Do Different Termination Methods of Glyphosate Resistant Alfalfa Affect the Yield and Quality of the Succeeding Silage Corn Crop?

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Introduction
- Glyphosate containing herbicides have long been the standard method for terminating alfalfa stands in Utah.
- Development of glyphosate resistant alfalfa eliminates glyphosate as a stand removal option.
- Alfalfa stand termination method may affect: alfalfa regrowth, soil characteristics, and N availability.

Objective
- The objective of this study was to determine the effect of tillage type and timing, herbicide timing, and N rate on corn emergence, alfalfa regrowth, and yield of silage corn.

Materials and Methods
- **Sites:** Cornish, UT- Layton loamy fine sand; Cache Junction, UT- Trenton silty clay loam.
- **Design:** Treatments were arranged in a randomized complete block split-split plot with four replications.
- **Treatments:**
  - Whole plot (Tillage type and timing): fall conventional till, spring conventional till, fall strip-till, spring strip-till, no-till.
  - Sub-plot (Herbicide timing): fall, spring, in-crop, control.
  - Sub-sub plot (N rate): 0, 56, 112, and 224 kg N ha⁻¹.

Results and Discussion
- **Figure 4.** The effect of tillage type and timing on corn silage yield. Means with the same letter are not statistically different (P ≥ 0.05). Sites and years were analyzed separately. Fall and spring conventional tillage timings at each site yielded similarly to no-till except Cornish in 2013 where both strip-till timing yields were higher than no-till.

Conclusions
- Silage corn yields under conventional tillage were higher than strip-till and no-till.
- Fall and spring tillage timings resulted in similar corn silage yields.
- Herbicide applications to terminate alfalfa can be done in the fall or spring before planting to protect corn yields.
- Little to no N fertilizer may be needed in first-year corn after alfalfa.