

# AGRICULTURAL PRODUCTIVITY OF A LONG-TERM CROP-LIVESTOCK SYSTEM IN THE CERRADO BIOME, BRAZIL

Ramon Costa ALVARENGA; Emerson BORGHI; Miguel Marques GONTIJO NETO; Álvaro Vilela de RESENDE; Juliano Carlos CALONEGO; Márcia Cristina T. da SILVEIRA; Décio KARAM; Rosângela Maria SIMEÃO ramon.alvarenga@embrapa.br

## Introduction

In the Brazilian Cerrado there are constant periods of water deficit even during the summer which vary in intensity, therefore, the use of available natural resources to enhance agricultural production is a constant challenge. Over the years, the possibilities of crops succession and rotation with the aim to improve soil and water conservation have proved to be important and indispensable, especially considering the time in which these cultivation systems are explored on the farm.

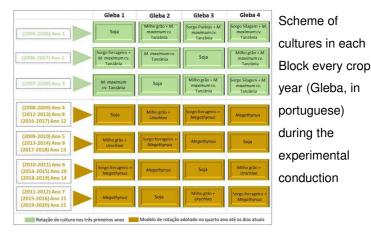
Long-term adaptive research models allowed us to assess how the management strategies conducted enabled gains in crop productivity, even in years of adverse climatic conditions (dry spell).

#### Objective

The present work evaluated the dynamics of agricultural productivity of an CLS model implemented 15 years ago in Sete Lagoas / MG, Brazil.

#### **Material and Methods**

- # Local: Central Region of Minas Gerais, Brazil. Geographical coordinates: 19°29'4.37" lat. S and 44°10'25.66" long. W. Altitude of 755 meters.
- # Site: 4 blocks, 5,5 hectars each one. Starting Cropping Systems Year: 2005/06
- # Cultures: soybean, corn intercropped with Urochloa (syn Brachiaria), silage sorghum intercropped with Megathyrsus (syn. Panicum)
- # Cropping systems: rotation between cultures and blocks. After corn and forage sorghum harvest, the pastures are used by the animals in the off season



### **Summarized Results**

Productivities	Soybean		Corn + G Grain		rass Silage		Silage Sorghum + Grass	
	Mg ha <sup>-1</sup>	t	Mg ha <sup>-1</sup>	t	Mg ha <sup>-1</sup>	t	Mg ha <sup>-1</sup>	t
Maximum	4.11	22.6	9.01	35.2	53.0	291.5	53.0	291.5
Minimum	0.85	4.67	5.14	44.9	21.2	116.6	20.1	110.5
Average	2.56	13.15	7.39	35.0	39.3	216.1	38.3	210.6
Accumulated€		197.3		245		1.729	574.8	3.161

### Conclusion

The diversity of plants and the rotation of crops between the plots adopted in the CLS allowed us to infer that, in 15 years of implantation of the system, agricultural productivity, even in situations of moderate and severe water restriction, increased the resilience of agricultural crops and allowed, at least, incremental improvements to the CLS over time

### Acknowledgments

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