

Reducing Nitrates to Groundwater

What is the problem?

Anglian Water has a string of boreholes across North Lincolnshire which abstract water from chalk aquifers. Drinking water standards state that nitrate levels cannot breach 50mg/l at the tap, but levels of nitrate are consistently above the 50mg/l standard at some of these boreholes.

Anglian Water must decrease the nitrate levels before allowing the water into supply by either treatment (if available) or blending it with water from another source otherwise the water can not be used.

Background

Since 2015 Anglian Water have jointly funded a series of projects with the Environment Agency with the aim of working with the agricultural sector to find sustainable solutions to reduce nitrate to groundwater sources. Both customers and farmers could therefore save money if N retention in the field was maximised and water treatment reduced.

The Projects and Trials

Currently we have undertaken 9 projects of which ADAS RSK Ltd have been involved with 8 of them. If you would like any more information on the projects please contact us.

Project 1 – Review of the land use and appropriate mitigation measures to reduce N losses

Project 2 – Working with depth with farmers looking at N balance

Project 3 – Cover Crop Trial

Project 4 – Oversowing Maize Trial 1

Project 5 – Digestate Application Trial 1

Project 6 – Farmer Workshop

Project 7 – Oversowing Maize Trial 2

Project 8 - Digestate Application Trial 2

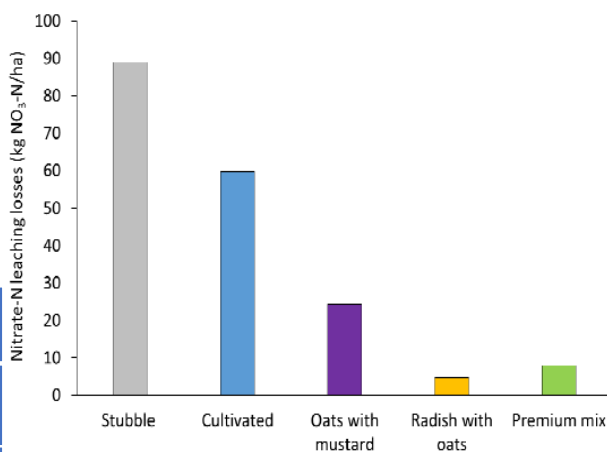
Project 9 – Soil Health Visits

Overview of the Projects and Trials

Project 1 revealed a large acreage of peas were being grown in the North Lincolnshire catchments. This resulted in fields left bare over the winter period. Coupled with research stating N losses from agricultural contributed to the N seen in groundwaters, the **Farmscoper tool** was used to provide appropriate mitigation measures that could be explored – best practice N use and cover cropping were amongst them.

We worked with 4 farmers to review their N use, looking at analytical data of inputs, application timings and products/material used.

The **cover crop trial** in Autumn 2017 showed that leaching from the stubble and cultivated plots (60 – 88 kg/ha) were 2-3 times higher than from the cover crops (4-24 kg/ha).



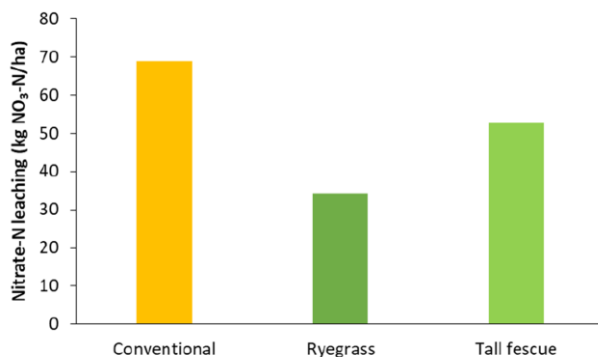
The **oversowing maize trial** showed that nitrate leaching losses were reduced by 25% on the oversown tall fescue and 50% on the ryegrass compared to the conventional treatment



Ryegrass



Tall Fescue



The oversowing maize 1 trial showed N losses could be reduced however, during 2019 this did have an effect on maize yield. We are awaiting results from trial 2.

Digestate Trial – We are currently in our second year of a digestate trial. During the initial project we understood that a large amount of digestate is applied to land in the North Lincolnshire catchments. The trial looks to understand the most appropriate time and condition in which to apply the digestate to have as minimal effect as possible on the quantity of N lost to groundwater. Once the results are received they will be analysed and information made available.



Soils and Machinery expert Philip Wright conducted 18 farm visits in 2019. We understand from research that a ‘healthy soil’ can benefit the environment, water quality and farming.

A healthy soil has the ability to promote healthy crops and also, increases its ability to hold onto water (slow the flow) and provides an aerobic environment for bacteria to thrive in which release nutrients for crops to uptake and degrade pesticides.

18 farmers were visited by Philip and 45 fields sampled. One farmer said “I have learnt more this morning than I have in years!”

For further information:



Kelly Hewson-Fisher
Catchment Management Team
07802 856663

khfisher@anglianwater.co.uk

More information about Anglian Water’s work in catchment to improve the quality of our drinking water can be found at

<http://www.anglianwater.co.uk/environment/our-commitment/our-plans/catchment-management.aspx>

Twitter: @AWCoastCountry



Love every drop
Come rain or shine
Find out more at
AnglianWater.co.uk/farming

