

HERBICIDAL CONTROL OF SOD FOR NO-TILL ALFALFA ESTABLISHMENT

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"Direct" or "no-till" seeding of alfalfa is an alternative choice to many farmers in Massachusetts. The success of no-till alfalfa establishment depends upon the effective control of existing sod. Postemergence herbicides can be applied prior to seeding. It is important to use herbicides properly for maximum sod suppression as well as for best alfalfa establishment.

The objectives of the experiment were to (i) determine the best time interval between herbicide application and planting, (ii) evaluate the efficacy of herbicidal treatments for sod control, and (iii) identify the best treatment for alfalfa establishment.

The experiment was conducted on Parson's Farm, South Amherst, Massachusetts. The land had well established sod. The old sod (at least two years) consisted of largely quackgrass and orchardgrass. Old alfalfa, common dandelion, cinquifoil, and redroot pigweed were the broadleaf species present.

All treatments were applied with a CO₂ backpack sprayer at 22 psi in 40 gpa. Glyphosate and paraquat, each at two rates, were evaluated under three timing of application. Treatments were applied on May 10 (3 weeks), May 17 (2 weeks), and May 24 (1 week). Alfalfa 'saranac AR' was planted on June 2, 1983 with a no-till planter. Sod control was rated June 3. Seedling establishment was evaluated on July 25 and August 2, 1983.

Glyphosate at 1.0 lb/A provided excellent control when the treatments were applied 2 or 3 weeks prior to planting. Higher rate of glyphosate did not exhibit any difference in sod control, irrespective of time of application i.e., 1, 2, or 3 weeks prior to planting (Table 1).

Paraquat appeared to provide excellent control when applied 1 or 2 weeks prior to planting. Paraquat only at the highest rate (1.0 lb/A) showed excellent sod control when applied 3 weeks prior to planting.

Alfalfa establishment in this area was not good. Seedling emergence was adequate, but subsequent establishment of alfalfa plants was not favorable due to extremely dry weather conditions. A significantly large number of seedlings were recorded in plots treated with glyphosate 3 weeks prior to planting. In contrast, at the same time (3 weeks prior to planting), paraquat treated plots showed significantly lower number of alfalfa plants.

Limited data indicate that glyphosate may be used for sod control in no-till area at least 3 weeks prior to planting, while paraquat may be used at least 1 to 2 weeks prior to planting.

Table 1. Sod control and alfalfa establishment in no-till area, as affected by timing, rate and herbicides application

Treatment	Formulation	Rate (lb/A)	Method of Application	Sod		Alfalfa FW on 8/2 (gm/sq m)
				Control June 3 (%)	# on 7/25 (No./sq m)	
<u>1 Week Prior to Planting</u>						
1. Glyphosate	4LC	1	PTP*	78	88	520
2. Glyphosate	4LC	2	PTP	93	35	380
3. Paraquat + X-77	2LC	0.5	PTP	97	69	980
4. Paraquat + X-77	2LC	1.0	PTP	100	29	930
5. Untreated Check	-	-	-	0	13	190
<u>2 Weeks Prior to Planting</u>						
6. Glyphosate	4LC	1	PTP	95	37	300
7. Glyphosate	4LC	2	PTP	100	11	340
8. Paraquat + X-77	2LC	0.5	PTP	95	107	810
9. Paraquat + X-77	2LC	1.0	PTP	97	75	480
10. Untreated Check	-	-	-	0	45	190
<u>3 Weeks Prior to Planting</u>						
11. Glyphosate	4LC	1	PTP	100	203	700
12. Glyphosate	4LC	2	PTP	100	168	260
13. Paraquat + X-77	2LC	0.5	PTP	87	27	480
14. Paraquat + X-77	2LC	1	PTP	93	48	290
15. Untreated Check	-	-	-	0	29	230
LSD0.05				5	112	490

* PTP = Prior to Planting