

# Controlling powdery mildew and rust in roses

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**P**owdery mildew is undoubtedly the most widespread disease of roses. The casual fungus, *Sphaerotheca pannosa* var. *rosae*, appears as a white or gray powdery or mealy coating on the leaves, tender stems, and flower buds. It distorts and discolors those areas, causes defoliation, and reduces plant vigor.

Rust, caused by the fungus *Phragmidium mucronatum*, is identified by pustules of orange spores that form on the undersides of the leaves and on other green parts. Yellow or brown spots appear on upper leaf surfaces. Rust can be a problem during the cool, moist weather of spring or fall or where overhead irrigation is used.

Because several new fungicides had become available for use against powdery mildew and rust diseases, we evaluated them in trials at the University of California



Leaves affected by powdery mildew (above) have a white or gray powdery or mealy coating and become distorted. Rust causes orange pustules on the undersides of leaves (below).



South Coast Field Station near Irvine from 1983 through 1985 and in 1987.

## Four-year study

During 1983-85, we used the cultivar 'Mary DeVore' in five replicates of each treatment with three rose plants per replicate. In 1987, the cultivar 'Snowfire' was used in five replicates of each treatment with three rose plants per replicate.

In the 1983 trial, Spotless (diniconazole) at the 8-ounce rate provided significantly better control of powdery mildew than all other materials tested (table 1). Intermediate control was obtained with applications of Bayleton (triadimefon), Spotless at 4 ounces or Triforine (triforine). Rust was effectively controlled by either rate of Spotless or by Triforine. Disease ratings in all the fungicide treatments were significantly lower than in the untreated control.

NuStar (flusilazol), Award (penconazole), and Triforine provided effective control of powdery mildew in the 1984 trial and all fungicides were significantly better than the untreated control.

In the 1985 spring trial, Systhane (myclobutanol), Award, and NuStar were significantly better than Triforine or no treatment for control of powdery mildew. Triforine provided intermediate control.

Systhane, Summit (triadimenol), Spotless, and Maag 15-1297 (pyrifenoxy) were significantly better than Mobay 1608 ( $\alpha$ -2-(4-chlorophenyl ethyl)- $\alpha$ -1,1-dimethylethyl-1H-1,2,4-triazole-1-ethanol) for the control of powdery mildew in the winter of 1985. Systhane, Spotless, and Mobay 1608 were effective for the control of rust.

In the 1987 trial, Systhane, NuStar, Mobay 1608, and Award provided significantly better control of powdery mildew than the other materials tested.

## Conclusions

Of the registered materials, Triforine and Bayleton provided intermediate control of rose powdery mildew. Triforine was effective for control of rose rust. NuStar, Spotless, Award, Systhane, Summit, and Maag 15-1297, of the fungicides not registered for this use, showed promise for control of rose powdery mildew. Spotless, Mobay 1608, and Triforine were effective for the control of rose rust.

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**TABLE 1. Comparison of fungicides for rose disease control**

Fungicide and rate*	Disease rating†§	
	Powdery mildew	Rust
<b>Cultivar 'Mary DeVore'</b>		
<b>1983 trial (applied Mar 29, Apr 12, 26 May 10, 23)</b>		
	<b>May 10</b>	<b>Jun 2</b>
Spotless 25W, 8 oz.	2.0 a	0.5 a
Bayleton 50W, 4 oz.	3.1 b	1.5 b
Spotless 25W, 4 oz.	3.6 b	0.6 a
Triforine EC 18.2%, 12 fl. oz.	3.7 b	0.5 a
Untreated control	8.8 c	7.8 c
<b>1984 trial (applied Mar 6, 20, Apr 3, 17)</b>		
	<b>Apr 30</b>	
NuStar EC 40%, 5 fl. oz.	0.7 a	—
Award 10W, 4 oz.	0.7 a	—
Award 10W, 8 oz.	0.7 a	—
Triforine EC 18.2%, 15 fl. oz.	1.0 a	—
NuStar EC 40%, 2.5 fl. oz.	1.2 a	—
Untreated control	5.3 b	—
<b>1985 Spring trial (applied Mar 21, Apr 3, 17)</b>		
	<b>May 1</b>	
Systhane 40W, 4 oz.	1.0 a	—
Award 10W, 5 oz.	1.7 a	—
NuStar EC 40%, 4 fl. oz.	1.7 a	—
Triforine EC 18.2%, 15 fl. oz.	2.4 b	—
Untreated control	7.7 c	—
<b>1985 Winter trial (applied Oct 22, Nov 5, 19)</b>		
	<b>Dec 1</b>	<b>Dec 30</b>
Systhane 2EC, 4 fl. oz.	0.5 a	1.4 a
Summit 25DF, 8 oz.	0.7 ab	3.5 b
Spotless 25W, 6 oz.	1.2 ab	1.2 a
Maag 15-1297 4E, 2 fl. oz.	1.2 ab	8.2 c
Mobay 1608 EC 1.2, 6.6 oz.	1.7 b	1.5 a
Untreated control	8.5 c	8.5 c
<b>Cultivar 'Snowfire'</b>		
<b>1987 trial (applied Mar 4, 18, Apr 1)</b>		
	<b>Apr 15</b>	
Systhane 40W, 4 oz.	0.6 a	—
NuStar EC 40%, 4 fl. oz.	0.8 ab	—
Mobay 1608 1.2 EC, 12 fl. oz.	1.2 ab	—
Award 10W, 10 oz.	1.4 abc	—
Spotless 25W, 6 oz.	1.6 bc	—
Triforine EC 18.2%, 18 fl. oz.	2.2 c	—
Untreated control	7.6 d	—

\* Rates of materials per 100 gallons of water, 4 fluid ounces of Rohm and Hass Triton B-1956 spreader sticker per 100 gallons of water added to all fungicide suspensions. Sprays applied to runoff with a 2-gallon CO<sub>2</sub> pressurized Hudson sprayer at 30 psi.

† Rated on a scale of 0 to 10: 0 = no disease; 10 = severe powdery mildew or rust development.

§ Significant at 5 percent level. Within each trial year, treatments with same letter are not significantly different from each other.