

LTE „EV“ „Exhaustion Experiment“ (Erschöpfungsversuch) Gießen

Responsible: Prof. Dr. Bernd Honermeier (till 2021), Justus Liebig University Gießen, Institute of Agronomy and Plant Breeding I, Chair of Agronomy & Crop Physiology.

Experimental Station, address: Weilburger Grenze 25, 35398 Gießen,

Responsible technician: Markus Kolmer, email: markus.kolmer@agrar.uni-giessen.de

Beginning: 1954, still running until now.
Soil: Gleyic Fluvisol (World Reference Basis for Soil Resources), water capacity (0-100 cm): 123 mm,
Climate: Long-term temperature: 9,0 °C, precipitation: 650 mm per year
Plot size: Gross: 50 m², Net: 18 m², Total area: 3.000 m²
60 plots (5 x 3 = 15 treatments x 4 replications)
Rotation: Sugar beet – Winter wheat – Summer barley. (rotating since 1954),

Treatments

Factor A: Mineral Fertilisation

- 1 zero (control)
- 2 without N, with P and K,
- 3 without K, with N and P,
- 4 without P, with N and K,
- 5 +N +P +K

Factor B: Dosage and FYM application

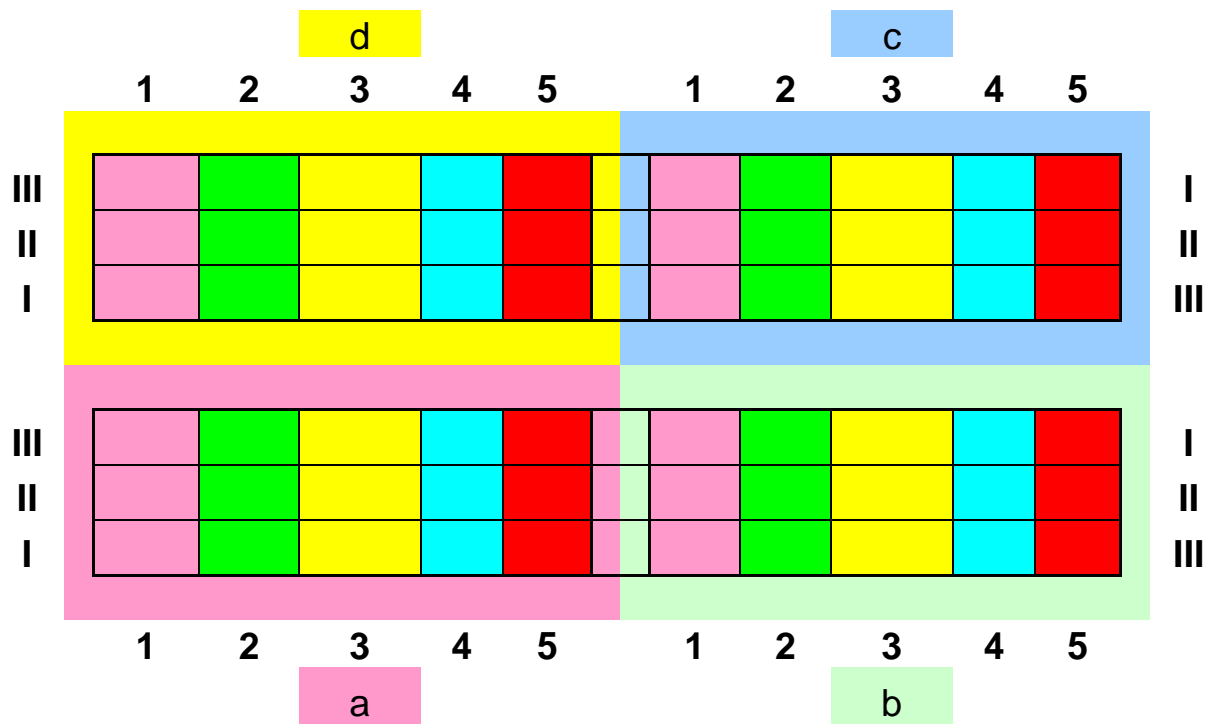
- 1 half dosage (NPK), without FYM,
- 2 full dosage (NPK), without FYM,
- 3 full dosage (NPK), with FYM (only to sugar beet)

Number of replications: 4

References

- Cardinale, M., Ratering, S., Sadeghi, A., Pokhrel, S., Honermeier, B., Schnell, S. (2020): The response of the soil microbiota to long-term mineral and organic nitrogen fertilization is stronger in the bulk soil than in the rhizosphere. *Genes, Section Microbial Genetics and Genomics* 11: 456; DOI:10.3390/genes11040456.
- Bauke, S; Tamburini, F; Gocke, M; Honermeier, B; Schweitzer, K; Baumecker, M; Don, A; Sandhage-Hofmann, A; Amelung, W (2018): Subsoil phosphorus is affected by fertilization regime in long-term agricultural experimental trials. *European J Soil Sci.* 69: 103-112; DOI:10.1111/ejss.12516.
- Macholdt, J., Piepho, H.-P., Honermeier, B. (2018): Mineral NPK and manure fertilisation affecting the yield stability of winter wheat: results from a long-term field experiment. *European Journal of Agronomy* 102: 14-22; DOI: 10.1016/j.eja.2018.10.007.
- Sadeghi, Aitak: Effect of biochar, FYM and varying inorganic fertilization (NPK) on soil parameters, crop yield formation and NPK upake in two long term field experiments, Dissertation, University Giessen 2020

Experimental Design LTE „EV“ Gießen



Mineral Fertilisation

- I half dosage NPK
- II full dosage NPK
- III full dosage NPK + FYM to sugar beet.

1	control, in III FYM
2	-N, +P +K
3	-K, +N +P
4	-P, +N +K
5	+N +P +K