

Tree Fruit Diseases

Reduction of Fire Blight, Frost and Russet Using Frostban B® (A506)

Rachel B. Elkins¹ and Steve Lindow²

¹University of California Cooperative Extension, Lakeport, CA

²University of California Department of Environmental Science, Policy and Management,
Berkeley, CA

Keywords: fire blight, frost, russet, Frostban, Plant Health Technologies, *Pseudomonas fluorescens*, pear

The antagonistic bacteria A506 was registered for use in pears in January, 1995 (Frostban B®, Plant Health Technologies, Inc., Boise, ID). To demonstrate efficacy on a large scale basis, a trial was conducted in a 13-acre block of Bartlett pears in Lake County, CA. Treatments were applied by air-blast sprayer to .90 or 1.4 acre plots. They included: 100% antibiotic frequency plus 3.7 applications A506, 100% antibiotic frequency, 50% antibiotic frequency (every other spray) plus A506 and 50% antibiotic frequency alone. Due to extremely severe blight risk in 1994, coupled with the large number of holdovers in the block, untreated controls were omitted. A506 #1 and #2 were applied March 27 (20% bloom) and April 3 (90% bloom). In addition, antibiotic applications were applied to the entire block on April 4, April 6 and April 9. On April 14, following full bloom, differential treatments began. From April 15-June 3, 13 additional antibiotic treatments were made in the 100% program plots, while the 50% plots received 7 applications. A506 #3 was applied April 16 and a 2/3 dose on May 8 to cover the rattach period.

Results are given in Tables 1 and 2. In the heaviest fire blight year in Lake County history, A506 enhanced control using antibiotics and also allowed significant reduction in the number of antibiotic treatments. Both frost and russet were also reduced.

Table 1. Incidence of fire blight strikes in a commercial orchard sprayed with antibiotics at different frequencies and also treated with *Pseudomonas fluorescens* A506.

Treatment	Infections/acre
50% antibiotic frequency	30.66a
50% antibiotic frequency + A506	10.19b
100% antibiotic frequency	9.75b
100% antibiotic frequency + A506	2.42b

Table 2. Severity of pear fruit russeting and frost damage at harvest on trees treated at different frequencies with antibiotics and with the antagonistic bacterium *Pseudomonas fluorescens* A506.

Treatment	Russet (%) of surface)	Frost damage (% of fruit)
50% antibiotics + no A506	2.62a	26.1a
100% antibiotics + no A506	2.39a	20.0a
100% antibiotics + A506	1.37b	7.3b
50% antibiotics + A506	1.22b	8.0b