A21-018-890FE

Efficacy of ozone applied alone and in mix, against Sclerotinia sp. and Erysiphe sp. on cucurbits. Marocco 2021

Trial ID:	A21-018-890FE	Location:	Italy	Trial Year: 2021
Protocol ID:	890A21FE3	Investigator (Creator):	Michele Rugiano	
Project ID:		Study Director:	Antonio Russo	
Official Trial ID:	A21-018-890FE	Sponsor Contact:	Federico Ponti	
		Trial Origin:	C contracted trial	

TREATMENT LIST

Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Other Rate	Other Rate Unit	Appl Code	Comment 1	Comment 2
1	CHK	Untreated Check								
2	FUNG	Ozone			SN	3	ppm pr	ABCDEF	300-1500 L/ha	Spray application with water
3	FUNG	Ortiva	250	g/L	SC	1	l/ha	ACE	300-1500 L/ha	Spray application

OBJECTIVES

Objectives:

- Does the Ozone used alone have efficacy if compared to the standard Ortiva?
- Are all treatments safe for the crop?

SITE DESCRIPTION

Trial Location

City: Agadir **Country:** MAR Morocco

MAR 35,9223411 **-** 27,66726948
-0,996975781 **-** -13,17229704

Time Zone: Europe/Rome

Crop Description

Crop 1: C CUMSA Cucumis sativus Cucumber **BBCH Scale:** BVVT
Entry Date: Oct-13-2021 **Crop Group:** 9 **Stage Scale:** BBCH
Variety: Midas
Depth: 5 cm **Planting Density:** 28571 P/ha
Rows per Plot: 2 **Planting Method:** TRAHAN transplanted - hand
Row Spacing: 2 m **Planting Equipment:** HA by hand
Spacing within Row: 0,35 m
Soil Moisture: NORMAL normal, adequate
Plant Arrangement: ROWDOU
Plant Shape: VERTICAL

Pest Description

Pest 1 Type: D **Code:** ERYSSP Erysiphe sp. **Entry Date:** Oct-13-2021
Common Name: Erysiphe sp. **Stage Scale:** BBCH
Artificial Population: N no

Site and Design

Treated Plot Width: 2 m **Total Plot Width:** 2 m **Site Type:** GREENH greenhouse
Treated Plot Length: 5 m **Total Plot Length:** 5 m **Experimental Unit:** 1 PLOT plot
Treated Plot Area: 10,0 m2 **Treatments:** 3 **Tillage Type:** CONTIL conventional-till
Replications: 7 **Study Design:** RACOBL Randomized Complete Block (RCB)
% Slope: 0
Untreated Arrangement: INCLUDED single control randomized in each block
Block Arrangement: BSSPUP all blocks side by side, plots lying upon each other

Application Description

	A	B	C	D	E	F
Application Date	Apr-7-2021	Apr-14-2021	Apr-21-2021	Apr-28-2021	May-5-2021	May-12-2021
Appl. Start Time	10:00	12:00	17:00	14:00	10:00	16:00
Appl. Stop Time	11:00	13:00	18:00	15:00	11:00	17:00
Interval to Prev. Appl.		7 DAYS	7 DAYS	7 DAYS	7 DAYS	7 DAYS
Application Method	BROADC	BROADC	BROADC	BROADC	BROADC	BROADC
Application Timing	PREVEN	FIINSP	FIINSP	FIINSP	FIINSP	FIINSP
Application Placement	FOLIAR	FOLIAR	FOLIAR	FOLIAR	FOLIAR	FOLIAR
Appl. Entry Date	Oct-22-2021	Oct-22-2021	Oct-22-2021	Oct-22-2021	Oct-22-2021	Oct-22-2021
Air Temperature Start, Stop	25; 16 C	28; 21 C	27; 17 C	24; 20 C	24; 15 C	26; 25 C
% Relative Humidity Start, Stop	51; 51	59; 59	61; 61	60; 60	57; 57	61; 61
Wet Leaves (Y/N)	N; no	N; no	N; no	N; no	N; no	N; no
Soil Moisture	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
Soil Surface Condition	FINE	FINE	FINE	FINE	FINE	FINE
% Cloud Cover	10	0	0	10	0	0
Weather Source	WSFIELD	WSFIELD	WSFIELD	WSFIELD	WSFIELD	WSFIELD

Protocol Application Directions:

Time and frequency of application

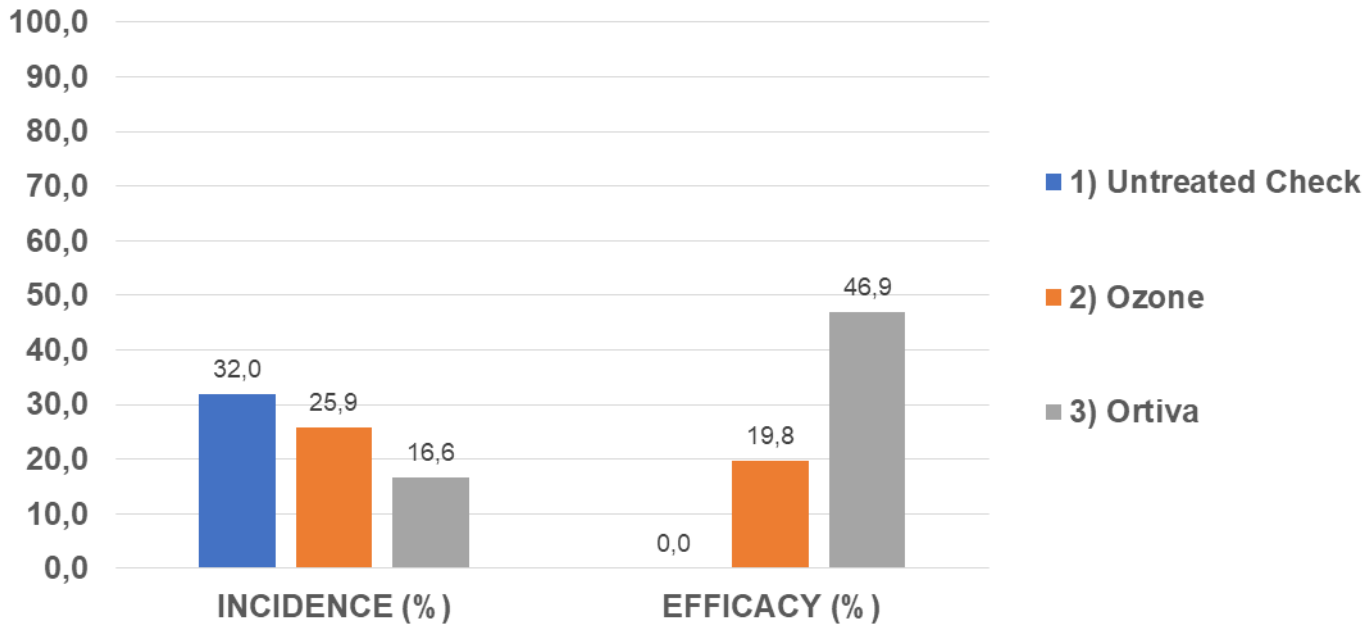
Application A: pre-infection
Spray interval 8-10 days.

Doses and volumes

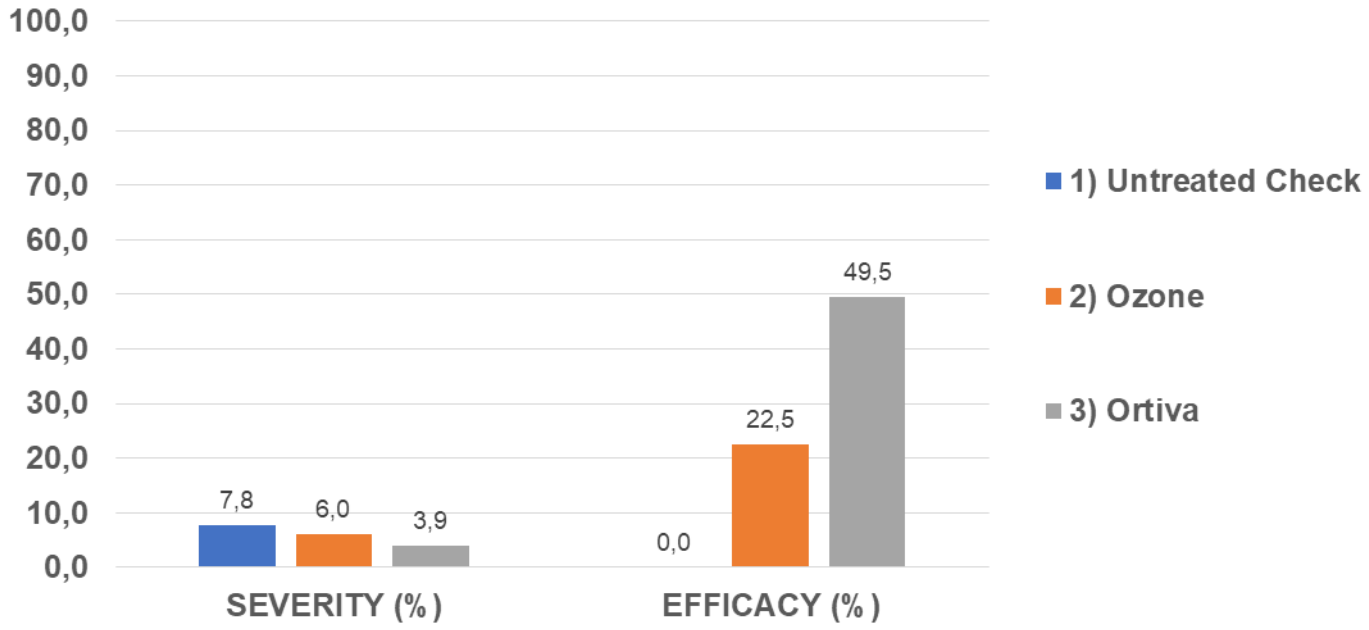
- **Use water volume variable following crop growth: 300-1500 L/ha**

RESULTS

Incidence on leaves – 10 days after last application



Severity on leaves – 10 days after last application



COMMENTS

English version: At the end of the experimental program for the control of *Erysiphe sp.* on cucumber, during which 6 applications with Ozone were carried out based on susceptibility moments of the crop, the untreated check provided an incidence on leaf equal to 32.0% and a disease severity equal to 7.78%. All the products tested in field showed significant results if compared to the untreated check. The best result was showed by the standard Ortiva with 16.57% of incidence and 3.92% of severity corresponding respectively to 46.90% and 49.48% of disease control. The application of Ozone showed an incidence value equal to 25.86% and 6.02% of severity corresponding respectively to 19.77% and 22.49% of disease control.

Versione italiana: Al termine del programma sperimentale per il controllo di *Erysiphe sp.* su cetriolo, durante il quale sono state eseguite 6 applicazioni con Ozono basate sui periodi di suscettibilità della coltura, il testimone non trattato ha mostrato un'incidenza su foglia pari a 32.0% e una severità della malattia pari a 7.78%. Tutti i prodotti testati in campo hanno mostrato risultati significativi rispetto al non trattato. Il miglior risultato è stato mostrato dallo standard Ortiva con 16.57% di incidenza e il 3.92% di severità, corrispondenti rispettivamente a 46.90% e 19.48% di controllo della malattia. Le applicazioni di Ozono hanno mostrato un valore di incidenza pari a 25.56% e 6.02% di severità, corrispondenti rispettivamente a 19.77% e 22.49% di controllo della malattia.

CONCLUSION

Conclusions:
English version: Within the test aimed at controlling *Erysiphe sp.* on cucumber with the use of organic products, Ozone alone showed efficacy in reducing the disease incidence and severity on leaves compared to the untreated check. Ozone applications showed good results but lower to that of the standard Ortiva. No symptoms of phytotoxicity were observed.

Versione italiana: All'interno della prova volta al controllo di *Erysiphe sp.* su cetriolo con utilizzo di prodotti biologici, l'Ozono da solo ha mostrato efficacia nel ridurre l'incidenza e la severità della malattia sulle foglie rispetto al non trattato. Le applicazioni di Ozono hanno mostrato buoni risultati ma più bassi di quelli dello standard Ortiva. Non si sono osservati sintomi di fitotossicità.

CONTACTS

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