

Reduce Lodging in Alfalfa to Help Control Excess Ash Content of Hay & Haylage

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Excess ash content of forages has gained recent notoriety, and for good reason. Based on research and forage laboratory results, recent articles in forage publications suggest ash content in alfalfa exceeding 8% of dry matter is largely due to soil particles included in harvested forage. Low level soil contamination of hay and haylage is probably inevitable, so keeping ash levels <10-11% has been suggested as a reasonable goal. Feeding forage with higher ash levels probably amounts to feeding more dirt, and dirt in your ration doesn't make milk. Furthermore, excess ash in the forage analysis of purchased hay amounts to fairly expensive dirt. Whether you've experienced ash content exceeding these levels or not, you might wish to keep soil contamination in forages to a minimum.

One obvious cause of higher ash content in hay is soil contamination during mowing, especially when mowing lodged hay. Modern disc mowers can mow a lodged crop faster than a sickle bar mower, but the amount of soil disturbance by disc mowers can be greater. Disc angle, knife shape, mower height settings, and soil surface roughness are all factors in the amount of soil contamination during forage cutting.

When can lodging be a problem in alfalfa? Lodging in alfalfa tends to be more of an issue in the lush growth of first cut, especially if heavy rains or wind impact the crop. Delayed harvest and manure application can also contribute to lodging in alfalfa.

When mowing lodged alfalfa hay, it can be tempting to adjust cutting height to 'pick up' lodged alfalfa. It can be especially tempting when lodging occurs under heavy lush growth you just hate to leave behind in the field.

Lodging resistance has a "French Connection." It so happens French farmers prefer long alfalfa harvest intervals of 45-50 days, and the French overemphasize lodging resistance as a key requirement in registration trials required for commercial variety sales in that country. In the mid-90's, a Pioneer alfalfa breeder in France, Dr. Francois Loiselle, brought his Flemish germplasm to Pennsylvania and Wisconsin for intercrossing with Pioneer North America alfalfa germplasm. Dr. Loiselle's aim was to increase disease and winterhardiness of the French types. Pioneer developed the top-selling commercial variety in France. Along the way, Pioneer alfalfa breeders performed two decades of breeding for lodging-resistant types and brought lodging resistance into some of their elite Pioneer commercial varieties in North America.

Myth or fact? A common misconception is alfalfa lodging resistance leads to less digestible forage, but that is not the case. Stems of the lodging resistant types arise from the crown in a more vertical fashion instead of spreading out and away from the crown before growing upward. This more upright stem architecture provides more resistance to lodging.

Pioneer brand variety 54Q14 is the current Pioneer lodging resistant variety. 54Q14 is a high-yielding, high forage quality type with Relative Forage Quality (RFQ) exceeding a competing conventional variety which has been highly touted for forage digestibility over the past three years.

In addition to harvestability advantages, the lodging resistant characteristic helps avoid long unharvested stems representing not only reduced yield in the current cutting, but may also dilute forage quality if harvested in later cuttings. Overall yield of subsequent cuttings can be affected too, since regrowth in lodged alfalfa often arises from less vigorous axillary buds along the unharvested stems, slowing regrowth from more productive crown buds.

If you are seeking to avoid or reduce high ash content in forages, consider lodging resistant variety selection as part of your management strategy.

Forage Focus, August 2017



Michigan variety strip trial shows lodged alfalfa as seen in the variety at right. Lodging can leave long trailing stems in the field following cutting, contributing to yield loss in the current harvest and quality dilution of subsequent harvests. A Pioneer lodging resistant variety is shown on the left. (Photo: Dann Bolinger)