



American Crystal Sugar Company

AgNotes



March 11, 2021

Issue 616

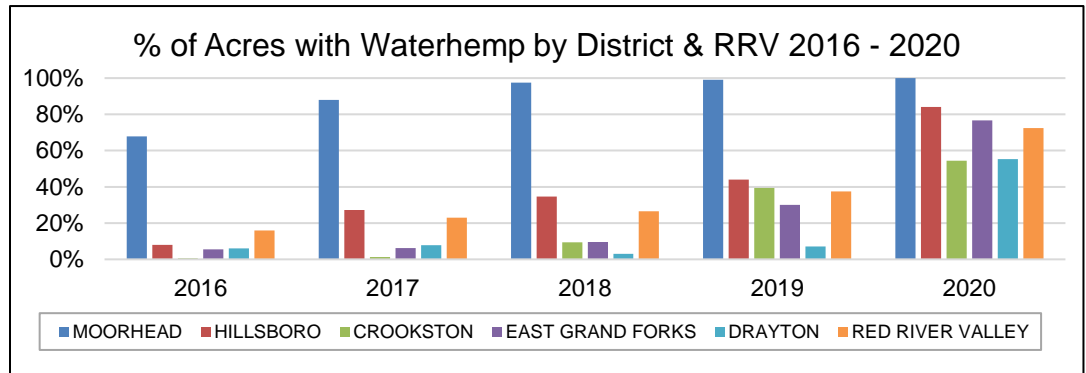
Joe Hastings, Editor

www.crystalsugar.com

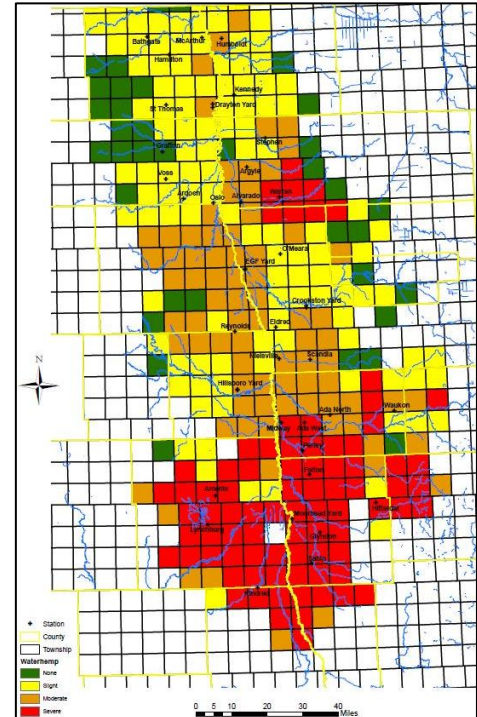
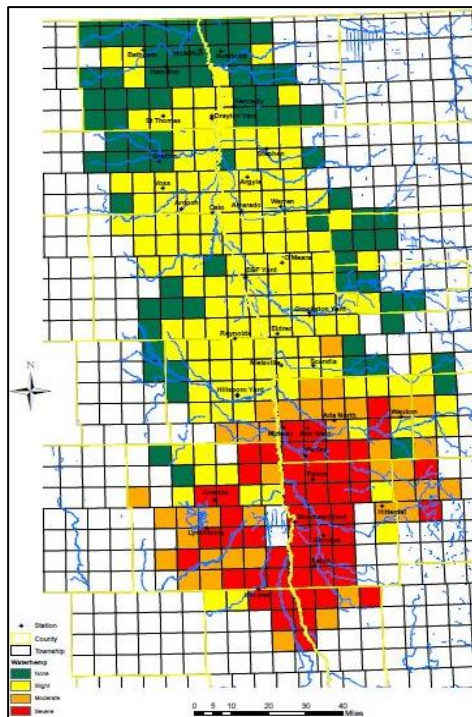
Prevent Offense Required for Waterhemp Control

This means you must actively prevent waterhemp from emerging by using soil applied herbicides in a layered approach as the only effective method for control. This is because there is not an effective POST emergent herbicide to control waterhemp in sugarbeets. Many of you are tenured in these waterhemp control practices others are just starting to implement them.

American Crystal acres affected by waterhemp jumped from 37% in 2019 to 72% in 2020 with increases in severity. This is based on observations from Agriculturists in developing waterhemp severity maps.



Waterhemp Resistance Severity Maps Comparison 2019 2020



<https://www.crystalsugar.com/sugarbeet-agronomy/7-gold-standards/>

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

Your Way TO GROW

Link to 2020 Waterhemp Resistance Map

<https://www.crystalsugar.com/media/370203/waterhemp-resistance-map.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



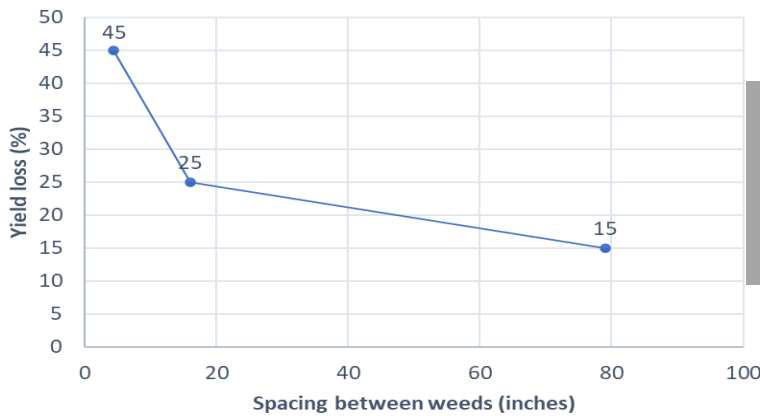
Cotyledons:
Canoe shaped

True Leaves:
Rounded

Has Fine Hairs

Redroot Pigweed & Sugarbeet Root Yield Reduction - Evans & Dexter

The impact of weed interference on yield was documented by Evans & Dexter, 1978 with redroot pigweed. This study has not been done with waterhemp but can be extrapolated as both weeds are in the pigweed family. Also, **one waterhemp plant can produce 300,000 seeds.** Controlling waterhemp should be a top priority to limit yield losses and curb further resistant seed production.



15% yield loss even when pigweed is spaced 6.7 feet apart.

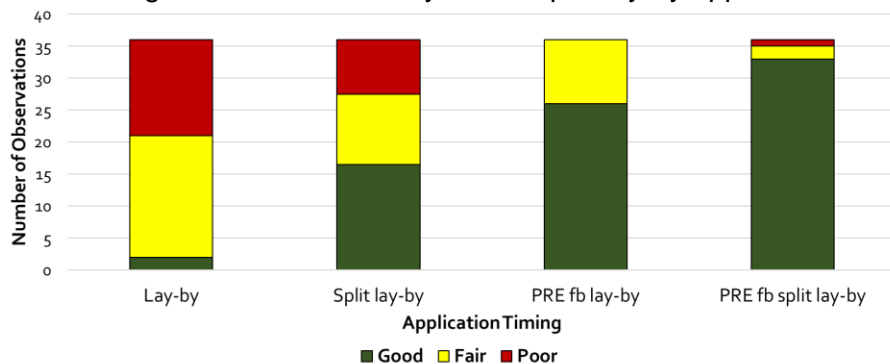
Waterhemp must be controlled before it emerges. Shareholders need to be proactive to have the highest chance for effective control. Results can be achieved by using soil applied herbicides as preplant incorporated/preemergence (PPI/PRE) applications in addition to lay-by POST applications. This layered approach is needed as waterhemp can germinate season long and the game plan is to control waterhemp as it emerges with soil applied herbicides.

Waterhemp Control Program for Sugarbeet Overview

Any Planting Date	Waterhemp Control Recommendation
PPI/PRE	PPI or PRE ethofumesate (Etho) @ 4 - 7.5 pts/acre OR - PRE Dual Magnum @ 0.5-0.75 pt./acre OR - PRE Dual Magnum @ 0.5 pt./acre + Etho @ 2 pts/acre
POST	Split Lay-by applications of Chloroacetamide herbicides (Dual Magnum, Outlook, Warrant) <ul style="list-style-type: none"> Starting at 2-lf sugarbeet and again at 6-8 lf sugarbeet
Escapes	Cultivation & hand removal

Soil Applied Herbicide Program Effectiveness Comparison

The chart below is Dr. Peters' summarizing his observations of four soil-applied herbicide management systems over his years of research. By far the best results occur when using PPI/PRE followed by POST split Lay-by applications.



Application Strategy for Waterhemp, Ragweed & Kochia Control

For “2021 Sugarbeet Weed Resistance Recommendations” click link below:

<https://www.crystalsugar.com/media/369993/glyphosate-conven-herbicide-quicksheet.pdf>



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

PPI & PRE Options

For detailed information on PPI & PRE applications with Ethofumesate and Dual Magnum click link below:

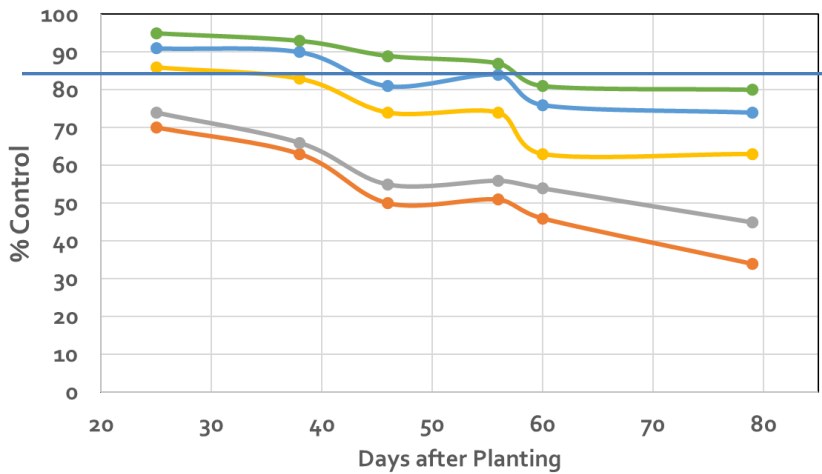
PPI/PRE Info: <https://www.crystalsugar.com/media/589271/2021-preemergence.pdf>

- **PPI** = Pre-Plant Incorporated herbicide is applied prior to light tillage pass incorporating into the top 2” of soil.
- **PRE** = Preemergence herbicide applied after planting prior to crop emergence.

PPI & PRE applications set the foundation to prevent the establishment of early emerging waterhemp before Lay-by’s have been applied. Also, ethofumesate at greater than 6 pt/A is extremely effective on kochia when used PPI or PRE.

Pre Ethofumesate Rates & Waterhemp % Control Across Time

Below is Dr. Peters’ observations from 2020. Higher PRE Ethofumesate rates produce better control and longevity.



	Days after planting					
	25	38	46	56	60	79
Etho 1.5	70	63	50	51	46	34
Etho 3	74	66	55	56	54	45
Etho 4.5	86	83	74	74	63	63
Etho 6	91	90	81	84	76	74
Etho 7.5	95	93	89	87	81	80

Waterhemp Control

greater than 85%
84% to 78%
77% to 65%
less than 65%

— Etho 1.5 — Etho 3 — Etho 4.5 — Etho 6 — Etho 7.5

Lay-by Options

For detailed information on the Lay-by herbicide options: Dual Magnum and generic s-metolachlor; Outlook; and Warrant, click on link below:

Lay-by Info: <https://www.crystalsugar.com/media/589599/2021-layby-weed-control-options.pdf>

Waterhemp emerges all growing season. Lay-by applications help to maintain the barrier limiting waterhemp emergence & establishment.

- Lay-by herbicides are applied POST, after the crop has emerged, and need to be applied and activated prior to waterhemp emergence for control.
- Lay-by’s should be applied in the first two POST herbicide applications.
 - At the 2 leaf & 6-8 leaf sugarbeet stage.
 - Split applications allow for a layered approach to control early and late season waterhemp.

This information has been provided to help you develop a preventative waterhemp control plan. As always, please contact your Agriculturist with any questions and further refinement.

Important Notice:

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