

*23/24 Harvest*

# Results

Evaluation of the agronomic efficiency of the SE, HPE, and SS lines in the correction and fertilization of pastures.



Araguaína | TO

Partnership: Universidade Federal do Norte de Tocantins - UFNT



## Objective

# Performance

To evaluate the agronomic efficiency of the **SE, HPE, and SS lines** in the correction and fertilization of pastures.



Araguaína | TO

## Study parameters

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*Brachiaria brizantha*

Cv. Marandu (braquiarião)

Planting

February 2024

Soil type

Quartzipsamment

Application

Broadcast at planting (2024)

Cuts (every 25 days)

March (1<sup>st</sup> cut)

April (2<sup>nd</sup> cut)

May (3<sup>rd</sup> cut)

Experimental plots

16 m<sup>2</sup> plots

## Unfertilized

1

No application of conditioners or fertilizers

0 Kg ha<sup>-1</sup>

## SE Mag<sup>1\*</sup>

2

Ca 24% (CaO 33,57%)  
Mg 8% (MgO 13,27%)

250 Kg ha<sup>-1</sup>  
Flat rate

## + SS pHos<sup>2\*</sup>

P<sub>2</sub>O<sub>5</sub> 24%  
(P<sub>2</sub>O<sub>5</sub> sol. CNA + H<sub>2</sub>O 12%)  
Ca 12%

239 Kg ha<sup>-1</sup>  
Flat rate

## + HPE pHos NK<sup>2\*</sup>

N 20%  
K<sub>2</sub>O 20%  
Ca 4.5%  
S 3%

900 Kg ha<sup>-1</sup>  
Flat rate

## SE Mag<sup>1\*</sup>

3

Ca 24% (CaO 33,57%)  
Mg 8% (MgO 13,27%)

250 Kg ha<sup>-1</sup>  
Flat rate

## + SS<sup>2\*</sup>

P<sub>2</sub>O<sub>5</sub> 16%  
Ca 16%  
S 10%

358 Kg ha<sup>-1</sup>  
Flat rate

## + Urea<sup>2\*</sup>

N 46%

391 Kg ha<sup>-1</sup>  
Flat rate

## + KCl<sup>2\*</sup>

K<sub>2</sub>O 60%  
Cl 47%

300 Kg ha<sup>-1</sup>  
Flat rate

## SE Mag<sup>1\*</sup>

4

Ca 24% (CaO 33,57%)  
Mg 8% (MgO 13,27%)

250 Kg ha<sup>-1</sup>  
Flat rate

## + SS pHos<sup>2\*</sup>

P<sub>2</sub>O<sub>5</sub> 24%  
(P<sub>2</sub>O<sub>5</sub> sol. CNA + H<sub>2</sub>O 12%)  
Ca 12%

239 Kg ha<sup>-1</sup>  
Flat rate

## + Urea<sup>2\*</sup>

N 46%

391 Kg ha<sup>-1</sup>  
Flat rate

## + KCl<sup>2\*</sup>

K<sub>2</sub>O 60%  
Cl 47%

300 Kg ha<sup>-1</sup>  
Flat rate

<sup>1</sup>Doses determined based on Ca and Mg extraction by the forage, considering a production of 4,000 Kg ha<sup>-1</sup> cut and a final of 12,000 Kg ha<sup>-1</sup> year<sup>-1</sup> (excluding the leveling cut).

<sup>2</sup>Doses defined based on the management practiced in the region, aiming at providing 25 P units (57.25 P<sub>2</sub>O<sub>5</sub>), 180 N units, and 180 K units, with 100% as K<sub>2</sub>O.

\*Annual application dose.

\*\*Single application dose.

## Dolomitic Limestone<sup>1\*\*</sup>

5

Ca 22,8%  
Mg 7.2%

3000 Kg ha<sup>-1</sup>  
Flat rate

PRNT 85%

+ **SS<sup>2</sup>**

P<sub>2</sub>O<sub>5</sub> 16%  
Ca 16%  
S 10%

358 Kg ha<sup>-1</sup>  
Flat rate

+ **Urea<sup>2</sup>**

N 46%

391 Kg ha<sup>-1</sup>  
Flat rate

+ **KCl<sup>2</sup>**

K<sub>2</sub>O 60%  
Cl 47%

300 Kg ha<sup>-1</sup>  
Flat rate

## Dolomitic Limestone<sup>1</sup>

6

Ca 22,8%  
Mg 7.2%

3000 Kg ha<sup>-1</sup>  
Flat rate

PRNT 85%

+ **SS pHos<sup>2</sup>**

P<sub>2</sub>O<sub>5</sub> 24%  
(P<sub>2</sub>O<sub>5</sub> sol. CNA + H<sub>2</sub>O 12%)  
Ca 12%

239 Kg ha<sup>-1</sup>  
Flat rate

+ **HPE pHos NK<sup>2</sup>**

N 20%  
K<sub>2</sub>O 20%  
Ca 4.5%  
S 3%

900 Kg ha<sup>-1</sup>  
Flat rate

## Dolomitic Limestone<sup>1</sup>

7

Ca 22,8%  
Mg 7.2%

3000 Kg ha<sup>-1</sup>  
Flat rate

PRNT 85%

+ **SS pHos<sup>2</sup>**

P<sub>2</sub>O<sub>5</sub> 24%  
(P<sub>2</sub>O<sub>5</sub> sol. CNA + H<sub>2</sub>O 12%)  
Ca 12%

239 Kg ha<sup>-1</sup>  
Flat rate

+ **Urea<sup>2</sup>**

N 46%

391 Kg ha<sup>-1</sup>  
Flat rate

+ **KCl<sup>2</sup>**

K<sub>2</sub>O 60%  
Cl 47%

300 Kg ha<sup>-1</sup>  
Flat rate

<sup>1</sup>Doses determined based on Ca and Mg extraction by the forage, considering a production of 4,000 Kg ha<sup>-1</sup> cut and a final of 12,000 Kg ha<sup>-1</sup> year<sup>-1</sup> (excluding the leveling cut).

<sup>2</sup>Doses defined based on the management practiced in the region, aiming at providing 25 P units (57.25 P<sub>2</sub>O<sub>5</sub>), 180 N units, and 180 K units, with 100% as K<sub>2</sub>O.

\*Annual application dose.

\*\*Single application dose.



# Parameters evaluated

## Dry matter

A 500 g sample was placed in a forced-air oven at 60°C until constant weight to determine the moisture content and subsequently calculate the dry matter weight.

## Soil chemical analysis

Samples were collected at two times, before the application of the products and after the last cut.

## Technical efficiency and economic return

<i>Treatments</i>	<i>DRY MATTER (Kg ha<sup>-1</sup>)</i>		
	<i>1<sup>st</sup> CUT</i>	<i>2<sup>nd</sup> CUT</i>	<i>3<sup>rd</sup> CUT</i>
T1	959.78 b	1436.90 b	1565.41 b
T2	1958.87 a	2680.20 a	4324.91 a
T3	2242.17 a	2621.21 a	3642.06 a
T4	1827.80 a	2420.17 a	4036.28 a
T5	1731.49 a	2751.29 a	3547.51 a
T6	2701.74 a	2654.21 a	3943.33 a
T7	1918.17 a	2486.79 a	3703.36 a
<b>AVERAGE</b>	1905.72	2435.82	3537.55
<b>CV (%)</b>	24.21	23.97	18.43

<i>Treatments</i>		<i>Doses (Kg ha<sup>-1</sup>)</i>
T1	Unfertilized soil	0
T2	SE Mag + SS pHos + HPE pHos NK	250+239+900
T3	SE Mag + SS + Urea + K chloride	250+358+391+300
T4	SE Mag + SS pHos + Urea + K chloride	250+239+391+300
T5	Limestone + SS + Urea + K chloride	3000+358+391+300
T6	Limestone + SS pHos + HPE pHos NK	3000+239+900
T7	Limestone + SS pHos + Urea + K chloride	3000+239+391+300

Averages followed by different letters differ from each other using the Tukey 5% test.

# Dry Matter

(Kg ha<sup>-1</sup>)

# Conclusions

## Dry Matter (DM)

All treatments with the application of conditioners and fertilizers had significantly higher DM values than the control.

### *1<sup>st</sup> Cut*

Treatments T3 (SE Mag + SS + Urea + Potassium chloride) and T6 (Limestone + SS pHos + HPE pHos NK) showed an increase of 29% and 56% in DM compared to the standard fertilization.

### *2<sup>nd</sup> Cut*

Treatments T5 (Limestone + SS + Urea + Potassium chloride) and T2 (SE Mag + SS pHos + HPE pHos NK) showed the highest DM.

### *3<sup>rd</sup> Cut*

Treatments T2 (SE Mag + SS pHos + HPE pHos NK) and T4 (SE Mag + SS pHos + Urea + Potassium chloride) showed the highest DM, with an increase of 22% and 14%.

*20/21 Harvest*

# Results

To evaluate the efficiency of the SE Line in pasture recovery.



Porto Velho | RO





## Objective

# Performance

To evaluate the efficiency of the **SE Line** in pasture recovery.



Porto Velho | RO

## Study parameters

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*Grass species*

*Brachiaria humidicola*

Standard fertilization

None

Polli's treatment

SE SuMag 640 Kg ha<sup>-1</sup>

Application

Broadcast – May 2024

Experimental plot

0.5 ha

## Unfertilized

1

No application of soil conditioners

0 Kg ha<sup>-1</sup>

## SE SuMag<sup>1</sup>

2

Ca 22.8% (CaO 31,89%)

Mg 3.6% (MgO 5,97%)

S 8%

640 Kg ha<sup>-1</sup>

<sup>1</sup>Dose determined based on soil analysis. Initially, the liming need was calculated by the base saturation method (V%), to raise the V% to 55%, requiring 3.2 t ha<sup>-1</sup>. After that, SE SuMag was recommended in a proportion of 20% of the conventional corrective dose, i.e., 640 Kg ha<sup>-1</sup>.





# Parameters evaluated

## Soil chemical analysis

Soil analysis before application, after 180 days, one year and two months, two years and one month, and two years and seven months after application.

<i>Date</i>	<i>pH</i>	<i>K</i>	<i>Ca</i>	<i>Mg</i>	<i>Al</i>	<i>SB</i>	<i>T</i>	<i>M.O.</i>	<i>V</i>	<i>Ca</i>	<i>Mg</i>	<i>K</i>	<i>P</i>
	CaCl <sub>2</sub>	cmol <sub>c</sub> dm <sup>-3</sup>						%					mg dm <sup>-3</sup>
Before application	4.1	0.05	0.5	0.3	1.00	0.85	6.35	1.5	13	8	5	1	1.2
6 months after application	4.1	0.15	0.9	0.6	0.19	1.65	7.15	2.1	23	13	8	2	2.1
14 months after application	4.3	0.19	1.0	0.8	0.93	2.00	6.99	2.2	29	14	11	3	3.1
25 months after application	4.5	0.16	1.5	1.0	0.53	2.66	8.17	2.3	33	23	15	2	8.8
31 months after application	4.2	0.08	2.6	1.4	0.60	4.08	9.58	2.1	43	41	22	1	1.3

Table 1 – Results of soil analyses obtained before, 180 days, one year and two months, two years and one month, and two years and seven months after application of 640 Kg ha<sup>-1</sup> of SE SuMag.

*Brachiaria humidicola*

Pasture

*22 Harvest*

# Results

Agronomic efficiency of the SE Line in pasture restoration



Porto Velho | TO



## Objective

# Performance

Agronomic efficiency of the SE Line in pasture restoration



Porto Velho | TO

## Study parameters

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Crop	Pasture   <i>Brachiaria</i>
Standard fertilization	None
Polli's treatment	SE SuMag 820 Kg ha <sup>-1</sup>
Application	Broadcast – April 2022
Experimental plot	6.84 ha

## Unfertilized

1

No application of soil conditioners

0 Kg ha<sup>-1</sup>

## SE SuMag<sup>1</sup>

2

Ca 22.8% (CaO 31,89%)

Mg 3.6% (MgO 5,97%)

S 8%

820 Kg ha<sup>-1</sup>

<sup>1</sup>Doses determined based on the liming requirement according to the base saturation method (V%), to raise V% to 55%, with a proportion of 20% of the conventional corrective dose.





# Parameters evaluated

## Soil chemical analysis

Soil analysis before and 270 days after application.



<i>Areas</i>	<i>Analyses</i>	<i>pH</i>	<i>P</i>	<i>K</i>	<i>Ca</i>	<i>Mg</i>	<i>Al</i>	<i>H</i>	<i>T</i>	<i>V</i>	<i>M.O.</i>
		CaCl <sub>2</sub>	mg dm <sup>-3</sup>		cmol <sub>c</sub> dm <sup>-3</sup>				%	g dm <sup>-3</sup>	
Plot 1	1 <sup>st</sup> analyses	3.7	1.0	16.2	0.60	0.25	2.00	5.65	8.54	10.42	31.9
	2 <sup>nd</sup> analyses	<b>4.2</b>	<b>2.4</b>	<b>34.3</b>	<b>0.70</b>	<b>0.30</b>	<b>0.65</b>	<b>4.67</b>	6.42	<b>16.98</b>	23.4
Plot 2	1 <sup>st</sup> analyses	3.7	1.3	18.2	0.15	0.08	1.25	4.05	5.58	5.02	17.6
	2 <sup>nd</sup> analyses	<b>4.1</b>	<b>2.7</b>	<b>33.3</b>	<b>0.75</b>	<b>0.33</b>	<b>0.75</b>	<b>4.67</b>	6.59	<b>17.72</b>	23.6

Table 1 - Soil chemical parameters before and after the application of 820 Kg ha<sup>-1</sup> of SE SuMag.

*22 Harvest*

# Results

Efficiency of the **SE Line** in soil correction and nutrient availability in pastures



Pontal de Marape | MT



## Objetivo

# Performance

Efficiency of the SE Line in soil correction and nutrient availability in pastures



Pontual do Marape | MT

## Study parameters

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Crop	Pasture   <i>Brachiaria</i>
Standard fertilization	MAP 170 Kg ha <sup>-1</sup>
Polli's treatment	SE Mag 400 Kg ha <sup>-1</sup>
Application	Broadcast – January 2022
Experimental plot	25 ha

## Unfertilized

1

No application of soil conditioners

0 Kg ha<sup>-1</sup>

## SE Mag<sup>1</sup>

2

Ca 24% (CaO 33,57%)  
Mg 8% (MgO 13,27%)

400 Kg ha<sup>-1</sup>

<sup>1</sup>Doses determined based on the liming requirement according to the base saturation method (V%), to raise V% to 80%, requiring 2 t ha<sup>-1</sup> of conventional limestone. After that, SE MAG was recommended in a proportion of 20% of the conventional corrective dose, i.e., 400 Kg ha<sup>-1</sup>.





# Parameters evaluated

## Soil chemical analysis

Soil analysis at a depth of 0-20 cm, before and after the application of SE Mag.

## Visual aspect of the pasture

<i>Areas</i>	<i>Analyses</i>	<i>pH</i>	<i>P</i>	<i>K</i>	<i>Ca</i>	<i>Mg</i>	<i>T</i>	<i>V</i>	<i>M.O.</i>
		CaCl <sub>2</sub>	mg dm <sup>-3</sup>	cmol <sub>c</sub> dm <sup>-3</sup>			%	g dm <sup>-3</sup>	
Sample 1	Before	4.3	3.0	0.22	0.80	0.10	3.4	33	13.90
	After	5.5	6.0	0.06	2.00	0.90	6.2	48	29.79
Sample 2	Before	4.5	4.0	0.07	1.00	0.20	3.3	37	14.46
	After	5.1	6.0	0.16	2.00	0.40	5.2	42	25.19

Table 1 - Soil chemical parameters (0-20 cm), before and after the application of 400 Kg ha<sup>-1</sup> of SE Mag.

# *Brachiaria* Pasture

Pictures 1 – Pasture before and after SE Mag’s application.



A and B – before application; C – 45 days after application

# *Brachiaria* Pasture

*23 Harvest*

# Results

Efficiency of the **SE Line** in nutrient availability  
for sugarcane



Pedro Afonso | TO





## Objective

# Performance

Evaluation of the efficiency of the SE Line in providing nutrients for sugarcane.



Pedro Afonso | TO

## Study parameters

Crop

Sugarcane IACSP95 5094

Standard fertilization

Limestone 1000 Kg ha<sup>-1</sup>

Phosphogypsum 1000 Kg ha<sup>-1</sup>

Application

SE SuMag 400 Kg ha<sup>-1</sup>

Experimental plot

10 ha

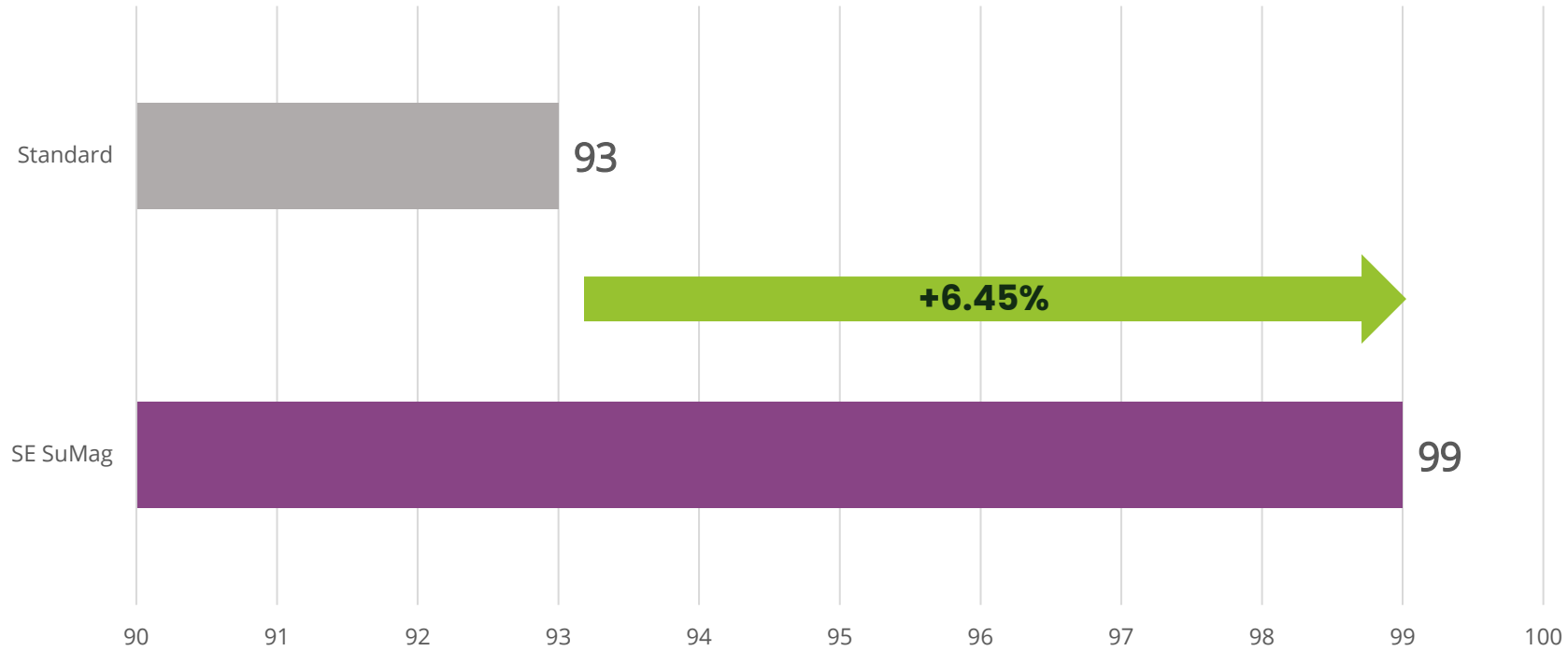
<i>Treatments</i>	<i>Depth</i>	<i>pH</i>	<i>M.O.</i>	<i>P</i>	<i>S</i>	<i>K</i>	<i>Ca</i>	<i>Mg</i>	<i>SB</i>	<i>CTC</i>	<i>V</i>	<i>Al</i>
		CaCl <sub>2</sub>	g dm <sup>-3</sup>	mg dm <sup>-3</sup>		cmol <sub>c</sub> dm <sup>-3</sup>					%	m%
Standard	0-25	5a	26a	9a	13b	3a	14b	7b	24b	45b	54a	1a
SE SuMag	0-25	6a	28a	14b	8a	4a	31a	16a	51a	68a	75a	0a
Standard	25-50	5a	20a	6a	26a	1b	17a	8a	26a	57a	46a	4a
SE SuMag	25-50	5a	21a	11a	21a	2a	18a	10a	30a	53a	54a	1b

Sugarcane data submitted to statistical analysis using the t-test (10%)

# Canefield

## Soil chemical analysis

Productivity (ton ha<sup>-1</sup>)



**Canefield's**  
**productivity**

*23 Harvest*

# Results

Efficiency of the **SE Line** in nutrient availability for sugarcane



Santa Cruz Cabrália | BA



## Objective

# Performance

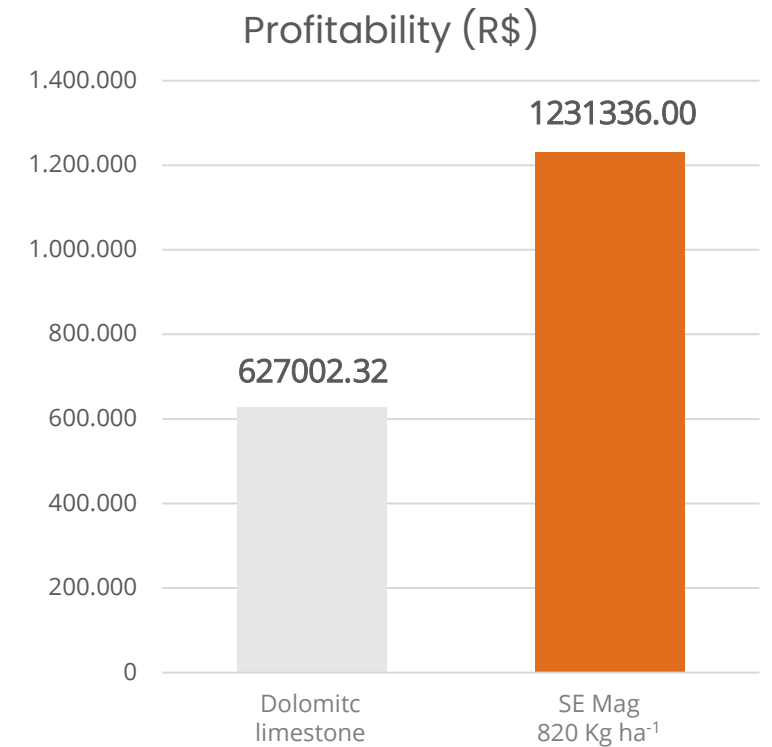
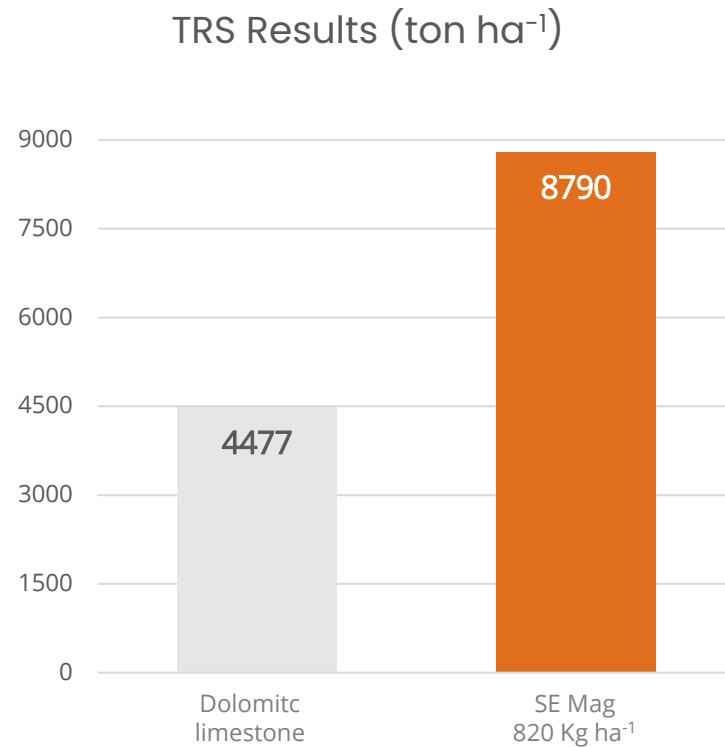
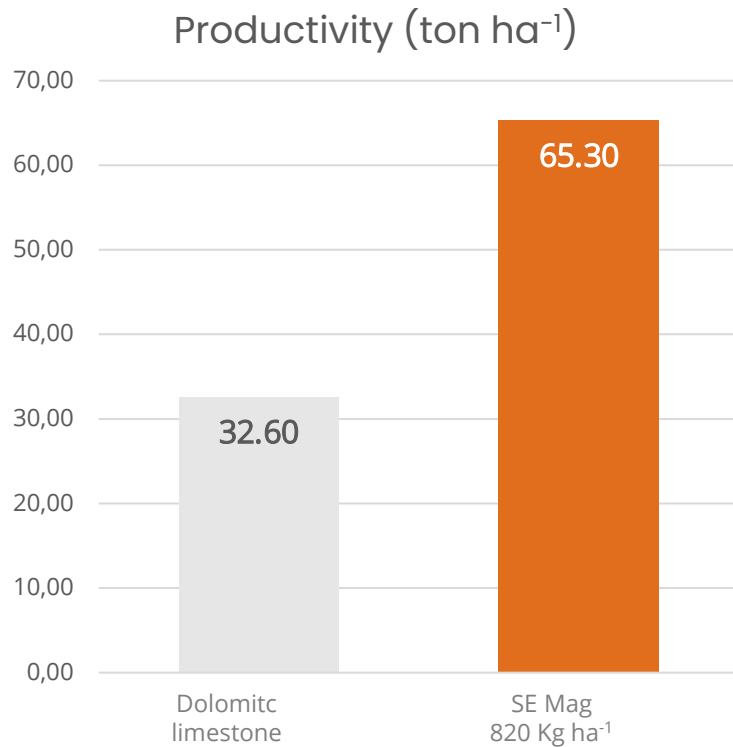
Evaluation of the efficiency of the SE Line in providing nutrients for sugarcane.



 Santa Cruz Cabralia | BA

## Study Parameters

Crop	Sugarcane CTC 9003
Canefield age	5 leaves
Standard fertilization	Dolomitic limestone 1500 Kg ha <sup>-1</sup>
Application	SE Mag 820 Kg ha <sup>-1</sup>
Experimental plot	3.31 ha



# Area's Productivity, Total Recoverable Sugar, and Profitability (R\$)

## Our Company

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# Thank you!

## Follow us



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