

A21-105-890FE

Efficacy of ozone applied alone and in mix, against Erysiphe sp. on cannabis. USA 2021-Powdery Mildew in Greenhouse Cannabis Grown for Hemp

Trial ID: A21-105-890FE Location: OREGON CITY, OREGON Trial Year: 2021
Protocol ID: 890A21FE1 Investigator (Creator): Craig Collins
Project ID: Study Director: Antonio Russo
Official Trial ID: A21-105-890FE Sponsor Contact: Federico Ponti

TREATMENT LIST

Trt No.	Type	Treatment Name	Form Conc	Form Unit	Form Type	Description	Rate	Rate Unit	Appl Code	Comment
1	CHK	Untreated Check				not treated				
2	FUNG	Serenade Opti			WP			1lb/a	ABCDEF	Spray application
3	FUNG	Ozone			SN			3ppm pr	ABCDEF	Spray application with water
4	FUNG	Soyacide	39%		OS	soybean oil		1% v/v	ABCDEF	Spray application
5	FUNG	Ozone			SN			3ppm pr	ABCDEF	
	FUNG	Soyacide	39%		OS	soybean oil		1% v/v	ABCDEF	Apply Biological standard after Ozone on dry leaves

OBJECTIVES

Objectives:

- Do the Ozone used alone have efficacy comparable to the standards Serenade Opti and Soyacide?
- Does the addition of Ozone to the standard Soyacide increase the efficacy of Soyacide used alone?
- Are all treatments safe for the crop?

SITE DESCRIPTION

Trial Location			
City:	Oregon City	Country:	USA United States
State/Prov.:	Oregon OR	Region:	NA
Postal Code:	97045	Climate Zone:	USMAR US Maritime

Crop Description			
Crop 1:	CNISA Cannabis sativa	Marijuana	BBCH Scale: BDIC
Entry Date:	May-25-2021	Stage Scale:	BBCH
Variety:	SOUR MANDRAKE		
Attributes:	CBD Hemp Flower		
Planting Date:	Jul-7-2021	Planting Method:	TRANSP transplanted
		Planting Equipment:	HA by hand
		Plant Shape:	VERTICAL

Pest Description			
Pest 1 Type:	D Code: PODOSP Podosphaera sp.	Entry Date:	May-25-2021
Common Name:	Powdery Mildew of Cannabis	Stage Scale:	BBCH
		Artificial Population:	N no

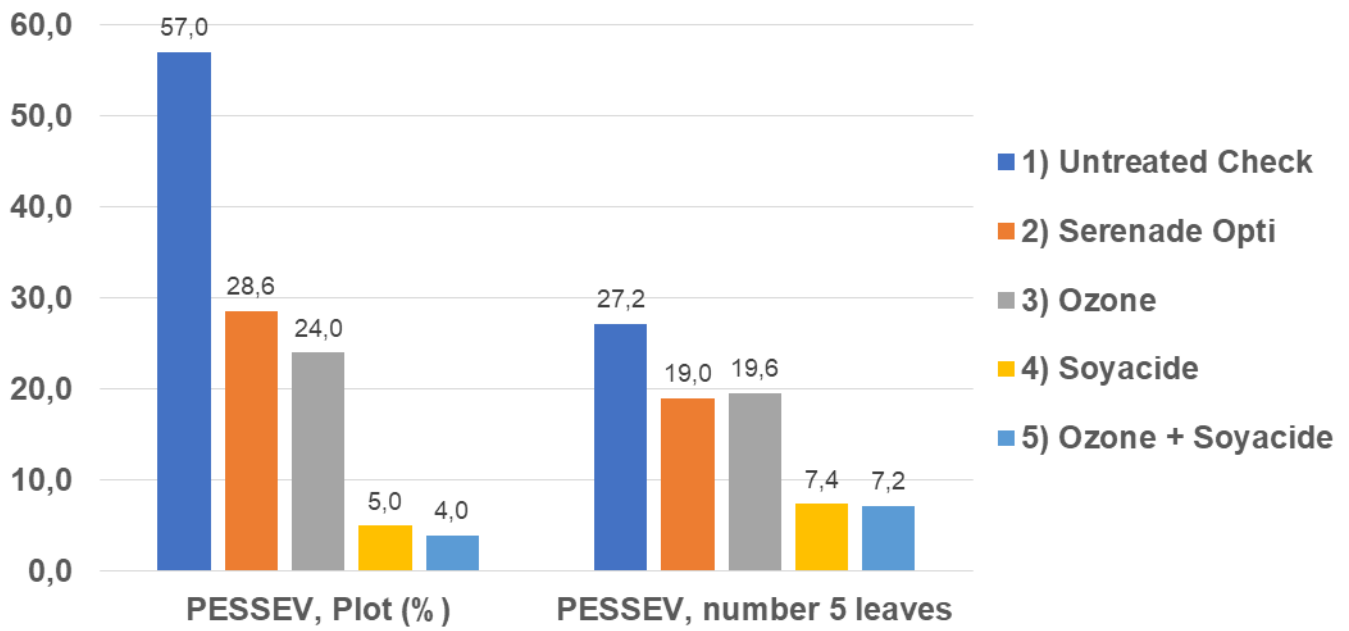
Site and Design			
Treated Plot Width:	2 FT	Site Type:	GREENH greenhouse
Treated Plot Length:	2 FT	Experimental Unit:	1 PLOT plot
Treated Plot Area:	4,0 FT2	Tillage Type:	NOTILL no-till
Replications:	5	Study Design:	RACOB� Randomized Complete Block (RCB)
% Slope:	0		
Untreated Arrangement:	INCLUDED single control randomized in each block		

Soil Description	
Description Name: Pro mix #4	Soil Name: Soiless potting mix media
Analyzed By:	
<<http://www.sunagro.com/retail-product/sunshine-mix-4/>>	

Application Description						
	A	B	C	D	E	F
Application Date	Aug-17-2021	Aug-24-2021	Aug-31-2021	Sep-7-2021	Sep-14-2021	Sep-21-2021
Appl. Start Time	15:30	10:30	9:30	10:30	8:30	7:30
Appl. Stop Time	15:30	11:30	10:30	11:00	9:00	8:00
Interval to Prev. Appl.		7 DAYS	7 DAYS	7 DAYS	7 DAYS	7 DAYS
Application Method	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing	ATAPSY	ATAPSY	ATAPSY	ATAPSY	ATAPSY	ATAPSY
Application Placement	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL	BROFOL
Applied By	SBC	SBC	SBC	SBC	SBC	SBC
Appl. Entry Date	Aug-17-2021	Aug-25-2021	Sep-1-2021	Sep-7-2021	Sep-13-2021	Sep-21-2021
Air Temperature Start, Stop	68; 68 F	68; 68 F	65; 65 F	62; 62 F	62; 62 F	62; 62 F
% Relative Humidity Start, Stop	58; 58	62; 65	68; 70	74; 74	68; 70	75; 78
Wind Velocity+Dir. Start	0 MPH; -	0 MPH; -	0 MPH; -	0 MPH; -	0 MPH; -	0 MPH; -
Wind Velocity+Dir. Stop	0 MPH; -	0 MPH; -	0 MPH; -	0 MPH; -	0 MPH; -	0 MPH; -
Wet Leaves (Y/N)	N; no	N; no	N; no	N; no	N; no	N; no
Soil Temperature	65 F	62 F	55 F	52 F	50 F	50 F
Soil Moisture	SLIWET	SLIWET	SLIWET	SLIWET	SLIWET	SLIWET
% Cloud Cover	0	0	0	0	0	0

RESULTS

On leaves – 6 days after last application



COMMENTS

English version: At the end of the experimental program for the control of *Erysiphe necator* on cannabis, during which 6 applications were carried out based on susceptibility moments of the crop, the untreated check showed a severity on leaves equal to 57.0% diseased leaves/plot. All the products tested in field showed significant results if compared to the untreated check. The best result was showed by the reference product Soyacide applied alone and by Ozone applied in strategy with Soyacide that showed a value of 5% and 4% respectively of diseased leaves/plot. Different from the previous ones, Ozone applied alone with 24% of diseased leaves, which turned out comparable with the other standard Serenade Opti that showed 28.6% of diseased leaves.

Versione italiana: Al termine della strategia sperimentale per il controllo di oidio su *Cannabis sativa*, durante la quale sono state realizzate 6 applicazioni, basate sui momenti di suscettibilità della coltura, il testimone non trattato ha mostrato una severità sulle foglie pari al 57.0% di foglie malate/plot. Tutti i prodotti applicati in campo hanno fornito risultati significativi rispetto al testimone. Il miglior risultato è stato fornito dal prodotto di riferimento Soyacide applicato da solo e dall'Ozono applicato in strategia con lo standard Soyacide, che hanno mostrato valori di foglie malate del 5% e 4% rispettivamente. Differente dai precedenti, l'Ozono da solo con il 24% di foglie malate è risultato comparabile con l'altro standard Serenade Opti che ha mostrato il 28.6% di foglie malate.

CONCLUSION

Conclusions:

English version: Within the test aimed at controlling *Erysiphe necator* on cannabis with the use of organic products, Ozone alone showed efficacy in reducing the disease on leaves comparable to the standard Serenade Opti. Ozone in strategy with Soyacide showed better control of the disease as well as Soyacide applied alone. No symptoms of phytotoxicity were observed.

Versione italiana: All'interno della prova volta al controllo dell'oidio su *Cannabis sativa* con utilizzo di prodotti biologici, l'Ozono da solo ha mostrato efficacia nel ridurre la malattia sulle foglie comparabile con quella ottenuta dallo Standard Serenade Opti. L'Ozono in strategia con Soyacide ha mostrato un migliore controllo della malattia come pure Soyacide applicato da solo. Non si sono osservati sintomi di fitotossicità.

CONTACTS

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