

Terminating mustard cover crop in mid-March reduces risks from beet leafhoppers and potentially suppresses weeds in April-seeded chile pepper

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Overwintered Mustard Cover Crops (OMCCs) incorporated into soil may help reduce pressure from early season weeds in chile pepper (*Capsicum annuum*). However, OMCCs potentially harbor beet leafhoppers (*Circulifer tenellus*) that transmit beet curly top virus to chile pepper. The objectives of this study were to (1) determine biomass yield for an OMCC terminated at different times before onsets of beet leafhopper swarms in spring, and (2) determine weed density and hoeing time responses to an OMCC incorporated at different times before chile pepper seeding in April. To address these objectives, mustard was seeded during October 2019 and October 2020. OMCCs were terminated and incorporated into soil at early-March, mid-March, and early-April, which corresponded to 8, 6, and 4 weeks before chile pepper seeding, respectively. At 4 and 8 weeks after chile pepper seeding (WAS), weed densities and hand-hoeing times were determined and compared against non-cover controls. Beet leafhopper monitoring indicated that regional swarms initiated on April 19, 2020 and April 5, 2021. OMCC biomass increased as termination date changed from early-March to early-April. Maximum OMCC biomass was 820 g.m⁻² in 2020 and 591 g.m⁻² in 2021. In 2020, the OMCC terminated in mid-March suppressed weeds at 4 and 8 WAS, but had no effect in hand-hoeing time. In 2021, the OMCC terminated in mid-March suppressed weeds at 4 WAS, but had no effect in hand-hoeing time. These results suggest that OMCCs terminated in mid-March evade regional swarms of beet leafhoppers and possibly improve weed management in chile pepper.

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