

## SUGARCANE RIPENERS

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### **Response of L 01-299 and Ho 12-615 to Several Rates of Glyphosate Ripener and Other Ripener Treatments**

A study was conducted in 2022 at Joby Beaud, III Farms in New Roads, LA to evaluate the response of L 01-299 and Ho 12-615 to varying rates of glyphosate ripener as well as Moddus. The experimental design was a randomized complete block design with 3 replications, and the plot size was twenty-five rows wide (150 ft.) X 100 ft. in length. Treatments were applied at 2 gallons per acre at 10 feet above the crop with an DJI Agras T10 spray drone on August 15, 2022. Treatments included Roundup PowerMax3 at 3.4, 5, and 6.6 oz./A, Roundup PowerMax3 at 2.5 oz/A + Moddus at 11 oz/A, and Moddus at 19 oz/A. An untreated check was included for comparison. A hand-cut, 10-stalk sample from each plot was harvested at 35 days after treatment (DAT) and samples were processed using Spectra Cane NIR to determine theoretical recoverable sugar (TRS, pounds of sugar per ton of cane). The center 50 feet of the plots were harvested with a sugarcane chopper harvester and were loaded into a wagon equipped with load cells to gain cane yield. All ripener treatments significantly increased TRS and Sugar/A as compared to the untreated check for both L 01-299 and Ho 12-615 (Tables 1 & 2).

Table 1. L 01-299 response to several ripener treatments in New Roads, LA in 2022.

Treatment <sup>1</sup>	Rate/oz A	Cane Yield (tons/A)	TRS (lb/ton)	Sugar/A (lb/ton)
RU PowerMax3	3.4	40.3	219 a <sup>2</sup>	8841 a
RU PowerMax3	5	36.7	225 a	8277 a
RU PowerMax3	6.6	38.6	236 a	9087 a
RU PowerMax3 + Moddus	2.5 + 11	35.8	238 a	8513 a
Moddus	19	38.4	205 b	7840 a
Untreated check		40.7	158 c	6418 b

<sup>1</sup> Treatments applied August 15, 2022 at 2 gpa with a DJI Agras T10 spray drone. Plots sampled and harvested 35 days after treatment.

<sup>2</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 2. Ho 12-615 response to several ripener treatments in New Roads, LA in 2022.

Treatment <sup>1</sup>	Rate/oz A	Cane Yield (tons/A)	TRS (lb/ton)	Sugar/A (lb/ton)
RU PowerMax3	3.4	41.7	224 a <sup>2</sup>	9092 a
RU PowerMax3	5	39.2	232 a	9094 a
RU PowerMax3	6.6	37.8	242 a	9135 a
RU PowerMax3 + Moddus	2.5 + 11	35.6	229 a	8131 a
Moddus	19	40.1	208 a	8274 a
Untreated check		42.6	162 b	6911 b

<sup>1</sup> Treatments applied August 15, 2022 at 2 gpa with a DJI Agras T10 spray drone. Plots sampled and harvested 35 days after treatment.

<sup>2</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

### Response of HoCP 09-804 to Differing Drone Application Volumes of Glyphosate Ripener

A study was conducted in 2022 at Harper Planting Partnership in Cheneyville, LA to evaluate differing drone application volumes of glyphosate ripener. Treatments were applied at 10 feet above the crop with an DJI Agras T10 spray drone on August 29, 2022. The experimental design was a randomized complete block design with 3 replications, and the plot size was four rows wide (24 ft.) X 1800 ft. in length. Treatments evaluated included Roundup PowerMax3 (5oz/A) applied at 1 and 2 gallons per acre (gpa) and PowerMax3 + Moddus (2.5 oz + 11 oz/A) at 2 gpa. An untreated check was included for comparison. A hand-cut, 10-stalk sample from each plot was harvested at 37 days after treatment (DAT) and was processed using Spectra Cane NIR to determine theoretical recoverable sugar (TRS, lb per ton of cane). After sampling was completed, three rows of each plot were harvested with a sugarcane chopper harvester and were loaded into a semi-truck, and mill weights were utilized to calculate cane yield (ton/A). Sugar yield (lbs/A) was calculated as the product of TRS and cane yield. Yield parameters evaluated were similar for all treatments (Table 3).

Table 3. HoCP 09-804 response to differing drone application volumes in Cheneyville, LA in 2022.

Treatment <sup>1</sup>	Rate/oz A	GPA (gallons/A)	Cane Yield (tons/A)	TRS (lb/ton)	Sugar/A (lb/ton)
RU PowerMax3	5	1	40.0	231	8872
RU PowerMax3	5	2	41.7	253	10552
RU PowerMax3 + Moddus	2.5 + 11	2	40.3	239	9612
Untreated check			41.4	217	8984

<sup>1</sup> Treatments applied August 29, 2022 with a DJI Agras T10 spray drone. Plots sampled and harvested 37 days after treatment.

<sup>2</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

### Response of L 12-201 to Glyphosate and Glyphosate + Moddus Ripener Treatments

A study was conducted in 2022 at Armant Farms in Vacherie, LA to evaluate the response of L 12-201 to glyphosate and glyphosate + Moddus ripener treatments. The experimental design was a randomized complete block design with 3 replications, and the plot size was twelve rows wide (72 ft.) X 100 ft. in length. Treatments were applied at 2 gallons per acre at 10 feet above the crop with an DJI Agras T10 spray drone on September 14, 2022. Treatments evaluated included Roundup PowerMax3 at 5 oz./A and Roundup PowerMax3 at 2.5 oz/A + Moddus at 11 oz/A. An untreated check was included for comparison. A hand-cut, 10-stalk sample from each plot was harvested at 36 days after treatment (DAT) and samples were processed using Spectra Cane NIR to determine theoretical recoverable sugar (TRS, pounds of sugar per ton of cane). The center 50 feet of the plots were harvested with a sugarcane chopper harvester and were loaded into a wagon equipped with load cells to gain cane yield. Both ripener treatments significantly increased TRS as compared to the untreated (Table 4).

Table 4. L 12-201 response to ripener treatments in Vacherie, LA in 2022.

Treatment <sup>1</sup>	Rate/oz A	Cane Yield (tons/A)	TRS (lb/ton)	Sugar/A (lb/ton)
RU PowerMax3	5	48.0	246 a <sup>2</sup>	11790
RU PowerMax3 + Moddus	2.5 + 11	47.2	246 a	11615
Untreated check		4.8	227 b	11304

<sup>1</sup> Treatments applied September 14, 2022 at 2 gpa with a DJI Agras T10 spray drone. Plots sampled and harvested 36 days after treatment.

<sup>2</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

### Ripening Efficacy of GR-3206

A study was conducted in 2022 at the Sugar Research Station in St. Gabriel, LA to evaluate the efficacy of the numbered compound GR-3206 as a sugarcane ripener. The experimental design was a randomized complete block design with 4 replications, and the plot size was two rows wide (12 ft.) X 40 ft. in length. On August 16, 2022, treatments were applied using a tractor mounted boom to first ratoon L 01-299. Treatments included GF-3206 at 1.36, 2.73, 4.10, and 5.46 oz/A and Roundup PowerMax3 at 5 oz/A. An untreated check was included for comparison. A hand-cut, 10-stalk sample from each plot was harvested at 30, 45, and 59 days after treatment (DAT) and was processed using Spectra Cane NIR to determine theoretical recoverable sugar (TRS, lb per ton of cane). Plots were harvested following the 59-day sampling on October 14, 2022 with a sugarcane chopper harvester and were loaded into a wagon equipped with load cells, and the weight of each plot was recorded. TRS levels for the GF-3206 treatments were similar to the untreated check for all sampling dates; however, the Roundup PowerMax3 treatment significantly increased TRS above the check and GF-3206 treatments for all observations (Table 5). Cane yield was significantly reduced with the Roundup PowerMax3 treatment as compared to the GF-3206 treatments and untreated check (Table 6).

Table 5. Theoretical recoverable sugar (TRS) response of first stubble L 01-299 to the numbered compound GR-3206 in St. Gabriel, LA in 2022.

Treatment <sup>1</sup>	Rate/A	TRS 30 DAT <sup>2</sup> (lb/ton)	TRS 45 DAT (lb/ton)	TRS 59 DAT (lb/ton)
GF-3206	1.36 oz	130 b <sup>3</sup>	178 b	201 b
GF-3206	2.73 oz	128 b	171 b	193 b
GF-3206	4.10 oz	126 b	161 b	194 b
GF-3206	5.46 oz	121 b	163 b	190 b
Roundup PowerMax3	5.0 oz	193 a	252 a	265 a
Untreated Check		133 b	163 b	192 b

<sup>1</sup> Treatments applied August 16, 2022.

<sup>2</sup> Days after treatment.

<sup>3</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 6. Cane yield and sugar yield of first stubble L 01-299 to the numbered compound GR-3206 in St. Gabriel, LA in 2022.

Treatment <sup>1</sup>	Rate/A	Cane Yield <sup>2</sup> 59 DAT <sup>3</sup> (ton/A)	Sugar Yield 59 DAT (lb/A)
GF-3206	1.36 oz	31.8 a <sup>4</sup>	6439 a
GF-3206	2.73 oz	30.4 a	5849 a
GF-3206	4.10 oz	31.7 a	6143 a
GF-3206	5.46 oz	30.2 a	5711 a
Roundup PowerMax3 <sup>®</sup>	5.0 oz	26.5 b	7009 a
Untreated Check		30.4 a	5824 a

<sup>1</sup> Treatments applied August 16, 2022.

<sup>2</sup> Harvested October 14, 2022.

<sup>3</sup> Days after treatment.

<sup>4</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

<sup>5</sup> Days after harvest.

### Efficacy of Raptor as a Sugarcane Ripener

A study was conducted in 2022 at the Sugar Research Station in St. Gabriel, LA to evaluate the efficacy of Raptor (Imazamox) as a ripener. The experimental design was a randomized complete block design with 4 replications, and the plot size was two rows wide (12 ft.) X 40 ft. in length. Treatments were applied using a tractor mounted boom to first ratoon L 01-299 on August 16, 2022. Treatments included Raptor at 1, 2, and 4 oz/A as well as Roundup PowerMax3 at 5 oz/A and an untreated check. Induce non-ionic surfactant was added to all Raptor treatments at 0.25% v/v. A hand-cut, 10-stalk sample from each plot was harvested at 7, 14, 21, 28, 35 and 42 DAT and was shredded and processed at the Sugar Research Station's Sucrose Lab to determine theoretical recoverable sugar (TRS, lb per ton of cane) by means of

wet chemistry. Plots were harvested following the 42-day sampling with a sugarcane chopper harvester and were loaded into a wagon equipped with load cells, and the weight of each plot was recorded. The 4 oz Raptor treatment significantly increased TRS at 14, 21, 28, 35, and 42 DAT as compared to the untreated check; however, the industry standard Roundup PowerMax3 at 5 oz/A treatment provided the highest level of TRS for all sample dates (Table 7). The Roundup PowerMax3 treatment was the only treatment which increased sugar yield (Table 8).

Table 7. Effect of Raptor on sugarcane yield parameters for first stubble L 01-299 in St. Gabriel, LA in 2022.

Treatment <sup>1</sup>	Rate/oz A	TRS 7 DAT <sup>2</sup> (lb/ton)	TRS 14 DAT (lb/ton)	TRS 21 DAT (lb/ton)	TRS 28 DAT (lb/ton)	TRS 35 DAT (lb/ton)	TRS 42 DAT (lb/ton)
Raptor	1	101 b <sup>3</sup>	118 c	128 c	151 d	186 c	196 c
Raptor	2	103 b	118 c	149 b	174 bc	179 c	206 bc
Raptor	4	104 b	132 b	151 b	186 b	208 b	216 b
RU PowerMax3	5	116 a	161 a	196 a	244 a	277 a	299 a
Check		105 b	125 bc	134 c	159 c	175 c	191 c

<sup>1</sup> Treatments applied August 16, 2022.

<sup>2</sup> Days after treatment.

<sup>3</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 8. Effect of Raptor on sugarcane yield parameters 42 days after treatment for first stubble L 01-299 in St. Gabriel, LA in 2022.

Treatment <sup>1</sup>	Rate/oz A	Cane Yield (tons/A)	TRS (lb/ton)	Sugar Yield (lb/A)
Raptor	1	33.0	196 c <sup>2</sup>	6444 b
Raptor	2	34.3	206 bc	7065 b
Raptor	4	35.7	216 b	7726 b
RU PowerMax3	5	30.6	299 a	9139 a
Check		34.5	191 c	6586 b

<sup>1</sup> Treatments applied August 16, 2022 and harvested September 27, 2022.

<sup>2</sup> Means within a column followed by the same lowercase letter are not significantly different at P=0.05.