

tillage

Nitrogen management is key

Whether growing feed or malting barley, it's important to get your N strategy right

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The landscape for spring feed barley growers is different this year with an influx of imported seed. The recent harvest saw grain yields lower than anticipated – this was coupled with a wet autumn that prevented up to a third of the planned cereal acreage from being sown.

This has led to an unprecedented scenario where there is a severe scarcity of native seed barley this year. To be fair to the seed trade they have responded to the challenge by sourcing seed from elsewhere in Europe. Tillage farmers will have seed this spring.

However, imported seed comes with its own challenges and one challenge that many growers are enquiring about is standing ability.

Imported seed can be divided into three categories:

- Varieties that we are familiar with and are currently on or previously have been on the DAFM recommended list.
- Varieties that have been through the DAFM trialling system but may not have been grown widely for one reason or another, but DAFM will have some information on these varieties.
- Varieties not previously grown in Ireland. When you are growing a variety where DAFM have identified a susceptibility to lodging, or a variety not previously grown in Ireland, it would be prudent to take steps to minimise the risk of lodging.

Nitrogen management

Nitrogen management is key to preventing lodging. Avoid fields with recently applied organic manure or fields following crops that can increase nitrogen to succeeding crops like beans/peas.

Use historic information to guide nitrogen rate. Most growers will be aware of the optimum nitrogen requirement for spring feed barley on their own land, and a reduction of 20-25kg/ha from this optimum rate can make a significant difference to lodging. Apply nitrogen as soon as tramlines are visible as late nitrogen will increase the risk of stem lodging.

Teagasc research has shown that potassium has an important role in maintaining stiff straw. Ensure that the crop has sufficient potassium applied based on a recent soil test report.



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for all spring barley growers

Andrew Bergin,
Grattansbrook,
Athy, Kildare with
Rebecca Bayley.



Crops with large canopies at growth stage 30 are more prone to lodging, so be conscious of the thousand grain weight of the seed at sowing to avoid overly large canopies. Optimum plant establishment for a high yielding crop is 300 seeds/m² and canopies in excess of this will have a higher risk of lodging.

Growth regulators have a role to play when lodging risk is high especially ethephon-type products. An application of a 'Terpal' type product between GS 32 and 39 can shorten upper internodes and can also reduce brackling.

Spring malting barley

Quality spring malting barley crops require meticulous attention to detail. The difference between high and low protein malting barley can be caused by factors beyond a grower's control, such as weather conditions during the growing season, but it also depends on crucial crop management strategies used by growers both before and during the growing season.

The first step growers can take is to select appropriate fields for distilling and brewing barley, taking into account prior experience with protein levels in each field, as well as soil type, rotation, previous crop offtakes, and so on.

Certain growers will have fields where producing lower protein levels is quite achievable, while other growers may have stronger fields that can generate higher proteins. All crops should be planted into seedbeds that are fine, firm, and level, as this will promote uniform germination and establishment.

Having the seedbed right will aid in root soil contact for nutrient uptake and growth as well as moisture transfer for germination. Optimising P, K, and lime inputs is also critical for improving crop growth and nitrogen utilisation.

Nitrogen management is a critical factor in spring malting barley as it impacts both yield and protein. The winter was quite wet which tends to wash nitrogen through the soil profile thus leaving less for this year's crop.

Nitrogen rate and timing has the greatest impact with regard to grain protein content.

Teagasc research has shown that 150kg N/ha is optimum to achieve brewing grade barley, while 130kg N/ha is optimum to achieve distilling grade barley (Table 1). Total nitrogen application should be split between 30% at sowing with compound fertiliser and the remainder at the 1-2 leaf stage of crop growth.

If all the nitrogen is applied to the seedbed there is a greater risk of leaching as nitrogen is very soluble. Delaying a proportion of the main nitrogen application until flag leaf tends to lead to increased grain protein, potentially reducing the grain's chance of meeting the required specification.

Where catch crops were sown last year, the growth was extremely variable due to the weather and different sowing dates. Poor crop offtakes in certain areas has meant that residual nitrogen from last year's malting barley crop was available to the catch crop and benefited its growth.

Crop management

Management of these crops now can affect the amount of soil residual nitrogen that will be available for the malting barley crop. It is difficult to determine the exact amount of nitrogen release from cover crops with research showing inconsistent yield and protein responses from cover crops. Therefore, adjusting the nitrogen applied to malting crops is equally difficult to determine. Where a high nitrogen release from cover crops is expected, adjust nitrogen levels down by 10-15 kg/ha.

While nitrogen rate and timing remain the most important aspects in protein management, other factors must also be considered in order to maintain protein levels successfully. Rainfall level and temperature will always be outside the grower's control; but, if attention to detail is given to all management decisions, the ability to fulfil required specifications will undoubtedly increase.

Table 1: Suggested rates of nitrogen for malting and distilling barley

| Nitrogen (based on 7.5t/ha) | Seedbed/emerging | Early tillering |
|---------------------------------------|---------------------------|----------------------------|
| Malting (brewing) barley (150kg/ha N) | 33% of total 50kg/ha N | 66% of total 100kg/ha N |
| N Index 1 | (40 units/ac N) | (80 units/ac) |
| Distilling barley (130kg/ha N) | 30% of total 40kg/ha N | 70% of total 90kg/ha N |
| N Index 1 | (32 units/ac N) | (72 units/ac N) |