



SOYBEAN YIELD INDUCED BY WINTER CROPS IN NO TILLAGE SYSTEM IN TROPICAL REGION

José Eduardo Corá*, Adolfo Valente Marcelo, Márcio dos Reis Martins,
Ricardo Falqueto Jorge & Carolina Fernandes.

Department of Soil Science – São Paulo State University – Campus of Jaboticabal, Brazil.

*Corresponding author e-mail: cora@fcav.unesp.br



INTRODUCTION

No-tillage system is utilized in approximately 30 million hectares in Brazil. However, this system still needs to be better adapted to tropical regions, with warm and dry winters, common in the southeast and central-west of Brazil.

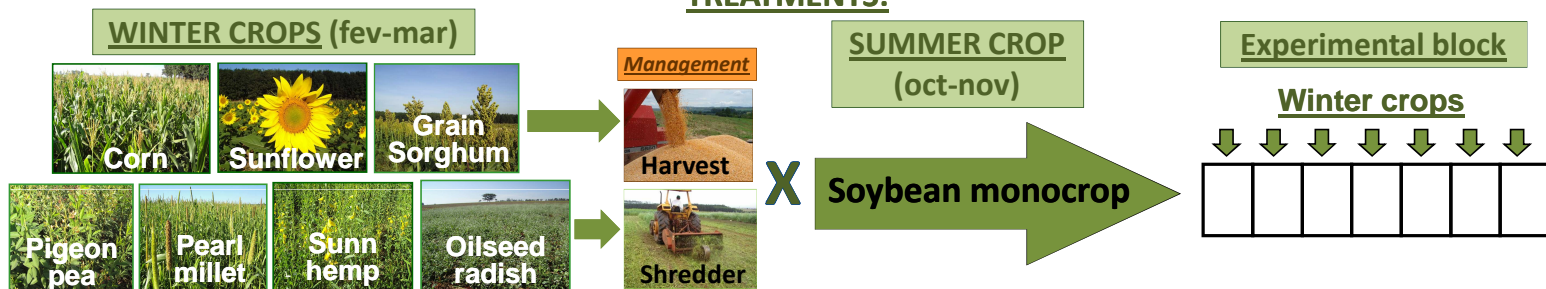
OBJECTIVE:

Evaluate the influence of winter crops on soybean yield in no tillage system.

MATERIAL AND METHODS

- **Soil:** Rhodic Eutrudox (Jaboticabal, SP, Brazil); Randomized block design delineation (three replications).
- **Climatology:** Tropical/megathermal zone or Köppen's Aw.
- **Mean annual rainfall:** 1417 mm, with an annual distribution peaking in the period of October to March.

TREATMENTS:



EVALUATIONS:

SOYBEAN YIELD: 2003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/2008 and 2008/2009 growing season.

RESULTS

TABLE 1. Soybean yield after winter crops.

Winter crops	Growing season						Intervals				
	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2003/05	2003/06	2003/07	2003/08	2003/09
Corn	2955	3284 ab	3123	2754 ab	3188 ab	2674 ab	3120 ab	3121 ab	3029 ab	3061 ab	2996 ab
Sunflower	2704	2916 bc	2765	2613 b	3336 a	2914 ab	2810 ab	2795 ab	2750 b	2867 ab	2875 abc
Oilseed radish	3052	3710 ab	2569	2949 ab	3482 a	3352 a	3382 ab	3111 ab	3070 ab	3152 a	3186 ab
Pearl millet	3038	3403 ab	2801	2677 ab	3425 a	2935 ab	3221 ab	3080 ab	2980 ab	3069 ab	2996 ab
Pigeon pea	2805	3331 ab	3170	2643 ab	3219 ab	1897 b	3068 ab	3102 ab	2987 ab	3034 ab	2844 bc
Grain sorghum	3007	2303 c	2500	2790 ab	2721 b	2026 b	2655 b	2603 b	2650 b	2664 b	2558 c
Sunn hemp	3085	4012 a	2868	3206 a	3369 a	3147 a	3549 a	3321 a	3292 a	3308 a	3281 a
LSD (p<0.05)	899	837	899	565	560	1.103	747	634	523	471	414
F ⁽¹⁾	0.61 ^{NS}	10.63 ^{**}	1.94 ^{NS}	3.38 [*]	5.09 ^{**}	6.13 ^{**}	4.22 [*]	3.49 [*]	4.01 [*]	4.70 [*]	8.24 [*]
CV (%)	10.7	8.9	11.1	7.0	6.0	14.2	8.4	7.4	6.2	5.4	4.9

(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 soybean yields were obtained after sunn hemp, probably, due to the highest soil P contents observed in the sunn hemp plots.
- The lowest soybean yield after sorghum was, probably, due to the allelopathic effect of several components released by sorghum residues during decomposition, negatively affecting the following crop.