Decomposition and Nitrogen Release From Mixed Signal Grass and Shrub-Tree Legumes Litter.

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General Forage and Grazinglands: II

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Introduction

Pastures are the main nutritional source for cattle in Brazil

Over 172 million ha (425 million acres) of pastures

Mostly not fertilized with nitrogen, due to financial reasons

Largely dependent of natural nutriente cycling

Forage legumes to enhance nitrogen fixation and nutriente cycling

Materials and Methods

Sampling region climate

Tropical, with dry summers

Average yearly rainfall 1200 mm

Average yearly temperature 24 C

Soil type

Agrissoil

Sandy clayey loam

Moderately acid, low fertility

Pastures - *Brachiaria decumbens* (signal grass)

Pure (fertilized with 60 kg of N/ha)

With *Mimosa caesalpiniifolia* - "sabiá"

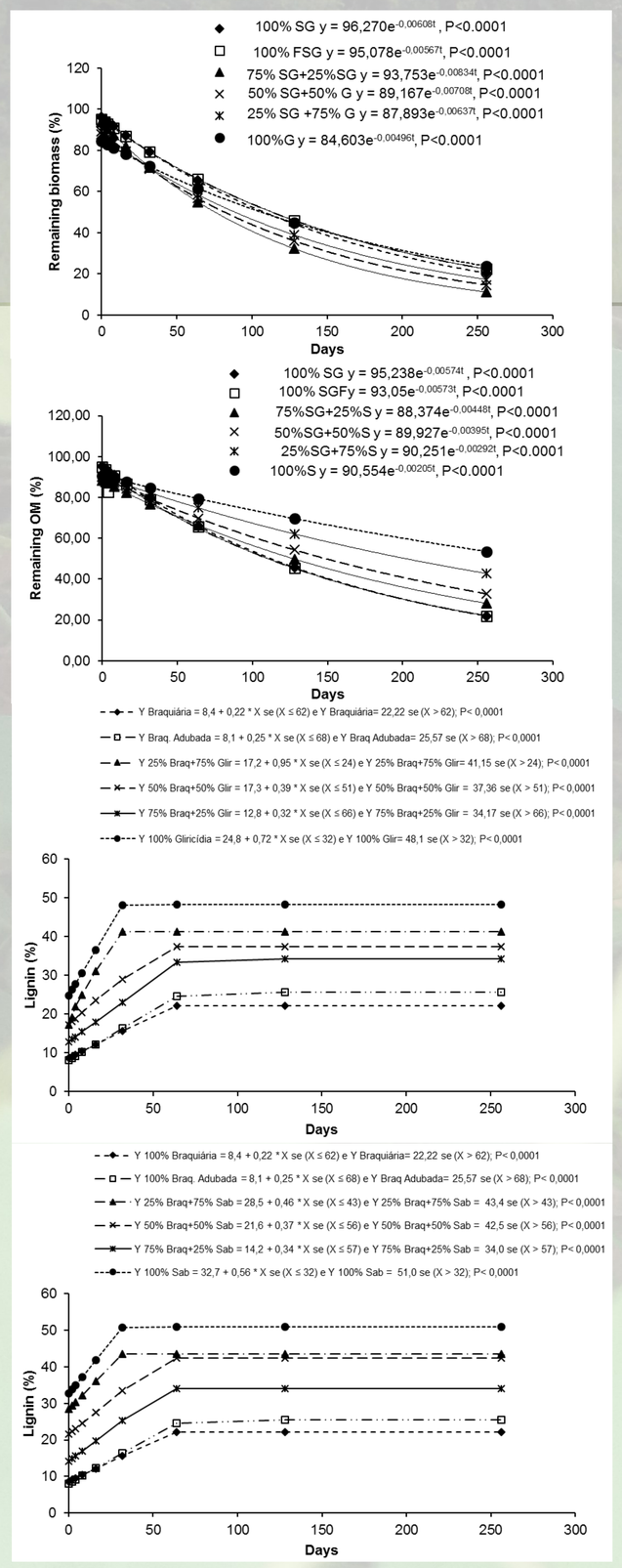
With *Gliricidia sepium*—gliricidia

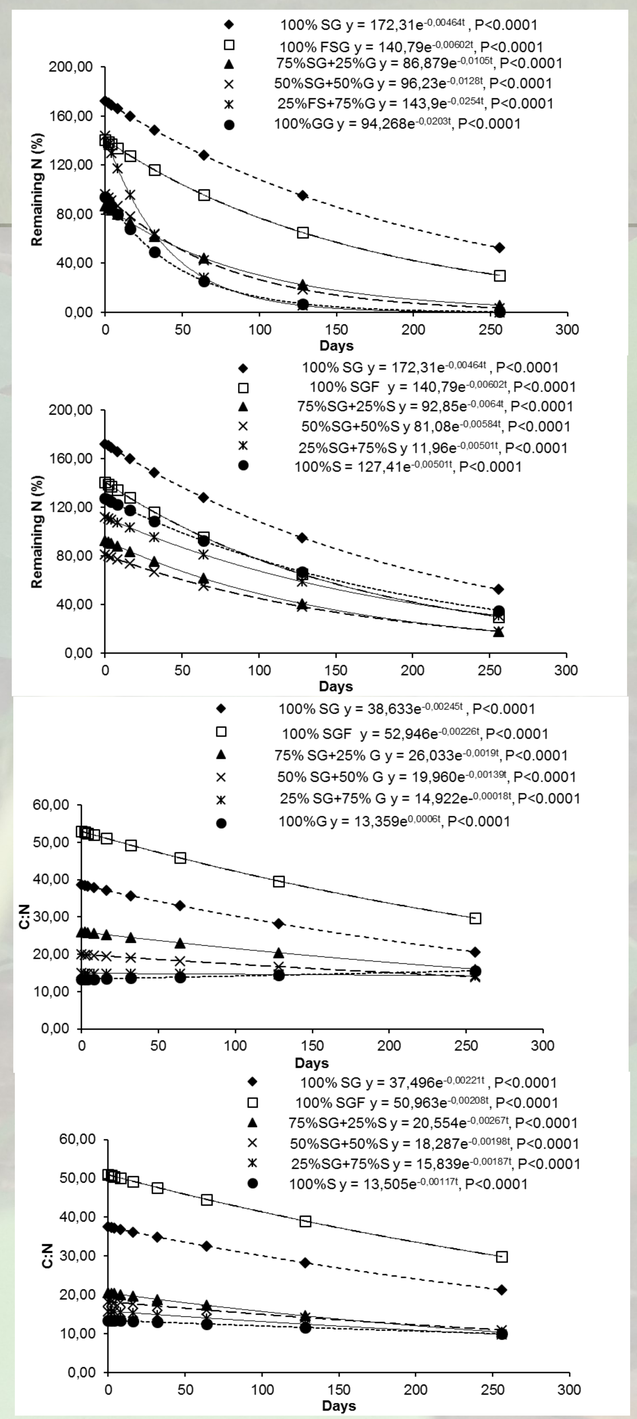
Litter bag technique

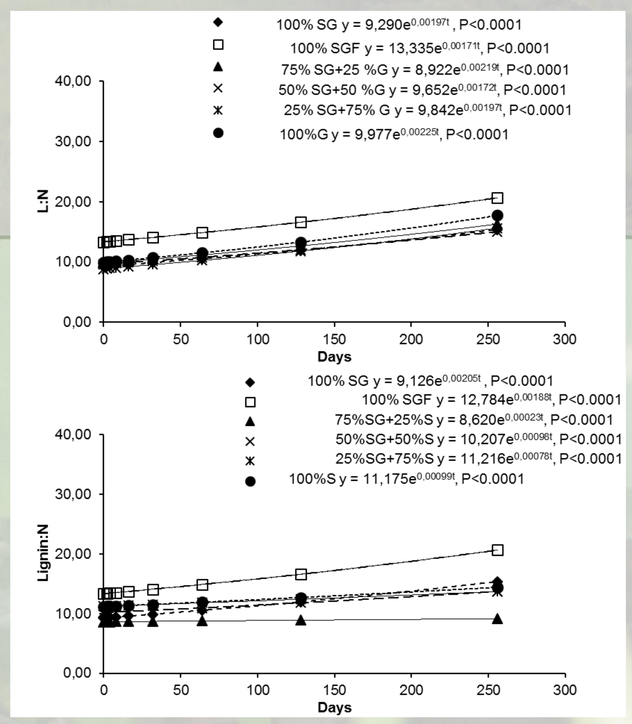
Sampling times—0, 2, 4, 8, 16, 32, 64, 128 and 256 days

Litter mixes—100% unfertilized signal grass, 100% N fertilized signal grass, 75:25, 50:50, 25:75 signal grass:gliricidia or sabiá ratios, and 100% gliricidia or sabiá

Determinations and calculations—total organic matter, and organic carbon, total nitrogen and lignin contents, and C:N and Lignin:N ratios







Conclusions

Lignin content increased with the mixture of legume material into the litter and over time.

Inclusion of legumes increased nitrogen release from the litter

Stronger effect for gliricidia then for "sabiá"

Decomposition *per se* and litter production need to be evaluated jointly to evaluate the possible effects of inclusion of shrub-tree legumes in nutrient recycling in signal grass

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