



American Crystal Sugar Company


AgNotes



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Joe Hastings,
General Agronomist
Editor

www.crystalsugar.com



<https://www.crystalsugar.com/agronomy/ag-gold-standards/>

- Fertility
- Variety Selection
- Stand Establishment
- Weed Control
- Disease & Insect Control
- Harvest



PPI & PRE Herbicides Set the Base for 2023 Weed Control

Use soil applied herbicides pre-plant incorporated (PPI) or preemergence (PRE) to control glyphosate resistant kochia and waterhemp prior to sugarbeet emergence. This proactive control measure sets the base for the growing season’s weed control program since there is limited effectiveness of post emergence herbicide options. Also, lay-by soil applied herbicides (Dual Magnum, Outlook, & Warrant) cannot be applied until the sugarbeet 2-leaf stage.

Pre-Plant Incorporation (PPI): Herbicide applied to soil and lightly incorporated (depth of 2” or less). Often applied to soil before the initial spring tillage with ground sprayer or with spray bar mounted to spring tillage equipment.

Pre-emergence (PRE): Herbicide applied to soil after the crop has been planted but before it has emerged.

- Coverage is key when applying soil applied herbicides
 - Apply using 15 gallons of water/acre and with coarse droplets
- Rainfall is needed to activate soil applied herbicides
 - PPI applications of ethofumesate can help in activation

Kochia – Acres with glyphosate resistant kochia are increasing

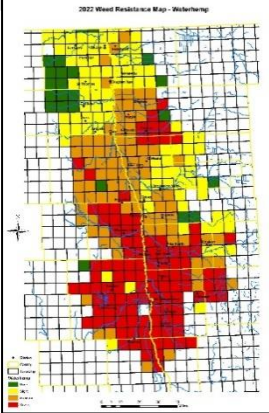
- Kochia emerges early, even before fields may be ready to be planted
 - Tillage prior to planting can take care of early emergers
 - Shoveled type implements may perform better at this task
 - Vertical tillage systems may not be sufficient to cut kochia off
 - A **Gramoxone application** prior to sugarbeet emergence may be needed to control already emerged kochia
 - **Care should be taken as emerged sugarbeets will be killed**
- **PPI or PRE herbicide application: A high rate of ethofumesate is required to provide effective kochia control**
 - Rate of 5 – 7.5 pts./acre (minimum rate of 5 pts./acre is required)
 - Ethofumesate products are: Nortron SC; Ethotron SC; Ethofumesate SC; Nextron SC

Waterhemp

- Waterhemp can emerge at the same time as sugarbeets, especially in later planted years, and will continue to emerge throughout the growing season
- A PPI/PRE application provides weed control until a lay-by herbicide can be applied at the 2-leaf sugarbeet stage
- A layered soil applied herbicide plan offers the best control
 - Layered = PPI/PRE followed by split Lay-by herbicide applications
- Options for PPI/PRE: Dual Magnum Pre, Ethofumesate PPI, or both as a PRE

Links to 2022 Weed Resistance Maps

- [Kochia](#)
- [Waterhemp](#)



Notes on PPI and Pre Herbicide Options

Link to [PPI & Pre Herbicide Options](#)

Herbicide	Rate	Crop Injury Risk	Notes
Ethofumesate	3 – 4.5 pt/A	Low	<ul style="list-style-type: none"> • Good waterhemp control up to 4 weeks • Fair kochia control for non-resistant biotypes but inadequate for resistant kochia • Poor-Fair lambsquarters control • Needs 3/4" rain to activate if used as PRE • Quicker activation with PPI application • May reduce spring cover crop stands
	5 – 7.5 pt/A	<ul style="list-style-type: none"> • Low for fine textured soils with high organic matter • Greater risk over 5 pt/A on coarse texture soils 	<ul style="list-style-type: none"> • Good waterhemp control for 8 – 10 weeks • Minimum of 5pt/A for resistant kochia • Poor-Fair lambsquarters control • Needs 3/4" rain to activate if used as PRE • Quicker activation with PPI application • Significant injury to spring cover crop • Next year's crop should not be a grass
Dual Magnum	0.5-0.75 pt/A	Low	<ul style="list-style-type: none"> • 2 – 3 weeks waterhemp control • Fair lambsquarters control • Poor kochia control • Needs 1/2" rainfall to activate • Do not recommend PPI application • Safe for cover crops • Must sign indemnity label • Only branded Dual Magnum is labeled
Dual Magnum + Ethofumesate	0.5 pt/A DM + 2-3 pt/A Etho	Low	<ul style="list-style-type: none"> • Combines attributes of both herbicides • Provides 3-4 weeks of good Waterhemp control but little Kochia control • Activates with 1/2" of rainfall • Should only be applied as a PRE • Reduced cover crop injury risk

Important Notice:

Read and follow label directions on all pesticides, this document is not a substitute.



For prompt answers to your questions and comments, call and leave a message and Tom Astrup or one of his staff will respond as soon as possible.

**Shareholders:
1-800-633-8941**

As always, please contact your Agriculturist with any questions you may have.

