

Roundup Ready Alfalfa

Dan Undersander ^{1/}

USDA-APHIS granted approval for sale and use of Roundup Ready alfalfa on June 14, 2005 and the following day the EPA approved the labels to use Roundup for weed control in Roundup Ready alfalfa forage and hay production. State approvals of labels for to use Roundup Original MAX and Roundup WeatherMAX herbicides on Roundup Ready alfalfa have followed (all except CA and NY have approved WeatherMAX labels).

Approvals by other countries are pending. Forage Genetics International (FGI) and Monsanto have secured hay import approvals for Mexico and for Canada, and are anticipating hay import approvals for Japan. Approvals are expected prior to the first harvest of Roundup Ready alfalfa forage in the spring of 2006. Regulatory submissions have also been made to other import markets, including Korea and Taiwan.

Such approvals, or lack thereof will not impact, Wisconsin much, but do impact both the alfalfa seed and hay industry of the West. Until clearances from other countries are received, no seed to be sold internationally may have the Roundup Ready gene, either intentionally or as a contaminate. Further, hay of Roundup Ready alfalfa may not be sold internationally until the receiving country had approved use of the gene.

Because necessary import approvals by regulatory agencies of other countries cannot be guaranteed, FGI and Monsanto are working together to initially commercialize Roundup Ready alfalfa through licensees under a "Limited Domestic Launch." Multiple Roundup Ready varieties will be sold to fit fall-dormant and non-dormant market needs.

Following are some key points about Roundup Ready Use in Wisconsin.

- The seed is guaranteed to have greater than 90% roundup ready seed. This means that 5 to 10% of the seed will not be roundup ready. It is anticipated that the first spraying in the seedling stage will take out the non roundup ready seedlings and their loss will not be noticed as stands thin naturally in the seeding year. This could be an issue if the alfalfa is not sprayed in the seedling stage.
- Roundup is easy to commonly available on farms and controls a broader array of both grassy and, and especially, broadleaf weeds than currently available herbicides.
- There is concern about development of Roundup Resistant weeds if all three crops in rotation are Roundup Resistant. However, the frequent mowing of alfalfa will reduce the likelihood of this being an issue.
- Roundup does not cause damage to the seedling alfalfa as observed with most other herbicides. Therefore more yield may be achieved in the seeding year.
- The harvest restriction is much shorter for Roundup applied to alfalfa in the seedling stage than for most other herbicides (see table below).

^{1/} Professor, Dept. of Agronomy, Univ. of Wisconsin-Madison.

Harvest restrictions for herbicides registered for use in forages	
Buctril	30 days
Butyrac 200	60 days for new seedings 30 days for established stands
Glyphosate (Weathermax and Ultramax II)	14 days 36 hours for fields being rotated to another crop 5 trifoliolate leaves to 5 days before harvest for Roundup Ready alfalfa
Poast Plus	7 days for undried forage 14 days for dried hay
Pursuit	30 days
Raptor	20 days

- The released Roundup Ready alfalfa varieties have excellent genetics and appear to have no yield drag. We have tested the eight varieties that are the first releases at the UW Arlington Research Station. The seeding year data are presented below.

RoundUp Ready Variety Trial, Arlington Research Station 2004 Seeding harvested in 2004

Entry	Cut 1	Cut 2	2004
	2004	2004	
	ton/acre	ton/acre	ton/acre
RR1	1.32	1.28	2.60
RR2	1.29	1.25	2.55
RR3	1.23	1.23	2.47
RR4	1.25	1.22	2.47
RR5	1.21	1.17	2.35
RR6	1.11	1.20	2.32
RR7	1.12	1.19	2.30
REBOUND 5.0	0.98	1.31	2.30
RR8	1.09	1.19	2.29
54V46	0.86	1.23	2.16
Mean	1.15	1.23	2.38
LSD(5%)	0.05	0.14	0.15
CV%	2.3	7.3	4.2

- The technology contracts will vary slightly among companies in terms of record keeping. Cropplan Genetics is requiring a GPS reading in each corner of each field. Most other companies are requiring no GPS reading in Wisconsin (some GPS readings required for those states in the West where seed is produced).
- The onetime technology fee per 50-lb bag of Roundup Ready alfalfa seed east of the Rocky Mountains is \$125. West of the Rockies, it is \$150 a bag. If a grower plants 12 lb/acre, the technology fee is approximately \$30/A. Add to this the cost of the seed itself to get the total seed cost.