fondazione banfi

SANGUIS JOVIS

ALTA SCUOLA DEL SANGIOVESE

VI Edizione

SUMMER SCHOOL SANGUIS JOVIS

SANGIOVESE PHYGITAL:

L'impatto della tecnologia dalla vigna al Metaverso

Le grandi risorse genetiche della vite nei confronti degli stress ambientali e biotici

Davide BIANCHI, PhD

Dipartimento di Scienze Agrarie e Ambientali

Università degli Studi di Milano

DiSAA AGRONOMIA e ARBORICOLTURA

UNIVERSITÀ DEGLI STUDI DI MILANO

davide.bianchi3@unimi.it

fondazione banfi

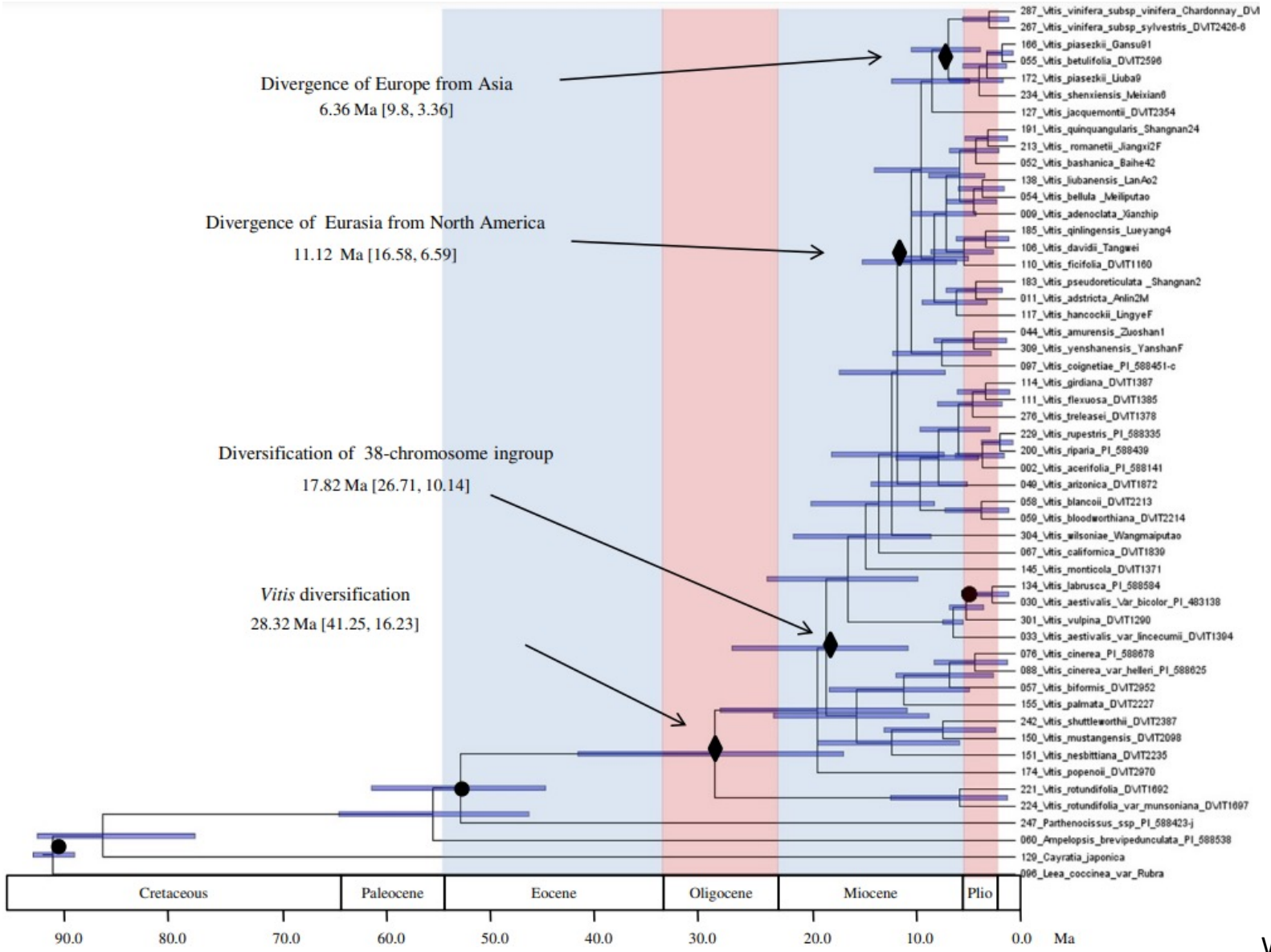
SANGUIS JOVIS

ALTA SCUOLA DEL SANGIOVESE

Le grandi risorse genetiche della vite nei confronti degli stress ambientali e biotici

- Diversità del genere *Vitis*
- Adattamento all'ambiente: il ruolo del portinnesto
- Innovazione genetica dei portinnesti
- Combinazioni d'innesto: il Sangiovese

Origine del genere *Vitis*



Wan et al., 2013

Diffusione del genere *Vitis*

Figure 1 Native geographic distribution of the genus *Vitis* (grey shading[1]) and geographic regions of origin of *Vitis* species used in this study. Dashed lines indicate southern borders of the polar ice cap during the most recent ice age[2]. Dash-dot lines indicate ice age refugia of the forest flora[2]. Areas labeled 1 through 4 were used in ancestral area optimization (reversible parsimony, Additional file 14). Redrawn from [1]Alleweldt et al. [7], [2]Reinig [14].

Wan et al., 2013

Diversità del genere *Vitis*

Klein et al., 2018

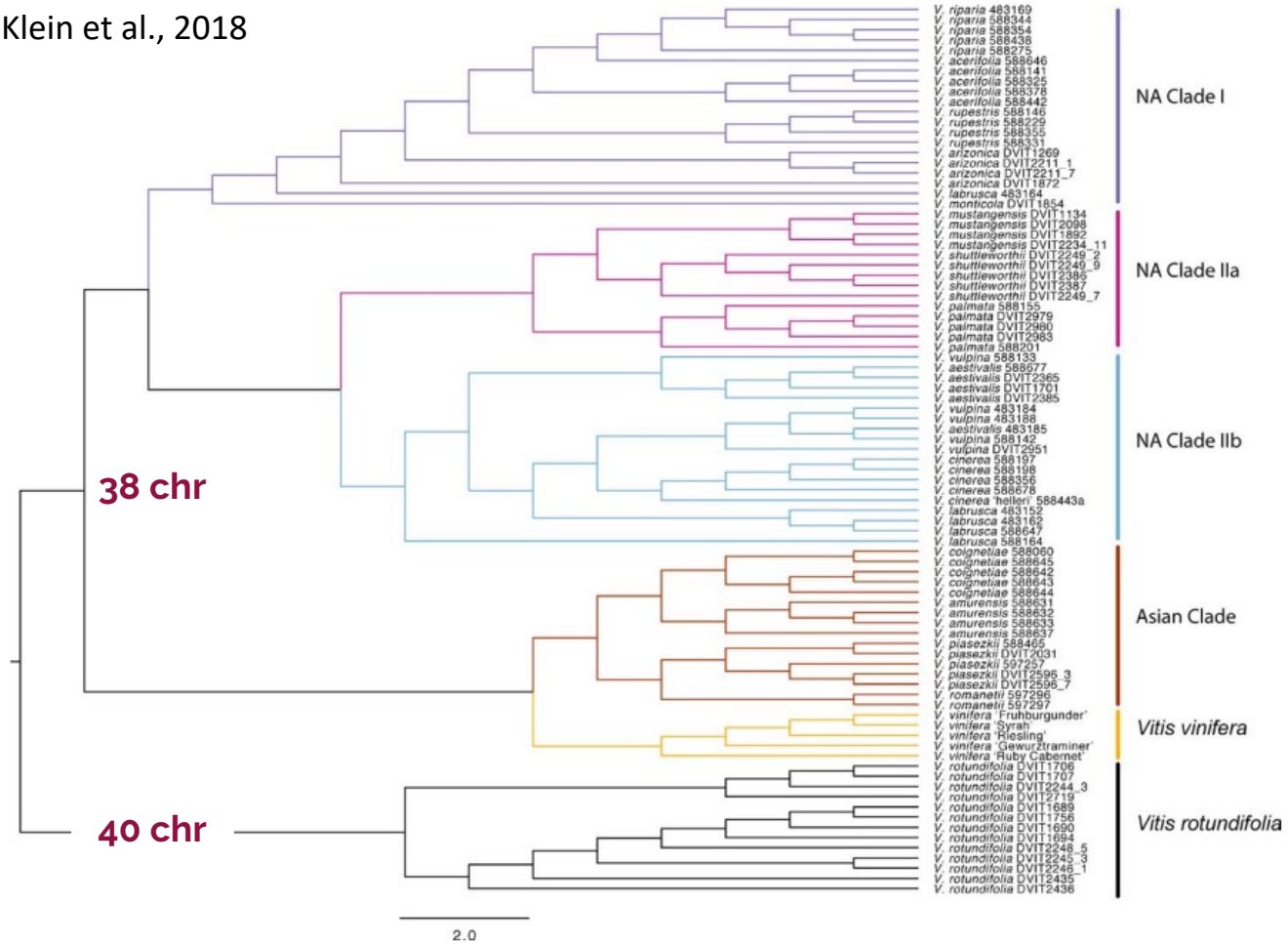


FIGURE 1. Species tree generated in SVDquartets using the reduced *Vitis* data set ($n = 87$) to represent 18 *Vitis* species. *Vitis rotundifolia* represents subg. *Muscadinia*. North American and Eurasian *Vitis* species form two clades within subg. *Vitis*. Within the North American *Vitis* clade, two subclades are present: NA Clades I (*V. acerifolia*/ *V. arizonica*/ *V. monticola*/ *V. riparia*/ *V. rupestris*) and II (*V. aestivalis*/ *V. cinerea*/ *V. labrusca*/ *V. mustangensis*/ *V. palmata*/ *V. shuttleworthii*/ *V. vulpina*). NA Clade II is further divided by subclades 'a' and 'b.'

Utilizzi del genere *Vitis*

Klein et al., 2018

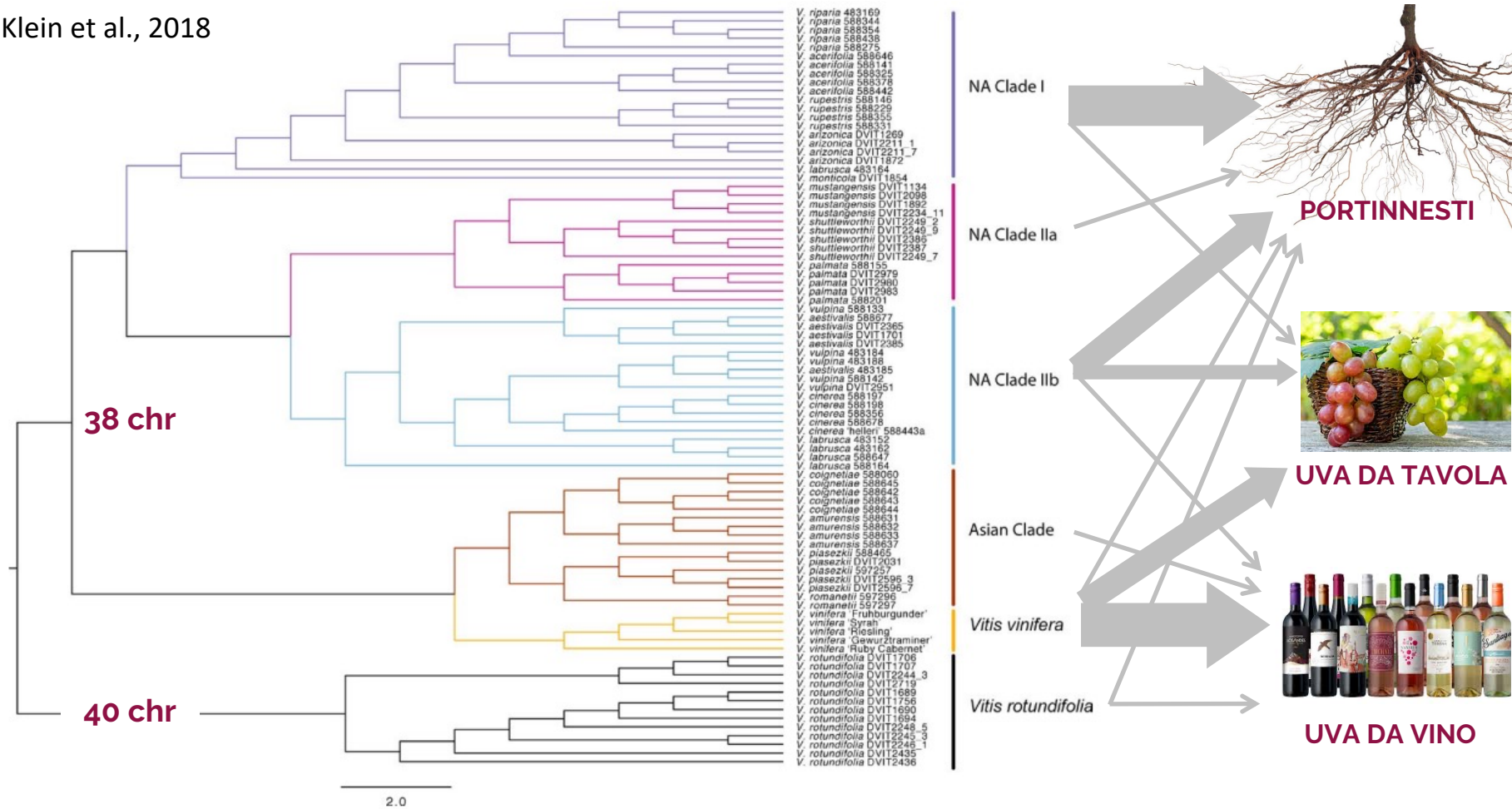
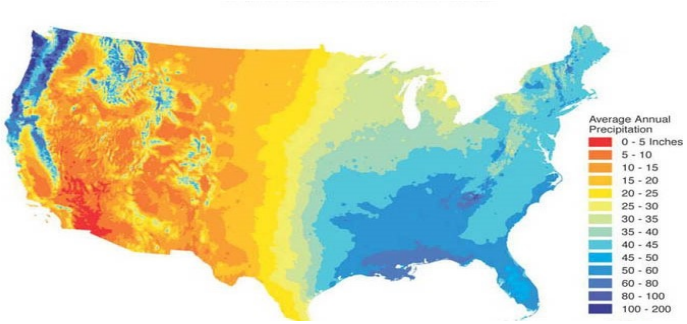


FIGURE 1. Species tree generated in SVDquartets using the reduced *Vitis* data set ($n = 87$) to represent 18 *Vitis* species. *Vitis rotundifolia* represents subg. *Muscadinia*. North American and Eurasian *Vitis* species form two clades within subg. *Vitis*. Within the North American *Vitis* clade, two subclades are present: NA Clades I (*V. acerifolia*/ *V. arizonica*/ *V. monticola*/ *V. riparia*/ *V. rupestris*) and II (*V. aestivalis*/ *V. cinerea*/ *V. labrusca*/ *V. mustangensis*/ *V. palmata*/ *V. shuttleworthii*/ *V. vulpina*). NA Clade II is further divided by subclades 'a' and 'b.'

Nord America – *Vitis rotundifolia*

Precipitazioni medie



V. rotundifolia

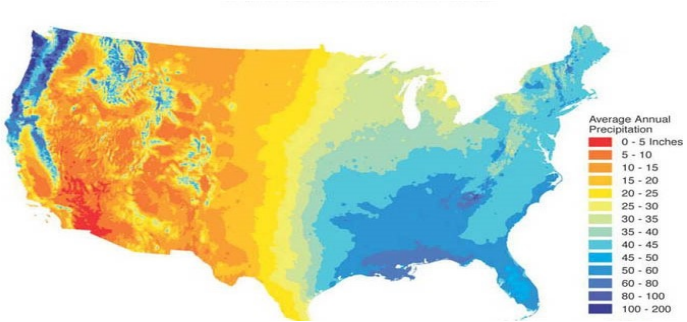
Boschi montani o planiziali, paludi, argini fluviali, pinete

fondazione banfi
SANGUIS JOVIS

Callen et al., 2016

Nord America – Clade I

Precipitazioni medie



V. arizonica
argini fluviali, dune,
pendii rocciosi

V. riparia
Ruscelli, aree paludose,
boschi alluvionali

V. acerifolia
argini fluviali, dune,
pendii rocciosi

V. rupestris
argini calcarei e
ghiaiosi

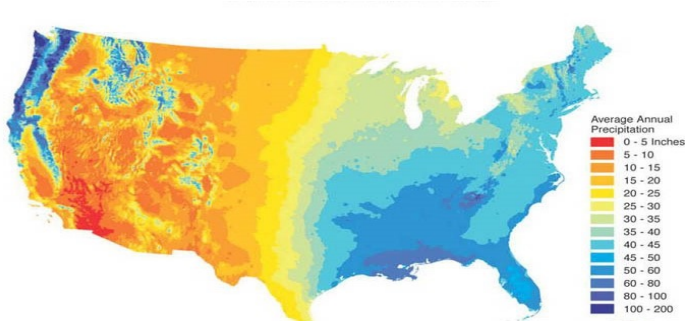
V. monticola
altopiano di Edwards,
zone secche

Callen et al., 2016

fondazione banfi
SANGUIS JOVIS

Nord America – Clade IIa

Precipitazioni medie



V. mustangensis
Boschi di pianura

V. shuttleworthii
pinete e boschi ben drenati della Florida peninsulare

V. palmata
argini fluviali e boschi alluvionali

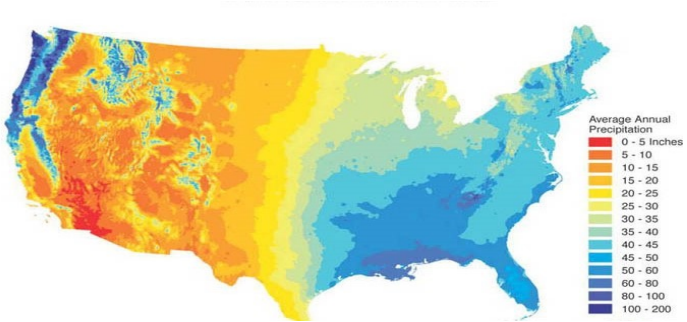
V. cinerea
Golene, paludi, canyon, pendii calcarei, pianure alluvionali.

fondazione banfi
SANGUIS JOVIS

Callen et al., 2016

Nord America – Clade IIb

Precipitazioni medie



V. aestivalis
boschi planiziali, ruscelli, pianure alluvionali

V. labrusca
boschi di montagna o di fondovalle

V. vulpinia
boschi di montagna e golene

fondazione banfi
SANGUIS JOVIS

Callen et al., 2016

Nord America

Vitis Species	NI A	NI/I A	NI g_s	NI/I g_s	NI A/g_s	NI Ψ_π	NI/I Ψ_π	NI Grad	NI/I Grad	NI $\Delta\Psi$	NI/I $\Delta\Psi$	NI PWt	NI/I PWt	Total	Mean score
champinii	1	9	1	2	12	8	2	4	3	1	1	1	4	50	a
doaniana	12	1	2	1	15	10	10	2	11	3	6	3	4	80	ab
longii	2	2	11	5	3	15	15	9	7	7	5	4	7	92	abc
girdiana	9	5	7	6	10	14	16	5	8	5	4	2	3	94	abc
arizonica	7	14	6	11	10	8	13	3	1	4	3	7	8	95	abc
californica	10	16	3	10	16	3	9	1	2	2	2	11	14	99	abc
vinifera	4	6	12	12	4	4	5	8	8	9	9	14	10	105	bcd
cordifolia	3	4	9	4	5	6	12	7	13	10	14	12	12	111	bcde
treleasei	6	7	13	14	2	17	11	13	5	10	7	9	1	115	bcde
monticola	8	11	5	8	13	1	1	16	10	15	11	10	16	125	bcde
rupestris	5	8	15	15	1	5	7	15	16	16	17	5	6	131	bcde
candicans	14	17	4	7	17	12	4	12	4	13	8	8	11	131	bcde
solonis	12	10	14	9	6	13	17	14	11	13	11	6	2	138	cde
riparia	11	12	10	13	8	1	6	11	15	7	15	13	17	139	cde
berlandieri	15	3	7	3	14	11	14	17	14	17	16	16	8	155	de
lincecumii	15	15	16	16	9	16	3	10	6	12	10	15	15	158	de
cineria	17	13	17	17	6	7	8	16	16	6	13	17	12	165	e

[z]NI = not irrigated, I = irrigated, A = net CO_2 assimilation rate, g_s = stomatal conductance, A/g_s = intrinsic water use efficiency, Ψ_π = predicted predawn osmotic potential at a Ψ_{PD} of –0.205 MPa, Grad = $((\Psi_{PD} - \Psi_{stem})/(\Psi_{PD} - \Psi_I)) \times 100$, $\Delta\Psi = \Psi_{stem} - \Psi_I$, PWt = pruning weight.

TOLLERANZA SICCITÀ

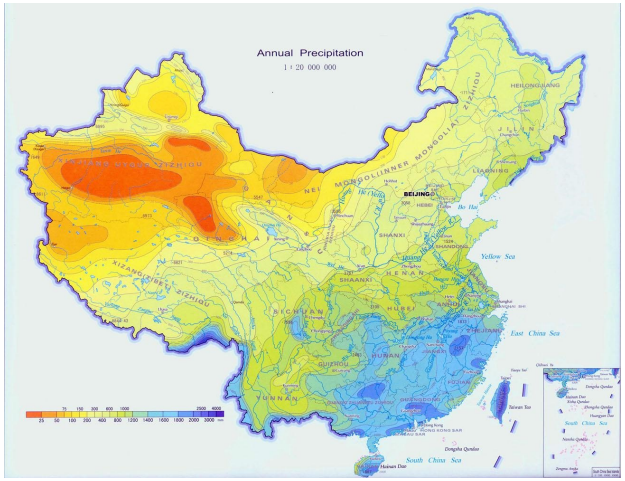
fondazione banfi

SANGUIS JOVIS

Padgett-Johnson et al., 2003

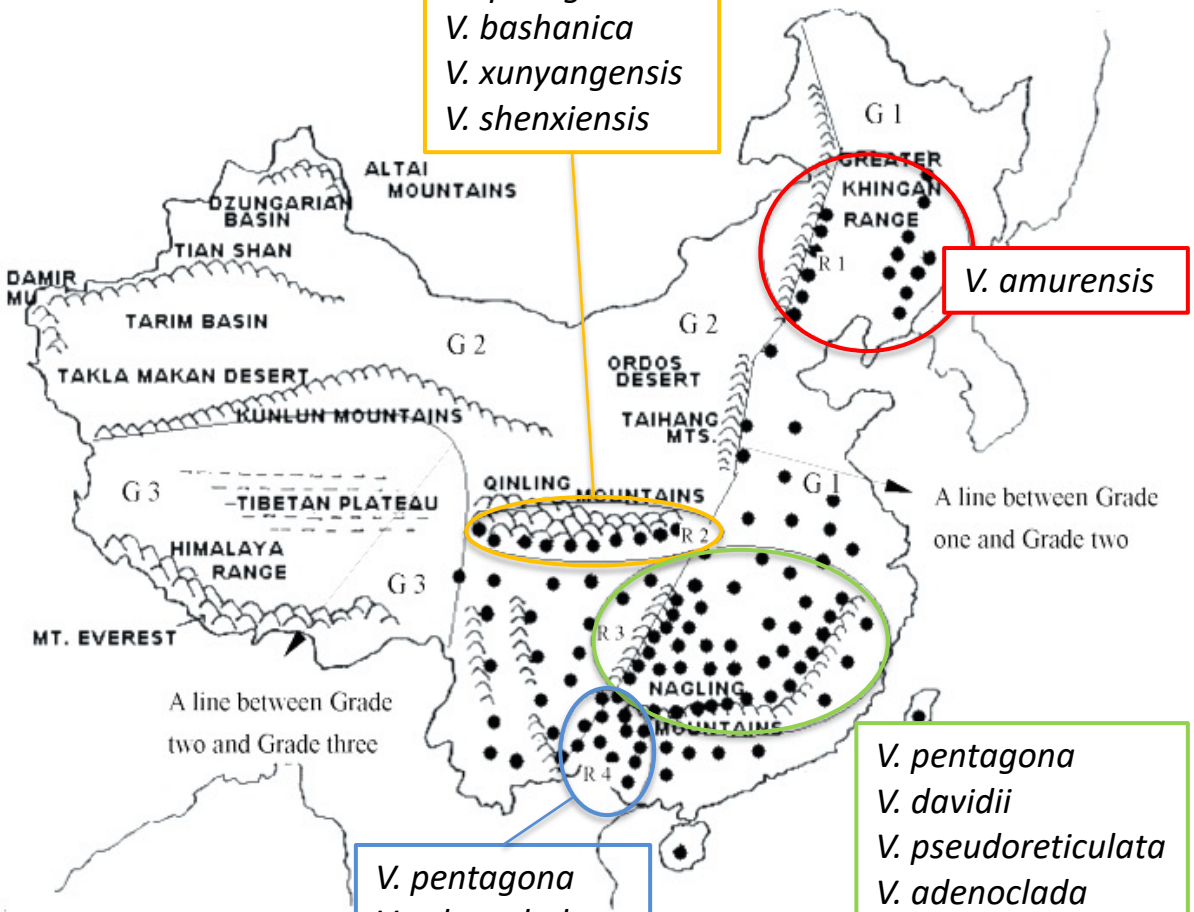
Asiatiche

Precipitazioni medie



Wan et al., 2008

V. pentagona
V. piasezkii
V. romanetii
V. qinlingensis
V. bashanica
V. xunyangensis
V. shenxiensis



V. amurensis

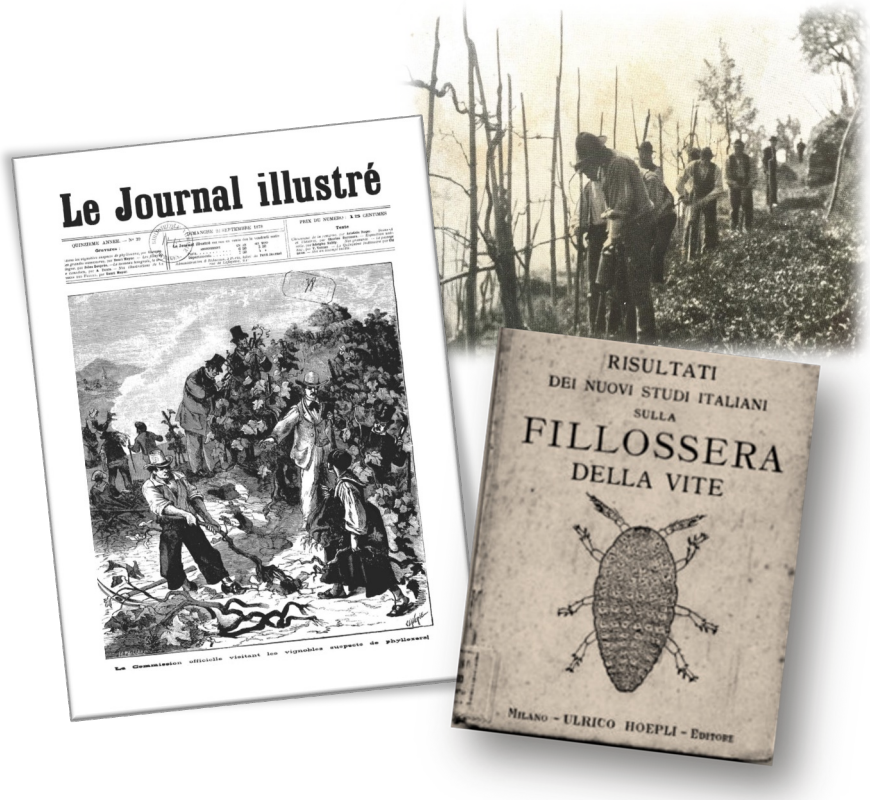
V. pentagona
V. adenoclada
V. bryoniaefolia
V. luochengensis
V. piasezkii

V. pentagona
V. davidii
V. pseudoreticulata
V. adenoclada
V. hancockii
V. erythrophylla
V. bellula
V. chunganensis

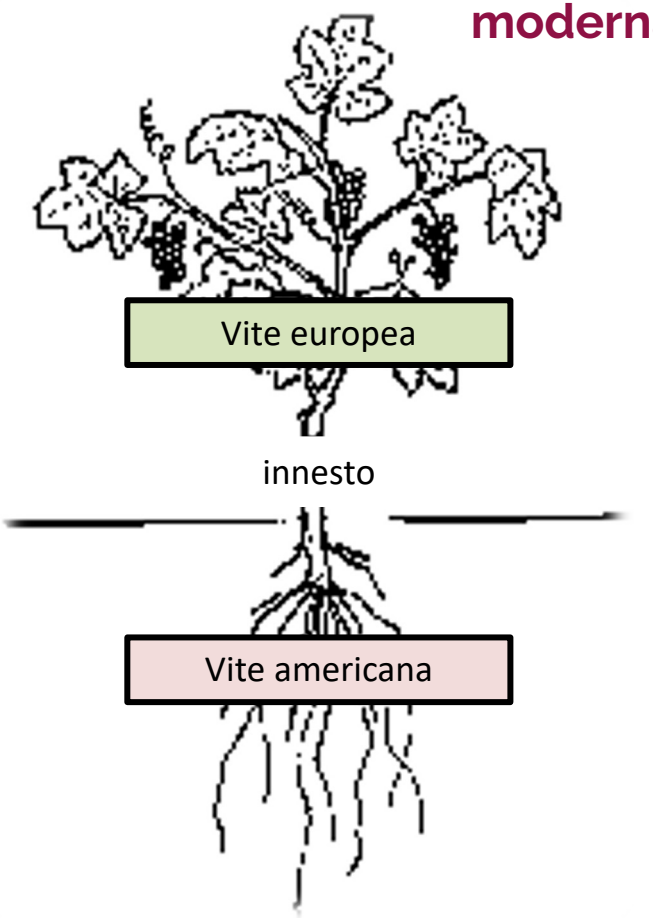
fondazione banfi
SANGUIS JOVIS

Il portinnesto

Fine ‘800

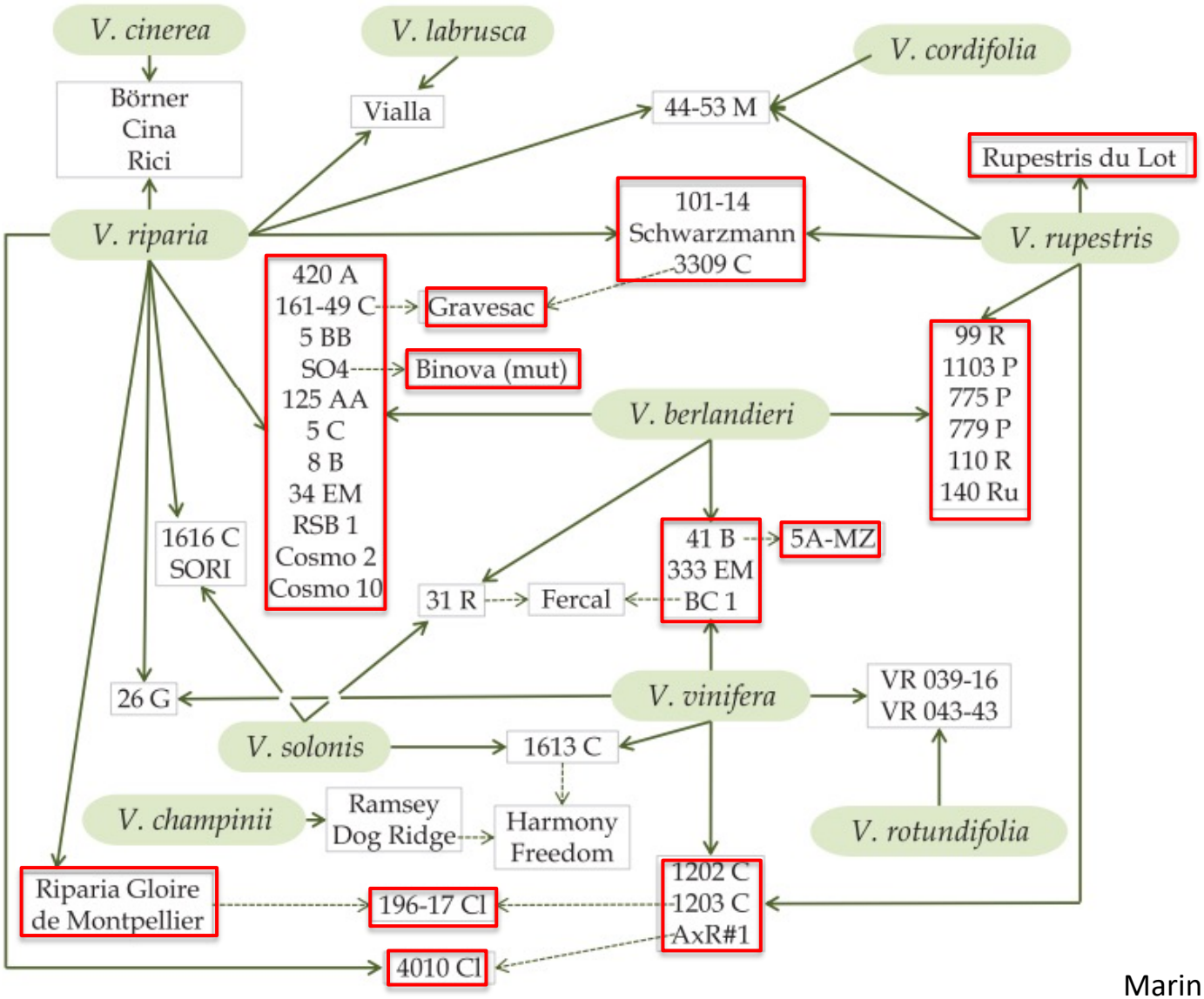


Viticoltura moderna



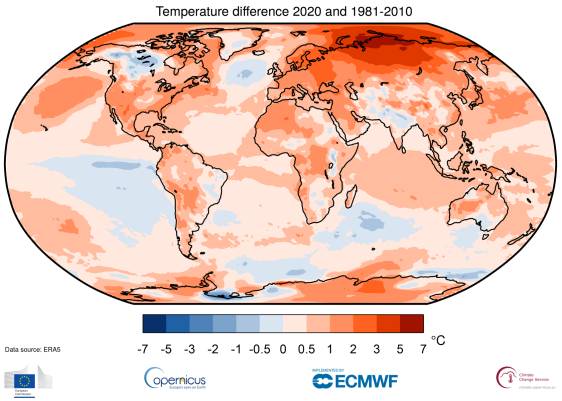
fondazione banfi
SANGUIS JOVIS

I portinnesti tradizionali

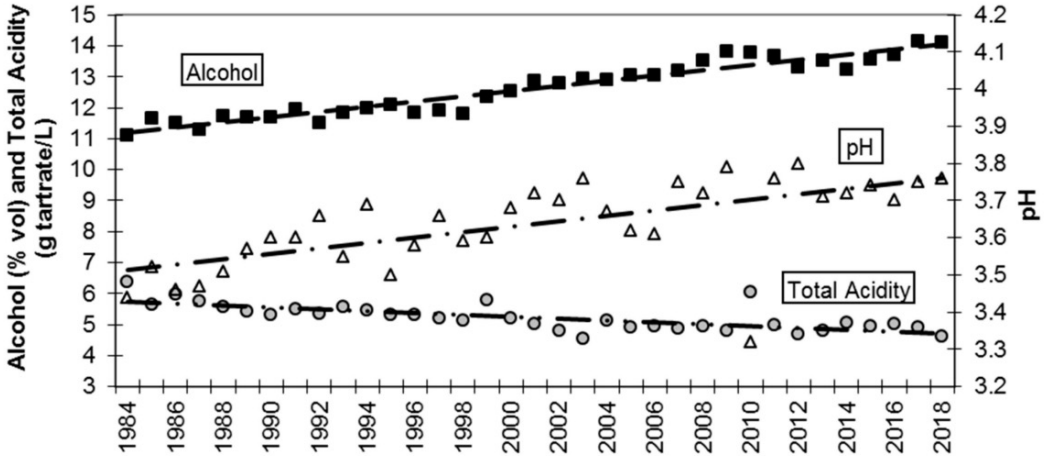


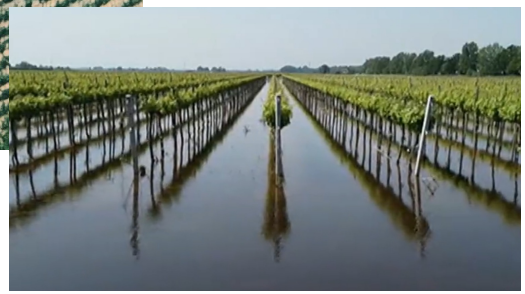
Marin et al., 2020

Il portinnesto oggi



Van Leeuwen et al., 2019

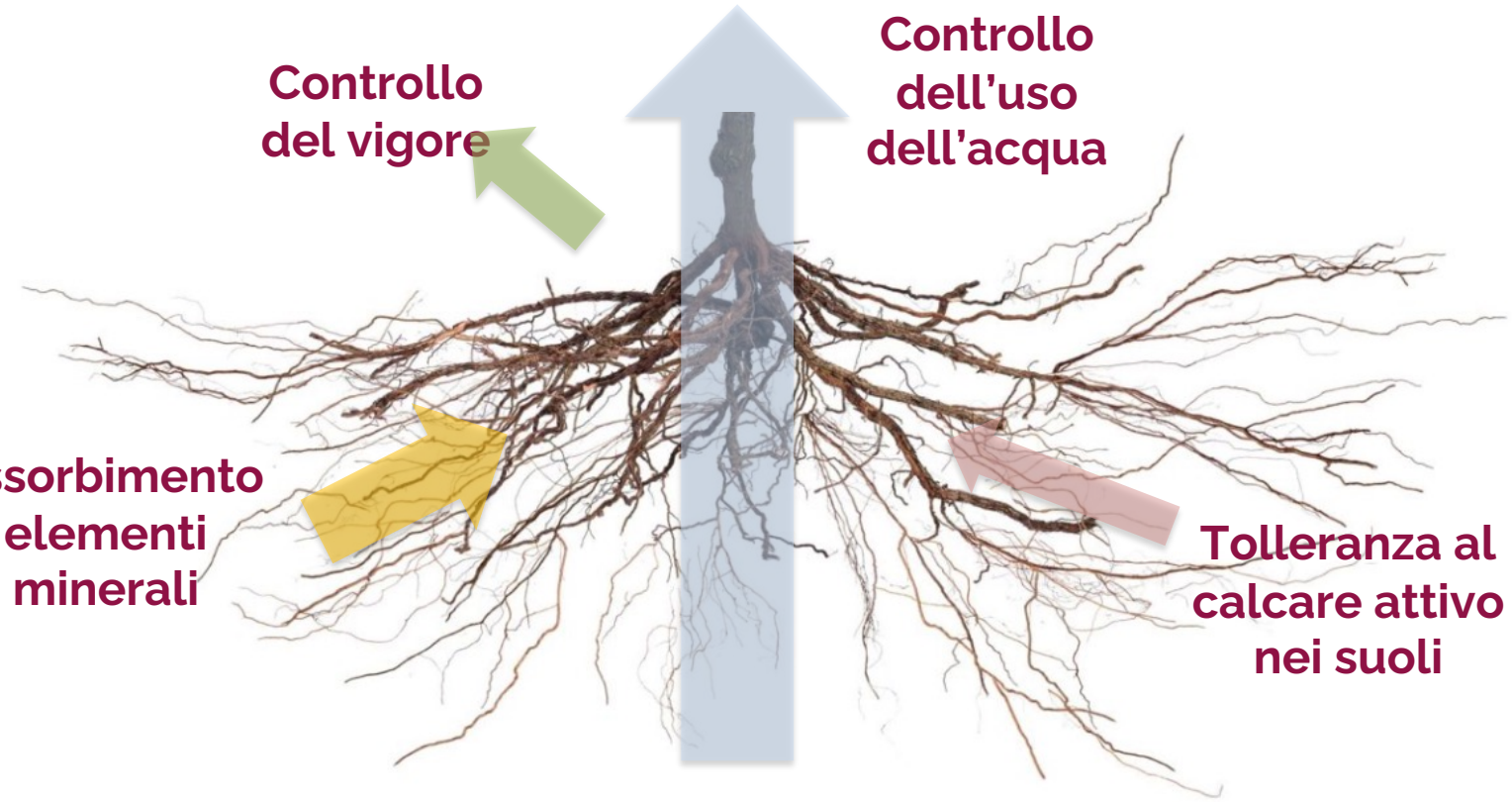




fondazione banfi

SANGUIS JOVIS

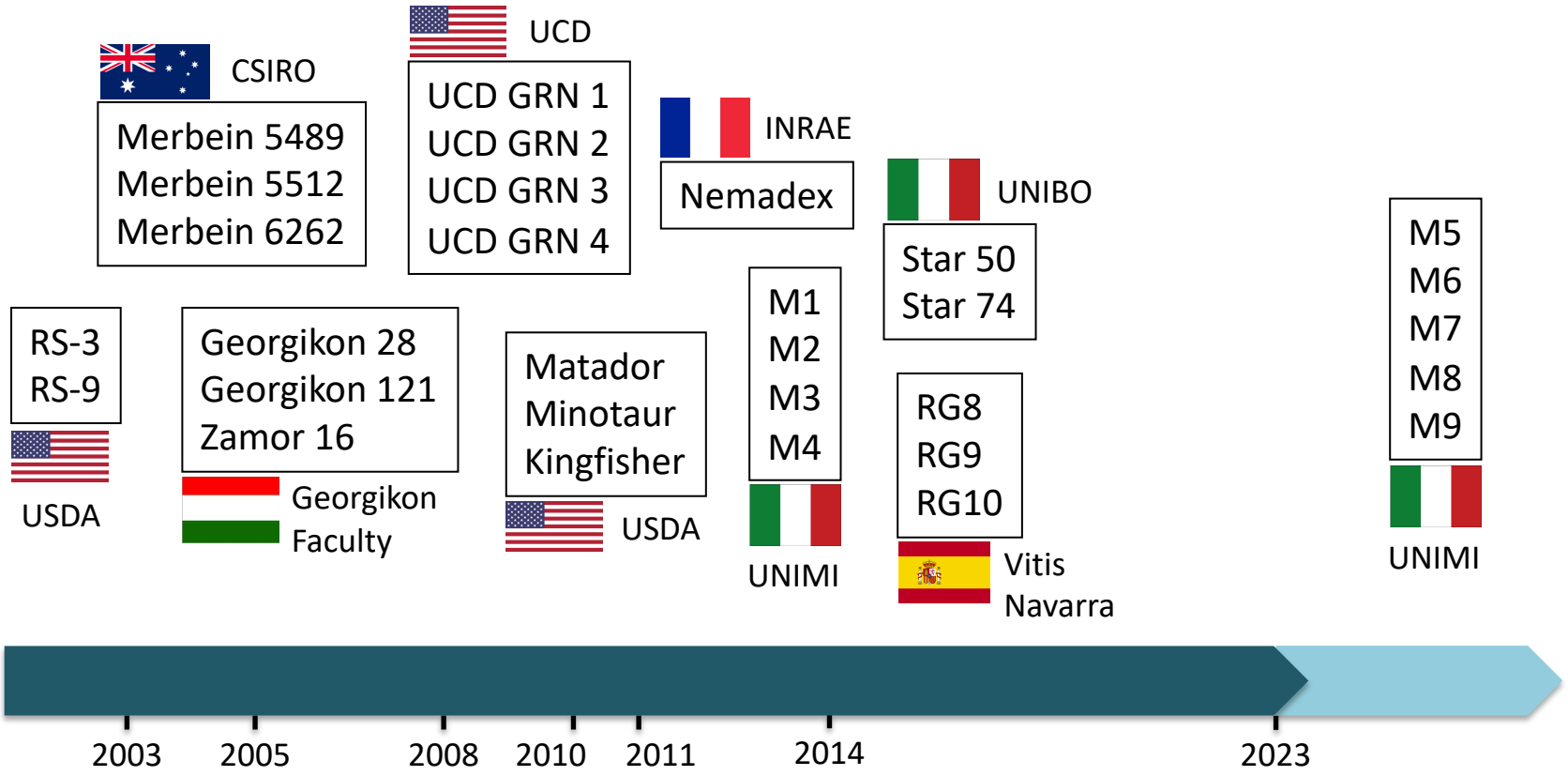
Il portinnesto oggi



Qualità del vino

fondazione banfi
SANGUIS JOVIS

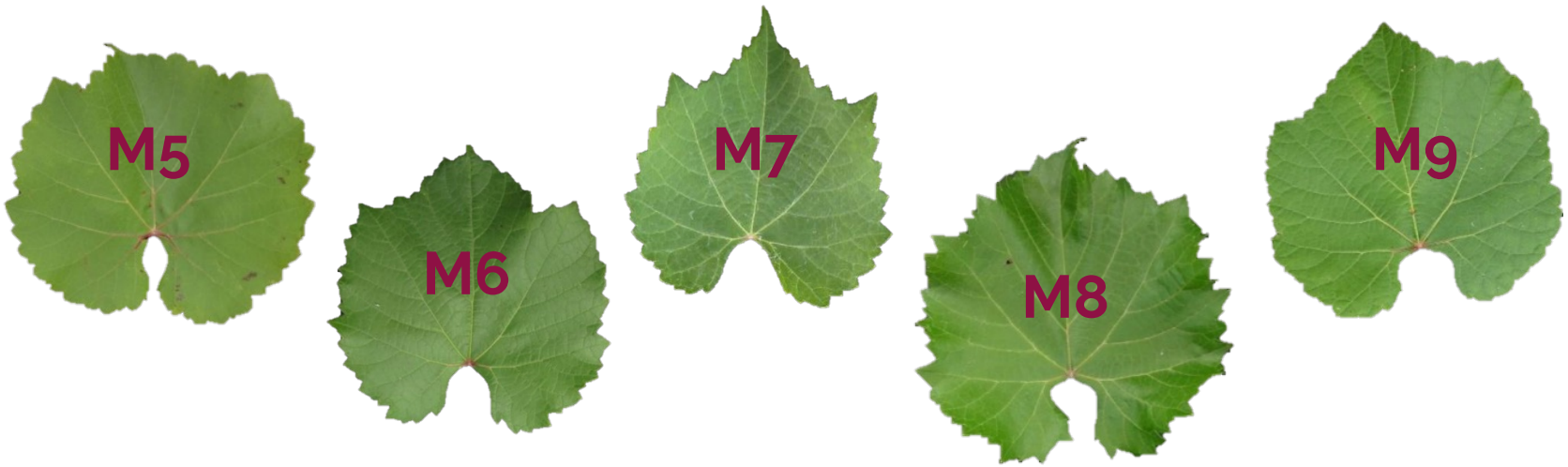
Innovazione genetica



fondazione banfi
SANGUIS JOVIS

Marin et al., 2020

La seconda serie M



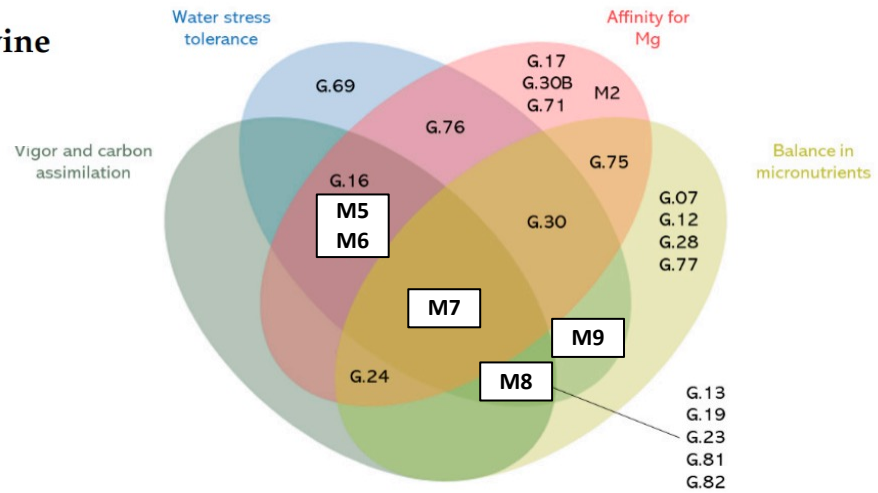
horticulturae

MDPI

Article

Water Use Efficiency and Nutritional Status of a New Grapevine Rootstock Selection

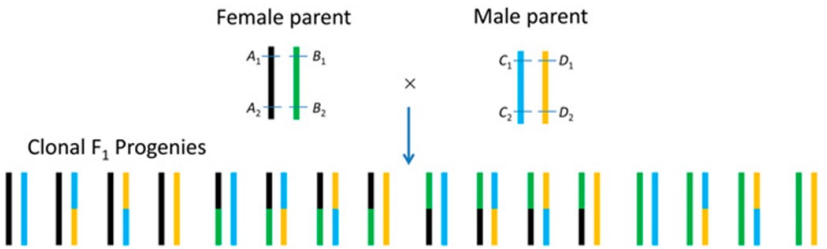
Davide Bianchi * and Lucio Brancadoro *



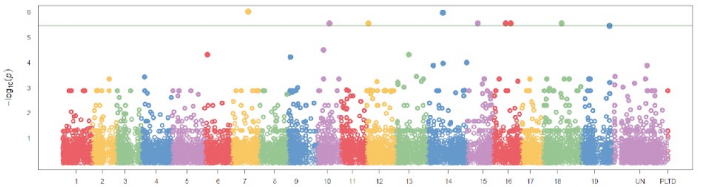
fondazione banfi

SANGUIS JOVIS

Nuovi programmi di breeding



Screening e fenotipizzazione per la tolleranza agli stress abiotici

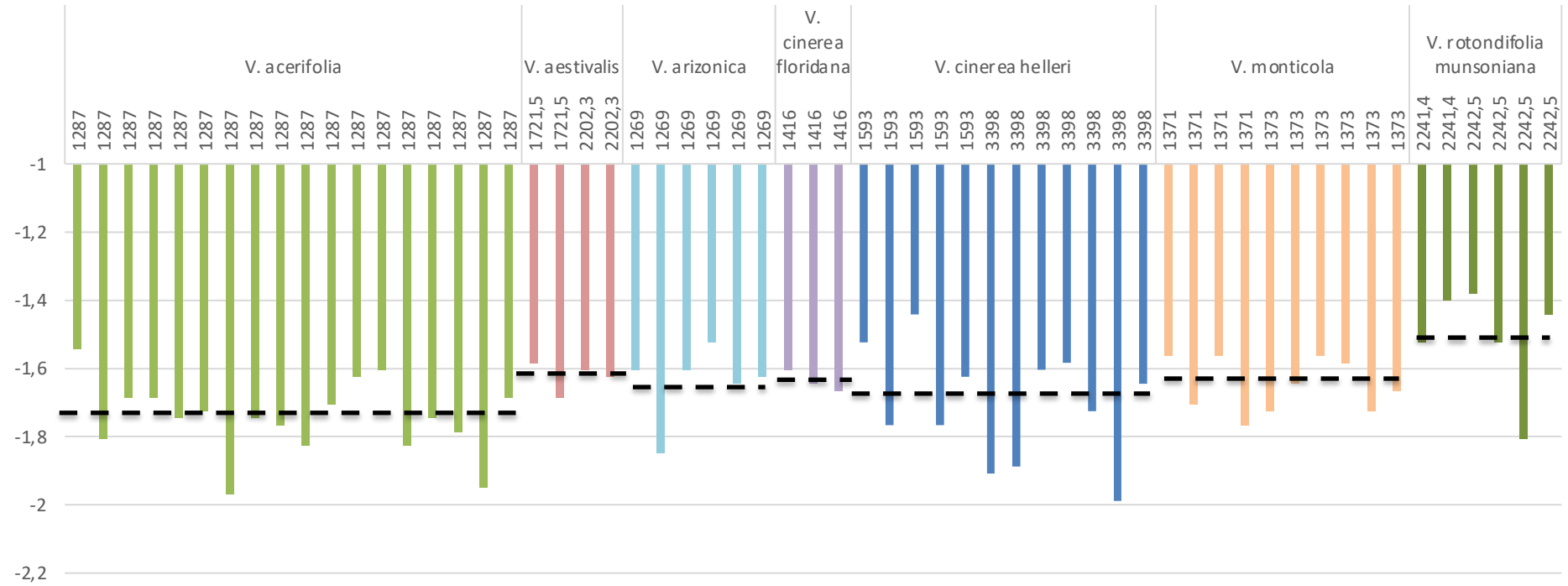


Individuazione e utilizzo di marcatori genici per la selezione assistita

Selezione di nuovi portinnesti

Nuovi programmi di breeding

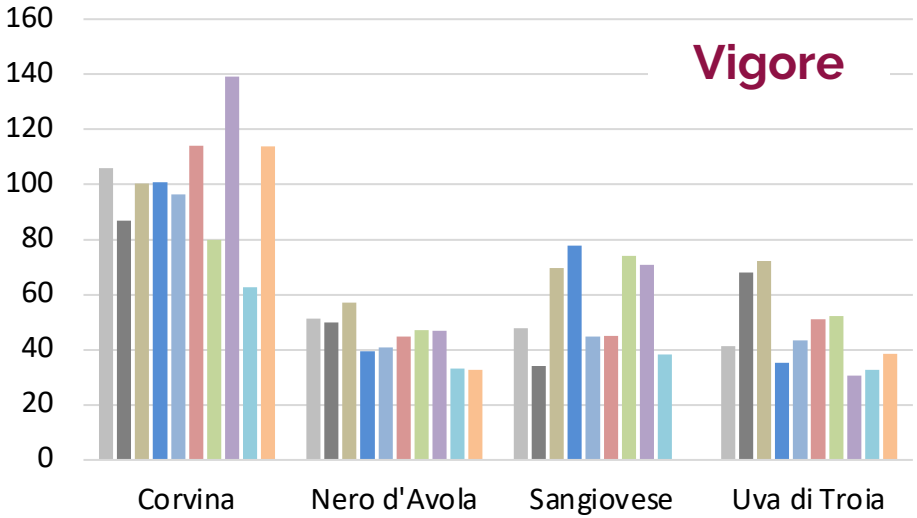
Potenziale idrico al punto di perdita di turgore Ψ_{TLP} [MPa]

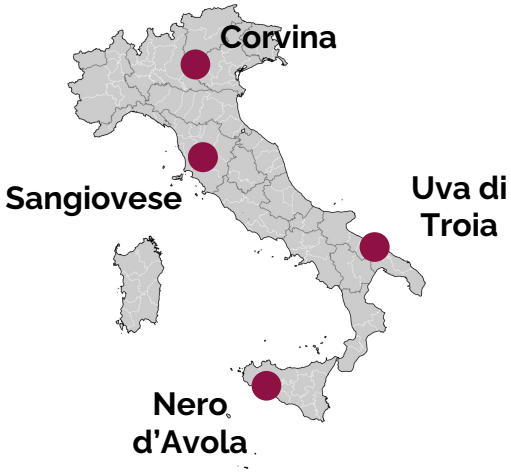


fondazione banfi

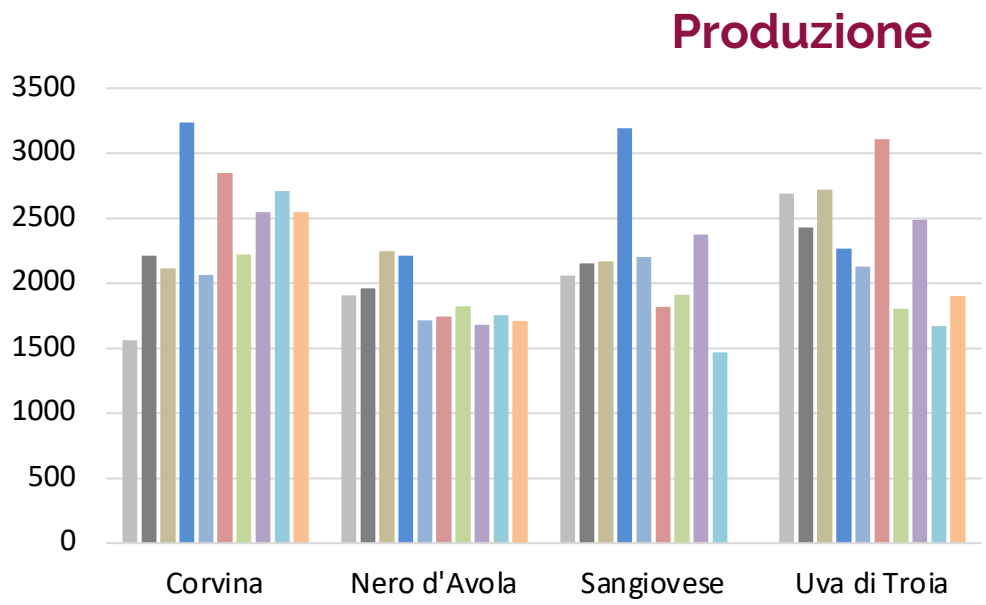
SANGUIS JOVIS

La prima serie M





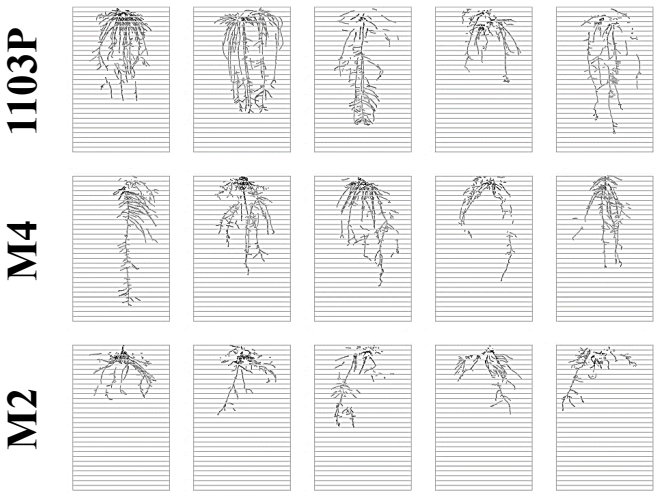
Dati medi del
periodo 2007/2016



fondazione banfi
SANGUIS JOVIS

Sviluppo radicale

In ambiente controllato

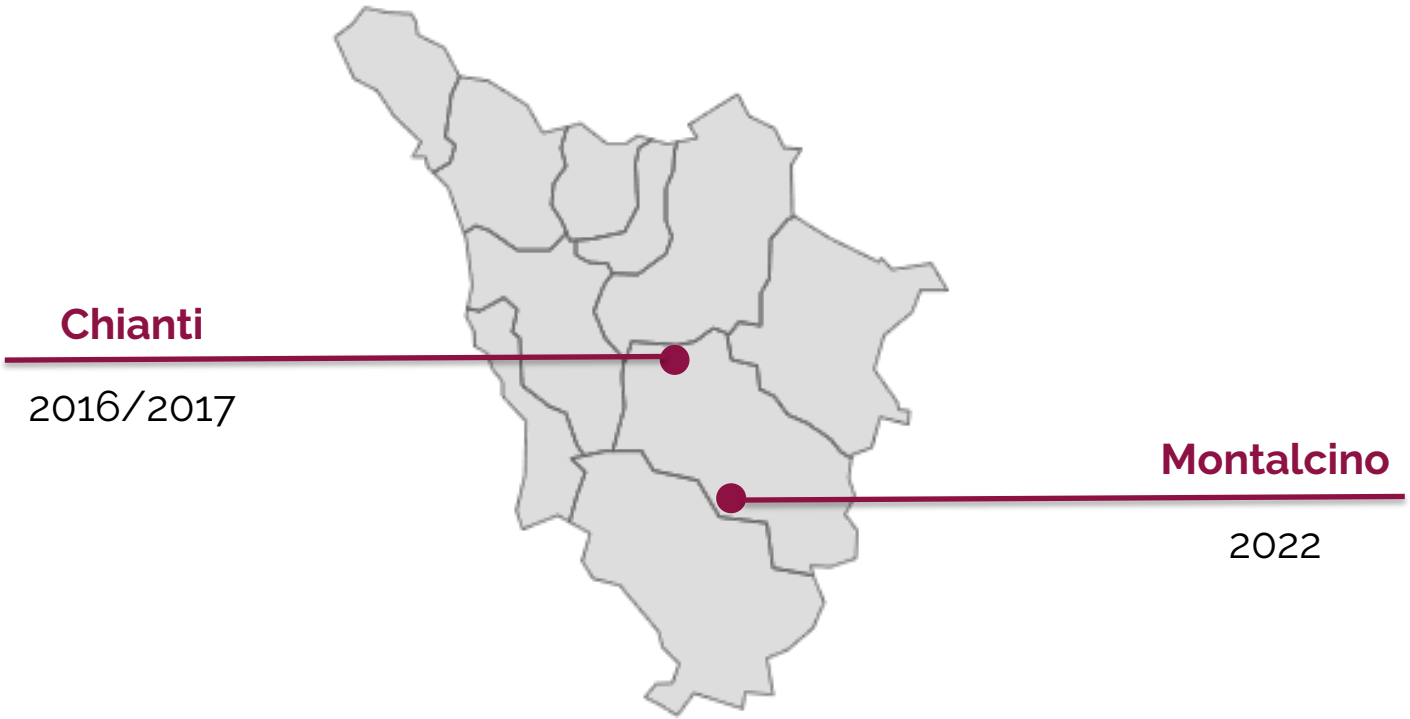


In pieno campo

fondazione banfi

SANGUIS JOVIS

Combinazioni d'innesto: il Sangiovese in Toscana



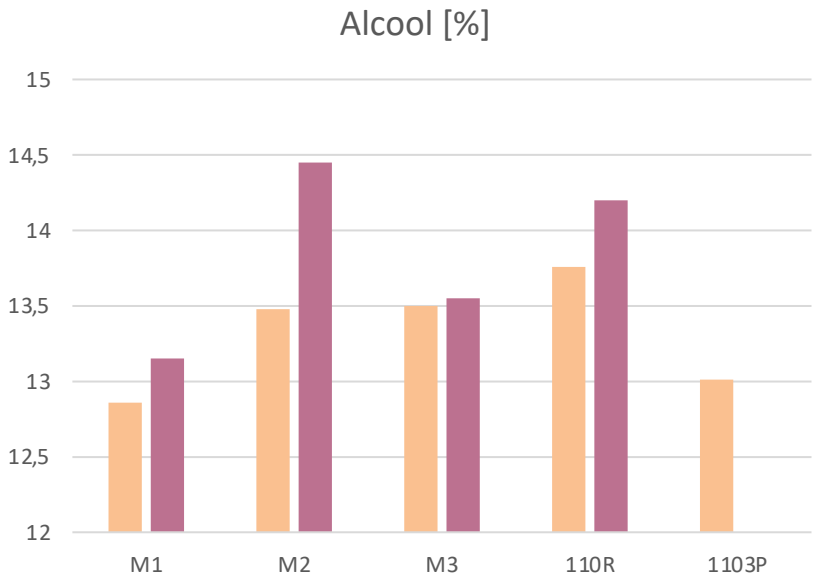
fondazione banfi
SANGUIS JOVIS

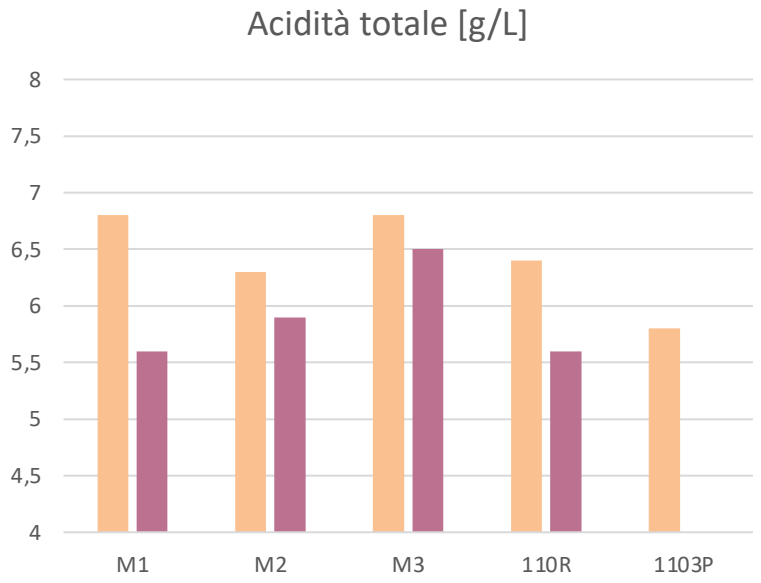
Sangiovese in Chianti

Vendemmie
2016/2017

fondazione banfi
SANGUIS JOVIS

Caratteristiche tecnologiche

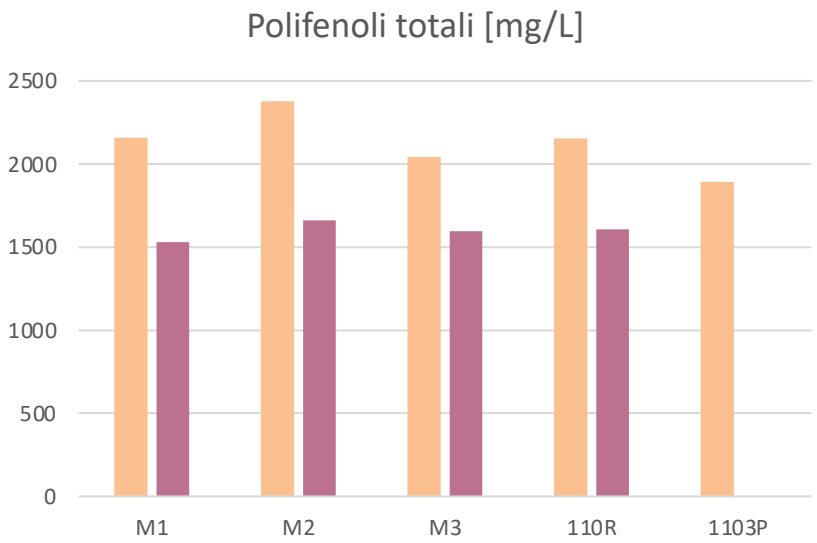


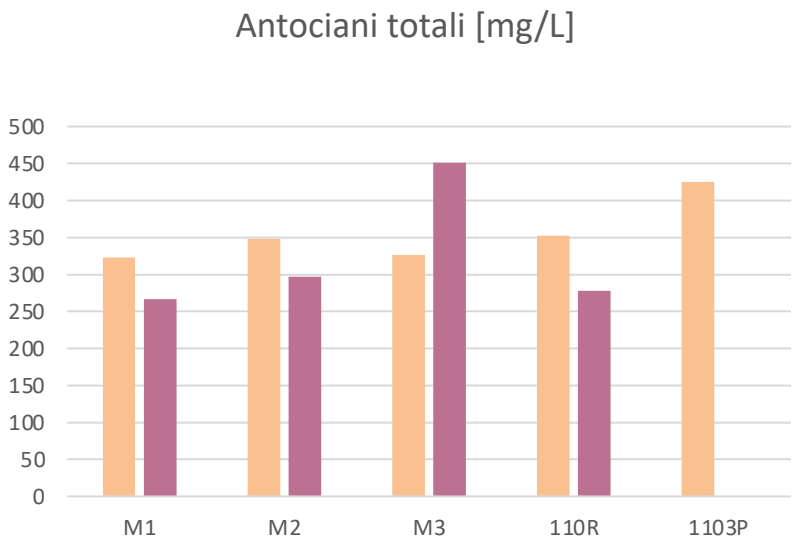


2017
2016

fondazione banfi
SANGUIS JOVIS

Composizione fenolica

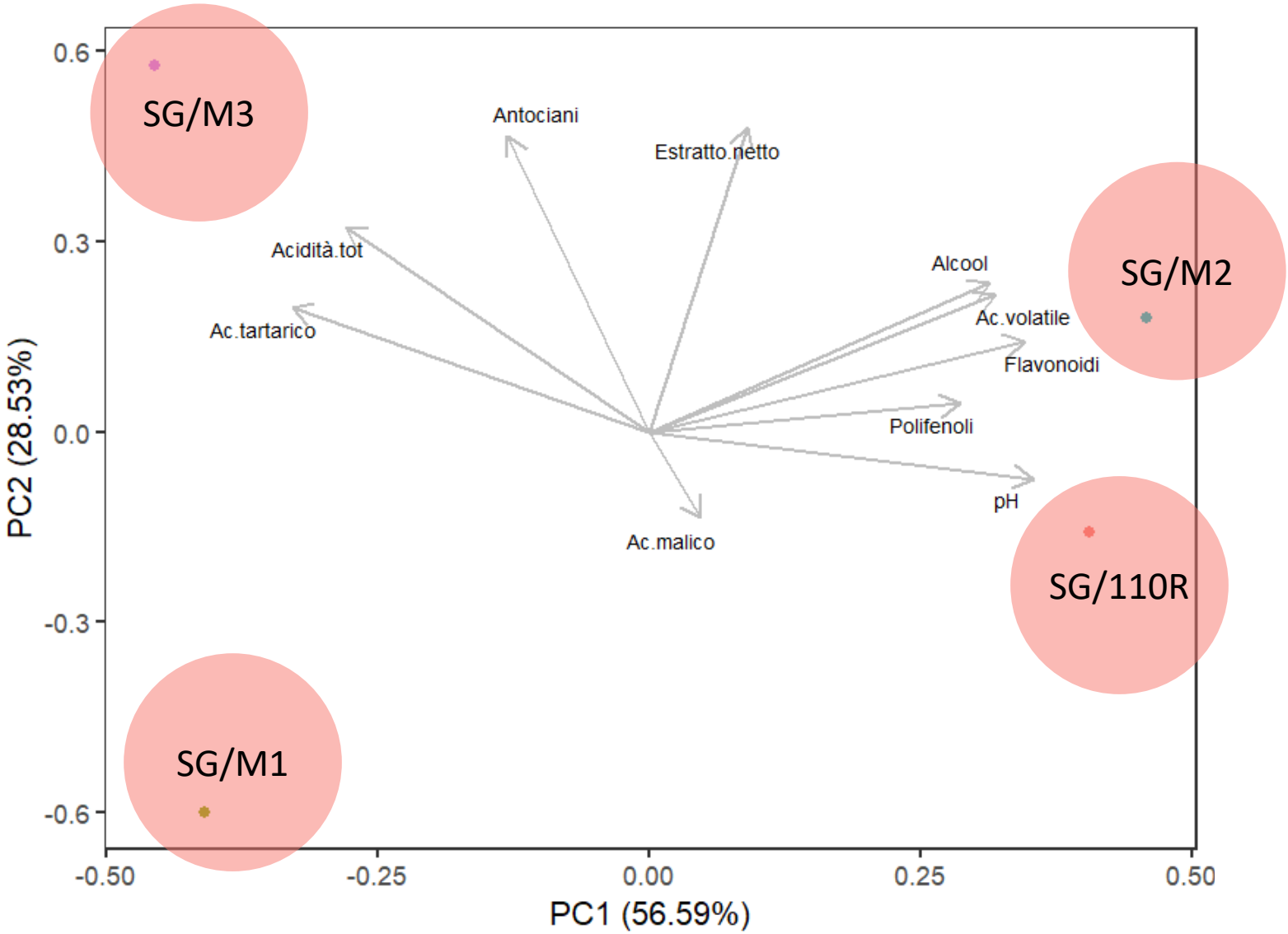




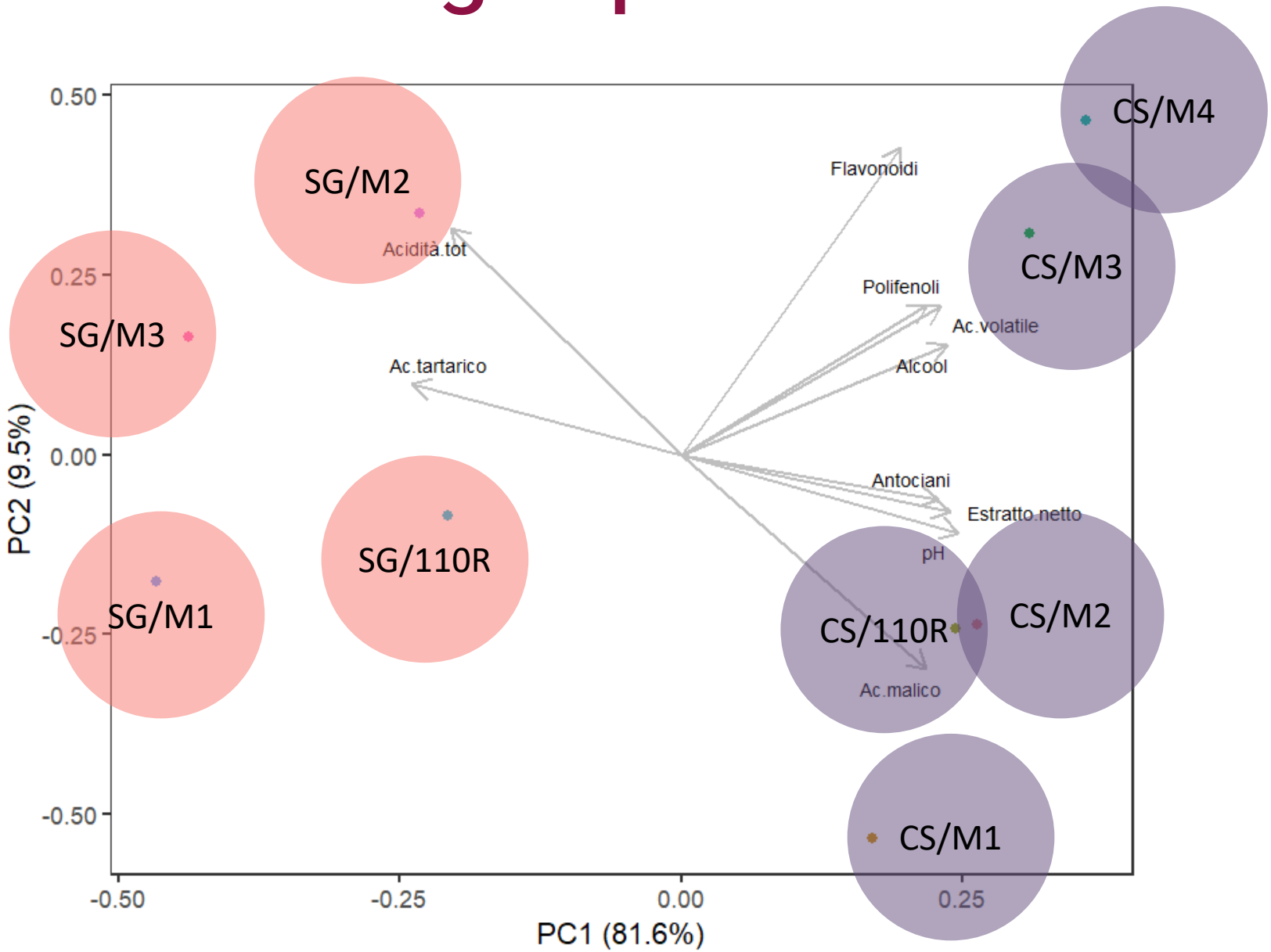
2017
2016

fondazione banfi
SANGUIS JOVIS

Caratteristiche medie



Interazione vitigno-portinnesto

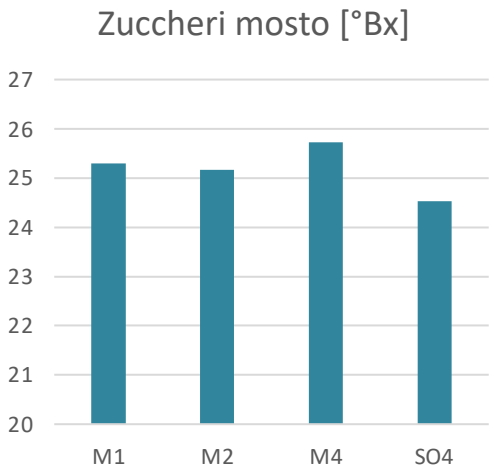


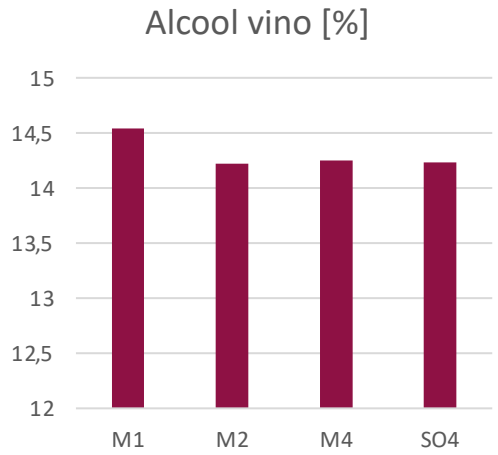
Sangiovese a Montalcino

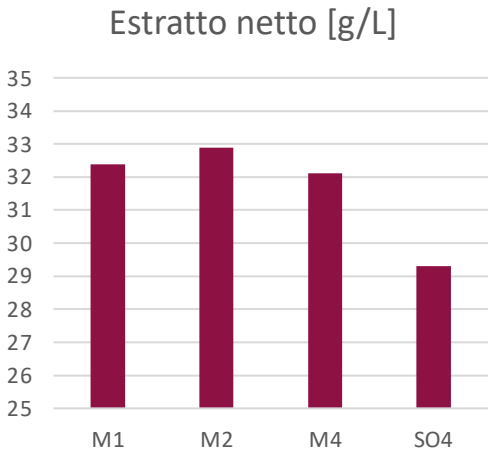
Vendemmia
2022

fondazione banfi
SANGUIS JOVIS

Caratteristiche tecnologiche



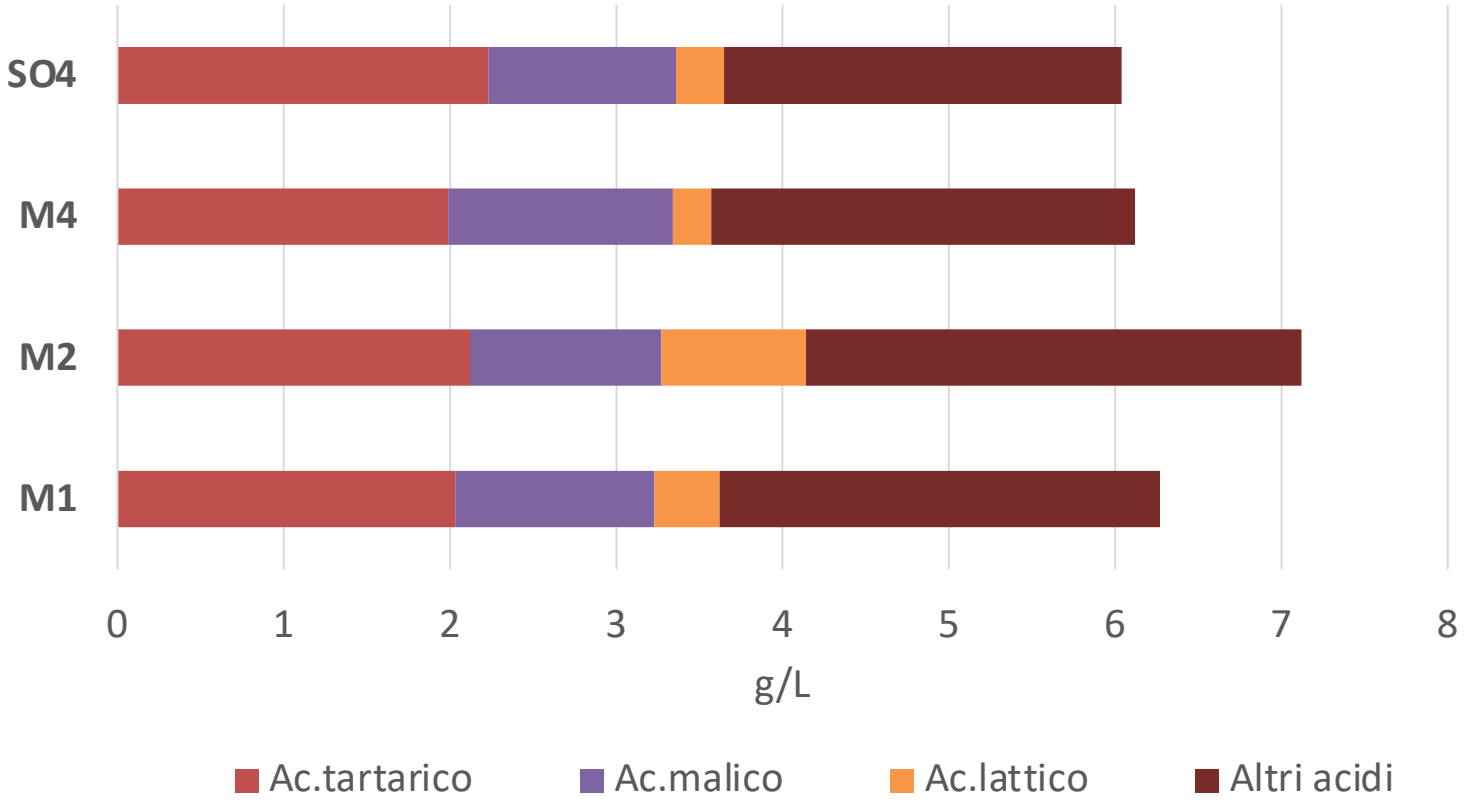




fondazione banfi

SANGUIS JOVIS

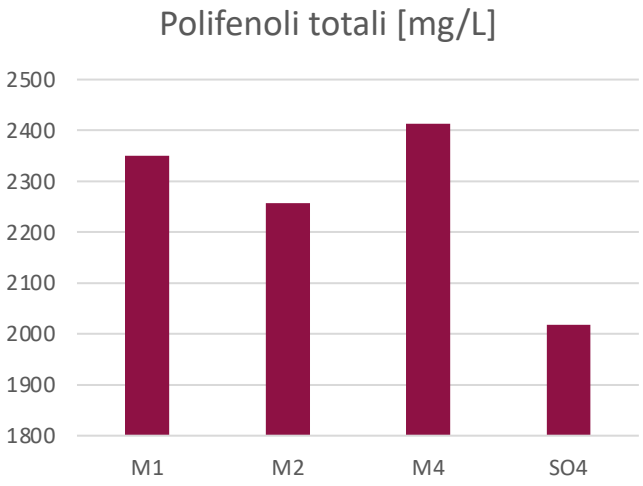
Profilo acidico

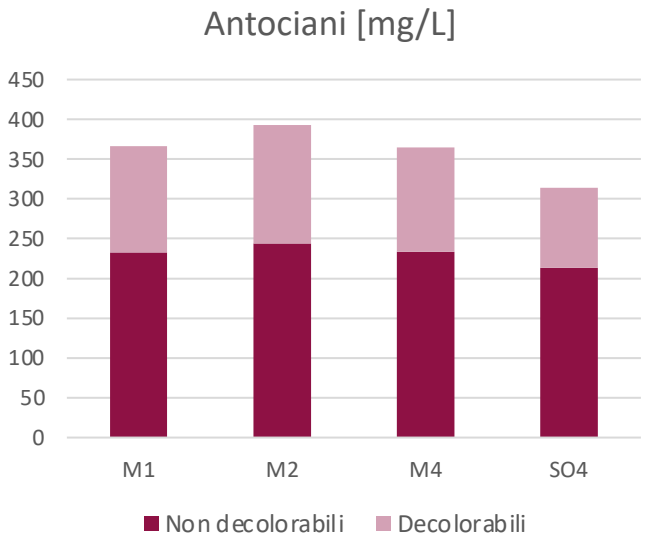


fondazione banfi

SANGUIS JOVIS

Composizione fenolica

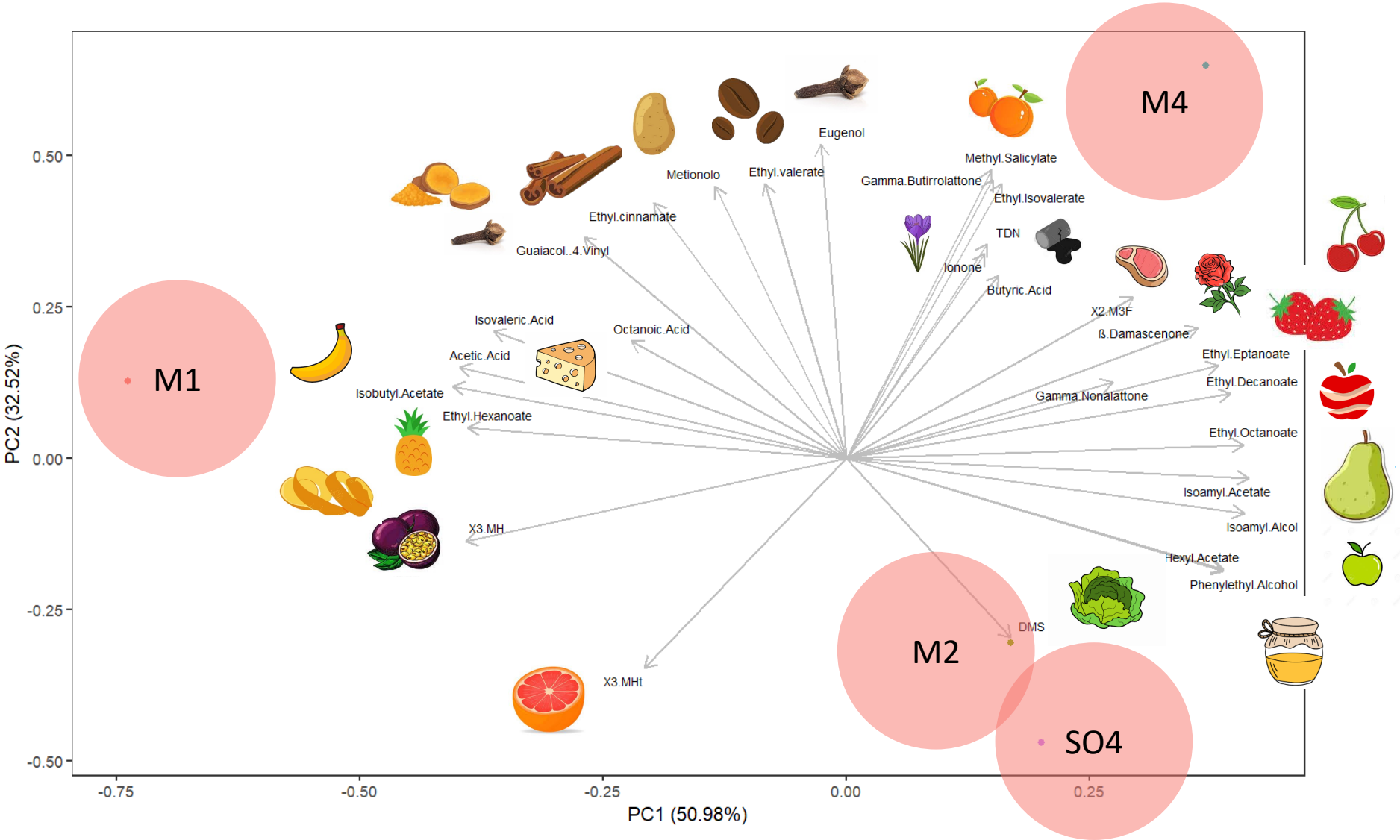




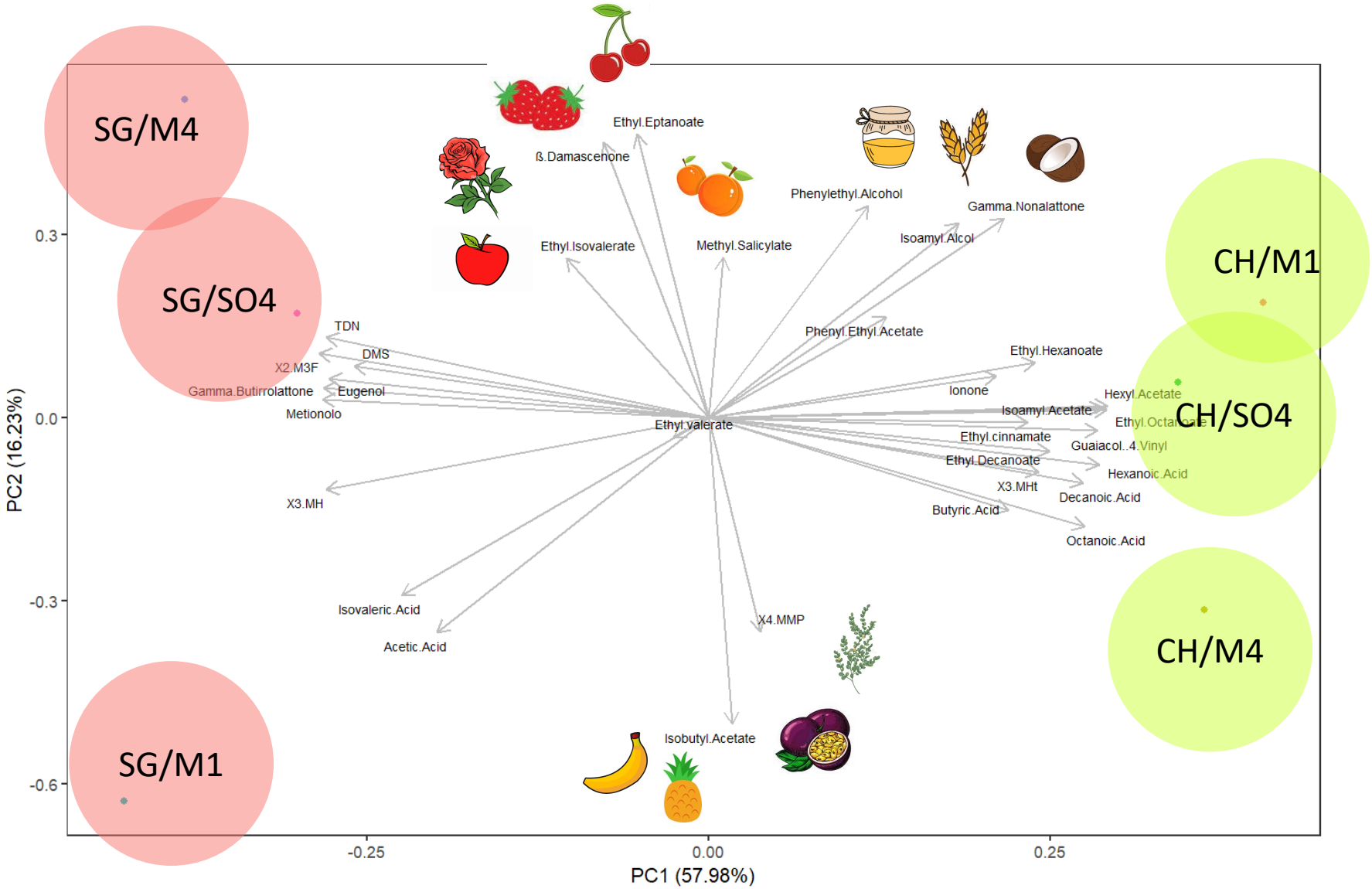
fondazione banfi

SANGUIS JOVIS

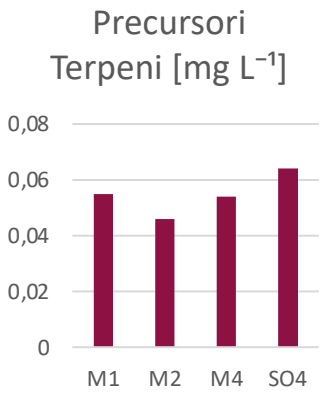
Composizione aromatica

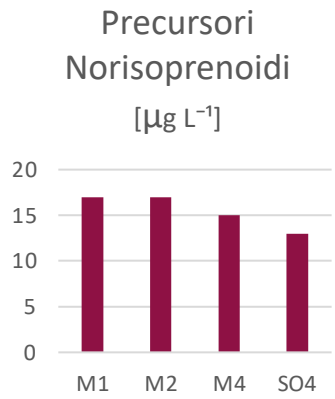


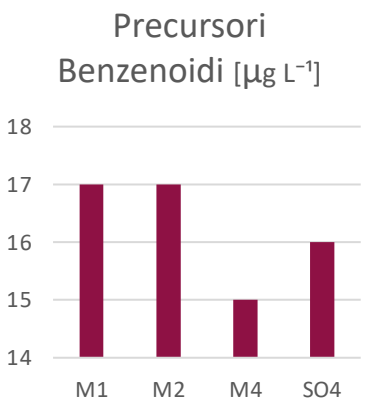
Interazione vitigno-portinnesto

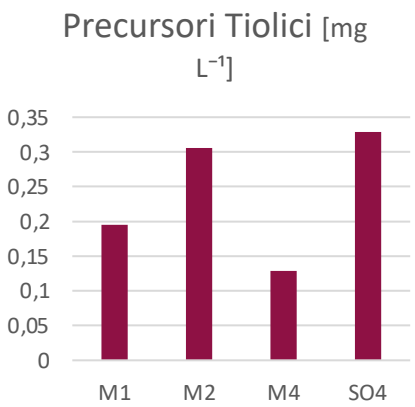


Precursori aromatici





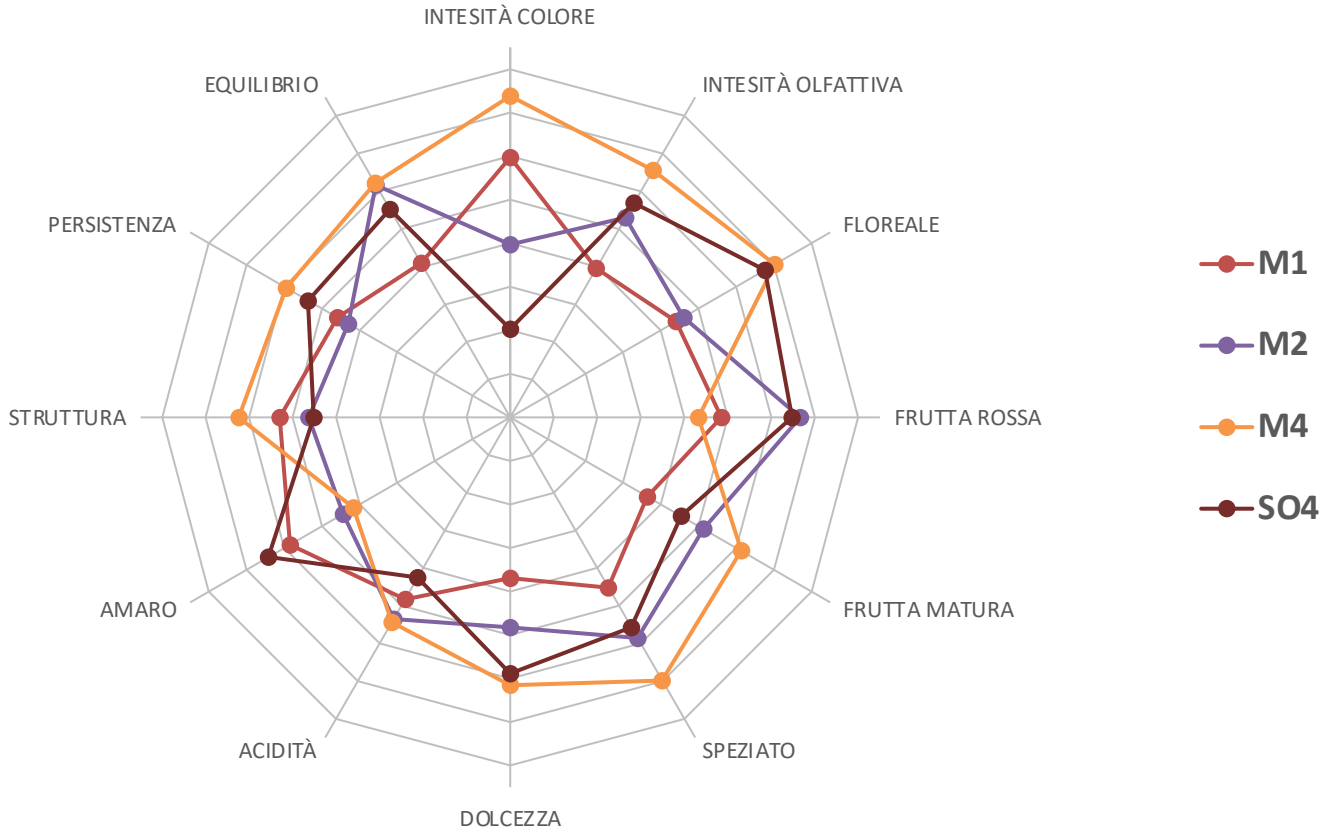




fondazione banfi

SANGUIS JOVIS

Profilo sensoriale



fondazione banfi

SANGUIS JOVIS

Test di ordinamento

Risultati

fondazione banfi

SANGUIS JOVIS

fondazione banfi

SANGUIS JOVIS

ALTA SCUOLA DEL SANGIOVESE

fondazionebanfi.it