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# Grazing measurements in Swiss low- and highlands

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# Parameters used to characterise grazing all around the season

- **Grass growth:** simplified protocol according to Corrall & Fenlon (1977) on fenced plots
- **Grass intake:** data issued from literature, in particular 'Swiss green book ALP'
- **Number of animal and grazed area:** data furnished by farmers
- **Sward height:** measurements with NZ plate pasture meter (Jenquip ® unit = click =  $\frac{1}{2}$  cm)
- **Sward density:** issued from harvested plots for grass growth



# Relevance of these parameters

- **Grass growth:** measured on limited area, not grazed
- **Grass intake:** theoretical data
- **Number of animal and grazed area:** ok
- **Sward height:** variable according to the person who takes measurement
- **Sward density:** measured on limited area, not grazed



# Links between these parameters

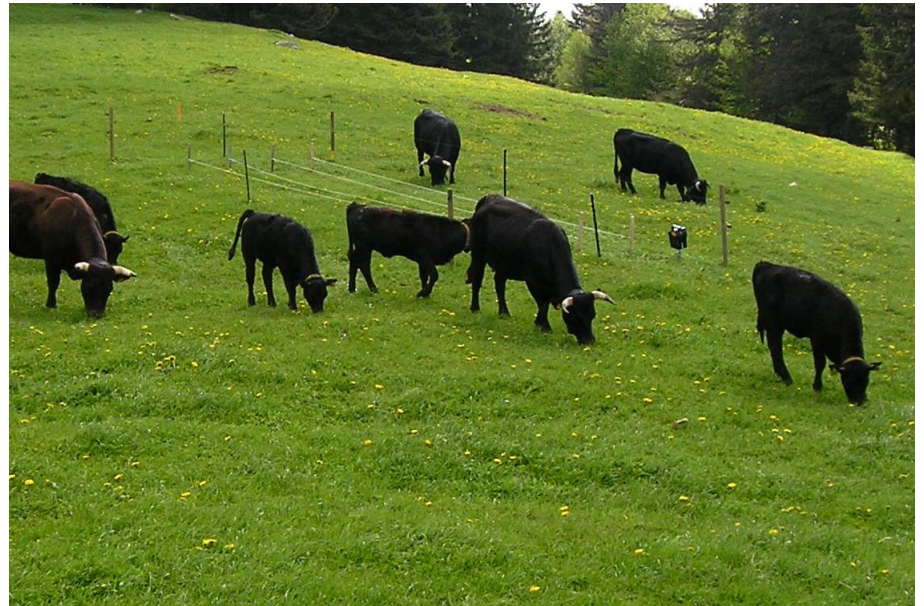
- **Farm cover\***: can be appreciated on two manners
  - **calculated**: on the basis of the difference between grass growth and grass intake
  - **measured**: by multiplying sward height by sward density (taking into account target residual height !)

**Both approaches should correspond between them**

\* Farm cover is defined as pasture supply in kg DM/ha



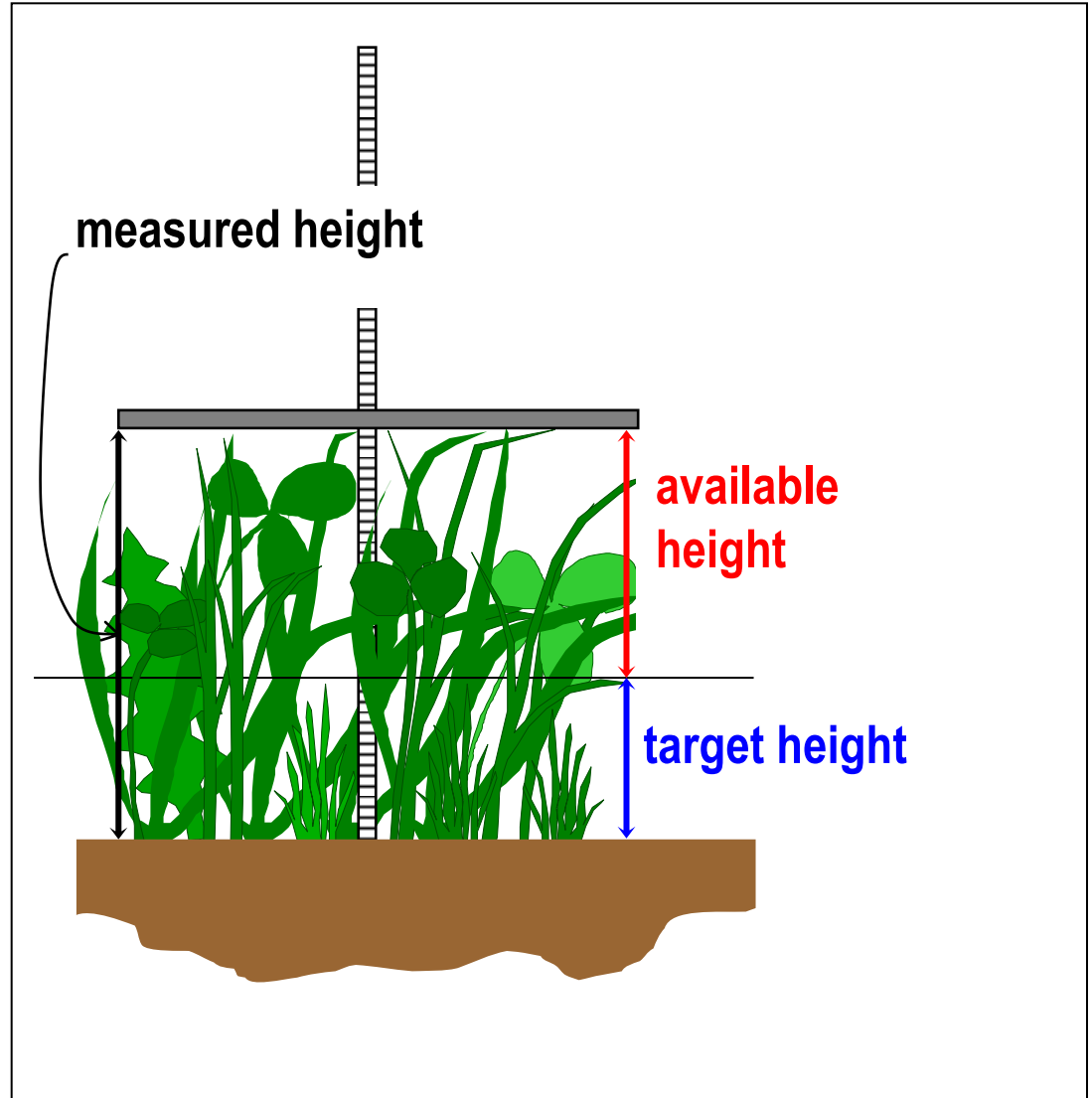
# Grass growth



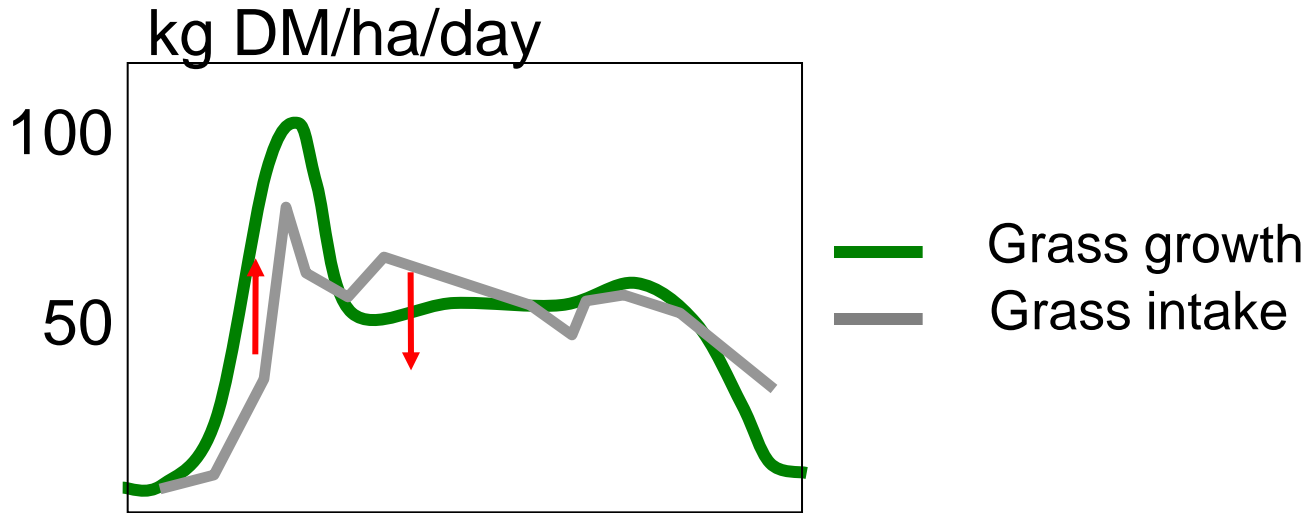




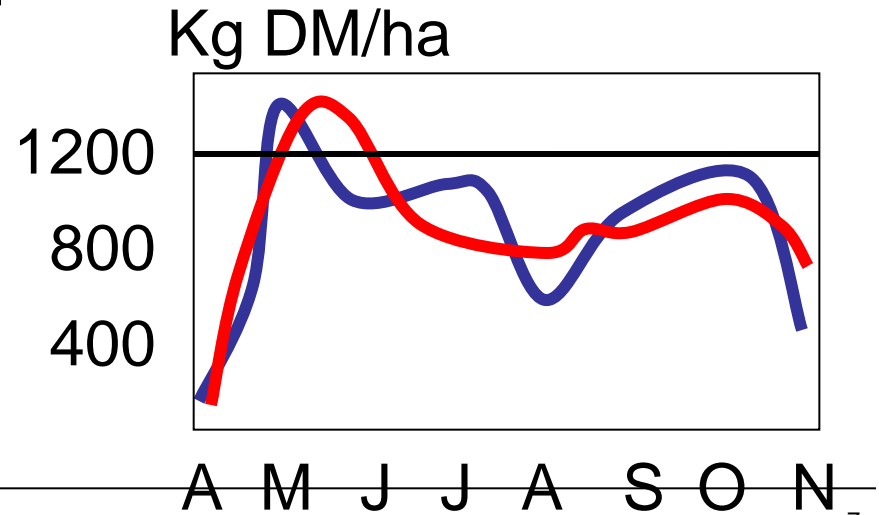
# Grass height



# Farm cover & Grass growth → Grass intake



- Farm cover calculated
- Farm cover measured





## Grass density – farm cover

- **Lincoln University Dairy Farm (LUDF)**

(perennial ryegrass)

Farm cover (kg DM/ha) = measured height x **140\*** +500  
target (residual) height of 7 clicks (3,5 cm)

- **Switzerland**

(all botanical types)

Farm cover (kg DM/ha) = available height x **120\***  
target (residual) height depending on botanical type

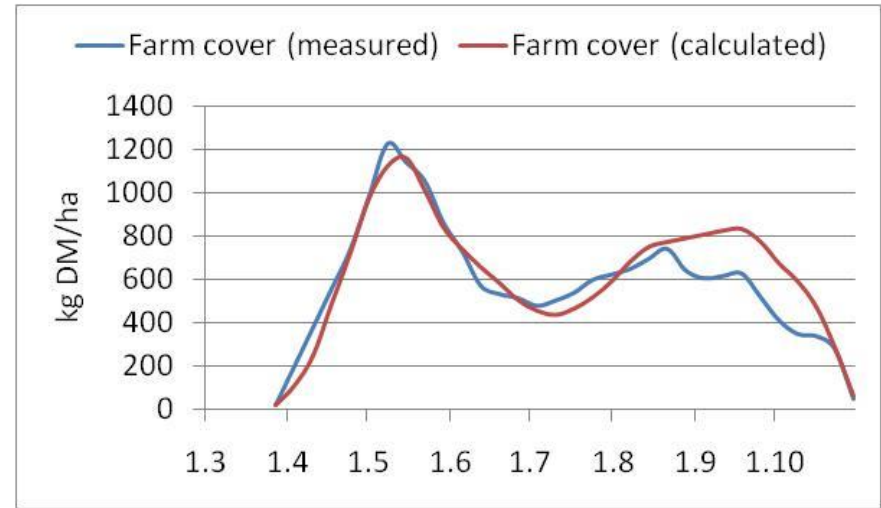
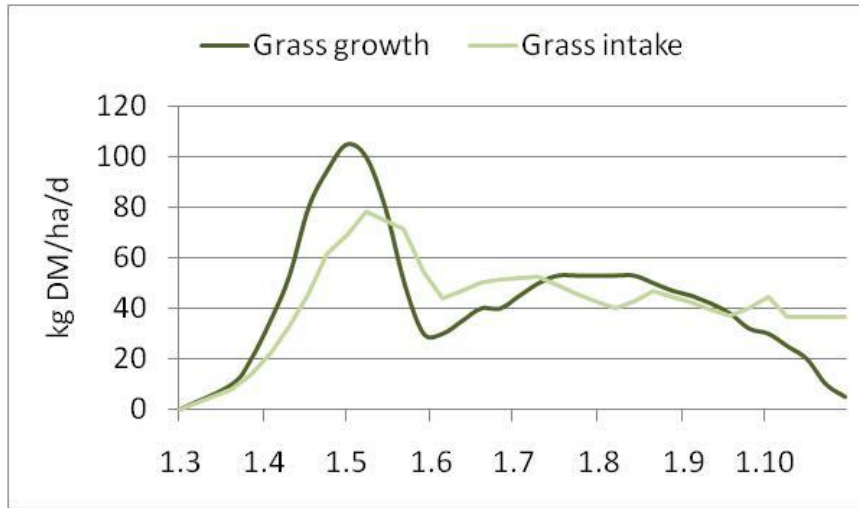
**\*grass density in kg DM/ha/click**





# 1. Matran (600 m. a.s.l., leys)

224 days - 51 dairy cows (Jersey-Holstein) – 18 ha

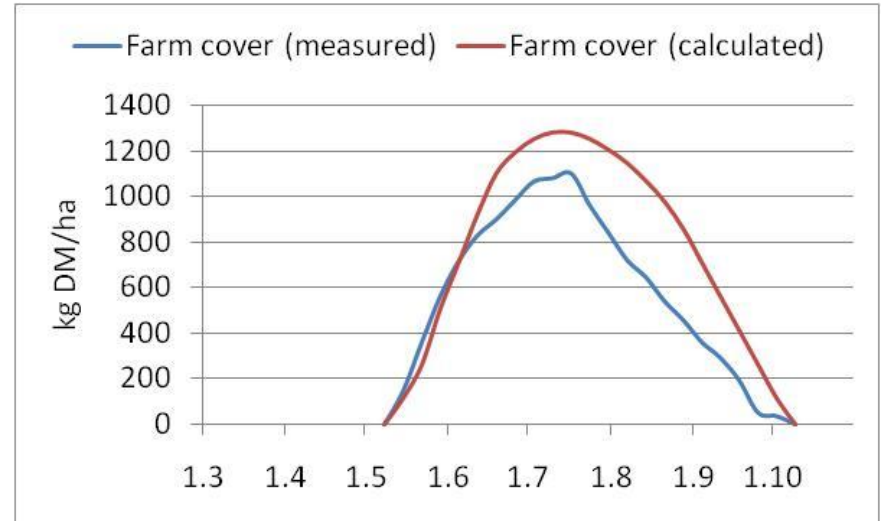
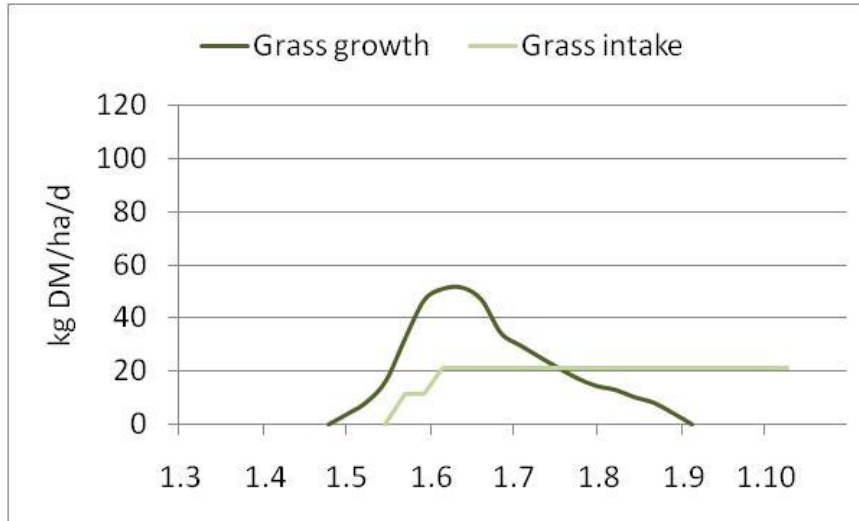


Grass growth	(kg DM/ha/d)	44.3
Cows	(number)	51.0
Intake	(kg DM/cow/d)	11.8
Grazed area	(ha)	14.0
Grass intake	(kg DM/ha/d)	43.9
Balance	(kg DM/ha/d)	0.4
Grass height	(units)	13.0
Target height	(units)	7.4
Grass density	(kg DM/ha/unit)	114.1
Farm cover (measured)	(kg DM/ha)	588.0
Farm cover (calculated)	(kg DM/ha)	624.9



## 2. Cerney (1200 m. a.s.l., permanent g'land)

140 days - 65 dairy cows (Red Holstein) – 48 ha

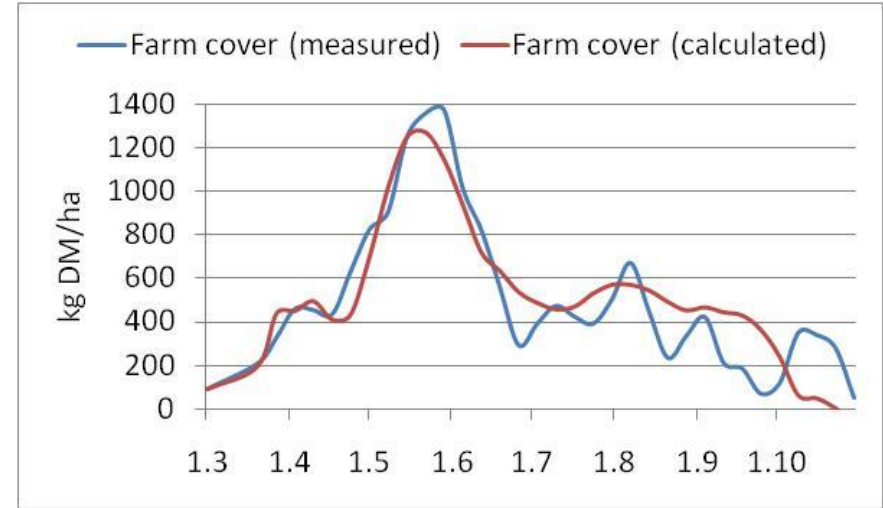
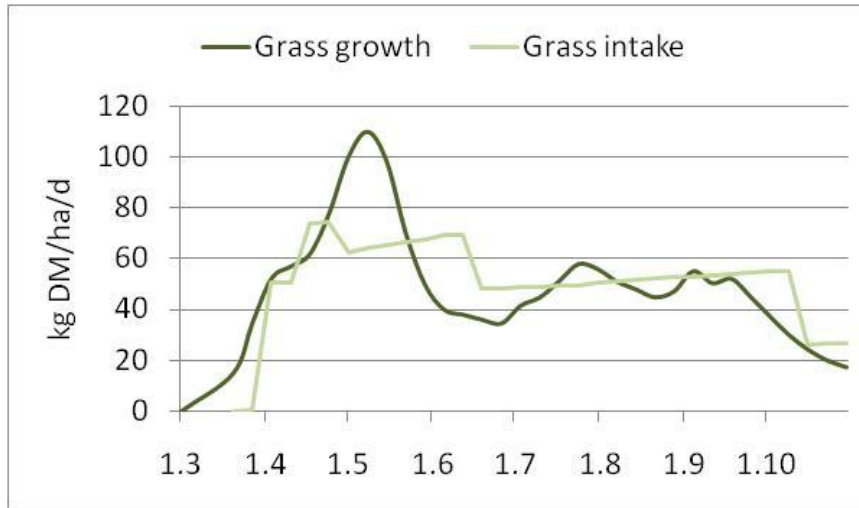


Grass growth	(kg DM/ha/d)	21.8
Cows	(number)	65.0
Intake	(kg DM/cow/d)	15.0
Grazed area	(ha)	47.9
Grass intake	(kg DM/ha/d)	19.4
Balance	(kg DM/ha/d)	0.2
Grass height	(units)	10.7
Target height	(units)	6.0
Grass density	(kg DM/ha/unit)	120.0
Farm cover (measured)	(kg DM/ha)	558.5
Farm cover (calculated)	(kg DM/ha)	750.8



### 3. Moudon (600 m. a.s.l., leys)

210 days – 10 cattle (Angus Limousin) – 1.5 ha

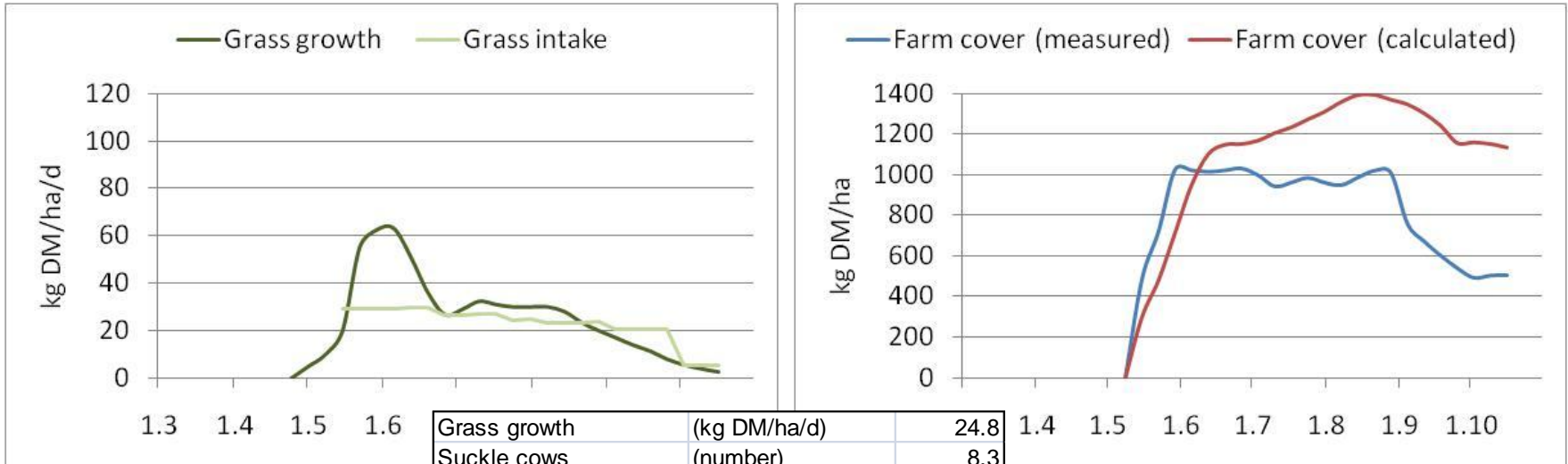


Grass growth	(kg DM/ha/d)	48.5
Cattle	(number)	10.0
Intake	(kg DM/cow/d)	6.5
Grazed area	(ha)	1.3
Grass intake	(kg DM/ha/d)	50.7
Balance	(kg DM/ha/d)	-0.6
Grass height	(units)	10.9
Target height	(units)	6.0
Grass density	(kg DM/ha/unit)	105.9
Farm cover (measured)	(kg DM/ha)	498.7
Farm cover (calculated)	(kg DM/ha)	508.9



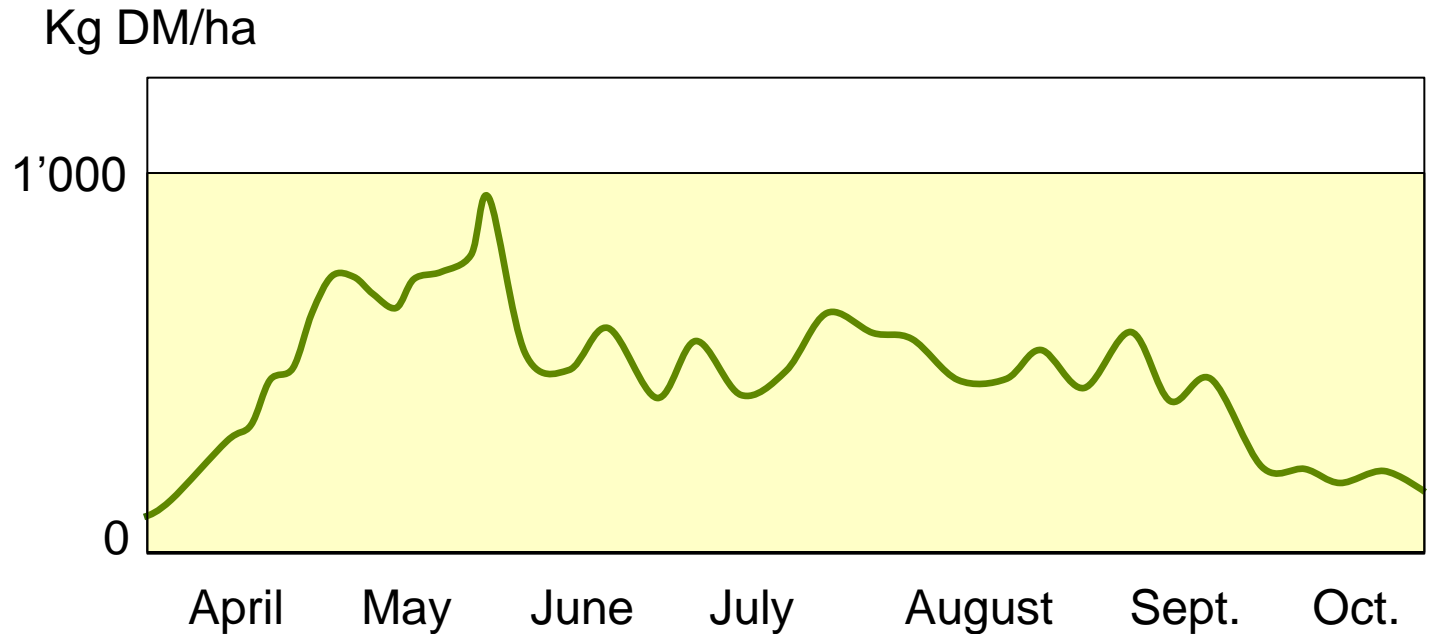
## 4. La Frêtaz (1200 m. a.s.l., permanent g'land)

154 days – 10 suckle cows + 43 ewes + 56 lambs – 10 ha



Grass growth	(kg DM/ha/d)	24.8
Suckle cows	(number)	8.3
Ewes	(number)	42.0
Lambs	(number)	37.4
Suckle cows intake	(kg DM/unit/d)	15.0
Ewes intake	(kg DM/unit/d)	1.5
Lambs intake	(kg DM/unit/d)	1.0
Grazed area	(ha)	9.9
Grass intake	(kg DM/ha/d)	22.6
Balance	(kg DM/ha/d)	4.8
Grass height	(units)	13.9
Target height	(units)	7.0
Grass density	(kg DM/ha/unit)	120.0
Farm cover (measured)	(kg DM/ha)	799.2
Farm cover (calculated)	(kg DM/ha)	1086.2

# Farm cover with the 7 clicks technique





# Discussion

- **Grass growth** measurements are reliable and constitute an important base for planning. European website could be useful
- **Grass intake** is difficult to appreciate, in particular with part-time grazing
- **Sward height** is more reliable on leys in lowland than on permanent grassland in highland (intensive rotational grazing with target residual height of 7 cm are profitable)
- **Sward density**: standard values according to vegetation type are correct.