

# Increased soil-enzyme activity at reduced tillage and cover crops after one year of application among organic farming conditions

**Eszter Tóth**

Zita Szalai, Borbála Biró

Szent István  
University



# Introduction of the experiment

- Biological activity is higher in healthy soils
- Conservation tillage and the application of cover crops can increase biological activity

## Set up of experiment

- Szent István University, Research and Experiment Field of Faculty of Horticulture Science, near Budapest
- The experiment was set up from 2018 autumn
- 3 treatment of soil management was applied on aerable land in organic farming conditions

## Measurements:

- Humus content (Tyurin, H%)
- enzyme activitie measurement: dehydrogenase analysis (**DHA**).





**Ploughed plot**

**Reduced tillage  
+ cover crops**

**Reduced tillage**



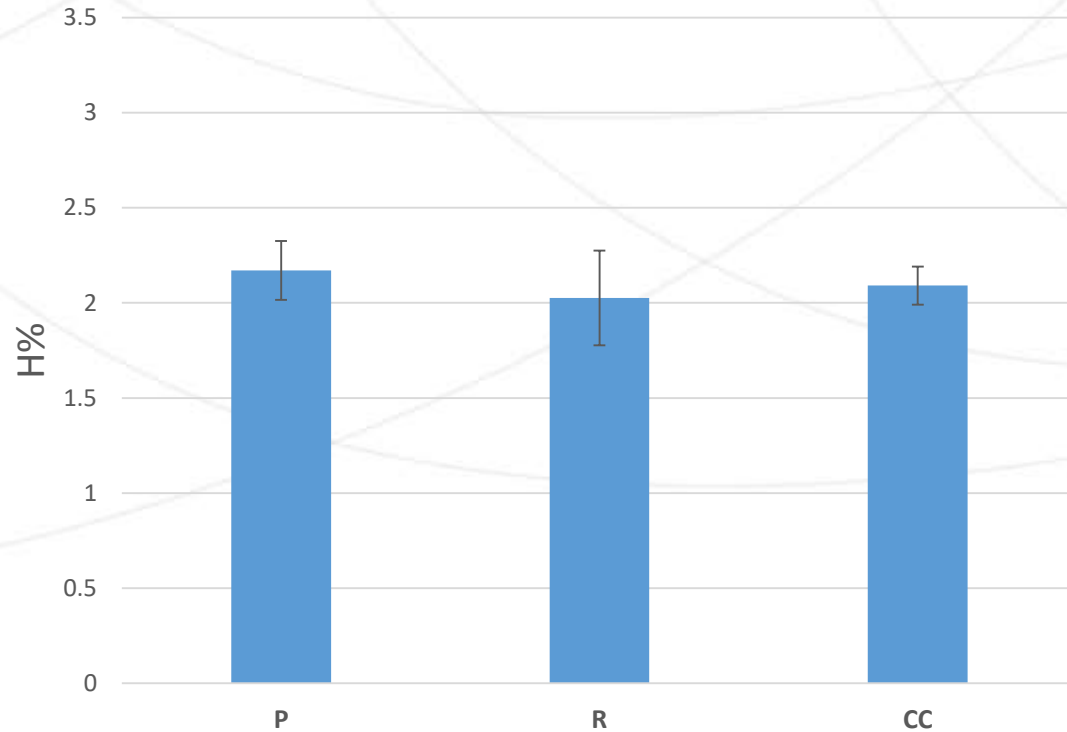


# Cover crop species

- indian pea  
*Lathyrus sativus*
- broad bean  
*Vicia faba*
- purple wetch  
*Vicia benghalensis*
- black oat  
*Avena strigosa*
- tillage radish, Daikon  
(*Raphanus sativus*  
*var. longipinnatus*)
- ethiopian mustard  
*Brassica carinata*
- Phacelia  
*Phacelia tanacetifolia*
- fenugreek  
*Trigonella foenum-graecum* L.



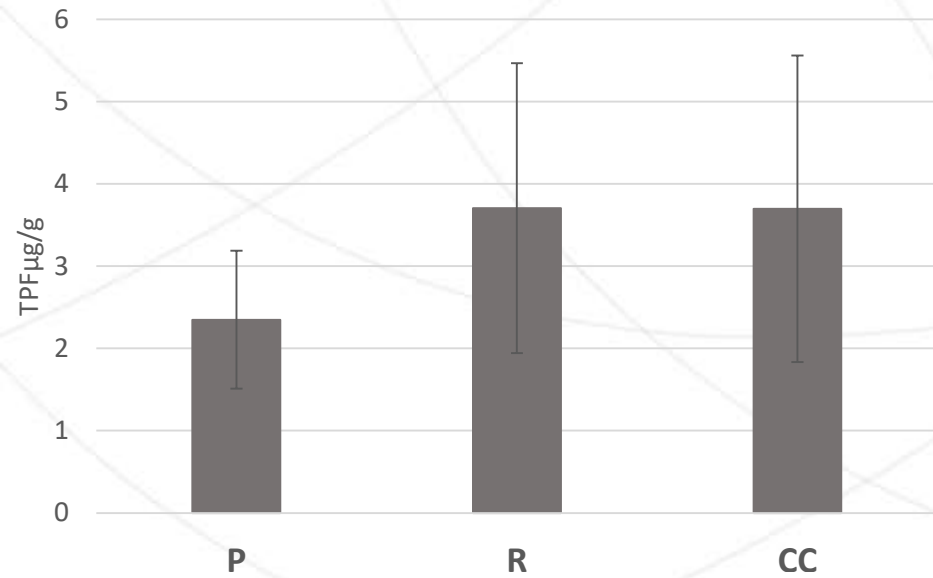
# Humus content of the three plot



P - ploughed plot  
R - reduced tillage  
CC - reduced tillage +  
cover crops

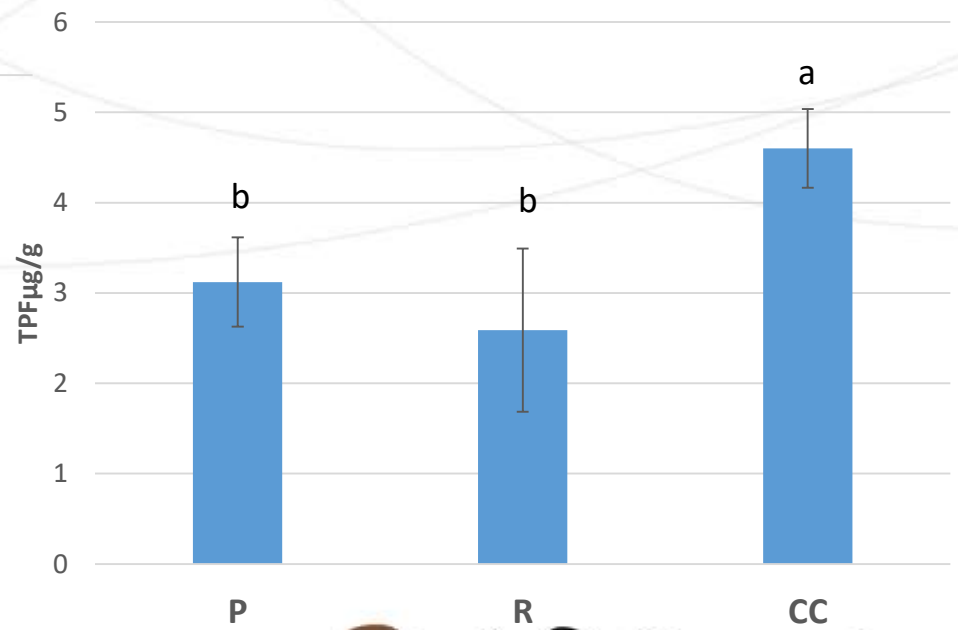


2019 summer



dehydrogenase enzyme activity

2020 autumn



# Conclusion

- After one year of applying biological soil management soil biological activity can increase
- Enzyme activity can be an indicator of the evaluation of soil health
- Using cover crops with reduced tillage system can be more effective than only reduced tillage







**Thank you for  
your attention**