

Additionally Available Nitrogen

MGA conference 2023

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Wessex Water

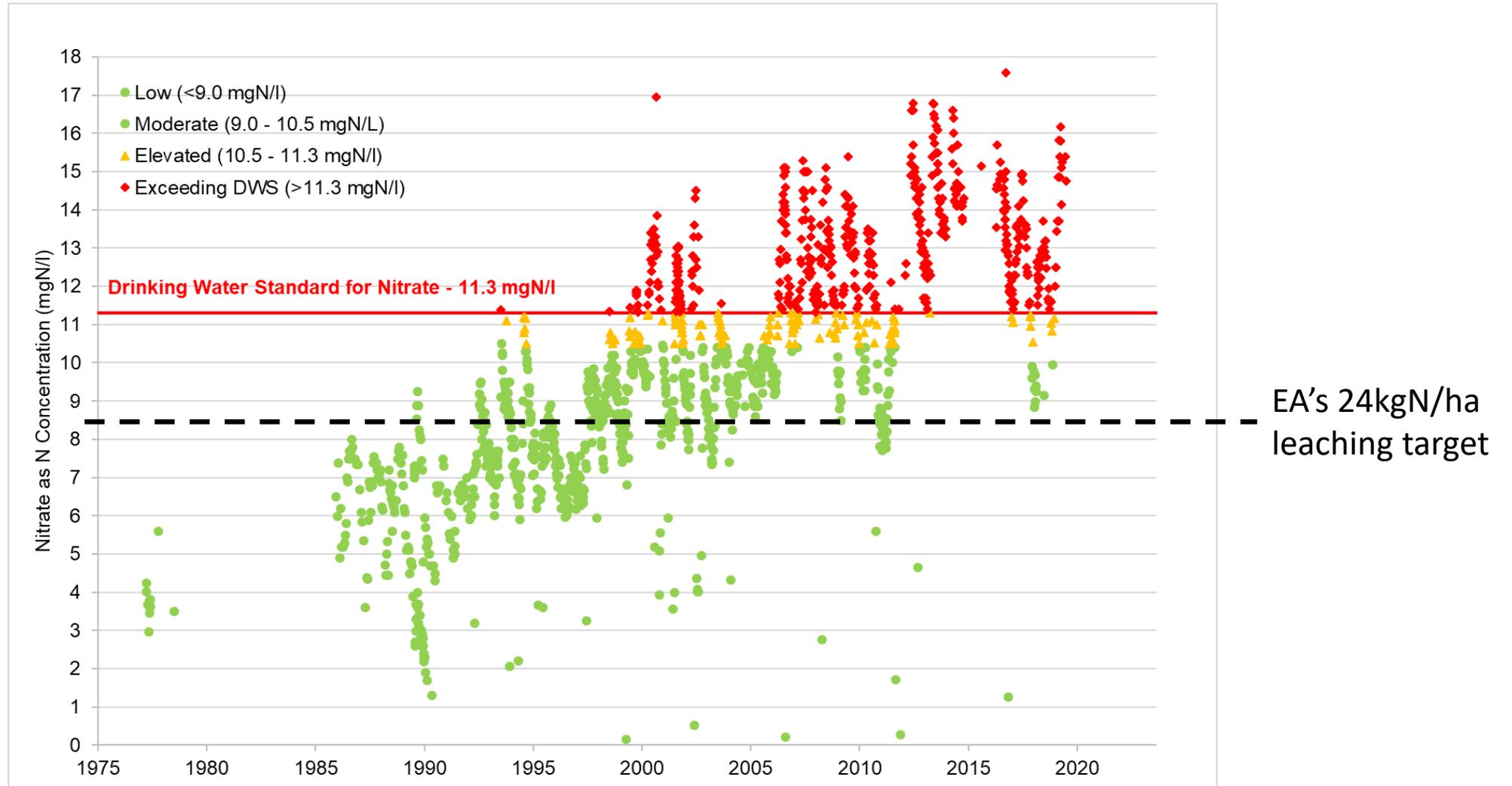
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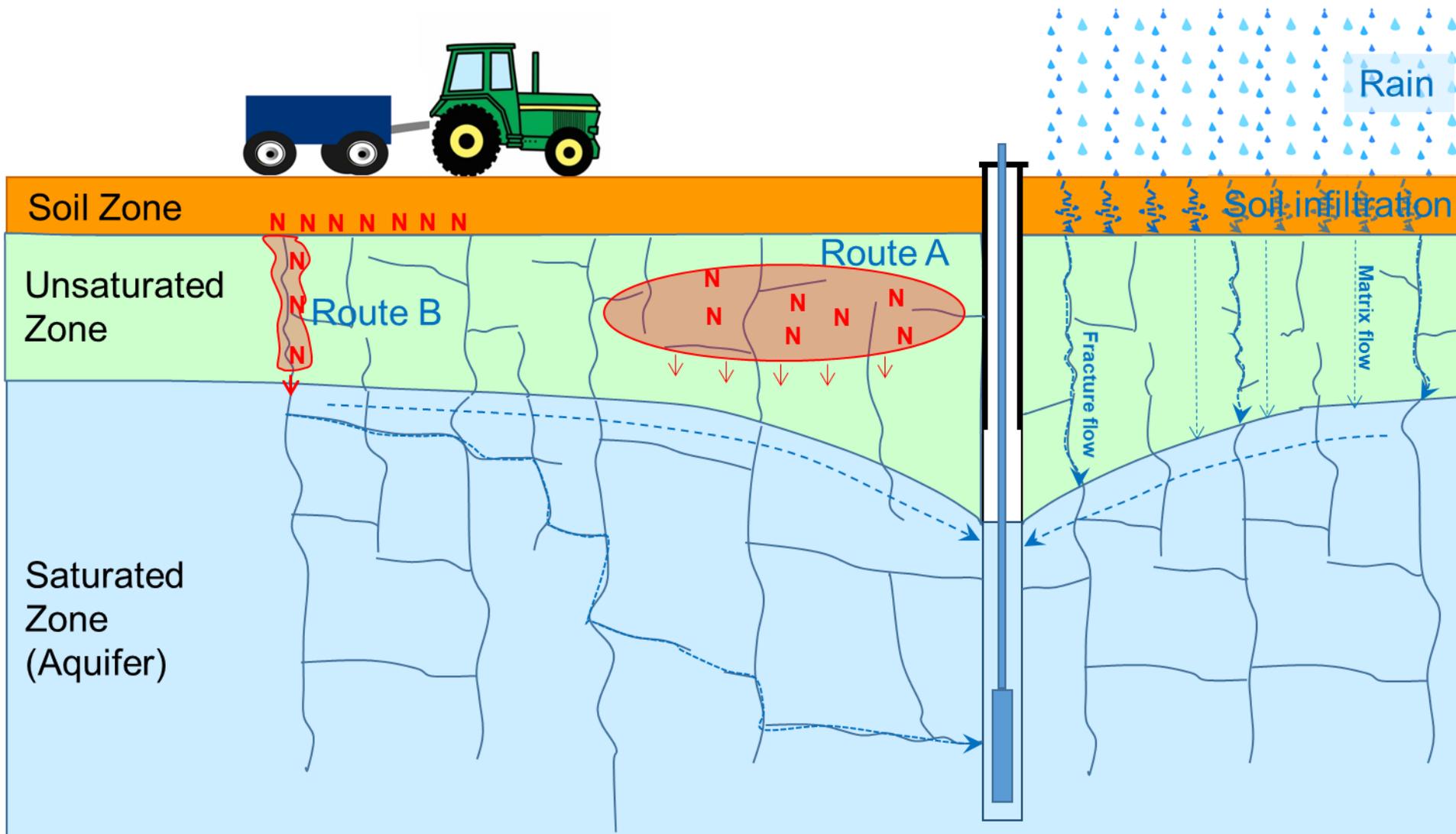
Agenda

- Intro to nitrate leaching
- Calculating soil Nitrogen supply (SNS)
- Additionally Available Nitrogen (AAN)
- 2021 and 2022 AAN reduced N tramline trial results
- Carbon emissions
- Threat of regulation

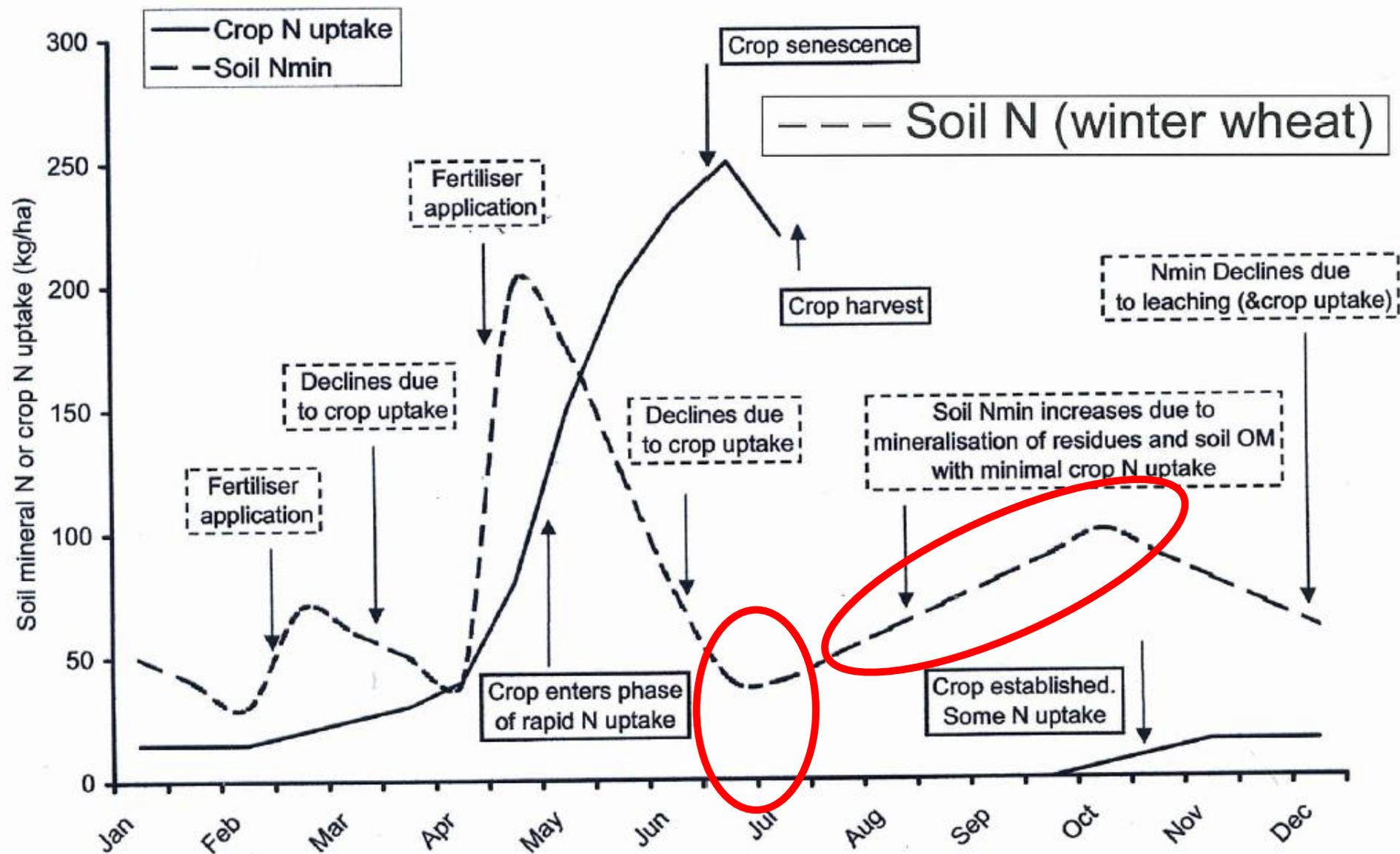
Water Quality- Long term nitrate trend



Nitrate leaching pathways

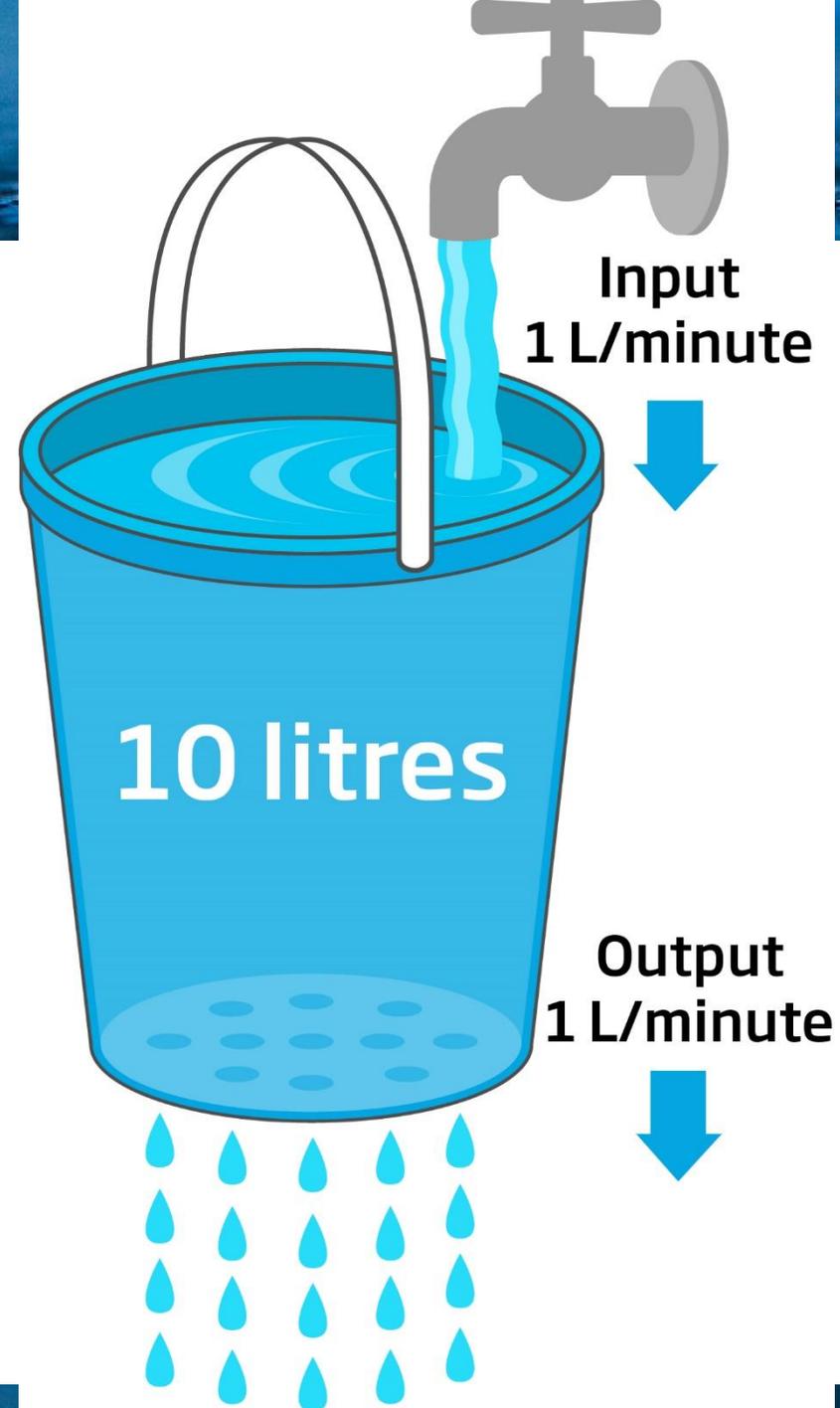


Soil Mineral Nitrogen is a moving target!



Source: ADAS 2007 NVZ paper D3

Nitrate flows



Soil N Supply (SNS)

- Measurement method

**Soil Mineral N (SMN) + Crop N +
Additionally Available N = SNS index**

- Accounts for Additionally Available N (AAN)
- More accurate in high fertility situations

AAN= The quantity of N that will become available to the crop during the growing season, from mineralisation of SOM

2021 'Scatter Gun' Trial

55 fields sampled for AAN across the Wessex region in Spring 2021

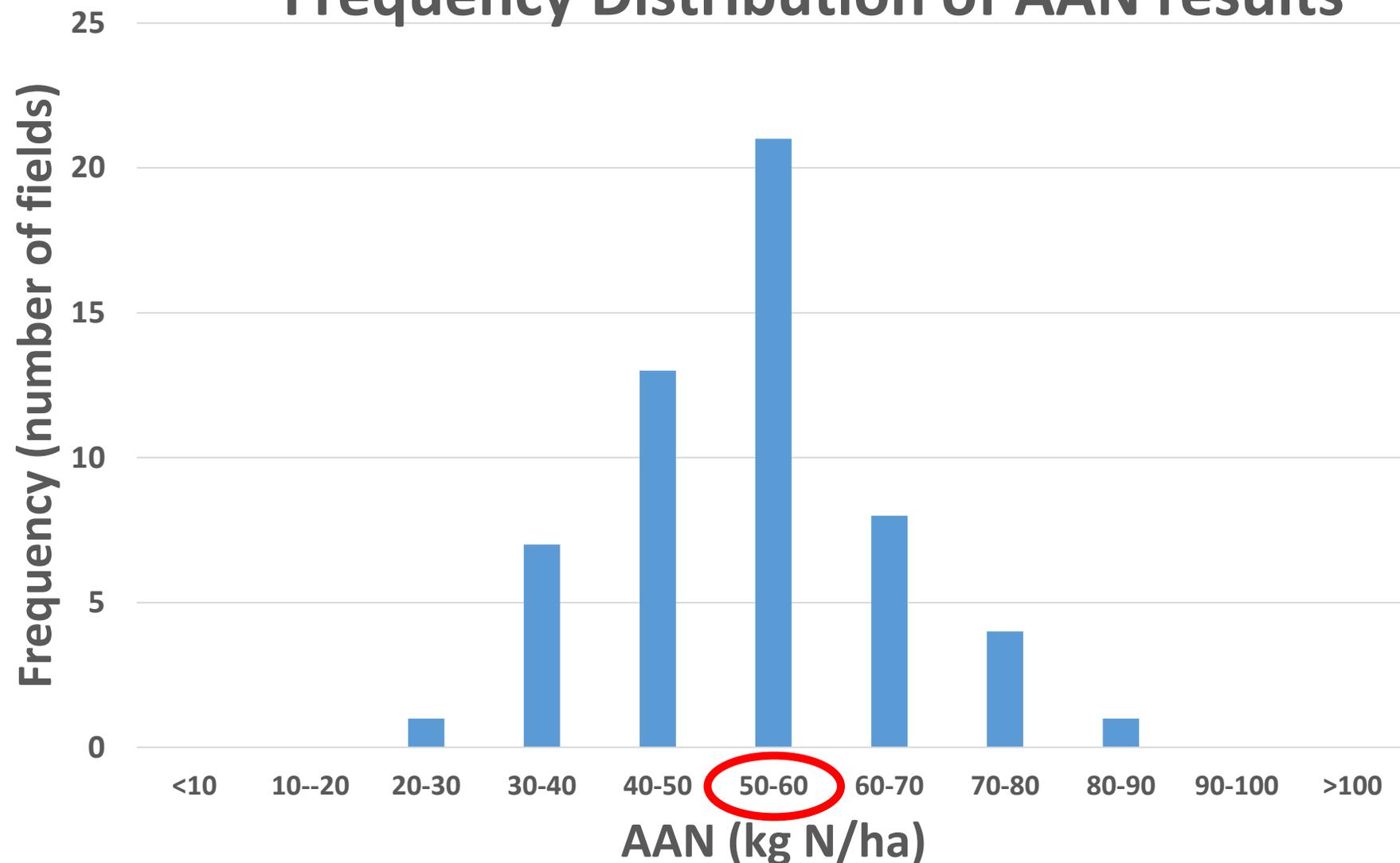
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Additionally Available N (AAN)

Frequency Distribution of AAN results



AAN (kg N/ha)	
Maximum	83
Minimum	30
Average	53.36
Range	53

■ AAN

AAN analysis

- No fields <20kgN/ha
- 98% fields > 30kgN/ha
- 85% fields >40kgN/ha
- 62% fields >50kgN/ha
- 24% fields >60kgN/ha

2021 Reduced N Tramline Trial Results

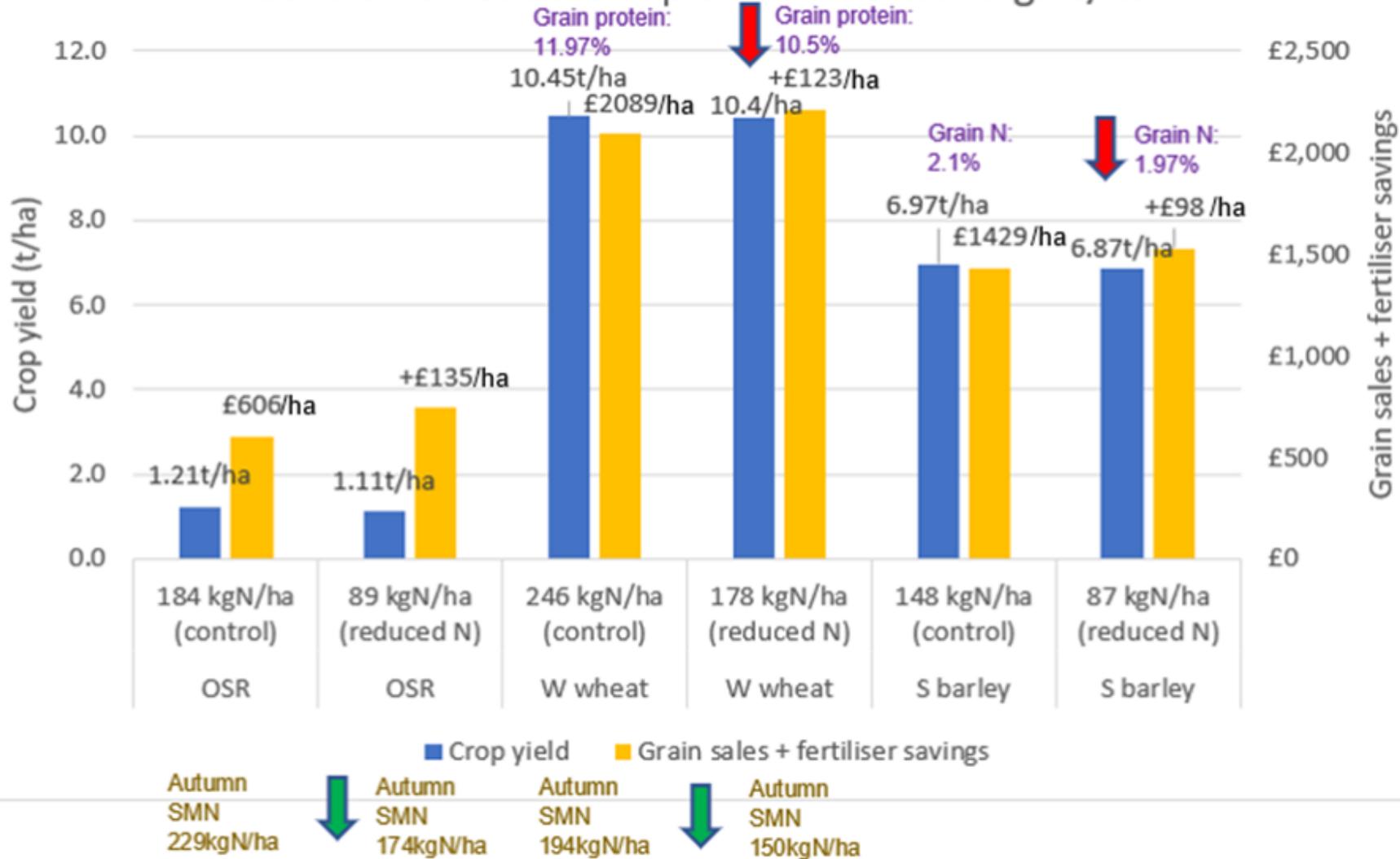
1 farm with reduced N tramline trials, following
AAN recommendation

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Yield and Financials

Control vs Reduced N plots- Yields & Margins/ha



- **40% N reduction**
- **Little impact on yield**
- **Gross margin increased by £119/ha**
- **Autumn SMN decreased by 24%**

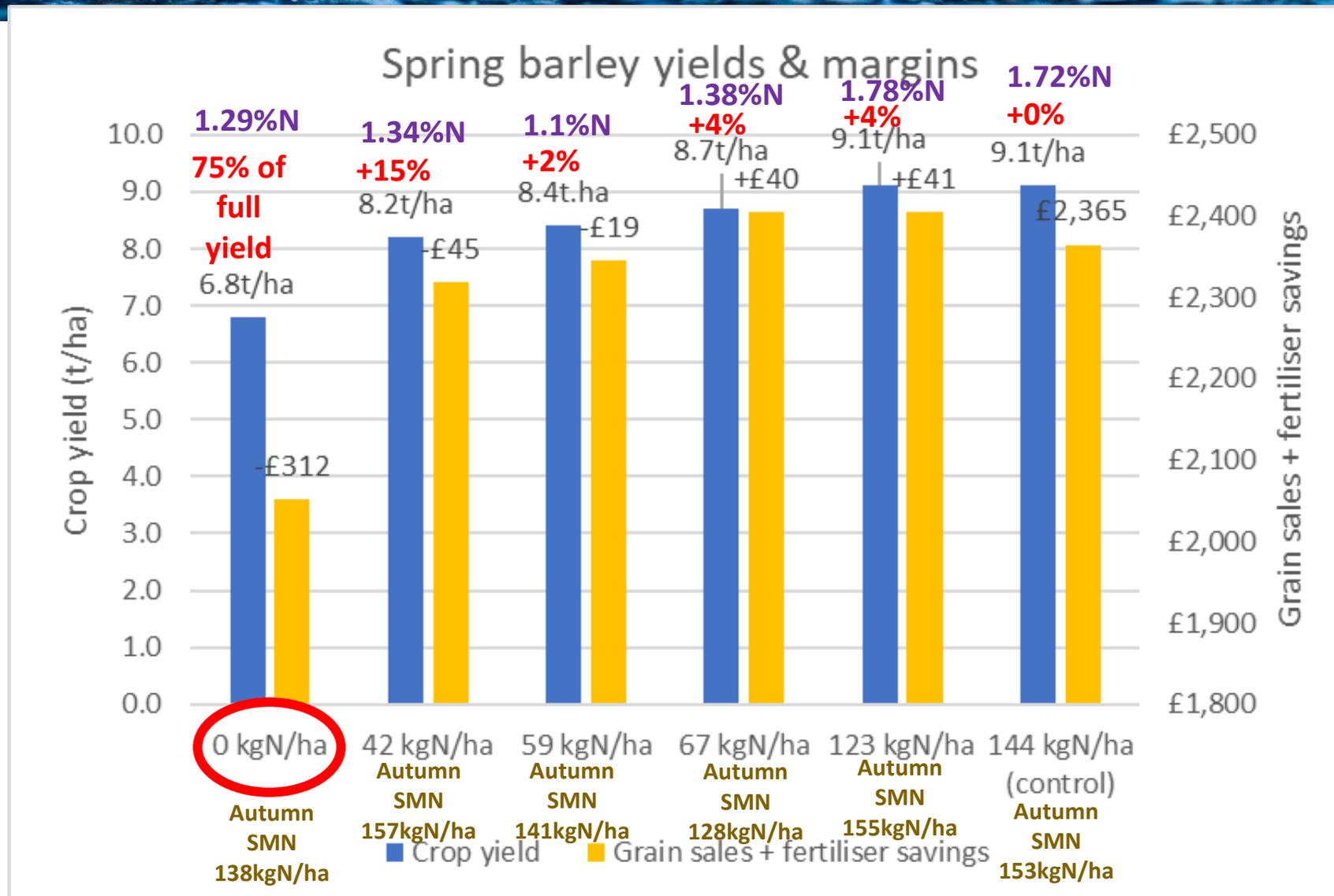
2022 Reduced N Tramline Trial Results

2 farms with reduced N tramline trials, following
AAN recommendation

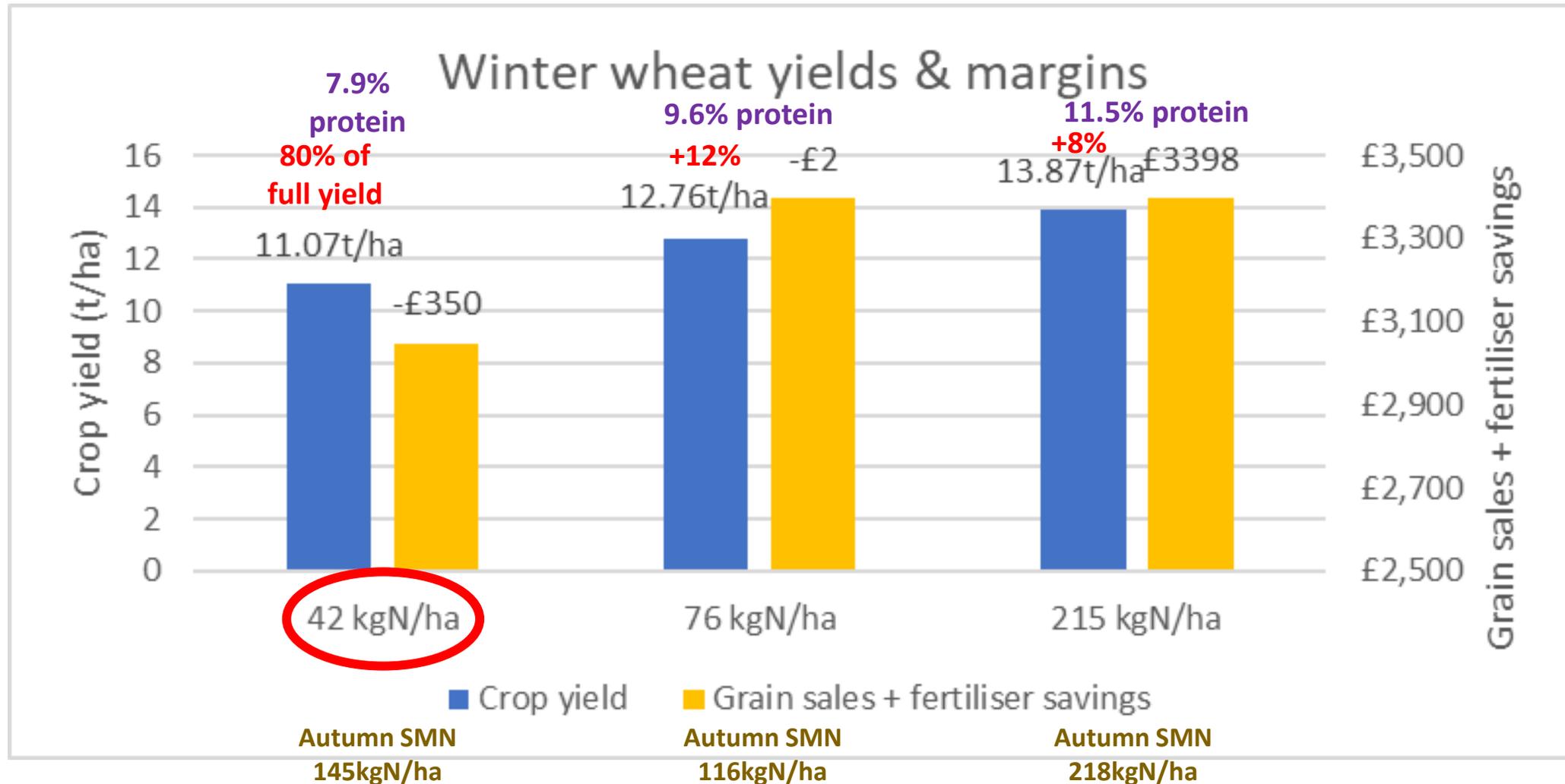
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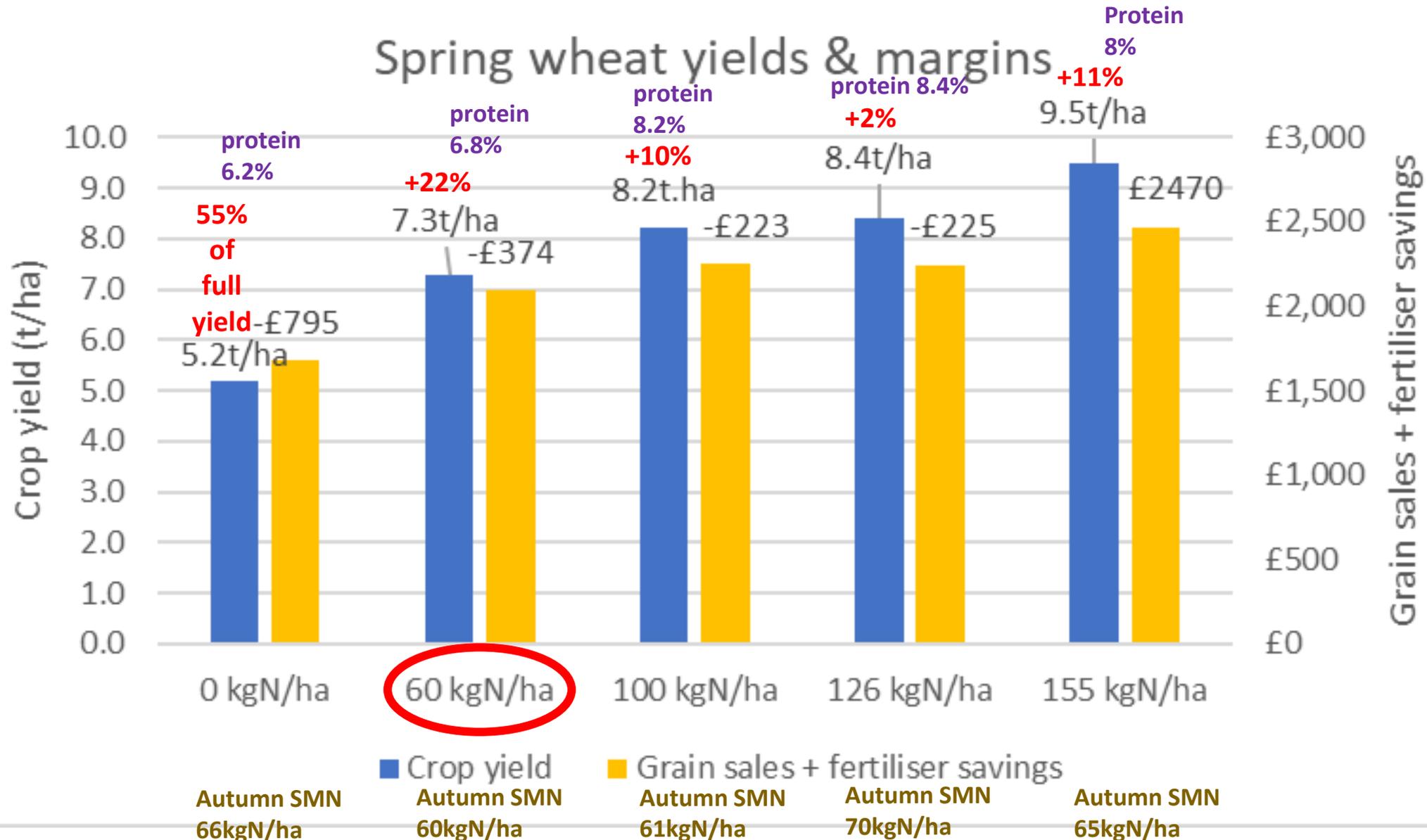
Spring barley- yield & financials



Winter wheat- yield & financials



Spring wheat- yield & financials



Poole Harbour WPZ



Nitrogen Tax

Thank you

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