

Burrus Buzz

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Residual Pre-emerge Waterhemp Control in Beans

by Matt Montgomery

The following quick reference divides common residual pre-emerge bean mode of action families into general categories based upon their effectiveness against amaranth species (specifically waterhemp). The resource also notes general effectiveness against grasses, large seeded broadleaves, and small seeded broadleaves. The reference does not substitute for the grower reading the label to determine a product's ability to control specific weed species. Instead, this list should be viewed as a tool. Consult it initially, but follow that consultation with a review of the specific product's label. Remember, the label is the law.

Additionally, this resource does not incorporate resistance concerns. Multiple modes of action improve a product's ability to stall resistance development. To review a more complete presentation of resistance concerns as they relate to pre-emerge amaranth control, tune into our three part Burrus Agronomy U series. Session one can be retrieved at <https://www.youtube.com/watch?v=Cd-9ZdqunoE>

HRAC GROUP	EXAMPLE ACTIVE INGREDIENTS/ PRODUCTS	AMARANTH CONTROL CONTROL RATING (RELATIVE)	GENERAL GRASS CONTROL RATING (RELATIVE)	GENERAL LARGE SEEDED BROADLEAF RATING (RELATIVE)	GENERAL SMALL SEEDED BROADLEAF RATING (NOT WATERHEMP - RELATIVE)
HRAC 14	Sulfentrazone (Spartan®) Flumioxazin (Valor®)	Excellent*	Poor - Fair	Okay	Good - Excellent
HRAC 3	Pendimethalin (Prowl®) Trifluralin (Treflan®)****	Good*	Excellent	Poor	Okay - Good
HRAC 5 & 7	Linuron (Linex®) Metribuzin (Sencor®)	Okay*	Poor	Variable/ Difficult to Generalize (Depends on Species) (Depends on Chemistry)	Good - Excellent
HRAC 15	Pyroxasulfone (Zidua®)** Acetochlor (Warrant®)** Dimethenamid-P (Outlook®)** S-metolachlor (Dual II Magnum®)**	Fair - Okay*	Good - Excellent	Poor	Fair - Okay
HRAC 2 HRAC 2 w/ HRAC 2	Cloransulam (FirstRate®) (Canopy EX®)	Poor*	Poor	Good	Good
HRAC 2 w/ HRAC 5	(Canopy®)	Poor - Fair	Poor	Good - Excellent	Good - Excellent
HRAC 14 w/ HRAC 2	(Authority Assist®) (Authority First®) (Envive®) (Sonic®) (Valor XLT®)	Excellent	Poor - Fair	Okay	Good-Excellent
HRAC 14 w/ HRAC 5	(Authority MTZ®)	Excellent	Poor - Fair	Okay - Good	Excellent
HRAC 14 w/ HRAC 15	(Fierce®)*** (Prefix®) (Authority Elite®)	Excellent	Good - Excellent	Okay - Good	Good
HRAC 15 w/ HRAC 5	(Boundary®)	Okay	Good - Excellent	Poor	Fair - Okay

* Significant concern over the long-term viability of single modes of action

** Products arranged in relative descending amaranth efficacy

*** Also includes HRAC 2

**** Not suited to minimum/no-till systems

Note: always consult the label before making final pest management decisions

Note: always consult the label to review cropping intervals before making final pest management decisions

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Preferred Nitrogen Sources for Spring Application/Post Applications

by Matt Montgomery

The following is a list of those nitrogen products sometimes considered spring (less than two weeks to planting)/post application options. The list begins with preferred spring application/post application material and ends with less preferred spring/post application material. A brief explanation or thought follows each.

- 1A) Anhydrous (Injected) – Anhydrous is typically on the top of the list for most soil scientists when discussing spring nitrogen applications. Anhydrous is not readily soluble in soil water which allows it to persist until bacteria convert it into more plant available forms. If nitrogen applications will occur a few weeks before planting, anhydrous is almost always the preferred source of N.
- 1B) 28 or 32 Percent (Injected) - So long as it is injected into the soil and so long as that occurs before the corn plant reaches the few leaf stage, injected 28 or 32 percent should perform equally well as anhydrous. Just don't get too early with the product. It can be a sticky mess to work with, but injected 28 or 32 can be a great option.
- 2A) Broadcast Ammonium "X" – By this we mean broadcast applications of ammonium nitrate or ammonium sulfate. Surface nitrogen applications are always less ideal than injected nitrogen in corn. However, this surface applied option is the next best thing because the ammonium will persist for a while. There is still a risk of lost N, but the risk of losing N is lower than it is for other surface applied products (well – almost all other options – see the next member of our list).
- 2B) Broadcast Urea with a Urease Inhibitor – Urea must also be converted before it can be lost. On its own, that conversion happens too rapidly. Add in a urease inhibitor and the product might just persist long enough. Again, a broadcast application is never ideal – but this is the lesser of broadcast evils when compared to what follows.
- 3) Surface application of 28 or 32 Percent (Dribbled) – Strength comes in numbers. Rush a hill with many troops and a few are at least likely to get through. Something similar is at play when we speak of surface dribbling of 28 or 32 Percent. The formation of a concentrated band on the surface is not ideal, but concentrating the application in this way decreases the risk of loss. Microorganisms responsible for conversion just can't work their way through that concentrated mass very well.
- 4) Surface application of liquid and solid nitrogen fertilizers – This is perhaps the most risky of the application methods mentioned here. Products are too easily exposed to microorganisms and the elements. Additionally, such applications sometimes result in a certain amount of leaf burn. The yield impact depends greatly upon the plant growth stage and how intense the application has been.



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