

STUDY SITES

Study Site	Average First Frost Date	Cover Crop Seeding Date	Cover Crop Termination Date
Columbus, NM	Nov. 1 – Nov. 10	Nov. 10, 2018	Feb. 14, 2019
Deming, NM	Oct. 21 – Oct. 31	Sept. 29, 2018	Feb. 22, 2019
Las Uvas, NM	Oct. 21 – Oct. 31	Oct. 29, 2018	March 5, 2019
NMSU Leyendecker	Nov. 1 – Nov. 10	Oct. 11, 2018	March 15, 2019

TREATMENTS

- Mustard Cover Crop
- Site-Specific Alternative
- No Cover Crop

Mustard Cover Crop: Mixture of caliente 'rojo' (*Brassica juncea* cv 'rojo') and arugula (*Eruca sativa*)

Site-Specific Alternatives:

- Columbus: Barley
- Deming: Mustard with wheat
- Las Uvas: Barley

COVER CROP MEASUREMENTS

- Biomass at mustard termination
- Weed biomass at mustard termination
- Glucosinolate content (pesticidal component of mustard cover crop)

CARRYOVER EFFECTS ON WEED SEEDBANKS

- Palmer amaranth seed persistence in buried packets
- Germination of persistent Palmer amaranth seeds (laboratory)



D. Walters and C. Southwick, USDA APHIS PPQ, Bugwood.org

This project is supported by the Sustainable Agriculture Research and Education (SARE) program with funding from National Institute of Food and Agriculture, USDA. SARE Project SW18-059

COVER CROP BIOMASS AT MUSTARD TERMINATION

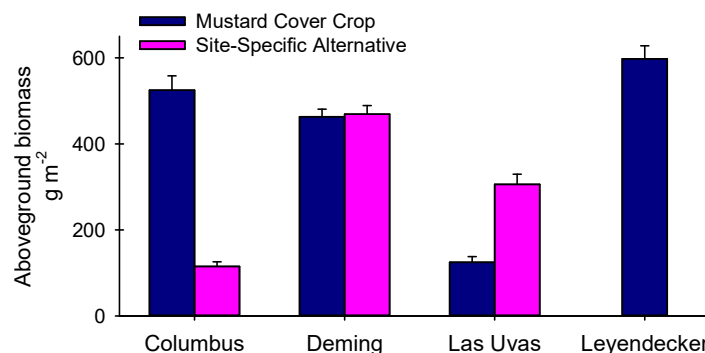
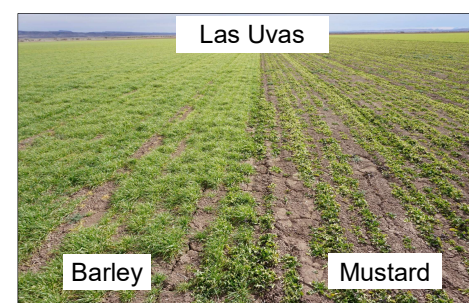


Figure 1. Aboveground biomass for mustard cover crop and site-specific alternative cover crops grown at commercial farms (Columbus, Deming and Las Uvas) and a university research farm (Leyendecker) in southern New Mexico. Bars are means with standard errors ($N = 18$).



CARRYOVER EFFECTS ON WEED SEEDBANK

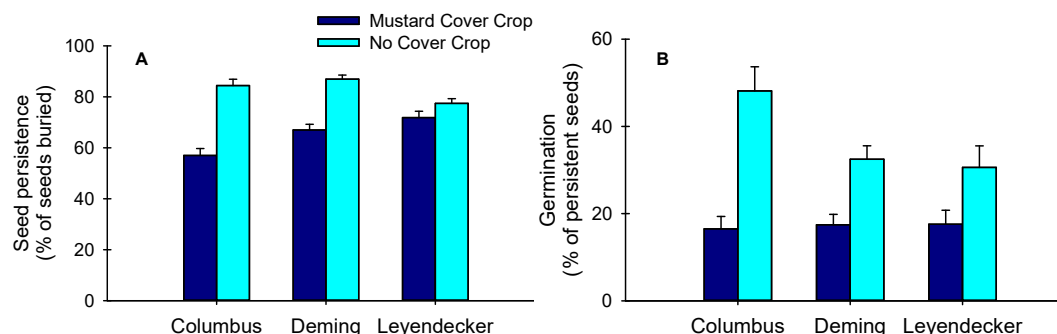


Figure 2. Mustard cover crop effects on (A) persistence and (B) germination of Palmer amaranth seeds. Bars are means with standard errors ($N = 18$).

CONCLUSIONS

- Mustard seeding near time of first frost increases risk of poor establishment. Mustard appears more susceptible to frost than barley.
- If established, mustard cover crop suppresses winter weeds.
- Mustard cover crop potentially reduces weed densities in subsequent cash crop.