



# CORN YIELD INDUCED BY THE AMOUNT AND QUALITY OF WINTER CROPS RESIDUE IN NO TILLAGE SYSTEM

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## INTRODUCTION:

The amount and quality of plant residues are related to the no-tillage efficiency, which reinforces the importance of an appropriate crop rotation system. Additionally, climate adaptation is highly important when choosing the species for a crop system.

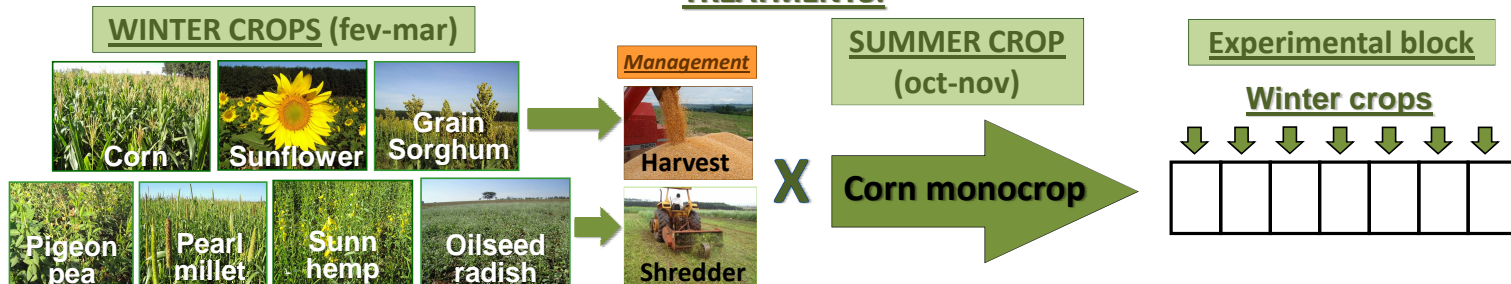
## OBJECTIVE:

Evaluate the influence of winter crops dry matter production and nutrient accumulation on corn yield in no-tillage system.

## MATERIAL AND METHODS

- Soil: Rhodic Eutrudox (Jaboticabal, SP, Brazil); Randomized block design delineation (three replications).

### TREATMENTS:



### EVALUATIONS:

WINTER CROPS: Dry matter production and nutrient accumulation, in cutting/harvest moment (growing season 2007/2008).

SUMMER CROP: Grain yield (growing season 2008/2009).

## RESULTS

TABLE 1. Winter crops dry matter production and nutrient accumulation (2007/2008), and corn yield after winter crops (2008/2009).

WINTER CROPS	Dry matter production	NUTRIENT ACCUMULATION										Corn yield
		N	P	K	Ca	Mg	S	B	Cu	Mn	Zn	
		(kg ha <sup>-1</sup> )					(g ha <sup>-1</sup> )					(kg ha <sup>-1</sup> )
Sunn hemp	5,507 ab	117.4 a	10.4 a	90.4 abc	32.2 ab	12.7 ab	6.8 ab	87 a	40 ab	326 ab	159 ab	8.445 a
Pearl millet	6,151 a	82.4 a	10.7 a	144.1 a	16.4 bc	17.8 a	8.9 a	55 ab	56 a	488 a	218 a	7.784 ab
Oilseed radish	3,675 b	38.2 b	5.8 ab	38.3 c	43.4 a	9.9 ab	9.3 a	70 ab	6 c	176 b	93 ab	7.198 ab
Pigeon pea	4,004 ab	92.5 a	5.6 ab	54.2 bc	33.2 abc	7.1 b	4.2 ab	73 ab	18 bc	360 ab	74 b	7.057 ab
Corn	4,534 ab	13.6 b	1.6 b	44.4 bc	11.4 c	10.7 ab	2.1 c	48 ab	7 c	245 ab	103 ab	7.091 ab
Grain sorghum	3,467 b	16.3 b	1.2 b	36.1 c	10.7 c	5.9 b	2.1 c	15 b	5 c	274 ab	64 b	6.889 ab
Sunflower	3,340 b	19.3 b	2.4 b	108.9 ab	30.7 abc	6.9 b	2.7 c	94 a	23 bc	165 b	83 ab	6.515 b
F <sup>(1)</sup>	3.33*	25.87**	7.30**	9.44**	7.13**	3.87*	14.98**	4.35*	15.45**	4.38*	4.15*	3.97*
CV (%)	23.4	26.6	47.0	31.8	32.9	36.1	27.5	35.3	38.6	32.1	41.6	7.60
Correlation (r) with corn yield	0.47*	0.59**	0.63**	0.29 <sup>ns</sup>	0.52 <sup>ns</sup>	0.37 <sup>ns</sup>	0.44*	0.11 <sup>ns</sup>	0.42 <sup>ns</sup>	0.23 <sup>ns</sup>	0.39 <sup>ns</sup>	-

(1): \*\* = significantly (p<0,01); \* = significantly (p<0,05); ns: not significantly (p<0,05).

Means in each column followed by the same letter are not significantly different by the Tukey test (p<0,05).

## CONCLUSIONS:

- The highest corn yields were obtained after sunn hemp and millet.

- The corn yield correlated positively with winter crops dry matter production and N, P and S accumulation.