



# Forage feeding value of continuous grazed sward on organic permanent grassland

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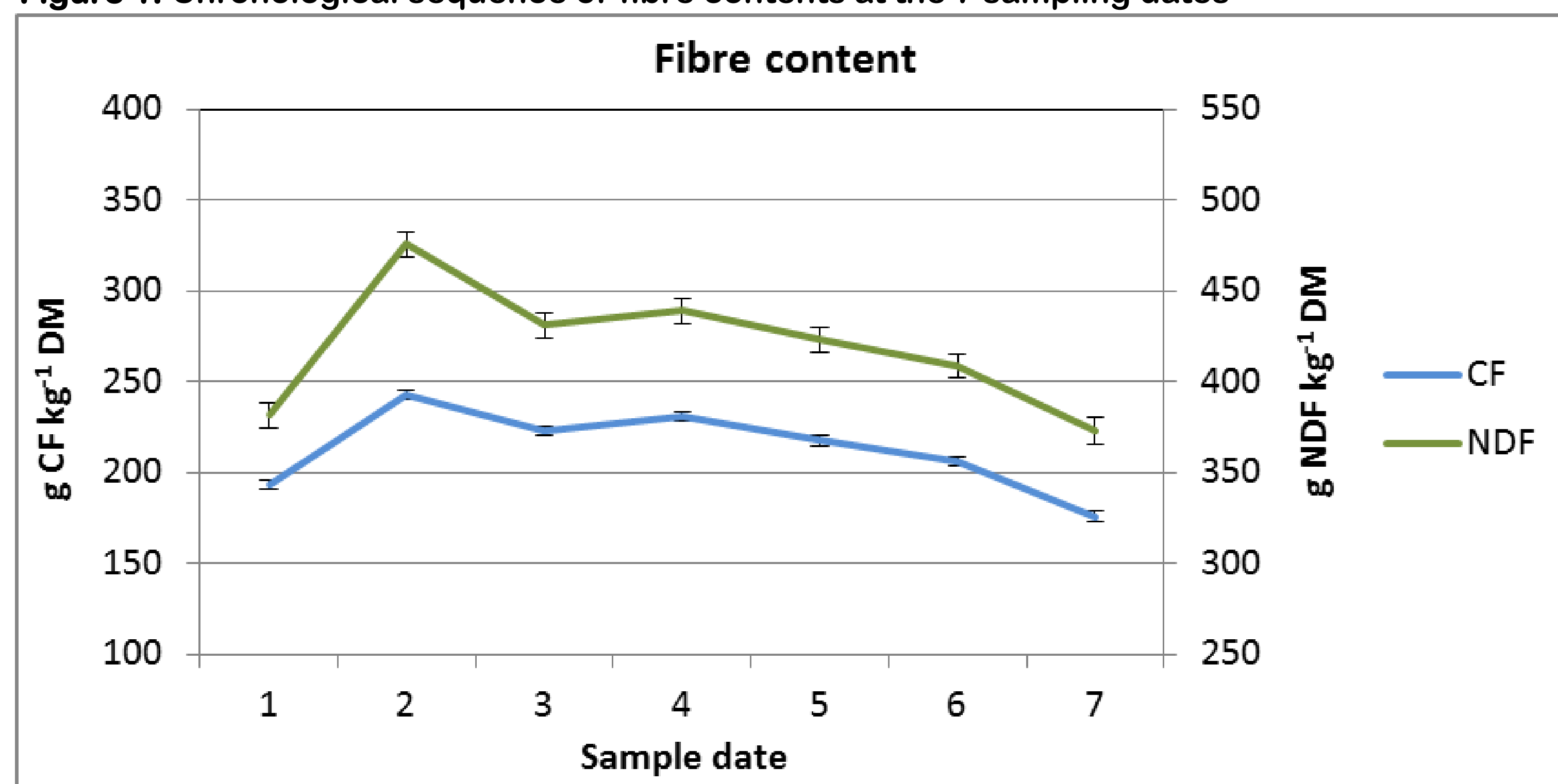
## Introduction:

Grazing, as the most animal-friendly means of husbandry, is regulated in organic farming and has still a very high priority in Alpine regions of Austria. Organic farms in Austria are very small-scale, in contrast to farms in European favourable areas. Austrian organic farms have an average size of 19 ha with 10 cows per farm. Therefore, continuous grazing represents an interesting pasture system for these small-scale grassland farms, if smooth and gently sloped areas are available.

## Material and methods:

The trial was carried out on an organically managed, continuously grazed area (latitude 47.5175° N, longitude: 14.0739° E, 680 m altitude, 7 °C average temperature, 1014 mm precipitation per year) as a randomized block design with three replicates. The sampling date of the simulated continuous grazed plots started in the first week of May and ended in the last week of October (7<sup>th</sup> sampling date). In the laboratory of AREC Raumberg-Gumpenstein, the crude nutrients were determined via Proximate Analysis. Furthermore, contents of structural carbohydrates were also assessed. Regarding the energy contents, the calculation was based on a regression equation considering crude nutrients. Statistical analysis was implemented with PROC mixed of SAS 9.2 with a P-value below 0.05 (n = 252).

Figure 1: Chronological sequence of fibre contents at the 7 sampling dates



Parameter	Unit	1		2		3		4		5		6		7		p-value	s <sub>e</sub>
		LSMEAN	SEM	LSMEAN	SEM	LSMEAN	SEM	LSMEAN	SEM	LSMEAN	SEM	LSMEAN	SEM	LSMEAN	SEM		
CP	g kg <sup>-1</sup> DM	202 <sup>b</sup>	1.9	175 <sup>a</sup>	2.2	224 <sup>c</sup>	2.0	203 <sup>b</sup>	1.9	218 <sup>c</sup>	2.2	236 <sup>d</sup>	1.9	228 <sup>cd</sup>	2.5	<0,0001	11.5
CF	g kg <sup>-1</sup> DM	194 <sup>b</sup>	2.5	243 <sup>f</sup>	2.8	223 <sup>de</sup>	2.6	231 <sup>e</sup>	2.5	218 <sup>d</sup>	2.9	206 <sup>c</sup>	2.6	176 <sup>a</sup>	3.2	<0,0001	12.4
NDF	g kg <sup>-1</sup> DM	381 <sup>a</sup>	6.5	475 <sup>d</sup>	6.9	431 <sup>c</sup>	6.5	439 <sup>c</sup>	6.5	423 <sup>bc</sup>	6.9	409 <sup>b</sup>	6.5	373 <sup>a</sup>	7.3	<0,0001	22.6
ME	MJ kg <sup>-1</sup> DM	11.48 <sup>e</sup>	0.04	10.71 <sup>d</sup>	0.04	10.52 <sup>bc</sup>	0.04	10.41 <sup>ab</sup>	0.04	10.63 <sup>cd</sup>	0.04	10.72 <sup>d</sup>	0.04	10.46 <sup>a</sup>	0.05	<0,0001	0.2
NEL	MJ kg <sup>-1</sup> DM	7.03 <sup>d</sup>	0.03	6.45 <sup>bc</sup>	0.04	6.34 <sup>ab</sup>	0.03	6.25 <sup>a</sup>	0.03	6.39 <sup>bc</sup>	0.04	6.50 <sup>c</sup>	0.03	6.47 <sup>c</sup>	0.04	<0,0001	0.1

Table 1: Crude protein (CP), crude fibre (CF), neutral detergent fibre (NDF), metabolic energy (ME) and net energy lactation (NEL) contents of continuously grazed swards at the 7 sampling dates

## Results:

Crude protein content (Tab. 1 and Fig. 2) decreased significantly, at a high level, from first (202 g kg<sup>-1</sup> DM) to the second (175 g kg<sup>-1</sup> in DM) sampling date but increased by the end of the vegetation period (228 g kg<sup>-1</sup> DM). Similar to crude protein, the energy content (Tab. 1 and Fig. 3) decreased at the beginning (7.0 MJ NEL kg<sup>-1</sup> DM), and stabilised at 6.5 MJ NEL kg<sup>-1</sup> DM.

The fibre contents (Tab. 1 and Fig. 1) were in the recommended range for ruminates at every sampling date and demonstrates the suitability of this type of fodder for seasonal pasture-based systems.

## Conclusion:

Continuous grazing provides fodder with high forage feeding value. The high contents, especially of energy and crude protein, are also reachable under the harsh climatic conditions of the Eastern Alps and with organic farming. In this case, continuous grazing in disadvantaged regions keeps up with favourable European grassland regions and could be a suitable system for small-scale organic grassland farms in Austria.

Figure 2: Chronological sequence of crude protein at the 7 sampling dates

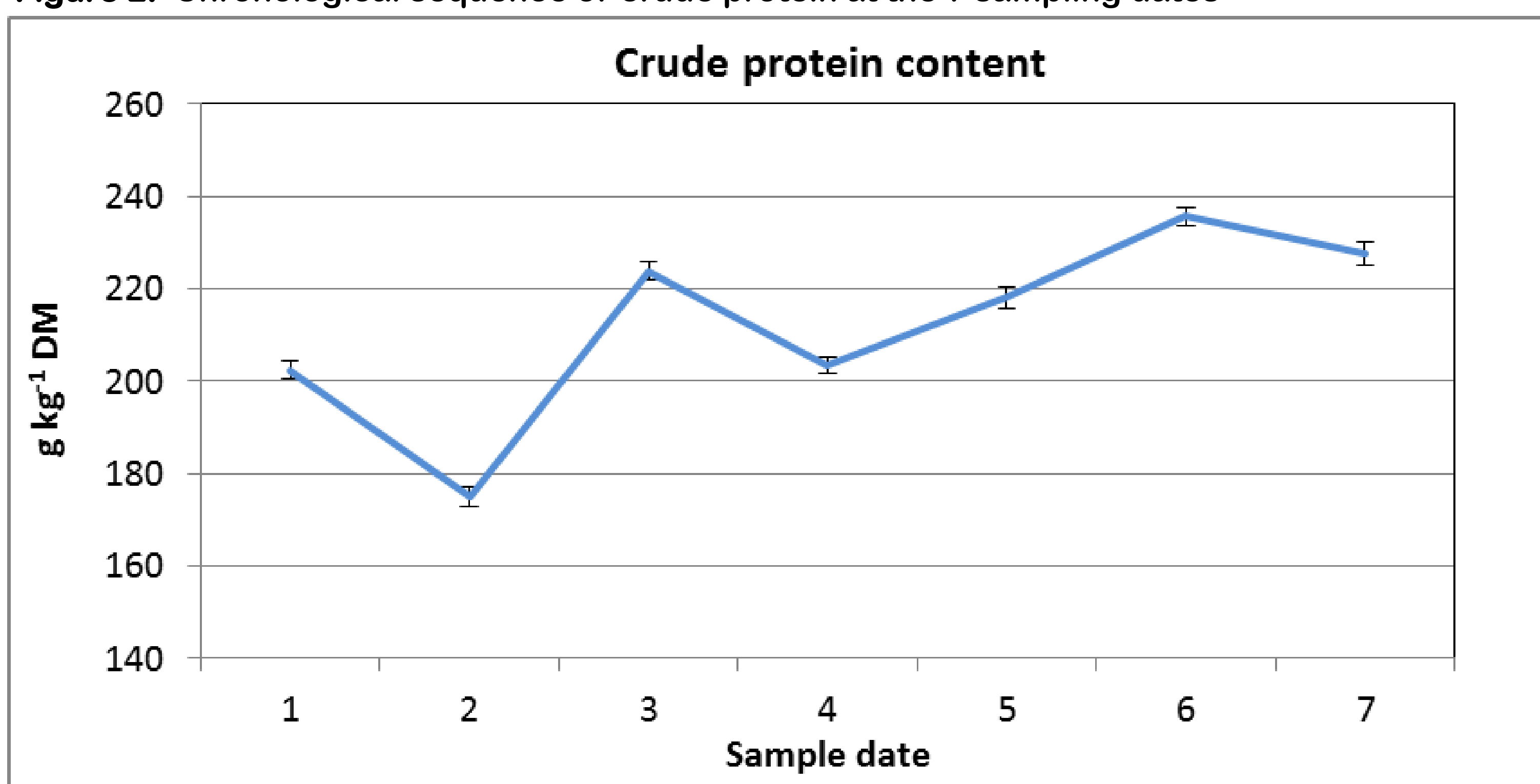
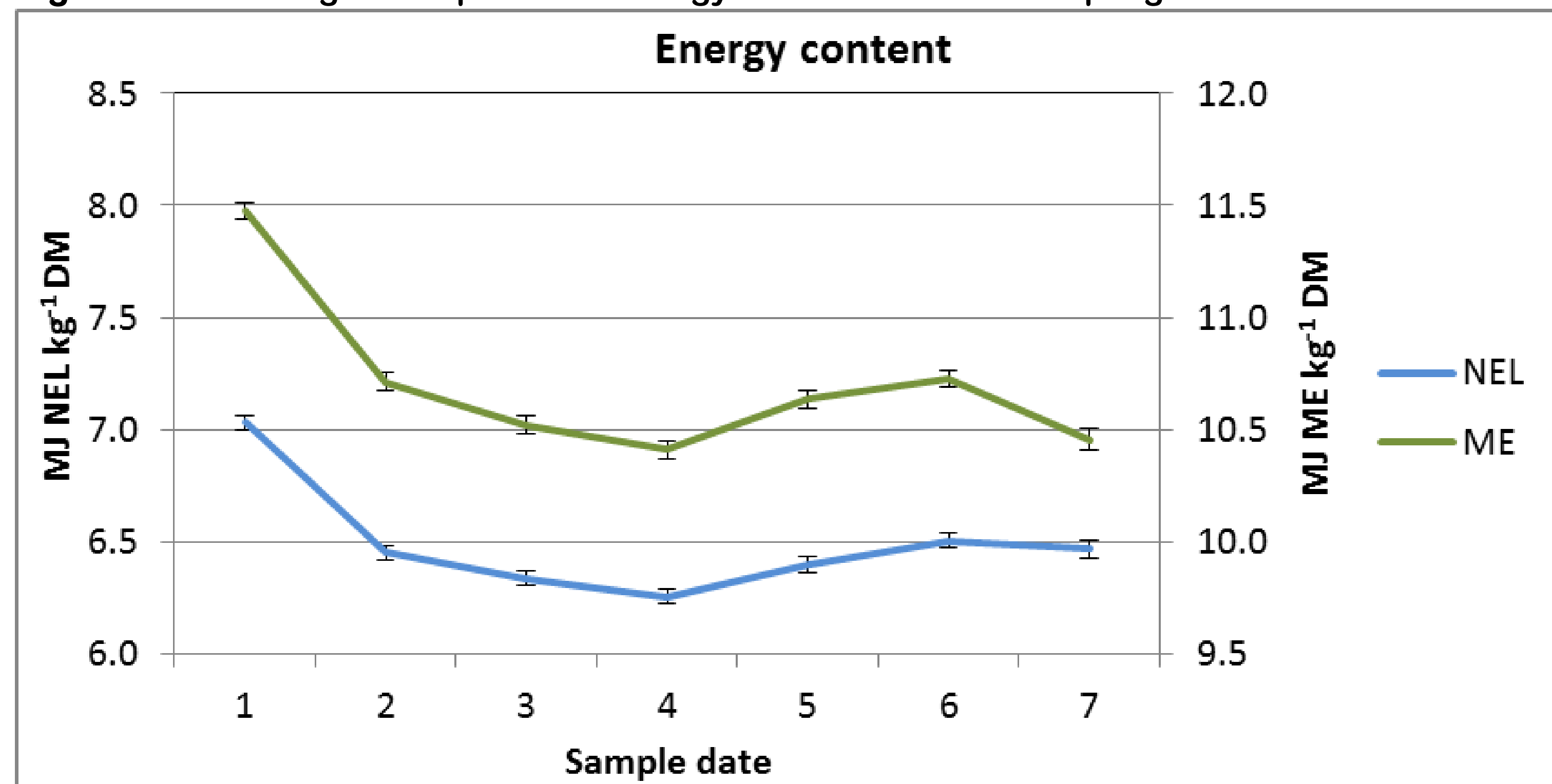


Figure 3: Chronological sequence of energy contents at the 7 sampling dates



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