

An applied research Project for sustainable agriculture and effective water protection – using innovative nature-based solutions for the treatment of farm wastewater

Pilothon – Pilot project providing scientific support for the planning, construction and commissioning of wastewater treatment systems for an agricultural business



The agricultural sector is increasingly challenged to treat highly contaminated wastewater sustainably and reduce pollutant discharges into surface waters and groundwater. The Pilothon project therefore investigates how nature-based treatment systems for farmyard and milking parlour wastewater can be further developed and optimised under real operating conditions. To this end, a pilot-scale treatment plant was established at the Wegerhof farm in Wipperfurth, combining a constructed wetland (CW) with a retention soil filter (RSF). Since its commissioning, the system has been scientifically monitored and continuously improved. The project focuses on evaluating treatment performance and identifying technical and operational optimisation measures.

Research to date shows that the treatment of agricultural effluent is more challenging than initially assumed. In particular, the high levels of organic matter in milking parlour effluent, as well as occasional low pH levels and dry spells in the rainwater supply, have impaired the biological treatment performance of the soil filter systems. Based on these findings, measures were implemented including optimising

water distribution, establishing recirculation flows, adapting the hydraulic system, and implementing measures to stabilise the pH value and promote plant growth. Initial results indicate a significantly improved treatment performance and a marked improvement in water quality compared with the initial condition.