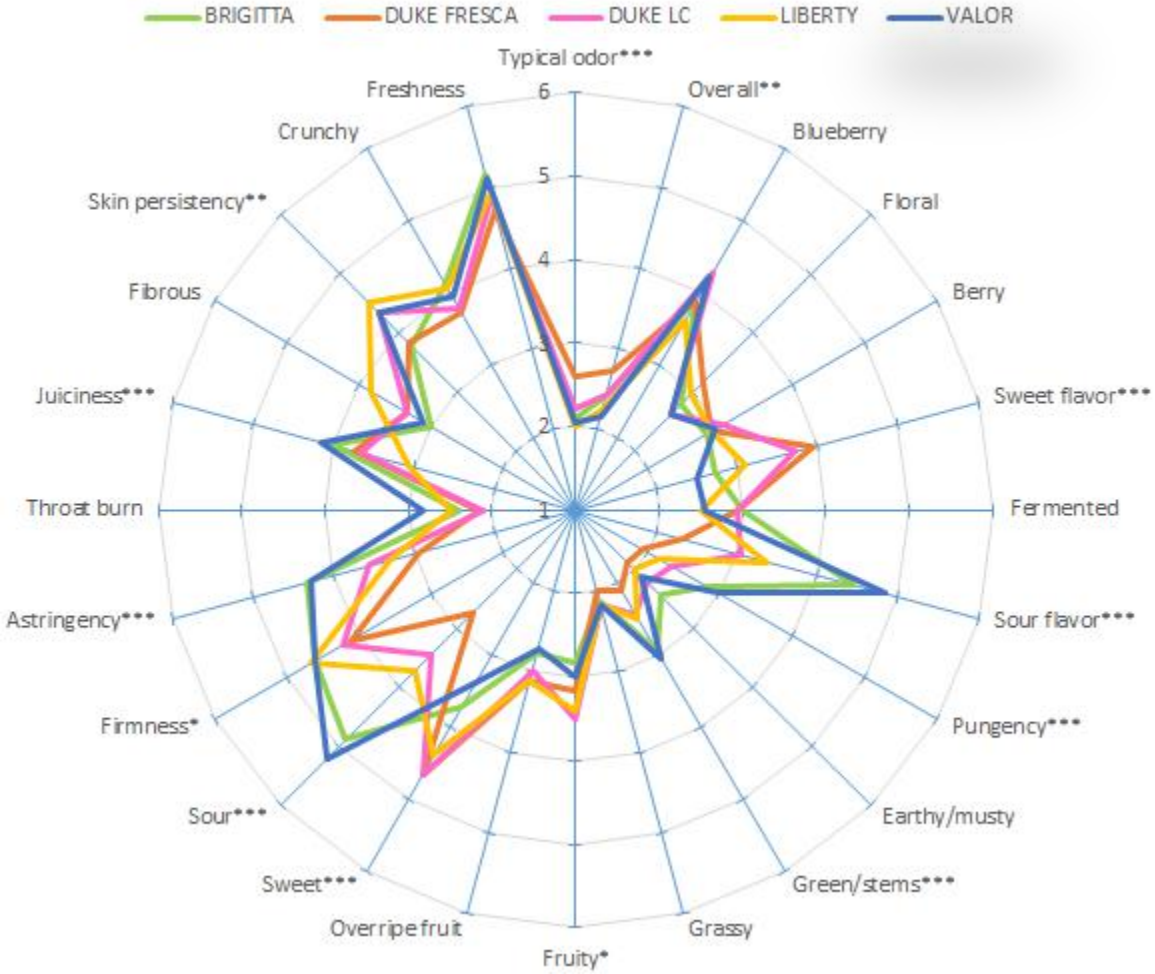
Flavor	Flavor	Aromi/ Flavori	Arôme/ Saveur	Aroma	Aroma	Aroma/ Olor	Koku/ Lezzet
Acid	A sharp flavor associated with products that have a sour taste	Terävä, hapantuotteeseen liittyvä aromi	Arôme âcre associé à des produits ayant un goût acide	Ein beißendes Aroma in Verbindung mit Produkten, die einen sauren Geschmack haben Aromen, die mit einer Kombination von gemischten Beeren assoziiert werden	Aroma forte associato a prodotti che hanno un sapore acido (acidi organici) Sensazione aromatica associata ai piccoli frutti (fragola, lampone, mirtillo, mora)	Aroma asociado a productos ágricos	Eksi bir tada sahip olma hissi veren keskin bir aroma
Berry	Flavor associated with a combination of mixed berries	Marjojen, marjasekoitusten aromi	Arôme associé à une combinaison de petits fruits (fruits rouge)	Aromen, die mit frischen Heidelbeeren assoziiert werden Aromen, die mit Zitrusfrüchten assoziiert werden (z. B. Zitrone, Orange, Limette)	Sensazione aromatica associata ai mirtilli Sensazione aromatica associata ad agrumi (ex. Limone, Arancia, Lime)	Aroma asociado a una mezcla de bayas, pequeños frutos (frutos rojos)	Karışık meyve kombinasyonu hissi veren aroma
Blueberry	Flavor associated with fresh blueberries	Tuoreen pensasmustikan aromi	Arôme associé aux bleuets frais	Aromen, die mit frischen Heidelbeeren assoziiert werden Aromen, die mit Zitrusfrüchten assoziiert werden (z. B. Zitrone, Orange, Limette)	Sensazione aromatica associata ai mirtilli Sensazione aromatica associata ad agrumi (ex. Limone, Arancia, Lime)	Aroma asociado al arándano fresco	Taze Mavi yemişi hissi veren aroma
Citrus	Flavor associated with citrus fruit (ex. lemon, orange, lime)	Sitrushedelmän aromi (esim. sitruuna, appelsiini, lime)	Arôme associé aux agrumes (ex. citron, orange, citron vert)	Aromen, die mit Zitrusfrüchten assoziiert werden (z. B. Zitrone, Orange, Limette)	Sensazione aromatica associata ad agrumi (ex. Limone, Arancia, Lime)	Aroma asociado a los cítricos (ej. limón, naranja, lima)	Narenciye türlerini anımsatan aroma (portakal, limon vs.)
Earthy/musty	Flavor associated with soil (ex. red beet, boiled potato, or mushrooms)	Maaperään liittyvä aromi (esim. punajuuri, keitetty peruna, sien)	Arôme associé à la terre (ex. betterave rouge, pomme de terre bouillie, ou champignons)	Aromen, die mit Erde assoziiert werden (z. B. rote Beete, gekochte Kartoffeln oder Pilze) Aromastoffe, die mit fermentiertem/faulendem Obst oder Gemüse assoziiert werden Süßes, aromatisches Empfinden, das mit Blumen assoziiert werden kann	Sensazione aromatica associata con il suolo (ex. Rapa, Patata bollita o funghi) Sensazione aromatica associata con frutta o verdura fermentata/marcia	Aroma asociado a suelo/tierra (ej. Remolacha roja, patata cocida, champiñón/setas)	Toprağı anımsatan aromalar (ör. kırmızı pancar, haşlanmış patates veya mantar)
Fermented	Flavor associated with fermented /rotting fruit or vegetable	Käyneen, pilaantuneen hedelmän tai vihanneksen aromi	Arôme associé à un fruit ou un légume fermenté ou pourri	Aromastoffe, die mit fermentiertem/faulendem Obst oder Gemüse assoziiert werden Süßes, aromatisches Empfinden, das mit Blumen assoziiert werden kann	Sensazione aromatica associata con frutta o verdura fermentata/marcia	Aroma asociado a la fermentación y la fruta podrida	Fermente/çürüyen meyve veya sebze hissi veren aroma
Floral	Sweet flavor sensation associated with flowers	Kukkiin liittyvä makea aromi	Arôme associé aux fleurs	Süßes, aromatisches Empfinden, das mit Blumen assoziiert werden kann	Sensazione aromatica associata ai fiori	Sensación aromática dulce asociada a las flores	Çiçek kokusunu anımsatan tatlı aromatik his
Fruity	Sweet, intense flavor associated with a combination of mixed fruit	Hedelmiin liittyvä makea aromi	Arôme doux et intense associé à un mélange de fruits	Süßes, intensives Aroma, das mit einer Kombination aus gemischten Früchten assoziiert werden kann	Intensa sensazione aromatica dolce associata al mix di frutta fresca	Aroma dulzón, intenso, asociado a una mezcla de frutos	Karışık meyve kombinasyonunu anımsatan tatlı, yoğun aroma



## TRAINING



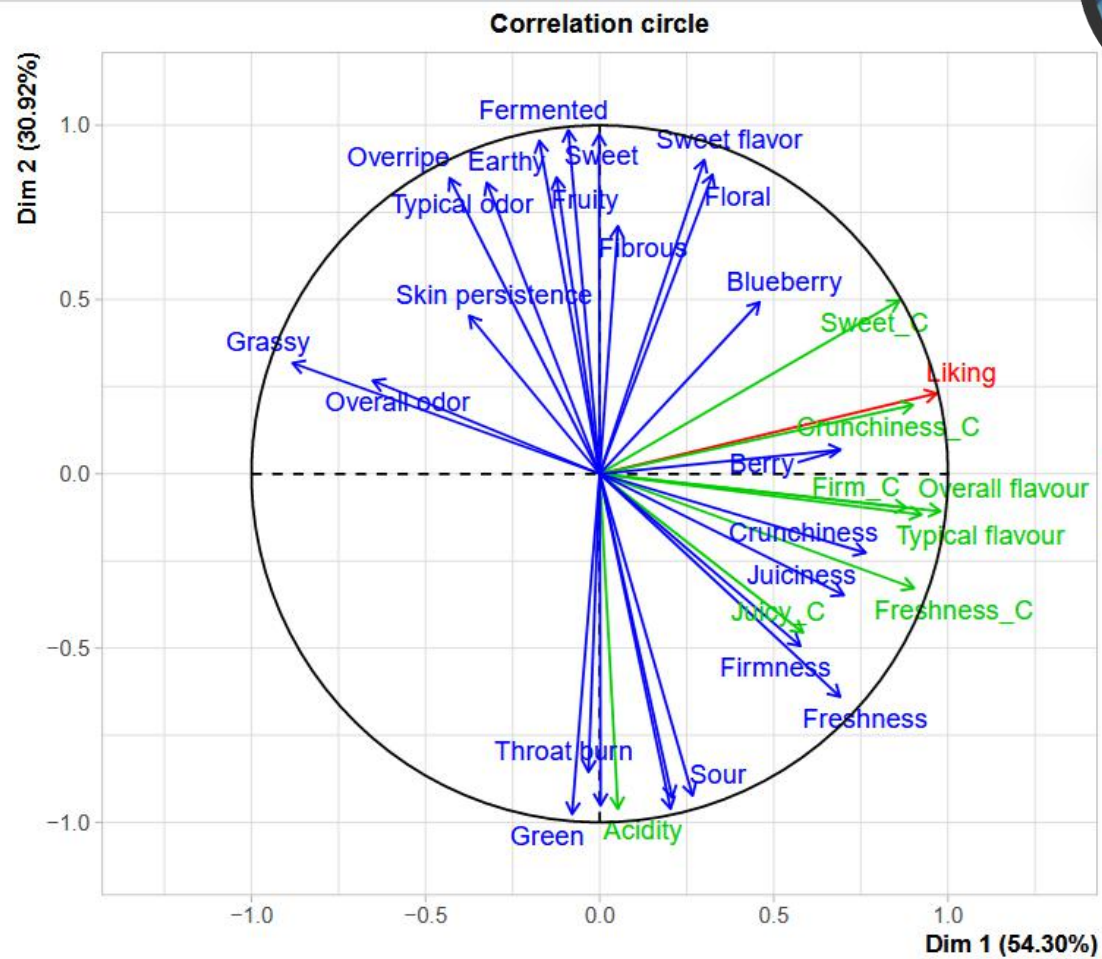
# Descriptive Analysis



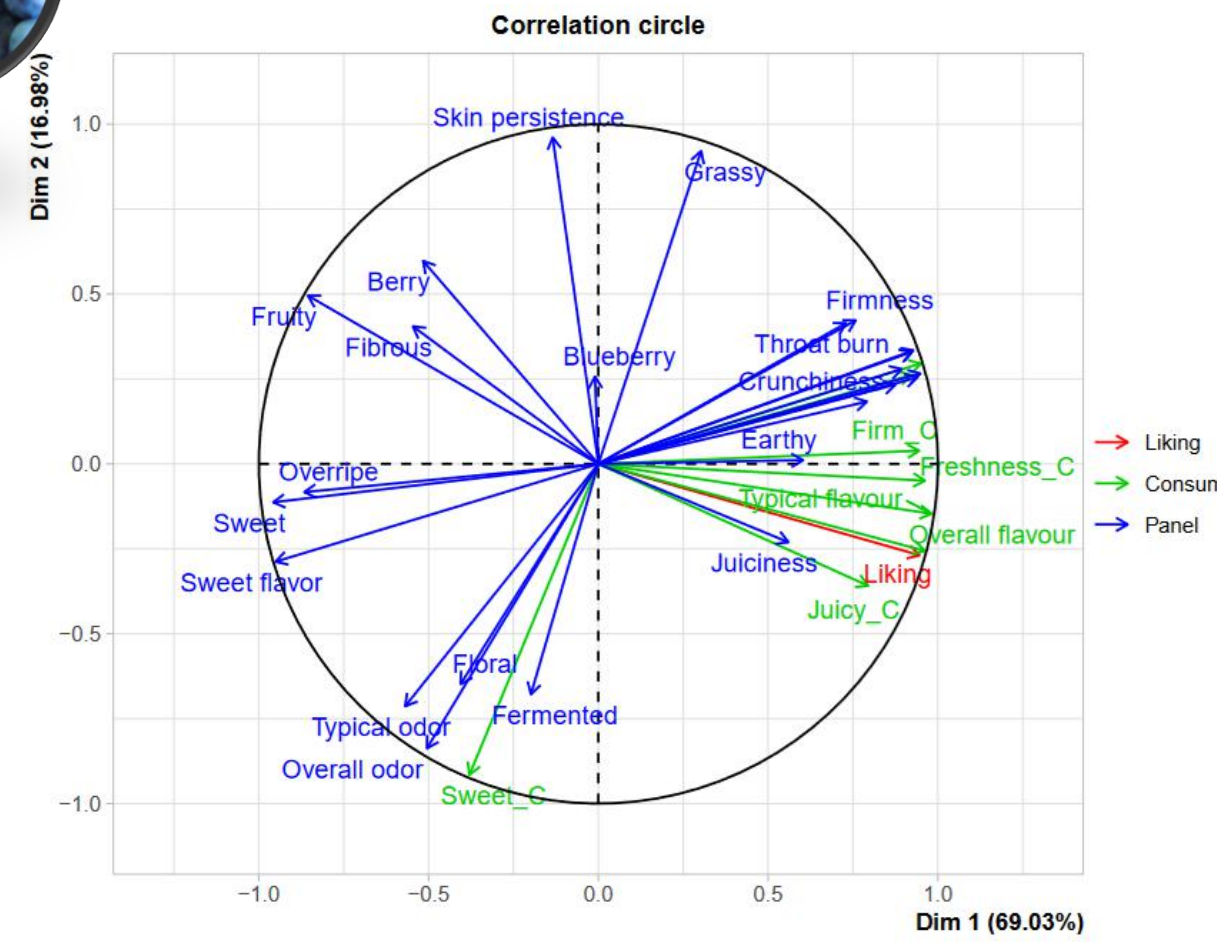
Consumer test aim: involve consumer to define individual appreciation and hedonic drivers  
 - Specific tests e.g. CATA (Check-All-That-Apply or RATA Check-All-That-Apply)



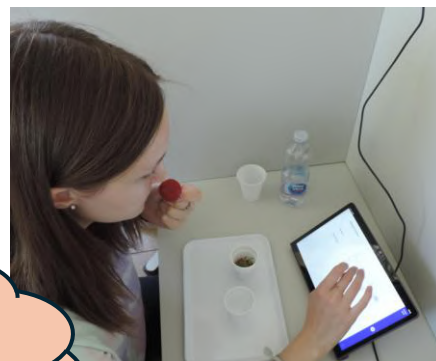
First year



Second year



**Genetics, Environment, Agriculture > Resilience**

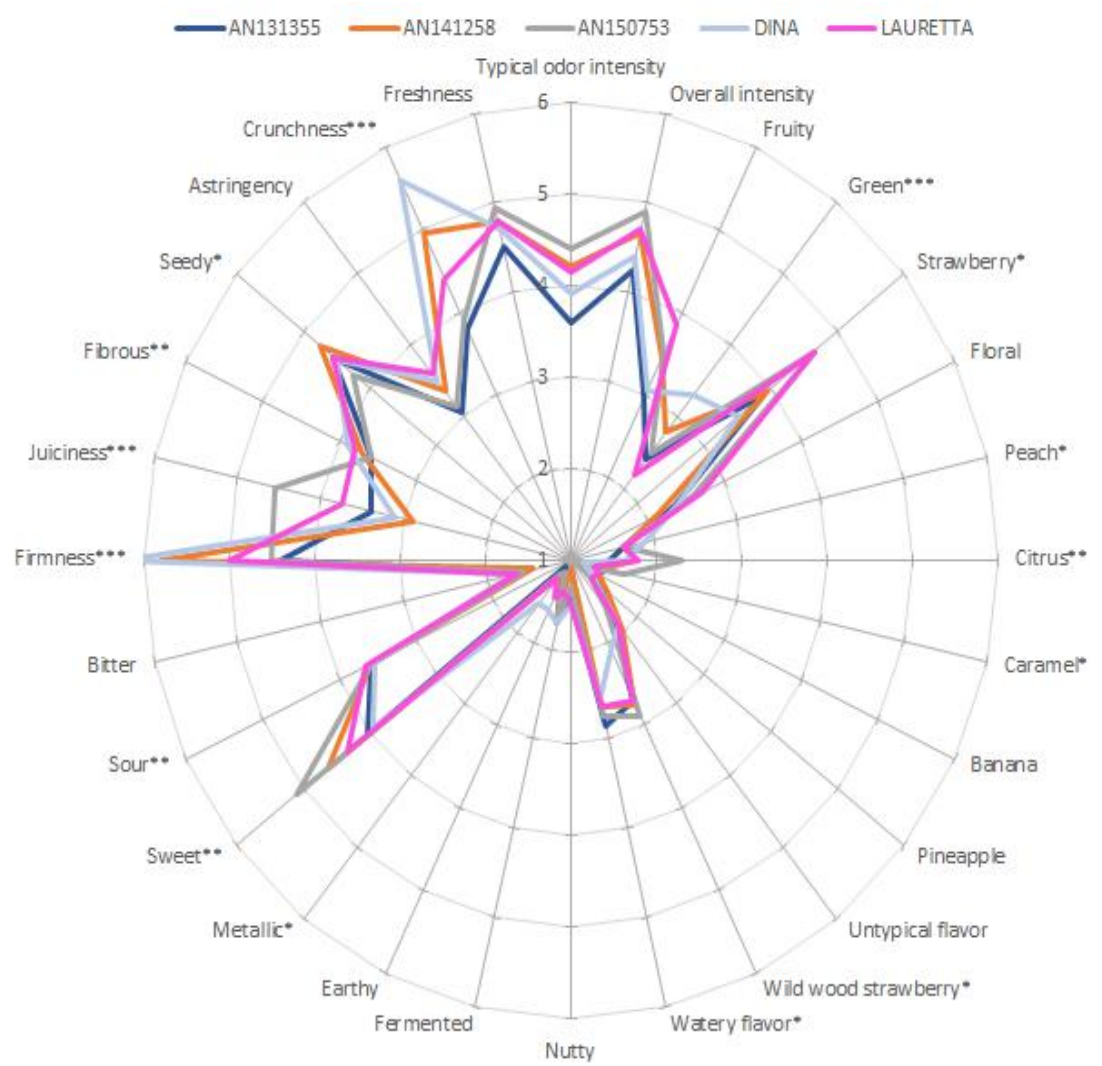


**Lexicon Cloud**

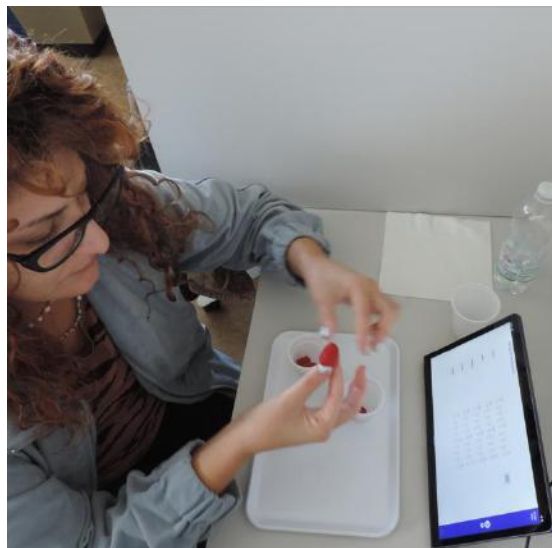
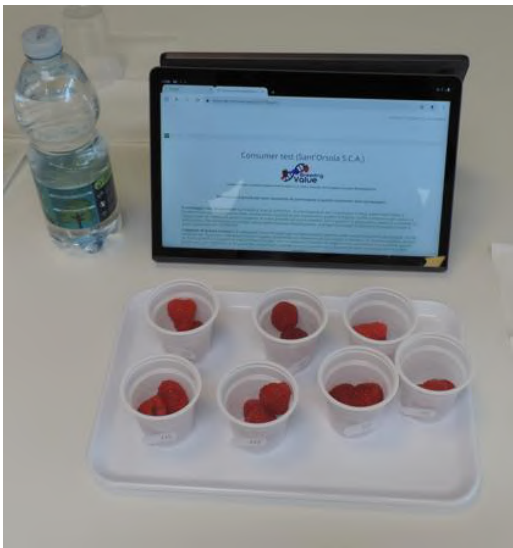
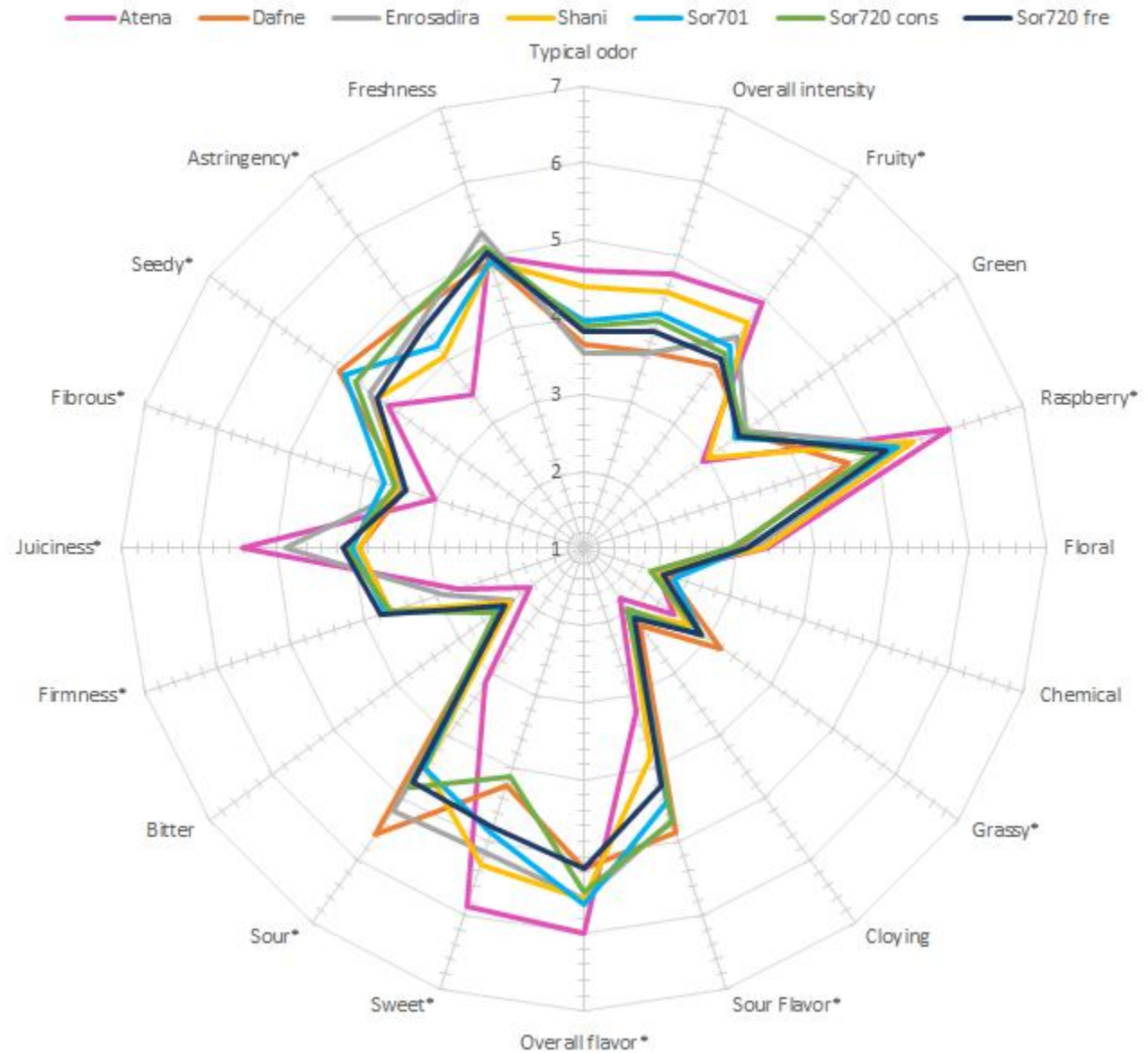
- Typical odor
- Overall odor
- Fruity
- Green
- Strawberry
- Floral
- Peach
- Citrus
- Caramel
- Banana
- Pineapple
- Untypical flavor
- Wild wood
- Watery flavor
- Nutty
- Fermented
- Earthy
- Metallic
- Sweet
- Sour
- Bitter
- Firmness
- Juiciness
- Fibrousness
- Seedy
- Astringency
- Crunchiness
- Freshness

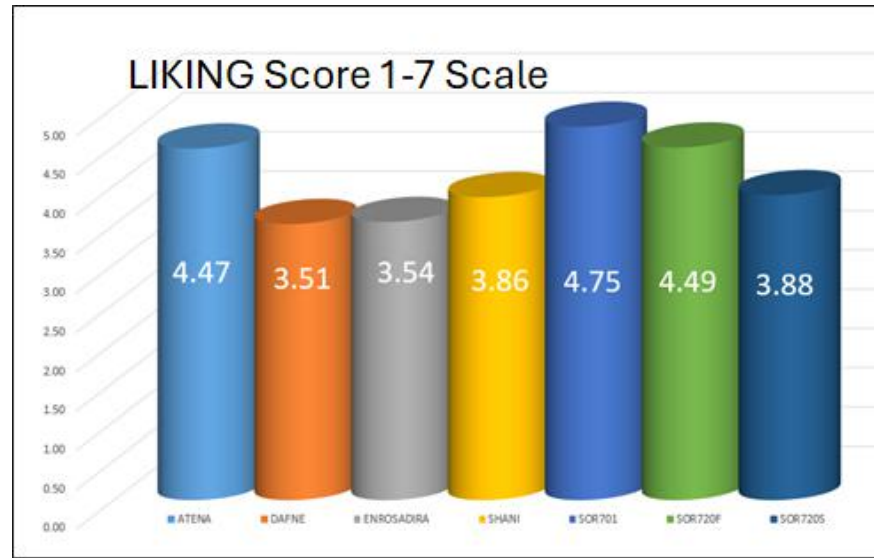
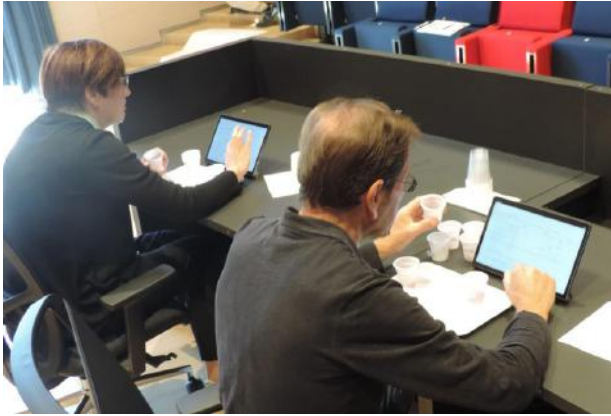


## Strawberry: Case study UPM

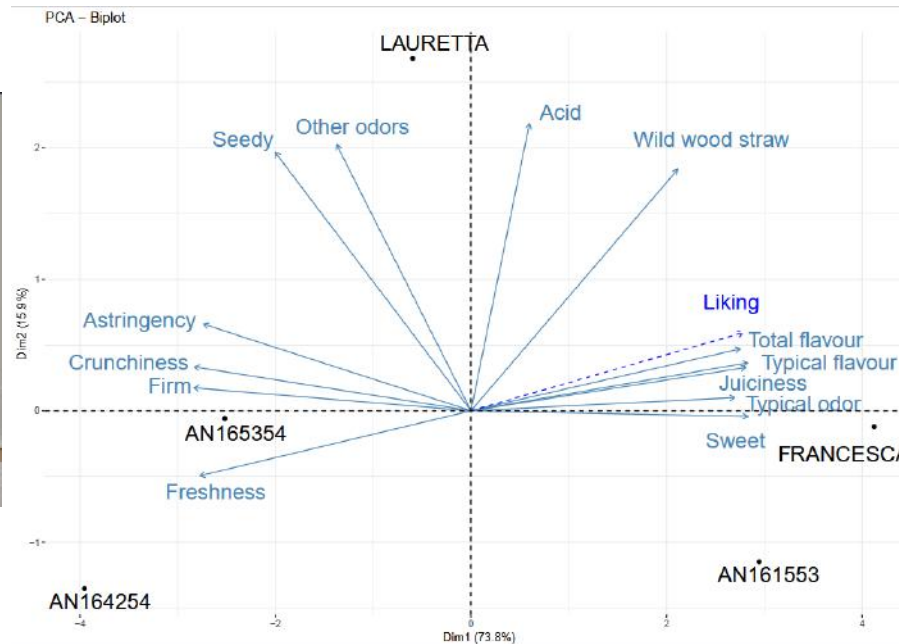
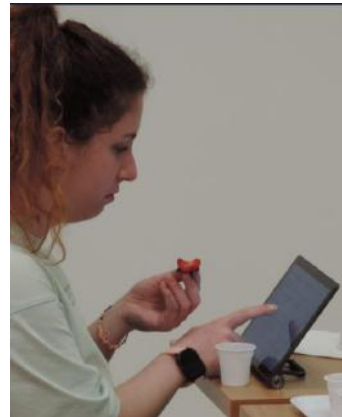


# Raspberry: Case study Sant'Orsola





Consumer test on Raspberry, S'Orsola, Pergine Valsugana TN, Italy



Consumer test on Strawberry, UPM, Ancona, Italy



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- Edoardo Gatti
- Chiara Medoro
- Giulia Maria Daniele
- Marta Cianciabella
- Giuseppe Versari



# Thank you!