

Fig. 11. Potato leafhoppers in A) 1st and B) 2nd year stands of the grain and forage rotations. Missing data is from weeks where alfalfa was being cut, raked, and baled.

Table 14. Percentage of maize seedlings severed by cutworms (mean \pm SE, n = 4) by year and rotation.

Year	Rotation	V2	V5
2010	Control	0.0 \pm 0.0	0.0 \pm 0.0
	Forage	0.2 \pm 0.2	0.0 \pm 0.0
	Grain	0.6 \pm 0.4	0.0 \pm 0.0
2011	Control	0.2 \pm 0.2	0.3 \pm 0.2
	Forage	0.5 \pm 0.3	0.3 \pm 0.3
	Grain	0.9 \pm 0.5	1.1 \pm 0.2
2012	Control	0.0 \pm 0.0	1.3 \pm 0.8
	Forage	0.2 \pm 0.2	0.0 \pm 0.0
	Grain	0.6 \pm 0.6	3.6 \pm 3.6

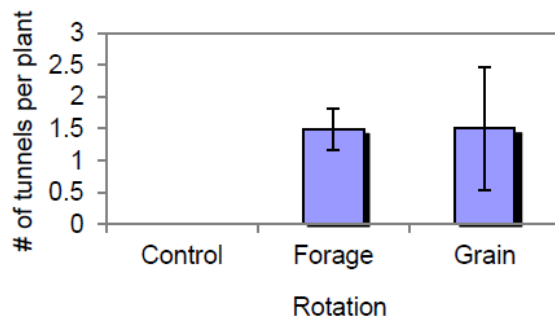


Fig. 12. Corn borer pressure (tunnels/plant) by rotation. Measurements were taken in Sept. 2012 to capture cumulative corn borer damage.

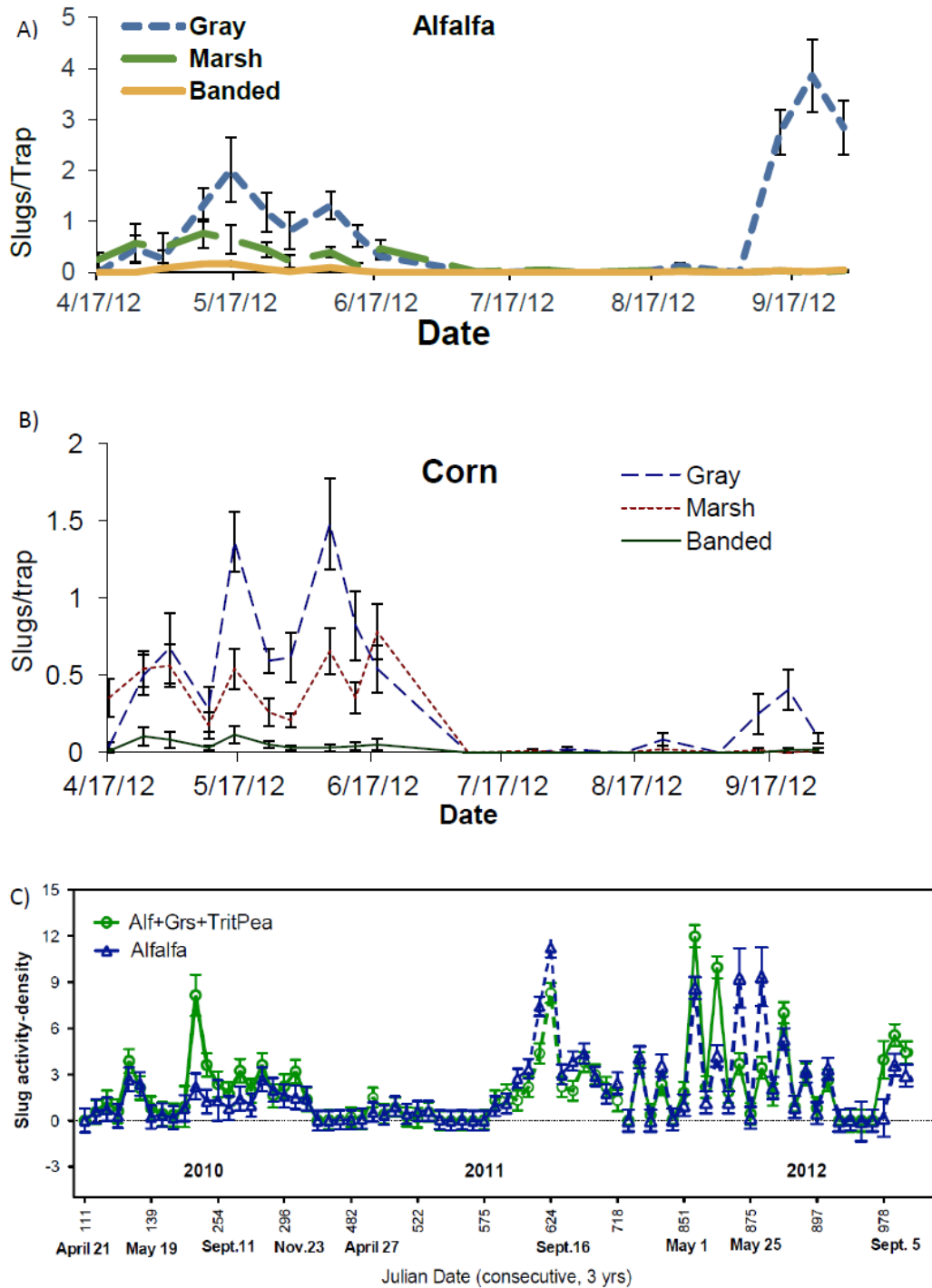


Fig. 13. Slug activity-density in 2012 in A) alfalfa and B) corn plots, showing the three species present at this site: the gray garden slug (*Deroceras reticulatum*), marsh slug (*Deroceras laeve*), and banded slug (*Arion fasciatus*). Total slug (all three species summed) activity density for the newly seeded alfalfa plot from 2010-2012 in the Grain Rotation.

Table 15. Slug damage (mean \pm SE, $n = 4$) to maize seedlings at V2 and V5 by rotation. Values marked with different letters are statistically different at $P \leq 0.05$ based on ESTIMATE comparisons within stages.

Year	Rotation	% of plants damaged		Damage rating*	
		V2	V5	V2	V5
2010	Control	30 \pm 18	48 \pm 21	0.40 \pm 0.27	0.71 \pm 0.39
	Forage	19 \pm 6	55 \pm 16	0.20 \pm 0.06	0.63 \pm 0.20
	Grain	23 \pm 7	48 \pm 14	0.28 \pm 0.10	0.53 \pm 0.17
2011	Control	18 \pm 9b	32 \pm 10b	0.18 \pm 0.09b	0.33 \pm 0.11b
	Forage	53 \pm 7a	72 \pm 6a	0.56 \pm 0.07a	0.73 \pm 0.06a
	Grain	30 \pm 4b	32 \pm 6b	0.31 \pm 0.04b	0.32 \pm 0.07b
2012	Control	100 \pm 0.0	98 \pm 0.5	2.21 \pm 0.04	1.07 \pm 0.05
	Forage	98 \pm 1.7	87 \pm 3.2	1.71 \pm 0.26	0.90 \pm 0.03
	Grain	99 \pm 1.0	80 \pm 14	2.03 \pm 0.25	0.82 \pm 0.14

*Damage rating scale: 0: no defoliation; 1: < 25% defoliation; 2: 25-50% defoliation; 3: 50-75% defoliation; 4: > 75% defoliation.

Table 16. Maize establishment (mean \pm SE, $n = 4$) at V5 as a percentage of the target number of seeds planted, by year and rotation. Values marked with different letters are statistically different at $P \leq 0.05$ based on Tukey's post-hoc comparisons.

Year	Rotation	Seeds planted (#/acre)	Stand as % of seeding rate
2010	Control	32,000	94 \pm 0.3
	Forage	35,000	90 \pm 1.8
	Grain	32,000	94 \pm 0.7
2011	Control	32,000	100 \pm 1.5a
	Forage	35,000	88 \pm 1.2b
	Grain	32,000	90 \pm 1.6b
2012	Control	32,000	94 \pm 0.7a
	Forage	35,000	57 \pm 2.8b
	Grain	32,000	90 \pm 1.2a

Table 17. Slug damage to maize seedlings (mean \pm SE, n = 4) at V2 and V5 and corn plant population number at V5 by cover crop treatment in the Forage rotation. Values marked with different letters are statistically different at $P \leq 0.05$ based on ESTIMATE comparisons within stages.

Year	Previous cover crop	% of plants damaged		Damage rating*		Population (#/ha)
		V2	V5	V2	V5	V5
2011	Hairy vetch	63 \pm 6a	82 \pm 6a	0.67 \pm 0.07a	0.83 \pm 0.06a	74,719 \pm 1872
	Red clover	44 \pm 8b	62 \pm 7b	0.45 \pm 0.09b	0.62 \pm 0.07b	77,138 \pm 1872
2012	Hairy vetch	99 \pm 1	93 \pm 4	1.85 \pm 0.33	0.96 \pm 0.06	45,437 \pm 1923a
	Red clover	99 \pm 2	81 \pm 5	1.56 \pm 0.21	0.83 \pm 0.05	60,222 \pm 1923b

*Damage rating scale: 0: no defoliation; 1: < 25% defoliation; 2: 25-50% defoliation; 3: 50-75% defoliation; 4: > 75% defoliation.

	2010	2011	2012
Canola	Not Diff	No-Till 41% < Plowed, Half stands failed	No-Till 30 % < Plowed
Alfalfa (after canola, Forage rotation)	Half stands replanted Spring 2011	Failed, replanted Spring 2012, failed in spring	Delayed until Spring 2013

Table 18. Crop population density in fall, 40 days post planting.

Fig. 14. Predation on sentinel waxworm caterpillars in corn in different crop rotations in late May, uncaged during the A) day and B) night and caged during the A) day and B) night.

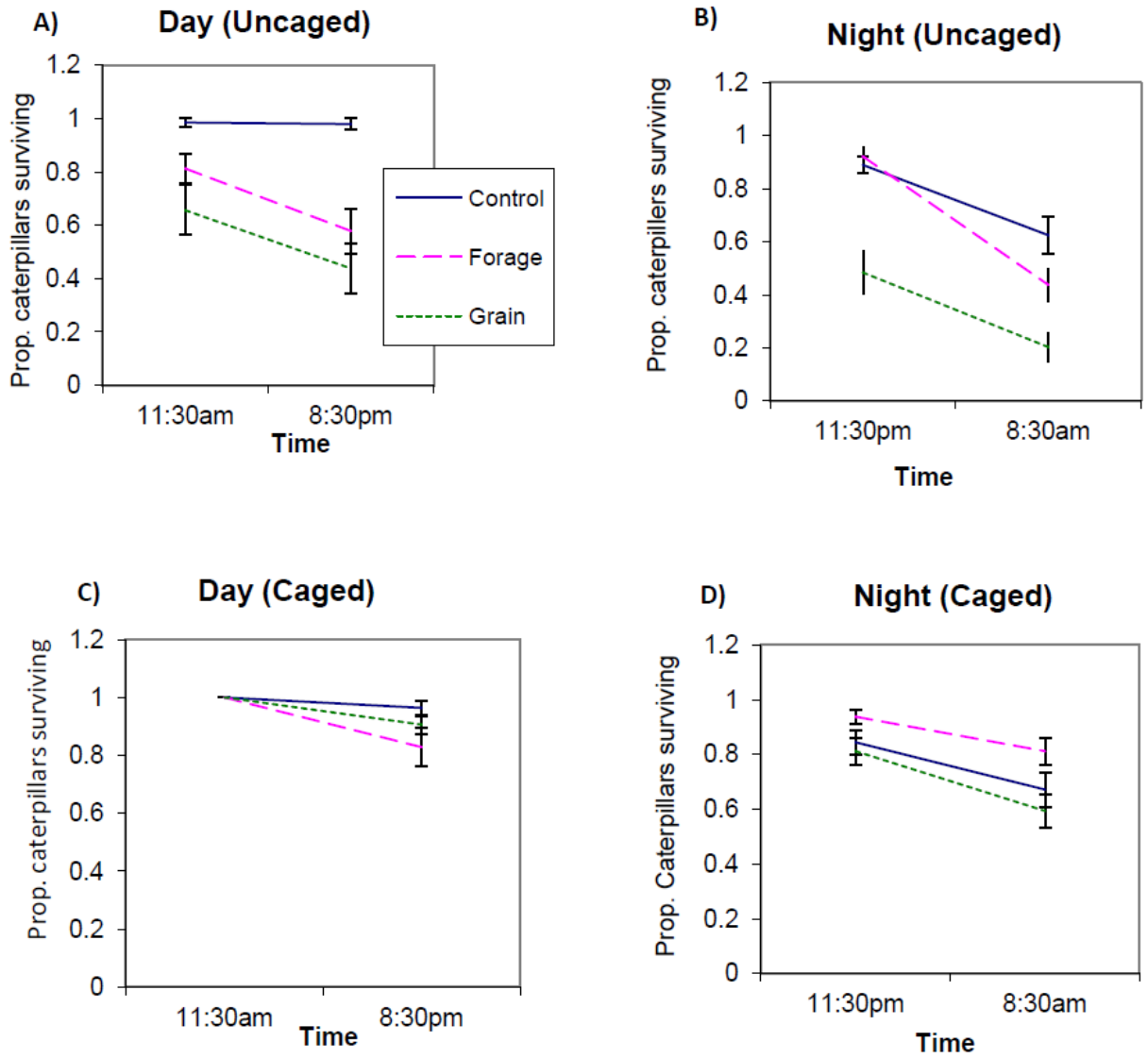


Fig. 15. Predation on sentinel waxworm caterpillars in corn in different crop rotations in mid August uncaged during the A) day and B) night and caged during the A) day and B) night.

