



Conservation Systems Research

Cover Crop Management for No-till Vegetables: Cantaloupe

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There are different cover crops management methods for vegetables such as cantaloupe. One is mechanical termination utilizing rolling/crimping technology. This requires injuring the cover crop with the crimping bars without cutting the stems. Another method is mowing cover crops; however, this method can generate problems such as re-growth of cover crops and the loose residue can interfere with planting cantaloupe.

Researchers evaluated the effects of rolling/crimping and mowing cover crops (cereal rye, hairy vetch, and crimson clover) on cantaloupe yield in a no-till system in Northern Alabama.

Termination methods for cereal rye, crimson clover, and hairy vetch cover crops were 1) rolling/crimping using a two-stage roller/crimper (Figure 1) and a powered roller/crimper (Figure 2), and 2) flail mowing using a commercial flail mower (Figure 3). Mechanical termination was compared standing untreated cover crops (control).



Figure 1. A 6 Ft. wide two-stage roller/crimper in crimson clover. (Kornecki, 2011, US patent # 7,987,917 B1)



Figure 2. Powered roller/crimper for walk-behind tractor in hairy vetch. (Kornecki, 2012, US patent # 8,176,991 B1)



Figure 3. Commercial Flail mowing (John Deere) cereal rye.



Table 1. Termination rates (%) by cover crop and cover crop termination method.

Cover Trr	Cereal Rye				Hairy Vetch				Crimson Clover			
	Two-stage	Power Roller	Flail Mower	Standing Cover	Two-stage	Power Roller	Flail Mower	Standing Cover	Two-stage	Power Roller	Flail Mower	Standing Cover
	Termination Rates (%)											
Week 1	62	59	86	0	85	56	88	7	65	53	80	10
Week 2	80	87	89	5	85	69	92	5	83	80	84	26
Week 3	99	98	96	46	91	89	92	17	90	87	93	49

Termination rates, regardless of cover crop type, were higher for the flail mower than the two roller/crimpers at one and two weeks after rolling. At three weeks after rolling, there was no difference in termination methods for rye; however, for hairy vetch and clover, using a flail mower had higher termination rates than the two roller/crimpers.

Cantaloupe Yield

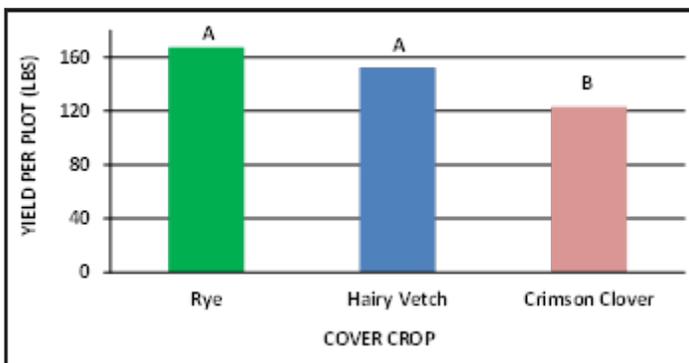


Figure 4. Effect of cover crop type on cantaloupe yield (lbs/plot).

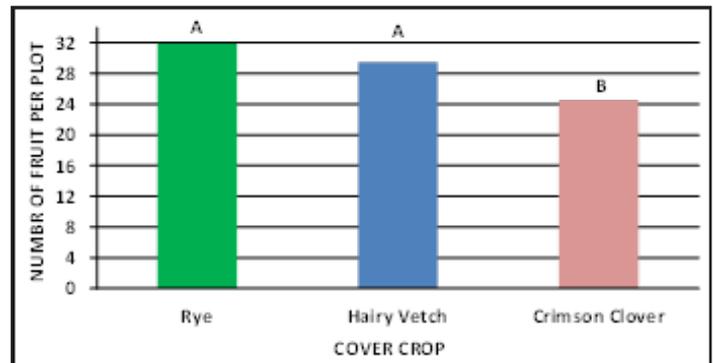


Figure 5. Effect of cover crop type on number of fruit (fruit/plot).

In conclusion,

- Cover crop termination methods did not have any effects on cantaloupe yield.
- However, cover crop type had a significant effect on cantaloupe yield and fruit number.
- Based on the preliminary results, the highest yield was produced with a cereal rye cover crop and the lowest with crimson clover.