‘Grassland Compass’: a practical tool to improve grass production and grass utilization at Dutch dairy farms

De Haas M.J.G.[1], Aantjes L.M.[2], Borkent H.[1], Kwakernaak C.[1], Meindertsma S.[1], Van Os G.J.[2], Van den Pol-van Dasselaar A.[2], and Voskamp-Harkema W.[1]

[1] Van Hall Larenstein University of Applied Sciences [2] Aeres University of Applied Sciences Dronten

Background

- Dutch dairy farms feel a need to improve grassland production and grass utilization; large yield differences between farms.
- It is often not clear for farmers which actions need to be taken: in which field, and in which part of the chain.
- A tool that provides a practical overview of all the strengths and weaknesses of grassland management has been lacking for a long time.

Objective

- To develop a tool for farmer and advisor to get insight in the strengths and weaknesses of the grass production and utilization chain.
- Stimulate dairy farmers to carry out actual measures improving the grassland production and utilization.
- Test on-farm functionality of Grassland Compass (GC) (‘proof of principle’).

Introduction

GC has a layered approach *(Figure 1)*

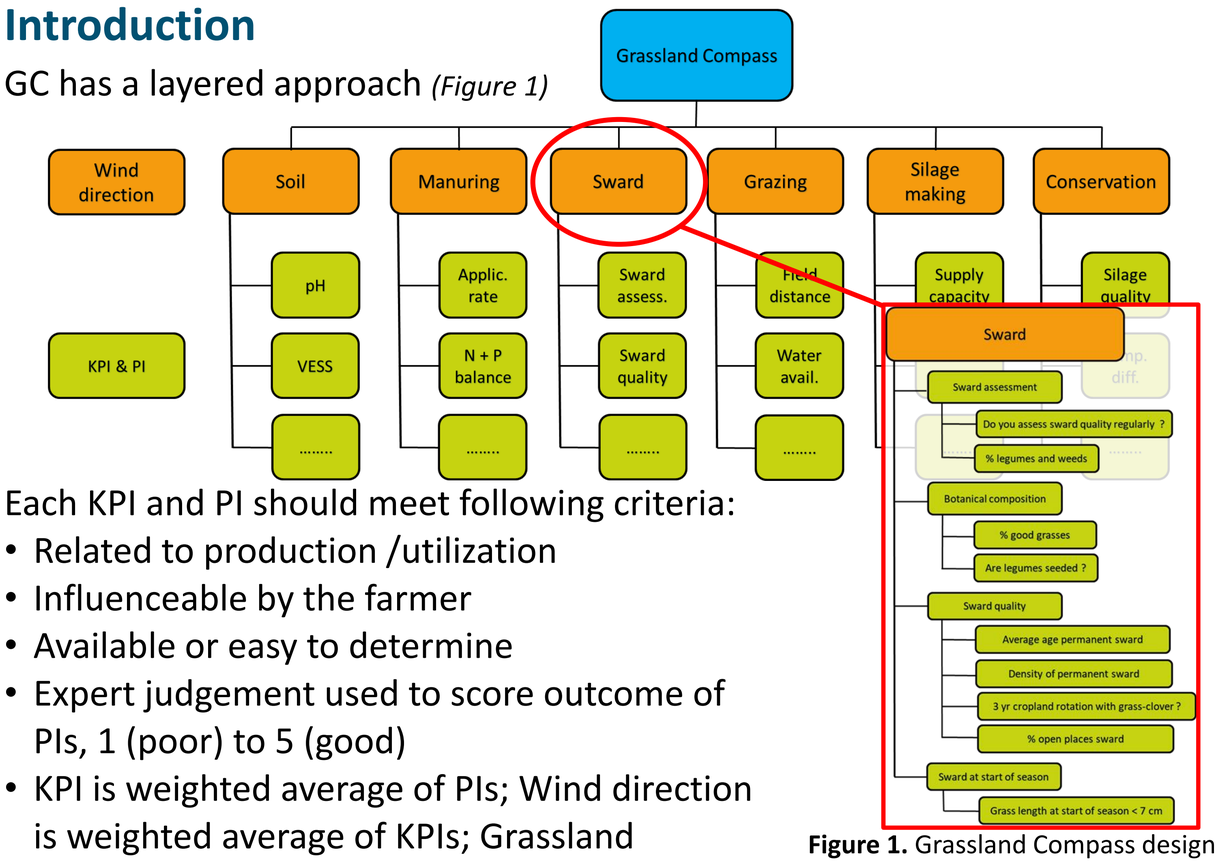

Figure 1. Grassland Compass design

Each KPI and PI should meet following criteria:

- Related to production /utilization
- Influenceable by the farmer
- Available or easy to determine
- Expert judgement used to score outcome of PIs, 1 (poor) to 5 (good)
- KPI is weighted average of PIs; Wind direction is weighted average of KPIs; Grassland Compass is average of wind directions *(Figure 2)*

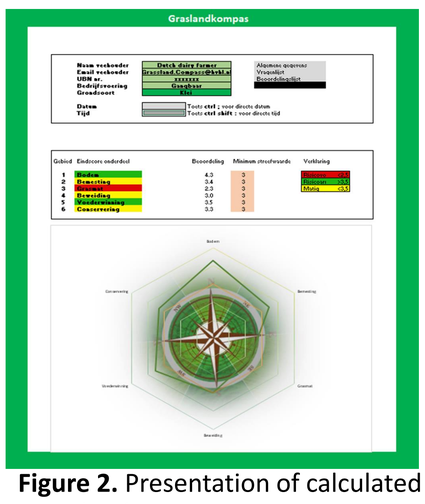

Figure 2. Presentation of calculated result Grassland compass.

- Grassland Compass was tested on 33 nominated farms during April-May 2018 (*Figure 3*)

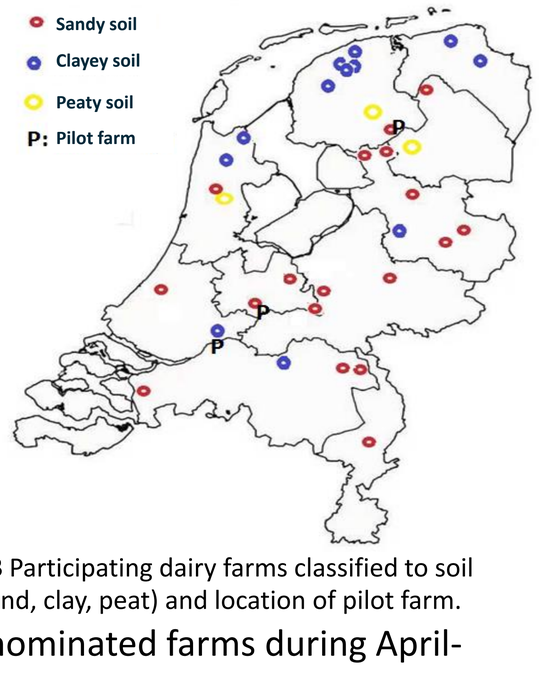

Figure 3 Participating dairy farms classified to soil type (sand, clay, peat) and location of pilot farm.

Results Grassland Compass

- Most farms had a Grassland compass score moderate to high *(Figure 4)*
- High score in soil caused by maximum score in KPI ‘drainage’
- Low score in manuring caused by N- and/or P_2O_5-surpluses;
- Low score in ‘silage making’ due to PIs drying period, cutting height and chop length

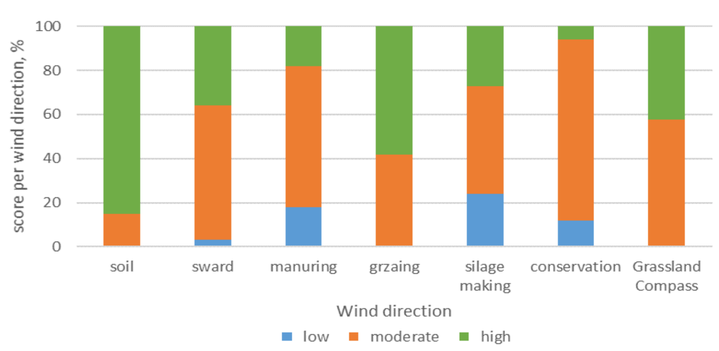

Figure 4. Calculated score per wind direction and Grassland Compass with low=2-2.5; moderate=3-3.5; high=4-4.5.

Figure 5. Root abundance is one of the performance indicators (PI).

Results evaluation

- ‘Soil’ and ‘grazing’ assessed lower than Grassland Compass (*Figure 6*) because farmers and advisors felt they lacked expertise
- ‘Silage’ making was assessed higher by farmer and advisor
- Correlation between results Grassland Compass and farmer-advisor was poor; r^2 <0.11.

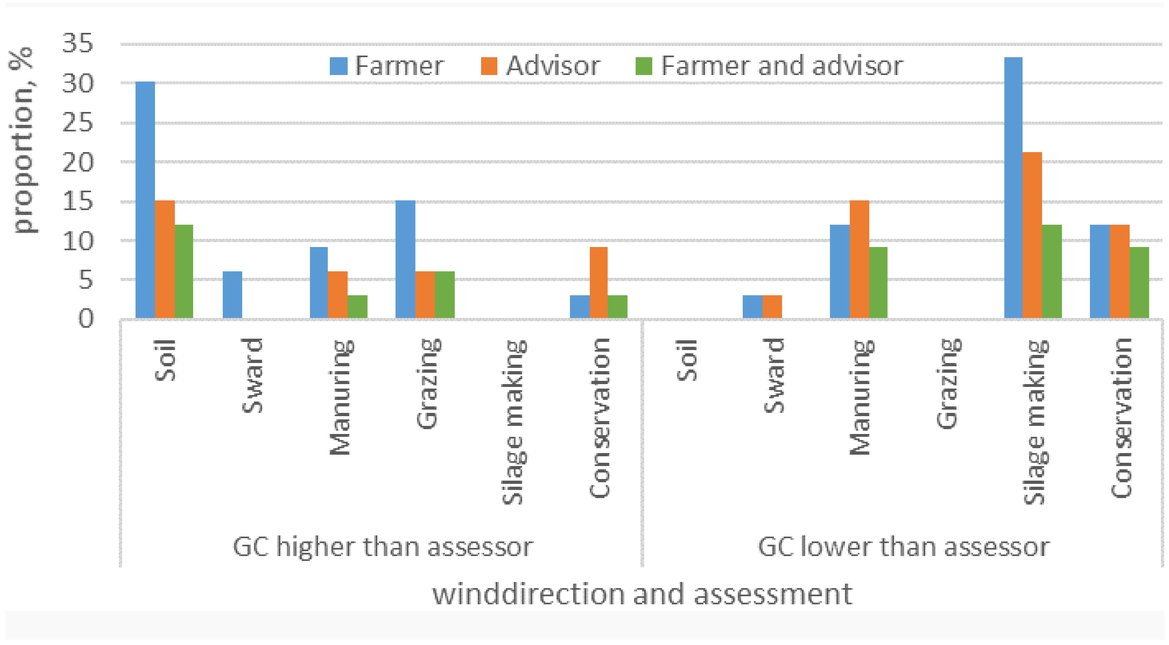

Figure 6. Proportion (%) of farmers, advisors or combination of farmer and advisor assessing wind direction of Grassland compass higher or lower than assessment of Grassland compass.

Conclusions

- Differences between Grassland Compass, farmers and advisors.
- Reliability of KPIs and data quality determines usefulness tool.
- Grassland compass is farm specific, thus increasing farmer’s awareness.

Acknowledgements

In partnership with
Agrifirm, De Heus, Dirksen Management Support, CONO, CoE Agrodier & dairy farmer Tjerk Hof.
In cooperation with
DLF, ABZ Diervoeders, ForFarmers & dairy farmer Rudi Hooch Antink.

For more information:

Van Hall Larenstein
P.O. Box 1528, 8901 BV Leeuwarden
Contact: martien.dehaas@hvhl.nl
T + 31 (0)58 284 6233, M + 31 (0)6 36 19 02 65
www.hvhl.nl