

Five Years of Alfalfa Research With Roundup Ready Alfalfa at Colorado State University. Drs. Philip Westra, Niel Hansen, Joe Brummer, Shawn Archibeque, Terry Engle, Bill Wailes, and Brian Larson, MS Graduate Student.

In 2003, research was initiated with Roundup Ready alfalfa to determine the level of weed control and the amount of alfalfa tolerance when glyphosate was applied between all cuttings at rates up to 3 lbs acid equivalent each time. Overall weed control was always excellent with these treatments with the exception of winter annual weeds such as prickly lettuce, downy brome, and flixweed which began appearing in the alfalfa stand in years 4 and 5 when favorable fall moisture promoted excellent germination and establishment of these weeds. Such weed pressure can easily be addressed by an early spring application of glyphosate. Alfalfa yield from 2 cuttings in the establishment year of 2003 was nearly 2.5 tons of pure alfalfa. Average annual yields over the next 4 years from 3 cuttings per year have been over 7 tons per year of pure alfalfa. Crop tolerance to even very high (non-labeled) rates of glyphosate has been excellent. We have found that a glyphosate application is not always necessary between all cuttings; fields can be scouted for weeds to see if a glyphosate application is warranted. This study will be followed for an additional 2 or 3 years to evaluate the alfalfa tolerance to glyphosate as the stand gets older. New research initiated in 2007 (prior to the no-plant injunction for RR alfalfa) at two front range locations was designed to compare conventional alfalfa with Roundup Ready alfalfa for weed control and forage yields when both were planted into soils fertilized with differing rates of dairy manure. Although few major differences were detected due to manure application rate (assuming some weed seeds move in cattle manure), there was a clear advantage for significantly higher production of pure alfalfa with the Roundup Ready production system. When the total amount of weed biomass was added to the alfalfa biomass, then both production systems appeared more equal in terms of total tons of dry matter produced. Average yields for both sites in this year of establishment were approximately 2.5 tons of dry matter for the Roundup Ready alfalfa.