Synthesis and perspectives

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and Beat Boller

Agricultural activity is of paramount importance for the identity of the EU.... but it must meet the expectations of society as a whole, and respond to international challenges.

Burtscher

Fundamental changes in EU

New member states

CAP reform 2003

- decoupled SFP
- regionalisation
- respect for the environment, food safety, health and welfare
- rural development

and in Switzerland

- Great reduction in production-related subsidies
- Even greater emphasis on multifunctionality
- Farmers are changing rapidly to grazing - cheaper, sustainable
- 7% of almost every farm devoted to ``nature``

I Balancing economy and ecology

- How to deliver public goods at least cost? (*Hodge*)
- Simple prescriptive schemes. Quite often don,t work (*Rosef*)
- More tailored schemes. Higher transaction costs
- Try to involve the voluntary sector
  (Conservation Amenity and Recreation Trusts)

- *Dabbert* : only dairy farms with high yields
  & low labour/ kg milk will survive ??

- Combine agri-environment program with attempt
  to market at higher price

- Nature to add value: Wild & White Milk (*Shaw*)

2 Benefits and Risks for Society

How to value the non-production benefits? (*Lehmann*)

- Q How is grassland like the Blue Whale?
- A It has an ``Existence Value`` - we want to know its still there

How to value the non-production benefits? (*Lehmann*)

- Has a number of Functional Values: biodiversity, soil protection, carbon sequestration. Need to value these

  - *Benoit*: Grassland *usually* positive for water protection, *but* if heavily grazed can become severely compacted leading to high runoff.

    ... propose to halt conversion to arable and recreate, especially along rivers.

    Link with development of wildlife corridors?

Biodiversity : How and why ?

- Biodiversity : a major issue in EGF 2004 congress with progress in knowledge about
  - how to preserve ?
  - how to restore ?
  - consequences for grass production
  - biodiversity and functioning of ecosystems

Biodiversity : How and why ?

But questions still remain :

- Local reserves or widespread preserved areas ?
  (eg swiss Ecological Compensation Areas)
- A better definition of the aims of improvement of grassland biodiversity (for farmers, citizens and grassland researchers)
- More precise evaluation of economic benefits and costs (*Lehman, Hediger*)
- The importance of intra-specific biodiversity

On the way to a better evaluation of environmental impacts

During this EGF congress

- More precise evaluation of management impacts
  on environment quality
  - CO2 fluxes and sequestration,
  - NO3 leaching
  - Gaseous emissions

- Emerging questions like effects of antibiotics (*Burkhardt*) or other veterinary products

On the way to a better evaluation of environmental impacts

Questions for future :

- Long term and large scale effects *but* most of research on short-term and local - plant / field / (farm) - evaluation
- Multi-criteria and global evaluation is essential (ie Life Cycle Assessment (*Huguenin-Elie*)

3 Efficient use of natural resources

- Best practice in nutrient management *(Jarvis)*
- Fairly mature subject, many improvements are possible particularly in manures, *but* must recognise, and have confidence.
- *Peyraud:* Best practice in grazing management – very mature subject – *but* again need confidence.
- Good to see whole decision support package
- EGF working group

But how to balance profit and environment in dairy systems

- Consensus here was that grazing is sustainable, *but*
- Grass is high in N, which is poorly used by ruminants, leading to high risk of loss via NH3 and NO3
- Grazing limits milk yields, so need more cows = more methane.
- Still waiting for whole system evaluations and demonstrations relevant in most of Europe

Can plant breeding provide solutions ?

- Expectations of breeding for optimal grazing systems (*Peyraud*):
  - Extend growing season of perennial ryegrass
  - Improve forage intake
  - Make alternative species like red clover adapted to intensive grazing
- Disappointment about lack of progress (*Soegaard*):
  - Resown grassland vs. Permanent pasture: no change in relationship after 32 years of breeding progress

Can plant breeding provide solutions ? (2)

- New breeding objectives e.g. mixed swards, climate change?
  - Consider time frame, available funding
- Intra-specific diversity is very rarely taken into account in grassland biodiversity issues
  - Need to integrate grassland science, genetic ressources conservation and plant breeding

Use of legumes and mixed swards

- Role of legumes in sustainable grassland systems widely acknowledged and topic of important research efforts
- Increasing interest in legumes other than white clover:
  - Red clover: many ``new`` positive features like silage intake, CLA in milk, etc.
  - Trefoil: condensed tannins, protein protection

Ley-arable rotations re-discovered

- EGF Working group on Grassland resowing and grass-arable rotations
- Quantifying positive aspects
- 32 year comparison trial at Melle (*Nevens*):

Useful N from ley available to subsequent crop, kg/ha	
1st year after ley	150
2nd year after ley	52
3rd year after ley	29

4 From forage to food quality

Forage quality: old and new aspects

Focus is changing from general nutritive value to individual compounds, accepting that the consumer wants ruminant products to originate from an appropriate diet

Old focus: Can grassland continue to provide the main feed for high producing ruminants? .... Rather negative answers

„New“ focus: What are the assets of pasture grass that make it the preferred diet of ruminants? And how does it improve the quality of the produce? .... Generally positive answers

55 Posters deal with old and new aspects of forage quality

Forage quality : research opportunities

- Turn cows into new paddock in the evening to benefit from diurnal change in WSC? (*Smit*)
- Mycotoxins from Fusarium may cause feed safety problem in late autumn/winter grazing of Lolium and Festuca (*Laser*)
- High levels of phytoestrogens in clover silage could pass to milk and have beneficial health effects for humans – need to re-assess potential fertility problems in cattle? (*Sakakibara*)

Quality of products

- Only few presentations in EGF 2004 : „health“ aspect more representated than organoleptic quality

  → CLA content (*Martin*)

- In the future : Niche market or massive trend in the commercialisation of dairy and meat products – which consequences on grassland systems ?

5 Transdisciplinary research and knowledge exchange

- Excellent theme – pity people had started to leave conference.

- Integrated research (*Fry*)
- Popular with researchers, but they worry about; publication, and recognition
- Grassland societies could influence funders, and research employers.

- Also a message from Wielinga – people need the time, space and recognition to not only network, but to take ownership and lead the process.

- Involving the users of research, at the beginning (*Mayne*), and even better throughout (*Baars*)
- Also a great need to involve the public, and schools (*Bele*)

EGF 2004

High quality

Integrated

Superbly organised

Wonderfully friendly

We leave with new insights and happy memories

Thank you