

Wheat cover cropping and crop termination for *Macrophomina* root rot management of strawberry

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Wheat cover cropping was evaluated in conjunction with crop termination for its effect on *Macrophomina* root rot. Crop termination is the practice of killing the previous diseased crop using a fumigant with herbicidal and fungicidal properties to reduce the amount of pathogen inoculum in the soil for next season's crop. This study was conducted in two grower fields in Arroyo Grande (Field 1-conventional; crop termination and cover crop) and Santa Maria (Field 2-organic; cover crop only) with previous high incidence of *Macrophomina* root rot. At Field 1 the previous crop was terminated with metam potassium (K-Pam-HL at 47 gal/acre) in Nov 2023 and cover crops wheat 'Summit 515' and triticale 'Pacheco' were seeded separately at 150 lb/acre in Dec 2023, and flat fumigated with chloropicrin (Tri-Clor EC at 17.4 gal/acre) in Jun 2024. At Field 2 the same cover crops were seeded at the same rate in Feb 2023 and grown until Aug 2023. At Field 2 soil samples were collected prior to crop termination, post crop termination, and post cover crop. At Field 2, soil was collected post cover crop treatment. Soil samples were evaluated for *Macrophomina phaseolina* levels using the "pour plate" technique.

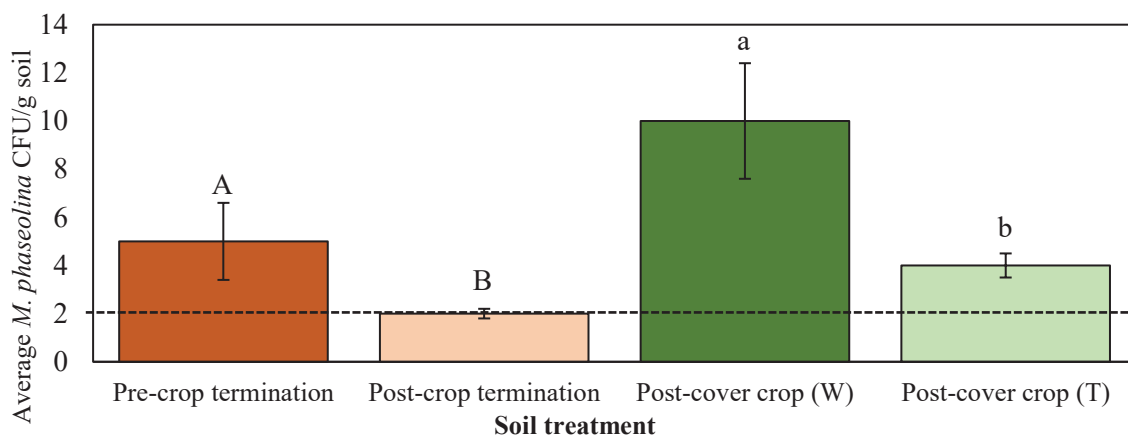


Figure 1. Average *Macrophomina phaseolina* colony forming units (CFU)/g soil across soil treatments of the conventional field trial (Field 1). W = wheat 'Summit 515' and T = triticale 'Pacheco'. Treatments without connecting letters were not significantly different ($P = 0.05$). Pre- and post- crop termination were analyzed separately to post-cover crop wheat and triticale due to field sampling location changes between strawberry production and cover cropping. Error bars of the pre- and post- crop termination treatments represent standard error of the means ($n = 10$). Error bars of the post-cover crop treatments represent standard error of the means ($n = 4$). Horizontal dashed black line represents disease threshold (2 CFU/g soil).

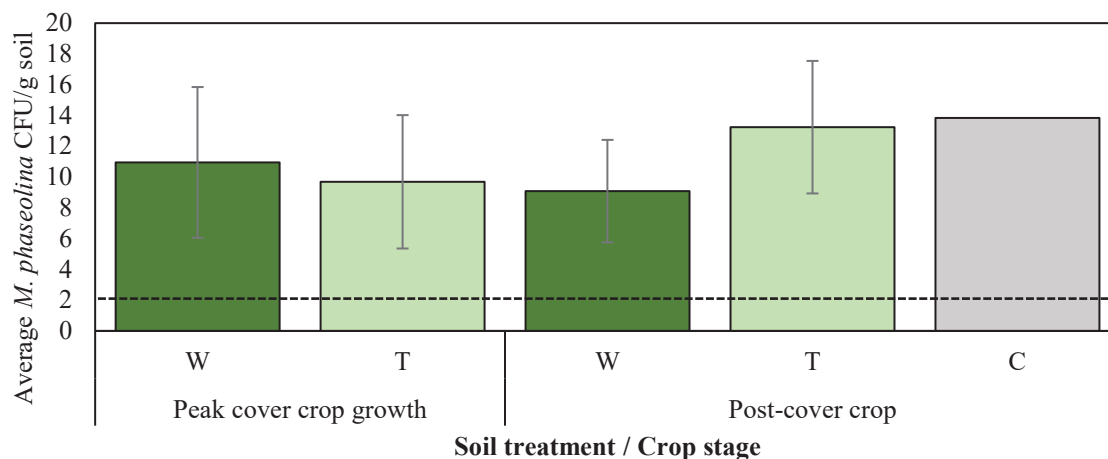


Figure 2. Average *Macrophomina phaseolina* colony forming units (CFU)/g soil across soil treatments wheat 'Summit 515' (W), triticale 'Pacheco' (T), and no-treatment control (C) and crop stages peak cover crop growth and post-cover crop of the organic field trial (Field 2). There was no significant soil treatment \times time interaction ($P = 0.1745$), time effect ($P = 0.6573$), or soil treatment effect on the MP CFU/g soil values ($P = 0.4508$). Error bars of the wheat and triticale treatments represent standard error of the means ($n = 4$). Horizontal dashed black line represents disease threshold (2 CFU/g soil). C was a reference point outside of the experimental design (left fallow) and not included in the data analysis.

