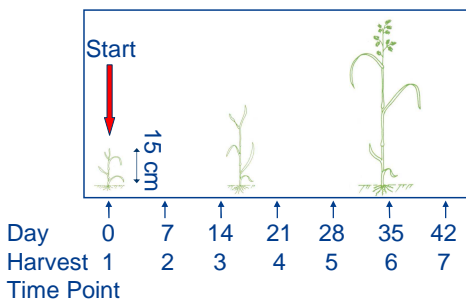


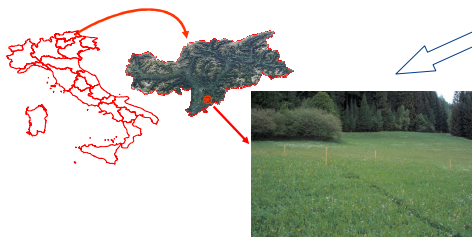
Introduction

- The forage quality, particularly that of grasses, is known to be negatively affected by plant senescence
- Sequential sampling is a suitable method to describe changes in forage quality over time; different plot sizes and shapes have been used by different authors
- The choice of the sampling method is very important in determining the needed efforts of experiments designed to collect large amount of data
- Aim of the investigation:
 - Comparison of small-sized sampling methods
 - Finding the number of replicates needed for an accurate estimation of forage quality

Material and methods

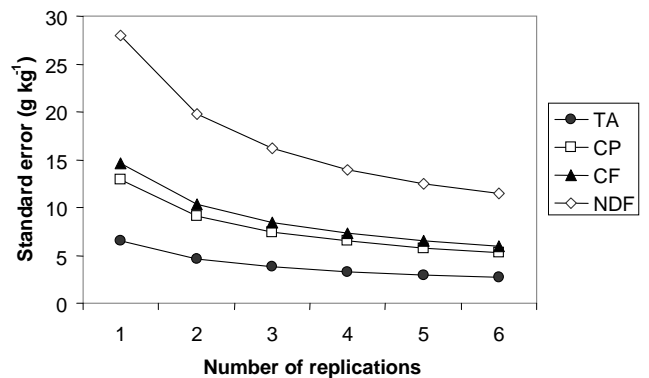


- Sequential sampling for 7 weeks starting at the stem elongation of the dominant grass species
- 2 sampling methods with electric scissors (6 replicates per sampling):
 - stripe-shaped area of 0.2 m² (2 m long and 10 cm wide) along a measuring tape
 - square-shaped area of 0.25 m² within a metal frame
- 3 grassland sites (1210 to 1290 m a.s.l.) in the municipality of Aldein:
 - 2 tall oat-grass meadows and an oat grass-meadow of nutrient-rich soils
- 3 investigation years
- Statistical analysis by means of a mixed model:
 - Fixed factors: harvest time point, sampling method
 - Random factors: site, year



Results

Source	Total Ash (TA)	Crude Protein (CP)	Crude Fibre (CF)	Neutral Detergent Fibre (NDF)
Harvest time point (T)	***	***	***	***
Sampling method (M)	n.s.	n.s.	***	n.s.
T x M	n.s.	n.s.	n.s.	n.s.



- All quality traits were significantly affected by the harvest time point
- The sampling method affected only CF; NDF was not affected
- CF was found to be higher in the square-shaped than in the stripe-shaped area (260 g kg⁻¹ vs. 253 g kg⁻¹ on average). Possible explanation: higher proportion of lignin and hemicellulose using the second method (leaf losses, inconsistent cutting height) combined with their underestimation as CF with the Weender analysis
- By a number of four replications per sampling, no relevant improvement of the standard error was brought by further increase of the replication number

Conclusions

- The investigated sampling methods proved to be nearly equivalent (3% difference on average); the square-shaped sampling area should be preferred because of a higher sampling speed and more accurate sample collection thanks to the aid of the metal frame.
- A number of 4 replications seem to be a good compromise between needed effort and accuracy

Contact

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