

WHAT HAVE WE LEARNED FROM TWO YEARS OF RR ALFALFA?

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BACKGROUND

Roundup Ready alfalfa technology has been successfully incorporated into production systems across the U.S. since the fall of 2005. Field research trials indicated that Roundup Ready alfalfa, as a weed control system, would have significant merit for alfalfa producers. Herbicide cost on a per acre basis would potentially be reduced while improving the level of weed control. Many alfalfa herbicides show some degree of injury to the crop but less is shown from glyphosate tolerant alfalfa. Researchers concluded using glyphosate would improve control of many annual and especially perennial weeds not effectively controlled by the conventional tools available.

This technology can be an effective means of weed control for some of the most difficult-to-control perennial weeds nutsedge, dandelion, quackgrass, bermudagrass, and Johnsongrass. If control of these tough perennials is achieved, it would presumably extend alfalfa stand life for several years. The parasitic weed dodder historically is a serious pest of alfalfa hay fields and difficult to control. It is especially problematic in alfalfa seed production. The possibility that dodder could be controlled post emergence before setting seed and without injuring the alfalfa would be a significant break through. Glyphosate is arguably the most effective non-selective foliar herbicide on the market today. It controls a broader spectrum of weeds, both annuals and perennials, than other herbicides. It has very little soil residual carry over which can be important in using in stands for longer period and important in crop rotations. It is a herbicide that has shown few environmental, aquatic, human and wildlife drawbacks.

Roundup Ready Alfalfa issues have recently surfaced raising issues that potentially could impact the marketability of non RR alfalfa through cross pollination and contamination from bees transporting pollen. Organic hay markets require GMO free hay for certification. Until USDA and or the organic alfalfa industry resolve distance issues or develop new certification requirements the marketability of organic hay remains in jeopardy.

Now that Roundup Ready alfalfa has been in commercial production for over two years, we can begin to evaluate its performance based on grower experience. To collect the information, we developed a survey for growers, industry and university researchers to assess their views and opinions on performance. The survey was delivered two ways; on-line by email and by phone to growers who had been identified as RR alfalfa producers.

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The survey included growers and industry representatives from the states of California, Idaho, Nevada, Arizona, Washington and New Mexico. We collected 43 total responses; 24 growers, 11 consultants, 3 seed and marketing dealers and 5 university researchers. The survey statistics for acreage was as follows; 24 growers totaled 27,415 acres of alfalfa in which 4,629 or 17% acres was RR alfalfa. There were 11 pest control consultants responsible for 43,100 acres of alfalfa in which 5,370 acres or 12.5% was RR alfalfa. Three seed managers responded totaling 21,000 acres of which 6900 acres or 33% of their sales was RR alfalfa. There were 5 University Extension researchers that responded from the states of Washington, Idaho, New Mexico and from 4 UC advisors from northern, central and southern California totaling 627,000 acres of conventional alfalfa and 16,000 acres of RR alfalfa (2.6%).

GROWER'S SURVEY

The following is a summary of survey questions and grower's responses. Many answers were similar from grower to grower with many of the same points being made. Similar answers are listed only once in no particular priority to save on space.

What were some of the deciding factors you considered when planting Roundup Ready Alfalfa?

Perennial weed control, summer weeds and grasses, hoping for dodder control, Russian Knapweed, Canada Thistle, ground with a bad weed history, tough soil type for alfalfa and weeds take over, extending alfalfa life one or two years, spray applications easier, less chemical usage, softer herbicide program, no groundwater leaching problems, able to spot spray weedy areas at any time, reduced chemical cost, crop safety, try new innovations, fewer weeds means greater income from higher forage yield and quality increase, clean up severe weed problems for other rotation crops, one herbicide has broad spectrum weed control, no permit required, reseeding in weak areas not an issue.

List the major weed problems in your alfalfa production?

Dodder, knapweed, canada thistle, pepperweed, hoary cress, dandelion, curly dock, plantain, quackgrass, bindweed, nutsedge, lovegrass, foxtail, morninglory, water grass, london rocket, mexican tea, knotweed, pigweed, kochia, common groundsel, fiddleneck, bur clover, cocklebur, Johnsongrass.

What weeds were you unable to control using conventional herbicides that you can now control with RR alfalfa?

Dodder, common groundsel, summer grasses, bur clover, watergrass, nutsedge, Johnsongrass, shepherds purse, dandelion, kochia, quackgrass.

Where do you rank weed control importance in alfalfa production?

1= extremely important, 2= important, 3= not important

Growers response = #1 19, #2 2, #3 1

Has Roundup Alfalfa worked to your satisfaction?

Yes 24

No 0

All 24 growers responded yes. Comments included, very clean fields, good production, better weed control, best fields ever, would plant more but no seed is available, good tonnage, sprayed one time very clean, wider timing window for spraying weeds, good stand, fields clean all summer, able to replant in weak areas.

List any disadvantages in planting, raising or marketing RR alfalfa.

24 growers had no major disadvantages. A large concern was the need to identify individual bales if required, damping off disease leading to complete stand loss, more phytophthora root rot showing up, RR varieties have lower forage quality, seed not availability, can't plant anymore, horse market is reluctant to feed.

List any advantages in planting, raising or marketing RR alfalfa.

Less herbicides needed, highest test hay on ranch, 1/3 ton/acre yield increase, only used RU 2X in 2 1/2 years, controls volunteer crops, used on weedy bad soil, excellent weed control, higher price received for hay, better horse hay, better stand and water efficiency,

All things considered, how would you grade the RR alfalfa system?

A=19, B=4, C=1, D=0, F=0

UNIVERSITY, INDUSTRY AND PEST CONTROL CONSULTANT'S SURVEY

What were the factors in recommending RR Alfalfa?

Productivity, quality, weed control weed resistance to glyphosate, dodder control, summer annuals, no residual herbicide, perennial weeds, weed history.

List concerns you had recommending RR Alfalfa?

State moratorium due to export market concern, tech fees may exceed conventional herbicide costs, cost of seed, and overuse leading to resistance and weed shifts, market acceptance particularly for horses, anti GMO sentiment.

What specific weeds are controlled with RR Alfalfa that was not controlled prior to the introduction?

Dodder, Canada thistle, R. knapweed, pepperweed, hoary cress, dandelion, curly dock, quackgrass, bindweed, lover grass, nutsedge, wild radish, and foxtail.

Do you feel RR Alfalfa has met its agronomic goals in weed control, economics, quality hay, ease of establishment etc.

By reducing the cost of weed control over 3-4 year period, not sure yet, yes in ease of establishment, higher forage quality hay, yes excellent weed control, economics on par to what was expected, yes perennial weed control, extending stand life.

Describe any issues from your experience related to farming, weed control or marketing.

Growers and consultants will overuse glyphosate, none, fall and spring applications required, preplant situations not a factor, earlier plantings OK, no need to pre-irrigate for weeds, marking bales a nightmare, able to grow in new fields not previously suitable, how long varieties will last?

Base on your observations please rate from 1-10 (10 being the most useful) has RR Alfalfa been useful to the industry?

9, 8, 8, 9, 10, 10. Avg 9

SUMMARY

It was clear that growers who have experience growing RR alfalfa were overwhelmingly positive for weed control and listed many other advantages associated with maintaining weed free fields, forage quality, productivity, stand population and price. The majority of responses clearly favored perennial weed control as the key reason for planting RR Alfalfa and that their expectations were met or had been exceeded. Historically, perennial weeds were not controlled effectively in conventional alfalfa, often leading to more herbicide use. The effectiveness and flexibility of glyphosate, the safety to seedling alfalfa and the wider window for timing applications was very important. The potential for less drift problems when spraying by ground was important; reducing their herbicides was a key point. Some growers noticed a yield and forage quality increase although they felt that it would take several years to verify the long term yield. Some growers felt confident enough in weed control to reduce seeding rates by 30% to 20 lbs/A because of the superior weed control and risk of losing an alfalfa stand to weeds.

On the negative side of RR Alfalfa, marketing issues and single bale identification were on everyone's mind. Most felt it would be an unfair hardship and could lead to other negative market implications if the court ruling forced these actions. One grower had already disked out his stand because of the anticipated bale identification requirements and harvesting equipment cleaning between fields. Pollen drift and contamination to conventional and organic alfalfa was not fully understood, although protecting one's market right to farm was respected. Most growers understood the concept of resistant weed threat but felt they could manage for that if it occurred.

The uncertain future of RR alfalfa is disconcerting to growers who are raising RR alfalfa and making plans is a difficult task. Some are reducing their planting acreage this season, others are opting not to plant and wait one year to see what the legal outcome will be. The opinion on who's to blame for the current planting moratorium was not a survey question but was volunteered in every phone interview. Blame was distributed to all parties from USDA, Monsanto, the organic industry and the environmental community who were either not engaged during the alfalfa registration process or understand enough on agricultural practices to make an informed decision. Equally frustrating is how the process is being interpreted through the legal system. Most felt that the public has been misinformed on the potential threats of RR Alfalfa, although everyone believes that we must continue to research the human, agronomic and environmental impacts this technology brings to society.