



How many wrapping layers on your baleage?

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Baled silage is a common practice for storing grass and legume silages mainly in small and medium-size dairy farms. Forage is cut into a wide swath that covers at least 75% of the cut area to reduce moisture content to about 50% as soon as possible.

Wide swaths lead to a more uniform drying which can reduce the presence of wet or green spots in the windrows at baling.

Wrapping baled silage with four plastic layers is recommended to maintain anaerobic conditions within the silage mass; however, this practice may be inadequate for long storage periods.

A recent study published by Researchers from the University of Wisconsin, and the US Dairy Forage Research Center evaluated the effects of 4, 5, or 6 layers of plastic wrap on the silage fermentation and the nutritive value of baled alfalfa-grass silages.

The researchers (Coblentz et al., 2016) wrapped large round bales of a mixed alfalfa-grass sward (60% dry matter; DM) with 4, 5, or 6 layers of a commercial polyethylene wrap (750mm × 1500m × 25µm).

In summary, after the four month storage period, there were no differentiating responses to the number of wrapping layers:

- DM content in the surface (58.2%) and core of the baleages (58.6%).
- Recoveries of DM (99.5%).
- pH in the surface and core of the baleages (5.7).
- Concentrations of total acids (0.89% DM), lactic acid (0.11%), acetic acid (0.78% DM), and ammonia (0.16%).

- Losses of water-soluble carbohydrates (0.5 percentage units) and total-digestible-nutrients (1.0 units).

Overall, these findings show there is no advantage gained by using more than four wrapping layers in baleage. In a subsequent study, the investigators evaluated the quality of the forage stored for different lengths of time. Large round bales were wrapped with four layers and kept in storage for 99, 243 and 357 days of storage.

Similarly, the researchers (Coblentz et al., 2017) did not find any difference in the pH of the baleages (5.8), and contents of total acids (2.68% DM), lactic acid (1.47%), and acetic acid (0.85% DM).



As expected, water-soluble carbohydrate concentration was reduced slightly from 6.2% DM at baling day to 5.1, 4.4, 3.7% at 99, 243 and 357 days. Surprisingly, losses in total-digestible-nutrients were slightly greater at 99 days (2.8 percentage units) than at 243 and 357 days of storage (1.8).

In conclusion, these findings suggest that four wrapping layers are adequate to preserve feed quality in baleages during long periods.