

AGROTUR II

Simpozij Akademija o teranu/Accademia di Terrano
Grad Štanjel/Il castello Štanjel
8. 11. 2018

Spremljanje bolezni in škodljivcev v kraških vinogradih v letniku 2018

Lo scouting delle malattie e dei parassiti nei vigneti del Carso nel 2018

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Perleuve srl



ACTIVITY GOALS

- to collect useful data (phenological stages, presence of diseases and pests) to help farmers take the right decisions to manage their vineyards
- to verify the efficacy of suggested actions
- to identify new potential threats to local viticulture

Perleuve WORKING METHOD

TO OBSERVE



TO DEDUCE



TO ACT



RISK (DSS)
PRESENCE (4GRAPES)



PEST MANAGEMENT
STRATEGY



TREATMENTS
CALIBRATION
EFFECTIVENESS

TOOLS

Weather data and forecast →
Weather stations



Decision support systems (DSS) →
vite.net

App 4grapes → Scouting (phenological stages, diseases, pests)



T O B S E R V E

WEATHER DATA

T O B S E R V E

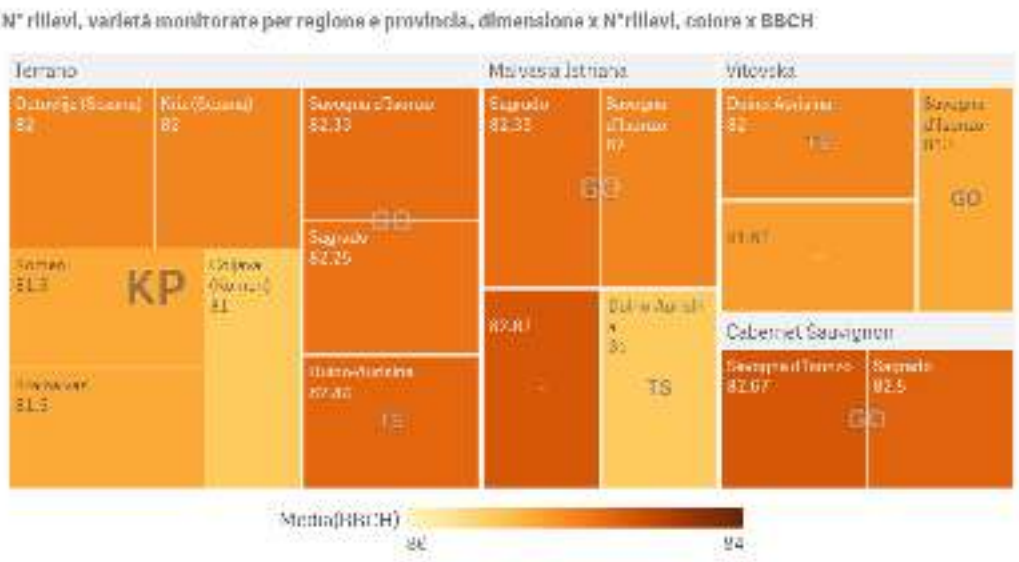
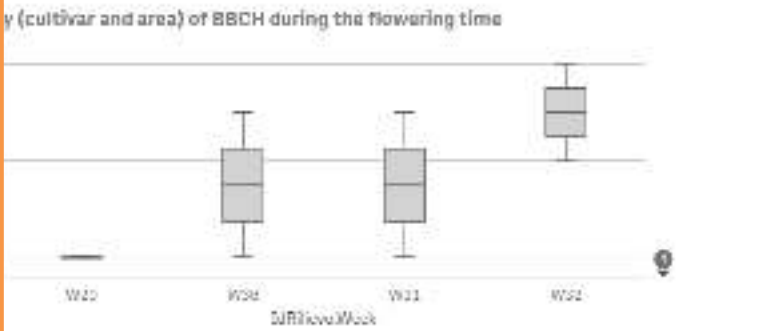
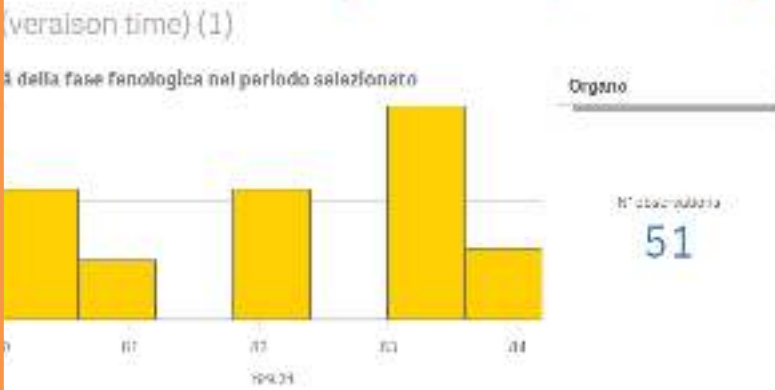


Month	Rain (mm)		Mean Tmin (°C)		Mean Tmax (°C)		Leaf wetness (hours)	
	Rubbia - ITA	Krajna Vas - SLO	Rubbia - ITA	Krajna Vas - SLO	Rubbia - ITA	Krajna Vas - SLO	Rubbia - ITA	Krajna Vas - SLO
April	72,0	71,9	10,4	10,6	21,0	20,0	116,0	153,0
May	74,6	70,8	14,4	15,2	24,9	24,1	168,0	133,0
June	104,1	53,9	16,4	14,9	27,3	25,3	113,0	125,0
July	54,8	84,3	18,6	17,0	29,6	28,4	137,0	147,0
August	83,1	105,8	18,7	18,9	30,9	30,8	82,0	93,0
September	41,1	48,6	14,8	14,1	25,6	25,2	142,0	183,0
October	113,1	105,7	11,6	12,0	20,4	20,3	172,0	170,0
Sum/mean	542,8	541,0	15,0	14,7	25,7	24,9	930,0	1004,0

PHENOLOGICAL DEVELOPMENT

T O B S E R V E

Regione Sociale: Friuli Venezia Giulia |
 IdR Rilevazioni: 2018 |
 =Classe(BBCH):... |
 =Classe(BBCH):... |
 =Classe(BBCH):... |
 IdR Rilevazioni: 2018 |
 Informazioni strategiche

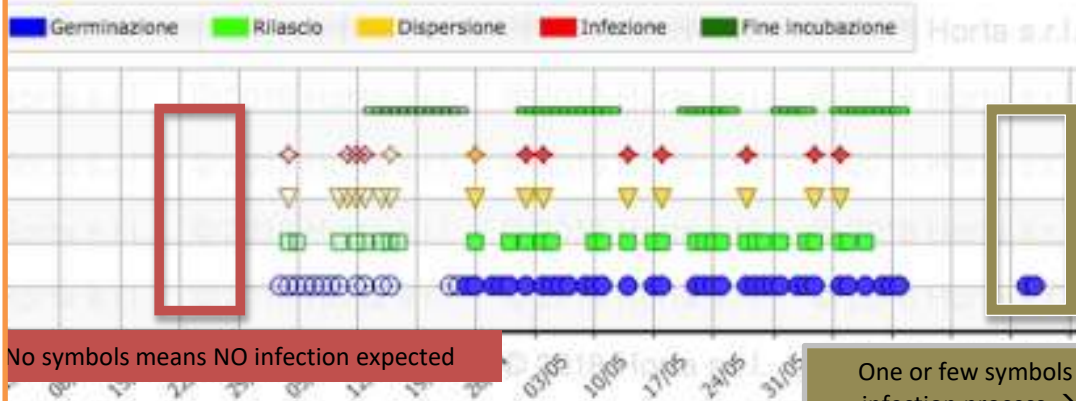


Start veraison
18 Jul 2018

End veraison
09 Aug 2018

HOW TO READ THE DSS CHART

T O B S E R V E



No symbols means NO infection expected

One or few symbols indicate an incomplete infection process → No infection expected

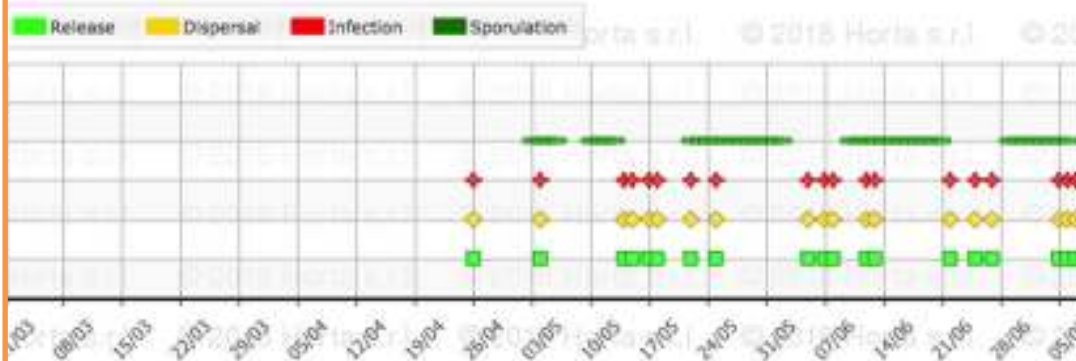
End of incubation: sporulation takes place (GREEN LINE)

Infection: zoospores swim toward the stomata, settle on or near them, germinate and then penetrate the leaf through the stomata (RED DIAMOND)

Zoospores are spread directly onto leaves by rain splash (YELLOW TRIANGLE)

Macrosporangium releases zoospores (GREEN SQUARES)

Oospores overwinter in leaf debris above ground or buried in soil: in Spring, they rapidly germinate and form zoospores exposed to a water film (BLUE CIRCLE)



Sporulation (conidial production) takes place (GREEN LINE)

Infection: ascospores germinate, form a hypha with appressoria and penetrate the cell wall (RED DIAMOND)

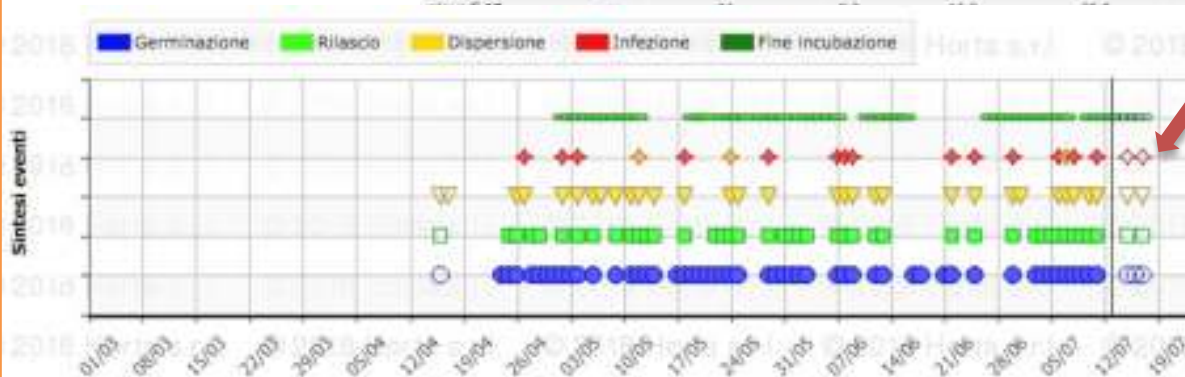
Ascospores land on susceptible organ (YELLOW DIAMOND)

Cleistothecia releases ascospores (GREEN SQUARES)

	Tempo	Precipitazioni		Temp.		Um. Rel.	Descrizione	Vento a 2m	
		Prob. %	mm	Min °C	Max °C			Dir.	Vel. km/h
venerdì 13		27	1,5	18	27,2	72	debole	E-SE	6,3
sabato 14		30	0	10,4	27,2	77	debole	SE	4,7
domenica 15		62	1,8	15,1	27,2	77	debole	SE	2,9
lunedì 16		25	0,2	15,1	27,8	64	moderata	SO	11,6
martedì 17		72	8,1	15,3	26	77	debole	N	2,9
mercoledì 18		17	0,2	16,2	27,9	68	moderata	O	11,9

Rain is forecast

Infection most likely



Weekly scouting: infection found in the vineyards

CONSIGLIO DI DIFESA

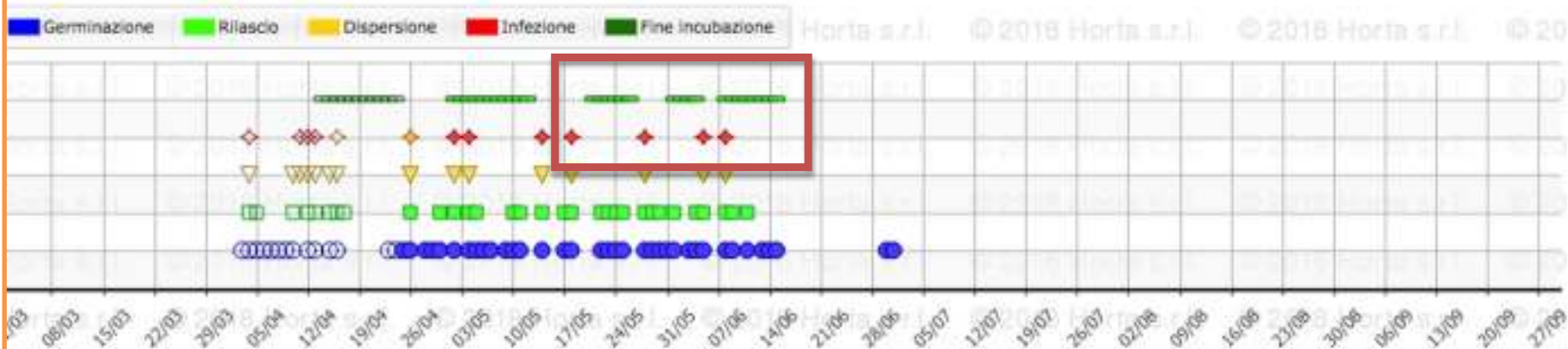
Considerando le previsioni meteo, i dati estrapolati dal Modello Vite.net® e le osservazioni raccolte con il monitoraggio, si consiglia di intervenire come di seguito indicato: **dal 9 al 10 luglio 2018.**

DIFESA INTEGRATA			
Avversità	Sostanza attiva	Dose (kg o L/ha)	Note
Peronospora	Rame metallo da idrossido o miscela idrossido-ossicloruro o patiglia bordolese	0,4 (rame metallo)	Preferire rame da idrossido nel caso di infezioni in atto
oidio	Zolfo bagnabile	3	

T O D E D U C E

DSS vs. FIELD

T O D E D U C E



Primary infections - San Michele		
<i>DSS: infection</i>	<i>DSS: sporulation</i>	<i>Scouting (spot on leaves)</i>
02-May	from 2-May to 12-May	/
04-May	from 2-May to 12-May	/
14-May	from 21-May to 26-May	/
18-May	from 21-May to 26-May	24-May
28-May	from 1-June to 4-June	30-May
05-Jun	from 8-June to 15-June	06-Jun
08-Jun	from 8-June to 15-June	12-Jun

FIELD BOOK

Date	Disease	#	Farming system	# of days between treatments	Active ingredient	Dose (kg/ha)	Cu (kg/ha)	Rain (mm) between treatments	BBCH
11-Jun	Peronospora	1	IPM	/	Zoxamide + Cu	0,17	0,4	/	73
11-Jun	Peronospora	1	Organic	/	Cu		0,5	/	73
19-Jun	Peronospora	2	IPM	8	Zoxamide + Cu	0,17	0,4	14,8	75
18-Jun	Peronospora	2	Organic	7	Cu		0,5	14,8	75
28-Jun	Peronospora	3	IPM	10	Mandipropamide + Cu	0,15	0,4	48,5	77
26-Jun	Peronospora	3	Organic	8	Cu		0,4	48,5	77
09-Jul	Peronospora	4	IPM	10	Cu		0,4	22,5	79
09-Jul	Peronospora	4	Organic	12	Cu		0,4	22,5	79
18-Jul	Peronospora	5	IPM	9	Cu		0,3	22,6	79
18-Jul	Peronospora	5	Organic	9	Cu		0,3	22,6	79
27-Jul	Peronospora	6	IPM	9	Cu		0,3	6,9	79
27-Jul	Peronospora	6	Organic	9	Cu		0,3	6,9	79
09-Aug	Peronospora	7	IPM	12	Cu		0,2	7,9	82
09-Aug	Peronospora	7	Organic	12	Cu		0,2	7,9	82

Cu_{tot} (IPM)
 =2,4 kg/ha

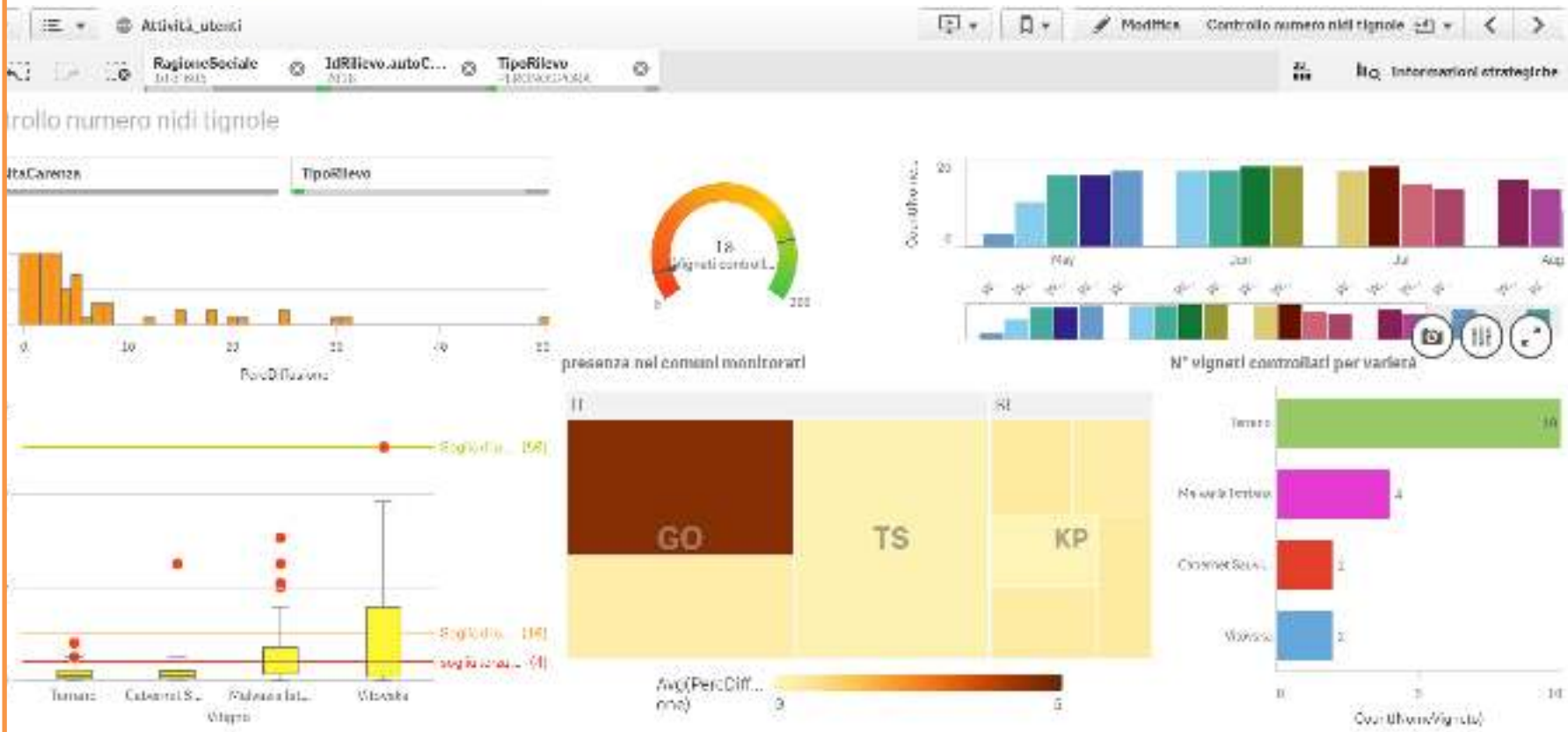
Cu_{tot} (ORG)
 =2,6 kg/ha

Date	Disease	#	Farming system	# of days between treatments	Active ingredient	Dose (kg/ha)	Rain (mm) between treatments	BBCH
11-Jun	Oidio	1	IPM	/	Cyflufenamid	0,025	/	73
11-Jun	Oidio	1	Organic	/	Zolfo	3	/	73
19-Jun	Oidio	2	IPM	8	Trifloxystrobin	0,075	14,8	75
18-Jun	Oidio	2	Organic	7	Zolfo	3	14,8	75
28-Jun	Oidio	3	IPM	10	Quinaxifen	0,027	48,5	77
26-Jun	Oidio	3	Organic	8	Zolfo	3	48,5	77
09-Jul	Oidio	4	IPM	10	Quinaxifen	0,027	22,5	79
09-Jul	Oidio	4	Organic	12	Zolfo	3	22,5	79
18-Jul	Oidio	5	IPM	9	Zolfo	2,5	22,6	79
18-Jul	Oidio	5	Organic	9	Zolfo	2,5	22,6	79
27-Jul	Oidio	6	IPM	9	Zolfo	2	6,9	79
27-Jul	Oidio	6	Organic	9	Zolfo	2	6,9	79
Post harvest	Oidio	7	All	/	Amperiomyces quisqualis	0,05	/	91

T O A C T

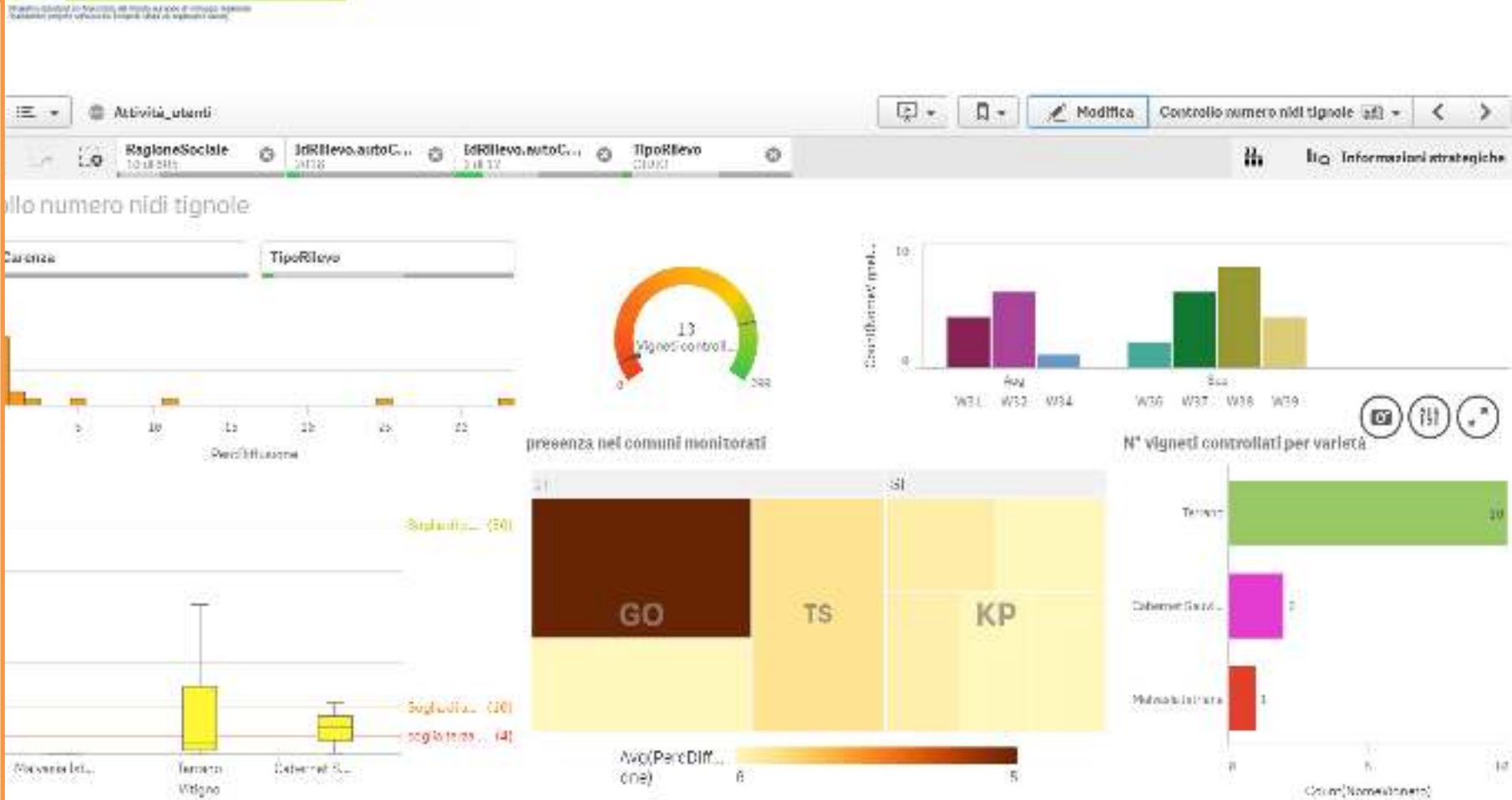
Downy mildew

R E S U L T S



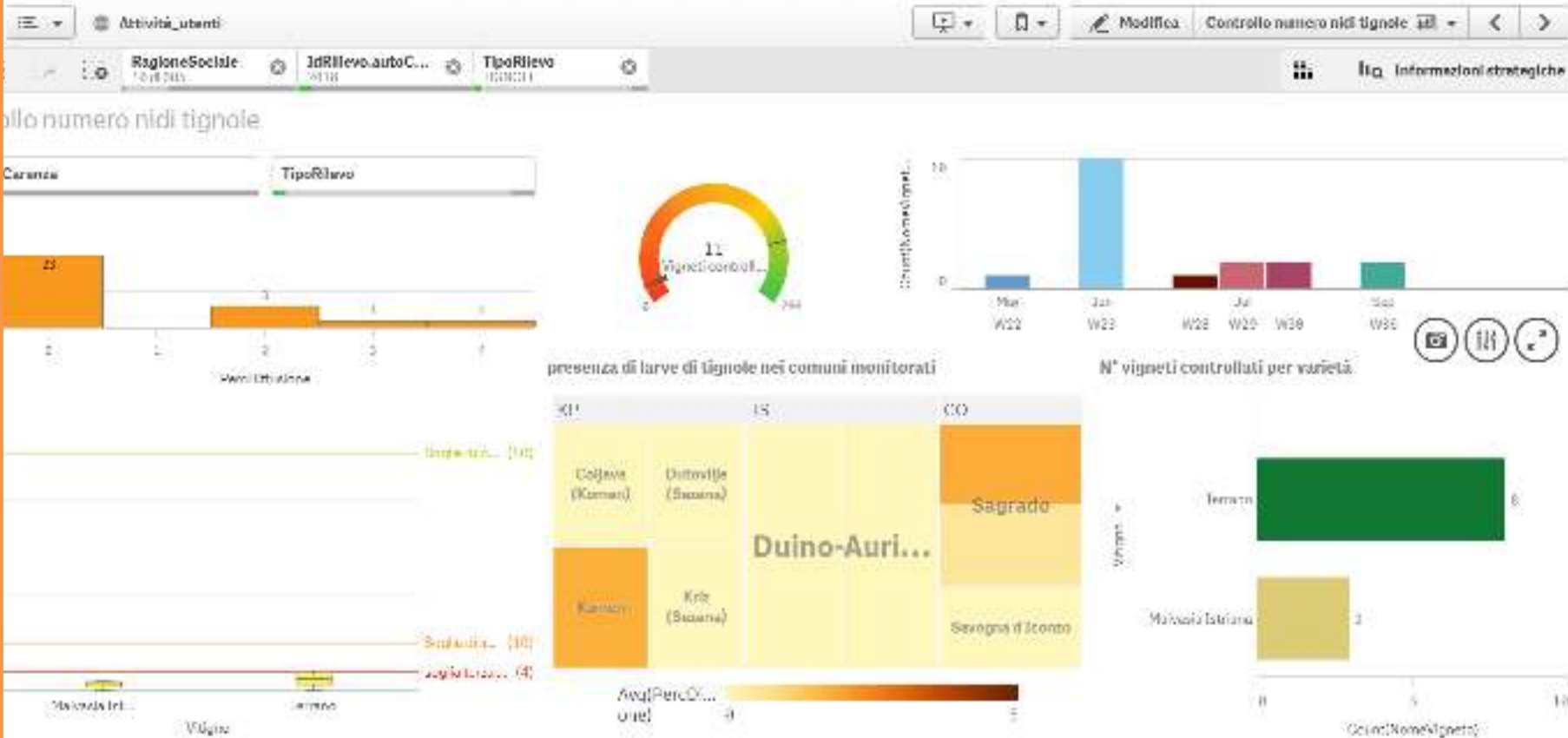
Powdery mildew

RESULTS



GRAPEVINE MOTHS

RESULTS



CONCLUSIONS

- Season 2018: low pressure of diseases in the majority of Carso region
- No insecticide treatment needed against grapevine moths
- High risk/pressure areas: San Michele, Krajna Vas
- Good yields and quality

Hvala za pozornost.
Grazie per l'attenzione.

