TOMATO (*Lycopersicon esculentum* 'BHN 589')
    Leaf mold; *Passalora fulva*

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Evaluation of fungicides allowed for organic production on tomato leaf mold in high tunnel production, 2017.

The trial was conducted in two tunnels measuring 20 x 96 ft at the New York State Agricultural Experiment Station in Geneva, NY. Seeds of variety 'BHN 589' tomato were sown in soil-less mix on 2 Mar and grown in a greenhouse. Seedlings were planted in Honeoye fine sandy loam soil inside each tunnel on 18 Apr in 1.25-mil black polyethylene with drip irrigation. Tomato plants were fertilized with an acid soluble fertilizer (21-7-7) once a week to combat high soil pH. There were several flooding events over the season due to excessive rainfall amounts (18.5 in.) during the season, which impacted the tomatoes in the Western house to a greater degree. Tomato plants were pruned on 2 Jun by removing six leaves and six suckers near the base of the plant. Plants were staked and trellised using the Florida weave method. Six treatments and a non-treated control were arranged in a randomized complete block design with three replications in each tunnel for a total of six replications. Each plot consisted of four plants spaced 18 in. apart on 6-ft center rows and with 3 ft between treatments. The tomatoes were irrigated when needed to provide approximately 1 in. of water per week during the trial. Average outside maximum temperatures for Apr through Jul were 60.8, 63.1, 74.7, and 77.5˚F, respectively; average outside minimum temperatures were 41.1, 45.3, 56.2, and 60.8˚F, respectively, for the same period. Average maximum temperatures inside the tunnels for Jun and Jul were 80.9 and 83.7˚F, respectively; average minimum temperatures inside the tunnels during the same period were 56.7 and 59.5˚F, respectively. Sprays were applied with a CO_2-pressurized backpack sprayer at 40 psi delivering 40 gal/A through two TeeJet 8002VS flat fan nozzles spaced 19 in. apart. Treatments were initiated on 11 Jul and continued every seven days on 18 and 25 Jul and 1 Aug. Plants were inoculated with a conidial suspension (6 x 10^4 spores/ml) generated from leaves with leaf mold on 12 Jul by spraying to runoff with a pump sprayer. Plots were evaluated for the percent leaf area of all plants displaying leaf mold lesions on 25, 28, and 31 Jul and 3 Aug. Percent disease ratings were used to calculate the area under the disease progress curve (AUDPC) for each treatment. Analysis of variance (ANOVA) was performed using SAS statistical software, and means were separated using Fishers LSD.

Symptoms were first observed on 25 Jul. AUDPC data indicates that all products used in the trial showed significantly less disease than the non-treated control. The Champ, Zonix, and BW165N + Cohere treatments were most effective in controlling leaf mold. Double Nickel and Regalia also controlled infection but to a lesser degree. OxiDate was the least effective treatment used in this trial. Of interest was that even plots with over 90% disease severity continued to produce marketable fruit all season. No phytotoxicity was observed with any treatment.

Treatment and rate/A	% Disease severity[*] 25 Jul	% Disease severity[*] 28 Jul	% Disease severity[*] 31 Jul	% Disease severity[*] 3 Aug	AUDPC[*]
Non-treated Control	25.8 a[**]	69.2 a	89.2 a	93.3 a	277.5 a
Champ 30 WG 2 lb/A	2.7 bc	5.7 d	11.5 d	14.8 d	34.7 d
OxiDate 2.0 128 oz/100 gal	20.3 a	49.2 b	64.2 b	81.7 a	215.3 b
Double Nickel LC 6 qt/A	8.4 b	26.0 c	47.0 c	67.0 b	148.4 c
Zonix 500 ppm	1.8 bc	3.5 d	5.5 d	11.0 d	22.8 d
Regalia EC 4 qt/A	2.8 bc	15.5 cd	35.8 c	61.7 b	115.8 c
BW165N-0517 3 lb/100 gal + Cohere 1 oz/gal	1.0 c	3.8 d	9.0 d	37.2 c	48.0 d

[*] Means of four replications. AUDPC = area under disease progress curve.
[**] Values followed by the same letter within a column are not significantly different (Fishers LSD *P*=0.05).