**Project title** Updating nitrogen and sulphur fertiliser recommendations for spring barley

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<th>Project number</th>
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<td>Start date</td>
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<td>End date</td>
<td>30/04/2021</td>
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**The challenge**

The increased demand for spring cropping has resulted in more people growing spring barley. Growers with less experience with this crop may find it challenging to achieve the grain quality targets reliably.

Furthermore, spring barley has been grown on light land traditionally but the area is now expanding to heavy land too. This is likely to affect the optimum nitrogen (N) strategy to achieve the various grain N% targets.

Growers are often over-cautious with their fertiliser rates to avoid exceeding minimum thresholds and, as a result, often ‘miss out’ on yield due to sub-optimal N rates. This is leading to a significant amount of unrealised farm profit.

On top of this, some modern varieties yield 12 per cent more than some traditional varieties. The more recent varieties may require more N to achieve potential yield.

There is a lot of industry uncertainty about optimum N applications for spring barley. It is also not known how sulphur (S) fertiliser affects the grain N% of modern spring barley varieties.

**The project:**

The aim of this project is to provide nitrogen and sulphur fertiliser management guidelines for spring barley. The guidelines will help growers hit grain N% targets with maximum yield more reliably. Specifically, the project will:

1) Review data to understand how soil N supply, applied N and yield potential affect grain N%
2) Quantify the effect of timing of soil applied N fertiliser and S fertiliser on grain N%
3) Quantify the effect of rate of soil applied N fertiliser on grain N%
4) Produce N and S fertiliser guidelines for achieving grain N% targets with maximum yield
5) Disseminate fertiliser management guidelines to farmers and agronomists
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The benefits

The research will provide a better understanding of how N rates, N timings and S rate should be managed to meet target grain N% in modern varieties of spring barley in different environments.

It is expected the project’s outputs will help increase the amount of barley meeting grain N specifications, which will also increase the number of growers receiving a premium for grain N.

Knowledge from this project will encourage more growers to consider growing spring barley.

The outputs from this project could reduce the amount of rejections due to N. This could have a value of £0.2 million p.a. (assuming a premium of £25/t) to UK growers.

The project will also demonstrate the impact of S fertiliser on yield and grain quality, which will encourage more growers to use S fertiliser where there is a risk of deficiency.

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