



Grass Seeding and Establishment

All grass seedings are risky ventures. The relatively high cost of seeding makes it important to minimize the risks involved. Although droughty weather after seeding cannot be controlled, there are there are a number of factors that be controlled to maximize chances of success.

Select a Grass Species

Use the forage species selection program to help narrow down the potential species for a particular site. Regardless of site, timothy has the greatest chance of successful establishment, one reason why perennial grass seed sales in NY are highest for timothy. The primary reason that timothy is easy to establish is that the small seed size allows reasonable soil-seed contact, regardless of how well a seedbed is prepared. So farmers are not penalized for poor seedbeds with timothy.

Reed canarygrass is the opposite, a poor seedbed and/or incorrect seeding depth severely set back the seeding. If a good seedbed is prepared, and seed is placed at the proper depth, reed canarygrass will establish as easily as any of the other species.



Figure 1. Relative ease of establishment of perennial grasses in the NY.

Pure Stands vs. Mixtures

Most of the alfalfa sown in NY is in mixture with perennial grasses. There are reasons for choosing either a pure grass or an alfalfa-grass mix. A mixture eliminates the need for N

fertilization, at least until the alfalfa component weakens. A grass-legume mix also improves the quality of the forage. On the other hand, many soils will not allow persistence of alfalfa, check the species selection tool.

There is no advantage in using a “shot-gun” mixture of many grass and legume species. Multi-species mixtures are an expensive substitute for the species selection tool. In time, 2-3 species will likely dominant “shot-gun” seeded fields. Make sure that seeding rate is based on pure live seed, some batches of grass seed have relatively low germination.

Check Soil Test and Correct Deficiencies

A soil test is required well in advance of seeding. Any limestone (of standard particle size) needs to be applied at least 6 months prior to seeding in order to take effect. Typically no more than 30-50 lbs of N fertilizer are applied shortly before or after seeding. Both P and K nutrient levels should be raised to an optimum level. Grass seedlings require high P fertility for optimum growth.

Control Weeds

Avoid using herbicides on the field the year before seeding that may carry over and damage forage seedlings. Consider controlling perennial weeds prior to seeding. If weeds pressure is expected to be very heavy, it may be useful to prepare the seedbed in advance and allow weeds to germinate, before killing any weeds present, and then planting.

Seedbed Preparation

Both seeding depth and seed-soil contact are critical to success. Seedbeds should be firm, barely leaving a footprint. For most forage crops, seed should not be sown deeper than 1/2 inch. Recommended seeding rates already have some built-in insurance, increased seeding rates will generally not increase your chances of success. Excessively high seeding rates can partly offset poor seedbed

preparation, but it is much more cost-effective to invest in a good seedbed.

Seeding rates for grass and alfalfa-grass used for hay or silage in NY		
Soil conditions and management	Crop	Seeding rate (lb/a)
Well-drained, 3-4 cuts	Alfalfa and	8-12
	Timothy or	4-6
	Orchardgrass or	1-3
	Reed canarygrass or	6-10
	Tall fescue	6-10
Moderately well-drained, 3 cuts	Alfalfa and	12-15
	Timothy or	4-6
	Reed canarygrass or	6-10
	Tall fescue	6-10
Variable drainage with spots too wet for alfalfa, 3 cuts	Alfalfa and	6-8
	Birdsfoot trefoil and	4-5
	Reed canarygrass	6-10
Poorly to well-drained, short term hay production	Red clover and	6-8
	Timothy	6
Moderately to well-drained, 3-4 cuts of grasses	Tall fescue or	12-15
	Orchardgrass or	6-8
	Reed canarygrass or	10-12
Moderately to well-drained, for cover on dikes, roadbanks	Timothy	8
	Crownvetch and	10
	Timothy or	5
	Tall fescue or	6
	Reed canarygrass	8

Spring Seeding

Perennial grasses can be seeded in the spring as soon as a good seedbed can be prepared. Wet conditions in the spring may delay preparation of a good seedbed, best to finish planting by May 1 if possible. Weed competition is apt to be a problem, but grass seedlings will generally have very good growing conditions through late spring. There is not normally sufficient growth by fall to justify harvesting, but the yields the following spring will reflect good seeding year establishment.

Late Summer Seeding

In NY there is about an equal chance of success for either spring or late summer seedings. Late summer seedings should be completed by mid-August in NY. Later seedings are more risky, and will have less tillers and probably less yield the next year if they do survive. If adequate moisture is present after seeding, the cooling fall temperatures will allow rapid establishment. An advantage of late summer seedings is that an early maturing grain crop could be grown and harvested prior to seeding. This can turn into a major disadvantage if droughty weather follows seeding, and seedbed moisture was mined out by the previous crop.

Frost Seeding

Frost seeding is cheaper and much less effective. This is usually done to thicken a stand, or to establish a perennial in an existing annual crop. Competition from any existing vegetation must be minimized both before and after seeding. Timing is important, ideally after snow is melted, but still cold enough for alternate freezing and thawing to provide seed-soil contact. While red clover works well for frost seeding, grasses generally do not.


Additional Resources

- 2011 Cornell Guide for Integrated Field Crops Management. Electronically accessible at: <http://ipmguidelines.org/Fieldcrops/>.
- Species selection NY: <http://forages.org>

Disclaimer

This information sheet reflects the current (and past) authors' best effort to interpret a complex body of scientific research, and to translate this into practical management options. Following the guidance provided in this information sheet does not assure compliance with any applicable law, rule, regulation or standard, or the achievement of particular discharge levels from agricultural land.

For more information



Cornell University
Cooperative Extension

Grass Management Manual
<http://forages.org>

Jerry Cherney, Debbie J.R. Cherney

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