LILAC (*Syringa vulgaris* 'Ellen Willmott')
Bacterial Blight; *Pseudomonas syringae* pv. *syringae*

J. W. Pscheidt and Gordon Kenyon
Dept. of Botany and Plant Pathology
Oregon State University
Corvallis, OR 97331-2903

COMPARISON OF BACTERICIDES AND CULTURAL METHOD FOR CONTROL OF BACTERIAL BLIGHT OF LILAC, 2001: The objective of the trial was to compare control of copper resistant *Pseudomonas syringae* pv. *syringae* with different bactericides and a cultural disease control method of covering shrubs with plastic. Plastic (6 mil) was used to cover 4 sets of 2 adjacent randomly selected shrubs on 30-31 Jan. The plastic was supported by 18 foot pvc tubing arched over plants and completely surrounded the top and sides of the shrubs down to the ground. All shrubs in the block were inoculated on 13 and 19 Feb and again on 4 Mar with an equal part mixture of 3 pathogenic, copper resistant, streptomycin sensitive strains of *Pseudomonas syringae* pv. *syringae* isolated in 1993 from diseased lilacs (22A, 11E and 58D). Inoculum was applied using a solo backpack sprayer at a concentration of $1x10^8$ cfu/ml and a rate of 0.21 qt/shrub giving a final inoculum dose of $2 x10^{10}$ cfu/shrub. The 13 Feb application froze as it was put onto the plants (minimum air temperature of 28°F) and so was repeated on 19 Feb. Bactericide and cultural treatments were arranged in a randomized complete block design in a block of 'Ellen Willmott' lilacs planted in 1993 on a 5 x 15 ft spacing. Each bactericide treatment consisted of 4 double shrub replicates (8 shrubs/treatment). All bactericides were applied using a hydraulic handgun sprayer at about 100 psi. All treatments were applied at a rate of 100 gal water/A with approximately 1 gal of a spray suspension applied to each shrub. All treatments were applied on 26 Feb (dormant) and all, except Moisturin, were applied on 11 Mar when buds were swollen to breaking. Plastic covers were removed on 17 Apr when bushes were beginning to bloom. Urea fertilizer was broadcast around each shrub on 16 Mar at a rate of 27 lb/A. From 19 Feb through 26 Apr, 4.82 in of rain fell and there were 13 days with low temperatures at or below 32°F; the lowest temperature was 26°F on 28 Feb. Incidence of bacterial blight was evaluated on 27 Mar by examining 300 buds per set of bushes for dead buds. Incidence of blight infecting any or > 50% of the entire shoot was assessed on 11 and 26 Apr by examining 100 floral and 200 vegetative shoots.

The dormant season was characterized as extremely dry with 50% below average rainfall. Non-inoculated shrubs showed a low incidence of disease (data not shown). Plant development under the plastic shelters was accelerated by 1-2 weeks relative to the other treatments during the trial period. Bacterial blight was first observed on 26 Mar as water soaked lesions on leaves. The number of dead buds (an average of 1%) was not significantly different among all treatments (data not shown). The number of floral and vegetative shoots with any blight was lowest on bushes covered with plastic shelters. The number of floral and vegetative shoots with any blight on bushes treated with various copper products was not significantly different than plastic covered bushes on 11 Apr. However, by 26 Apr, only bushes treated with Kocide 101 plus Manzate 200 or covered with plastic had significantly fewer floral shoots with blight than nontreated bushes. In addition, bushes treated with Kocide 101 had significantly fewer vegetative shoots with blight than nontreated bushes. The incidence of floral shoots with >50% blight was not significantly different among treatments on 11 Apr while it was not significantly different among treatments for vegetative shoots on 26 Apr. However, only bushes covered with plastic had significantly fewer floral shoots with >50% blight than nontreated bushes on 26 Apr. Bushes covered with plastic or treated with copper products had significantly fewer vegetative shoots with >50% blight on 11 Apr than nontreated bushes except for bushes treated with Junction. Bushes treated with Moisturin had disease levels that were not significantly different from nontreated bushes for all data types. No phytotoxicity was observed on any plants in any treatment.

Table 1. Floral Shoots

Treatment & Rate/A	Incidence of Floral Shoots with any Blight (%)*		Incidence of Floral Shoots with >50% Blight (%)*	
	April 11	April 26	April 11	April 26
Nontreated ……	43.0 a	90.0 abc	1.8	11.8 ab
Plastic Shelters …….	0.3 c	0.5 e	0.0	0.3 c
Agri-mycin 17 WP 1 lb ……	41.0 a	93.0 ab	1.5	14.8 ab
Kocide 101 DF 1 lb …….	23.3 b	81.3 cd	1.3	13.5 ab
Kocide 101 DF 1 lb + Manzate 200 DG 1 lb...	15.0 b	71.5 d	1.0	6.3 bc
Manzate 200 DG 1 lb ……..	42.8 a	94.0 a	3.8	18.0 a
Kocide 2000 T/N/O DF 0.75 lb ……	23.0 b	83.8 abc	1.3	10.8 ab
Junction DF 1.5lb ……..	22.8 b	83.3 bc	2.0	10.5 ab
Moisturin 10 gal (10%) 1 application only ….	40.5 a	86.8 abc	2.5	17.3 a

* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05). Means without any letters did not differ significantly.

Table 2. Vegetative Shoots

Treatment & Rate/A	Incidence of Vegetative Shoots with any Blight (%)*		Incidence of Vegetative Shoots with >50% Blight (%)*	
	April 11	April 26	April 11	April 26
Nontreated ……	58.5 a	97.9 ab	2.5 a	16.6
Plastic Shelters …….	0.6 e	0.0 e	0.0 c	0.0
Agri-mycin 17 WP 1 lb ……	48.8 ab	95.8 ab	1.5 abc	11.0
Kocide 101 DF 1 lb …….	33.0 cd	88.3 cd	0.8 bc	20.5
Kocide 101 DF 1 lb + Manzate 200 DG 1 lb...	19.4 d	80.9 d	0.3 c	8.6
Manzate 200 DG 1 lb ……..	58.1 a	98.5 a	2.5 a	25.5
Kocide 2000 T/N/O DF 0.75 lb ……	36.9 bc	91.6 abc	0.3 c	8.8
Junction DF 1.5lb ……..	34.3 c	91.0 bc	1.0 abc	18.3
Moisturin 10 gal (10%) 1 application only ….	51.9 a	97.1 ab	2.1 ab	13.4

* Means followed by the same letter do not differ significantly based on Fisher's protected LSD (P=0.05). Means without any letters did not differ significantly.