Feed wedge and cutting window for grazing systems with high levels of supplementation

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*Theme 5–Big data and smart technologies in grassland*

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Components of Amazing Grazing

Feed supplementation → Grass intake

Grass intake ↔ Grass supply

Grass intake ↔ Grass growth

Grass intake ↔ Soil

Cow behaviour

Soil

Grass growth

Grass supply
Amazing Grazing & Grip op Gras

- Optimise on farm fresh grass utilisation for dairy systems with
  - alternating use of grassland
    - by rotational grazing
    - cutting for fodder production
  - high levels of feed supplementation during grazing season

- Grip of Gras combines feed wedge and cutting window
  - Feed wedge to manage grazing platform
  - Cutting window to manage cutting platform
Feed wedge & Grip op Gras

- Fixed target yield and target residual
- Size grazing platform varies depending on grass growth

\[ X_A = 0 \]
\[ Y_A = \text{Target yield} \]
\[ X_B = \frac{\text{Grass demand}}{\text{Grass growth}} \]
\[ Y_B = \text{Target residual} \]
Grazing platform & cutting window

- Move paddocks from grazing platform to cutting platform and vice versa

Change to cutting

Put back

Field 3 (4560 kg dm/ha)

Mowing pastures
- Field 9 (put back)
- Field 10 (put back)

Not in use
- Perceel 11 (put back) (delete)
Feed wedge & expected grass growth

- Feed wedge is calculated with expected grass growth

- Expected grass growth is:
  - reference for farmers
  - the average grass growth on a certain date during the growing season depending on actual yield
  - grass growth model in Dairy Wise
  - adjustable to simulate the effect on grass supply
To optimise moment of cutting

- To facilitate rotational grazing systems, a feed wedge was developed, allowing a variable size of the grazing platform and extended with a cutting window.

See: Stienezen et al. at this meeting

**Graph: Cutting window**

- **Actual yield**
- **Target yield**
- **Target range**
- **Additional grass growth**

<table>
<thead>
<tr>
<th>Target yield (i)</th>
<th>Expected growth (i)</th>
<th>4500</th>
<th>4500</th>
<th>5000</th>
<th>4500</th>
<th>4500</th>
<th>3900</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>72.2</td>
<td>87</td>
<td>108.7</td>
<td>108.7</td>
<td>108.7</td>
<td>108.7</td>
</tr>
</tbody>
</table>

Field 9
Field 10
Field 7
Field 3
Field 1

**DM Yield (kg DM ha⁻¹)**
Development & testing

- Prototype
- Developed with advisors, farmers and researchers
- Tested between April and July 2017 by 10 dairy farmers and advisors
- Half of them was familiar with estimating DM yield and the use of a feed wedge, the others were not
- Participants provided feedback weekly
- Free to use at www.akkerweb.eu
Results & discussion

- Difficult to identify farmers and advisors for test
- Experienced farmers used Grip op Gras in management
- Highly appreciated
  - Combination feed wedge and cutting window
  - Adjustable expected grass growth
- User-friendliness has to be improved
  - Input of data
- Utility and user-friendliness associated with level of experience in measuring DM yield and use feed wedge
  - More experienced farmers had fewer problems
Conclusion

- Concept of feed wedge and the cutting window was appropriate and satisfactory
- User-friendliness has to be improved
- To support the needs of a wide range of farmers with varying experience in grassland management with data, the several functionalities of Grip op Gras should become available separately
Amazing Grazing!!!

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