Garlic: *Allium sativum* 'California Late'
Rust, *Puccinia allii*

T.A. Turini
University of CA, Ag. and Nat. Resources
550 E. Shaw Ave. Suite 210-B
Fresno, CA 93710

Comparisons of fungicides for garlic rust control in Central California, 2024

Performance of fungicides were evaluated at the University of California West Side Research and Extension Center in Fresno County in 2024. On 20 November 2023, California Late garlic cloves were planted into Panoche clay loam soil and were sprinkler-irrigated to emergence. Post-emergence irrigations were applied with drip tubbing on the surface in the middle of each 40-inch-wide center-to-center bed. At the trial site, 0.65 inches precipitation was recorded in April and 0.17 inches in May, and average high and low air temperatures were 75° and 46°F in Apr and 85° and 50°F in May as determined by California Irrigation Management Information System (CIMIS) Five Points – Station #2. Fertilization, irrigation, and pest management were like commercial conventional practice except for fungicide applications, which was limited to the treatments evaluated. The fungicides compared in this study included Cevya (mefentrifluconazole, group 3), Aprovia Top (difenoconazole, group 3 and benzovindiflupyr group 7), Fontellis (penthiopyrad, group 7), Quadris Top (difenoconazole group 3 and azoxystrobin group 11), and Tebuconazole 3.4F (group 3). Treatments were arranged in a randomized complete block design with four replications. Each plot was 35 feet in length by one bed. On 3 May fungicides were applied with a CO_2-pressurized backpack sprayer at 30 psi in the equivalent of 40 gal of water per acre. The spray boom was equipped with two TeeJet 60-11003 nozzles at a 20-inch spacing. At the time the first treatments were applied, rust was present on three of ten leaves randomly collected through the trial area. At the time of the pre-treatment evaluation, rust was visible on less than 1% of the affected leaves. On 25 May, in each plot, ten leaves that were the fourth or fifth fully expanded leaf from the center of the plant were collected and were rated on a scale from 0 to 10 based on percentage of leaf covered with visible rust. Leaves rated 0 had no rust visible and those rated 10 were completely covered. Mean ratings per plot were calculated and Analysis of Variance was performed; Tukey-Kramer's Multiple Range Test P=0.05 was used for mean separation.

Disease was present at levels that sufficient to see separation between treated and untreated treatments but there were no differences among treatments. Regionally and in this study, garlic rust was present at high levels in 2024 due to longer periods of leaf wetness and favorable temperatures than average in this production area. The fungicides tested, which are all currently registered, were effective under the conditions of this study. No phytotoxicity symptoms were observed.

Fungicide efficacy against garlic rust in Fresno County, 2024

Trade name, rate formulated product/acre[z]	Rating (0-10)[y]	
Quadris Top 14 fl oz	0.25	b[x]
Tebuconazole 3.4F 6 fl oz	0.30	b
Fontellis 24 fl oz	0.35	b
Aprovia Top (A19334E) 10.5 fl oz	0.48	b
Cevya 5 fl oz	0.68	b
Untreated control	3.03	a

[z] California Late garlic planted on 20 November first irrigated on 22 November 2023 was treated on 3 May 2024 in the equivalent of 40 gallons per acre at 30 psi. Single bed, 35-foot long plots were arranged in a four-replication randomized complete block design. Means are reported.

[y] Average rust severity rating based on percentage of the leaf surfaces covered with rust. Ten randomly selected leaves that were 4 to 5 fully expanded leaves from the youngest leaf were rated on 25 May 2024.

[x] Means followed by different letters are significantly different P=0.05 Tukey-Kramer's Multiple Range Test.