

Evolution of Agrochemical Chernozem From Cojocna in Differentiated Fertilization Case of Maize Crop

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SUMMARY

The research undertaken in the field of differentiated fertilization in maize crop aim at rationalizing fertilizing mineral inputs and at their reduction by promoting alternatives and strategies for an efficient inclusion within differentiated fertilization systems of humiferous organic resources. In order to achieve the aforementioned research objectives, field experiments were conducted in 2010 at SDE Cojocna of the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, on a cambic chernozem soil, on maize crop including different fertilizing sources, mineral - from complex NP fertilizers, organic- from semi-fermented stable manure.

Tab. 1

Influence of differentiated fertilization on agrochemical soil indices

No.	Fertilization level N/P ₂ O ₅ (kg a.s./ha) + manure (t/ha) + compost (t/ha)	The principal agrochemical parameters of soil at depth 0- 20 cm			
		pH _{H2O}	Humus (%)	P-AL (ppm)	K-AL (ppm)
1.	0 + 0 + 0 (control)	5.73	3.52	52	230
2.	40/40	5.67	4.56	56	240
3.	80/80	5.80	4.52	64	270
4.	120/120	5.75	4.86	72	300
5.	160/160	5.66	4.70	84	300
6.	20 t/ha manure	6.50	4.30	48	270
7.	40/40 + 20 t/ha manure	5.67	5.10	56	280
8.	80/80 + 20 t/ha manure	5.60	5.66	84	300
9.	120/120+ 20 t/ha manure	5.82	5.82	160	390
10.	160/160+ 20 t/ha manure	5.93	5.64	172	560

The intervention of the organic support of organo-mineral fertilization positively and decisively influences the quantity of humifiable organic matter in the soil. It essentially modifies phosphorus and potassium reserves and can forecast a tendency for soil acidification as the NP input increases. Fertilizing interventions through organic resources have positive effects not solely on grain production, but also on soil fertility. As exclusive mineral fertilization increases the rate of humus mineralization and soils tend towards reaching a minimum humic balance, it is highly important to include humiferous organic resources in fertilization systems.

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