

Forage Research Update *Compiled and edited by Paul Peterson, University of Minnesota* **Minnesota - Companion Crops for Organic Alfalfa Establishment** *by Craig Sheaffer, Don Wyse, and Kris Moncada, University of Minnesota*

In organic cropping systems, alfalfa supplies nitrogen to following crops, improves organic matter, and reduces erosion. It is often seeded with a companion crop offering yield insurance, reducing erosion, and suppressing weeds, but may reduce alfalfa establishment and yield. The goal is to use the companion crops providing the least risk to spring-seeded alfalfa. USDA-RMA funded research, conducted on organic land at 4 Minnesota sites, provides data for developing a risk assessment tool.

In April 2006, Pioneer '54H91' organic alfalfa was seeded at 14 lb/ac (70 seeds/ft²). Alfalfa stands were similar for all treatments (~20 plants/ft²). Seeding-year averaged ~900 lb/ac, reflecting competition by companion crops and weeds. Alfalfa yields were similar with all small grains; but were reduced by pea, forming a dense canopy. A rapid-maturing brassica resulted in greater alfalfa yield than small grains, and equal or greater alfalfa yield than the solo-seeded control.

Table 1. *Seeding-year yield (two harvests) of organically grown alfalfa seeded with different companion crops in 2006 at Rosemount, MN.*

Cover Crop (Variety)	Seeding Rate		Alfalfa Yields	
			1 st Harvest	Total Season
	Seeds/ft ²	~ lb/ac	lb/ac	lb/ac
Spring Oat (<i>Jim</i>)	28	75	153	838
	14	37	219	822
Spring Wheat (<i>Alsen organic</i>)	28	87	226	1021
	14	43	248	862
Spring Barley (<i>Lacey organic</i>)	28	85	240	755
	14	43	96	608
Field Pea (<i>Trapper</i>)	7	130	47	436
	3.5	65	21	561
Winter Wheat (<i>Expedition organic</i>)	25	75	178	1052
Annual Flax (<i>Omega3 golden</i>)	85	42	111	728
Brassica (<i>Rapid cycling</i>)	177	15	562	1337
Annual Ryegrass (<i>Common</i>)	14	3	530	1102
None (<i>Alfalfa alone</i>)	0	0	684	1360
Average			255	883
LSD (0.05)			361	400

