

## Residual Herbicides in Corn Applied PRE and POST

Early season weed control is imperative for maximum corn yield potential. Often, the goal is to apply residual herbicides pre-plant or preemergence (PRE) to help provide early season control and allow the opportunity for better timing of postemergence (POST) applications. However, due to various situations, sometimes the residual herbicides need to be applied after the corn emerges. While POST applications are often feasible, additional challenges such as corn height or growth stage restrictions as well as weed height restrictions need to be carefully followed to help protect yield potential.

Two important factors to consider when addressing weed control with residual herbicides in corn are tank mix partners and carrier options. The options for these factors can vary greatly depending on whether it is a PRE or POST application.

### Tank Mix Partners

Residual herbicides such as Degree Xtra®, Harness® Xtra, and Harness® Xtra 5.6L, provide control of grasses and small seeded broadleaves, prior to weed emergence. Tank mix partners are generally added for reasons such as issues with

large seeded broadleaves, triazine resistant small seeded broadleaves, or emerged weeds, especially those that are tough to control or are resistant to glyphosate.

Prior to using a tank mix, always refer to the labels of the products to be tank mixed to ensure that the products are labeled for the intended crop and the current growth stage, and they are not prohibited as tank mix partners. Additionally, the products should be tested for compatibility, according to label instructions. It is important to remember that [to pg. 2](#)

## PRE APPLICATIONS

Figure 1. Labeled PRE tank mix partners for Degree Xtra®, Harness® Xtra, and Harness® Xtra 5.6L

Tank Mix Herbicide	Tank Mix Rate	Weed Height	Additives	Notes
Roundup PowerMAX®	22 oz./acre	Up to 6"	AMS (8.5 to 17#/100 gal.)	
Atrazine	See notes			For added residual, the applied atrazine rate can be adjusted to 1.5 to 2 lbs. a.i. per acre by tank mixing.
Gramoxone® Brand Herbicides			NIS (if >75% a.i. use 8 oz/100 gal.)	See Gramoxone® Brand Herbicide label for more details.
2,4-D	1 to 2 pt./acre*			Apply 7 to 14 days prior to planting or 3 to 5 days after planting, prior to crop emergence.
Balance® PRO	1 to 3.5 oz./acre**			
Banvel® or Clarity®	1 pt./acre	<2 leaf grasses & small actively growing broadleaf weeds		For use on level or flat planted field corn on soils with more than 2% OM. Apply within 5 days of the last pre-plant tillage. Corn must be planted at least 1.5" deep.
Callisto®	3 oz./acre	<5" weeds	28% UAN @ 2.5% v/v or AMS (8.5#/100 gal) NO MSO	
Hornet® WDG	3 to 4 oz./acre	< 2 leaf grasses and broadleaf weeds 1 to 8 inches tall***	NIS (0.25%v/v) or COC (1%v/v)	Apply within 5 days of the last pre-plant tillage.
Princep®	0.8 to 1.5 qt./acre			
Pendimethalin****	1 to 2 pt./acre			Apply within 5 days of last pre-plant tillage. DO NOT pre-plant incorporate. Do not apply in conservation or minimum tillage to seed corn, sweet corn, or popcorn.

MSO= methylated seed oil; NIS= non-ionic surfactant; AMS= ammonium sulfate; OM= organic matter; v/v= volume to volume; a.i.= active ingredient

\*Refer to the respective product labels of 2,4-D ester for applicable replant interval.

\*\* Rate depends on soil texture and organic matter.

\*\*\* See Hornet WDG label for more details regarding rates relative to weed height and species.

\*\*\*\* The Harness® Xtra 5.6L label includes Prowl® H2O, not pendimethalin. Check the Harness® Xtra 5.6L label for appropriate rates. Neither pendimethalin or Prowl® H2O is on the Harness® Xtra label.

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### POST Applications

Figure 2. Labeled POST tank mix partners for Degree Xtra®, Harness® Xtra, and Harness® Xtra 5.6L

Tank Mix Herbicide	Tank Mix Rate	Corn Height	Weed Height	Additives	Notes
Roundup PowerMAX®	22 oz./acre	Up to 11"	<4"	AMS (8.5 to 17#/100 gal)	For use on corn with Roundup Ready® 2 Technology
Atrazine	See notes	Up to 11"			For added residual, the applied atrazine rate can be adjusted to 1.5 to 2 lbs. a.i. per acre by tank mixing.
Accent®	1/2 to 2/3 oz./acre	Up to 11"	Up to 3" grasses	NIS (0.25% v/v)	Banvel® or Clarity® added to this tankmix can help with broadleaf weed control.
Banvel® or Clarity®	1 pt./acre	<8"	<2 leaf grasses & small actively growing broadleaf weeds		For use on level or flat planted field corn on soils with more than 2% OM. Accent® added to the tankmixture can help control grasses.
Callisto®	3 oz./acre	Up to 11"	<5" weeds	28% UAN (2.5% v/v) or AMS (8.5#/100 gal) NO MSO	Accent® added to the tankmixture can help control grasses.
Hornet® WDG	3 to 4 oz./acre	Up to 11"	< 2 leaf grasses and broadleaf weeds 1 to 8" tall*	NIS (0.25%v/v) or COC (1%v/v)	

MSO= methylated seed oil; NIS= non-ionic surfactant; AMS= ammonium sulfate; OM= organic matter; v/v= volume to volume; a.i.= active ingredient  
 \* See Hornet WDG label for more details regarding rates relative to weed height and species.

just because a tank mix may not be precluded by product labels, that does not always equate to being tank mix recommended by Monsanto. Several aspects of herbicide formulations can affect crop safety and weed control efficacy. Not every herbicide available has been tested thoroughly by Monsanto as a tank mix partner with Monsanto herbicides. Only the tank mix partners that are listed on Monsanto herbicide labels are recommended tank mix partners with Monsanto's herbicides. A list of the tank mix partners for PRE and POST applications of residual herbicides can be found in Figures 1 and 2.

### Carrier Options

Water or a fluid fertilizer, such as 28% urea ammonium nitrate (UAN), are common carriers. Both carriers are labeled for PRE applications with Degree Xtra®, Harness® Xtra, and Harness® Xtra 5.6L. For POST applications, Harness® Xtra and Harness® Xtra 5.6L must be applied with a water carrier to

help minimize the risk of crop injury. Degree Xtra® is one of the few residual herbicides that is labeled for POST applications with UAN as a carrier. While this is not the preferred situation, the flexibility of being able to apply nitrogen and weed control POST in corn in one pass can be beneficial. There are restrictions to help minimize crop injury when applying Degree Xtra® POST with UAN as a carrier (figure 3).

Figure 3. Guidelines for POST application of Degree Xtra® with 28% UAN as a carrier.

- 1) Temperature should not exceed 85° F within 24 hours of application.
- 2) Some leaf burn will occur.
- 3) Do not tank mix with other herbicides except atrazine.
- 4) Do not add crop oil or surfactant.
- 5) Corn height cannot exceed 5 inches.

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