

Utilizing Pre-Plant Treatments for Weed Management for Alfalfa Stand Establishment

Sarah Light¹

Weed competition during alfalfa stand establishment can reduce root growth, lead to thinner stands, and lower forage quality. This project evaluated the efficacy of weed control options for conventional and organic growers. Weeds were germinated with winter rains and then Glyphosate was sprayed or mechanical cultivation was implemented prior to planting. Half the plots received in-season Raptor application and half the plots received no in-season spray.

Figure 1. There were significantly more broadleaf weeds in the plots that had no pre-plant weed control. In plots with Raptor applied in-season, broadleaf weeds were reduced to a negligible level compared to those with no in-season control.

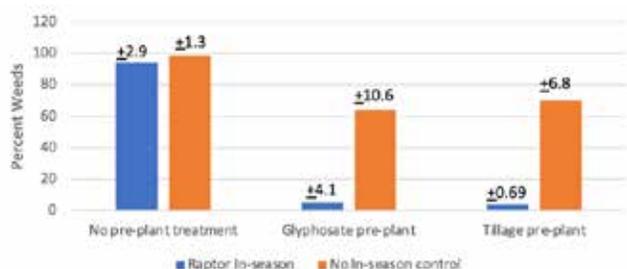


Figure 2. Alfalfa was barely visible in plots that had no pre-plant weed control.

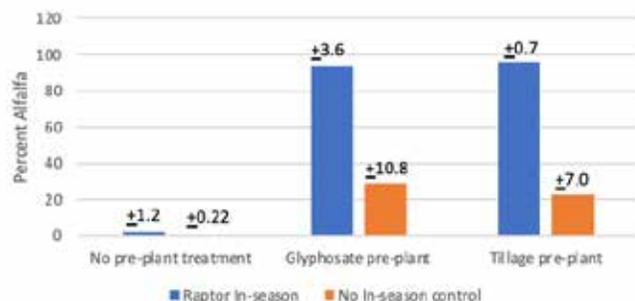


Figure 3. Alfalfa yields were enhanced by both early season and in-season weed control. A combination of both led to highest yields.

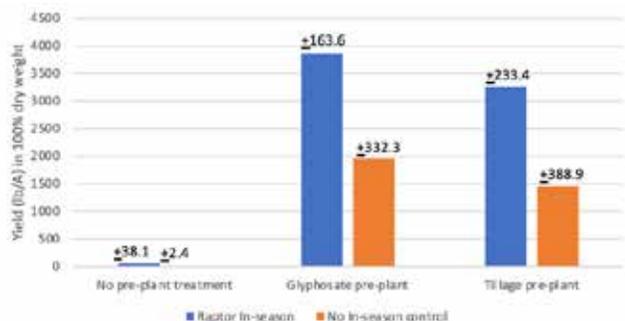
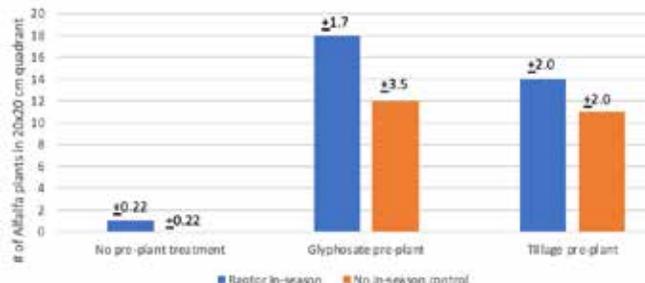


Figure 1. Alfalfa stand counts showed significant effects of pre-plant treatments, as well as the effect of in-season herbicide applications. Alfalfa seedlings died in plots with no pre-plant weed control.



Controlling weeds prior to planting, either with shallow tillage or a herbicide spray reduced weed pressure, increased yields, and led to a stronger alfalfa stand after first cutting. Yields were highest in plots that had both pre-plant weed control and an in-season herbicide. The plots with the highest stand counts after first cutting were also the plots that had both pre-plant and in-season weed control. However, the stand in the pre-plant treatment plots that did not have in-season herbicide application still had relatively high alfalfa stand counts after first cutting. This means that with early effective weed control, the alfalfa stand may be more robust for future cuttings, even if weed pressure was high initially. By first cutting, many broad leaf weeds had gone to flower so likely would not return after first cutting. However, when included in the harvest weeds reduce quality and price of the hay, and contribute seed to the weed-seed population in the field. Ideally, both pre-plant and in-season weed control would be implemented. However, growers (particularly organic) may be able to do a pre-plant tillage to control weeds and establish a good alfalfa stand, accept some yield reduction and additional weed pressure leading up to first cutting, and then have a strong alfalfa stand for subsequent cuttings.

¹Agronomy Advisor, University of California Cooperative Extension