Fungicide control of Pear Scab: 2022 field trial

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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 2022. Treatments were placed in a complete randomized block design. The treatments were evaluated for disease incidence and severity on June 16th, 2022. 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, early bloom Mar 23rd,100 gallons/acre 2.6 gallons/4 replicates B full bloom Apr 1st, 100 gallons/acre 2.6 gallons/4 replicates C, petal fall Apr 12th, 100 gallons/acre 2.6 gallons/4 replicates D, 1st cover spray Apr 22th, 100 gallons/acre 2.6 gallons/4 replicates E, 2nd cover spray May 6th, 100 gallons/acre 2.6 gallons/4 replicates F 3rd cover spray, May 20th, 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	UTC			
2	Y	Syllit	A, C, E	3 pints/A	42.6 ml
		Ziram (6 pounds/A),	B, D, F	6 pounds/A	81.6 gr
3	R	Mastercop (0.5 pt/A),	A, B	0.5 pt/A	56.8 ml
		KFD-603	C,D,E,F	7 floz	6.2 ml
4	GD	Approvia (6.25 fl oz/A),	A,E	6.25 fl oz/A	5.5 ml
		Inspire super (12 floz/A),	B,F	12 floz/A	10.6 ml
		Sovran (4.0-6.4 oz/A),	C	6 oz/A	5.1 gr
		Rally (8 oz/A)	D	8 Oz/A	6.8 gr
5	OC	Approvia (6.25 fl oz/A),	A, F	6.25 fl oz/A	5.5 ml
		Sonata (4qt/A),	B	4qt/A	113.6 ml
		Sovran (4.0-6.4 oz/A),	C	6 oz/A	5.1 gr
		Serifel (4-16 lb/A)	D	1lb/A	13.6 gr
		Inspire super (12 floz/A),	E	12 floz/A	10.6 ml
6	YKC	Sulfur Dry Flowable (10 lb),	A	10 lb/A	136 gr
		Mastercop (0.5 pt/A),	B	0.5 pt/A	56.8 ml
		Oxidate 5.0 (50 floz/A)	C,E	50 fl oz/A	42.5 ml
		Percarb (2 lb/A)	D,F	2Lb/A	27 gr
7	PKD	Sulfur Dry Flowable (10 lb),	A	10 lb/A	136 gr
		Mastercop (0.5 pt/A),	B	0.5 pt/A	56.8 ml
		Sonata (4qt/A),	C	4qt/A	113.6 ml
		Serifel (4-16 lb/A),	D, F	1lb/A	13.6 gr
		Serenade ASO (2-6 qts/A)	E	6 qts/A	170 ml
8	BS	Sonata (4qt/A),	A, D	4qt/A	113.6 ml
		Serifel (4-16 lb/A),	B, E	1lb/A	13.6 gr
		Serenade ASO (2-6 qts/A),	C, F	6 qts/A	170 ml

C. Map

Creek						
N ←					3-R	Block 1
			4-GD	8-BS	2-Y	Block 2
		8-BS	7-PKD	6-YKC	X	Block 3
	7-PKD	x	6-YKC	7-PKD	X	Block 4
x	5-OC	6-YKC	x	4-GD	5-OC	
x	2-Y	4-GD	2-Y	5-OC	7-PKD	
x	x	1-W	1-W	3-R	8-BS	
	x	x	X	1-W	4-GD	
		3-R	3-R	2-Y	1-W	
			5-OC	X	X	
				8-BS	6-YKC	
Row 1	Row 2	Row 3	Row 4	Row 5	Row 6	
Road						

Figure 1. Trial layout

D. Data Collection and Statistics

Disease was assessed on June 16th 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.

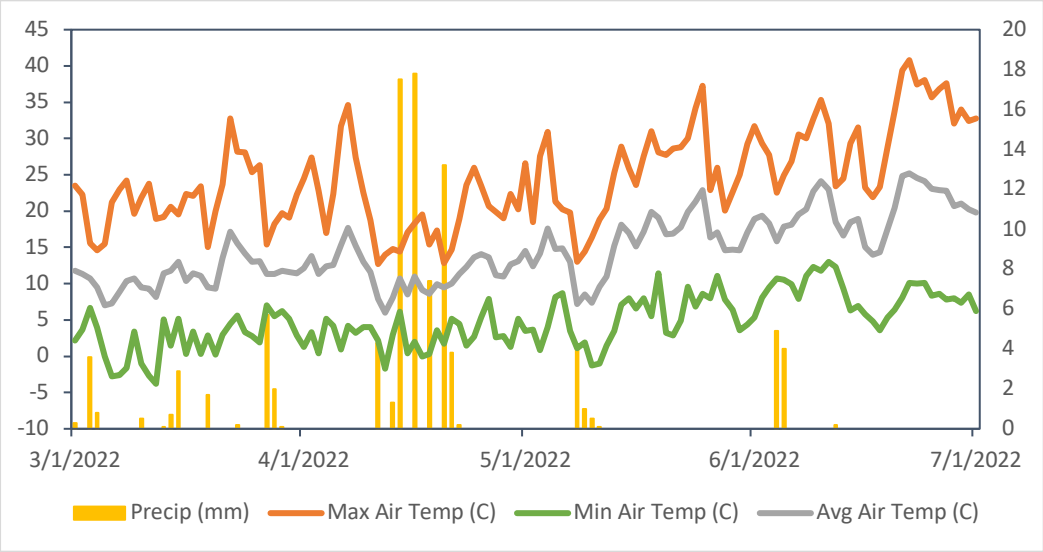

Figure 2. Average daily temperature (°C) and precipitation (mm) from March 1st to July 1st, 2022 from CIMIS station Sanel Valley, CA

F. Results

No disease was present during the season 2022.

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	Syllit (3 pt)/ Ziram (6 lb)	0.0
3	R	Mastercop (0.5 pt)/ KFD-603 (7fl oz)	0.0
4	GD	Mastercop (0.5 pt)/ Ziram (6 lb)/ Sovran (6 oz)/ Syllit (3 pt)/ Inspire super (12 fl oz)/ Sovran (6 oz)/ Rally (8oz)	0.0
5	B	Approvia (6.25 fl oz)/ Sonata (4qt/A)/ Sovran (6 oz)/ Serifel (1 lb)/ Inspire super (12 fl oz)/	0.0
6	YKC	Sulfur Dry Flowable (10 lb)/ Mastercop (0.5 pt)/ Oxidate 5.0 (50 fl oz)/ Percarb (2 lb)	0.0
7	PKD	Sulfur Dry Flowable (10 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)/	0.0

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

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)
KFD-603	proprietary		N/A
Mastercop	copper sulfate pentahydrate (21.46%)	ADAMA	inorganic (M01)
OxiDate 5.0	hydrogen peroxide 27.1 + peroxyacetic acid 5%	Biosafe systems	N/A
PerCarb	sodium carbonate peroxyhydrate (85%)	Biosafe systems	N/A
Rally	myclobutanil (40%)	Dow AgroSciences LLC	DMI-triazole (3)
Sulfur Dry Flowable	sulfur (80%)	United Phosphorus, Inc.	Inorganic (M2)
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_ UPL	Guanidine (M7)
Ziram 76DF	Ziram (76%), Zinc (16.25%)	UPL	Carbamate (DMDC)3 (M3)

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