

Slurry seeding in grassland in Norway

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Slurry seeding in grassland



A method of mixing seeds of different crops and liquid animal manure is called “slurry seeding” or “wet seeding”

A Norwegian company has developed a dosing system for adding and mixing seeds into animal slurry at the liquid manure spreader. The seed-enriched slurry is either applied on the surface by a trailing hose (band spreading) or injected in the soil

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Seed-enriched slurry applied by a band spreader



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Seed-enriched slurry applied by an injector



Slurry seeding - previous experiments

In Ireland (Culleton & Murhpy 1987) and in Wales (Jones & Roberts 1989) seeds of Italian ryegrass were either pre-mixed in the slurry tanker, or broadcasted followed by slurry application. In both experiments the yield increase was considerable, but there were no difference between methods of seeding.

The germination of seeds is mostly not influenced negatively by the animal slurry (Volden *et al.* 2005). Preliminary tests of the slurry seeder in Norway have given promising results (Volden 2005).

Slurry seeding is also examined in USA. Harrigan (2005, 2007) mixed seeds of species like oil seed radish, oriental mustard, annual ryegrass and cereals with animal slurry. Biomass yields were equal to or greater than a conventional seeding.

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Materials and methods



In 2007 and 2008 altogether 8 experiments were established on grassland in Norway. Only results from 2 experiments are presented.

The seed enriched slurry was either injected in the ground (**AM injector**) or applied on the surface with the 3 m rig lifted about 15 cm above the surface (**AM band spreader**). The distance between the coulters was 15 cm. The experiments were established either at swards chemically destructed, or at swards where no herbicides were applied. Approximately 30 tons of diluted (3-5 % DM) animal manure was applied per hectare. Slurry seeding was compared to traditional methods of grassland renovation.

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Results



The cover of perennial ryegrass visually estimated, in percent . A field trial in South-West Norway, established 16 April 2007. The sward was 3 years old, no chemical treatment

	25 May	8 June	11 October
AM injector, no seeds	0	0	13
AM injector, with seeds	70	60	50
AM band spreader, no seeds	5	2	18
AM band spreader, with seeds	10	20	30
AM band spreader, conv. seeding machine	10	10	45
P-value	ns	0.01	0.01

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Results

Slurry seeding (SS) compared to conventional seeding (CS) at a field established 16 August 2007 in Central Norway. Seeding with timothy 0 days or 7 days after spraying with glyphosate

	t DM	t DM	t DM	% timo.	% timo.
	Cut 1-08	Cut 2-08	Cut 1-09	Cut 1-08	Cut 1-09
SS, Inject. 0 days	1.8	3.9	6.3	30	73
SS, Inject. 7 days	3.6	3.9	6.7	43	68
SS, Band spr. 7 days	4.2	3.7	6.6	50	80
CS, Band spr. 7 days	4.0	5.3	6.9	88	88
CS, comm. fertilizer	4.5	4.1	7.8	70	75
P-value	0.01	ns	ns	0.01	ns

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Conclusions



It is more likely to achieve a successful reseeding of grasses and clover at swards treated chemically than at swards where the original vegetation is not destroyed.

There was a great variation between field trials concerning how successful the reseeding by different methods was. This was due to differences in climate, soil conditions et cetera.

In general slurry seeding either by use of injector or band spreader was as successful as other methods.

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