



American Crystal Sugar Company

AgNotes



March 31st, 2022
Issue 623

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



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

Proactive Weed Control 2022

The definition of proactive means “creating or controlling a situation by causing something to happen rather than reacting to it after it’s happened”.

With resistant weeds in sugarbeets, growers need to be proactive as there are not many alternatives for control once they have emerged. Complete control of a situation never really happens but having and deploying a premeditated weed control program can increase your chances of success.

Our most problematic weeds can attest to this:

- Waterhemp and kochia both require soil applied herbicide programs for control.
- Common ragweed has become more difficult to control and requires a higher rate and timely application of clopyralid (Stinger/Stinger HL).
- Common lambsquarters control needs glyphosate activity to be maximized as much as possible by mixing with ammonium sulfate (AMS) and non-ionic surfactant (NIS).

This Ag Note will highlight these items and provide links to various quick sheets for more detailed information.

Glyphosate

As you are aware, glyphosate supply may be a concern. If you are not able to get the amount you need, you may have to prioritize which crops to focus its use on. In sugarbeets glyphosate is still a vital component of the weed control program. There are often more effective conventional herbicide options available in our rotational crops than there are in sugarbeets. Ration your glyphosate supply appropriately to make sure you have the amount necessary to cover your sugarbeet weed control needs.

Glyphosate Acid Equivalent

Not all glyphosate products are created equal, meaning they can have different quantities of glyphosate (lbs. acid equivalent/gallon) making them more or less concentrated. This should be noted as the corresponding rates of product needed is different for the various lbs. of acid equivalent levels. See Glyphosate Equivalent quick sheet link in box on page 2.

Roundup PowerMAX3® is a new glyphosate formulation from Bayer. It is slightly more concentrated than Roundup PowerMAX®. The below table compares Maximum Use Rates of the two with PowerMAX3® (4.8 lb acid equivalent (a.e.)) and PowerMAX® (4.5 lb. a.e.)

Max Use rates in sugarbeet (oz./acre)	PowerMax	PowerMAX 3
Single app emergence to 8 leaf stage	32	30
Total apps emergence to 8 leaf stage	56	50
Single app 8 leaf stage and above	22	20
Total apps 8 leaf stage and above	44	40
Total per growing season	96	90

Quick Sheet:

Glyphosate Acid Equivalent & Tips for Maximizing Weed Control

<https://www.crystalsugar.com/media/jy1f2fep/equivalent-rate.pdf>

Maximize Glyphosate's Effectiveness

- Spray small weeds.
 - Dr. Peters studies have found when spraying small waterhemp <2", he was able to control 76% of the resistant waterhemp population.
- Use the maximum allowable rate for the stage of sugarbeet growth.
- Improve control by adding a good quality nonionic surfactant (NIS)
 - Fully loaded glyphosate formulation: use 0.25% v/v (unless prohibited on label)
 - Partially loaded glyphosate formulation: use 0.25 - 0.50% v/v
 - Non-loaded glyphosate formulation: 0.5 – 1.0% v/v
- Use 8.5 – 17 lbs. of AMS per 100 gallons of spray solution
- Use glyphosate mixtures with ethofumesate (4-6 fl oz./a) maximize waterhemp and kochia control.
- See Maximizing Weed Control link to the left for more information

Kochia

Acres affected with 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
 - Vertical tillage systems may not be sufficient
 - a shovel-type implement may perform better at this task.
- Ethofumesate pre-emergence (PRE) or pre-plant incorporated (PPI) is the best treatment for kochia control
 - Rate of 5 – 7.5 pts./acre
 - A minimum rate of 5 pts./acre is required
- On emerged kochia
 - Apply glyphosate when kochia is small (<3-inch)
 - Adding ethofumesate post emergence (POST) at 4-6 oz./acre helps increase control.

Links to 2021 Weed Resistance Maps

Kochia

<https://www.crystalsugar.com/media/z5qnfiz5/kochia-resistance-map.pdf>

Waterhemp

<https://www.crystalsugar.com/media/i4jp0mut/waterhemp-resistance-map.pdf>

Common Ragweed

<https://www.crystalsugar.com/media/tr4fzhtk/common-ragweed-resistance-map.pdf>

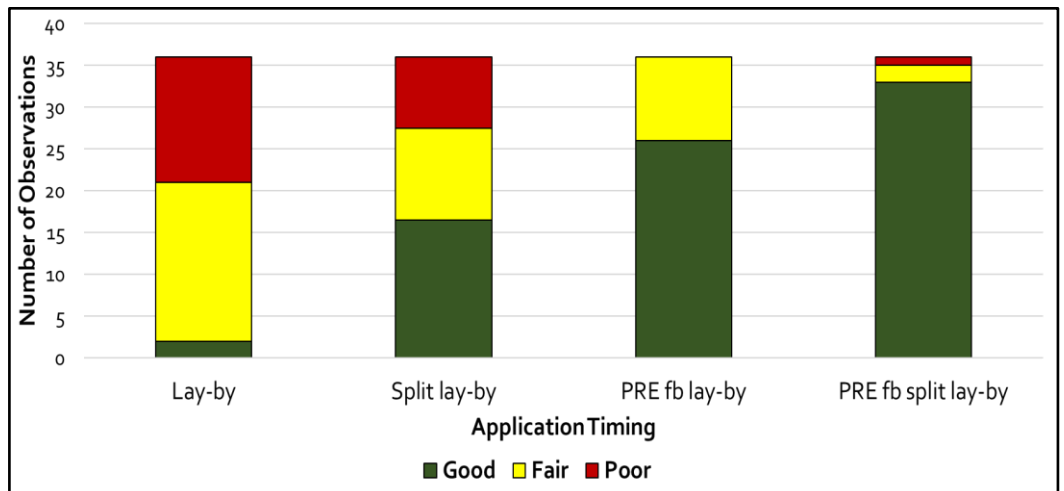
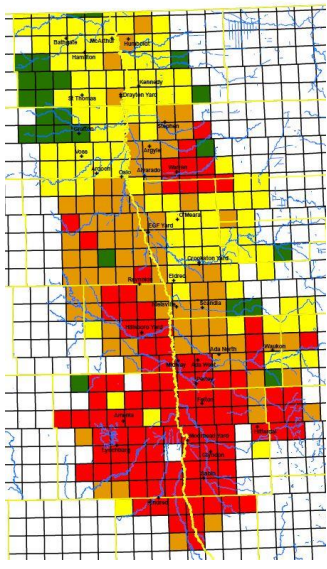
Waterhemp

- Acres affected by waterhemp continue to increase
- Waterhemp emerges season long, so a layered soil-applied herbicide program has proven to be the best approach for its control.
 - Use PRE/PPI soil applied herbicide followed by POST lay-by herbicide applications
- Many of you are tenured in this waterhemp control program while others are just starting to implement it.

Soil Applied Herbicide Program Waterhemp Effectiveness Comparison

The chart below is Dr. Peters' work summarizing four soil-applied herbicide management systems over his years of research. The best results use a layered approach of a PPI/PRE followed by POST split Lay-by applications.

2021 Weed Resistance Map - Waterhemp



Quick Sheets:

**PRE & PPI
Herbicides**

<https://www.crystalsugar.com/media/afxj5z2/pre-emerge.pdf>

Lay-by Herbicides

<https://www.crystalsugar.com/media/1i1frsx2/layby.pdf>

**Identifying
Waterhemp**

Waterhemp stems can be either green or red in color or a bit of both. Its main distinguishing feature from pigweed is that waterhemp has smooth, hairless stems and more elongated true leaves.

Waterhemp ID



- Cotyledons:**
Boat/Egg shaped
- True Leaves:**
Long & Narrow
- Hairless/Smooth**

**Redroot
Pigweed ID**



- Cotyledons:**
Canoe shaped
- True Leaves:**
Rounded
- Has Fine Hairs**

The Base Waterhemp Control Plan

- PRE/PPI applied soil applied herbicides: Dual Magnum; Ethofumesate
- POST applied Lay-by soil applied herbicides: Dual Magnum, Outlook, or Warrant
- **See the link to the left for detailed information on:**
 - **Soil Applied PRE/PPI**
 - **Lay-by Herbicide use in sugarbeets**

Even in last year’s drought, weed control was improved with the use of soil applied herbicides. They need rainfall at varying levels to be incorporated into the soil, but it is tough to forecast when rain will occur and time applications with rain. Soil applied herbicides at planting provide a level of insurance against early germinating weeds and in the event that rain to incorporate lay-by herbicides is not timely. Remember waterhemp will emerge throughout the growing season.

Ultra Blazer

For the 2021 growing season, Ultra Blazer received a Section 18, emergency use, label. An application for a Section 18 label needs to be made for each crop year. The application for the 2022 growing season has been submitted and we are awaiting its approval.

Upon approval for 2022, Ultra Blazer applications are considered a treatment for “escaped weeds” and should not be used as a planned part of the waterhemp control program. The layered soil applied herbicide program is the plan to follow. Further information regarding Ultra Blazer in 2022 will be provided in a future Ag Note following a 2022 Section 18 label approval.

Common Ragweed

Common ragweed has become more difficult to control. Stinger (clopyralid) is the only herbicide available for use in sugarbeet to control common ragweed. It is recommended to use Stinger @ 3 oz./acre or Stinger HL @ 1.8 oz./acre to provide greater assurance of control.

Stinger formulations

Corteva came out with a new Stinger formulation last year, called Stinger HL. This is a more concentrated formulation than Stinger, resulting in Stinger HL being used at lower rates to provide the same amount of active ingredient/acre.

Converting Stinger rate to Stinger HL rate				
Product	fl oz./a	fl oz./a	fl oz./a	fl oz./a
Stinger	2	3	4	6
Stinger HL	1.2	1.8	2.4	3.5

- Stinger HL is dyed sky-blue to help distinguish it from Stinger.
- Both Stinger & Stinger HL are labeled to be used on sugarbeets from the cotyledon to 8 leaf growth stage.
- Target common ragweed that has its 1st true leaves and is less than 3 inches tall.

Common Ragweed Clopyralid Rate:

Stinger: 3 oz./acre followed by 3 oz./acre

Or

Stinger HL @ 1.8 oz./acre followed by 1.8 oz./acre

Common Lambsquarters

Common lambsquarters can be a very tough weed to control because of its biology (leaf size, orientation, and waxes on the plant) enabling it to “repel” herbicides and not allow them to effectively get into the plant tissue. It is best to maximize glyphosate’s effectiveness as stated on page 2 and add in additional nonionic surfactant (NIS) to help in overcoming that barrier.

For more detailed Sugarbeet Weed Control Information See the Below Links:

Resistance Management Weed Control

<https://www.crystalsugar.com/media/lalbqt1e/rr-resistance-management.pdf>

2022 Sugarbeet Weed Management Recommendations

This is not a substitute for reading product labels/Contact Agriculturist for further information

Resistant Waterhemp Management

PPI/PRE:	Ethofumesate = 1-3 pt/A & Dual Magnum = 0.5 pt/A	-OR-	Ethofumesate = 6-7.5 pt/A	-OR-	Dual Magnum = 0.5 pt/A
*Dual Magnum - Recommended to be used as a PRE and not as a PPI. Syngenta requires farmers to sign indemnified label for PPI/PRE application and must be the branded product					
1st Application on 2-Leaf Sugarbeets:					
PowerMAX®	= 28 - 32 fl oz/A -OR-		Betamix = 12 fl oz/A -OR- Progress = 9 fl oz/A		Ethofumesate = 4 fl oz/A
PowerMAX® 3	= 28 - 30 fl oz/A				Outlook = 12 fl oz/A -OR- Dual = 1 pt/A -OR- Warrant = 3 pt/A
2nd Application 10-14 Days After Treatment:					
PowerMAX®	= 24 - 28 fl oz/A -OR-		Betamix = 16 fl oz/A -OR- Progress = 12 fl oz/A		Ethofumesate = 4 fl oz/A
PowerMAX® 3	= 22 - 26 fl oz/A				Outlook = 12 fl oz/A -OR- Dual = 1 pt/A -OR- Warrant = 3 pt/A
3rd Application 10-14 Days After Treatment:					
PowerMAX®	= 22 fl oz/A -OR-		Betamix = 22 fl oz/A -OR- Progress = 1 pt/A		Ethofumesate = 4 fl oz/A
PowerMAX® 3	= 20 fl oz/A				
Use following Adjuvants for glyphosate/non-ionic herbicide tank-mix					
	HSMOC = 1 pt/A		NIS = 25% v/v		AMS = 1 lb/A
Rescue Treatment: Ultra Blazer 16 fl oz/A + NIS @ 0.125% v/v (Can only be tank-mixed with glyphosate & AMS). Contact Agriculturist due to timing environmental conditions and adjuvant use.					
PPI/PRE:	Ethofumesate = 6 - 7.5 pt/A				
1st Application on Cotyledon Kochia:					
PowerMAX®	= 28 - 32 fl oz/A -OR-				
PowerMAX® 3	= 28 - 30 fl oz/A				
2nd Application 10-14 Days After Treatment - Cotyledon Kochia & 1st Sugarbeet:					
PowerMAX®	= 24 - 28 fl oz/A -OR-				
PowerMAX® 3	= 22 - 26 fl oz/A				
3rd Application 10-14 Days After Treatment:					
PowerMAX®	= 22 fl oz/A -OR-				
PowerMAX® 3	= 20 fl oz/A				
4th Application 10-14 Days After Treatment (if needed):					
PowerMAX®	= 22 fl oz/A -OR-				
PowerMAX® 3	= 20 fl oz/A				
Use following Adjuvants for glyphosate/non-ionic herbicide tank-mix					
	HSMOC = 1 pt/A				
	NIS = 25% v/v				
	AMS = 1 lb/A				

Resistant Ragweed Management

1st Application on Cotyledon Sugarbeets:	PowerMAX® = 28 - 32 fl oz/A -OR- PowerMAX® 3 = 28 - 30 fl oz/A	Stinger = 3 - 4 fl oz/A -OR- Stinger HL = 1.8 - 2.4 fl oz/A
2nd Application 10-14 Days After Treatment:	PowerMAX® = 24 - 28 fl oz/A -OR- PowerMAX® 3 = 22 - 26 fl oz/A	Stinger = 3 - 4 fl oz/A -OR- Stinger HL = 1.8 - 2.4 fl oz/A
3rd Application 10-14 Days After Treatment (if needed):	PowerMAX® = 22 fl oz/A -OR- PowerMAX® 3 = 20 fl oz/A	Stinger = 3 - 4 fl oz/A -OR- Stinger HL = 1.8 - 2.4 fl oz/A

* Use following Adjuvants for glyphosate/conventional herbicide tank-mix

NIS = 0.25% v/v AMS = 1 lb/A Stinger HL rate is 60% of Stinger.

Maximize glyphosate labeled Rates

Roundup PowerMAX® 3 (4.8 lb a.e.):	Roundup PowerMAX® (4.5 lb a.e.):
50 oz/A total maximum up to 8 if stage; 30 oz/A maximum single application	50 oz/A total maximum up to 8 if stage; 32 oz/A maximum single application
60 oz/A total maximum after 8 if stage; 22 oz/A maximum single application	60 oz/A total maximum after 8 if stage; 22 oz/A maximum single application
90 oz/A total maximum per growing season, emergence through harvest	90 oz/A total maximum per growing season, emergence through harvest

* Minimum of 10 days between glyphosate applications. All applications are based on Broadcast Rate.
 * HSMOC adjuvant is required when tank-mixing glyphosate with Conventional herbicides to avoid antagonism.
 * Always include AMS at 1 lb/A or liquid equivalent with any glyphosate application. *Unless Mixing with Lay-by (ell), Consider using 1/2 Rate.

Product Notes:

- Stinger: Labeled on cotyledon to 8-leaf sugarbeets; total maximum per season = 10.7 fl oz/A (6.4 fl oz/A for Stinger HL); 45-day PHI
- Ethofumesate: up to 7.5 pt/A PRE or PPI; up to 12 oz/A POST
 - Ethofumesate Ethic, 30 days
 - Ethofumesate 45C & Nektron SC – 45 days
 - Nortron – No labeled PHI
- Betamix & Progress = 75-day PHI
- Glyphosate = 30-day PHI (see top page for in season totals)
- UpBeet: total maximum per season = 2.5 oz/A; 60-day PHI
- Outlook: total maximum in season = 24 oz/A <21 oz/A in single app. See plantback; 60-day PHI
- Dual Magnum & Generies ((S-metolachlor) (see top page for pre note); max season post <2.6 pts/A; 60-day PHI
- Warrant = 70-day PHI

Tank-mixing Order for Glyphosate and Conventional Herbicides

1. Fill spray tank 1/2 full of clean water (warmed water is best)
2. If used – slurry UpBeet, Warrant in warm water (WDG's)
3. Add AMS liquid or dry (water conditioner)
4. If used – Add Sturmed WDG to tank
5. If used – Add Ethofumesate (SC)
6. Fill 2/3 full of water
7. Add Betamix, Progress, Outlook, Dual Magnum (EC)
8. If used - Add Stinger (SL)
9. Add glyphosate
10. Add additives (NIS, COC, MSO, HSMOC and drift/deposition agents)
11. Finish filling spray tank – continue agitation
12. Spray tank empty as soon as possible

Other Crop Resistant Management Weed Control Options

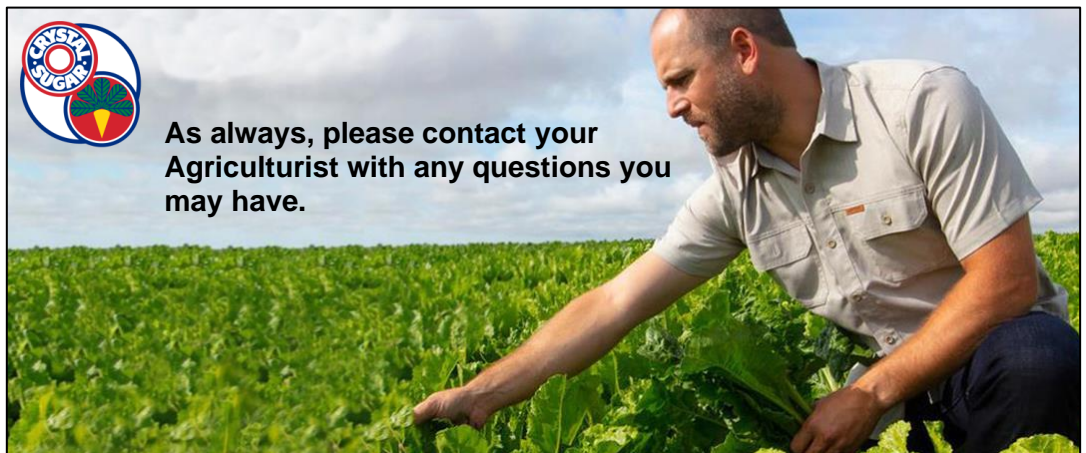
<https://www.crystalsugar.com/media/5nzfzz3q/other-crops-rr-resistance-management.pdf>

ACSC Ag Gold Standards Weed Control Page

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

Important Notice:

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



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