

## Supplementary material

**Supplementary Table S1.** Soil chemical characterization.

pH	5.5
CEC	120
BS((mg/dm <sup>3</sup> )	77
P (mg/dm <sup>3</sup> )	23
H + Al (mmolc/dm <sup>3</sup> )	28
Base saturation (mmolc.dm <sup>-3</sup> )	92
Organic matter (gdm <sup>-3</sup> )	27
K (mmolc.dm <sup>-3</sup> )	5
Ca (mmolc.dm <sup>-3</sup> )	76
Mg (mmolc.dm <sup>-3</sup> )	11
B (mgdm <sup>-3</sup> )	0.24
Cu (mgdm <sup>-3</sup> )	5.2
Fe (mgdm <sup>-3</sup> )	5.2
Mn (mgdm <sup>-3</sup> )	13.9
Zn (mgdm <sup>-3</sup> )	1.6

CEC: cation exchange capacity; BS: basic saturation; SB: sum of bases

**Supplementary Table S2.** *In vitro* activity of nitrate reductase (NR), nitrite reductase (NiR) and glutamine synthetase (GS) of sugarcane leaves.

Treatments	NR <sup>1</sup>	NiR <sup>1</sup>	GS <sup>2</sup>
Control	11.82 a*	8.04 a	11.85 a
IAC/BECa-088	12.05 a	8.17 a	12.45 a
IAC/BECa-090	11.56 a	8.01 a	13.01 a
IAC/BECa-095	10.94 a	8.30 a	11.57 a
IAC/BECa-135	11.27 a	8.56 a	13.37 a
IAC/BECa-141	11.98 a	8.53 a	12.16 a
IAC/BECa-152	11.66 a	7.94 a	11.52 a

<sup>1</sup>nmol NO<sub>2</sub><sup>-</sup> g<sup>-1</sup> FM h<sup>-1</sup>; <sup>2</sup>μmol GGH g<sup>-1</sup>MF h<sup>-1</sup>. \* means followed by similar letters are not significantly by Scott-Knott test ( $p < 0.05$ ).

**Supplementary Table S3.** Profile of amino acids and polyamines in sugarcane leaves in function of bacterial treatments, 45 days after transplanting.

Treatments	$\mu\text{mol g}^{-1}\text{DW}$																									
	Putrescine		Lysine		Glycine		Gaba		Alanine		Citrulline		Glutamate		Threonine		Aspartate		Glutamine		Proline		Valine		Phenylalanine	
Control	880.3	a*	16.83	a	277.5	b	6.58	a	755.9	b	16.97	a	7.87	a	36.17	a	166.4	a	7.23	a	104.22	a	14.57	a	326.5	a
IAC/BECa-088	523.2	b	16.21	a	376.5	b	6.40	a	2150.9	a	16.38	a	8.49	a	37.46	a	195.7	a	2.79	b	99.64	a	14.52	a	344.1	a
IAC/BECa-090	565.2	b	20.15	a	616.1	a	5.11	a	1089.7	b	13.52	b	6.15	a	33.88	a	161.4	a	5.87	a	70.63	b	16.34	a	376.0	a
IAC/BECa-095	635.0	b	16.04	a	485.2	a	6.24	a	2064.3	a	12.45	b	8.34	a	37.80	a	165.0	a	4.29	b	93.32	a	18.02	a	382.2	a
IAC/BECa-135	450.9	b	17.99	a	475.2	a	5.86	a	608.6	b	11.75	b	7.88	a	32.92	a	108.0	b	4.86	a	75.96	b	15.55	a	303.7	a
IAC/BECa-141	564.5	b	13.8	a	397.5	b	4.63	a	1029.9	b	11.52	b	3.23	b	26.08	a	98.9	b	2.36	b	67.44	b	15.63	a	285.0	a
IAC/BECa-152	580.2	b	24.98	a	591.4	a	3.70	a	500.5	b	11.94	b	4.30	b	36.46	a	95.4	b	6.38	a	82.27	b	16.74	a	414.5	a
CV%	34.33		35.3		26.42		38.05		63.97		27.14		44.93		28.23		21.79		54.04		24.97		21.85		24.97	

\* means followed by similar letters are not significantly by Scott-Knott test ( $P < 0.05$ ). CV(%): coefficient of variation.