Common Bean Grain Yield As Function As Lime And Silicate Application

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Support: FAPESP

INTRODUCTION

Most of tropical soils are acid

No tillage system

Lime or Silicate?

OBJECTIVE

This research aimed at assessing the influence of surface application of correctives, lime and calcium and magnesium silicate, on common bean grain yield in a no tillage system.

MATERIAL AND METHOD

Location: Botucatu, São Paulo State/Brazil.

Experimental design : completely randomized block with eight replications.

Plots: I- Surface application of dolomitic lime;
II- Surface application of calcium and magnesium silicate;
III- No correction;

Determinations: Foliar levels of macronutrients and silicon, shoot dry matter, yield components and grain yield of common bean

Data analyses: Means were compared using t test (LSD) at a probability level of 5%.

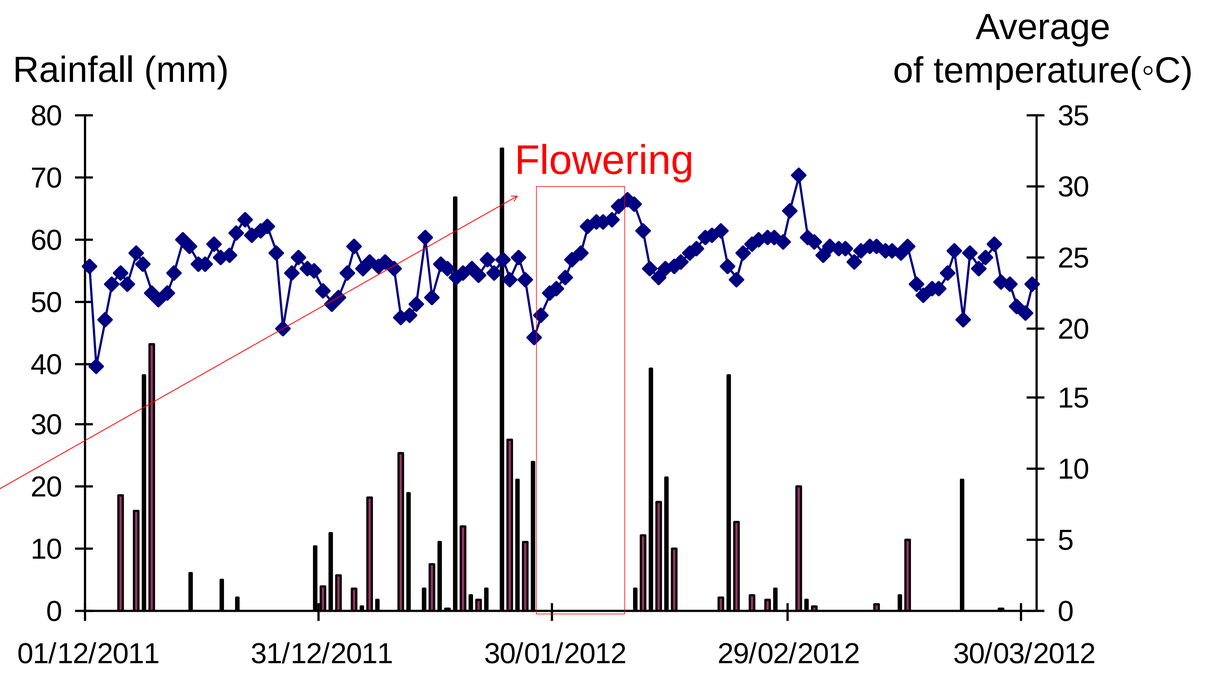
RESULTS

Foliar Levels of Macronutrients and Silicon

CORRECTIVES	N	P	K	Ca	Mg	S	Si
	g kg^{-1}						
Control	30.88	1.30	18.63	12.9b	3.21b	1.33	4.95b
Lime	33.26	1.72	19.78	14.8a	3.77a	1.24	3.92b
Silicate	31.06	1.49	17.57	15.0a	3.81a	1.16	10.7a
DMS (0,05)	3.60	0.43	1.99	1.40	0.51	0.22	2.13
CV%	15.9	40.5	15.0	14.0	19.8	24.4	45.8

Yield Components and Grain Yield

CORRECTIVES	Shoot dry matter	Population	Pods per plant	Grains per pod	Weight of 100 grains	Grain yield
	kg ha^{-1}	pl ha^{-1}	n^{o}		g	kg ha^{-1}
Control	18151	196294	6.34b	4.36	23.4	1256b
Lime	15886	197683	8.23a	4.53	22.4	1559a
Silicate	17515	201387	7.81a	4.63	23.1	1555a
LSD (0,05)	4079	25060	1,22	0,49	1.24	192
CV(%)	33.3	17.7	23.0	15.2	7.6	18.5



CONCLUSION

- The surface application of calcium and magnesium silicate increased the silicon foliar levels.
- The surface application of both sources of acidity correctives increased Ca and Mg foliar levels, the number of pods per plant and grain yield of common bean.