Shortcut strategies to improve plant species richness after years of intensive management in moist grassland

Nielsen A.L.* & Hald A.B.**
*Natlan, Agro Business Park, Tjele, Denmark,** National Environmental Research Institute, University of Aarhus, Denmark

The possibility of different species to establish in former agricultural land may need some support.

Initial nutrient removal or immobilisation may be effective means in a shortcut strategy.

Introduktion

In Denmark wetlands are established to reduce nutrient load to the aquatic environment and to re-establish former lakes.
The potential amenity values around the lakes can be improved if species richness is increased.

Aim

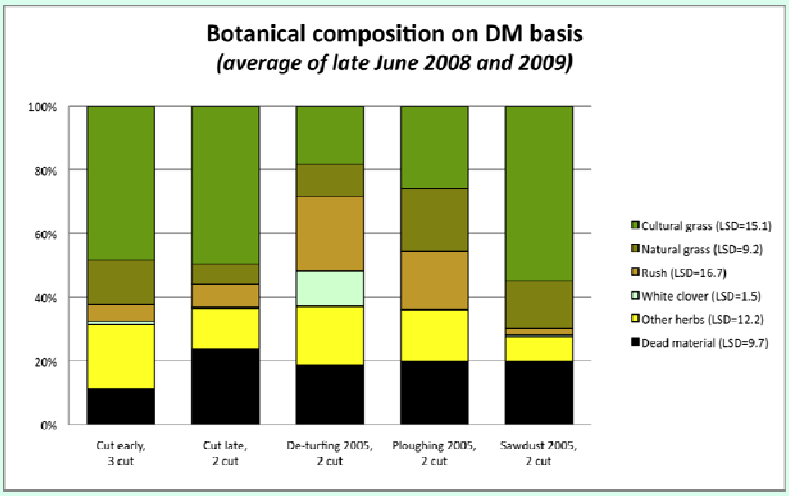
To compare the ability of five different management regimes to reduce nutrient loads and restore biodiversity.

Site

Soil: Organic matter 65 %, total N 2.8 % .

Management plots

T1: Cut early, first cut middle of May, three cuts
T2: Cut late, first cut end of June, two cuts
T3: Initial de-turfing (2005), cut as T2
T4: Initial ploughing (30-40 cm, 2005), cut as T2
T5: Initial sawdust mulching (2005), cut as T2



Total yearly production on DM-basis. Ellenberg-N value weighted by percentage of individual species on DM-basis in the samples from June (average 2008 and 2009).

	Cut early	Cut late	De-turfing 2005	Ploughing 2005	Sawdust 2005	LSD
	3 cut	2 cut	2 cut	2 cut	2 cut	
DM t ha^{-1} y^{-1}	4.2	5.2	3.2	5.7	6.0	1.5
Ellenberg-N	5.4	5.4	4.7	5.2	5.9	0.6

Results and conclusion

- De-turfing of small plots allows species with low Ellenberg-N values to establish
- Initial ploughing had a similar effect and less clover established
- Sawdust mulch had a very short time effect and showed a faster increase in available nutrients than expected
- The early cut strategy resulted in a high percentage of other herbs and a low amount of rush, especially *Juncus effusus*

A general management with cutting (early) of the sward combined with small subplots of de-turfing or ploughing seems to be a good strategy. It may be further improved by adding seeds from a local donor site just after the disturbance.

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