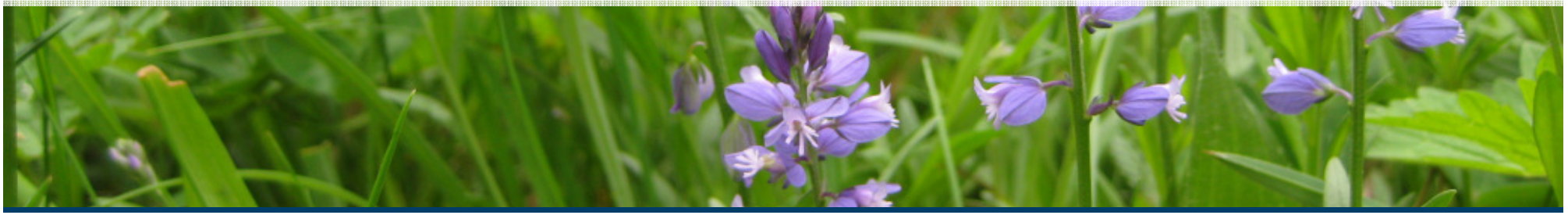
EGF Semi-Natural Grassland Working Group

Pre-conference Workshop

25th EGF General Meeting
Aberstwyth, September 2014



Workshop Programme

9:30 **Where do we stand?** – a short overview over the issues raised by the Working Group questionnaire on SNG
Bettina Tonn

10:00 **A phytosociological approach to grassland classification – current activities of the European Vegetation Survey**
John Rodwell

10:45 **Coffee break**

11:00 **A simple classification of French permanent grasslands aimed at evaluating the forage and environmental services they provided**
René Baumont, Sylvain Plantureux

11:30 **The French experience with 'Flowered Meadows Championships' and the associated agro-environmental measures**
Sylvain Plantureux

12:00 **Limits of semi-naturalness – a UK perspective**
Stuart Smith, Steve Peel, Richard Jefferson, Clare Pinches

12:20 **Where do we go?** – Discussing the further procedures of the working group

1:00 **Lunch break**

2:00 - 6:00 F**ield trip to Rhos Talglas Special Area of Conservation (SAC)**

EGF Semi-Natural Grassland Working Group:

Where do we stand?

1st Working Group meeting
5 June 2012 Lublin

Proposed topics for the working group

1. What *are* 'semi-natural grasslands'? → **definition**
2. Classifying (semi-natural) grasslands to meet agricultural and environmental challenges → **classification**
3. How to recommend biodiversity-targeted management for specific grassland sites?
4. What are 'best-practice examples' for measures to preserve semi-natural grasslands ?

Return of the 2013 Working Group Questionnaire

Belgium:	2
Czech Republic:	3
France:	3
Germany:	4
Italy:	1
Poland:	2
Slovenia:	2
Sweden:	1
United Kingdom:	1
Total:	19

Purpose

What should be the purpose of…	… a common definition of 'semi-natural grasslands'?		… a general classification of grasslands according to agricultural / environmental characteristics?	
	YES	NO	YES	NO
Framework for policy makers	17	2	15	4
Framework for a better statistical system on grasslands	13	6	16	3
Improved communication between scientists / other stakeholders from different regions	16	3	17	2
Better transfer of research results and management expertise between sites and regions	14	5	18	1
Quantification of agricultural / environmental services of different types of grassland	14	5	18	1
Not necessary at all	1	18	1	18

Definition of the EGF Working Group ‘Grassland Term Definitions‘

Semi- natural grasslands are:

Low-yielding permanent grasslands,

dominated by indigenous, naturally occurring grass communities, other herbaceous species and, in some cases, shrubs and/or trees.

These mown and/or grazed ecosystems

are **not substantially modified** by fertilisation, liming, drainage, soil cultivation, herbicide use, introduction of exotic species and (over-)sowing.

Peeters et al. 2014 Grassl Sci Eur

Additional remarks on SNG definition

- Occasional **liming** on acidic grasslands, or the application of **very low amounts of organic fertilizers**, if not combined with other 'improvement' techniques, are not considered to substantially modify habitats.
- If not associated with higher fertilization or stocking rate, **drainage** can transform wet semi-natural grassland into mesophilous semi-natural grassland.
- Although most semi-natural communities give low production, some of them, such as purple moor grass (*Molinia caerulea*) or tall sedge (*Carex* spp.) communities, **can be quite productive**.
- Semi-natural vegetation is **not planted/sown by humans** but is influenced by human actions such as grazing, cutting or burning.
- **Previously cultivated areas that have been abandoned** and where vegetation is regenerating may also evolve to semi-natural vegetation.
- In contrast with natural vegetation, semi-natural communities thus need regular anthropogenic disturbances to be maintained.

Peeters et al. 2014 Grassl Sci Eur

WG questionnaire: SNG definitions

Semi-natural grasslands are…

- grasslands of anthropogenic origen (5)
- permanent grasslands (4)

… that

- are dominated by regional indigenous/naturally occurring species (5)
- besides, grasses and forbs, may include (some) shrubs, trees (3)
- have a vegetation shaped by interaction of site and management / adequate amount of site-indicating species (2)

… and have the following managment characteristics

- no seeding / overseeding at all / of commercial varieties / of highly productive species (6)
- only low input of fertilization (5)
- regular mowing or grazing take place (4)
- generally low intensity of management (3)
- no soil cultivation / ploughing ever / in the last 10 or 20 years (3)
- management not so intensive that it obscures the influence of site conditions (2)
- management not so intensive that semi-natural vegetation is substantially influenced (2)

Key issues in defining SNG

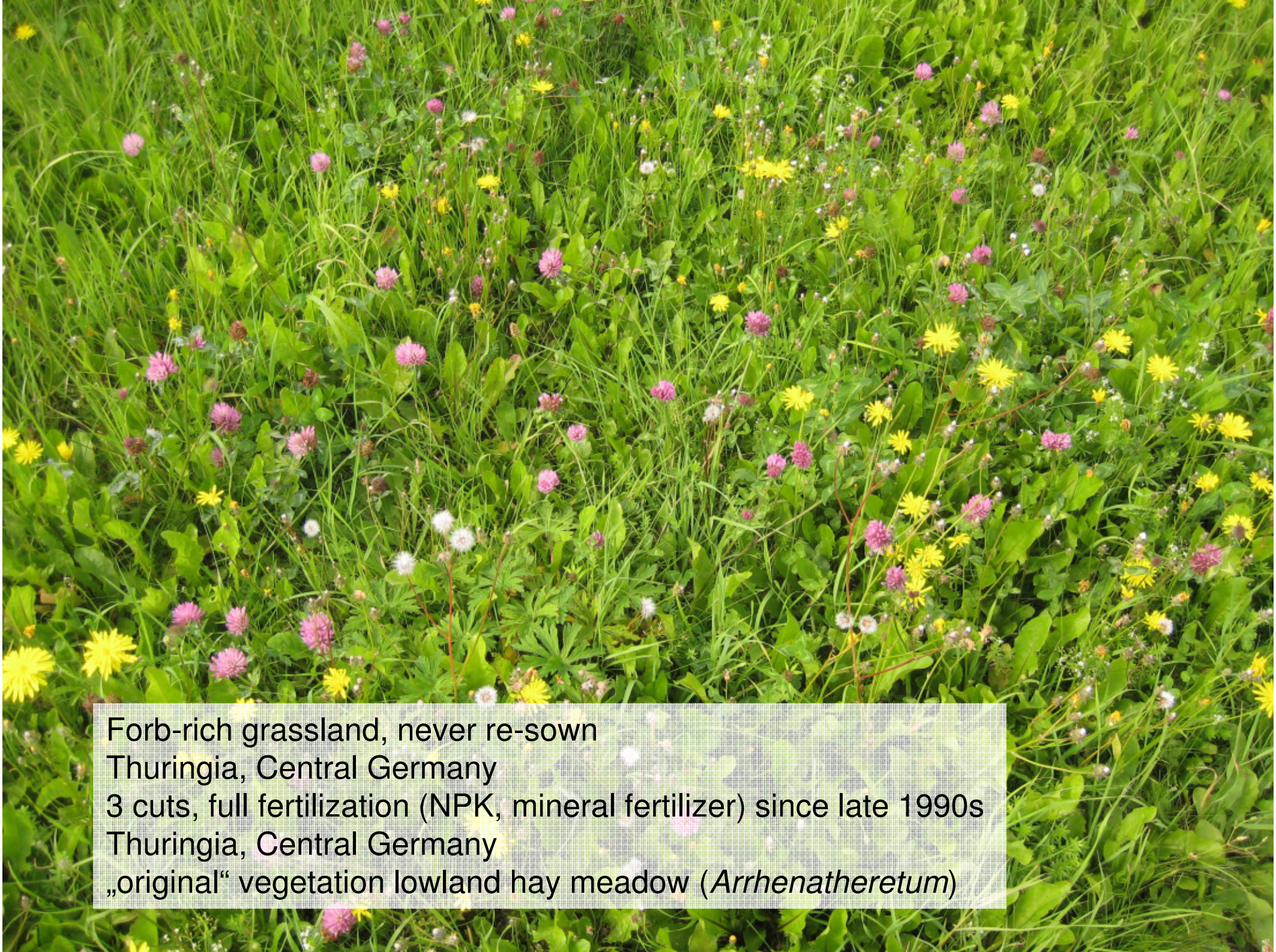
- **“Low intensity of management”**:
  - Which thresholds to set? (widely varying views)
- **“No substantial modification”**
  - Substantial modification of what, and what is “substantial”?
- **“Traditional management”**
  - What is the reference period for “traditional management”?
  - What if traditional management no longer fit intos current agricultural production ? Are substitutes permissible ?

Management consistent/inconsistent with SNG

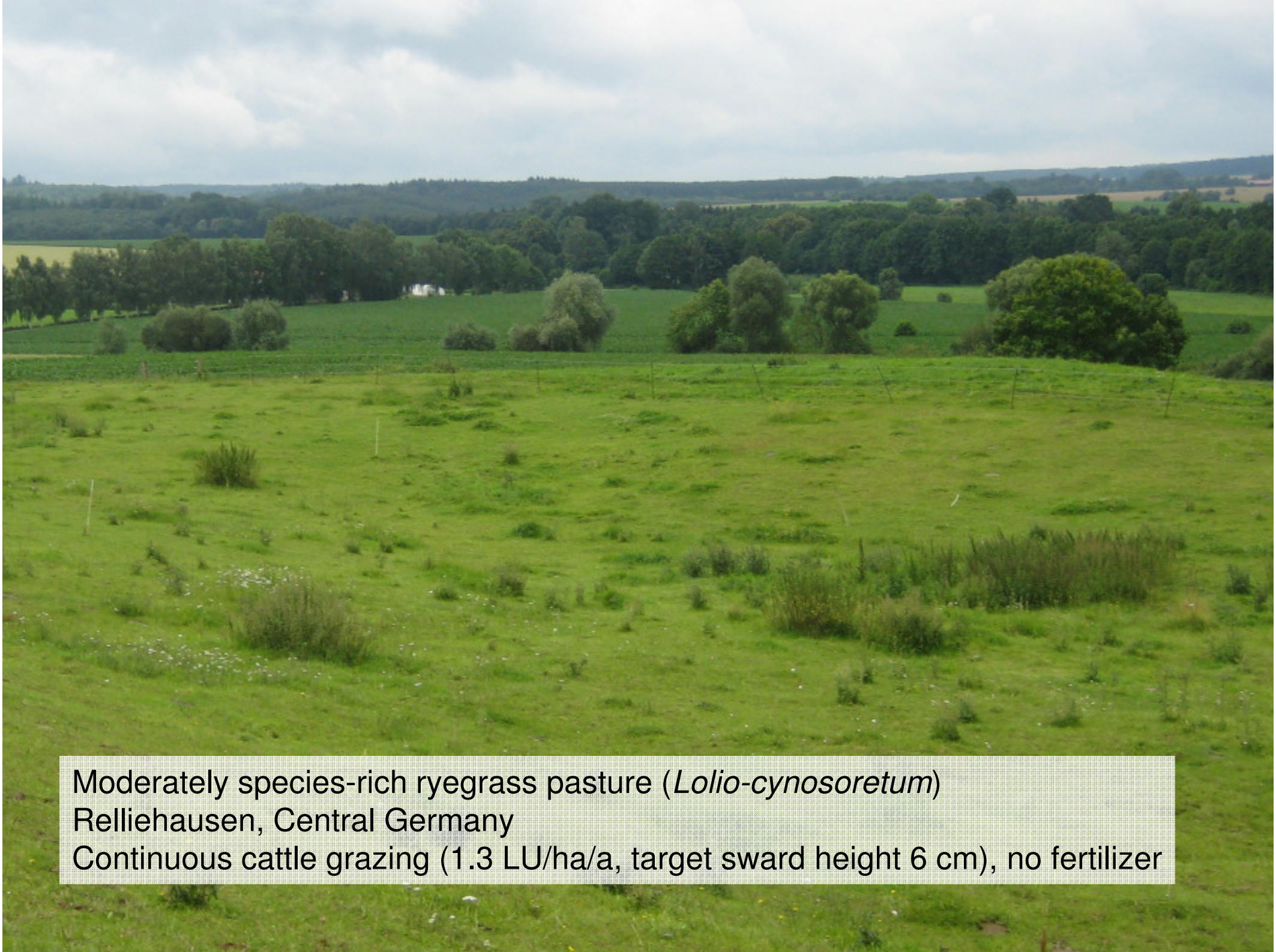
Which of the following management measures is consistent with a grassland still being defined as a 'semi-natural grassland'?				
	Never in SNG	Under certain conditions / up to certain amounts		No relevant criterion
		guidelines can be defined	guidelines cannot be defined	
Application of synthetic N fertilizer	**7**	**7**	**3**	**2**
Application of synthetic P fertilizer	**5**	**8**	**3**	**3**
Application of synthetic K fertilizer	**5**	**8**	**3**	**3**
Application of farmyard manure	**1**	**12**	**3**	**3**
Application of liquid manure/slurry	**6**	**7**	**2**	**3**
Liming	**2**	**6**	**4**	**3**
Application of herbicides	**10**	**4**	**1**	**1**
Drainage	**8**	**5**	**2**	**4**
Irrigation	**5**	**7**	**2**	**2**
Resowing	**9**	**7**	**0**	**0**
Soil tillage	**9**	**5**	**0**	**0**
A period of abandonment	**0**	**11**	**3**	**1**

Mountain Hay Meadow (Trisetetum),
2 cuts, liming and (PK) fertilization since 1970s
Thuringia, Central Germany
„original“ vegetation acidic grasslands (Nardetum)

Mountain hay meadow (*Trisetetum*)
Black Forest, SW Germany
2 cuts, fertilization with liquid manure,
(„traditionally“ farmyard manure), < 50 kg N/ha,
NATURA 2000

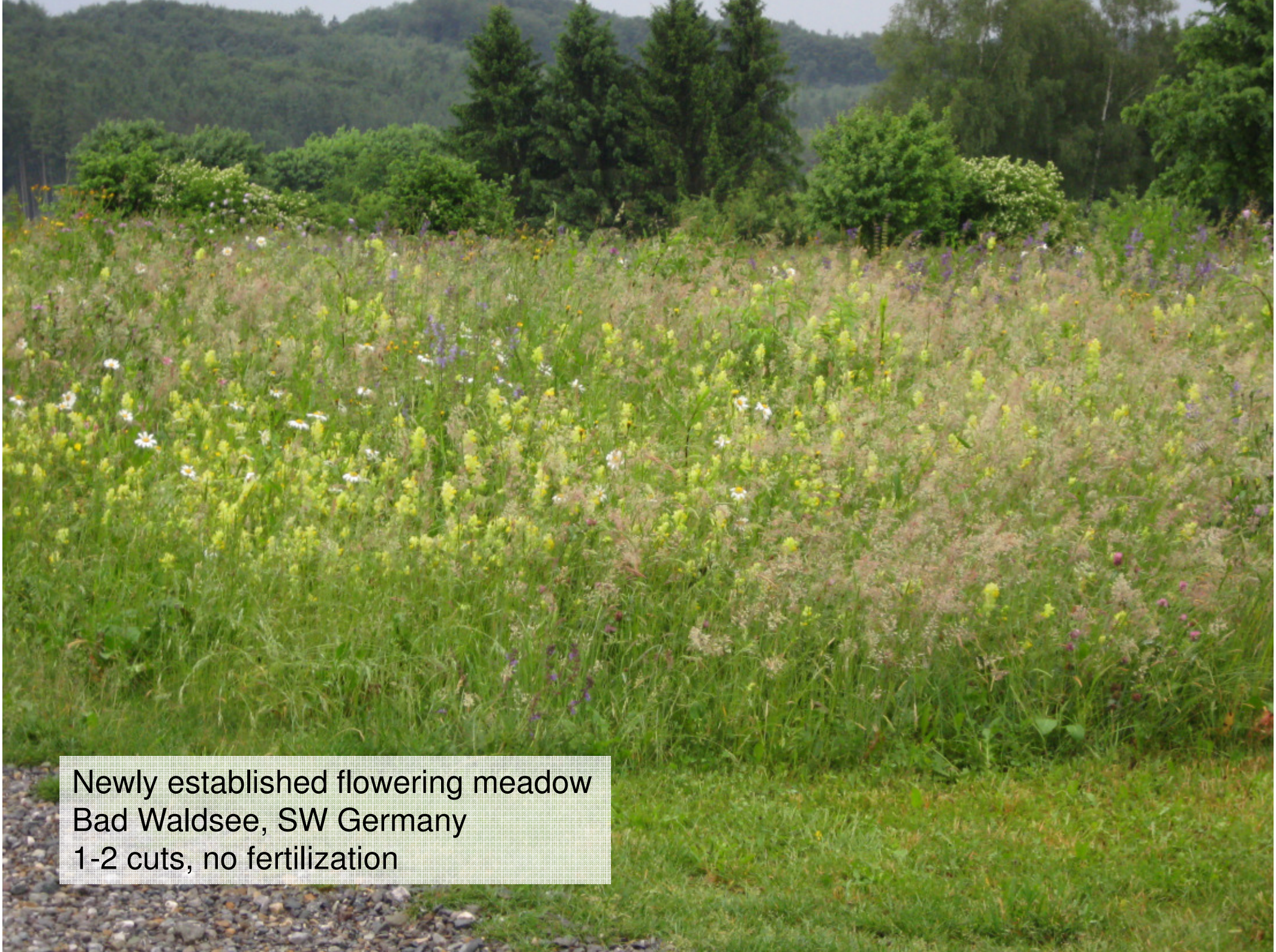


Forb-rich grassland, never re-sown
Thuringia, Central Germany
3 cuts, full fertilization (NPK, mineral fertilizer) since late 1990s
Thuringia, Central Germany
„original“ vegetation lowland hay meadow (*Arrhenatheretum*)



Moderately species-rich ryegrass pasture (*Lolio-cynosoretum*)
Relliehausen, Central Germany
Continuous cattle grazing (1.3 LU/ha/a, target sward height 6 cm), no fertilizer

Moist lowland hay meadow (*Arrhenatheretum*), very grass-rich and species-poor
Near Stuttgart, SW Germany
1 late cut (~August), no fertilization



Newly established flowering meadow
Bad Waldsee, SW Germany
1-2 cuts, no fertilization

My questions

- Do we **need** a more detailed definition of SNG?
- Is a more detailed definition of SNG **possible**?
- Do we need to clarify the **concept of „semi-naturalness“**?

***Your* questions…**

… and answers!

Lolium-perenne dominated grassland, old permanent grassland, local ecotypes dominate
Tiefenbronn, SW Germany
Intensive dairy pasture, mineral N fertilizer

Basis of an SNG definition

What should be the basis of the definition of ‘semi-natural grasslands’?		
	YES	NO
Vegetation type	**17**	**2**
Management	**18**	**1**
Site characteristics	**11**	**8**
Function in a farming system	**5**	**14**

Other suggestions:

- no ploughing
- origin of vegetation (self-propagated native plants or naturalized plants – definition?)
- age of sward
- management history
- site adaptability / presence and allocation of site characteristic species
- innovative method of classification based on ecosystem services provided by SNG

Vegetation characteristics to define SNG

Which vegetation characteristics would be useful to delineate ‘semi-natural grasslands’?				
	YES	NO	General indicator value can probably be defined	General indicator value can probably not be defined
Species number	**10**	**9**	4	6
Presence of rare species	**8**	**11**	3	3
Presence of species from a list of indicator species	**15**	**4**	7	4
Percentage of dicots/grasses	**7**	**12**	3	4
Correspondence with a phytosciological vegetation type	**15**	**1**	5	0
Productivity	**5**	**10**	4	1
Productivity in relation to climate	**8**	**8**	3	1
Time since complete destruction of sward	**6**	**10**	3	2

Other vegetation characteristics

- Productivity in relation to climate and site conditions
- Productivity in relation to vegetation type
- Presence of hemi-parasitic plants
- Absence or low proportion of indicator species for intensive management
- Absence or low proportion of poisonous species (often sign of lack of maintenance)
- Management and source of propagules more important

Management consistent/inconsistent with SNG

Which of the following management measures is consistent with a grassland still being defined as a 'semi-natural grassland'?				
	Never in SNG	Under certain conditions / up to certain amounts		No relevant criterion
		guidelines can be defined	guidelines cannot be defined	
Application of synthetic N fertilizer	**7**	**7**	**3**	**2**
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Application of synthetic K fertilizer	**5**	**8**	**3**	**3**
Application of farmyard manure	**1**	**12**	**3**	**3**
Application of liquid manure/slurry	**6**	**7**	**2**	**3**
Liming	**2**	**6**	**4**	**3**
Application of herbicides	**10**	**4**	**1**	**1**
Drainage	**8**	**5**	**2**	**4**
Irrigation	**5**	**7**	**2**	**2**
Resowing	**9**	**7**	**0**	**0**
Soil tillage	**9**	**5**	**0**	**0**
A period of abandonment	**0**	**11**	**3**	**1**

Other management activities consistent or inconsistent with SNG

- Consistency of management with the traditional management that created the grassland
- Traditional use of trees and shrubs
- Traditional hay handling and transport (seeds!)
- Traditional timing and dynamics of mowing and grazing
- Minimum utilization: at least once grazed or cut each year
- Pasture maintenance (prevention of shrub encroachment)
- No ameliorative top soil manipulation

Utilization intensity of SNG

Which of the following management measures could be used as criteria to define ‘semi-natural grasslands’?			
	no suitable criterium	possibly suitable criterium	very good criterium
Mowing frequency per se	8	6	2
Mowing frequency in relation to climate	3	11	3
Mowing frequency in relation to site productivity	2	9	7
Mowing frequency in relation to other factors	1	9	3
Average timing of fist cut (phenological stage)	2	12	4
Stocking rate per se	12	3	1
Stocking rate in relation to climate	5	11	1
Stocking rate in relation to site productivity	1	13	4
Stocking rate in relation to other factors	3	7	3
Other measure of grazing intensity	3	9	0
Grazing system	5	7	2

Other utilization characteristics to define SNG

- Traditional use of different practices that have formed the habitat
- Burning frequency
- Mulching
- Production of hay or silage
- Toppering (cutting sward to 10-15 cm to suppress flowering)
- Over-seeding (to improve botanical composition / hay making)
- Presence of other cropping (tree bark, fruit gathering, honey production)

Criteria for a classification of grasslands accourding to agricultural/environmental services/challenges (I)

Criteria that could be suitable indicators for a classification of grasslands into broad categories with similar agricultural / environmental services and challenges	Number of times selected
Application of synthetic N fertilizer	13
Application of farmyard manure	13
Application of synthetic P fertilizer	12
Mowing frequency in relation to site productivity	12
Presence of species from a list of indicator species	12
Correspondence with a phytosociological vegetation type	12
Species number	11
Stocking rate in relation to site productivity	10
Grazing system	9
Application of synthetic K fertilizer	9
Application of liquid manure/slurry	9

Criteria for a classification of grasslands accourding to agricultural/environmental services/challenges (II)

Criteria that could be suitable indicators for a classification of grasslands into broad categories with similar agricultural / environmental services and challenges	Number of times selected
A period of abandonment	8
Average timing of first cut (phenological state)	8
Percentage of dicots/grasses	8
Presence of rare species	7
Productivity in relation to climate	7
Mowing frequency per se	6
Mowing frequency in relation to other factors	5
Productivity	5
Liming	5
Application of herbicides	5
Drainage	5
Irrigation	5
Resowing	5
Soil tillage	5
Time since complete destruction of sward	5