

Supplementary Material

Agronomic biofortification and productivity of wheat with soil zinc and diazotrophic bacteria in tropical savannah

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Suppl. Table 1. Zinc (Zn) concentration in leaf, shoot and, grain and accumulation in shoot and grains of wheat under the influence of diazotrophic bacteria and soil zinc application. Selvíria - MS, Brazil, 2019 and 2020

Treatments	Leaf Zn concentration		Shoot Zn concentration		Grain Zn concentration		Shoot Zn accumulation		Grain Zn accumulation	
	----- mg/kg -----						----- g/ha -----			
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Zinc (Zn) application (kg/ha)										
0	40 b	43 b	30 b	32 b	43 b	47 b	148 b	161 b	146 b	163 b
8	46 a	48 a	35 a	37 a	48 a	55 a	177 a	195 a	183 a	215 a
Diazotrophic bacterial inoculations (I)										
Without (Control)	36 c	37 c	28 b	29 c	38 d	42 d	131 b	143 c	119 c	138 c
<i>A. brasilense</i>	43 b	46 b	34 a	35 b	49 b	54 b	171 a	183 b	175 b	196 b
<i>B. subtilis</i>	43 b	46 b	33 a	34 b	46 c	51 c	169 a	179 b	169 b	197 b
<i>P. fluorescens</i>	50 a	54 a	35 a	38 a	51 a	56 a	180 a	206 a	195 a	224 a
F- values										
Zn	74 **	87 *	19 *	32 *	67 **	177 **	30 **	70 **	101 **	125 **
I	79 **	132 **	9 *	22 **	89 **	112 **	16 *	41 **	72 **	62 **
Zn x I	2.4 ns	8 *	1.9 ns	3 ns	5 *	10 **	4 *	6 *	12 *	14 **
CV (%)	4.26	3.6	9.0	6.5	3.7	3.3	9.5	6.4	6.5	6.9

Means in the column followed by different letters are significantly different (p -value ≤ 0.05);

** and * Significant at $p < 0.01$ and $p < 0.05$, respectively; and ns, non-significant by F-test.

Suppl. Table 2. Plant height, dry matter, grain yield, Zn partitioning index (ZPI), Zn intake in world and Brazil as influenced by diazotrophic bacteria and soil zinc application. Selvíria - MS, Brazil, 2019 and 2020

Treatments	Plant height		Dry matter		Grain yield		ZPI		Zn intake (world)		Zn intake (Brazil)	
	----- cm -----		----- kg/ha -----		----- % -----		----- g/person/day -----					
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
Zinc (Zn) application (kg/ha)												
0	73 b	76 b	4887 b	5001 b	3339 b	3450 b	69 b	70 b	11.9 b	12.6 b	6.9 b	7.3 b
8	77 a	80 a	5112 a	5299 a	3755 a	3877 a	73 a	75 a	13.1 a	14.7 a	7.6 a	8.6 a
Diazotrophic bacterial inoculations (I)												
Without (control)	71 b	73 c	4680 b	4839 b	3160 b	3269 c	67 b	69 c	10.5 c	11.3 c	6.1 c	6.6 d
<i>A. brasilense</i>	73 b	76 b	5090 a	5217 a	3591 a	3634 b	72 a	73 b	12.9 b	14.5 b	7.5 b	8.4 b
<i>B. subtilis</i>	77 a	80 a	5109 a	5227 a	3637 a	3807 a	71 a	71 b	12.7 b	13.8 c	7.4 b	8.1 c
<i>P. fluorescens</i>	79 a	83 a	5120 a	5317 a	3800 a	3943 a	75 a	76 a	14.1 a	15.1 a	8.2 a	8.8 a
F-values												
Zn	13 *	22 *	27 **	67 **	35 **	39 **	8 *	50 **	39 **	177 **	39 **	176 **
I	12 **	22 **	25 **	34 **	15 **	18 **	6 **	23 **	69 **	112 **	69 **	111 **
Zn x I	0.6 ns	0.05 ns	4 *	5 *	5 *	6 *	0.4 ns	3 *	4 *	10 *	4 *	10 *
CV (%)	3.8	3.2	2.4	2.0	5.5	5.3	5.5	2	4.0	3.3	4.0	3.3

Means in the column followed by different letters are significantly different (p-value \leq 0.05);

** and * Significant at p < 0.01 and p < 0.05, respectively; and ns, non-significant by F-test.