



Ripener Response in a Drought Year

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Dry and Hot Summer, Lots of Questions, Lots of Unknowns

- Should I apply ripener to short cane?
- Will the ripener work?
- Should I reduce or increase my ripener rate?
- What is the best time of day to apply ripener?
- Should I add ammonium sulfate or additional surfactant to help get the ripener into cane?
- Should I use Moddus?



Time of Day, Ripener Rate, Surfacant

- August 17, Cheneyville, Drone Applied at 2 GPA, 2nd stubble HoCP 14-885, 4 reps, 50' X 7 rows

	Morning App.	Afternoon App.
Time of Application	6:55 am - 7:38 am	1:10 pm - 1:50 pm
Air Temperature	67 F	96 F
Relative Humidity	90%	30%
Wind	Calm	WSW @ 6



Time of Day, Ripener Rate, Surfactant

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	Morning App.	Afternoon App.
Time of Application	6:55 am - 7:38 am	1:10 pm - 1:50 pm

Ripener Treatment	Rate
PowerMax3	5 oz/A
PowerMax3 + Interactive	5 oz/A + 0.25%v/v
PowerMax3	7.5 oz/A
PowerMax3 + Moddus	2.5 oz + 11
Untreated Check	



Time of Day, Ripener Rate, Surfactant

- Hard water (>342 ppm)
 - Ca²⁺, Mg²⁺, Fe³⁺
 - CaCO₃
- Glyphosate is a weak acid
- Ca²⁺glyphosate⁻ is not readily absorbed or can pass through the cell membrane
- AMS (NH₄)₂SO₄ added to the spray solution remedies the problem
 - CaCO₃ + (NH₄)₂SO₄ → CaSO₄ + NH₃ + CO₂ + H₂O
- NH₄⁺glyphosate⁻ is readily absorbed into plant tissue



TRANSLOCATING ADJUVANT AND WATER CONDITIONER FOR PESTICIDE SPRAYS

ACTIVE INGREDIENTS:

Proprietary blend of ammonia salts, cationic and anionic surfactants, dimethyl polysiloxane and salts of polyacrylic acid. 43.0%

INERT INGREDIENTS 57.0%

TOTAL 100.0%

Patent No. 5,877,112

KEEP OUT OF REACH OF CHILDREN WARNING

Harmful if swallowed
May be harmful in contact with skin
Causes serious eye irritation
Causes skin irritation
May be harmful if inhaled

**See Inside Panel for Additional
Precautionary Statements**



SN 020515/0315

Time of Day, Ripener Rate, Surfactant



Crop	fl oz/A (lb ai/A)	Application
For ripening in sugarcane		
Sugarcane	11 - 19 (0.18 - 0.31)	Apply Moddus 14-60 days prior to harvest to increase sugar content and/or extend harvest window.
For internode shortening for seed piece production in sugarcane		
Sugarcane	4 - 12 (0.07 - 0.2)	Make a minimum of two split applications of Moddus. Make first application of 4-12 fl oz/A when 6 fully developed full size leaves have appeared. Note the bottom leaf should be feeding internodes above the soil surface. Make a second application of 4-12 fl oz/A when 6 additional fully developed full size leaves have appeared. The total amount applied per acre/crop/season must not exceed 19 fl oz.

Specific Use Restrictions:

- 1) When applied as a ripener, Moddus may be applied until 14 days prior to harvest (14-day PHI).
- 2) Do not apply more than 19 fl oz (0.31 lb ai) Moddus/A/crop/year.
- 3) **Do not apply to cane under stress from lack of water, poor fertilization, abnormal temperatures, or disease.**
- 4) Results may vary according to the variety.
- 5) Crop tolerance: Moddus has been shown to be safe at the rates, timings, and varieties tested. Some varieties may be more sensitive and exhibit symptoms such as stunting. Under normal agricultural conditions, the affected plants will resume growth.



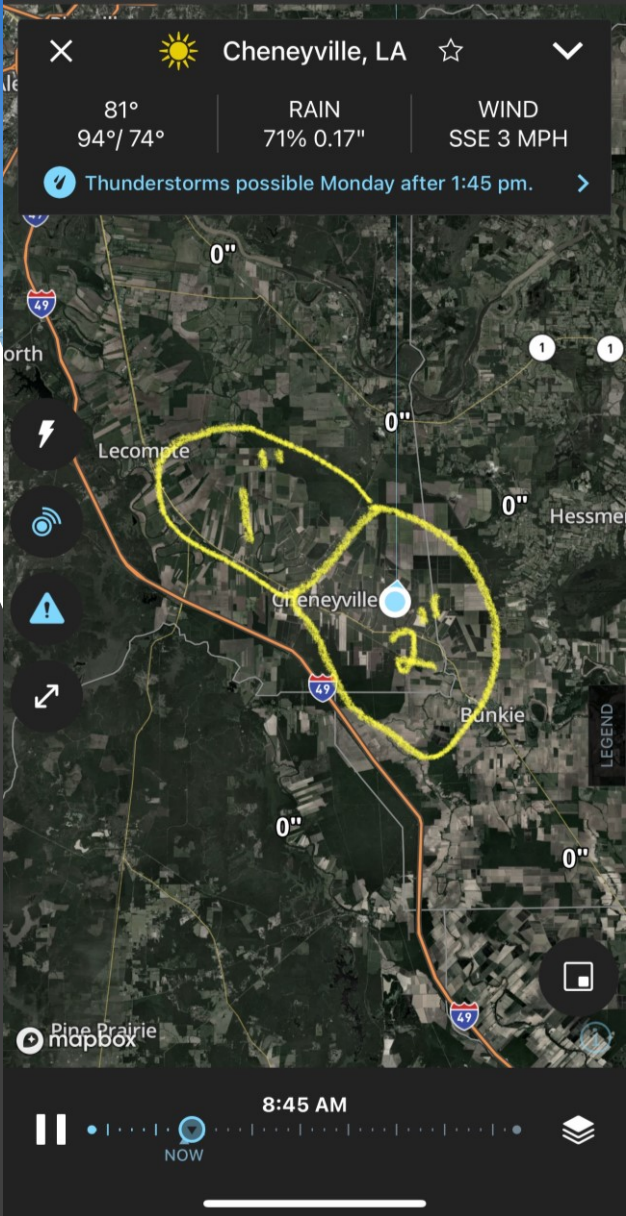
Time of Day, Ripener Rate, Surfactant

			13 Days After Treatment (August 30, 2023)			
Time of Application	Treatment	Rate/A	TRS	% Brix	% Purity	% Fiber
	Untreated Check		190 b	15.7 b	74.8 b	11.3
Morning	RU PMax3	5 oz	220 a	16.9 a	78.4 ab	11.5
Morning	RU PMax3 + Interactive	5 oz + 0.25% v/v	216 a	16.9 a	77.5 ab	11.2
Morning	RU PMax3	7.5 oz	219 a	16.9 a	78.0 ab	11.3
Morning	RU PMax3 + Moddus	2.5 oz + 11 oz	213 a	16.5 a	78.0 ab	11.1
Afternoon	RU PMax3	5 oz	223 a	17.0 a	78.9 a	11.2
Afternoon	RU PMax3 + Interactive	5 oz + 0.25% v/v	215 a	16.5 a	78.4 ab	11.7
Afternoon	RU PMax3	7.5 oz	225 a	16.7 a	80.2 a	11.4
Afternoon	RU PMax3 + Moddus	2.5 oz + 11 oz	210 ab	16.3 ab	77.9ab	11.3
P-Value			0.0005	0.0004	0.0119	0.5146

Time of Day, Ripener Rate, Surfactant



9-3-2023



Time of Day, Ripener Rate, Surfactant

			27 Days After Treatment (September 13, 2023)			
Time of Application	Treatment	Rate/A	TRS	% Brix	% Purity	% Fiber
	Untreated Check		222 b	15.7 b	82.5 b	11.1
Morning	RU PMax3	5 oz	288 a	18.3 a	89.1 a	11.5
Morning	RU PMax3 + Interactive	5 oz + 0.25% v/v	287 a	18.2 a	89.0 a	11.4
Morning	RU PMax3	7.5 oz	293 a	18.4 a	89.7 a	11.2
Morning	RU PMax3 + Moddus	2.5 oz + 11 oz	272 a	17.5 a	88.1 a	11.4
Afternoon	RU PMax3	5 oz	284 a	18.1 a	88.6 a	11.3
Afternoon	RU PMax3 + Interactive	5 oz + 0.25% v/v	290 a	18.2 a	89.7 a	11.3
Afternoon	RU PMax3	7.5 oz	290 a	18.3 a	89.1 a	10.9
Afternoon	RU PMax3 + Moddus	2.5 oz + 11 oz	275 a	17.6 a	88.7 a	11.7
P-Value			<0.0001	<0.0001	<0.0001	0.0771

Time of Day, Ripener Rate, Surfactant

			46 Days After Treatment (October 2, 2023)			
Time of Application	Treatment	Rate/A	TRS	% Brix	% Purity	% Fiber
	Untreated Check		253 b	17.2 b	84.9 b	11.5 a
Morning	RU PMax3	5 oz	330 a	20.7 a	89.8 a	11.2 ab
Morning	RU PMax3 + Interactive	5 oz + 0.25% v/v	336 a	20.9 a	90.2 a	11.3 a
Morning	RU PMax3	7.5 oz	331 a	20.8 a	89.2 a	10.1 b
Morning	RU PMax3 + Moddus	2.5 oz + 11 oz	317 a	19.9 a	90.1 aa	11.7 a
Afternoon	RU PMax3	5 oz	336 a	21.0 a	89.9 a	11.1 ab
Afternoon	RU PMax3 + Interactive	5 oz + 0.25% v/v	331 a	20.9 a	89.5 a	10.8 ab
Afternoon	RU PMax3	7.5 oz	322 a	20.4 a	88.8 a	10.8 ab
Afternoon	RU PMax3 + Moddus	2.5 oz + 11 oz	314 a	20.4 a	87.7 a	11.0 ab
P-Value			<0.0001	<0.0001	<0.0001	0.0047

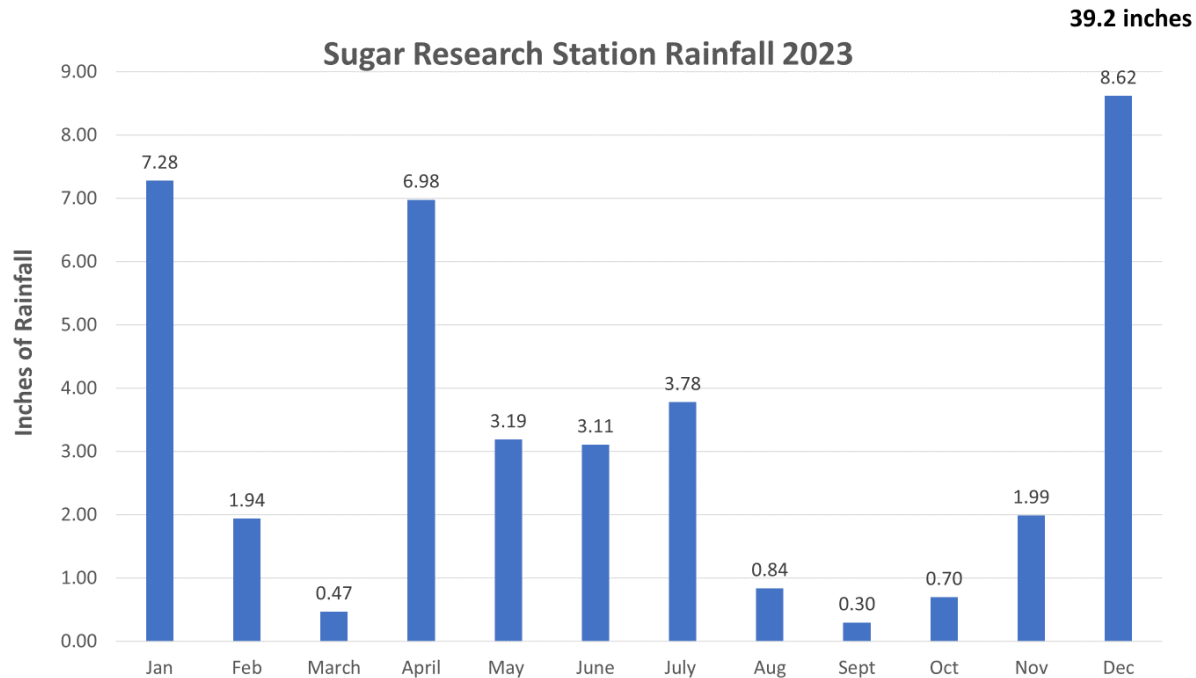
Time of Day, Ripener Rate, Surfactant



Sugar Research Station

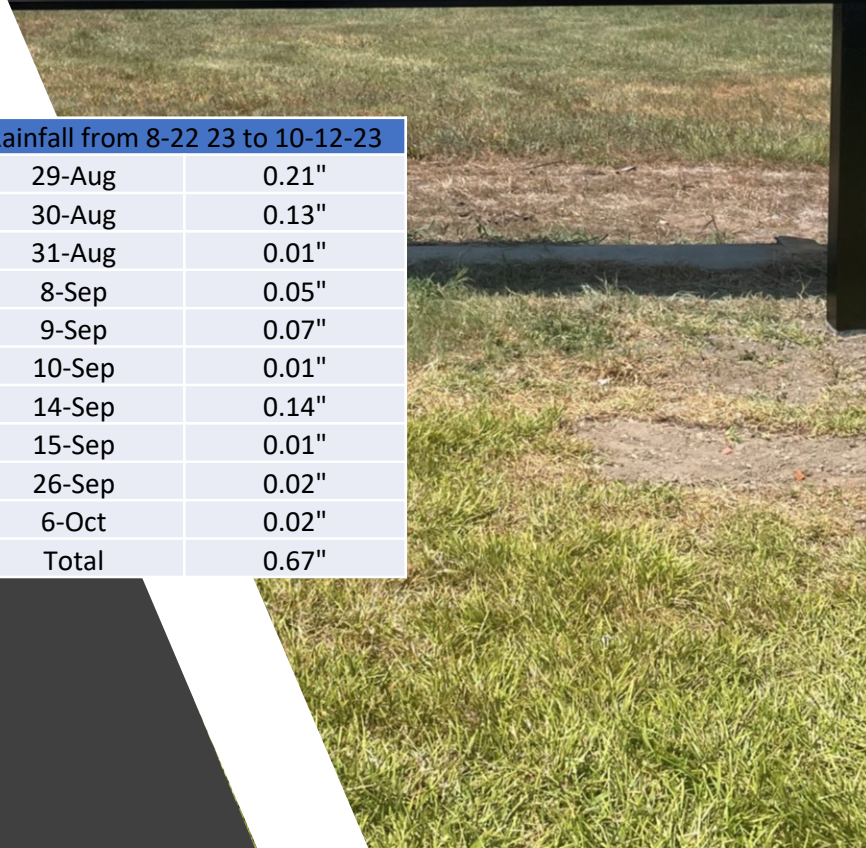


Sugar Research Station



Rainfall from 8-22 23 to 10-12-23

29-Aug	0.21"
30-Aug	0.13"
31-Aug	0.01"
8-Sep	0.05"
9-Sep	0.07"
10-Sep	0.01"
14-Sep	0.14"
15-Sep	0.01"
26-Sep	0.02"
6-Oct	0.02"
Total	0.67"



Imazamox Study #1

- Marketed as Beyond Xtra and Raptor
- Sugar Research Station
- Applied on 8-28-23 by tractor at 10 gpa
- 2nd Stubble L 01-299
- RCB, 4 reps, 12'X40' plots
- NIS added to Imazamox treatments



Imazamox Study #1

		TRS					
Treatment	Rate/A	1WAT (9-5-23)	2WAT (9-11-23)	3WAT (9-18-23)	4WAT (9-25-23)	5WAT (10-2-23)	6WAT (10-9-23)
Beyond Xtra	1 oz	158	172	183 b	178 c	226	251
Beyond Xtra	2 oz	154	179	184 b	184 bc	226	254
Beyond Xtra	4 oz	153	166	193 ab	202 ab	231	252
PMax3	5 oz	166	187	206 a	216 a	245	265
Check		151	173	186 b	187 bc	222	250
P-value		0.7717	0.2302	0.0010	0.0005	0.5157	0.1114

0.25% v/v Induce added to Beyond Xtra Treatments

Imazamox Study #1

Treatment	Rate/A	TRS (10-9-23)	Tons/A (10-9-23)	Sugar/A (10-9-23)
Beyond Xtra	1 oz	251	40.1	10090
Beyond Xtra	2 oz	254	38.9	9878
Beyond Xtra	4 oz	252	36.7	9189
PMax3	5 oz	265	40.0	10657
Check		250	39.6	9904
P-value		0.1114	0.3450	0.2240

0.25% v/v Induce added to Beyond Xtra Treatments



Imazamox Study #2

- Focused on the impact of surfactant choice with imazamox
- Sugar Research Station
- Applied on 9-8-23 by tractor at 10 gpa
- Plantcane HoCP 14-885
- RCB, 4 reps, 12'X35' plots
- Harvested 31 days after treatment



Imazamox Study #2

Harvested 10-9-23

Treatment	Rate/A	TRS	Tons/A	Sugar/A
Beyond Xtra + NIS	1 oz	195 b	38.6	7491
Beyond Xtra + COC	1 oz	201 b	34.3	6866
PMax3	5 oz	214 a	35.2	7449
Check		192 b	35.0	6693
P-value		0.0239	0.3950	0.4147

NIS = 0.25% v/v Induce
COC = 1% v/v Agridex

Variety Response to Ripener

- L 15-306
- HoL 15-508
- Ho 17-738



- Sugar Research Station, RCB, 3 Reps, 12 ft X 30 ft plots
- Treatments Applied September 8, 2023 by tractor @ 10 GPA
- Harvested 31 days after treatment



Variety Response to Ripener

First Stubble L 15-306

Treatment	Rate/A	TRS	Tons/A	Sugar/A
Pmax3	5 oz	246 b	45.5 ab	11206
Pmax3 + Moddus	2.5 oz +11	258 a	39.3 b	10097
Check		243 b	50.7 a	12301
P-value		0.0860	0.0958	0.1354

31 days after treatment



Variety Response to Ripener

First Stubble HoL 15-508

Treatment	Rate/A	TRS	Tons/A	Sugar/A
Pmax3	5 oz	210 a	30.4	6302
Pmax3 + Moddus	2.5 oz +11	221 a	29.9	6649
Check		191 b	35.6	6815
P-value		0.0558	0.3264	0.8551

31 days after treatment



Variety Response to Ripener

Plantcane Ho 17-738

Treatment	Rate/A	TRS	Tons/A	Sugar/A
Pmax3	5 oz	230 a	57.3 b	13157
Pmax3 + Moddus	2.5 oz +11	233 a	52.5 b	12183
Check		198 b	63.9 a	12635
P-value		0.0334	0.0200	0.1180

31 days after treatment



Generic Trinexapac-ethyl



- Sugar Research Station
- Applied on 9-1-23 by tractor at 10 gpa
- 2nd Stubble L 01-299
- RCB, 4 reps, 12'X40' plots
- Harvested 34 days after treatment



Crop	Fl oz/A (lbs ai/A)	Application
For ripening in sugarcane		
Sugarcane	11 - 19 (0.18 - 0.31)	Apply Mazata 28-60 days prior to harvest to increase sugar content and/or extend harvest window.
For internode shortening for seed piece production in sugarcane		
Sugarcane	4 - 12 (0.07 - 0.2)	Make a minimum of two split applications of Mazata . Make first application of 4-12 fl oz/A when 6 fully developed full size leaves have appeared. Note the bottom leaf should be feeding internodes above the soil surface. Make a second application of 4-12 fl oz/A when 6 additional fully developed full size leaves have appeared. The total amount applied per acre/crop/season must not exceed 19 fl oz.
Specific Use Restrictions:		
<ol style="list-style-type: none"> 1) When applied as a ripener, Mazata may be applied until 28 days prior to harvest (28-day PHI). 2) Do not apply more than 19 fl oz (0.31 lb ai) Mazata/A/crop/year. 3) Do not make more than 3 applications per year. 4) Do not apply to cane under stress from lack of water, poor fertilization, abnormal temperatures, or disease. 		
Specific Use Precautions:		
<ol style="list-style-type: none"> 1) Results may vary according to the variety. 2) Crop tolerance: This product will not negatively impact sugarcane at the rates, timings, and varieties tested. Some varieties may be more sensitive and exhibit symptoms such as stunting. Under normal agricultural conditions, the affected plants will resume growth. 		



Generic Trinexapac-ethyl

Treatment	Rate/A
PMax3 + Mazata	2.5 oz + 10.9 oz
PMax3 + Moddus	2.5 oz + 11 oz
PMax3	5 oz
Check	
P-value	



Generic Trinexapac-ethyl

Treatment	Rate/A	TRS
PMax3 + Mazata	2.5 oz + 10.9 oz	224 ab
PMax3 + Moddus	2.5 oz + 11 oz	234 a
PMax3	5 oz	218 ab
Check		196 b
P-value		0.0983



Generic Trinexapac-ethyl

Treatment	Rate/A	TRS	Tons/A	Sugar/A
PMax3 + Mazata	2.5 oz + 10.9 oz	224 ab	36.2	8171
PMax3 + Moddus	2.5 oz + 11 oz	234 a	36.7	8539
PMax3	5 oz	218 ab	39.1	8524
Check		196 b	41.3	8141
P-value		0.0983	0.6316	0.9354



L 01-299 Summary

Year	Date Applied	Trt to Harvest Int	Gly	Check	%
2011	29-Aug	28	221	205	7.8
2012	11-Sep	28	201	182	10.4
2013	5-Sep	28	231	187	23.5
2015	31-Aug	29	270	259	4.2
2016	31-Aug	28	271	248	9.3
2017	12-Sep	28	234	207	13.0
2017	9-Sep	28	252	210	20.0
2018	25-Aug	28	201	171	17.5
2018	25-Aug	31	258	180	43.3
2019	11-Sep	35	257	189	36.0
2019	12-Sep	27	203	174	16.7
2020	21-Aug	32	219	174	25.9
2020	18-Aug	35	215	191	12.6
2021	16-Aug	29	185	133	39.1
2021	27-Aug	35	209	177	18.1
2022	15-Aug	35	225	158	42.4
2022	16-Aug	30	193	133	45.1
2022	16-Aug	28	244	159	53.5
2023	28-Aug	27	216	187	15.5
2023	8-Sep	31	214	192	11.5
2023	1-Sep	34	218	196	11.2
Average		30	226	186	22.7



Metadata Summary 2001-2023

Variety	# of Obs
LCP 85-384	38
HoCP 96-540	17
L 99-226	1
L 99-233	4
HoCP 00-950	4
L 01-283	4
L 01-299	50
L 03-371	1
HoCP 04-838	6
Ho 07-613	5
HoCP 09-804	5
HoCP 09-840	1
L 11-183	2
L 12-201	4
Ho 12-615	4
Ho 12-630	2
Ho 13-739	2
L 14-267	1
HoCP 14-885	5
L 15-306	1
HoL 15-508	1
Ho 17-738	1
	159

Application Date	Trt. to Harvest
Aug 14 to Sept 17	25-59 days

Glyphosate Product	Rate/A	A.I./A
Polado	6	0.19
WeatherMax	5.3	0.19
TouchdownIQ	8	0.19
PowerMax	5.3	0.19
Touchdown Total	5.7	0.19
PowerMaxII	5.3	0.19
PowerMax3	5	0.19

	# of Obs.	Glyphosate	Untreated Check	%
TRS/TC	159	242	206	20.4
Tons/A	41	39.1	41.9	-6.7
Sugar/A	41	9332	8342	11.9



Thank You!

Questions?

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