



Česká zemědělská univerzita v Praze

**Fakulta agrobiologie,
potravinových a přírodních zdrojů**

Studijní program: **Fytotechnika**

Studijní obor: **speciální produkce rostlinná**

Katedra: **pícninářství a trávnickářství**

Školitel: **doc. Ing. Josef Hakl, Ph.D., hakl@af.czu.cz**

Konzultant:

Forma: **prezenční**

Téma: Improving of utilization of crude protein in forage crops through growing in legume-grass mixture

Hypotéza:

Presence of red clover and birdsfoot trefoil in mixture with lucerne reduce the content of soluble crude protein fractions

Presence of grass component in the mixture improves the utilization of crude protein fraction in the rumen

Anotace:

One of the many benefits of forage legumes is the high protein content, which is independent of nitrogen fertilization. On the other hand, generally high proportion of crude protein fractions is rapidly degradable in the rumen (in the case of chemical protein fractionation, they are fractions A, B1). When forage legumes are feeded, the fast degradation of crude protein to ammonia starts in the rumen and a considerable amount of nitrogen can then escape out of the body.

This phenomenon has long been known, and intensive research about the reduction of the over-rapid degradation crude protein in the rumen has been conducted over 30 years in order to improve the use of nitrogen and reduce its losses back into the environment. There is, above all, an effort to directly reduce the rumen degradability of forage proteins through crops breeding, but significant progress has not yet been made. There are also significant differences in the proportion of crude fractions and their utilization among the different species of forage legumes, which is attributed to the presence of polyphenoloxidases (clover) or condensed tannins (birdsfoot trefoil), but the utilization of these species in monocultures hits their ecological limits. Newer studies highlight the potential of legume-grass mixtures, where cultivation with grasses reduces the content of non-protein nitrogen (fraction A) in harvested forage, especially in the summer. The aim of the thesis is to evaluate the influence of cultivation of pure alfalfa or its combination with complementary legume or grass species on the nutritional value of forage with respect to the utilization of crude proteins in the rumen.

Zdroj financování práce: institucional support, Dairy Research Cluster (Dairy farmers of Canada)

V Praze - Suchbátka dne 31.1.2018

podpis