Abstract

The Effect of Heat Treatments and Drip Line Placements on The Yield and Quality of Garlic [†]

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Abstract: Despite garlic being a crop with significant economic value, the plant has severe productivity constraints and challenges that contribute to low yield and quality. One of the main difficulties in garlic production is *Fusarium* basal rot (FBR) caused by *Fusarium oxysporum* *formae speciales cepae* (FOC). The soil-borne fungus infects the roots and basal plates of alliums causing delayed emergence and bulb rot at pre- and postharvest stages. The incidence of the pathogen is increasing and is expected to increase further due to growth being promoted under warmer temperatures associated with climate change. Management of the pathogen is difficult because it produces chlamydospores that can survive for years in the soil. Potential practices for reducing FBR in garlic are hot water or dry heat treatments applied to cloves at 50 °C or 45 °C, respectively, for 30 min prior to planting, and controlling irrigation using single or double drip line placement for 1.5 m wide beds with two rows of garlic. The current study investigated the impact of controlled irrigation on FBR prevalence. These chemical-free practices are relatively easy to apply and could be effective for managing FBR in conventional and organic grown garlic.

Keywords: *Fusarium* basal rot; Chlamydospores; dripline placement

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