Fungicide control of Pear Scab: 2021 field trial

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University of California Cooperative Extension,
Department of Plant Pathology,
University of California, Davis, August 2021

Published 2021 at: http://plantpathology.ucdavis.edu/Cooperative_Extension/

Report Summary

This report details the findings of our annual pear scab fungicide trials on pear (Pyrus spp., Cultivar Bartlett – <40- yrs-old). This trial was conducted at Lubich pear farm, Ukiah (38°19'14.2"N, -121°30'25.7"W) from March to June 2021. Treatments were placed in a complete randomized block design. The treatments were evaluated for disease incidence and severity on June 28th, 2020. The trials consisted of soft chemistry products and synthetic fungicides. Spray frequencies varied from 9 day to 12-day intervals.

Materials and Methods

A. Experimental design

Table 1. Location experimental design and application timing

Location	Lakeport, California, 39°05'08.9"N 122°56'35.5"W		
Experimental design	Randomized complete block design with 4 replicates		
Experimental unit	1 tree = 1 plot		
Row and tree spacing	19 ft (row) and 15 ft (tree)	Plot unit area	285 ft2
Area/treatment	1140 ft2 or 0.02617acre/treatment (4 replicate trees = 1 treatment)		
Fungicide applications	A green tip, Mar 23rd,100 gallons/acre 2.6 gallons/4 replicates B early bloom Apr 2nd, 100 gallons/acre 2.6 gallons/4 replicates C full bloom, Apr 14th, 100 gallons/acre 2.6 gallons/4 replicates D petal fall, Apr 26th, 100 gallons/acre 2.6 gallons/4 replicates E 1st cover spray, May 17th, 100 gallons/acre 2.6 gallons/4 replicates		
Equipment	Stihl SR 450 Backpack Sprayers		

B. Experimental treatments

The treatments described in this report were conducted for experimental purposes only and crops treated in a similar manner may not be suitable for commercial or other use.

Table 2. Treatment programs. "FP" = formulated product

Treatment No	Flag	Treatment	Application	FP/A	FP/Treatment
1	W	Untreated control	None	None	None
2	Y	Microthial disperss/	A	4lb	47.1
		Syllit /	B	3 pt	36.9
		Sovran /	C	6 oz	4.4
		Inspire super /	D	12 fl oz	9.2
		Approvia	E	6.25 fl oz	4.8
3	R	Mastercop /	A, B	0.5 pt	49.2
		Ziram /	C	6 lb	70.7
		Syllit /	D	3 pints	36.9
		Inspire super	E	12 fl oz	9.2
4	GD	Mastercop /	A	0.5 pt	49.2
		Ziram /	B	6 lb	70.7
		Sovran /	C	6 oz	4.4
		Syllit /	D	3 pt	36.9
		Inspire super	E	12 floz	9.2
5	B	Approvia /	A	6.25 fl oz	4.8
		Inspire super /	B	12 fl oz	9.2
		Sovran /	C	6 oz	4.4
		Sonata /	D	4qt	98.5
		Serifel	E	1lb	11.8
6	YKC	Rango /	A	230 fl oz	176.8
		Mastercop /	B	0.5 pt	49.2
		Rango /	C	160 fl oz	123.1
		Sonata /	D	4qt	98.5
		Serifel	E	1lb	11.8
7	PKD	Microthial disperss /	A	4lb	47.1
		Mastercop /	B	0.5 pt	49.2
		Sonata /	C	4qt	98.5
		Serifel /	D	1lb	11.8
		Serenade ASO	E	6 qt	147.3
8	BS	Sonata /	A	4qt	98.5
		Serifel /	B	1lb	11.8
		Serenade ASO /	C	6 qts	147.3
		Sonata /	D	4qt	98.5
		Serifel	E	1lb	11.8

C. Map

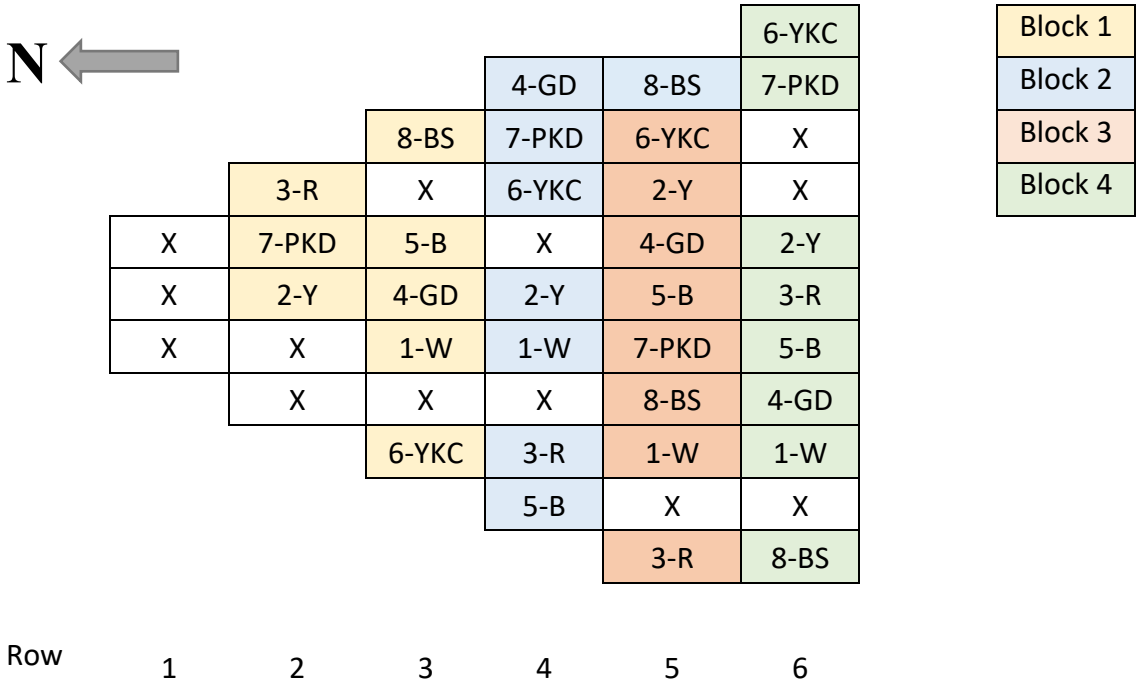

Figure 1. Trial layout

D. Data Collection and Statistics

Disease was assessed on June 28th when fruits were large enough to observe scab lesions. Fifty fruits were randomly selected from each tree. The number of lesions were scored for each fruit. No disease was present due to dry conditions.

E. Weather

Daily temperature and precipitation were obtained from a CIMIS weather station in Sanel Valley (106). The temperature and precipitation data are shown in Figure 2.

Weather for the spray season was dry with 8 rain events (Mar 15 – July 1) of 0.1 – 6.7 mm of rain.

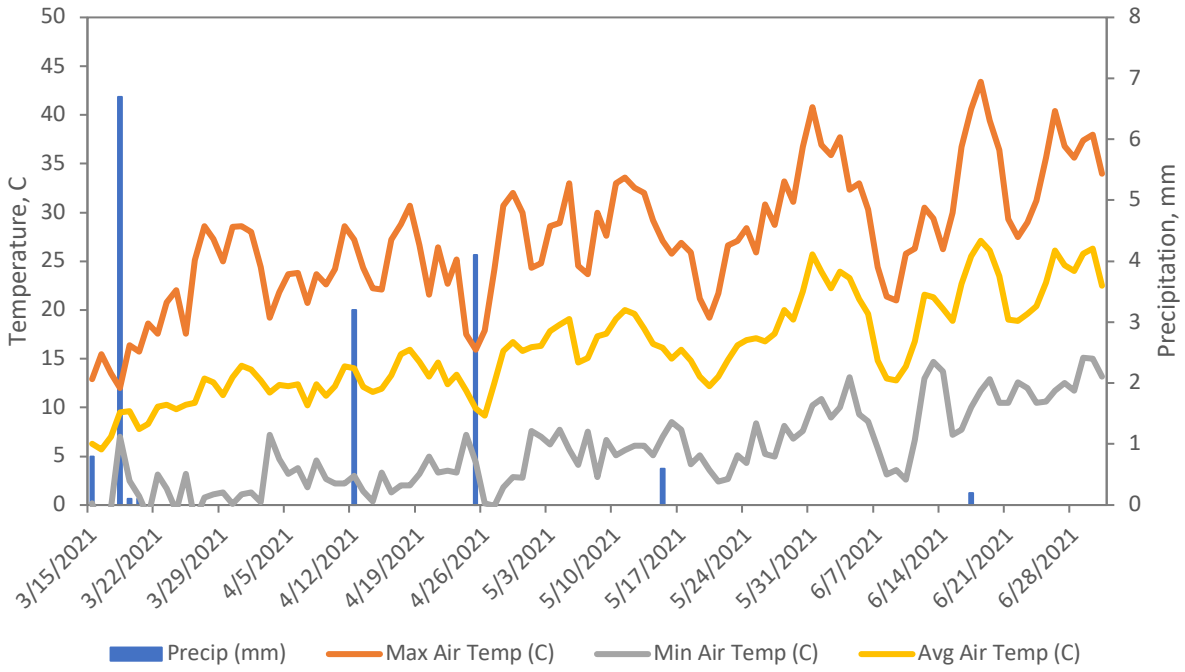

Figure 2. Average daily temperature (°C) and precipitation (mm) from March 15th to July 1st, 2021 from CIMIS station Sanel Valley, CA

F. Results

No disease was present due to unusual dry weather and lack of winter rain in 2021.

Table 3. Pear scab fruit incidence (means). Product names are followed by rate (per acre)

Treatment No	Flag	Treatment	Mean Incidence (%)
1	W	Untreated control	0.0 n.s.
2	Y	Microthial disperss (4 lb)/ Syllit (3 pt)/ Sovran (6 oz)/ Inspire super (12 floz)/ Approvia (6.25 fl oz)	0.0
3	R	Mastercop (0.5 pt)/ Mastercop (0.5 pt)/Ziram (6 lb)/ Syllit (3 pt)/ Inspire super (12 fl oz)	0.0
4	GD	Mastercop (0.5 pt)/ Ziram (6 lb)/ Sovran (6 oz)/ Syllit (3 pt)/ Inspire super (12 fl oz)	0.0
5	B	Approvia (6.25 fl oz)/ Inspire super (12 fl oz)/ Sovran (6 oz)/ Sonata (4qt)/ Serifel (1 lb)	0.0
6	YKC	Rango (230 fl oz)/ Mastercop (0.5 pt)/ Rango (160 fl oz)/ Sonata (4qt/A)/ Serifel (1 lb)	0.0
7	PKD	Microthial disperss (4 lb)/ Mastercop (0.5 pt)/ Sonata (4qt)/ Serifel (1 lb)/ Serenade ASO (6 qt)	0.0
8	BS	Sonata (4qt)/ Serifel (1 lb)/ Serenade ASO (6 qt)/ Sonata (4qt)/ Serifel (1 lb)	0.0

n.s. = not significant according to Fisher's LSD test at $P = 0.05$.

Acknowledgements

Thanks to the various industry donors for providing testing materials. Thanks to Mark Lubich for use of his orchard.

Appendix: Materials

Product	Active ingredient(s) and concentration	Manufacturer or distributor	Chemical class (Frac Code)
Aprovia	Benzovindiflupy	Syngenta	SDHI (7)
Inspire Super	difenoconazole (8.4%), cyprodinil (24.1%)	Syngenta Crop Protection, Inc.	DMI-triazole (3), AP (9)
Mastercop	copper sulfate pentahydrate (21.46%)	ADAMA	inorganic (M01)
Microthiol Disperss	sulfur (80%)	United Phosphorus, Inc.	Inorganic (M2)
Rango	cold pressed neem oil	Terramera Inc.	N/A
Serenade ASO	Bacillus subtilis qst 713 (26%)	Bayer CropScience	Biological
Serifel	*Bacillus amyloliquefaciens* strain MBI600	BASF	Biological
Sonata	*Bacillus pumilus* qst 2808 (1.38%)	Bayer CropScience	Biological
Sovran	kresoxim -methyl	BASF	QoI (11)
Syllit	Dodine (40%)	Agriphar	Guanidine (M7)
Ziram 76DF	Ziram (76%), Zinc (16.25%)	UPI	Carbamate (DMDC)3 (M3)