

Influence of silage making or haymaking on different protein fractions

Wyss, U.
Agroscope, 1725 Posieux, Switzerland

Introduction

Five different protein fractions, based on the characteristics of solubility according to Licitra *et al.* (1996), can be distinguished. The present study investigated the effect of wilting time and the two conservation methods, silage making and haymaking (barn and field dried), on the different protein fractions.



Materials and methods

In 2015, grass from a ley harvested for the first and third cuts was used. The cutting dates:

- first cut 10 May
- third cut 8 July

Protein fractions:

- A: soluble non protein N
- B1: soluble true protein
- B2: protein with intermediate rates of degradation
- B3: insoluble in neutral solution but soluble in acid detergent solution
- C: unavailable N

Results

During the wilting period in the field, the DM content of the grass increased (Fig 1). The amount of crude protein was not significantly different. The different protein fractions were significantly influenced by the wilting process.

The fermentation process had an effect on the protein fractions. Fraction A increased in silage from the first cut from 32.6% to 73.9%; in silage from the third cut it increased from 27.7% to 55.3% (Fig 2).

In comparison, in the fresh-cut grass, fraction A increased in silage from the first cut by 127% and in silage from the third cut by 100% (Fig. 2).

In comparison to fresh-cut grass, the protein fractions in the hay only changed slightly. For the barn- and field-dried hay, fraction A was on average 30% higher for the first cut and 11% for the third cut in comparison to in the fresh-cut grass (Fig. 2).

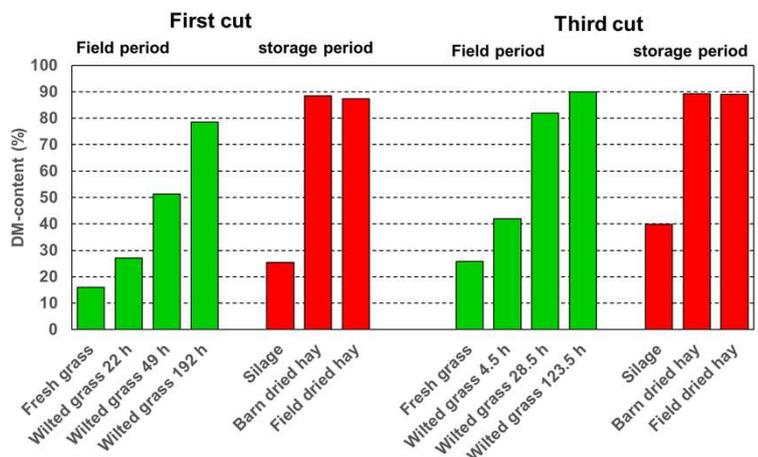


Fig. 1. DM-contents during the wilting process and after the storage period

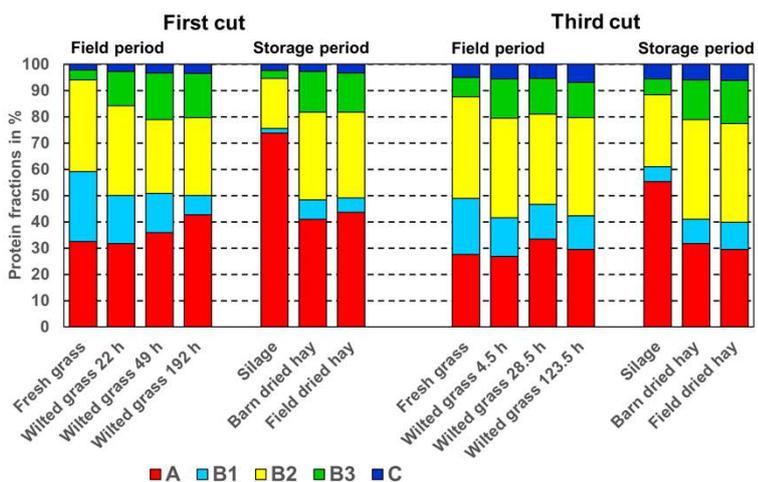


Fig. 2. Different protein fractions during the wilting and storage process.

Conclusion

Rapid wilting in good weather conditions reduces the degradation process of different protein fractions. Thus, the present study found that silage making has a greater impact on the protein degradation process than haymaking.