Case study
Brandenburg, Germany

What ? Improving organic fertiliser use, nutrient efficiency of wheat

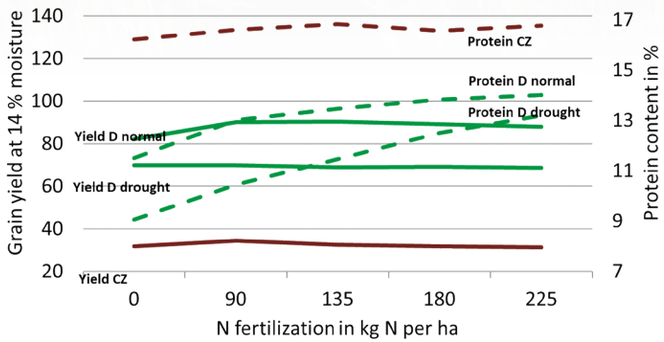
How ? Application technologies, vacuum degasification, selection of genotypes

Circular Agronomics

Genotypic differences in N-efficiency of winter wheat – when N supply is reduced

Improving nutrient balances by reducing N supplies with the right genotype for specific growth conditions

- ✓ 12 genotypes from different quality groups and breeders
- ✓ 5 different amounts of N supply
- ✓ 3 different environmental conditions every year
- ✓ 3 years
- ✓ Parameters: yield, N-content, bread making quality



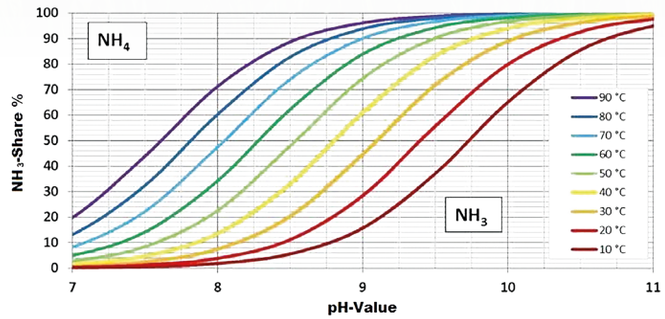




Vacuum degasification of liquid biogas digestates and/or slurry

Improving nitrogen use efficiency by extraction of mineral nitrogen from organic fertilisers

- ✓ Extraction of ammonium by means of vacuum gasification
- ✓ Use of an acid to produce a liquid mineral nitrogen fertiliser
- ✓ Set up of a laboratory scale degasification unit that can process 50 l per hour
- ✓ Different fertilisers are produced if different acids are used for capturing the nitrogen







Slurry application techniques for reduction of gas emissions and improvement of N balances

Reducing nitrogen losses by choosing the right time, technology, and nitrification inhibitor when applying slurry and liquid digestates





- ✓ Randomised field experiment with biogas digestate and silage maize
- ✓ Measurement of yield, N uptake and gas emissions

Long-term effects of biogas digestate application on soil carbon contents and distribution

- ✓ Long-term field experiment since 2011
- ✓ Digestates form 4 different biogas plants + cattle slurry + FYM
- ✓ Investigations of soil carbon form and distribution



