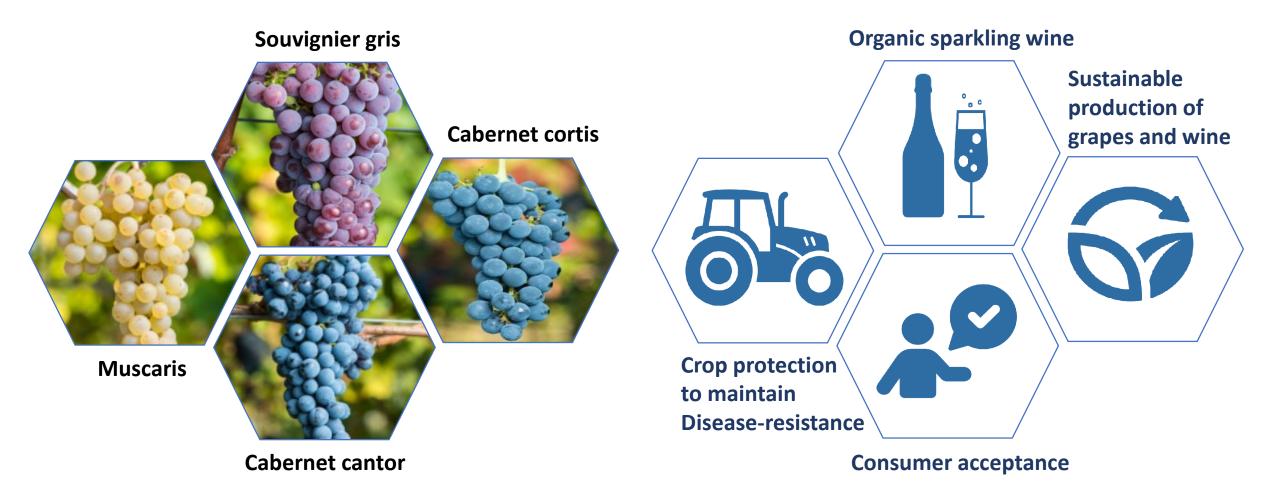


SPiwi

Sustainable production of innovative sparkling wine



SPiwi – PIWI – disease resistant varieties

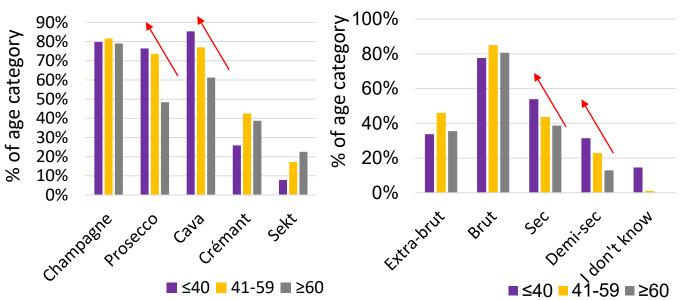


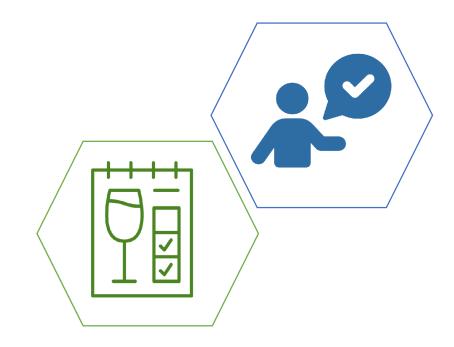


Questionnaire (n = 238)

Questions about consumer habits and preferences of the Belgian consumer

Focus on the young consumer





Question: Which wine do you drink?

Young consumers have a tendency to drink more prosecco and cava than the other age categories

Young consumers have a tendency to drink wines with more residual sugars



Focus groups (n = 42)

Set-up:

- Blind tasting of different wine styles
- Preference ranking
- Characterisation of the different wines

3 flights of wines:

- White sparkling wine in the category 'brut'
- Rosé sparkling wine in the category 'brut'
- White sparkling wine in the category '(demi-)sec'

To determine:

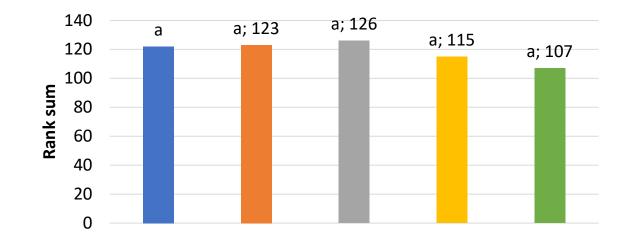
- Preferred winestyles
- Drivers of liking of young consumers







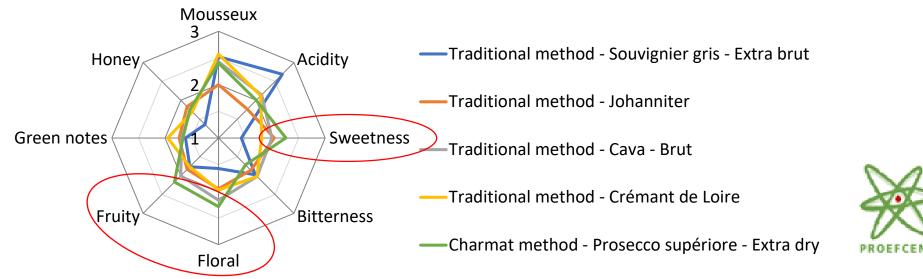
White sparkling wine in the category 'brut'



The lower the rank sum, the higher the preference

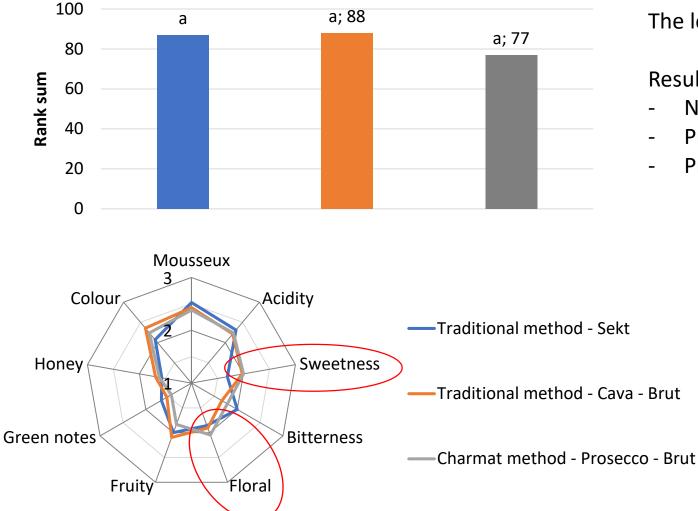
Results:

- No significant preference
- Prosecco had the lowest rank sum
- Prosecco has more sweet, fruity and floral characteristics





Rosé sparkling wine in the category 'brut'



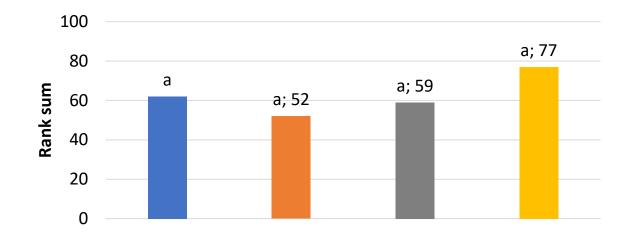
The lower the rank sum, the higher the preference

Results:

- No significant preference
- Prosecco had the lowest rank sum
- Prosecco has more sweet and floral characteristics



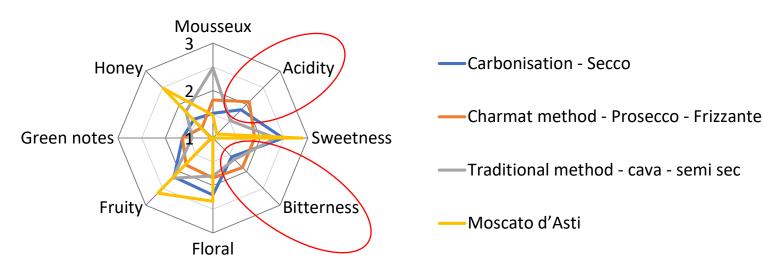
White sparkling wine in the category '(demi-)sec'



The lower the rank sum, the higher the preference

Results:

- No significant preference
- Prosecco had the lowest rank sum
- Prosecco is more acidic and bitter compared to the other sweet wines





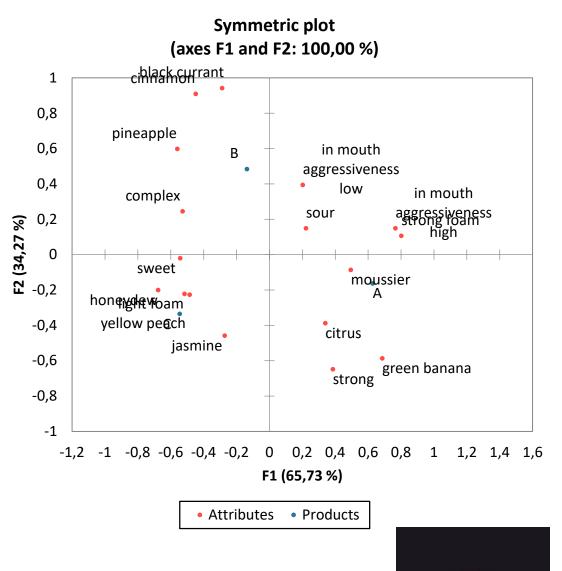


Drivers of liking of preferred wines:

- A: White sparkling wine in the category 'brut'
- B: Rosé sparkling wine in the category 'brut'
- C: White sparkling wine in the category '(demi-)sec'

Many attributes were not recognized by the panel Recognized attributes (drivers of liking):

- In mouth aggressiveness
- Moussier
- Foam
- Fruity characteristics: banana, citrus, black currant
- Floral characteristics: jasmine
- Taste (sweet and sour)





SPiwi – Vinification trials

Vinification benchmarks:

- White sparkling wine in the category 'brut' The prosecco aims for 10-15g/L glucose/fructose and a total acid content of approx. 5g/L.

- Rosé sparkling wine in the category 'brut' The rosé aims for a glucose/fructose content of 10-15g/L.

- White sparkling wine in the category '(demi-)sec' The frizzante has a glucose/fructose benchmark of approx. 15g/L and a total acid content around 5,5g/L. The Moscato style aims for a high sweetness, the glucose/fructose content of >140g/L and total acid <6,0g/L.

Vinification protocol for:

- Traditional method
- Charmat method
- Frizzante/Secco





FDMUND

SPiwi – Spraying scheme:

Biological products allowed to be used in viticulture in Belgium:

FUNG					Vi	jand				We	rkin	g					
Actieve stof		FRAC	Product	Max. # toep./jaar	Valse meeldauw	Meeldauw Botrytis	Wachttijd (d)	Interval (d)	Preventief	Curatief	Contact	systemisch Lok.systemisch	Dosis	Toepassingsstadium		Opmerking	Bufferzone Drifreductie
aureobasidium pullulans		NC	Botector	14	F	X	nvt	1	x		K		1 kg/ha haag	einde bloei - oogst (BBC	H68-89)		3 m
bacillus amyloliquefaciens		BM 02	Serenade ASO	6	H	X	nvt	Þ	X		x .		81/ha haag				3 m
			Taegro	10		XX	1,17	7	X				2 kg /ha haag			1	3 m
cerevisaan hvt Romeo		Romeo	5-10	X	x x	nvt	Ż	X	E1	-1	1T	0,14 kg/ha haag			plantafweerverhogend	3 m	
COS-OGA		ivt	Estim	8	X	x	nvt	8-10	X	E P	x †		1,1 Vha haag		4. E	plantafweerverhogend	3 m
	1		Fytosave		X	x	nvt	8-10	X	T P	x T		1,1 Vha haag			plantafweerverhogend	βm
kaliumwaterstofcarbonaat		nvt	APC-09CD	4-6		XX	1	7-10	X	X	x 1	-	2,75 kg/ha haag				3 m
	-		Karma	-	F	xx	1	7-10	x	X	x-T	1	botrytis: 2,6 kg/ha haag (max 4 toep)			3 m
			Karma SG		1	XX	1	7-10	X	X	x		meeldauw 2,75 kg/ha	blad 5 - begin rijping	4. ¥.		3 m
			Vitisan		F	x	1	3-7	X	X N	x T	Ť	6,6 kg/ha haag	blad 2 - rijping (BBCH 12	2-85)	1	3 m
koperhydroxide/oxychl	oride	M 01	Grifon SC	5	X		21	7	X		- P	¢ T	1,4 l/ha haag			max 4 kg koper/ha haag/jaar	20 m min 50%
koperhydroxide 2	5%		Hydro super 25 WG	4-8	X		21	7-14	X		x . [1	1,12-1,68 kg/ha haag			max 8,96 kg/ha haag/jaar	20 m min 90%
12	0%		Hydro WG	1-4	X		42	7	X		x		2,4 kg/ha haag	blad 5 - begin rijping	12 N.	max 4 kg koper/ha haag/jaar	20 m min 75%
-	=		Koperhydroxide WG	-	X		42	7	X		x 1		2,4 kg/ha haag	blad 5 - begin rijping		max 4 kg koper/ha haag/jaar	20 m min 75%
			KO-Plus40		X		21	7	X				2,4 kg/ha haag	blad 5 - begin rijping	a. a.	max 4 kg koper/ha haag/jaar	20 m min 75%
Sacharomyces cerevis	siae	BM02	Julietta	6		X	1	7	X		x T	1	1,38 kg/ha haag	begin bloei - oogst	* · · · · · ·		3 m
trichoderma			Vintec	2			invt	7	X		x I		0,1 kg /ha haag	In rust		Tegen houtrot - ESCA	3 m
zwavel (FU)		M2	Cosavet	4		x	invt	1	X		X	1	Voor bloei: 6-8 kg/ha haa	ig - na bloei: 3-5 kg/ha ha	ag		βm
			Hermovit		F	X T	nvt	1	X	Fi	x	1	Voor bloei: 6-8 kg/ha haa	ig - na bloei: 3-5 kg/ha ha	ag	4 · · · · ·	3 m
			Thiovit Jet	1	H H	x	invt	1	x	E I	x I	1	Voor bloei: 6-8 kg/ha haa	ig - na bloei: 3-5 kg/ha ha	ag		3 m
	1		Flosul	8	F	x	Þ	7	X		C	1	0,56-2,22 l/ha haag		1 T		3 m
	1		Pol-sulphur WG/WP/SC		iFi	x	nvt	7	X	Fi	x I	-1-	0,56 - 2,22 kg/Vha haag	5de blad tot erwtgroott	e	5de blad tot erwtgrootte	.3 m



Standard spraying scheme uses 3 times sulphur and copper. Timing according to the phenological stage of the vine:

Timing	BBCH
Before flowering	53 - 57
Flowering	61 – 68
After flowering	71 - 73

Sulphur: Powdery mildew Copper: Downy mildew

SPiwi — Spraying scheme:

Biological products allowed to be used in vititculture in Belgium: **FUNGICIDEN**

			×	ijan:					0	erk	10			
RAC	Product	Max. 8 toup./jaar	Value meetidanee	Meeldava	Betryds	Wachtrief (d)	(c) proved	Preventief	Curated	Contact	Systemisch Lak-systemisch	Dosts	Toepassingsstadium	Comerking
NC	Batector	4			ĸ	net.		х		х		1 kg/ha haag	einde bloei - oogst (BBCH68-89)	
BM 02	Serenade ASO	6		;	ĸ	net.	5	х		х		8 L/ha haag		
	Taegro	30		х	ĸ	6,17	7	х		х		2 kg/ha haag		
nvt	Romeo	5-30	х	х	ĸ	net	7	х				0,14 kg/ha heag		plantafweerverhogen:
nvt	Estim	8	х	х		net -	8-10	х		х		1,1 Vhe heag		plantafweerverhogens
	Fytosave		х	х		nit i	8-10	х		х		1,1 l/ha haag		plantafweerverhogens
nvt	APC-09CD	4-6		х	ĸ	1	7-1D	х	х	х		2,75 kg/ha haag		
	Karma			х	¢ (1	7-10	х	х	х		botrytis: 2,6 kofva haag (max 4 toep)		
	Karma SG			х	ĸ	1	7-10	х	х	х		meeldauw 2,75 kg/ha	blad 5 - begin rijping	
	Vitisan			х		1	3-7	х	х	ж		6,6 kg/ha haag	blad 2 - rijping (88CH 12-85)	
M 01	Orifon SC	5	х			21	7	х			x	1,4 Vha haag		max 4 kg keper/ha hang/
	Hydro super 25 WG	4-8	х			21	7-14	х		х		1,12-1,00 kg/to hang		
	Hydro WG	1-4	х			42	7	х		ж		2,4 kg/ha haag	blad 5 - begin rijping	
	Koperhydroxide WS		х			42	7	х		х		2,4 kg/ha haag	blad 5 - begin rijping	
	KO-Plus40		х			21	7	х		х		2,4 kg/ho haag	blad 5 - begin rijping	
8M02	Julietta	6			K.	1	7	х		х				
	Vintec	2				net	7	х		ж		Variaty		Dnu
M2	Cosavet	4		×		net		х	х х			variet	Y	Rpv 3.1
	Hermovit			х	rwt			хз		х				
	Thiovit Jet	1		х		IW1		х		ж				21
	Flosul	8		х		5	7	х		х				3.1
	Pel-sulphur W6/WP/9C			х		ten.	-	х		ж				
	NIC BM 02 rvt rvt M 01 BM02	NC Botactor BM 02 Serenade ASO Targro Targro mit Bameo mit Bameo mit Bameo Fytosive Fytosive Misame Mil Oritor SC Norflox SC Nydro WG Norflox SC Norflox SC Nor	NC Boteobor 4 BM 02 Serenade ASD 5 Targro 10 Targro 5 MR Baneo 5-13 mrt Baneo 5-13 Korma 56 Korma 56 Mrt Baneo 5-13 Mrt Baneo 5-13 Korma 56 Mrt Baneo 5-13 Mrt Baneo 5-13 M	FRAC Product angle of parts NC Boteschor 4 BM02 Serenade ASD 5 Tangro 50 Tangro 50 rwt Rameo 5-33 Kim Serenade ASD 5 Fytosive 4-5 X M01 Grifon SC 5-45 Hydro super 25 WG 4-5 X Hydro koper 25 WG 4-8 X Hydro koper 25 WG 4-8 X Hydro koper 25 WG 5-3 X Hydro koper 25 WG 5-3 X Hydro koper 25 WG 5-3 X Hydro koper 25 WG 6-1 X Hydro koper 25 WG 6-1 X Hydro koper 25 WG 6-1 X Hydro koper 1000150 WG WG X Hydro koper 1000160 WG 1 X Hydrokoper 25 WG 6-1 X Hydrokoper 25	FMAC Product Product Product NC Botecbor 4 - BM102 Serenade ASD 6 - Trot Romo 5-13 X X Profosov 5-13 X X M012 Estim 6 X X Profosov 4-8 X X M01 Estim 6 X X M01 Criton SG 4-8 X Hydro MG 4-4 X Hydro MG 4-4 X Koerhydroxide WG X X WOPlus40 6 - Worko 6 - Mietta 6 - Mietta 6 - Mietta ist 1 X Miettalet 5 -	NC Botector 4	FRAC Product off program (program (program) off program (program) off program) off program off program <thoff program<="" th=""> <thoff< td=""><td>FMAC Preduct Image: Control of the sector o</td><td>FRAC Peedact official program of peedact official peedact <thofficial peedact<="" th=""></thofficial></td><td>FIAAC Preduct org/fidan product <thorg fidan="" product<="" th=""> org/fidan prod/f</thorg></td><td>FMAC Product Image: Semi-and ASD Semi-and ASD</td><td>FRAC Product and product and product and product product product</td><td>FMAC Preduct: and bit (b) (b) (b) (b) (b) (b) (b) (b) (b) (b)</td><td>FMAC Product and FMAC Product and FMAC Product and FMAC Product and FMAC Product Teepass/registadium NC Bottstor 4 X X X X X X 1 kg/m hasg einde blaei - coget (BBCH68-80) BM 02 Serenade 850 6 X X X X X 8 / hs hasg rrvt Romes 5-30 X X X X X 8 / hs hasg rrvt Romes 5-30 X X X X X 2 kg/hs hasg rrvt Romes 5-30 X X X X X X 1 kb/m hag rvt Romes 5-30 X X X X X X X rvt Romes 5-30 X X X X X X X rvt Romes 5-30 X X X X X X X rvt X X 1 7-10 X X X 1,11/ha hag rvt X X 1 7-10 X X At ktha hag rvt<!--</td--></td></thoff<></thoff>	FMAC Preduct Image: Control of the sector o	FRAC Peedact official program of peedact official peedact <thofficial peedact<="" th=""></thofficial>	FIAAC Preduct org/fidan product org/fidan product <thorg fidan="" product<="" th=""> org/fidan prod/f</thorg>	FMAC Product Image: Semi-and ASD Semi-and ASD	FRAC Product and product and product and product product product	FMAC Preduct: and bit (b) (b) (b) (b) (b) (b) (b) (b) (b) (b)	FMAC Product and FMAC Product and FMAC Product and FMAC Product and FMAC Product Teepass/registadium NC Bottstor 4 X X X X X X 1 kg/m hasg einde blaei - coget (BBCH68-80) BM 02 Serenade 850 6 X X X X X 8 / hs hasg rrvt Romes 5-30 X X X X X 8 / hs hasg rrvt Romes 5-30 X X X X X 2 kg/hs hasg rrvt Romes 5-30 X X X X X X 1 kb/m hag rvt Romes 5-30 X X X X X X X rvt Romes 5-30 X X X X X X X rvt Romes 5-30 X X X X X X X rvt X X 1 7-10 X X X 1,11/ha hag rvt X X 1 7-10 X X At ktha hag rvt </td

Known resistance genes:

1 kg/ha haag	einde bloei - oogst (89CH68-89)		3 m		
8 L/ha haag			3 m		
2 kg/ha haag			3 m		
0,14 kg/ha heag		plantafweerverhogend	3 m		
1,1 Vho haag		plantafweerverhogend	3 m		
1,1 Vha haag		plantafweerverhogend	3 m		
2,75 kp/hs haag			3 m		
botrytis: 2.6 kg/ha haag meeldauw 2,75 kg/ha			3 m 3 m		
	blad 5 - begin rijping		3 m		
6,6 kg/ha haag 1,4 i/ha haag	blad 2 - rijping (88CH 12-85)	max 4 kg koper/ha havg/jear	20 m min 50%		
1,12-1,00 kg/to hang		nex + ig topol) in heighter	20 m min 50%		
2,4 kp/ha haag	blad 5 - begin rijping				
2,4 kg/ho haag	blad 5 - begin rijping		Resist	ant genes	
2,4 kp/ho haag	blad 5 - begin rijping		1103130	and genes	
Variety	,	Rpv	Rpv	Rpv	Rpv
variety	y	npv	npv	КΡν	πpv
		2.4	2 2		
		3.1	3.2	3.3	10
				55	
Johanr	nitor	х			
Jonani	IILEI	X			
Solaris				Х	Х
Julaits				~	^
Countin	nior gric		V		
Souvig	nier gris		Х		
0	•				
_					
Regent		Х			
-0-					
Caherr	net cantor	Х		Х	Х
Cuberr		Λ		Λ	Λ
Caborr	net cortis			Х	Х
Capell				λ	A
Muser	nia				N/
Musca	115				Х



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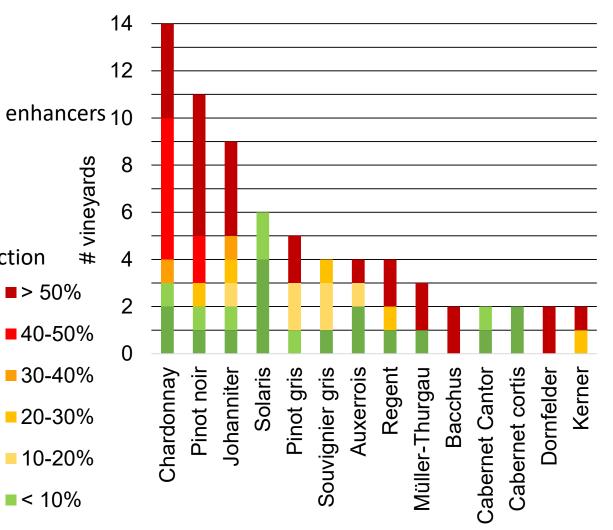
SPiwi – Spraying scheme:

In field trials:

Standard scheme

Reduction of sulphur and copper by 30% by using plant defence enhancers 10

- 2021:
 - Trial with cabernet cortis
 - High pressure of downy mildew.
 - Standard scheme insufficient for protection against infection
- Questionnaire:
 - Downy in Belgian vineyards
 - % expected yield loss
- ightarrow Johanniter and Souvignier gris sensible for infections
- ightarrow Cabernet cantor and cabernet cortis more resistant



No infection, no loss

SPiwi – Spraying scheme:

In field trials:

Standard scheme

Reduction of sulphur and copper by 30% by using plant defence enhancers

- 2021:

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 \rightarrow Re-evaluation of resistance against downy mildew:

n ce enhance i	rs			Resistant genes					
Variety		2021	Rpv 3.1	Rpv 3.2	Rpv 3·3	Rpv 10			
Johanniter		-	х						
Solaris		++			Х	Х			
Souvignier g	ris	+		Х					
Regent		-	х						
Cabernet ca	ntor	++	х		Х	Х			
Cabernet co	rtis	+			Х	Х			
Muscaris		Good				Х			
Bronner		Good			Х	Х			
Hélios		Less	х						
Monarch		Good			Х	Х			

SPiwi – Spraying scheme:

In field trials:

Standard scheme

Reduction of sulphur and copper by 30% by using plant defence enhancers

- 2022:

- Trial with Cabernet cortis, Souvignier gris, Johanniter and Solaris
- High pressure of powdery mildew towards the end of the growing season.
- Cabernet cortis and Johanniter:
- standard scheme insufficient for protection against infection of powdery mildew
- Souvignier gris and solaris:
- standard scheme sufficient, no infections
- ightarrow Additional treatments required when pressure is high

 \rightarrow Effective alternatives to sulphur: potassium hydrogen carbonate

SPiwi – Communication and dissemination



Consumentenonderzoek

Schuimwijnen van Piwi's

Het sriwi-project werkt aan de ontwikkeling van een innovatieve en biologische schuimwijn van de piwi-variëteiten: Souvignier gris, Cabernet cortis, Cabernet cantor en Muscaris. Om de gewoontes en voorkeuren van de Vlaamse schulmwijnconsument in beeld te brengen, werd er een enguête opgesteld. We zetten een selecte groep jonge consumenten aan het proeven en organiseerden daarvoor enkele focusgroepen.

Description

pefruit	
cky Everaerts	
halt-stee	

nen-vrouwen). Ze beantwoordden ver- Gewoontebeestjes en hun schillende vragen over consumptie, voor-voorkeuren keuren en aankoon. Er west ookrekening gehouden met verschillen in resultaten Goed nieuws want Beigen zijn de tussen de verschillende leeftijdscate-schuimwijnconsumenten bij uitstekl gorieën (8a deelnemers leeftijd < 40, 87 Bijna acts van de deelnemers gaf aan deelnemers leeftijd tussen at en salaar - schuimtelin te drinken. Meer dan de heift en de 62 deelnemers leeftijd 2 6e jaar). van hen drinkt 1 keer of meer per maand. In totaal vulden 238 deelnemers de De voornaamste resultaten worden in 37% van de deelnemers gaf aan dat ze

witte schulztwije consume

relan, tonadil

enquite in (verhouding: so/so man- ditartikel getoond.

A | fratzona | subcomberator



bij uitstek!

België kent de hoogste champagnecon sumptie per inwoner op wereldvlak. waarbij cava en prosecco aan belang- Figuur s. - Aantal keer dat een rohulmeijn in een blinde test de voorkeur keerg boven de stelling winnen door de lagere prijzen. andre vierschaimwijnen. Uit de enquête blijkt dat de consumptie



Inge Moors, voorzitter pcfruit vzw. **pcfruit** nodigt u van harte uit op de:

Online studieavond wijnbouw

Maandagavond 7 februari om 19u bent u van harte welkom om deel te Maandag nemen aan onze online studieavond 'wiinbouw' 7 februari 2022 om 19u

Op het programma: Organisatie

- Schets seizoen 2021
- Inschrijve Vicky Everaerts is verplicht en kan via
- www.pcfruit.be/studieavond-Valse meeldauw & alternatieven voor mancozeb wijnbouw Bespreking leidraad gewasbeschermingsmiddelen
 - Kiell Hauke Kostprij Leden pcfruit: GRATIS Proeftuin onderzoek & Vergistbare stikstof Niet-leden: 20 euro Vicky Everaerts
 - Factuur wordt verstuurd na inschrijving SPiwi-project – Schuimwijnproductie van piwi-variëteiten (Engels)

Info WRI Freiburg pcfruit@pcfruit.be,tel.011-697080

belgische

pcfruit vzw



Dit webinar wordt georganiseerd met de steun van en in samenwerking wiinbouwers

met de Provincie Limburg. ledereen is van harte welkom om deel te nemen! Op maandag 7 februari 2022 ontvangt u de link om online deel te nemen









