

8. Tree Fruit Diseases

THE EFFECT OF SEVERAL BACTERICIDES AND FUNGICIDES ON THE VIABILITY OF *Pseudomonas fluorescens* A506

Rachel B Elkins
U.C. Cooperative Extension
883 Lakeport Blvd.
Lakeport, CA 95453

Dr. Steve Lindow
Plant and Microbial Biology
CNR, University of California
111 Koshland Hall
Berkeley, CA 94720

One of the main hindrances to widespread adoption of the biological fireblight control tactic *P. fluorescens* A506 (BlightBan A506[®], Plant Health Technologies) is its perceived sensitivity to certain commonly used fungicides and bactericides. This may necessitate separate applications, which is undesirable during years when numerous and frequent treatments must be made for fireblight and pear scab. Through 1997, only copper was precluded as a tank mix on the label; however, in 1998, data from previous years resulted in a new label statement prohibiting Terramycin use within five days of a BlightBan A506[®] application. In addition, concerns have been expressed about compatibility with mancozeb (Dithane M45[®], Rohm and Haas Co.) and aluminum tris (Aliette[®], Rhone-Poulenc).

In 1998, large- and small-scale tests were carried out to measure the severity of suppression of A506 by tank mixing with Terramycin, aluminum tris and mancozeb versus waiting at least five days before applying these materials. Two large-scale trials were conducted in Lake and one in Mendocino County to test compatibility with Terramycin and aluminum tris. Each of four to six treatments was applied to one 2-acre block at each site (Figures 1, 2 and 3). Compatibility with mancozeb was tested in a replicated single-tree trial in Scotts Valley, Lake County. Mancozeb was both tank-mixed and applied as an overspray seven days after A506 (Figures 4, 5 and 6).

Overall results confirm past experience that populations of BlightBan A506[®] are reduced about 50% when tank-mixed with Terramycin. Reduction apparently occurs when the solution dries on leaves, leaving A506 exposed to highly concentrated levels of Terramycin, rather than in the spray tank. The fungicide mancozeb also reduced populations when tank-mixed, even more so than Terramycin. Terramycin and mancozeb had no detrimental effect on A506 when applied at least five days before or after A506. Tank mixing with Aluminum tris also appeared to reduce A506 populations in these tests; however, others have shown less detrimental effects, necessitating further trials.

In the large-scale plots, a rapid blossom rub assay method developed in 1995 was utilized to determine post-application populations of A506. The populations of strain A506 were relatively high and uniform on flowers of all treatments except those in which mancozeb or Terramycin were tank mixed with strain A506. The estimates of the incidence of colonization of flowers by A506 made from the flower rub assay closely matched that from quantified populations made from flower washings in Berkeley.

Figure 1

BlightBanA506[®] /Antibiotic Compatibility Spray Trial
 Rogers Orchard, Upper Lake 1998

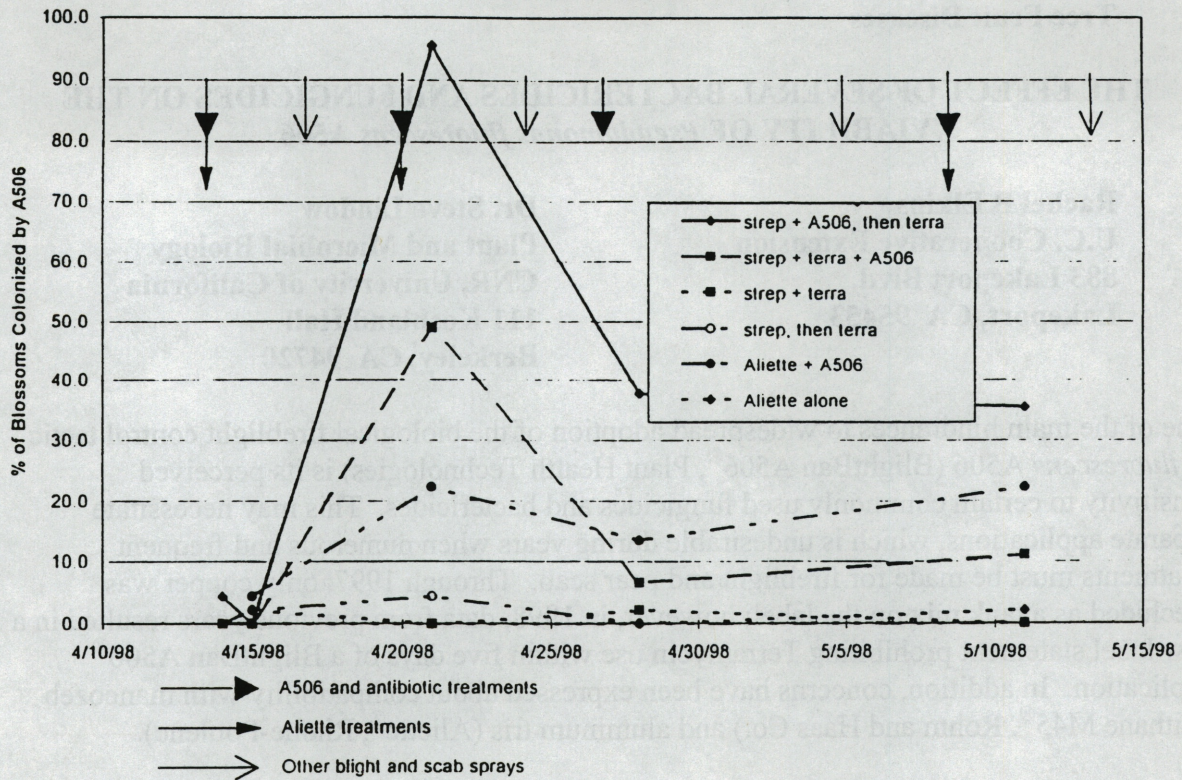


Figure 2

BlightBanA506[®] /Antibiotic Compatibility Spray Trial
 Ruddick Orchard, Talmage 1998

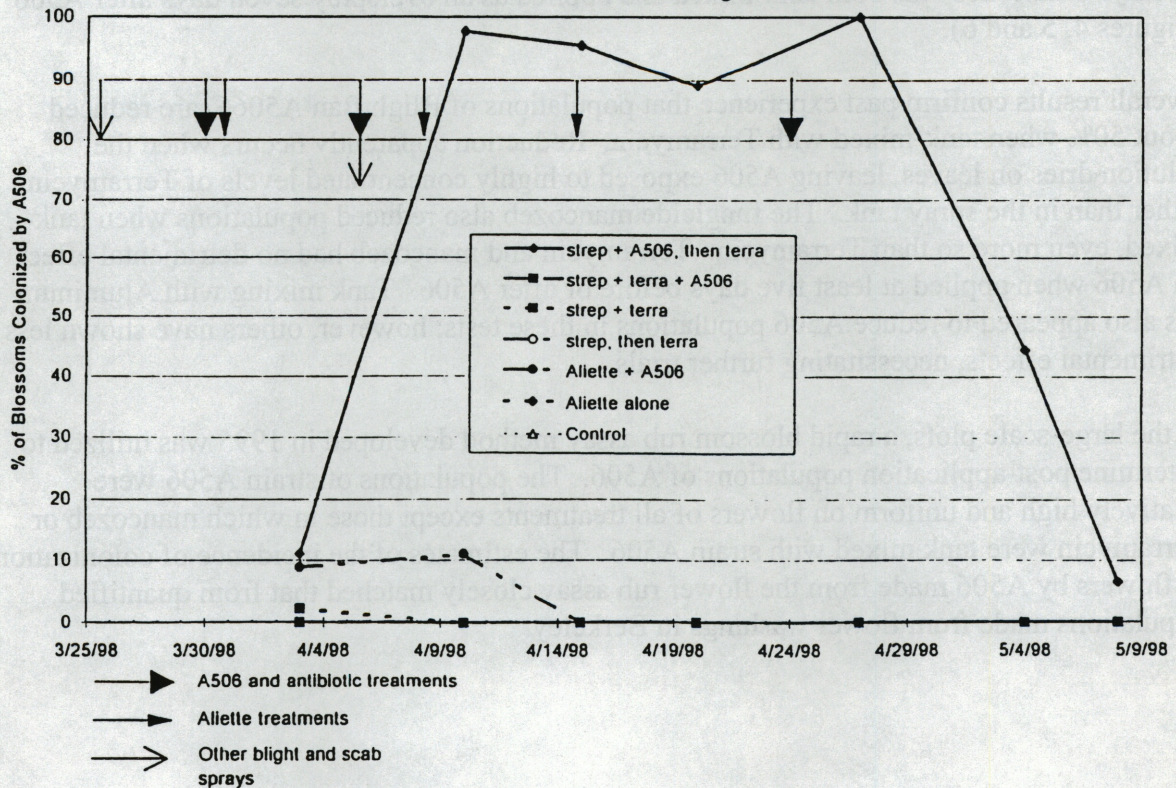


Figure 3

BlightBanA506[®] / Antibiotic Compatibility Spray Trial
Henderson Orchard, Kelseyville 1998

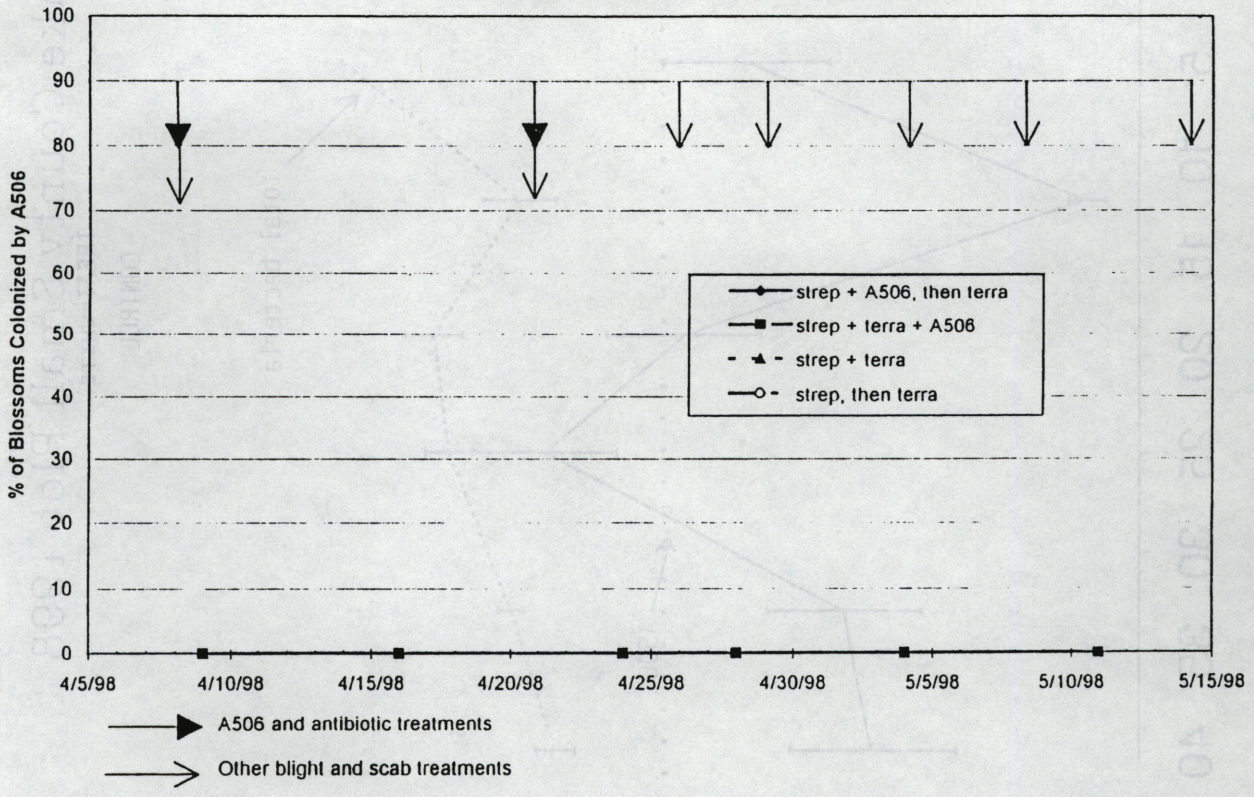
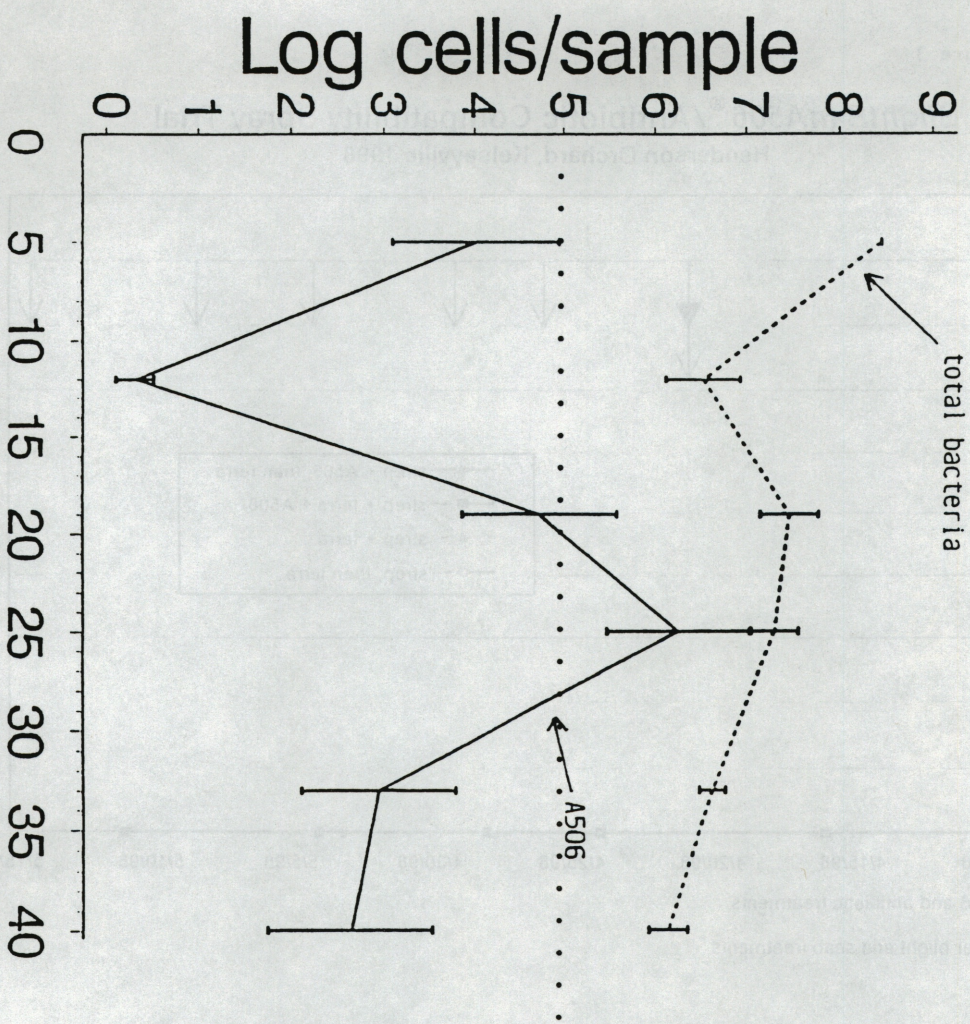


Figure 4

Lake County Small Plot 1998

TREAT=WHITE
CONTROL

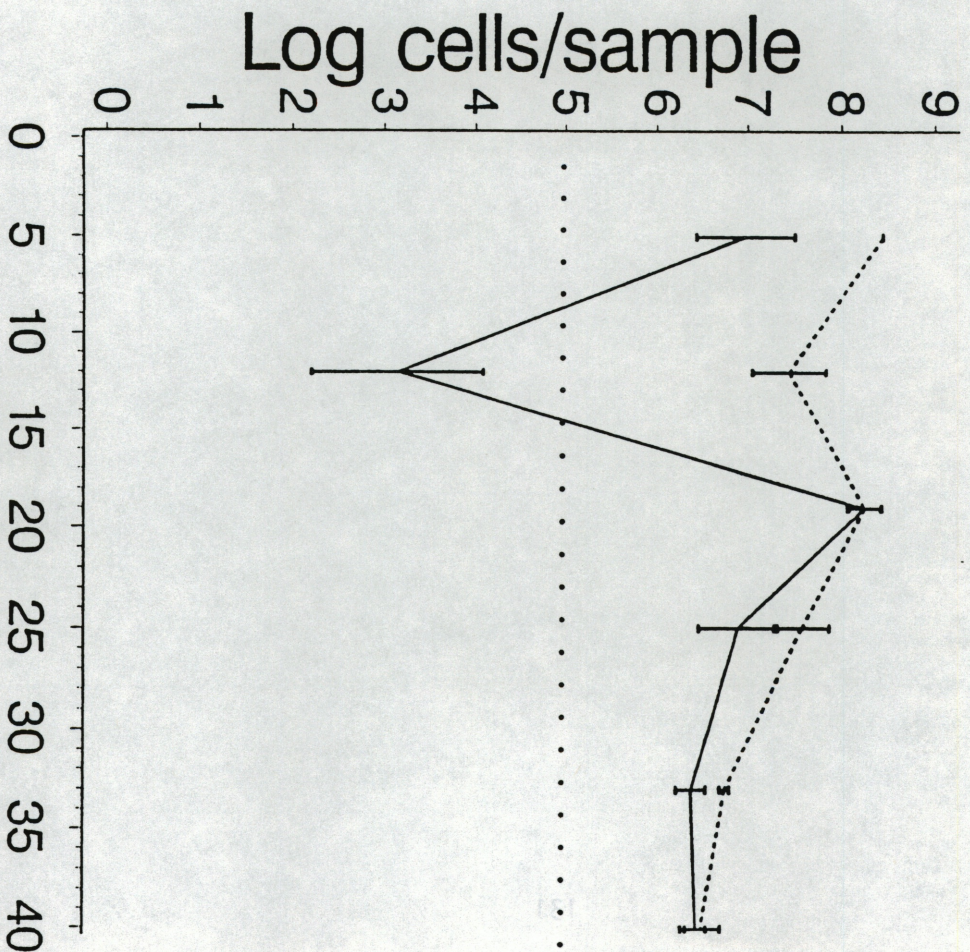


Days After First Bloom

Figure 5

Lake County Small Plot 1998

TREAT=YELLOW
A506



Days After First Bloom

Figure 6

Lake County Small Plot 1998

TREAT=YL BKST

A506 + Dithane tank mix

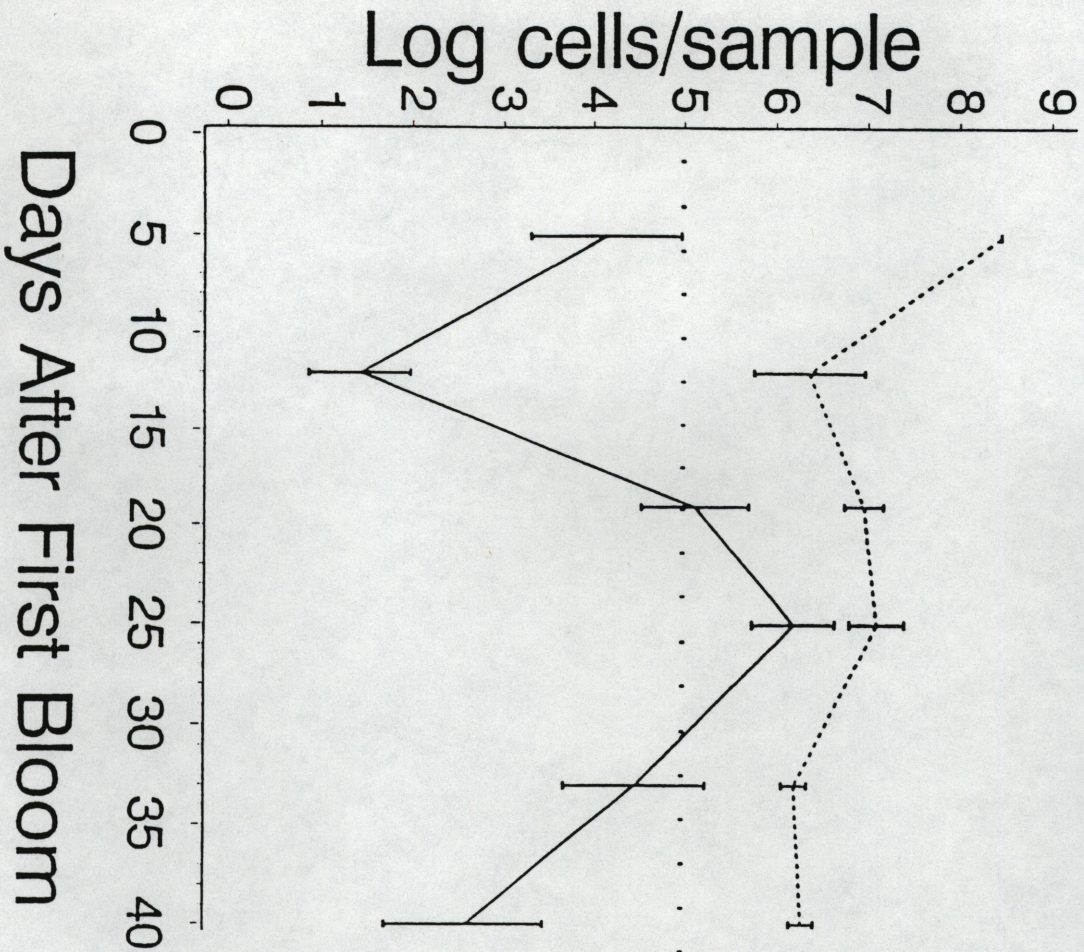


Figure 7

Lake County Small Plot 1998

TREAT=YL WHST

A506 + Dithane 7 days

