

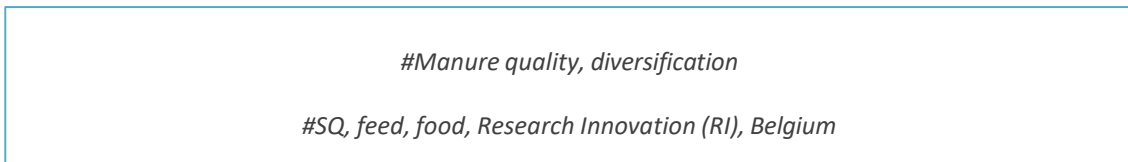
Practice SQ n° 17

QUALITY FODDER – QUALITY MANURE – QUALITY SOIL

Introduction

Category: Research Innovation (RI)

Practice identity card



Short description

- ➔ Changing the crop rotation towards more grass (single, multispecies, with legumes) in a fodder producing agricultural system for cattle production will positively benefit soil quality by breaking monoculture (or dominance) silage maize, a crop with very low contribution to soil organic matter and changing to crops that have large contribution to soil organic matter (grasses). In addition, diversifying the crop rotation increases diversity and the possibility of having perennial crops is higher, which has an additional positive impact to soil quality, by less disturbance of the soil.
- ➔ In addition, it is hypothesized that the manure produced by cattle fed by this shifted ration (from dominance silage maize to more grass-based) has a higher “quality” which would have positive effects on soil quality. Examples are an increased C/N ratio of the manure, more N in organic forms and a

shifted microbial composition. This could lead to higher contribution of the manure to soil organic matter and changes in the soil microbial composition.

Implementation process

Which practice is considered as the standard in this region? Fodder production with dominance of silage maize.

What was the on-farm issue/challenge/opportunity that led to the implementation of the practice? Regulations regarding NH₃-emissions in cattle farming. Some farmers indicate poor cattle health as a driver in changing the feed rations towards more grass.

How long did it take to implement the practice and which are the measures needed to monitor: Monitoring: characterisation of fodder composition in combination with manure and soil characterisation.

Logistics

- **Skill/education level required:** rather high

Agronomical traits

- **Can the practice be applied to a multitude of cultivation techniques?** Limited to (dairy) cattle production.
- **Targeted crop categories:** feed, food
- **Soil types suitable for the practice:** peaty, sandy, clay, loamy, chalky, silty
- **Expected effect on crop yield:** similar
- **Expected effect on crop yield variation:** decrease
- **Expected effect on crop quality:** increase
- **Expected effect on crop quality variation:** decrease
- **Which costs may increase due to the practice?** none
- **Which costs may decrease due to the practice?** fertilizers
- **Expected long-term/indirect economic benefits of the practice:** Less costs in veterinary costs, less fertilizer costs, better N-use efficiency of applied manure.
- **Expected effect on the leaching of nutrients:** In theory less leaching of N when manure has more N in organic forms, it could act as a slow-release fertilizer, with higher N use efficiency.
- **Specific materials applied through the practice:** animal manure

Administrative context

- **Does the practice qualify for subsidies?** Yes, many subsidies under the CAP
- **Are there any policy barriers complicating the practice's application?** No
- **Does the practice involve the use of hazardous substances?** No
- **Is the practice compliant with EU organic farming practices?** Yes
- **Is the practice supported by Eco-schemes?** Yes, changing arable field to grass, change temporary grass to permanent grass, growing annual protein-rich crops, growing perennial protein-rich crops, increased crop rotation with legumes, increase soil organic carbon by crop rotation
- **Are there any gaseous emissions to be considered upon application of the practice?** No
- **Greenhouse gas (GHG) reduction potential of the practice:** little or none

- **May the practice contribute to a better public image of agriculture?** Yes, improving soil quality by increasing soil organic matter for example has secondary benefits for society, e.g., water management in better structured soils due to higher SOM.
- **May the practice improve the farmer's self-image?** Yes, taking care for the soil is taking care for the future.

Contact

Name of the FIN (Fertilization Innovation Network) partner submitting the information: Soil Service of Belgium

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Eu member state: Belgium

Find out more

Source of information Scientific expertise, farm advisor expertise in written and spoken form, from farm advisors and from pioneer farmers.

Additional info/links:

Vanhoof, P. & Nigten, A. (2020). Drijfmest, invloeden op emissies, N-benutting op grasland. Eindrapport van onderzoek naar stikstof in de kringloop. <https://www.youtube.com/watch?v=fM2OrgiHu4E>
<https://www.actimin.nl/wp-content/uploads/2020/02/2020-12-EINDRAPPORT-DRIJFMEST-EMISSIES-EN-STIKSTOFBENUTTING.pdf>