

## SUPPLEMENTARY MATERIAL

*Article*

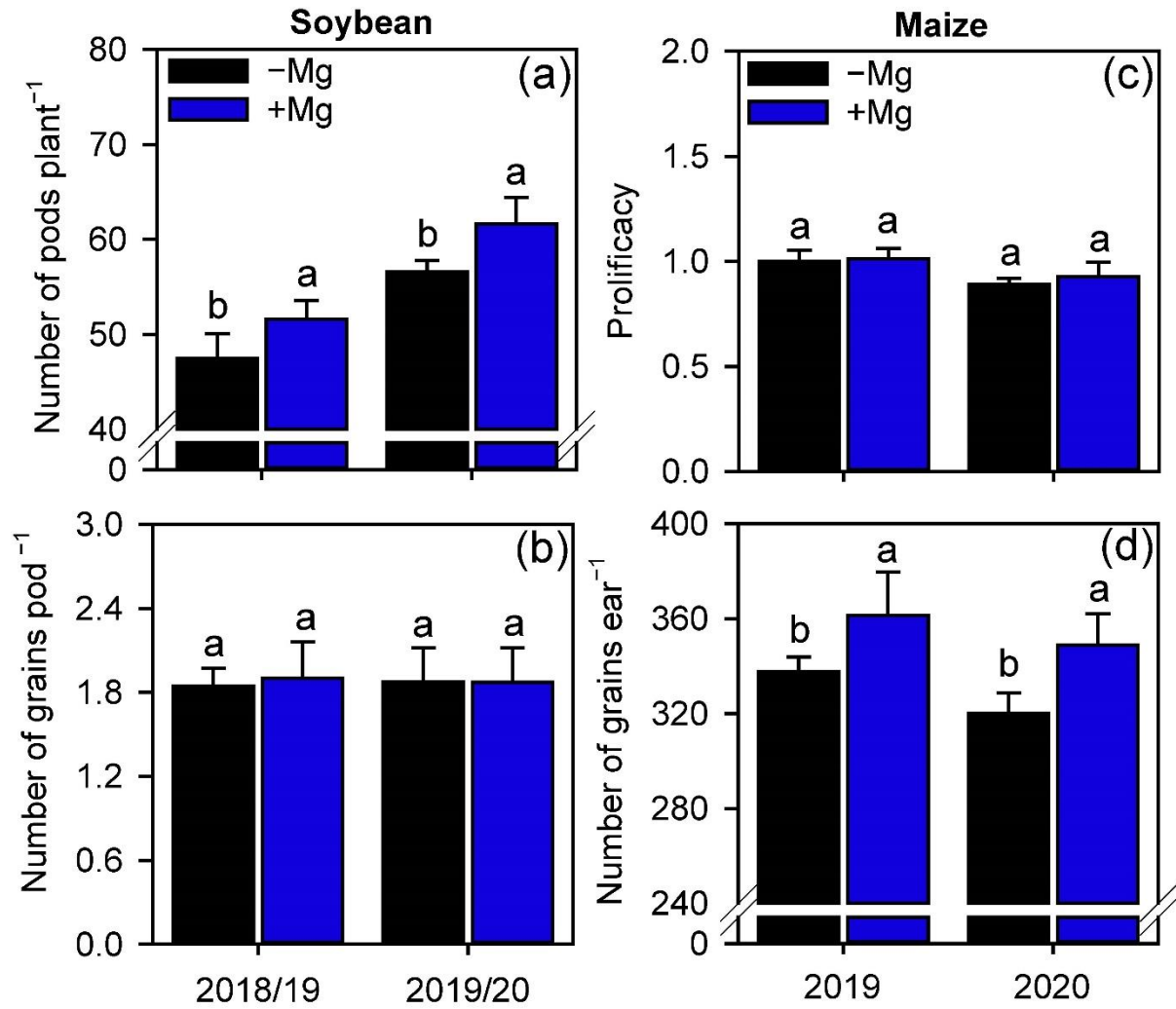
# Magnesium foliar supplementation increases grain yield of soybean and maize by improving photosynthetic carbon metabolism, and antioxidant metabolism

Vitor Alves Rodrigues <sup>1</sup>, Carlos Alexandre Costa Crusciol <sup>1,\*</sup>, João William Bossolani <sup>1,\*</sup>, Luiz Gustavo Moretti <sup>1</sup>, José Roberto Portugal <sup>1</sup>, Tamara Thaís Mundt <sup>1</sup>, Sirlene Lopes de Oliveira <sup>1</sup>, Ariani Garcia <sup>1</sup>, Juliano Carlos Calonego <sup>1</sup> and Romulo Pisa Lollato <sup>2</sup>

<sup>1</sup> Department of Crop Science, College of Agricultural Sciences, São Paulo State University (UNESP), Botucatu, SP 18610-034, Brazil; souzamoretti@gmail.com (L.G.M.); jose.portugal@unesp.br (J.R.P.); tamarathaism@gmail.com (T.T.M.); sirlene.lopes@unesp.br (S.L.O.); ariani\_garcia@hotmail.com (A.G.); juliano.calonego@unesp.br (J.C.C.).

<sup>2</sup> Throckmorton Plant Science Center, Department of Agronomy, Kansas State University (KSU), 1712, Claflin Road, Manhattan, KS 66506, United States; lollato@ksu.edu (R.P.L).

\* Correspondence: carlos.crusciol@unesp.br (C.A.C.C.); bossolani.agro@gmail.com (J.W.B.).



**Figure S1.** Number of pods per plant (a), and grains per pod (b) of soybean, and prolificacy (c), and number of grains per ear (d) of maize plants as affected by presence or absence of the foliar N application. Different lower-case letters indicate significant differences between treatments (presence or absence of Mg supplementation) by Fisher's protected LSD test at  $p \leq 0.05$ . Growing seasons was considered as random effects. Error bars express the standard error of the mean ( $n = 4$ ).

**Table S1.** Physicochemical and biological attributes (0.0–0.2-m depth) before sowing.

Soil Properties		Unit	Value
<b>Physical</b>			
Clay		g kg <sup>-1</sup>	602
Silt		g kg <sup>-1</sup>	281
Sand		g kg <sup>-1</sup>	117
Bulk density		g cm <sup>-3</sup>	1.19
<b>Chemical</b>			
pH (CaCl <sub>2</sub> )		–	5.10
Soil organic matter		g kg <sup>-1</sup>	26.2
Phosphorus–available (P <sub>resin</sub> )		mg kg <sup>-1</sup>	59.0
Exchangeable	Calcium (Ca <sup>2+</sup> <sub>resin</sub> )	mmol <sub>c</sub> kg <sup>-1</sup>	25.0
	Magnesium (Mg <sup>2+</sup> <sub>resin</sub> )	mmol <sub>c</sub> kg <sup>-1</sup>	15.0
	Potassium (K <sup>+</sup> <sub>resin</sub> )	mmol <sub>c</sub> kg <sup>-1</sup>	3.90
	Aluminum (Al <sup>3+</sup> <sub>KCl</sub> )	mmol <sub>c</sub> kg <sup>-1</sup>	2.00
Potential acidity (H+Al)		mmol <sub>c</sub> kg <sup>-1</sup>	42.0
S-Sulfate (S–SO <sub>4</sub> <sup>2-</sup> Ca(H <sub>2</sub> PO <sub>4</sub> ) <sub>2</sub> )		mg kg <sup>-1</sup>	4.90
Boron (B <sub>Hot water</sub> )		mg kg <sup>-1</sup>	0.40
Copper (Cu <sub>DTPA-TEA<sup>a</sup></sub> )		mg kg <sup>-1</sup>	8.80
Iron (Fe <sub>DTPA-TEA</sub> )		mg kg <sup>-1</sup>	22.0
Manganese (Mn <sub>DTPA-TEA</sub> )		mg kg <sup>-1</sup>	26.2
Zinc (Zn <sub>DTPA-TEA</sub> )		mg kg <sup>-1</sup>	2.10
Base saturation (BS)		%	51.0
Cation exchange capacity (CEC <sub>pH 7.0</sub> )		mmol <sub>c</sub> kg <sup>-1</sup>	86.0
<b>Biological</b>			
Most probable number		CFU <sup>b</sup> g <sup>-1</sup>	9.32×10 <sup>4</sup>

<sup>a</sup>DTPA-TEA, diethylenetriaminepentaacetic acid-triethanolamine;