

Legumes



Whole-Plant Silage from Grain Legumes

Background

High forage intake by dairy cows from grass and corn silage is essential for the health, economic viability, and sustainability of the system. In addition, protein-rich silage made from alfalfa or clover-grass mixtures is used to reduce the need to purchase supplemental protein feeds. In recent years, interest has also grown in whole-plant silage (WPS) made from grain legumes (peas, field beans, lupins, etc.). When grain legumes are used for silage, they must be harvested using a direct-cut harvester (without wilting). This makes the optimal dry matter (DM) content at harvest particularly important. This was the starting point for the project, which aimed to generate further insights into the development of dry matter content, yield, energy and nutrient content, as well as suitability for silage.

Results

In 2024, peas, field beans, and white lupins were sampled and ensiled at two-week intervals from June until the plants reached maturity. The results from the first year showed that the optimal time for harvest and ensiling should be when the dry matter content of the whole plants is between 30–50%. For white lupins, a dry matter yield of 121 dt DM per ha and an average protein yield of 23.8 dt protein per ha were determined. After ensiling for more than 100 days, a dry matter loss of less than 5% was observed.

Feeding Trial with Dairy Cows

A feeding trial conducted with the ZTT Iden (LLG Saxony-Anhalt) showed that, when 4–5 kg of dry matter (DM) alfalfa was replaced with a comparable amount of lupine-WPS, there were no differences among the tested variants in terms of DM intake and key performance and animal health indicators. It was also found that NDF digestibility was at the same level between the TMR with alfalfa (73.8%) and the TMR with lupine-WPS (74.3%).



Lupins
Pea **Field beans**
Lentel seed

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