

**HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE  
SCIENCES KAPOSVÁR CAMPUS**

**INSTITUTE OF PHYSIOLOGY AND ANIMAL NUTRITION**

**Influence of Ensiling on Ruminal Degradability  
Of Whole Crop Cereal Mixtures with or without Italian Ryegrass**

**MASTER'S THESIS (MSc)**

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## ABSTRACT OF THESIS

The production of crops like maize, which is the primary source of protein for livestock, has been impacted by climate change because of the increasing weather. Italian ryegrass and winter forages have been suggested as replacements for maize crops as a solution to this issue.

This study was conducted with the objective of the study to evaluate *in sacco* ruminal degradability of two mixtures of winter cereals silages with or without Italian ryegrass.

The ruminal degradability trial was carried out with 3 multiparous non-lactating cannulated Holslein-Freisian dairy cows. The two mixtures (Montana: 45% of two cultivators winter oats plus 55% of three types of Italian ryegrass; and Texas: 40% of winter barley plus 10% of winter wheat plus 50% winter triticale). After 90 days of fermentation, both mixtures were tested in term of rumen degradability of dry matter (DM), crude protein (CP), neutral detergent fibre (NDF) and acid detergent fibre (ADF).

Results showed *in situ* incubation Montana had highest value of potential degradable fraction (*b*) of DM, CP, and ADF which were 62.75%, 65.10% and 33.34% respectively while Texas has higher value of *b* in NDF of 34.30%.

The effective degradability at 0.08 (ED<sub>8</sub>) rates of DM, CP, NDF and ADF of Montana 71.42%, 79.70%, 19.14% and 17.01% respectively while 66.27%, 66.27%, 19.73% and 20.58% for Texas respectively.

Based on the findings, it was concluded that feeding lactating cows a mix of Italian ryegrass with winter fodder could increase the capacity of lactating cow degradability.