Baleage Use in Grazing Systems

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So, what is baleage? Baleage, also known as 'round-bale silage' or 'hay silage,' is a method of forage preservation using fermentation of wet bales, either round or square, wrapped in plastic. In this two-step process, the goal is to cut forage at 45-55% moisture and immediately wrap it in plastic.

Baleage allows preservation of high quality forage, lessening the need for supplemental feed. *(Photo: Yoana Newman, UWRF)*

Why should baleage be considered in a grazing system? It has economic benefits and provides a high quality product. Baleage preservation will provide feed during critical periods when pastures need to be rested, minimizing or totally eliminating the need for supplemental feed. Such periods include the summer in most of the Upper Midwest, where cool-season pasture species go through a summer slump due to warm weather, or the winter when pastures are dormant. It also allows farmers to lock in high quality by cutting forages at their peak regardless of weather and by avoiding the losses associated with hay-making.

Baleage also eliminates losses in dry matter and nutritive value when rain delays dry hay baling and a corresponding 3-4 day wait is necessary to dry the hay down to the required 18-20% moisture for baling. It also eliminates damage related to leaf-loss in dried legumes or plant material. To produce baleage successfully, attention to a number of factors is required:

- **Moisture at cutting:** Cut your forage at a moisture providing adequate fermentation for the wrapped material. Forage grasses or mixtures are generally cut at 80% moisture. To achieve 55% moisture in the Upper Midwest, they need to be wilted for approximately one day. For example, forage cut during mid-morning will likely approach 50-55% moisture the next day.
- **Bale density:** Make bales as dense as possible. Tight bales will allow for more dry matter in the bale volume being wrapped. Additionally, high density bales will reduce oxygen content and losses in dry matter and nutritive value due to microbial respiration.
- **Time from baling to wrapping:** The next factor to think about is the time necessary to wrap bales and how soon do they need to be wrapped? Baled forage needs to be wrapped immediately or the same day. The time between baling and wrapping needs to be as minimal as possible. If bales are left unwrapped, heating and losses will occur due to higher internal temperatures. If bales are left unwrapped for more than 24 hours, spontaneous combustion may set in, causing fire.

Baleage can be wrapped in-line or as individual bales. *(Photo: Yoana Newman, UWRF)*

- **Layers of plastic:** It is important to provide insulation from oxygen. Six layers of high quality plastic (1 mil layer) should provide adequate insulation. If thicker plastic is used (1.5 mil), four or five layers may be sufficient.
- **Area selected for wrapping:** For in-line wrapping, the area where the bales are wrapped will serve as their final resting place until fed, as these long casings cannot be moved. Choose a flat area free of sharp objects.
- **Routine inspection & immediate repair of plastic punctures:**

Wrapped bales should be inspected for holes or tears. Keep 'plastic repair tape' at hand and tape any hole or tear immediately. Bales need to be totally sealed at all times.