



Begonia sprayed with Bayleton (left) remained free of powdery mildew for a long period, and developed bushy, deep green foliage.



Commercial fungicides suppressed powdery mildew symptoms on the three plants at left for 45 to 85 days, compared to nontreated plant (right). None of the chemicals produced phytotoxic effects or reduced flower production.

## Managing powdery mildew on begonia

Demetrios G. Kontaxis

**P**owdery mildew is a common disease of begonia. Plants of any age grown outdoors, in greenhouses, or indoors are subject to the disease, which is caused by the fungus *Erysiphe cichoracearum* DC. Most commercially grown cultivars are susceptible to powdery mildew, although there are differences in susceptibility.

Infected plants show brownish white mold spots, which consist of fungal growth (mycelium) and numerous fungal spores (conidia). The conidia are wind-borne. Most often the spots originate on the lower leaf surface and are small at first — about 1/8 inch in diameter. As the infection progresses, the spots enlarge and join together. They may develop on both sides of the leaf blade, on stems, and on flower buds. Infected parts of the leaves dry out and become brownish and paper-thin. The entire leaf may collapse, and severely infected plants may lose their leaves.

Temperatures of 70° to 75°F, shade, and large fluctuations in humidity favor development of the disease.

### Lathhouse experiment

An experiment was conducted in a lathhouse in Contra Costa County, California, to determine the effectiveness of propiconazol (Tilt EC 41.8 percent), triadimefon (Bayleton 50W), and triforine (Funginex EC 18.2 percent) in controlling powdery mildew. Eight begonia plants of the cultivar White Bank (*Begonia semperflorens* Funk & Otto), growing in 5-gallon containers, were arranged in pairs and sprayed to complete coverage with Tilt, Bayleton, or Funginex at the rate of 4.8, 5,

or 2.18 ounces active ingredient, respectively, in 100 gallons of water. Applications were made with a 2-gallon hand-pressurized sprayer on April 6 and 22, 1983. Treatments were randomized. An equal number of nonsprayed plants (four groups of two each) served as controls. For most irrigations, plants were hand-watered to keep the foliage dry, but occasionally greenhouse personnel watered them with overhead sprayers. Otherwise, all plants received regular greenhouse cultural care.

Ten leaves were sampled from each group before the first fungicide treatment for evaluation of disease incidence.

### Results

Plants were examined periodically, and disease severity was estimated visually (table 1). Plants treated with Funginex were taller than those in other treatment groups. Tilt and Funginex suppressed powdery mildew for about 45

days. Plants sprayed with Bayleton remained free of powdery mildew symptoms for 85 days. Tilt- and Bayleton-treated plants became bushy and developed a thick, leathery, deep green foliage.

The average heights of plants treated with Tilt, Bayleton, and Funginex were 22, 22, and 24.5 inches, respectively. Nontreated plants were 22.5 inches tall. None of the chemicals appeared phytotoxic or reduced flower production, although Bayleton suppressed growth somewhat and made the plants much more compact than Funginex-treated or non-treated plants. If compactness is desirable, this side-effect of Bayleton would be an additional favorable quality.

*Demetrios G. Kontaxis is Pest Management/Public Information Programs Advisor, Contra Costa County, 1700 Oak Park Boulevard, Pleasant Hill, California 94523. The author thanks the Pesticide Impact Assessment Program, IR-4 Program, Western Region, for its support of this project, and also thanks Arthur H. McCain, Extension Plant Pathologist, UC Berkeley, for useful suggestions.*

TABLE 1. Management of powdery mildew on begonia with chemicals

Days after last spray	Disease index in fungicide treatments*†			
	Tilt (4.8)	Bayleton (5.0)	Triforine (2.18)	Nontreated (—)
0	3.7	4.1	4.3	4.0
15	0	0	0	4.15
30	0	0	0	5.0
45	0	0	0	7.0
65	Trace	0	2.2	9.0
85	1.1	0	3.0	9.6

\* Rates in parentheses under fungicide name are ounces active ingredient per 100 gallons water.

† Disease index, average of four replications (eight plants): 1 = 10 percent of foliage infected (symptoms); 10 = 100 percent of foliage infected.