An evaluation of soil-applied fungicides for control of Phytophthora crown and root rot of pepper

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This field trial was conducted on the campus of the University of California, Davis at their Armstrong field facility (N 38° 31' 11" W 121° 45' 40"). Soil type at this location is a Yolo silty clay loam. Sweet bell peppers (cv. Baron) were transplanted on June 5th, 2009. Bed width was 30" and in-row transplant spacing was 12". Just prior to transplanting, the soil was inoculated with vermiculite that had been colonized by the oomycete pathogen *Phytophthora capsici* in the laboratory. The rate of inoculation was roughly 10 cc of colonized vermiculite per linear foot of row. The vermiculite was dribbled into a small furrow in the transplant row. The planting was irrigated with drip tape laid on the surface of the beds. The system was turned on immediately after transplanting and then 3 times per week thereafter. The first fungicide application (A) was made on June 8th, the third day after transplanting, by injecting the chemicals through the drip system. Subsequent applications via the drip system were made on July 6th (B) and July 30th (C). Treatments and timings were as follows:

Trt	Product	Rate/acre	Active ingredient	Timings
1	Presidio	4 oz	fluopicolide	ABC
2	Ridomil Gold	16 oz	mefenoxam	ABC
3	Phosphite	3 qt	phosphorous acid	ABC
4	BAS 651	13.7 oz	experimental	ABC
5	Ridomil Gold alt. Revus	16 oz 8 oz	mefenoxam alt. mandipropamid	AC B
6	Forum	6 oz	dimethomorph	ABC
7	Nontreated control	---	---	---

The surviving stand of pepper plants was recorded throughout the season. Plants which died immediately after transplanting were assumed to have suffered from transplant shock and are not included in disease incidence counts. At harvest on September 4th, all fruit were weighed regardless of marketability.

When variation in plant survival and yield was subjected to analysis of variance; only Ridomil Gold and Ridomil Gold alternated with Revus resulted in survival and yield significantly higher than the non-treated control, underscoring the difficulty in managing this aggressive disease.

Figure 1. Impact of soil-applied fungicides on survival (blue line) and yield (red bars) of pepper plants transplanted into soil artificially infested with *Phytophthora capsici*.