



How much of nitrogen from fertilizer is absorbed by palisadegrass when intercropped with corn?

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Introduction Intercropping corn (C) and palisadegrass (P) is used in Crop-livestock integration system (CLI). In this technique the P. is cropped together with C. without affecting C. yield. After C. harvest the P. grows in order to form a pasture. Studies with nitrogen use efficiency in C. intercropped with P. are scarce, and it is unknown how much of nitrogen (N) from fertilizer applied is uptake by the P. And if is necessary increase N rate in this production system. The study evaluates the influence of P. in the use of N fertilizer, according to forms of implantation of P. intercropped with C. in Brazil.

Material and Methods

The field experiment was installed in Piracicaba-SP. Treatments were: P. broadcasted before sowing C. (P. before); P. sowed in furrow between C. rows (P. row); P. seeds mixed with fertilizer at C. sowing (P. fertilizer); P. seeds broadcasted after corn sowing (P. broadcast after); P. seeds sowed in furrow at center of C. rows, after C. sowing (P. furrow after). N from fertilizer in P. was evaluated with labeled fertilizer (¹⁵N-urea) with amounts of ¹⁵N in aboveground P at the C. harvest. N rate applied in C. intercropped with P. was 80 kg ha⁻¹.

Results and Conclusions

N from fertilizer absorbed by palisadegrass was only 4% or 3.1 kg ha⁻¹ of 80 kg ha⁻¹ applied as urea in P. before, P. row, P. fertilizer and P. furrow after. For P. broadcast after ¹⁵N recovery was 0.1% or 0.1 kg ha⁻¹ of N-fertilizer.

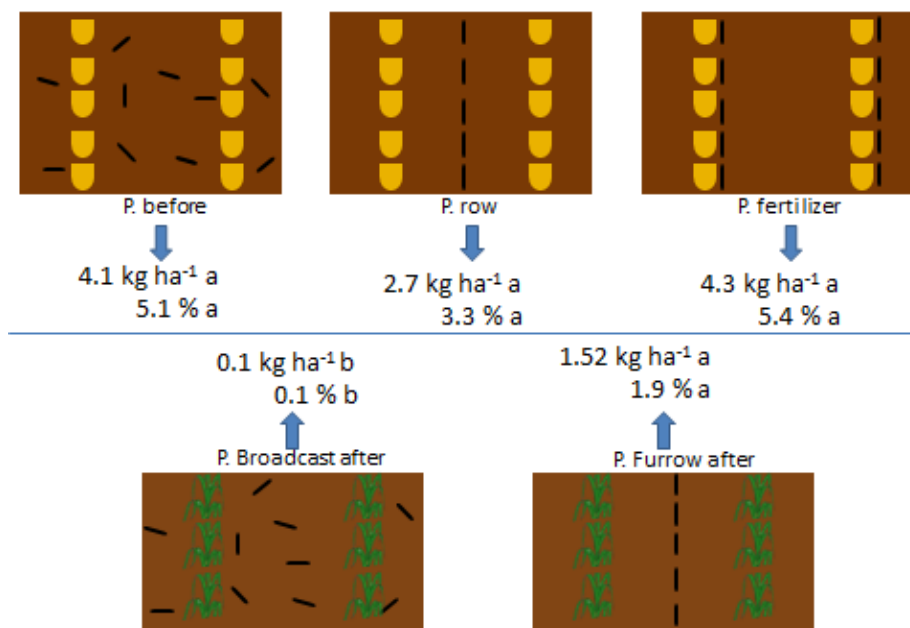


Figura.1- N from fertilizer recovered by palisadegrass

The palisadegrass in any form of implantation does not affect the N uptake by corn. It is not necessary increase nitrogen rate on corn intercropped with palisadegrass, because palisadegrass absorb at most 4.3 kg ha⁻¹ or 5.4% of N-fertilizer.