

TITLE: Establishing Alfalfa into Existing Pastures

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OBJECTIVE: To study several methods to establish alfalfa into an existing pasture sward to find a cost effective and reliable way to get a significant percentage (20-30%) of alfalfa.

BACKGROUND/JUSTIFICATION: It is generally agreed upon by agronomists and animal nutritionists that having legumes in a pasture sward is beneficial in several ways. Legumes tend to be more drought and heat tolerant than cool season grasses. Legumes fix nitrogen enabling associated grasses to be more productive without additional expenditure for fertilizer. The nutritional profile of legumes compliments grasses and bolsters livestock performance.

Alfalfa is an under-utilized legume in pasture systems in the Northeast. It is the most productive legume in terms of dry matter tonnage per acre and has the most drought and heat tolerance.

Establishment of alfalfa into grass pasture has always been problematic because of the low success rate with frost seeding, difficulty in calibrating spinner seeders, expense and/or lack of availability of no-till seeding, cost of seed – making establishment failures expensive, and the need to keep the pasture system in production.

GENERAL PROCEDURES: We used a random block design utilizing 20 acres divided into 12 blocks: 6 treatments, 2 replications per treatment. Seedings were made with a no till drill, conventional drill with cultipacker, and broadcast. Seedings were done in April 2000 and August 2000. Grazing was used to tramp-in seed after broadcast seedings. Grazing was also used for sward suppression before no till and conventional seedings. Alfalfa was seeded at 15 lbs./acre. An improved grazing tolerant variety was used. Percent bare space was assessed in March 2000 and in November 2000. Percent bare space and percent alfalfa were assessed in April 2001.

RESULTS/IMPACTS: Results of the percentage bare space and alfalfa are presented in Table 1. Spring seedings were delayed until later than planned because of cold weather. Late summer seedings were also delayed until August 25th due to dry weather and associated hard soil conditions. Dry weather during August persisted until mid-September. Percent alfalfa was not measured in the fall due to the delayed planting and delayed germination because of dry weather. It was agreed that a spring measurement of % alfalfa would provide a more accurate assessment of the success of the seedings.

The difference between the % bare space in spring 2000 and spring 2001 is apparently not related to the introduction of alfalfa to the paddocks. These differences could be due to the spreading of grasses, forbs, or other legumes to fill in bare spaces.

The results of the % alfalfa assessment show an advantage, in general, for the no-till and conventional w/cultipacker seedings over the broadcast seedings (Table 1). The spring conventional seeding method did numerically outperform the fall no till method but the difference is probably not statistically significant. However, the overall results indicate that none of the methods can justify the cost of the alfalfa seed or other expenses incurred in seeding. We believe that more study would be needed, over the course of several years, to adequately assess the alfalfa seeding methods. Differences in weather, timing of seedings, and timing of grazing both before and after seeding could all affect success rates.

TABLE 1

<u>Paddock 3</u>	<u>% Bare Space 3/00</u>	<u>% Bare Space 4/01</u>	<u>% Alfalfa 4/01</u>
<u>C rep 1</u> (Broadcast 4/15/00)	37.0	3.4	5.6
<u>E rep 1</u> (No Till 8/25/00)	37.0	3.2	4.4
<u>Paddock 5</u>			
<u>D rep 1</u> (Conventional 8/25/00)	33.6	8	1
<u>E rep 2</u> (No Till 8/25/00)	33.6	7.4	8.6
<u>Paddock 7</u>			
<u>F rep 1</u> (Broadcast 8/25/00)	19.2	10	1
<u>A rep 1</u> (Conventional 4/1/00)	19.2	7	8
<u>Paddock 8</u>			
<u>B rep 1</u> (No Till 4/7/00)	27.4	11.7	5.3
<u>C rep 2</u> (Broadcast 4/15/00)	27.4	11.3	2.7
<u>Paddock 9</u>			
<u>F rep 2</u> (Broadcast 8/25/00)	28.0	4	1
<u>A rep 2</u> (Conventional 4/1/00)	28.0	6.3	5.7
<u>Paddock 10</u>			
<u>B rep 2</u> (No Till 4/7/00)	38.0	12	6.3
<u>D rep 2</u> (Conventional 8/25/00)	38.0	8.7	3.7

Averages (%alfalfa)**Treatment B (No Till - Spring) - 5.8%****Treatment E (No Till - Fall) - 6.5%****No Till - Average - 6.15%****Treatment A (Conventional - Spring) - 6.85%****Treatment D (Conventional - Fall) - 2.35%****Conventional - Average - 4.6%****Treatment C (Broadcast - Spring) - 4.15%****Treatment F (Broadcast - Fall) - 1.0%****Broadcast - Average - 2.58%**