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BLACK SPOT CONTROL ON ROSES WITH TRIFORINE® EC

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Background. A test was conducted during the 1994 growing season to determine the efficacy of two rates of Triforine® EC for controlling black spot, a fungal disease, on rose plants using low volume spray applications. The test was conducted at M&W Nursery, Inc. near the Texas A&M University Agricultural Research and Extension Center at Overton, Texas.

Rose plants with actively growing scions (*Rosa* 'Blue Moon') in the second year of production were divided into two blocks. Each block consisted of 9 rows planted 44 inches apart with plants 6 inches apart in the row (43,000 plants per acre). Plants were treated with tractor-mounted mist blower spray equipment using 3 gallons water per acre. One block was treated with 12 oz/acre Triforine® EC while the other block was treated with 18 oz/acre. Each block was treated with one pass of the tractor. Prior to Triforine® EC treatment, both blocks were sprayed one time on 17 April 1994 with Dithane®. Triforine® EC treatments were then started on 23 April and sprayed weekly until 2 July for a total of 11 spray applications.

Plants were evaluated for disease development on 9 June and 13 July 1994. Ten plots were evaluated in each block. Each plot consisted of 8 plants and were designated 15 feet apart in rows 4 and 5 of each block. Plant stand was greater than 85% in each plot. Plants were given three ratings. The defoliation rating was based on a scale of 1-10 with 1 = 0-10% defoliation and 10 = 91-100% defoliation. The black spot disease rating was based on a scale of 1-10 with 1 = no black spot and 10 = all leaves infected with heavy defoliation. The powdery mildew disease rating was based on a scale of 1-5 with 1 = none, 2 = present, 3 = generally distributed - not active, 4 = generally distributed - active, and 5 = severe.

Research Findings. Means are tabulated in Table 1. Powdery mildew was present on the plants at the time the first ratings were assigned. But, by July, the powdery mildew had disappeared due to unfavorable conditions for disease development.

Defoliation and black spot ratings remained low throughout the testing period. Slight infection was present in some plots, but levels were low enough to be of little consequence to plant growth. Although there was not an untreated control, moderately heavy black spot developed on part of a border row that was difficult to treat with the tractor-mounted sprayer. In addition, black spot was severe on the controls in the test plots of 'Peace' plants at the Overton Center by early June. This indicates that the black spot fungus was active and that Triforine® EC was giving control. Some clogging of the sprayer orifice by the Triforine® EC was noted by the

producer applying the spray treatments.

Application. Both rates appear to be effective for black spot control on roses using low volume application. These rates also appeared to be giving comparable control to that realized at the same nursery in another block of plants of the same cultivar using a tank mix of Dithane® and Banner® each at half the recommended rate. However, Triforine® EC failed to give season-long control in our 1994 test with weekly hand spray applications on the plants of the very susceptible rose cultivar Peace. Successful season-long control using Triforine® EC in low volume applications will no doubt depend on the disease tolerance of the rose cultivar being sprayed and the disease pressure as influenced by environmental variables.

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Table 1. Average defoliation, black spot and powdery mildew ratings ($\pm$ standard error) for *Rosa* 'Blue Moon' plants sprayed with Triforine® EC.

Triforine® Rate (oz/acre)	Defoliation Rating ^z	Black Spot Rating	Powdery Mildew Rating
9 June 1994			
12	1.2 $\pm$ 0.107	1.3 $\pm$ 0.082	2.3 $\pm$ 0.134
18	1.0 $\pm$ 0.000	1.4 $\pm$ 0.076	2.1 $\pm$ 0.125
13 July 1994			
12	1.3 $\pm$ 0.201	1.3 $\pm$ 0.112	1 $\pm$ 0.000
18	1.1 $\pm$ 0.050	1.2 $\pm$ 0.076	1 $\pm$ 0.000

^zDefoliation rating based on a scale of 1-10, 1 = 0-10% defoliation, 10 = 91-100% defoliation. Black Spot rating based on a scale of 1-10, 1 = no black spot, 10 = all leaves infected and heavy defoliation.

Powdery Mildew rating based on a scale of 1-5, 1 = none, 2 = present, 3 = generally distributed - not active, 4 = generally distributed - active, 5 = severe.