

olivo.net[®]

OGNI GIORNO A FIANCO
DELL' OLIVICOLTORE

**Digitalizzazione e
sostenibilità in viticoltura
e olivicoltura. Il futuro
dell'imprenditore digitale**



METODOLOGIE
DIDATTICHE
INNOVATIVE



www.horta-srl.com



HORT@
— From research to field —



Spin Off di
**UNIVERSITÀ
CATTOLICA
del Sacro Cuore**

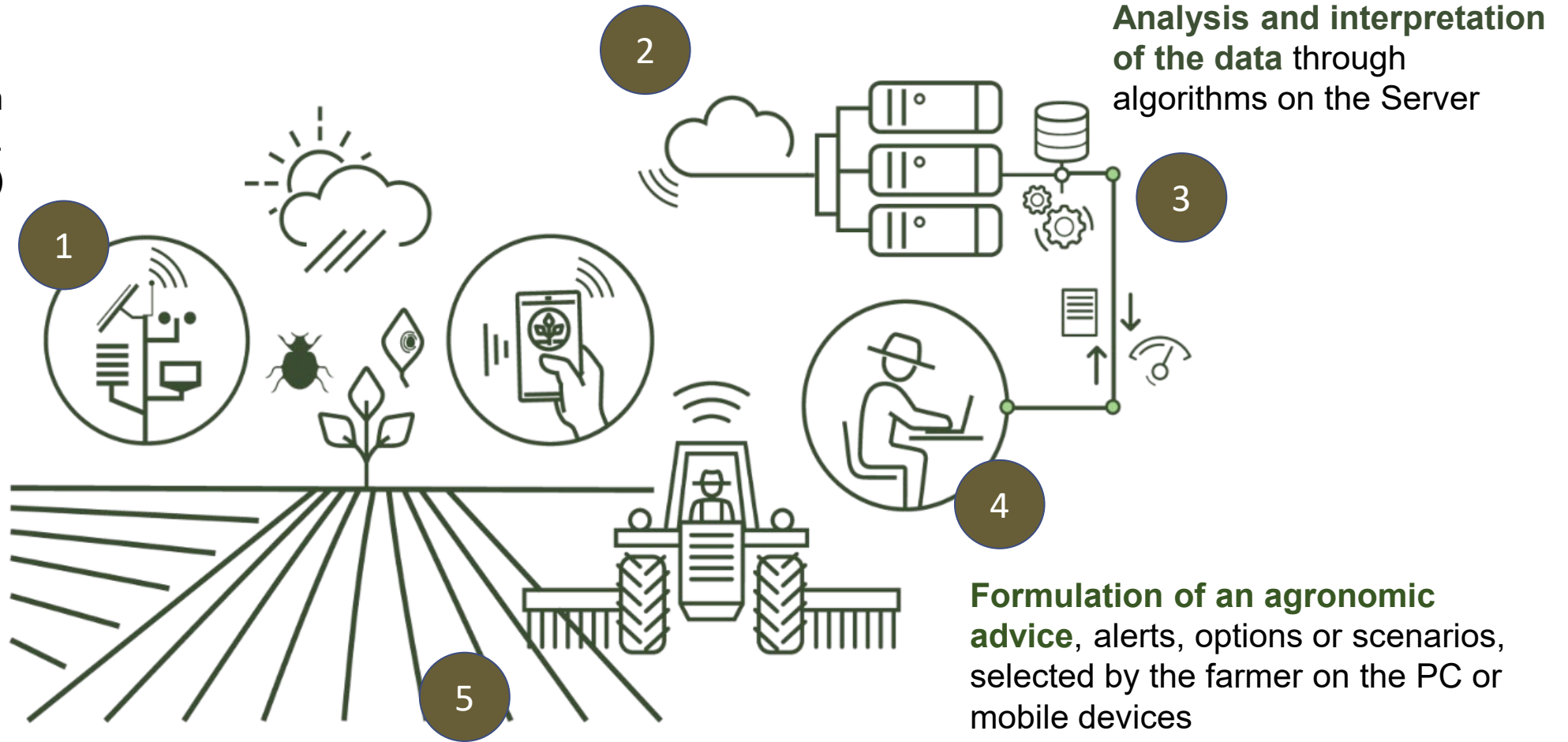
Andrea Anselmi: a.anselmi@horta-srl.com



HOW DOES OLIVO.NET WORK?

A DSS is based on 4 elements:

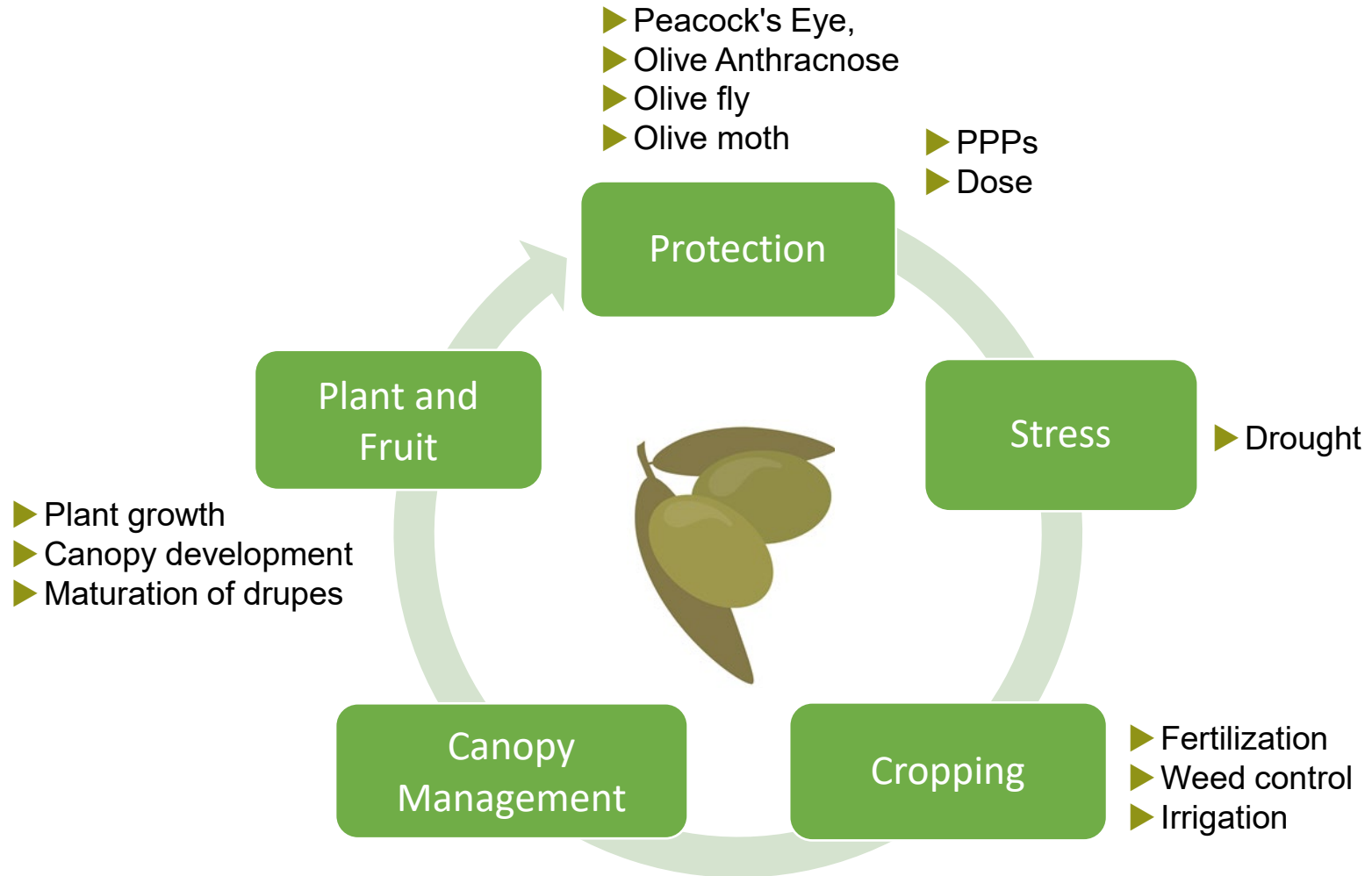
Data collection through an IoT network (eg. weather station)



Execution of interventions



MULTIPLE MODELING AND HOLISTIC APPROACH





OLIVO.NET OUTPUT

The system first displays a main page from which the user can access all the DSS modules.

The screenshot displays the olivo.net web application interface. At the top, there is a navigation bar with the HORT@ logo and olivo.net branding, along with links for 'Assistenza', 'Servizi riservati', and 'Hort@ home page'. Below this is a breadcrumb trail: 'Servizi riservati / Servizi Horta s.r.l. / Filiera Olivo / Olivo.net'. A green callout labeled 'Maps' points to a navigation bar containing various icons, including a globe and location markers. The main content area features a table with columns: 'Gestione', 'ID', 'OP', 'Utente', 'Azienda', 'Descrizione UP', 'Stazione meteo', 'Comune', 'Varietà', 'Superficie UP (ha)', and 'Funzionalità'. Two rows of data are visible, with green callouts identifying various modules: 'Weather module', 'Disease module', 'Pest module', 'DB module', 'Scouting module', and 'Field Book module'. A green callout labeled 'Set-up olive' points to a dialog box at the bottom of the screen. This dialog box has buttons for 'Salva', 'Annulla', and 'PDF', and a list of expandable sections: 'Generale', 'Caratteristiche dell'uliveto', 'Caratteristiche del suolo', 'Bilancio idrico e irrigazione', and 'Concimazione organiche e sovesci'. A large text label 'Site-specific info' is overlaid on the dialog box.

Gestione	ID	OP	Utente	Azienda	Descrizione UP	Stazione meteo	Comune	Varietà	Superficie UP (ha)	Funzionalità
	141213		A-cliente HORTA (3)	Azienda di Prova Cristian Ver.	prova uno	Ravenna loc. Cà Bosco (IT, Ravenna) (Horta)	Novellara	Apollo	200	
	139706		A-cliente HORTA (3)	A-cliente HORTA (Prova 2 Bene)	Prova due	Troia loc. Contrada Cistemino (IT, Foggia) (Horta)	Troia	Leccino	4	

Site-specific info

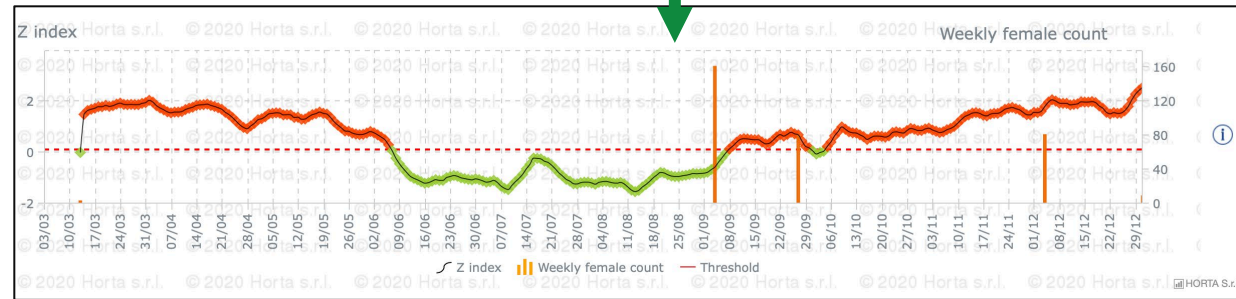


OLIVO.NET OUTPUT

Alert dashboard

Modules provide up-to-date information that can be explored at two levels of detail:

1. synthetic information;
2. in-depth information.

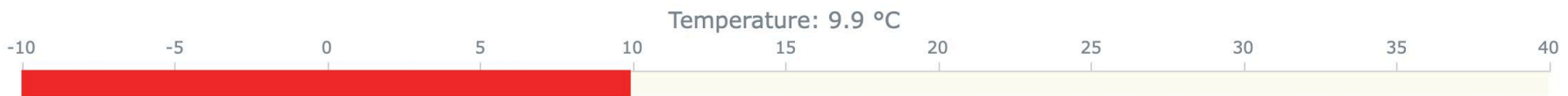




WEATHER DATA

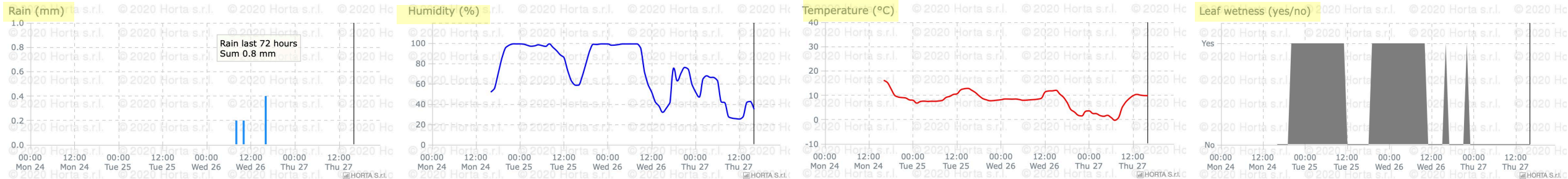
- Current situation
- Last 72 hours
- Seasonal data
- Forecast data

Thursday 27/02/2020 at 16:00



Dry leaf

16:00



Plant development



Insects

Bactrocera oleae Infestation



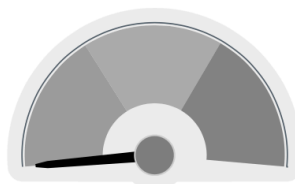
Monitoring

INSECTS

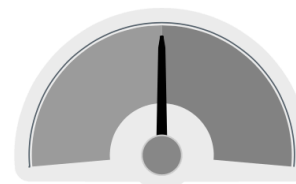
Bactrocera oleae



Potential infestation



Active infestation

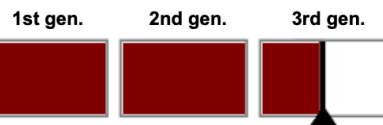


Infestation severity



Mortality index

Insect phenology - current stage





PLANT DEVELOPMENT

PHENOLOGY | Simulation of plant development according to the thermal resources accumulated by the plant and measured by the weather station associated with the UP

Plant development

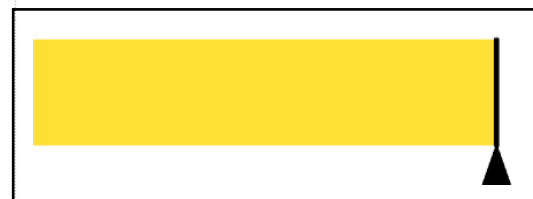


Polyphenols



POLYPHENOLS | Simulation of the degradation of polyphenols in drupes depending on phenological development

Inolation

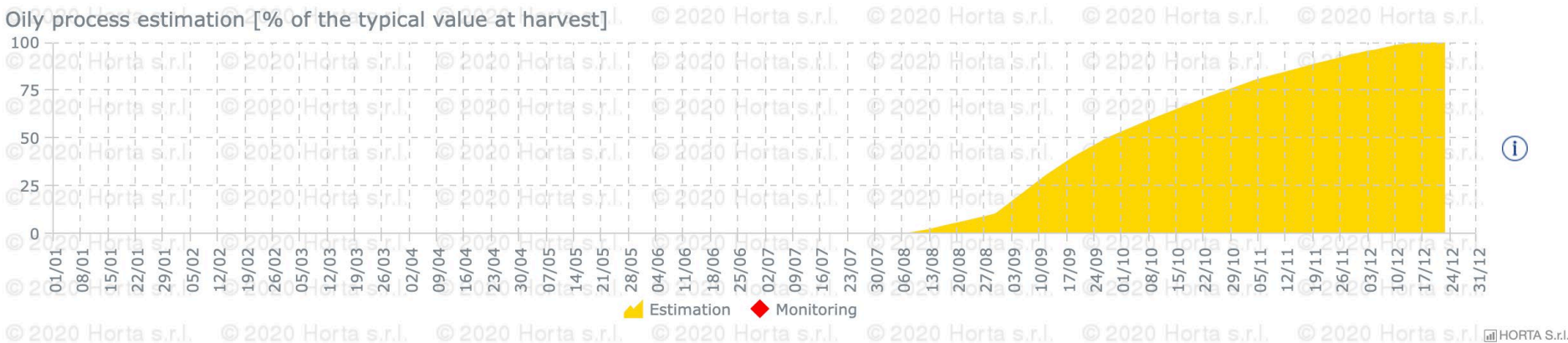
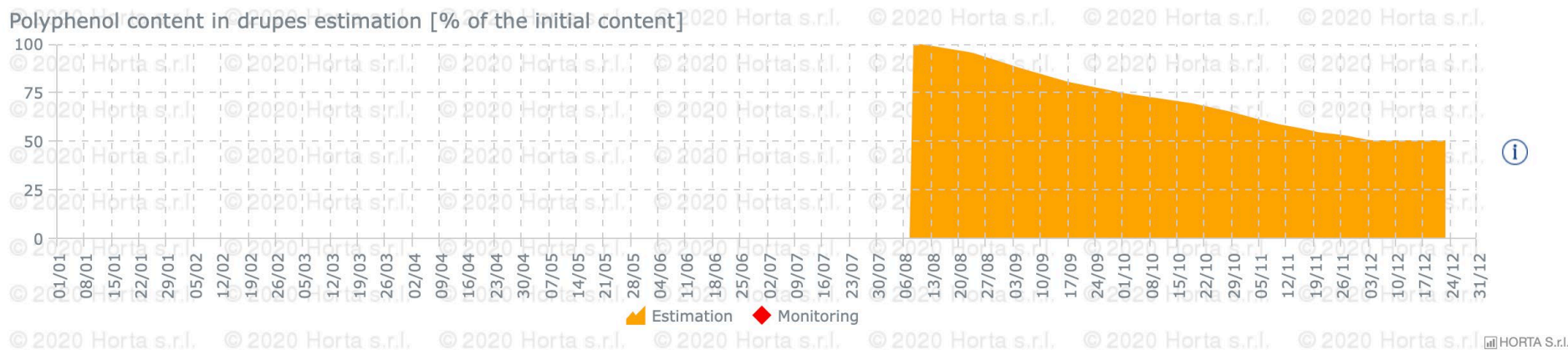


INOLATION | Simulation of the accumulation of oleic acid in drupes based on phenological development



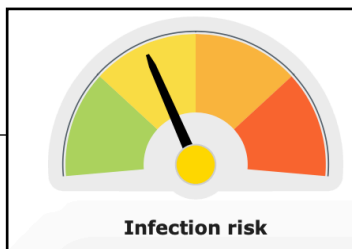
POLYPHENOLS AND INOLATION

The detailed graphs show the temporal evolution of the content of polyphenols (orange area) and of oleic acid (yellow area). The red diamonds represent any observations recorded in the UP MONITORING function

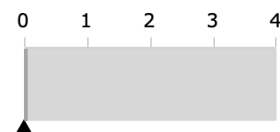


Spilocaea oleaginea

Spilocaea oleaginea

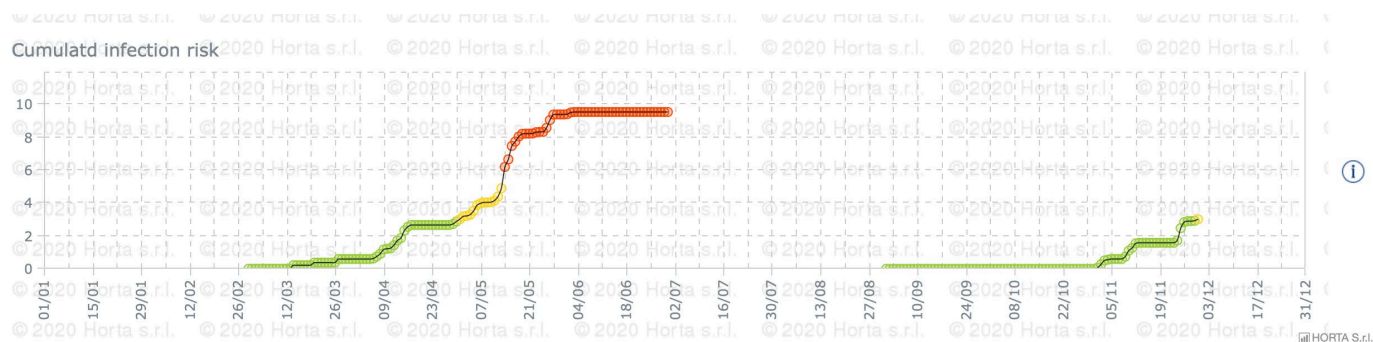
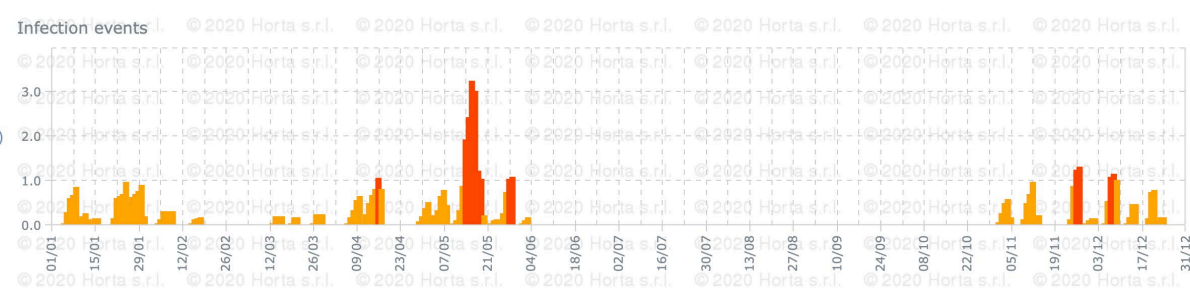
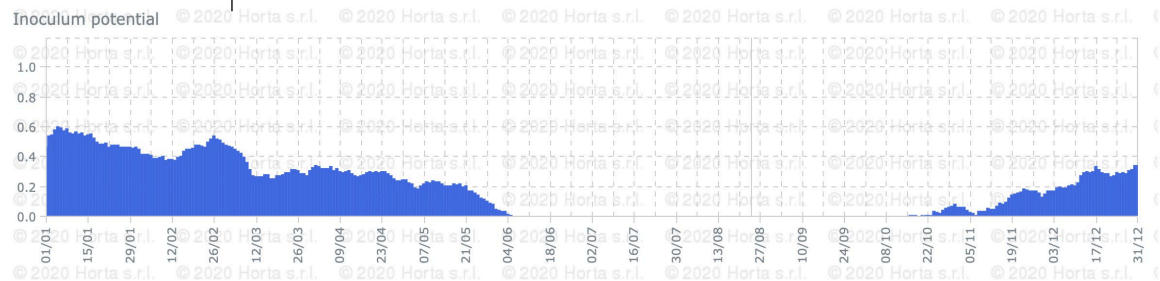


Copper metal



Distributed during season (kg/ha)

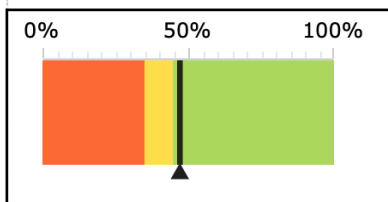
Total distributed/7-year limit (kg/ha)



AVAILABLE WATER

The synthesis counter expresses the current water content of the **soil tank** indicated by the black arrow.

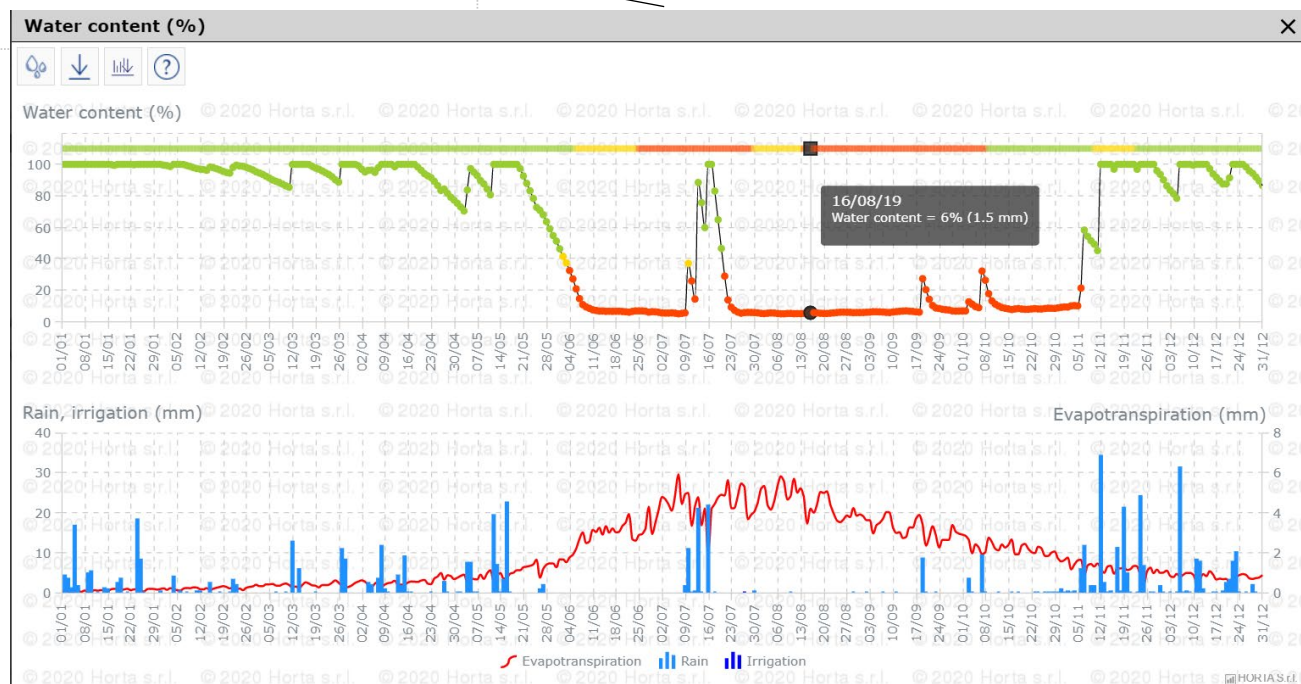
Water available



Water content (%)



Following the registration of **irrigation operations** it is possible to update the water content calculation by using this icon





FERTILIZATION

The DSS calculates the crop requirements (N, P, K, Ca, Mg) considering the production objective and the soil fertility characteristics recorded in the UP.

The requirements are divided into three separate phases of intervention:

1. By the vegetative restart
2. Between the development of inflorescences and the end of flowering
3. Between the setting and the development of drupes

On the basis of the fertilization operations recorded in the ROC, the system refresh, indicating the doses applied and those still to be made for each phase.



Elements	Requirement (kg/ha)	Programmed requirement (kg/ha)	Total distributed amount (kg/ha) up to 28/02/2020	Required amount kg/ha (Distributed amount kg/ha)		
				Before the vegetative growth	Developing inflorescences - late flowering	Fruit set, drupes development
N (Nitrogen)	44		0	22 (0)	11 (-)	11 (-)
P ₂ O ₅ (Phosphorus)	29		0	29 (0)	0 (-)	0 (-)
K ₂ O (Potassium)	40		0	20 (0)	0 (-)	20 (-)
CaO (Calcium)	4		0	0 (0)	2 (-)	2 (-)
MgO (Magnesium)	1		0	0 (0)	0 (-)	0 (-)

Requirements calculation

Total distributed amount at the time of consultation

Programmed requirements chosen by the user (may be different from those recommended)

The values entered are indicated for each period, and, in brackets, are shown the quantities still to be given or, if negative, the excesses compared to the recommended dose



FERTILIZER PRODUCTS DATABASE









Through this icon  it is possible to access the database of commercial products.


[All classifications](#)
[All forms](#)
[All](#)
[Filters](#)

You can filter the products by classification (correctives/amendments, fertilizers N, P, K, NP ...) and forms (granules / pellet, liquid)

FERTILIZERS LIST > ALL CLASSIFICATIONS > ALL FORMS > ALL


 1 / 334

Name	Maker	Total nitrogen	Total phosphate	Total potassium	Organic	
Abies Cu	MANICA SPA	-	-	-	yes	
Abies FE	MANICA SPA	-	-	-	yes	
Abies Mix	MANICA SPA	-	-	-	yes	
ABT-EU04	XEDA ITALIA	-	-	-	yes	
Abyss	SIPCAM ITALIA Spa	0.0	0.0	0.0	yes	
Abyss	SIPCAM ITALIA Spa	0.0	0.0	0.0	yes	
Acadian Mpe	BIOGARD CBC EUROPE	1.0	-	19.0	yes	
Acicalix	IDROBIOCHEM	8.0	-	-	no	
Acidax	CHEMIA SPA	3.0	17.0	-	no	
Acide Fe	AGRIDELPA SRL	15.0	-	-	no	
Acide Mg	AGRIDELPA SRL	15.0	-	-	no	
Acide Micro	AGRIDELPA SRL	15.0	-	-	no	
Acide Mn	AGRIDELPA SRL	15.0	-	-	no	
Acide Organ	AGRIDELPA SRL	8.0	12.0	4.0	no	
Acide P 40	AGRIDELPA SRL	-	40.0	-	no	

Here you can access the detailed description of the selected product 



PLANT PROTECTION PRODUCTS DATABASE

Common Name	Scientific Name	Category	Eppo Code	Photo	Sheet	Compounds
Weeds	<i>Agenti vari</i>	Weeds	*			
Olive fruit fly	<i>Bactrocera oleae</i>	Insects	DACUOL			
Olive knot	<i>Pseudomonas syringae pv. savastanoi</i>	Bacteria	PSDMSA			
Olive peacock spot	<i>Spilocaea oleaginea</i>	Fungi	CYCLOL			
Olive moth	<i>Prays oleae</i>	Insects	PRAYOL			
Olive black scale	<i>Saissetia oleae</i>	Insects	SAISOL			 Go to the next page



PLANT PROTECTION PRODUCTS DATABASE

Compounds - Olive fruit fly

⏪ ⏩ 1 / 6 ⏪ ⏩

Compound	Dealer	a.p.	Diseases *				Compound Profile	Applicability
			Olive Fruit Fly	Olive Moth	Olive Black Scale	Olive Trips		
Affinity plus	Belchim Crop Protection Italia	?	*	*	*	*	⚙️	🚗
Agro - Pyr	ITALAGRO SRL	?	*		*	*	⚙️	🚗
Antal	ISAGRO SPA	?	*	*	*		⚙️	🚗
Audace	FMC Srl / Cheminova	?	*	*			⚙️	🚗
Bang	UPL Italia S.R.L.							
Bang	SIVAM SPA							
Bang	SHARDA Cropchem Limited							
Bang Plus	SIVAM SPA							
Beetle	CHEMIA SPA							
Botto 50 EC	Zapi Industrie Chimiche Spa							
Botto 50 EC	GOWAN ITALIA							
Botto 50 EC	UPL Italia S.R.L.	?	*	*			⚙️	🚗
Cell	Agrowin Biosciences S.r.l.	?	*	*	*	*	⚙️	🚗
Cell	CHEMIA SPA	?	*	*	*	*	⚙️	🚗
Centurio	Sepran Srl	?	*	*			⚙️	🚗

⏪

Applicability

Product: Affinity plus - Belchim Crop Protection Italia

12/03/2020				13/03/2020				14/03/2020			
0-6	6-12	12-18	18-24	0-6	6-12	12-18	18-24	0-6	6-12	12-18	18-24
Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

Possibility of intervention in the field according to the expected trend for the reference weather station.

* Check in the CLP label the product applicability on the single species of the group



WEED CONTROL

Weed control

▼ Chemical weed control

New chemical control

Continue

Undo

Date

28/02/2020



Phenological phase

Weed

(Select at least one weed, max 10)

Deselect all |

[Monocotyledons](#) | [Dicotyledons](#) | [Pteridophyte](#) | [Parasites](#) |

[All](#) | [Name and photos](#)





	Scientific name	Common name	Eppo code	Type	
<input type="checkbox"/>	<i>Agropyron repens</i>	Gramigna comune	AGRRE	Monocotiledone	
<input type="checkbox"/>	<i>Alopecurus myosuroides</i>	Coda di volpe	ALOMY	Monocotiledone	
<input type="checkbox"/>	<i>Amaranthus sp.</i>	Amaranto	AMASS	Dicotiledone	
<input type="checkbox"/>	<i>Ambrosia artemisiifolia</i>	Ambrosia	AMBEL	Dicotiledone	
<input type="checkbox"/>	<i>Artemisia vulgaris</i>	Assenzio selvatico	ARTVU	Dicotiledone	
<input type="checkbox"/>	<i>Atriplex sp.</i>	Atriplice	ATXSS	Dicotiledone	
<input type="checkbox"/>	<i>Avena fatua</i>	Avena selvatica	AVEFA	Monocotiledone	
<input type="checkbox"/>	<i>Avena sterilis</i>	Avena maggiore	AVEST	Monocotiledone	
<input type="checkbox"/>	<i>Calendula arvensis</i>	Cappuccina dei campi	CLDAR	Dicotiledone	
<input type="checkbox"/>	<i>Calepina corvini</i>	Miagro rostellato	CPAIR	Dicotiledone	
<input type="checkbox"/>	<i>Capsella bursa-pastoris</i>	Borsa del pastore	CAPBP	Dicotiledone	

Whenever a weed chemical treatment wants to be applied in the field, clicking on the + the user can access to a tool that shows the most efficient products with preventive or direct effect against the weeds present in the field. The herbicides can be chosen selecting both the crop phenological stage at which the treatment has to be applied and the range of action

WEED CONTROL

Choose products



		Product Name	Supplier			Weeds
						<i>Agropyron repens</i>
<input type="checkbox"/>		Barclay Gallup Biograde 360	SCAM			S-MS
<input type="checkbox"/>		Barclay Gallup Biograde 360	Barclay Chemicals			S-MS
<input type="checkbox"/>		Buggy BF	Monsanto S.p.A./Bayer			S-MS
<input type="checkbox"/>		Buggy TF	ITALAGRO SRL			S-MS
<input type="checkbox"/>		Buggy TF	Sipcam S.p.A.			S-MS
<input type="checkbox"/>		Buggy TF	Monsanto S.p.A./Bayer			S-MS
<input type="checkbox"/>		Chikara Duo	Belchim Crop Protection Italia			S-MS
<input type="checkbox"/>		Ciclone	SYNGENTA ITALIA S.P.A.			S-MS
<input type="checkbox"/>		Clean-up	SIVAM SPA			S-MS
<input type="checkbox"/>		Fluorate	ITALAGRO SRL			S-MS
<input type="checkbox"/>		Fusilade max	SYNGENTA ITALIA S.P.A.			S-MS
<input type="checkbox"/>		Glifene biograde	Diachem			S-MS
<input type="checkbox"/>		Glifene HP	CHIMIBERG - MARCHIO DI DIACHEM SPA			S-MS
<input type="checkbox"/>		Glifene HP	Diachem			S-MS



The table reports the list of the commercial products selected by the system. In the list there are the herbicides that have an activity towards one or more of the selected weeds and that can be used at the specific phenological phase of the crop.


MONITORING

You can access the CU monitoring by clicking on this icon



ID	Date and time of observation	Type	Type of observations	Value	Attached files
----	------------------------------	------	----------------------	-------	----------------

Add observation

Date and time of observation 

Type

Observation

Notes

Attached files

nessun file selezionato

We can add a new observation and choose the date and time and the monitoring type. It is possible to attach documents (photos, notes...) and then save the data inserted.

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Attività di team building – Olivo



3° Caso studio

Prendendo in considerazione un oliveto in regime di produzione integrata obbligatoria e che storicamente è soggetto a forti attacchi di occhio di pavone, pianifica la strategia fitoiatrica per la stagione 2020, rispetto a quanto indicato:

1. Dai bollettini fitosanitari provinciali
2. Dagli *alert* riportati dal modello «occhio di pavone»

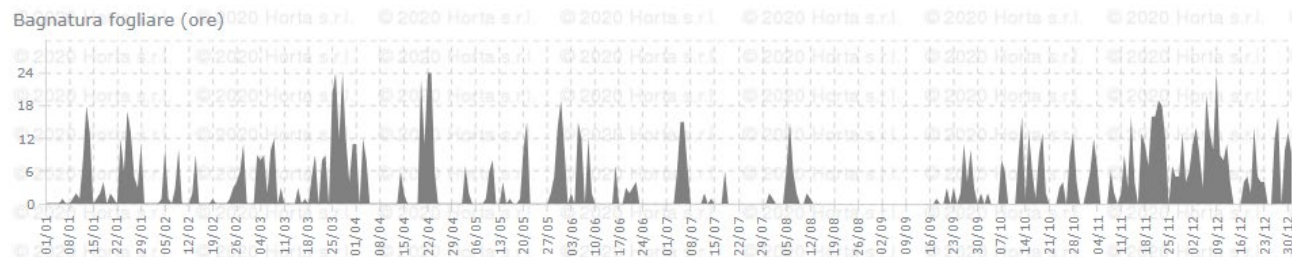
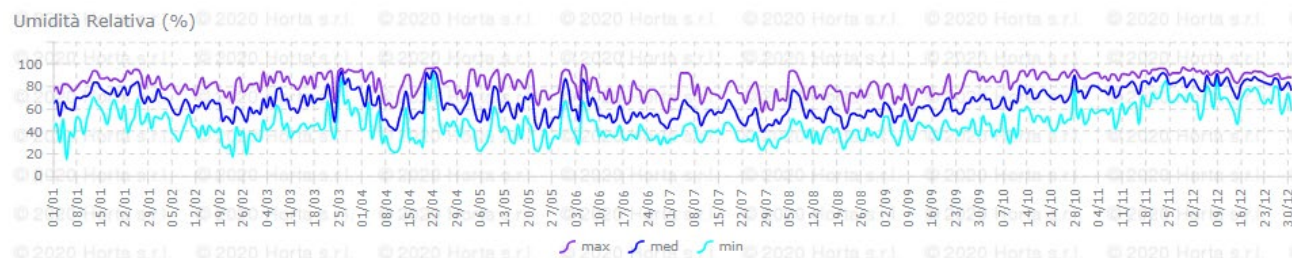
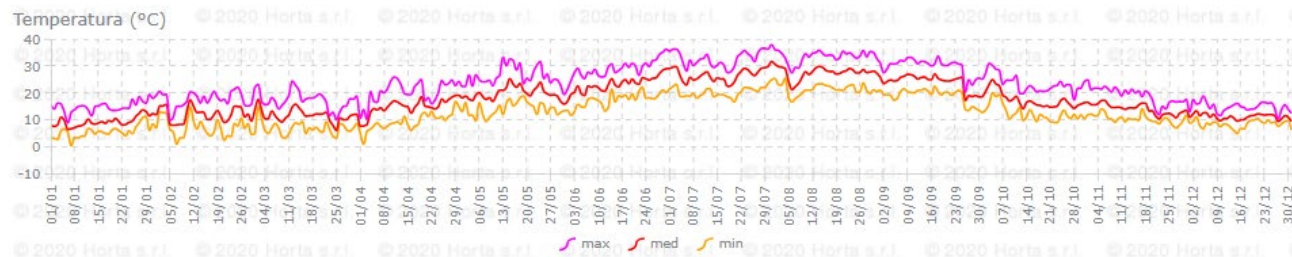
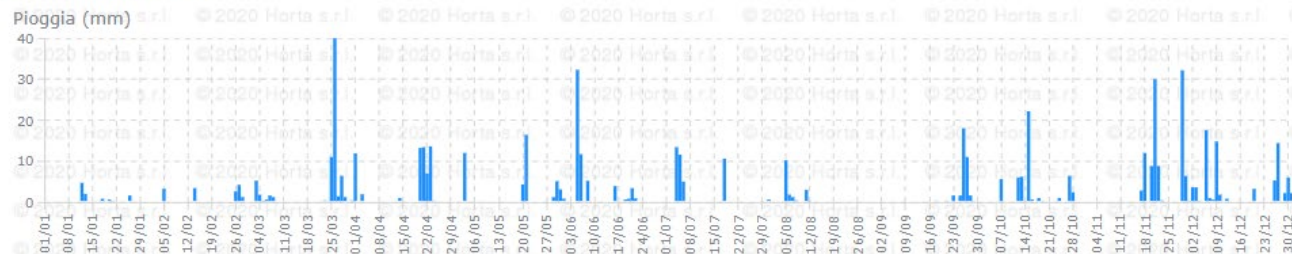
Confronta infine le due strategie individuando quali siano i vantaggi che può aver fornito il sistema di supporto alle decisioni olivo.net e più nello specifico il modello «occhio di pavone»



Andamento meteo stagionale

CERCHIARA DI CALABRIA (IT, COSENZA) (UNAPROL)

Andamento stagionale





Bollettini Fitosanitari Provinciali

16 04 2020

Occhio di pavone

E' opportuno monitorare gli oliveti ed evidenziare quelli con presenza di sintomi diffusi o molto diffusi.



14 05 2020

Occhio di pavone

E' opportuno monitorare gli oliveti ed evidenziare - e segnare - quelli con presenza di sintomi diffusi o molto diffusi.
NON EFFETTUARE trattamenti con prodotti a base di rame in questa fase.



21 07 2020

Occhio di pavone

Monitorare le piante colpite per pianificare gli interventi di fine estate/autunno.



22 11 2020

Occhio di pavone

Si rilevano sintomi abbastanza diffusamente di occhio di pavone e cercospora.

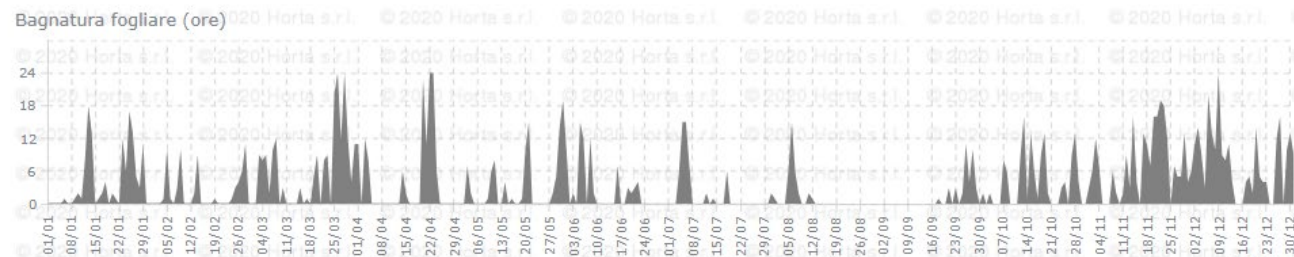
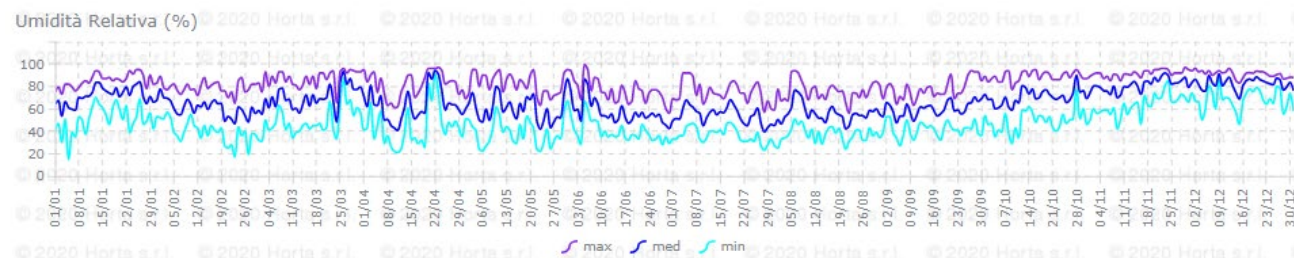
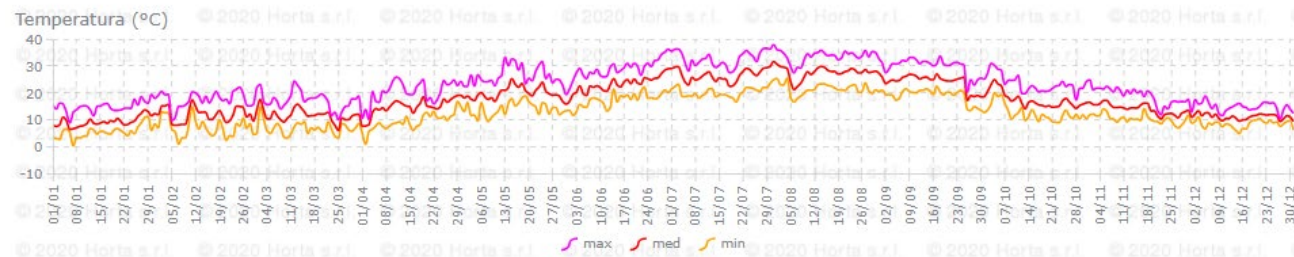
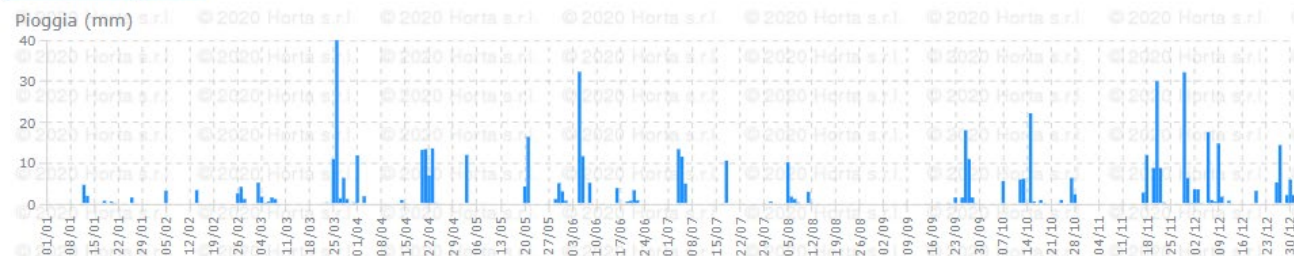




Andamento meteo stagionale

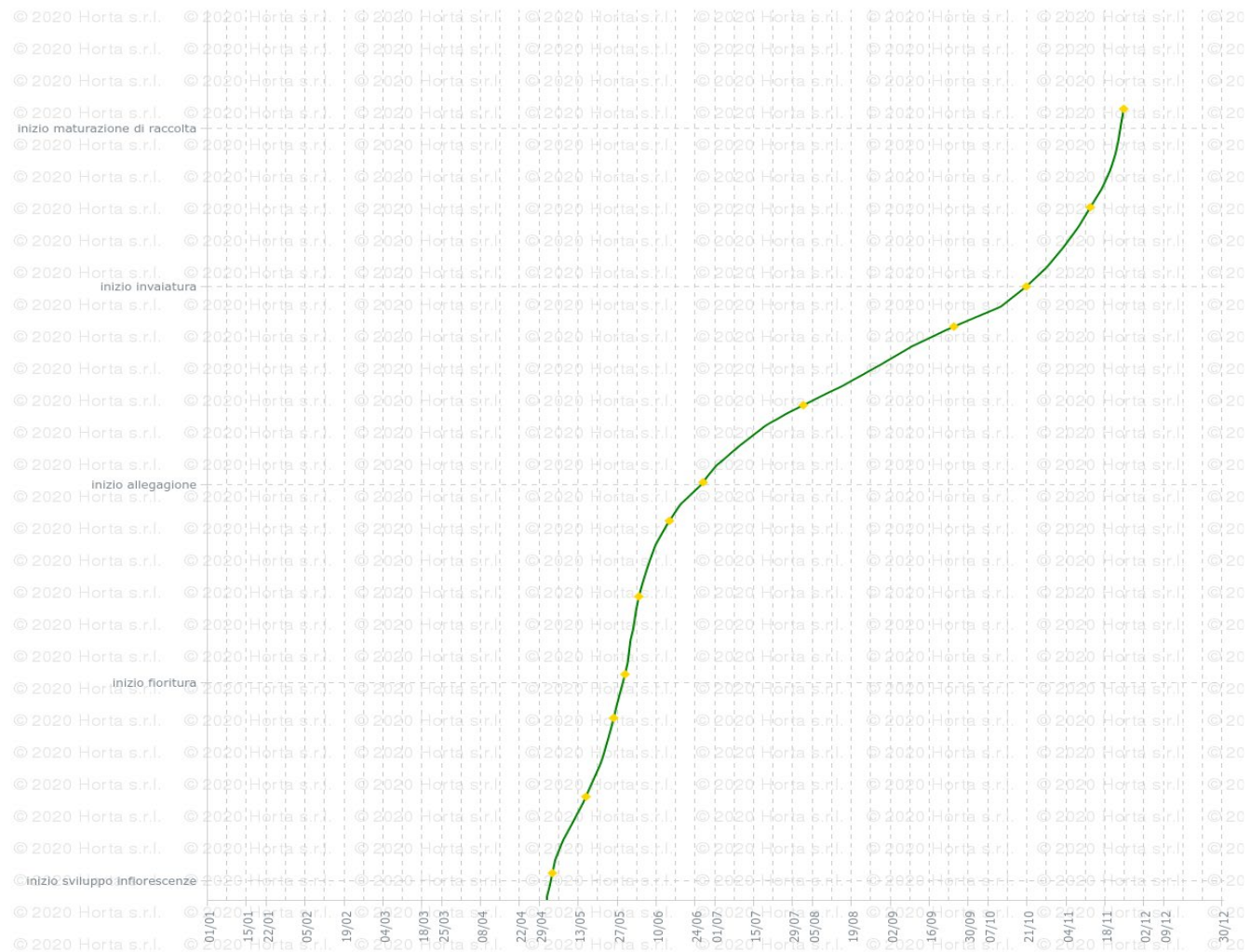
CERCHIARA DI CALABRIA (IT, COSENZA) (UNAPROL)

Andamento stagionale



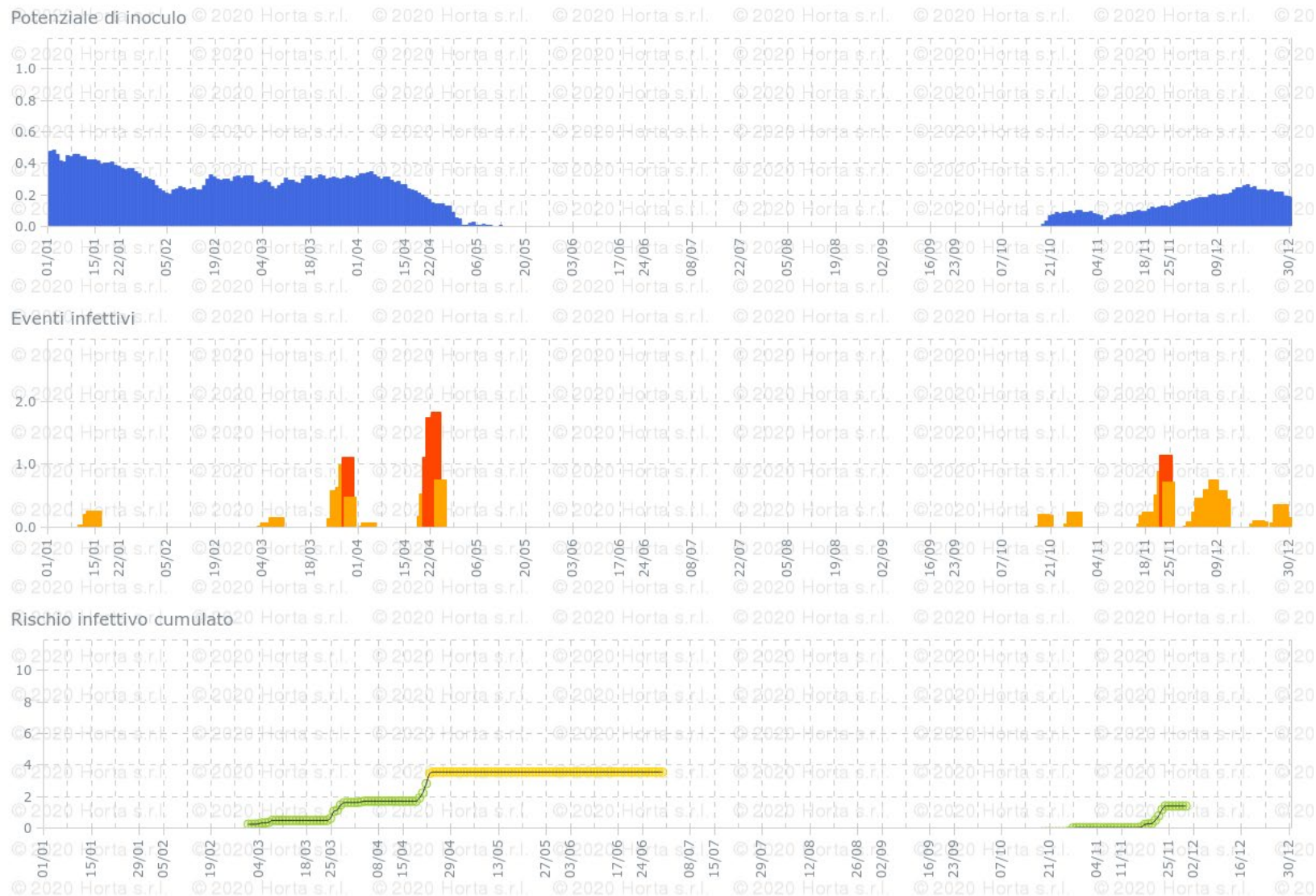


Fenologia della cultivar prevalente





Grafici di dettaglio modello previsionale “occhio di pavone”



Attività di team building – Olivo



4° Caso studio

Individuato come primo obiettivo la sostenibilità, definire un piano di innovazione della gestione agronomica per un'azienda olivicola individuando alcune delle tecnologie oggi a disposizione. Partendo dal sistema di supporto alle decisioni olivo.net ipotizzare come queste diverse tecnologie potrebbero integrarsi tra di loro per aiutare l'azienda a raggiungere il proprio obiettivo.

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