# SUGARCANE RIPENERS

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## Early Season Response of L01-299 to Glyphosate Ripener

A study was conducted in 2019 at the Sugar Research Station in St. Gabriel, LA to evaluate early season response of L01-299 to glyphosate ripener. The experimental design was a randomized complete block design with 4 replications, and the plot size was two rows wide (12 ft) X 60 ft. in length. On August 9, 2019, ripener treatments were applied using a tractor mounted boom. Treatments included Roundup PowerMax II® at 6 ozs./a and Roundup PowerMax II® at 6 ozs./a + Intake® ripener additive at 8 ozs./a, plus an untreated check. L 01-299 responded similarly to the Roundup PowerMax II® and Roundup PowerMax II® + Intake® treatments for all parameters evaluated. A hand-cut 10-stalk sample from each plot was harvested at 25, 32, and 40 days after application (DAA) and was processed using Spectra Cane NIR to determine variety theoretical recoverable sugar (TRS, lbs. per ton of cane). The Roundup PowerMax II® treatment increased TRS by 79, 80, and 91 lbs./ton at 25, 32, and 40 DAA, respectively, as compared to the untreated check (Table 1). Fiber content (%) for the Roundup PowerMax II® treatment averaged 10.8, 10.8, and 11.2% as compared to 11.5, 12.1, and 12.1% for the untreated check at 25, 32, and 40 DAA, respectively, (Table 2). At 40 DAA, stalk height was measured, and then plots were harvested with a sugarcane chopper harvester. The harvested sugarcane was loaded into a wagon equipped with load cells, and the weight of each plot was recorded. The sum of the plot weights and sample weights was used to calculate cane yield (tons/acre). Sugar yield (lbs./acre) was calculated as the product of TRS at 40 DAA and cane yield. The Roundup PowerMax II® treatment reduced sugarcane height by 21.6 inches and sugarcane yield by 6.4 tons per acre as compared to the untreated check; however, the Roundup PowerMax II® treatment increased sugar yield by 1,860 pounds per acre as compared to the untreated check (Table 3.)

## Sugarcane Ripener Additives Study

A study was initiated on September 11, 2019 to evaluate the effect of ripener additives to glyphosate ripener at the Sugar Research Station in St. Gabriel, LA. The experimental design was a randomized complete block design with 4 replications, and plot size was two rows wide (12 ft.) X 40 ft. in length. Treatments included Roundup PowerMax II® at 5.3 ozs./a, Roundup PowerMax II® at 2.65 ozs./a + Moddus® at 11 ozs./a, Roundup PowerMax II® at 5.3 ozs./a + Intake® at 8 ozs./a, Roundup PowerMax II® at 5.3 ozs./a + Anova® at 16 ozs./a, Roundup PowerMax II® at 5.3 ozs./a + B Sure® at 16 ozs./a, and a non-treated check. Treatments were applied to plantcane L 01-299. At 35 DAA, a 10-stalk sample from each plot was hand-harvested and processed using Spectra Cane NIR to determine variety TRS. At 35 DAA, plots were harvested with a sugarcane chopper harvester, and the harvested sugarcane was loaded into a wagon equipped with load cells, and the weight of each plot was recorded. The sum of the plot weights and sample weights was used to calculate cane yield (tons/acre). Sugar yield (lbs./acre) was calculated as the product of TRS and cane yield. All treatments increased TRS as compared to the untreated check; however, the additive treatments did not significantly increase TRS compared to the Roundup PowerMax II® treatment alone (Table 4). The Roundup PowerMax

II® treatment had the highest sugar yield (12,020 lbs./a) of all treatments and had significantly more sugar yield than the untreated check (9,192 lbs./a).

**L01-299 Response to Clethodim Ripener Treatment**

A study was conducted in 2019 at the Sugar Research Station in St. Gabriel, LA to evaluate the potential value of clethodim as a sugarcane ripener tool. The experimental design was a randomized complete block design with 4 replications, and the plot size was one row wide (6 ft.) X 25 ft. in length. On September 12, 2019, ripener treatments were applied using a tractor mounted boom. Treatments included Clethodim® at 5.5 ozs./a and Roundup PowerMax II® at 5.3s. oz/a, and an untreated check. A hand-cut 10-stalk sample from each plot was harvested at 27 and 54 days after application (DAA) and was processed using Spectra Cane NIR to determine variety TRS. L 01-299 showed no increase in TRS with Clethodim® at the 27 and 54 DAA, whereas the Roundup PowerMax II® treatment significantly improved TRS as compared to the untreated check (Table 5).

Table 1. Effect of ripener treatments on theoretical recoverable sugar (TRS) for plantcane L 01-299 at 3 sampling dates in St. Gabriel, LA in 2019

| Treatment[1] | Rate/a | TRS (lbs./ton) 25 DAA[2] | TRS (lbs./ton) 32 DAA | TRS (lbs./ton) 40 DAA |
|---|---|---|---|---|
| Untreated Check | | 140 b[3] | 161 b | 170 b |
| Roundup PowerMax II® | 6 ozs. | 219 a | 241 a | 261 a |
| Roundup PowerMax II® + Intake® | 6 ozs. + 8 ozs. | 211 a | 246 a | 258 a |

[1] Treatments applied August 9, 2019.
[2] DAA = Days after application.
[3] Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 2. Effect of ripener treatments on % fiber for plantcane L 01-299 at 3 sampling dates in St. Gabriel, LA in 2019

| Treatment[1] | Rate/a | % Fiber 25 DAA[2] | % Fiber 32 DAA | % Fiber 40 DAA |
|---|---|---|---|---|
| Untreated Check | | 11.5 a[3] | 12.1 a | 12.1 a |
| Roundup PowerMax II® | 6 ozs. | 10.8 ab | 10.8 b | 11.2 b |
| Roundup PowerMax II® + Intake® | 6 ozs. + 8 ozs. | 10.4 b | 10.9 b | 11.5 b |

[1] Treatments applied August 9, 2019.
[2] DAA = Days after application.
[3] Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 3. Effect of ripener treatments on stalk height, sugarcane yield, and sugar yield for plantcane L 01-299 at 3 sampling dates in St. Gabriel, LA in 2019

| Treatment[1] | Rate/a | Stalk Height (in.) | Sugarcane Yield (tons/a) | Sugar Yield (lbs./a) |
|---|---|---|---|---|
| Untreated Check | | 99.5 a[2] | 38.3 a | 6,493 b |
| Roundup PowerMax II® | 6 ozs. | 77.9 b | 31.9 b | 8,353 a |
| Roundup PowerMax II® + Intake® | 6 ozs. + 8 ozs. | 78.6 b | 30.4 b | 7,783 a |

[1] Treatments applied August 9, 2019. Harvested September 18, 2019.
[2] Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 4. Effect of ripener additives at 35 days after application on theoretical recoverable sugar (TRS), sugarcane yield, sugar yield, and fiber on plant L 01-299 at the Sugar Research Station in St. Gabriel in 2019

| Treatment[1] | Rate/a | TRS (lbs./ton) | Sugarcane Yield (tons/a) | Sugar Yield (lbs./ton) | % Fiber |
|---|---|---|---|---|---|
| Untreated Check | | 189 c[2] | 48.7 a | 9,192 b | 11.6 a |
| Roundup PowerMax II® | 5.3 ozs. | 257 a | 46.8 a | 12,020 a | 10.8 a |
| Roundup PowerMax II® + Moddus® | 2.65 ozs. + 11 ozs. | 241 ab | 48.2 a | 11,643 a | 11.2 a |
| Roundup PowerMax II® + Intake® | 5.3 ozs. + 8 ozs. | 248 ab | 44.5 a | 11,037 ab | 10.9 a |
| Roundup PowerMax II® + Anova® | 5.3 ozs. + 16 ozs. | 246 ab | 45.9 a | 11,327 a | 11.0 a |
| Roundup PowerMax II® + B Sure® | 5.3 ozs. + 16 ozs. | 234 b | 47.5 a | 11,118 ab | 11.1 a |

[1] Treatments applied 9/11/19.
[2] Means within a column followed by the same lowercase letter are not significantly different at P=0.05.

Table 5. Effect of ripener treatments on improving theoretical recoverable sugar (TRS) for first stubble L 01-299 at 2 sampling dates in St. Gabriel, LA in 2019

| Treatment[1] | Rate/a | TRS (lbs./ton) 27 DAA[2] | TRS (lbs./ton) 54 DAA |
|---|---|---|---|
| Untreated Check | | 174 b[3] | 206 b |
| Roundup PowerMax II® | 5.3 ozs. | 203 a | 244 a |
| Clethodim® | 5.5 ozs. | 161 b | 197 b |

[1] Treatments applied September 12, 2019.

[2] DAA = Days after application.

[3] Means within a column followed by the same lowercase letter are not significantly different at P=0.05.