Fungicide control of Pear Scab: 2020 field trial

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Report Summary

Pear scab cause spotting and scabbing of fruit, especially during wet springs but different fungi cause them. The fungus *Venturia pirina* causes pear scab. It is a serious disease of pear in California, resulting in loss due to severe surface blemishing of fruit. It is most severe in North Coast production areas where spring and early summer weather is cool and moist. However, it can be a problem wherever pear grow when conditions are favorable for pathogen development. 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 2020. Treatments were placed in a complete randomized block design. The treatments were evaluated for disease incidence and severity on June 3rd, 2020. The trials consisted of soft chemistry products and synthetic fungicides. Spray frequencies varied from 7 day to 21-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 12 Mar 100 gallons/acre 2.6 gallons/4 replicates B green cluster 20 Mar 100 gallons/acre 2.6 gallons/4 replicates C early bloom 31 Mar 100 gallons/acre 2.6 gallons/4 replicates D full bloom 14 Apr 100 gallons/acre 2.6 gallons/4 replicates E petal fall 24 Apr 100 gallons/acre 2.6 gallons/4 replicates F 1st cover spray 08 May 100 gallons/acre 2.6 gallons/4 replicates G 2nd cover spray 22 May 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

No.	Flag	Product(s)	Application	FP/Acre	FP/Treatment
1	Y	Unsprayed control		none	none
2	YS	Ziram 76 DF	ABCDEFG	6 pounds	70.7 gr
3	PKC	Syllit	ABCDEFG	3 pints	36.9 ml
4	KC	Inspire Super 2.82 EW	ABCDEFG	12 fl oz	9.2 ml
5	OS	Cueva	ABCDEFG	1 gal	98.4 ml
6	P	Pristine	ABCDEFG	16.5 Oz	12.1 gr
7	BC	Merivon	ABCDEFG	5 fl oz	3.8 ml
8	GS	Rango	A	230 fl oz	176.8ml
		Rango	BCDEFG	160 fl oz	123.1 ml
9	YKC	Aprovia	ABCDEFG	6.25 fl oz	4.8 ml
10	B	Rango	ACEG	160 fl oz	123.1 ml
		TER 1291 + Nu Film P	BDF	0.8% (v/v) + 16 fl oz	78.7 ml + 12.1 ml
11	BD	Mastercop	BDF	0.5 pt	49.2 ml
12	RKD	Sonata	ABCDEFG	4 qt	98.5 ml

C. Map

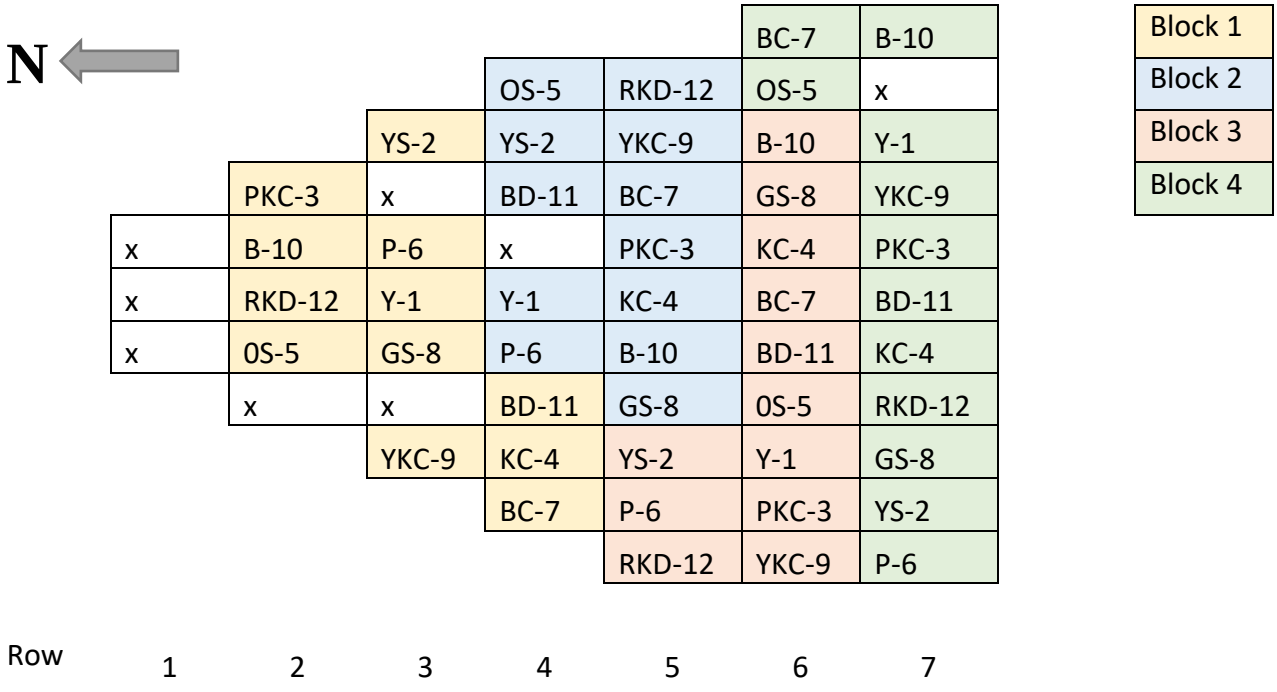

Figure 1. Trial layout

D. Data Collection and Statistics

Disease was assessed on June 3rd. Fifty fruits were randomly selected from each tree. The number of lesions were scored for each fruit. Disease incidence per replicate was determined as the proportion of fruits that were infected by at least one lesion. Data was analyzed using ANOVA Fit Model test for data. Comparison of the means was made using Fisher's LSD test with $\alpha=0.05$.

E. Weather

Daily temperature and relative humidity were obtained from the trial site (Figure 2).

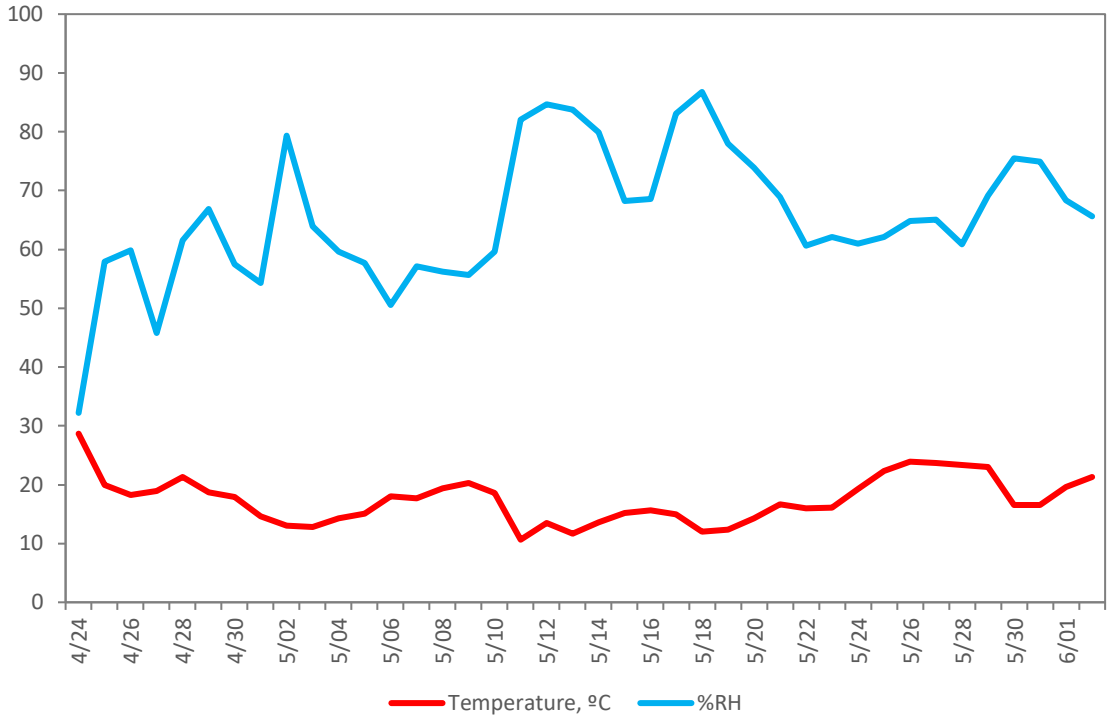

Figure 2. Average daily relative humidity (%RH) and average daily temperature (°C) were recorded from April 2020 to June 2020.

Results

Table 3. Pear scab fruit incidence (means). Product names are followed by rate (per acre). Treatment means followed by the same letter are not significantly different according to Fisher's LSD test at α=0.05.

Treatment	Flag	Mean Incidence (%)	
Syllit 3 pt	PKC	2.5	a
Ziram 76 DF 6 lb	YS	3.5	a
Inspire Super 2.82 EW 12 fl oz	KC	3.5	a
Pristine 16.5 Oz	P	4.0	a
Merivon 5 fl oz	BC	4.0	a
Rango 230 fl oz (1st app) / Rango 160 fl oz	GS	4.0	a
Aprovia 6.25 fl oz	YKC	5.5	ab
Rango 160 fl oz / TER 1291 + 0.8% (v/v) + Nu Film P 16 fl oz	B	6.0	ab
Cueva 1 gal	OS	6.5	ab
Mastercop 0.5 pt	BD	7.5	ab
Sonata 4 qt	RKD	10.5	bc
Unsprayed control	Y	14.5	c

Figure 3. A) Pear scab lesion on fruit from untreated control. **B)** Symptoms of phytotoxicity on fruit treated with Cueva and Mastercop. **C)** Symptoms of phytotoxicity on fruit treated with Rango and Terramera Biological.

Acknowledgements

Thanks to the various industry donors for providing testing materials. Thanks to Mark Lubich for his collaboration and support of this project.

Appendix: Materials

Product	Active ingredient(s) and concentration	Manufacturer or distributor	Chemical class (Frac Code)
Aprovia	Benzovindiflupy	Syngenta	SDHI (7)
Cueva	Copper octanoate (10%)	Certis USA	inorganic (M01)
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)
Merivon	pyraclostrobin (21.26%), fluxapyroxad (21.26%)	BASF	QoI(11)/SDHI (7)
Pristine	pyraclostrobin (12.8%), boscalid (25.2%)	BASF	QoI(11)/SDHI (7)
Rango	cold pressed neem oil	Terramera Inc.	N/A
Sonata	Bacillus pumilus qst 2808 (1.38%)	Bayer CropScience	biological
Syllit	Dodine (40%)	Agriphar	Guanidine (M7)
Terramera Biological	cold pressed neem oil (52%) octanoid acid (25%)	Terramera Inc.	N/A
Ziram 76DF	Ziram (76%), Zinc (16.25%)	UPI	Carbamate (DMDC)3 (M3)