Teagasc
Advisory
Newsletter

TILLAGE

January 2022

Planning for 2022

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Planning for the season ahead has never been so important but never so difficult. Input costs have increased significantly, particularly fertiliser, but machinery running and plant protection product costs have increased as well. Preparation of a crop budget is essential, as a poor-yielding crop may not cover its costs.

Nutrient management plan

The first step in managing fertiliser this season is the preparation a nutrient management plan for the farm, and the first step in any nutrient management plan is up-to-date soil tests. Phosphorous (P) and potassium (K) can be omitted at Index 4 on all cereal crops. Ensure pH levels are correct to optimise nutrient uptake.

P and K

The cost of P/K fertiliser blends has doubled compared to this time last year, so the rates of P and K should be adjusted to match crop offtakes. P and K should be incorporated in the soil for spring cereals at Index 1 and 2. If organic manures are available, they should be targeted at Index 1 and 2 soils, as it is uneconomic to provide build up with chemical fertiliser at current prices.

In 2022, to maintain grain yields and hold soil fertility levels, it is recommended to fertilise crops to their grain yield potential.

Table 1 shows the P and K offtakes for a range of cereal crops. Note that the P removed is similar for all cereals, while the K levels differ depending on crop type.

A spring barley crop with a target yield of 7.5t/ha will require 29kg P and 86kg K, or 3.8 bags of 13-6-20/ac to match offtake.

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Table 1: P and K offtakes per tonne of grain yield (t/ha).

Crop type	P (kg/t)	K (kg/t)	How to calculate P and K requirements: example – spring barley
Winter wheat	3.8	10	Grain yield 7.5t/ha
Winter barley	3.8	10	P – 7.5 x 3.8 = 29kg P/ha
Winter oats	3.8	14.4	K – 7.5 x 11.4 = 86kg/ha
Spring barley	3.8	11.4	*kg/ha x 0.8 = units/ac*
Spring wheat	3.8	11.4	
Spring oats	3.8	14.4	

Nitrogen for wheat and barley

Cereals are very responsive to nitrogen (N). The amount of N applied to a crop is based on the fertiliser N curve (**Figure 1**).

Yield increases as more N is applied until we reach a point in the curve where there is no additional yield from extra N applied.

This is the maximum N rate. It is important to note that N response curves are constructed over time and there are large variabilities between sites and seasons.

Along the N curve and before the maximum N rate, a point will be reached where the value of the extra grain produced ceases to exceed the cost of the extra N applied. This is known as the economic optimum.

This is the fertiliser N rate which gives the maximum profit from N use.

There is a clear distinction to be made between the economic optimum N rate and the N rate that gives maximum yield. The economic optimum N rate is dependent on both grain price and N fertiliser cost. As the N price goes up and/or grain value goes down, the economic optimum N rate decreases. The ratio between fertiliser price and grain price is known as the break even ratio (BER).

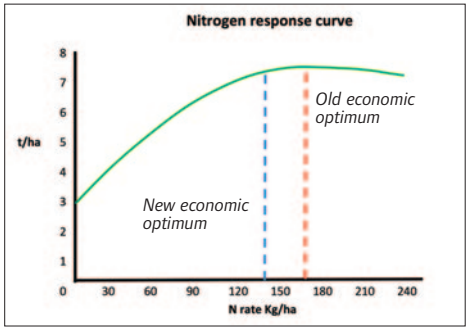

FIGURE 1: Example N response curve.

The change in BER this season (>10) compared to last season (<4) means that the economic optimum for wheat and barley has changed. Based on this change, the economic optimum for this season is 20-30kg/ha lower than last season. Because of lower N rates we can expect yields to reduce on average by 0.2-0.5t/ha. Despite lower yield the crop is more profitable by applying less N.

Crop choice

For farmers with predominantly winter crops, the decisions have already been made but there is scope for farmers with spring crops to alter cropping choices.

In a season where the cost of N is up to 3.5 times higher than last year, choosing crops with low or no N requirements is attractive. Demand for beans will be high this year so order seed on time. If the high cost of N continues into next season, beans will have the advantage of supplying N to the succeeding crop.

The €3m protein payment is available this season. Target high-value crops like malting barley. There are attractive forward prices available and malting barley has the advantage of having a lower N requirement than feed barley.

There may be opportunities for forage crops, but prepare a crop budget to ensure that there is a margin at the agreed price. A forage contract should be in place between the grower and purchaser to protect both parties.

Virtual Tillage Conference 2022

The 2022 National Tillage Conference will take place virtually, split over two days. The first session will take place on Thursday, January 13 and the second session on Thursday, January 27.

Session I – Managing crop nutrition

January 13 (11.30am-1pm)

As the fertiliser market continues to struggle with elevated prices and supply chain issues, the first session of the National Tillage Conference will present research findings to support tillage farmers' decision making for the 2022 season. For example, dealing with questions such as what options exist to reduce fertiliser usage and what strategies should be taken for splitting applications if supplies tighten further. In addition, the importance of soil testing, precision fertiliser application plus spring cropping options based on the predicted scenarios will also be presented.

Session II – Pest control considerations and further research insights

January 27 (11.30am-1pm)

Building on session I, the second part of the Tillage Conference will focus on considerations for cereal disease control against the backdrop of reduced nutrient management scenarios, while attendees will also hear from researchers detailing the most up-to-date outputs from the current barley yellow dwarf virus (BYDV) and grassweed surveillance initiatives.

Session II will also provide attendees with a brief insight across a selection of research projects presently underway at Oak Park.

Register online at: https://www.teagasc.ie/news--events/national-events/events/virtualtillagecon22.php.

Signpost Programme

Tom Barry

Tom farms in Killavullen outside Mallow in Co. Cork. He grows a mix of crops on his 280ha farm, including winter barley, winter wheat, spring barley, spring oats, beans and forestry. He aims to have 20% of his arable area in a break crop each year. One of the most interesting aspects of Tom's farm is his use of organic manures, mainly in the form of pig slurry. He has been using pig slurry as a means of reducing chemical fertiliser input for the past 15 years and in 2022, he aims to reduce his chemical fertiliser applications on winter crops by 33%, and by 50% on spring crops. He views organic manures as a valuable source of N, P and K and has invested a great deal in infrastructure, mainly in the form of storage tanks on a few of the farms.

Will Stokes

Will farms in Kilsheelan near Clonmel, Co. Tipperary in partnership with his father Patrick. The main enterprise is winter and spring cereal production, with a potato and drystock enterprise. Some of the main challenges are price volatility and increasing input costs. A green cover will be established on all fields that will be planted to spring crops. Organic manure produced on the holding from the drystock enterprise, along with imported pig slurry will be targeted at lower P and K index fields. Fertiliser N applications are based on crop requirements, soil N supply, and weather and soil conditions at key timings during growing season.

For further information on the Signpost Programme go to: https://www.teagasc.ie/environment/climate-change--air-quality/signpost-programme/

Teagasc tillage podcast

For all the latest tillage news, the Teagasc tillage podcast is available on the Teagasc website, Apple Podcasts, Spotify or through the QR code here.

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