



HUMA GRO® PROMAX™ for Strawberries

Introduction

A field trial to test efficacy of HUMA GRO® PROMAX™ as a crop-protection product for strawberries (*Fragaria sp.*) was applied in a location known to have spring disease problems with either *Fusarium* or *Macrophomina* pathogenic fungi.

This report is based on a field trial with strawberries by Holden Agricultural Research and Consulting submitted on June 23, 2013, to Bio Huma Netics, Inc. This document is a condensed overview of the trial. A full report with additional information, charts and photographs is available upon request.



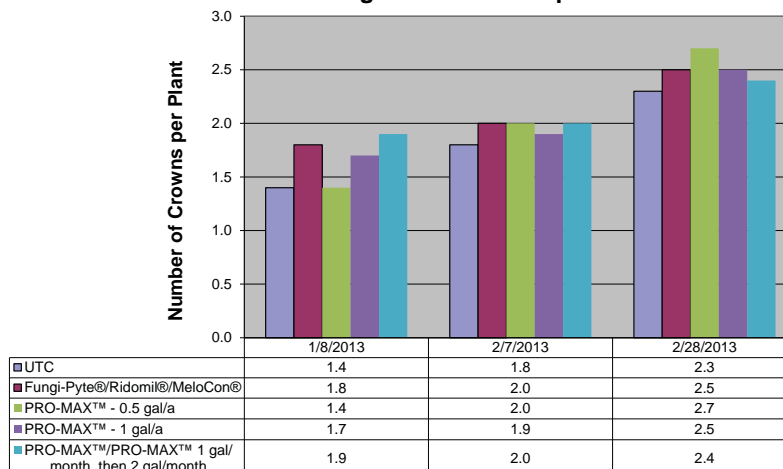
Methods and Materials

The block of San Andreas (University of California variety) strawberries utilized for this trial was approximately 20 acres in size. This trial was set up as a demonstration replicated strip trial of five treatments with completely randomized data collection of four replicates maintained during the growing season. The generalized treatment regimes were 1) the grower standard pre-plant fumigation, the grower standard plus regular applications of 2) Ridomil®¹ or Fungi-Phite®² and MeloCon®³, 3) PROMAX™ at 1/2 gal/a/month, 4) PROMAX™ at 1 gal/a/month, and 5) PROMAX™ at 1 gal/a/month followed by two late season applications at 2 gal/a/month. Though a grower standard pre-plant fumigation program was performed in treatment 1, in this report it will be considered the untreated check since it received no post plant soil fungicides and treatment 2 will be referenced as the grower standard. All materials were applied in-season through the grower's in bed low volume drip irrigation system. No problems with clogging or phytotoxicity were noted through the use of these materials. Plants were also visually analyzed for any adverse effects from the application of the numbered products during the trial.

Results and Discussion

The results show that the average weights of sampled plants for both the whole plant and the removed roots. Early sizing data for both whole plant and root development showed no significant differences on average for any of the treatments. Charts 1 and 2 represent both the average crown (the point from which the new leaves and bloom come out) development and plant vigor (plants rated on a scale of 1-5, a five being the healthiest) on the dates indicated. As seen in Chart 1 average crown development was not found to be significantly improved for any of the treatments, but over time all treatments showed numerical improvements over the untreated check. Based on vigor, similar observations were made in Chart 2 as observations made in Chart 1.

Chart 1: PROMAX™ For Strawberries
Average Crown Development





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**Chart 2: PROMAX™ For Strawberries
Average Plant Vigor**

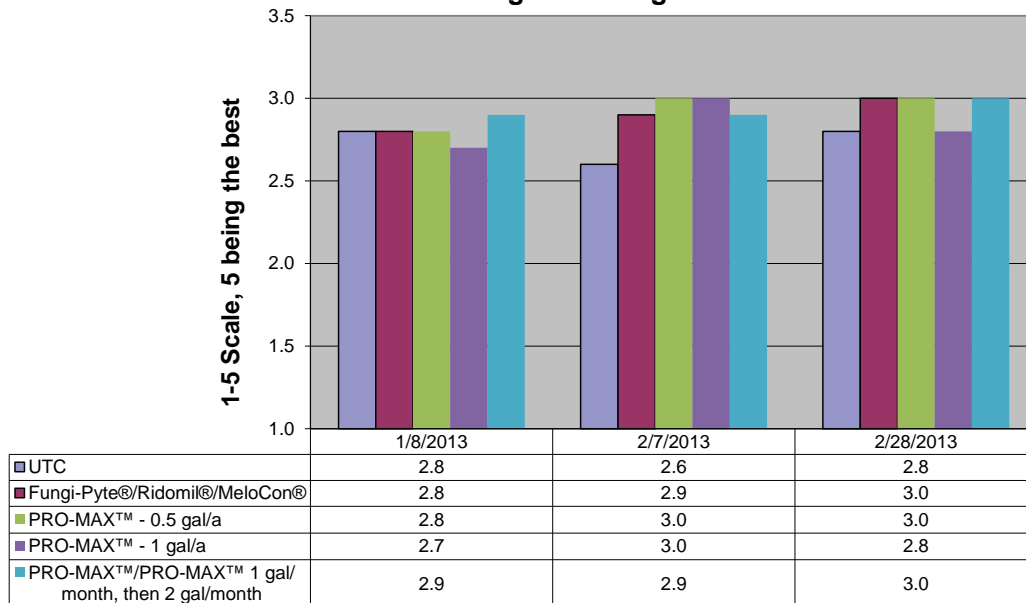


Chart 3 represents mortality due to disease development in this test area over time. The presence of the disease *Macrophomina phaseolina* (Strawberry Charcoal Rot) was confirmed in samples. As seen in Chart 3, early disease development was limited (as expected of this disease), but does show symptoms after the plants are well into their bearing period and under spring stress from heat or water. The last four rating dates are shown and a progression of plant mortality over time with the final rating date showing significant plant mortality in the untreated check when compared to all other treatments. The PROMAX™ applications showed the same statistical control as the grower standard program, but it is interesting to note that the final treatment regime, 5, where the PROMAX™ application rates were doubled to 2 gal/acre/month showed approximately half the mortality when compared to the other treatment programs (7.3% compared to an average of 13.1% for the average of the other three programs combined).

**Chart 3: PROMAX™ For Strawberries
Mortality of Plants over Time**

