

Tillage Farming and Water Quality



Crops Forum 2024

Wednesday, 11th September | Eoghan O' Brien

www.teagasc.ie/cropsforum

Water Quality in Ireland 2007 - 2023

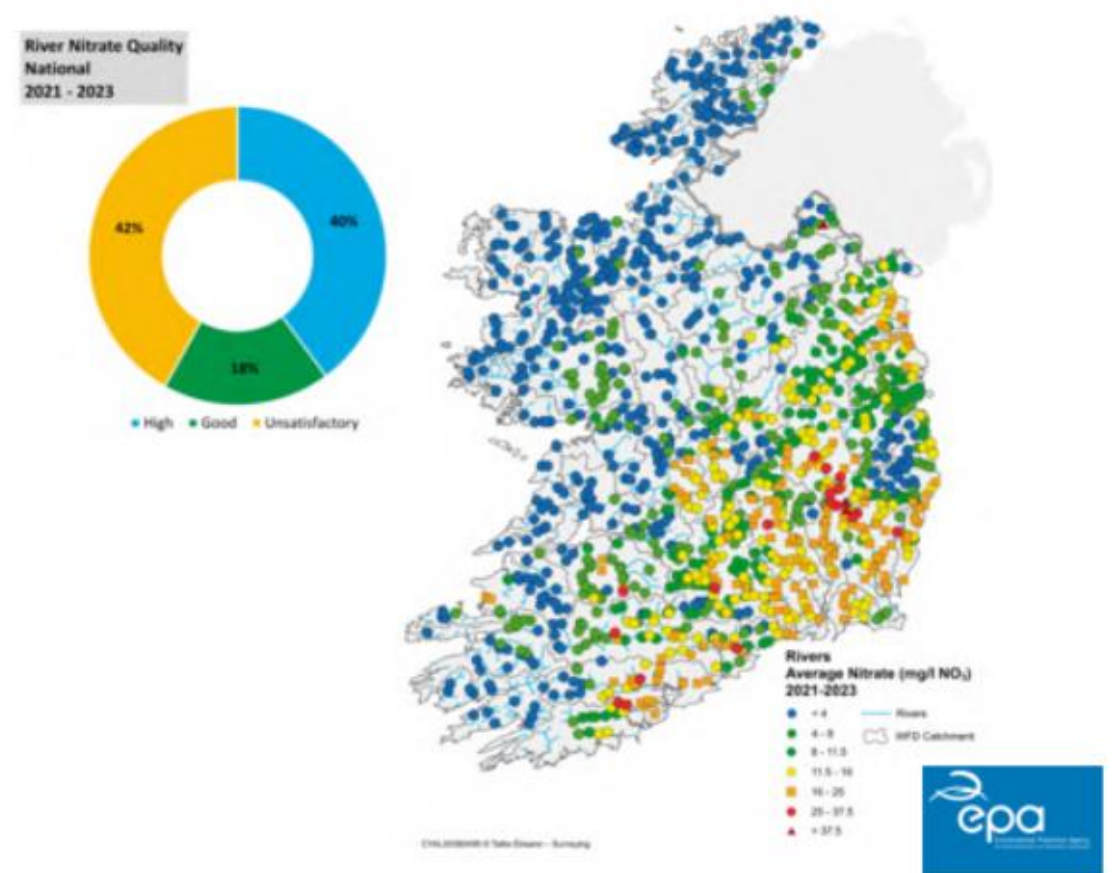
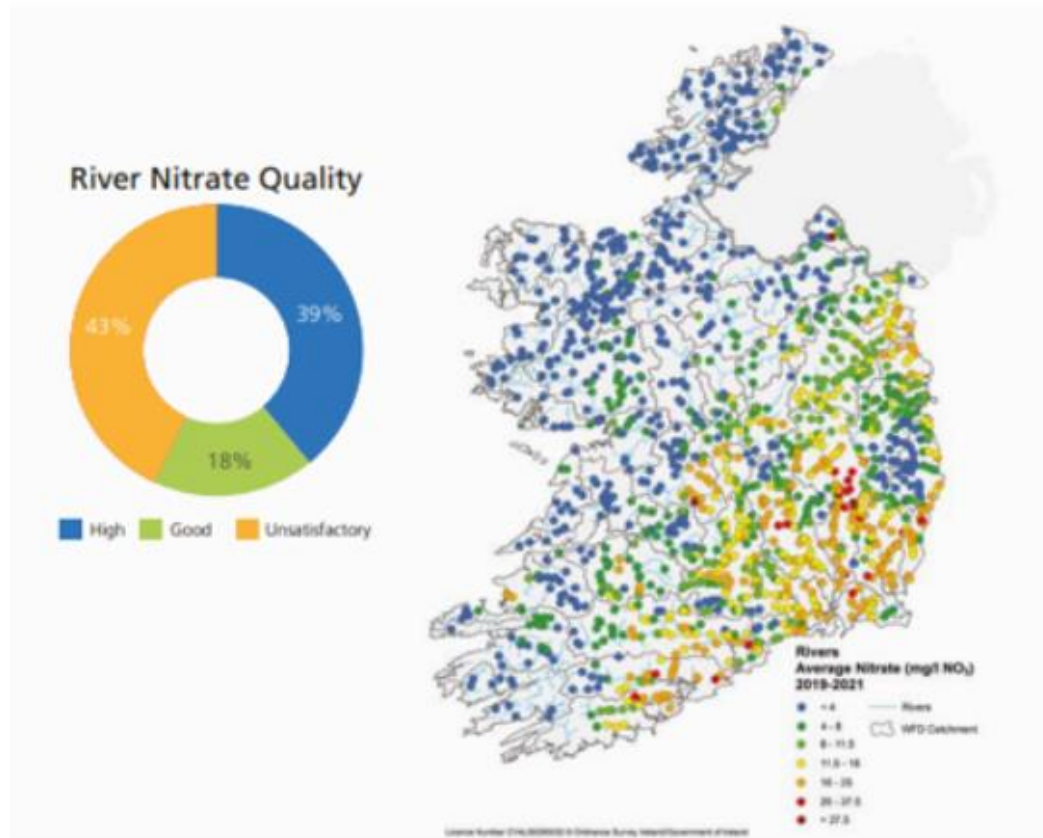
Rivers Biological Quality
National 2007 - 2023
Q value (Water body level)



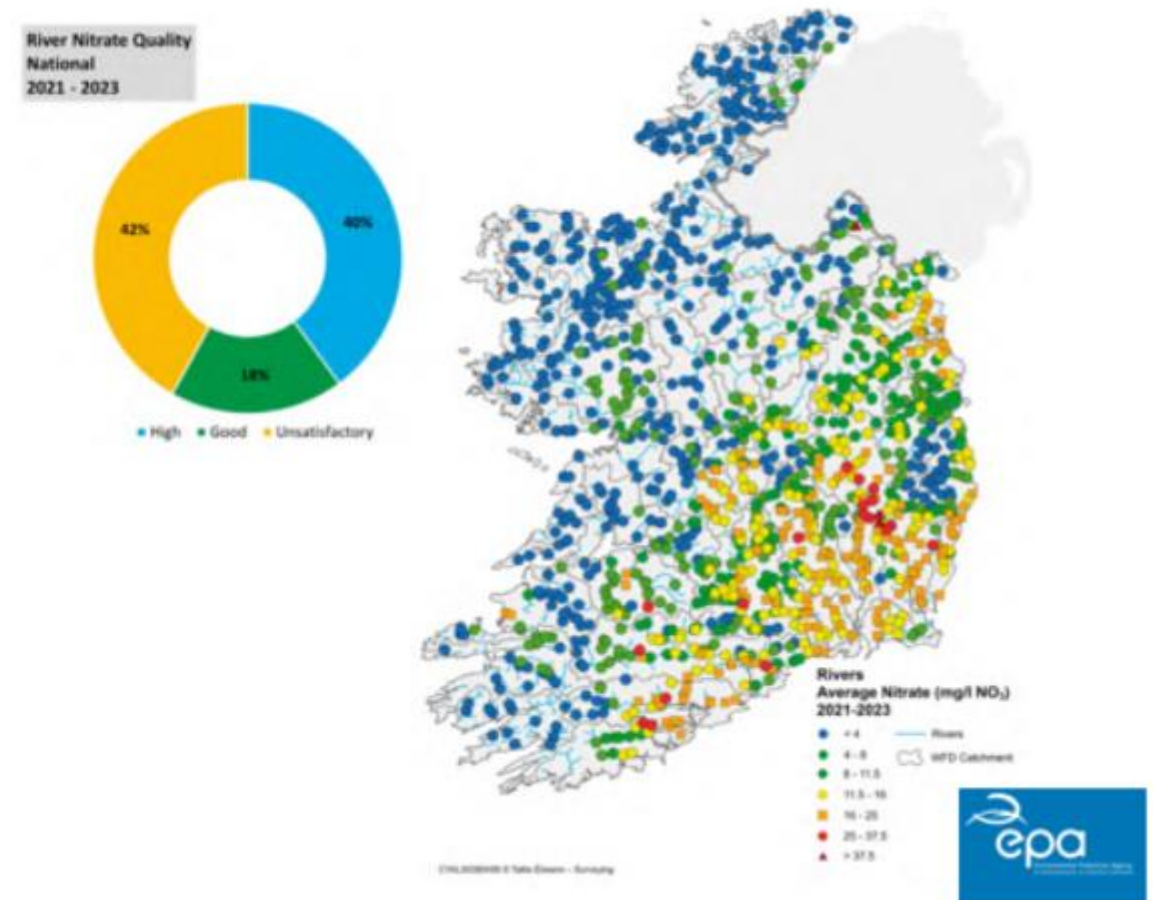
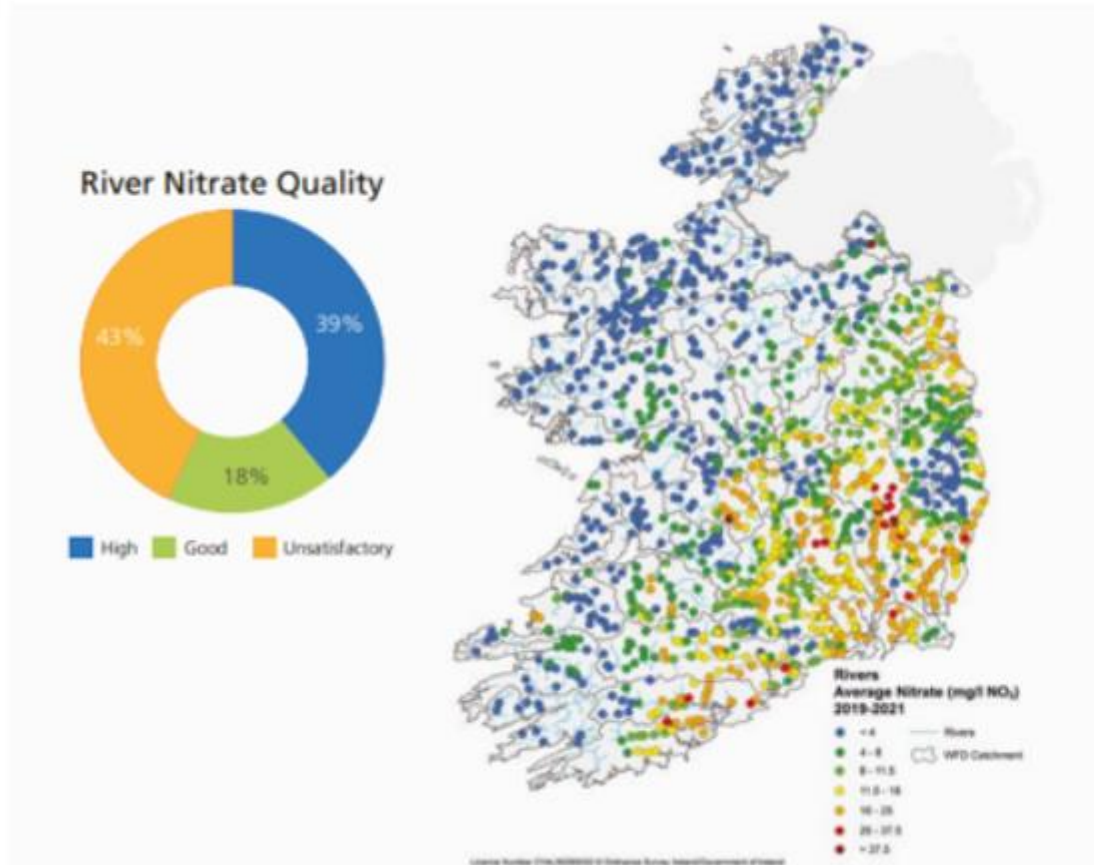
Percentage and number of river water bodies
 ■ High ■ Good ■ Moderate ■ Poor ■ Bad



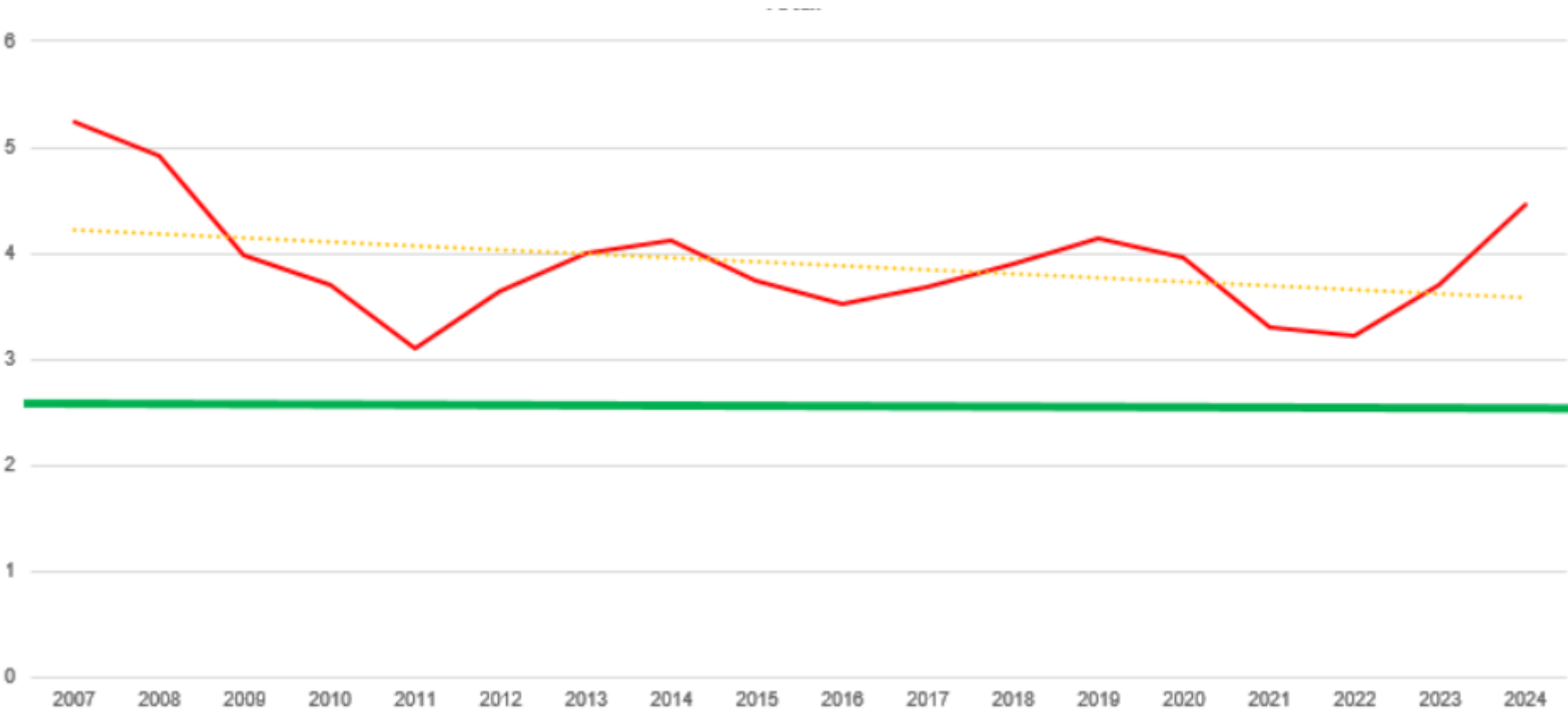
River Nitrate Quality 2021 V 2023



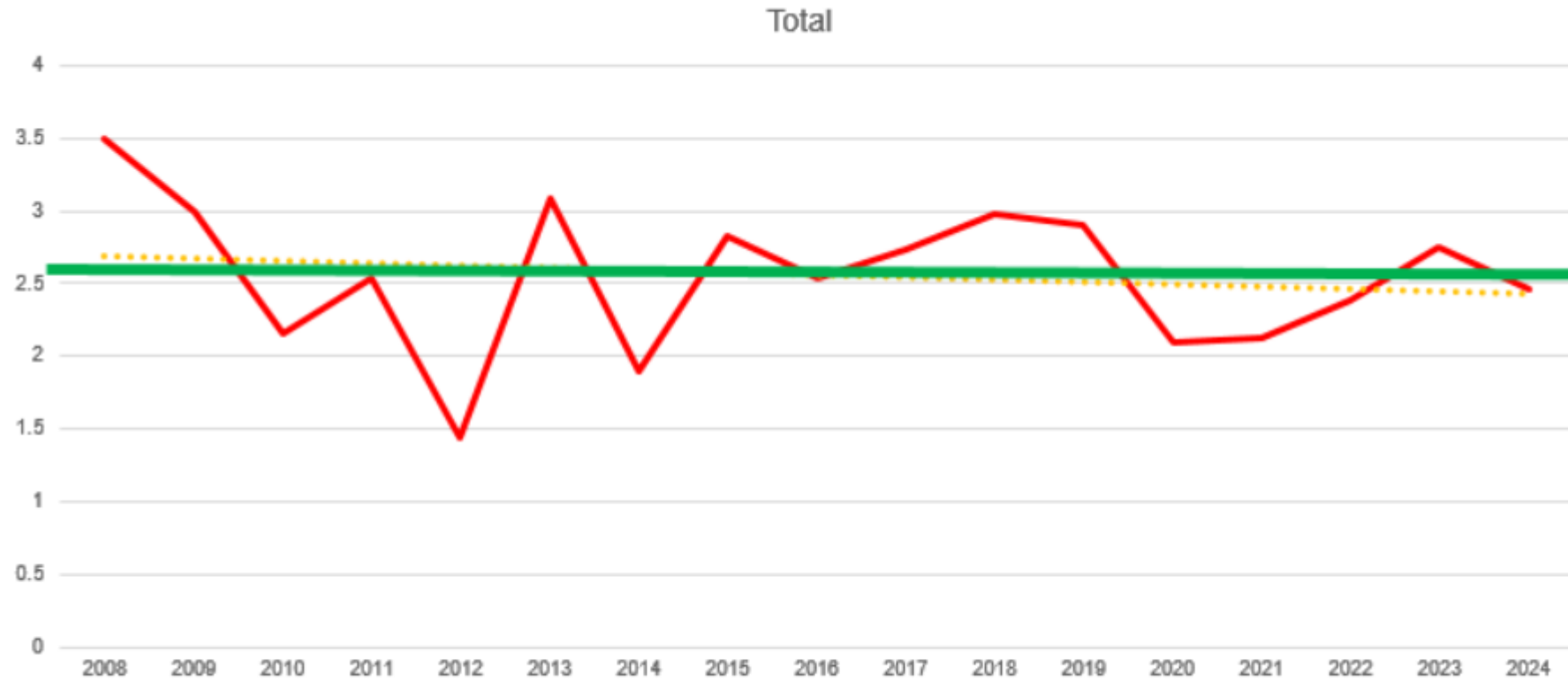
River Phosphate Quality 2021 v 2023



Oxidised nitrogen in Slaney River



Oxidised nitrogen in Barrow











Effects of high Nitrate in water



BETTER Farming for Water Campaign – 8 Actions for Change

8-Actions for Change

Nutrient Management		
01	Reduce purchased nitrogen (N) & phosphorus (P) surplus per hectare	
02	Ensure soil fertility is optimal for lime, phosphorus and potassium	
03	Ensure application of fertiliser and organic manure at appropriate times and conditions	
Farmyard Management		
04	Have sufficient slurry and soiled water storage capacity	
05	Manage and minimise nutrient loss from farmyards and roadways	
Land Management		
06	Fence off watercourses to prevent bovine access	
07	Promote targeted use of mitigation actions such as riparian margins, buffer strips & sediment traps to mitigate nutrient and sediment loss to water	
08	Maintain over-winter green cover to reduce nutrient leaching from tillage soils	



Why cover crops?

UK trial on cover

Treat.	Cover crop (drilled 6/9/21 or 13/8/21)
1	No cover: weedy stubble
2	Mix 1 – Phacelia (20%) & Oil Radish (80%) @ 15 kg/ha
3	Mix 2 – Japanese oats (45%), Buckwheat (45%), Phacelia (10%) @ 40kg/ha
Spring crop	

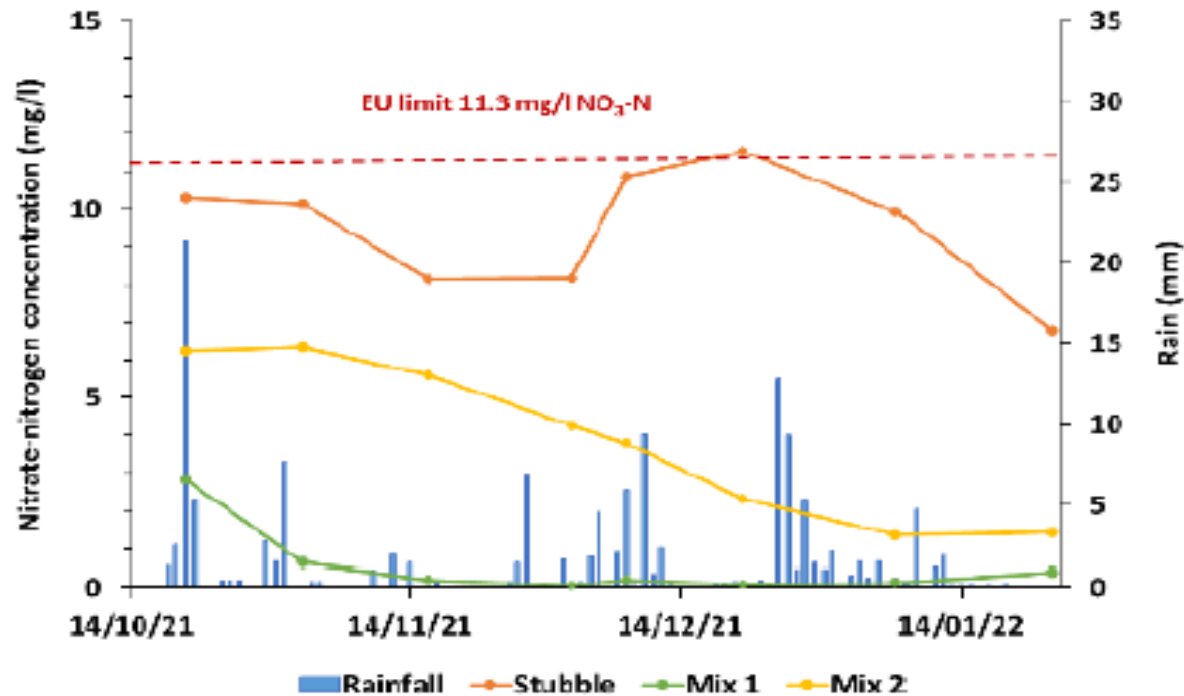


Nitrate concentrations in drainage water

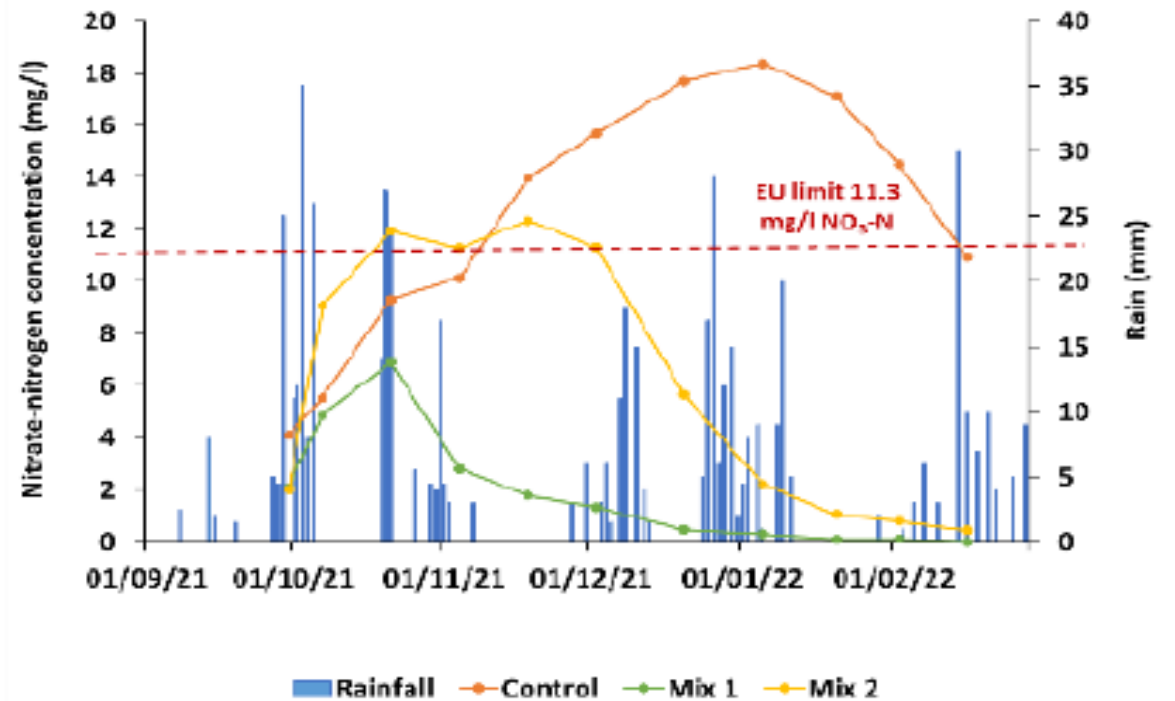


Nitrate concentrations in drainage water

Hertfordshire



West Sussex



Main issues with cover crops



Riparian Margins



Sediment in Carlow river



Sediment runoff



Sediment runoff







Figure 1. Riverbank vegetation.







Examples of poor margins



Grassy margin planted 2024



Thank You