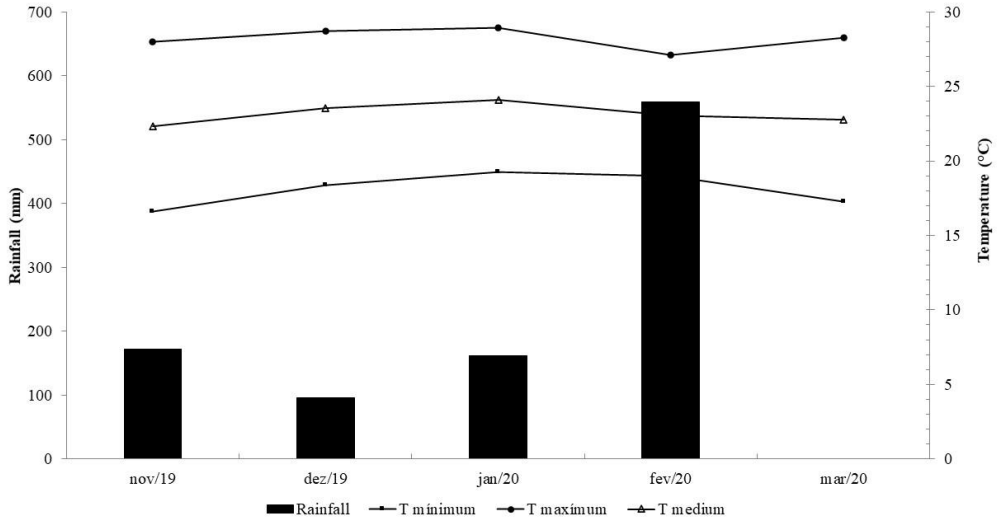

Supplementary Fig 1. Monthly rainfall and maximum, medium and minimum temperature in Botucatu, State of São Paulo, Brazil during the study period, from November 2019 to March 2020.

Supplementary Table 1. Chemical characterization of the soil before the installation of the experiment, according to the different treatments, correctives and form of application.

Correctives	Application	pH	O.M.	P_{resina}	H+Al	K	Ca	Mg	SB	CEC	BS
		$CaCl_2$	g/dm³	mg/dm³	----------mmolc dm^{-3}----------						%
SS	I	4.4	28	12	65	0.8	23	4	27	90	30
W	I	4.3	27	12	64	0.6	24	4	28	92	31
LS	I	5.0	26	36	38	0.8	42	8	51	89	57
SSS	I	4.5	37	33	53	0.9	32	7	41	94	44
CDL	I	4.5	32	10	52	0.3	29	7	36	88	41
DL	I	4.9	33	31	44	0.9	31	11	43	87	49
SS	S	4.6	34	11	55	1.1	35	5	41	96	43
W	S	4.4	27	14	62	0.5	28	4	32	94	34
LS	S	4.7	32	15	48	0.9	36	7	44	92	48
SSS	S	4.5	33	26	54	1.3	48	12	62	116	53
CDL	S	4.4	32	9	59	1.1	26	7	35	94	37
DL	S	5.2	31	28	35	0.6	42	14	57	91	62
Medium		4.6	31	20	48	0.8	33	8	41	87	44
C	I	3.8	25	58	110	0.9	7	2	10	120	8
C	S	4.2	28	88	62	1.3	22	5	28	90	31

SS: Steel slag; W: Wollastonite; C: Control; LS: Ladle slag; SSS: Stainless steel slag; CDL: Calcined dolomitic lime and DL: Dolomitic lime. S: Superficial and I: Incorporated. SB: Sum of Bases. BS: Base saturation. CEC: Cation exchange capacity

Supplementary Table 2. Chemical and physical characterization of soil acidity correctives.

Correctives	Result in %					
	CaO	MgO	RE	NP	PRNT	Moisture
Stainless steel slag	39.67	11.33	70.97	86	61	2.2
Steel slag	35.30	13.10	73.00	72	53	0.9
Calcined dolomitic lime	52.30	17.90	97.00	139	134	0.2
Dolomitic lime	31.18	16.29	89.36	82	74	1.9
Ladle slag	33.35	6.05	74.11	68	51	1.2
Wollastonite	33.38	4.40	99.64	65	64	0.1

RE= reactivity, expresses the corrective percentage that reacts in three months; NP= neutralizing power, expresses the corrective chemical potential, in $CaCO_3$ equivalent.

Table 4. Average leaf contents of macronutrients (N, P, K, Ca, Mg and S) and micronutrients (B, Cu, Fe, Mn and Zn) in soybeans, harvest 2019/20 as a function of the incorporated and superficial application of acidity correction materials from soil.

Treatments	N	P	K	Ca	Mg	S	B	Cu	Fe	Mn	Zn
Application (A)	---------- g Kg -¹ ----------							---------- mg Kg -¹ ----------			
Incorporated	49.85 a	2.95 a	16.96 a	7.5 a	5.02 a	1.90 a	43.96 b	10.75a	145 a	183 a	43.35 a
Superficial	47.78 a	2.86 a	14.46 b	7.0 a	5.01 a	2.06 a	47.82 a	10.96 a	130 a	150 a	43.92 a
F	3.10^{ns}	0.47^{ns}	12.54*	2.52^{ns}	0.01^{ns}	0.57^{ns}	47.82*	0.68^{ns}	0.36^{ns}	8.68^{ns}	0.05^{ns}
Correctives (C)											
SS	48.75 a	2.88 a	15.12 a	7.8 ab	4.76 b	2.03 a	43.12 a	10.12 a	130 ab	134 b	43.00 ab
W	48.50 a	2.93 a	15.75 a	8.0 a	4.66 b	2.01 a	47.62 a	11.12 a	118 b	103 b	44.50 ab
C	48.87 a	3.01 a	17.50 a	7.0 c	4.87 ab	2.01 a	46.62 a	11.50 a	181 a	312 a	49.00 a
LS	50.50 a	2.92 a	15.25 a	7.5 abc	5.05 ab	2.02 a	47.25 a	11.12 a	120 b	187 b	43.00 ab
SSS	49.12 a	2.97 a	16.00 a	7.7 ab	5.08 ab	1.90 a	46.25 a	10.75 a	131 ab	152 b	40.62 b
CDL	48.50 a	2.91 a	15.87 a	7.2 bc	5.47 a	1.91 a	46.37 a	11.25 a	133 ab	170 b	45.12 ab
DL	47.50 a	2.72 a	14.50 a	7.2 bc	5.23 ab	1.93 a	44.00 a	10.12 a	150 ab	111 b	40.25 b
F	0.92^{ns}	1.64^{ns}	2.15^{ns}	2.53*	2.53*	0.65^{ns}	0.71^{ns}	0.12^{ns}	3.12*	11.67**	2.53*
A x C	2.31^{ns}	1.21^{ns}	0.79^{ns}	1.77^{ns}	0.32^{ns}	0.57^{ns}	0.84^{ns}	0.17^{ns}	2.20^{ns}	1.00^{ns}	0.32^{ns}
VC (%) plot	9	17	16	8	11	39	9	16	37	24	23
VC (%) subplot	5	6	12	7	8	12	12	10	25	35	12

Averages followed by different letters in the columns differ among themselves. By the Tukey test at 5% (*) and 1% (**) probability. SS – Steel slag. W – Wollastonite. C – control. LS – Ladle slag. SSS – Stainless steel slag. CDL – Calcined dolomitic lime. DL – Dolomitic lime. ns - not significant.