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This study was conducted to determine the effectiveness of two mustard species, *Brassica alba*, 'Tilney' (T), and *Brassica juncea*, 'Florida Broadleaf' (FB), as short-cycle cover crops, for managing Phytophthora blight (*Phytophthora capsici*) of cucurbits. Experiments were conducted during 2008–2009 in a *P. capsici*-infested field with a history of Phytophthora blight. Mustards were grown in the field for 45 days and were incorporated into the top 10-cm layer of the soil. The seeds of cucumber ('Eureka'), jack-o-lantern pumpkin ('Magic Lantern'), and processing pumpkin ('Dickinson') were sown after the incorporation of mustard into the soil. Average density of *P. capsici* oospores per gram of dry soil was 2.67 prior to incorporation of mustard plants. The density of oospores was 1, 1.66, 2.33, and 0 in control, T, FB, and T+FB plots, respectively, 14 days after the incorporation of mustard plants into the soil. There was no vine infection in cucumber plots. Incidence of vine infection on jack-o-lantern pumpkin plots was 52.92, 43.13, 32.70, and 51.04%; and on processing pumpkin the incidence was 45.00, 52.71, 48.33, and 47.29% in control, T, FB, and T+FB plots, respectively. Incidence of Phytophthora fruit rot on cucumber was 26.91, 20.83, 12.93 and 13.44%; on jack-o-lantern pumpkin, it was 24.43, 31.63, 22.75, and 28.80%; and on processing pumpkin, the incidence was 26.20, 18.80, 22.69, and 45.37% in the control, T, FB, and T+FB plots, respectively.