

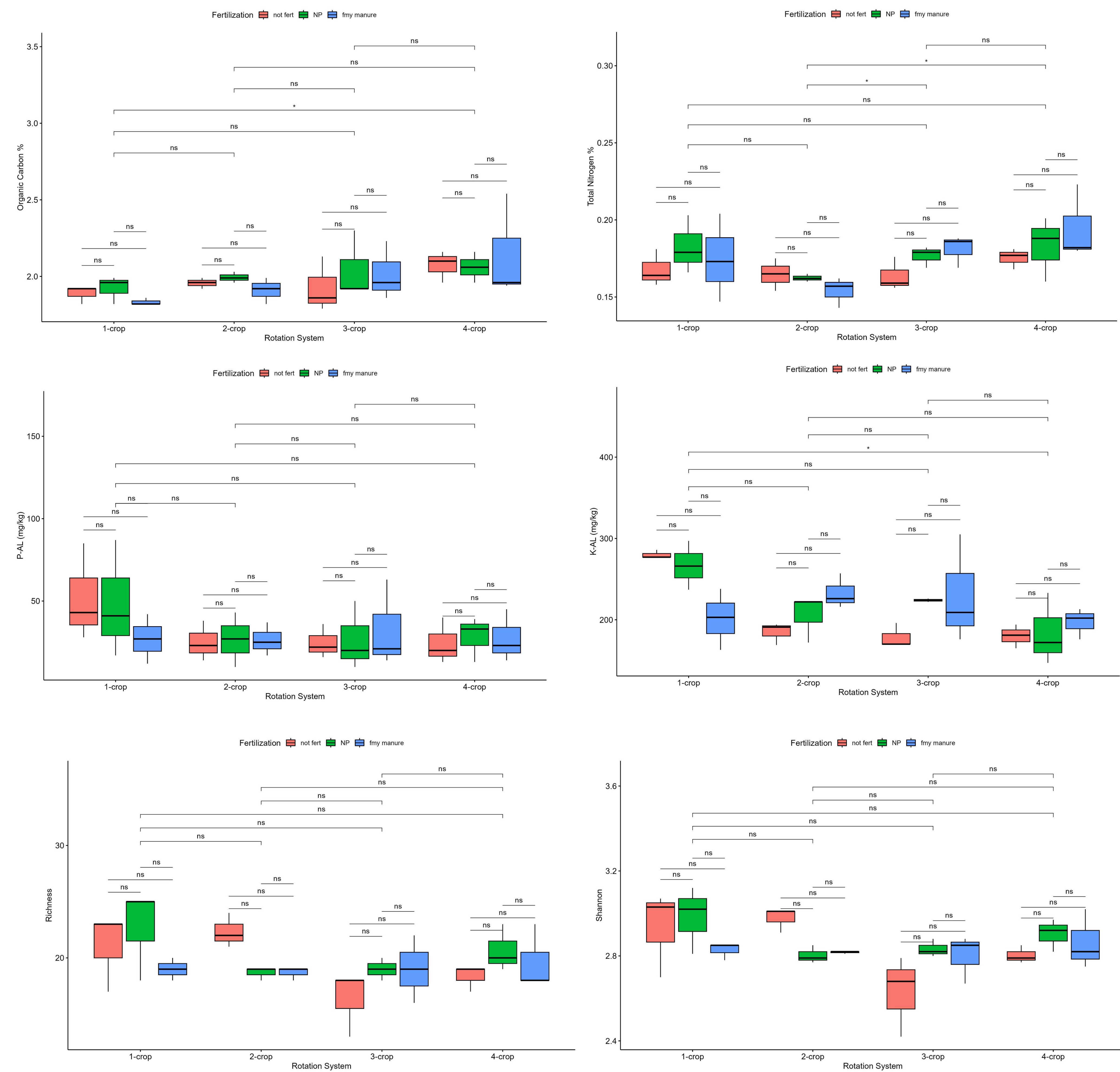
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**MATERIALS and METHODS:** A long-term crop rotation and fertilization experiment (established in 1967 with 3 field replicates) was sampled in April 2025 in plots under maize phase and 3 variants of fertilization: not fertilized, N90P75 and farmyard manure (20 tonnes per ha). In addition to basic soil chemical properties (SOC, TN, P-AL and K-AL), community-level physiological profiles (CLPP) of soil microbial communities were assessed using inoculation and incubation of EcoPlates (Biolog™).



## RESULTS AND DISCUSSION



- Mineral and organic moderate fertilization had no significant effects, however more diverse crop rotations (three- and four-crop systems) led to increases in soil organic carbon and total nitrogen compared to two-crop and monocrop rotations.
- Extractable phosphorus and potassium were slightly higher in monocrop relative to four-crop rotation, but effect was statistically significant only for the latter.

Neither Rotation System nor Fertilization had a significant effect on Richness, Shannon and Diversity indices calculated based on the intensity of substrate usage.

ANOVA by	Rotation		Fertilization	
Substrate type	F	p-value	F	p-value
Carbohydrates	3.07	< 0.05	0.44	ns
Polymers	1.1	ns	1.23	ns
Amino acids	0.3	ns	0.61	ns
Carboxylic acids	0.5	ns	0.11	ns
Amines & Amides	1.56	ns	2.84	0.07

- The carbohydrate substrate group varied with rotation showing higher usage in the monocrop rotation.
- The amine & amides group varied by fertilization showing slightly higer usage in the farmyard manure treatment.
- No differences were observed for the other substrate types.

## CONCLUSIONS

Different fertilization and rotation treatments modified, in the long term, some basic soil chemical treatments. Effects on physiological profiles were less pronounced. Thus, no changes were observed on substrate diversity indices but usage of carbohydrate and amine/amide groups differed among treatments.

## ACKNOWLEDGEMENT:

Results were obtained within project PN 23.29.05.01 funded by Ministry of Education and Research.