QUALITY AND AVAILABILITY OF NUTRIENT DATA FOR AEI AND OTHER INDICATORS

4 September 2015

Anne Miek Kremer

Contents

- Introduction.
- Nutrient data requirements for AEI and other EU and international policies.
- Challenges identified for establishing AEI.
- Overview of main issues in nutrient data quality and availability.
- Conclusion: main challenges with regards to nutrient data and quality.

Agri-environmental indicators

To monitor the integration of environmental concerns into the common agricultural policy the Commission has identified 28 agri-environmental indicators (AEI) (COM final 0508/2006).

Many AEI are direct or indirectly related to nutrients:

AEI 4 Area under organic farming	AEI 7 Irrigation
AEI 5 Mineral fertilizer consumption	AEI 9 Land use change
AEI 10 Cropping and livestock patterns	AEI 21 Soil Erosion
AEI 11 Soil cover, manure management	AEI 26 Soil Quality
AEI 15 Nitrogen budgets	AEI 27 Water pollution-Nitrates
AEI 16 Risk of P pollution	
AEI 18 Ammonia emissions	
AEI 19 GHG emissions	

Links between nutrient related AEI

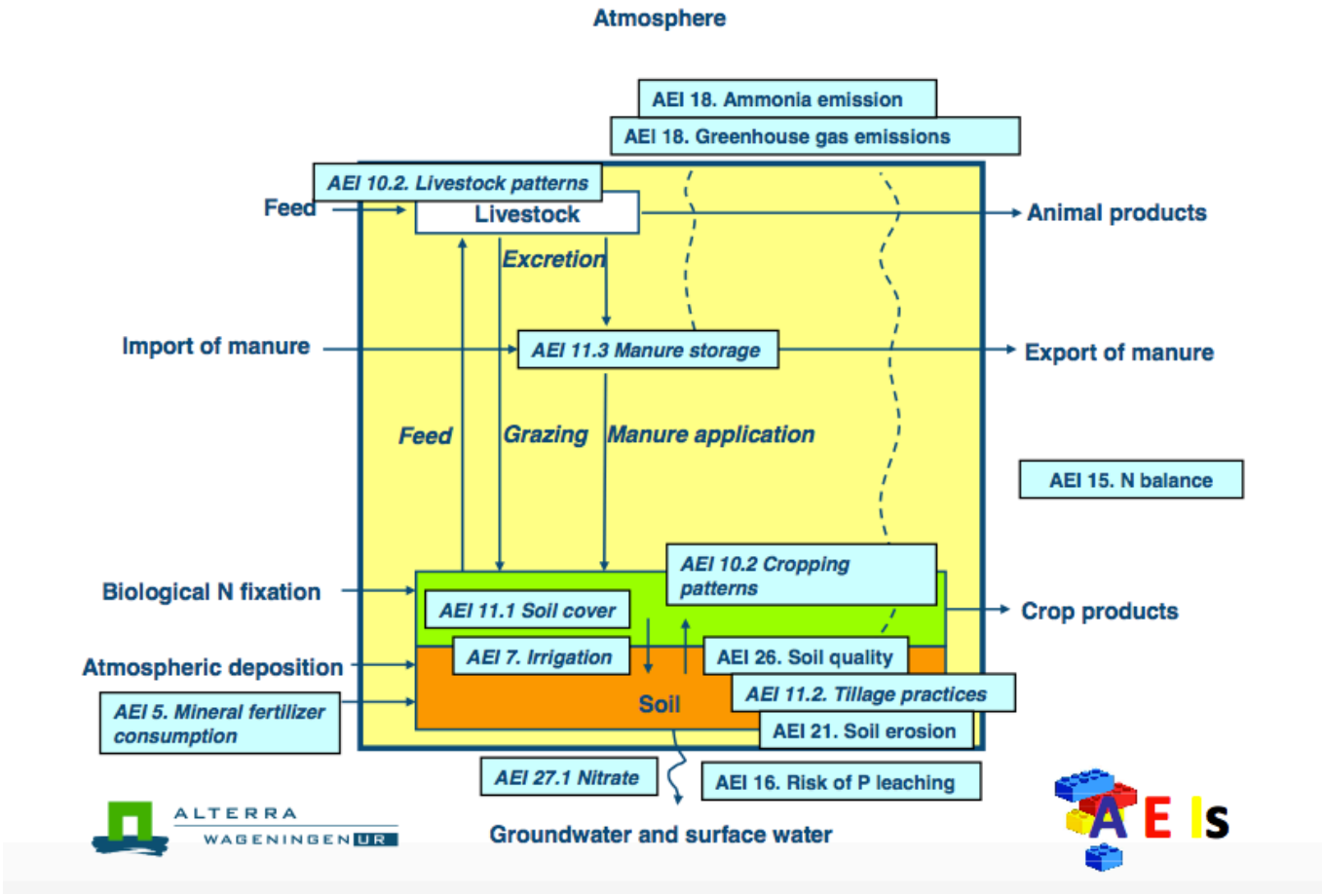


Figure derived from Diredate

Overlap nutrient requirements policies

Large overlap in direct and indirect data requirements related to nutrients for several EU and international policies, for example:

- AEI 5 Mineral fertilizer consumption:
  - UNFCC, NECD, ND, *RDP, WFD, BHD*
- AEI 15 Nitrogen budgets:
  - RDP, ND, UNECE, WFD, *UNFCCC, NECD*
- AEI 16 Risk of P pollution:
  - RDP, *ND, WFD*

Challenges indicators

Challenges in AEI (COM(2006)508 final):

- Unsatisfactory data availability and quality
- Lack of consistency among data flows and reporting
- Double efforts and overlapping work

Potential for increasing effectiveness and efficiency

- Harmonizing reporting requirements
- Streamlining data collection
- Reducing cost and response burden
- Increasing spatial and temporal coverage as well as precision

Coordination on nutrient related indicators

MoU DG AGRI, DG ENV, ESTAT, EEA, JRC

- For each indicator a lead institution is assigned
- ESTAT general coordination especially with regards to data collection and cooperation with MS
- Indicators under the lead of ESTAT are closely related to the European Statistical System (FSS)
- DG CLIMA and DG SANCO are also following the work

Coordination on AEI with OECD, FAO and other stakeholders

Identification data needs

2010/2011 Tender project to identify direct and indirect data needs linked to the farms for agri-environmental indicators 'Diredate' (research consortium).

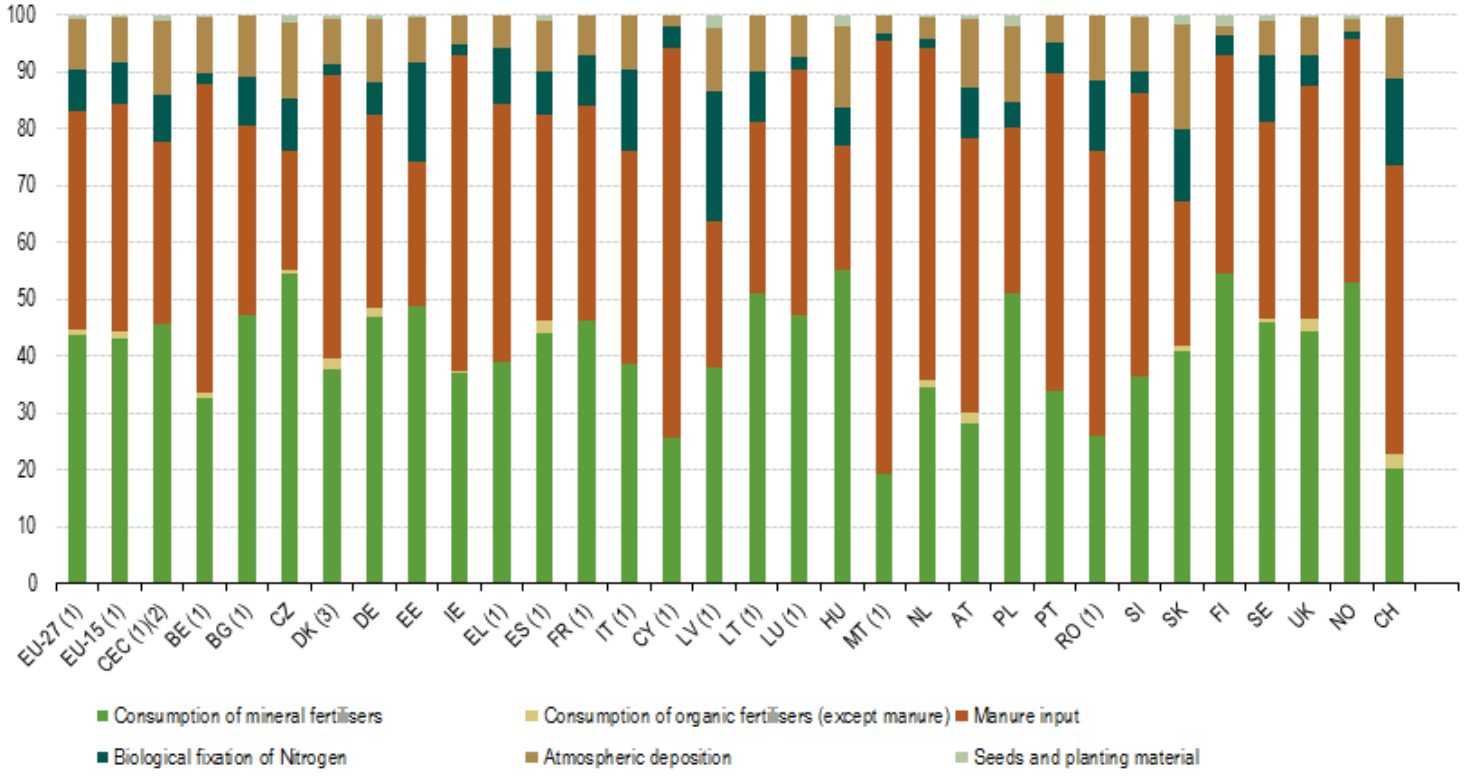
- Identification data requirements AEI taking into account availability of data and data requirements of other policies
- Recommendations for data collection and harmonisation of methodologies

Many needs related to nutrient budgets

2013 Update OECD/Eurostat Handbook on nutrient budgets

- Inventory availability and quality of data.
- Harmonisation of data sources and methodologies between countries.
- Harmonisation of data sources and methodologies with UNECE CLTRAP Nutrient budgets in Annex to Gothenburg Protocol and other stakeholders.
- Incorporation direct GHG and NH3 emissions in nutrient budgets in alignment with IPCC and EMEP guidelines.
- Update discussed with MS and stakeholders within and outside EU Commission.

Share of different N inputs in total N inputs, average 2005-2008

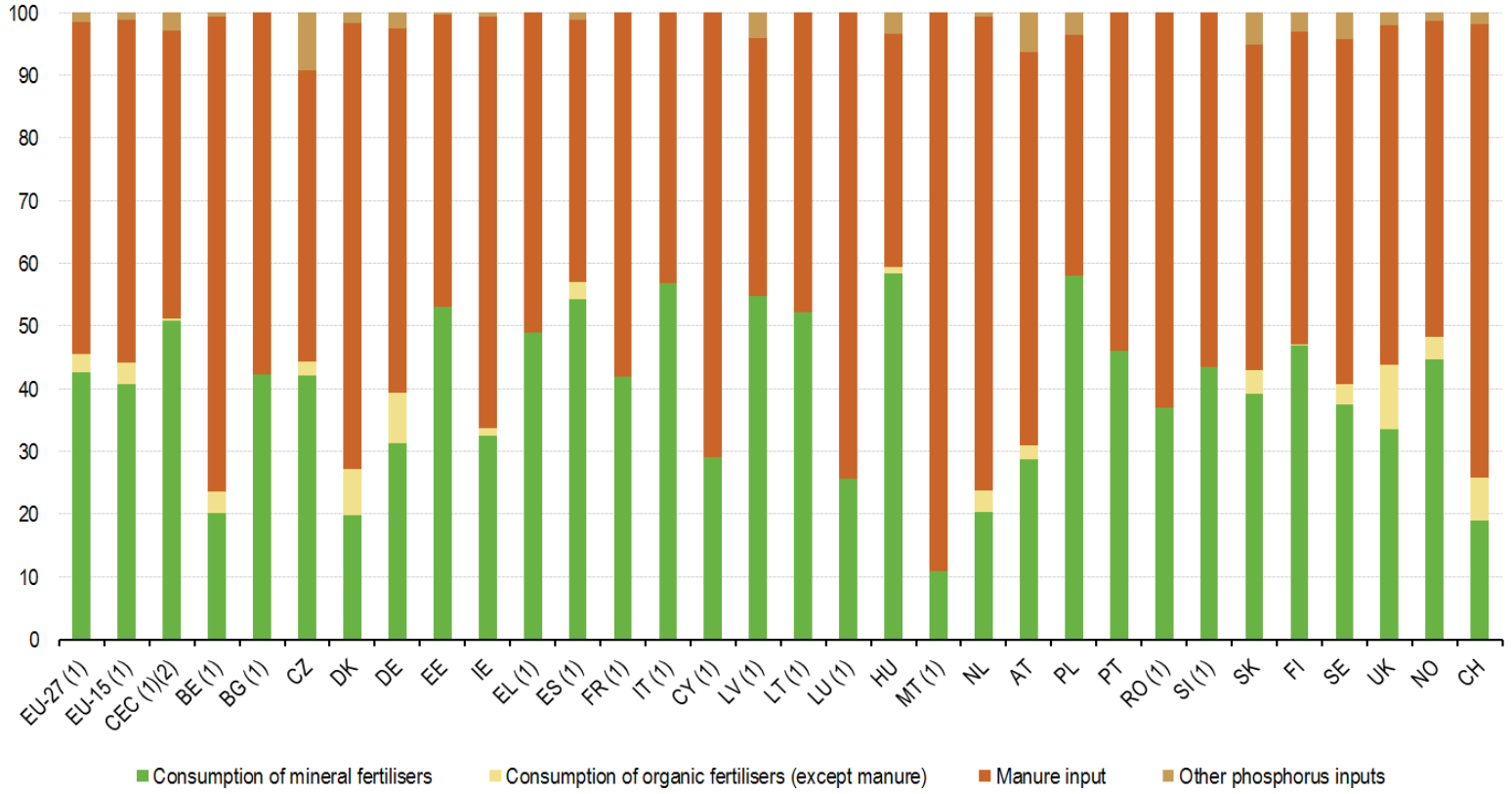


(1) Eurostat estimations

(2) CEC countries are: PL, RO, BG, CZ, HU, LV, LT, EE, SI, SK

(3) Eurostat estimations for biological fixation

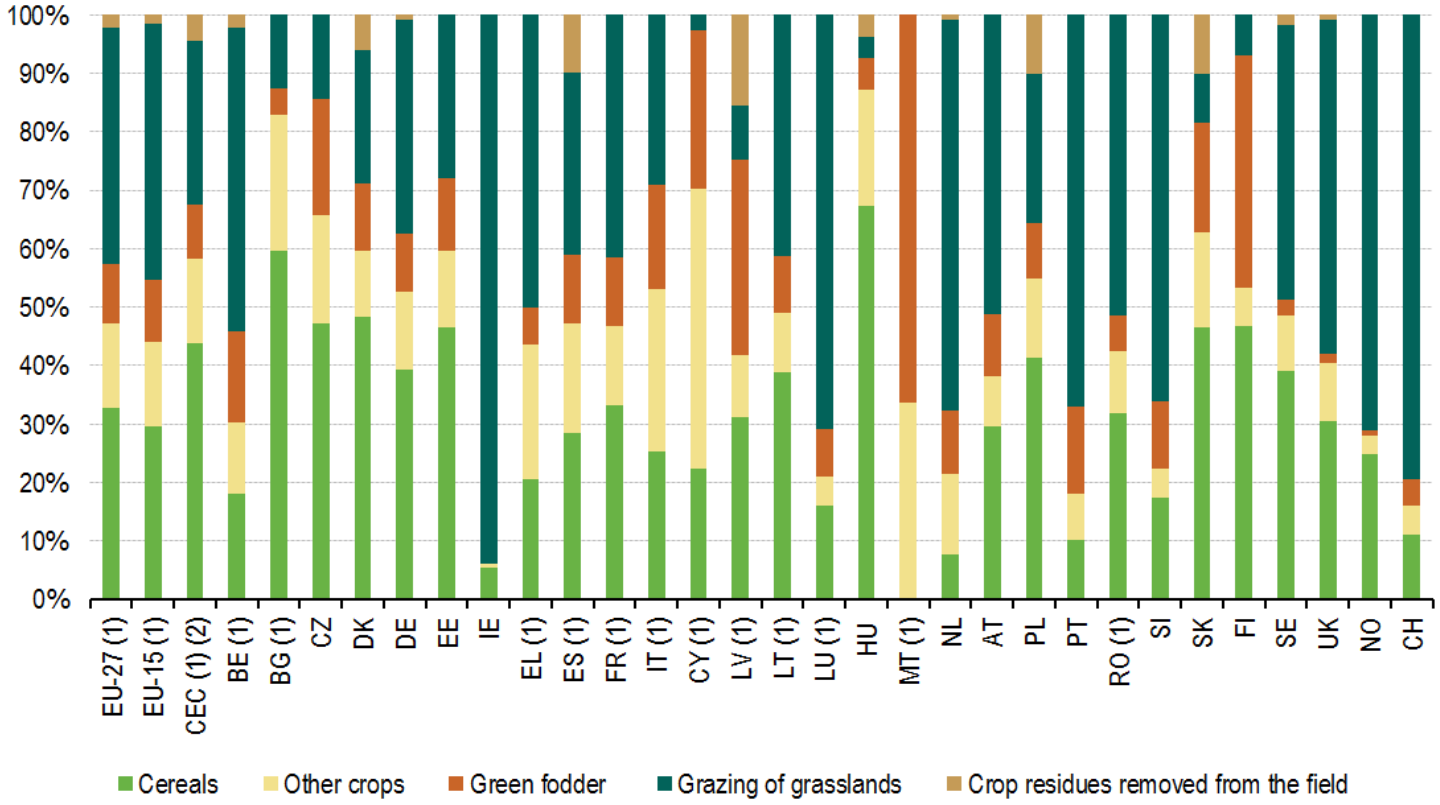
Share of different P inputs in total P inputs (average 2005-2008)



(1) Eurostat estimations

(2) CEC countries are: PL, RO, BG, CZ, HU, LV, LT, EE, SI, SK

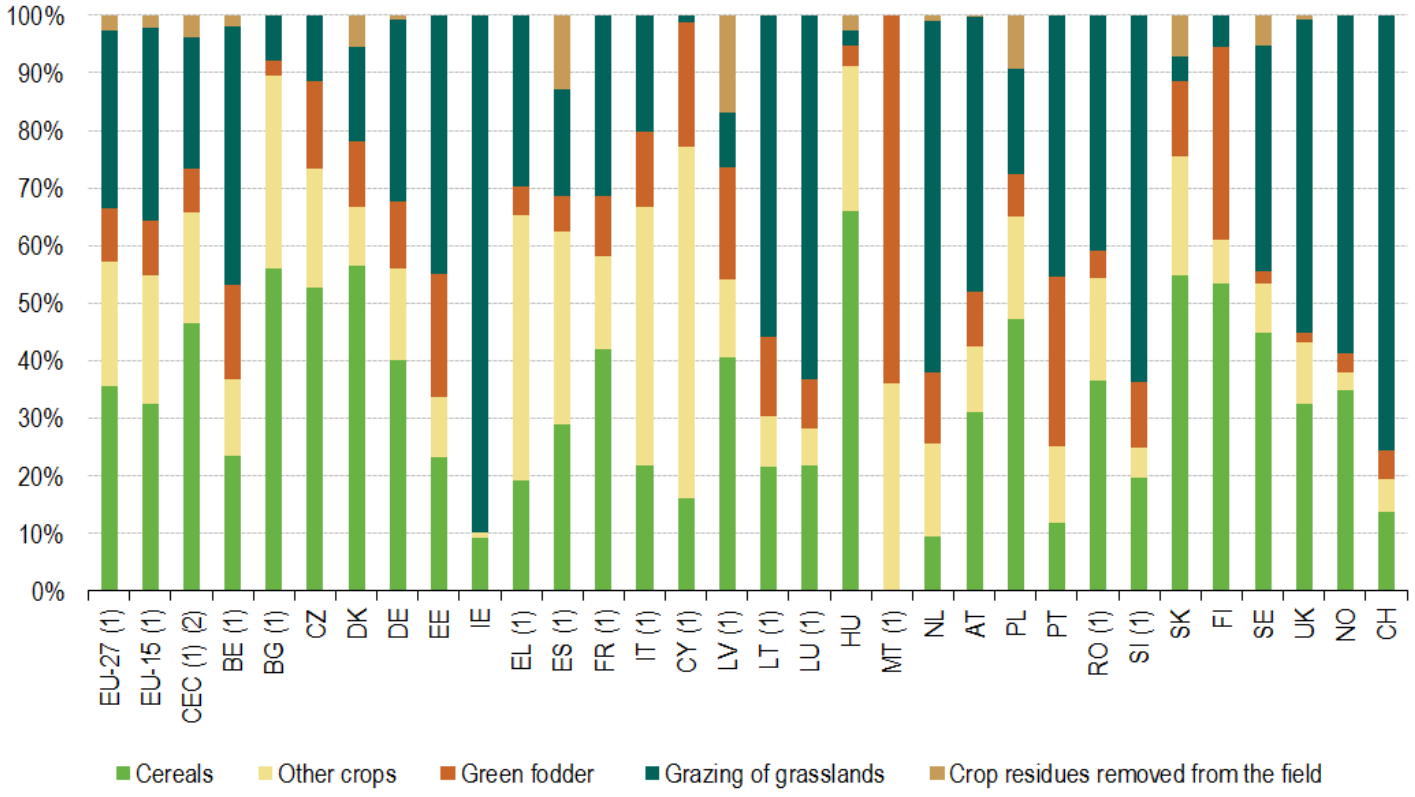
Share of different N outputs in total N outputs, average 2005-2008



(1) Eurostat estimations

(2) CEC countries are: PL, RO, BG, CZ, HU, LV, LT, EE, SI, SK

Share of different P outputs in total P outputs, average 2005-2008



(1) Eurostat estimations

(2) CEC countries are: PL, RO, BG, CZ, HU, LV, LT, EE, SI, SK

Main issues in nutrient data availability and quality

- N/P fertiliser applications:
  - Data needed for many policies, at low regional level
  - P applications important to be able to establish indicator vulnerability to phosphorus leaching/run-off.
  - Data currently annual available at national level for most MS, however methodologies and data sources vary.
  - Working groups established in MS to improve fertiliser statistics and to research possibilities to regionalise data.
  - Inclusion in farm surveys proves difficult: costly, relative high respondent burden, etc.
  - Other possibilities to provide needed micro level data in the short-medium term?

Main issues in nutrient data availability and quality

- Manure (excretion coefficients):
  - IPCC Guidelines for N excretion exist.
  - However wide variety in methods and data sources used by MS and organisations for different policy reporting.
  - Many countries at Tier 1 (default estimation).
  - Improvements in availability and quality of data to estimate excretion are needed (livestock categorisation, animal feed intake and nutrient content, animal production and nutrient content)
  - Recommendations research project carried out by Alterra for Eurostat on improving consistency and comparability of excretion coefficients taking into account IPCC Guidelines.

Main issues in nutrient data availability and quality

- Manure (excretion coefficients):
  - No 'IPCC' Guidelines for P, data on P are lacking for most MS.
  - Research project established default P coefficients.
  - Many of data needed and methodology lie outside the traditional statistical domain, role scientific institutes.
  - How to implement recommendations, how to setup structure like IPCC for P flows?

Main issues in nutrient data availability and quality

- Grassland yields, nutrient contents and biological N fixation:
  - 35 % of UAA is permanent grassland.
  - Data needed for several policies (climate, biodiversity, etc).
  - Data on yields, nutrient contents and BNF are lacking in many MS and methodologies vary.
  - 2014 research project by Alterra for Eurostat provided some recommendations on data and methodological improvements.
  - Improvements in area data and classifications might be incorporated in statistics, however methodologies to estimate yield, BNF and nutrient contents lie outside traditional statistical domain. How to organise guidelines etc?

Main issues in nutrient data availability and quality

- Crop production and nutrient contents:
  - Data on crop production annually available from crop statistics.
  - Data on nutrient contents, especially P, lacking in many MS.
  - 2014 pilot projects MS to improve nutrient coefficients.
  - Data on nutrient content fall outside tradional statistical domain. Role scientific institutes. How to organise guidelines etc?

Main issues in nutrient data availability and quality

- Crop residues inputs and outputs:
  - Estimate Nutrient Use Efficiencies.
  - Growing importance / sustainability.
  - Data on the use an production of crop residues and coefficients are mostly not available.
  - Difficult to collect data on use of crop residues.

- Data on farm management practices such as manure storage, application techniques, soil cover and tillage practices have been collected incidentally in FSS 2003, 2010 and 2016.

Conclusion

- Coordination exist for many nutrient related indicators and data availability and quality has improved.
- For some indicators improvements in data and methodologies are still needed, especially P data.
- Nutrient data requirements:
  - Statistical data (e.g. data on fertilizer application)
  - Scientific data (e.g. nutrient contents).

Conclusion

- Statistical data:
  - Guidelines to ensure coherence, comparability, transparency, timeliness and reliability in place (ESS).
  - Pressure to reduce budgets for statistics in MS → challenge to collect new data within ESS.
  - New arrangement for agricultural statistical system

Conclusion

- 'Scientific' data
  - Guidelines are necessary to ensure coherence and comparability, transparency, timeliness and reliability of 'scientific data'.
  - Coordination between institutions is necessary to ensure effectiveness and efficiency.
  - Some guidelines and coordination exists for the estimation of 'scientific' data (e.g. IPCC/EMEP).
  - For P however no such system is in place.

Thank you for your attention

Anne Miek Kremer
anne_miek_kremer@hotmail.com
http://nl.linkedin.com/in/annemiekkremer