

Nitrogen and malting barley

Reducing fertiliser to increase margin

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The demand for malting barley has been increasing steadily to the point where Boortmalt alone will be seeking 180,000 tonnes of malting barley for harvest 2022. Driving this increase is the demand for distilling barley.

Traditionally, the vast majority of malting barley grown for Boortmalt was destined for the brewing market, however the market is now at the point where close to half of the malting barley grown will be required for distilling.

Distilling barley is more valuable than brewing, with the potential for growers to add an additional €70/ha in profit to an average yielding crop of malting barley.

However, meeting distilling grade will require an even lower grain protein than for brewing barley, so it can be difficult to achieve. This is due to factors out of the grower's control such as soil type, weather and location, which can have a major impact on grain protein.

Nitrogen fertiliser strategy is entirely in the grower's control. Table 1 outlines nitrogen application rates for brewing and distilling barley and timings based on Teagasc trials.

Clearly, there is an opportunity to significantly decrease nitrogen applications compared to spring feeding barley, while potentially accessing a premium market for grain.

Field selection is important when deciding on where to sow distilling crops. Avoid fields where there may be a possibility of high levels of excess nitrogen present in the soil – examples include areas where

Figure 1: Results from nitrogen application trial on winter barley indicating optimum N rate to maximise yield and grain protein.

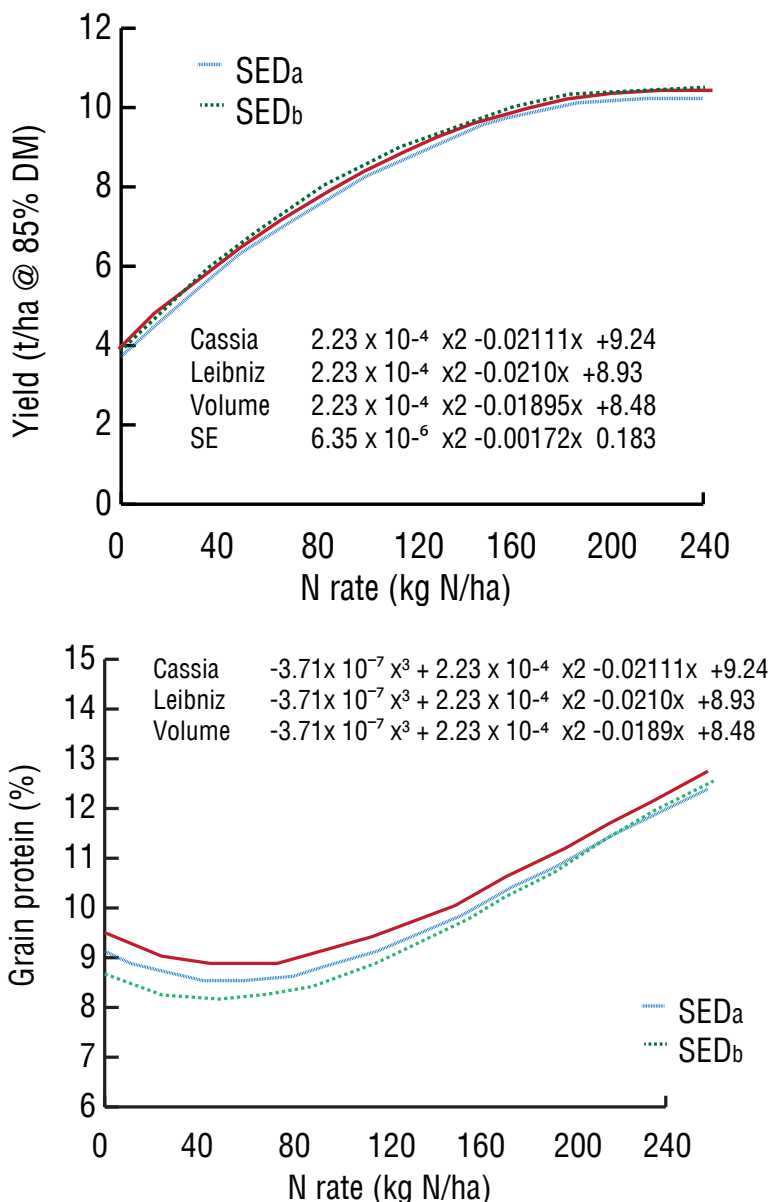


Table 1: Example nitrogen application strategy for brewing and distilling barley.

Crop	Total N	Seedbed	1-2 leaf stage
Brewing	135 kg/ha (108 units/ac)	40 kg/ha (32 units/ac)	95 kg/ha (76 units/ac)
Distilling	110 kg/ha (88 units/ac)	30 kg/ha (24 units/ac)	80 kg/ha (64 units/ac)

organic manures have been recently applied or where catch crops have been grazed by livestock.

Winter malt

As mentioned previously, the quantity of malting barley required by Boortmalt has increased substantially in recent years. Obtaining this quantity from spring malting barley alone could be difficult, especially in a poor spring barley growing year.

With the aim of boosting supply, and to give growers an alternative cropping option, Boortmalt turned to true winter malting barley varieties.

The first crops were drilled on a trial basis in autumn 2018. Only small quantities were grown in order to determine the performance of the crop in the field and also to assess the crop's malting quality.

After the results of year one, winter malt proved to be a success in both the field and the maltings, with the area increasing each year. A total of 1,100ha of winter malt was drilled

this autumn. The variety Craft makes up the majority of this area. Boortmalt is committed to further increasing the area of winter malt.

As this is a relatively new crop, the level of agronomic knowledge is low. A trial has been established in Teagasc Oak Park as part of the Teagasc/Boortmalt joint programme.

The aim of the trial is firstly to evaluate the performance of existing and potential winter malt varieties and secondly to determine optimum nitrogen application rate in order to maximise yield while obtaining the desired grain protein.

This trial commenced in autumn 2020 and therefore there is only one year's harvest results from the trial and it is too early to draw any major conclusions. However, research examining nitrogen rate and protein on winter barley has been completed by Dr Richie Hackett in Teagasc Oak Park in the past.

This trial was conducted using winter feed varieties, as no malt varieties

were available at the time. The trial gives an indication of the optimum N rate for winter malt barley. The graphs in Figure 1 outline the results from the trial.

The results show that an application rate of 160kg/ha/N (128 units/ac) gave an average yield of 9.7t/ha with a grain protein of 10.2%.

The on-farm results of growing the crop over the past few seasons have shown that obtaining a grain protein within spec using an N application rate of 160kg/ha is achievable.

However, the average yield of the winter malt varieties is slightly lower compared to the trial results above, with most crops averaging 9t/ha.

While the current winter malting barley varieties, on average, are lower yielding than winter feed varieties, the crop can still offer an opportunity to growers to reduce nitrogen input costs considerably compared to winter feeding barley, while at the same time entering a premium market for grain.

Farmer profile



Ivor and Philly O'Brien in a crop of Electrum winter barley.

Philly and Ivor O'Brien, who farm on the outskirts of Kilkenny city, grow both winter malting barley and distilling barley. The soil type on the farm is a very free draining Clonroche soil, which makes it ideal for the production of quality malting barley.

Winter malting barley was first drilled on the farm in autumn 2019 for the 2020 harvest, with the variety Craft being drilled, which has since been replaced by Electrum.

Autumn-drilled malting barley was grown on the farm prior to this, but this was a spring malting barley variety that was drilled in the autumn, a practice which some malting barley growers on

very free draining soils follow.

Philly notes that the autumn-drilled spring barley did perform on the farm, but he made the decision to move towards true winter malting barley varieties when the opportunity arose.

"There was always the potential for autumn-drilled spring barley to fail because of high winter rainfall or hard frosts, whereas with the true winter malting barley, that problem has been reduced greatly," says Philly.

Management of the winter malting barley crops has been much the same as winter feed barley, with the exception being in relation to nitrogen. The winter malt crop receives considerably less

applied nitrogen compared to a winter feeding barley.

Typically, Philly and Ivor apply 175kg/ha/N to their winter malting barley, with grain proteins averaging 10.1%. In relation to yields of winter malt on the farm, the average yield from the past two harvests has been 8.75t/ha, with both noting that they would like to have a slightly higher average yield than this.

But when the malting premium is factored in, it still leaves a greater margin compared to an average yielding feed variety. With the ongoing research being completed in Teagasc Oak Park, the aim is for higher output varieties to come on stream for malt growers.