

Tillage farmers feeling the cost squeeze

Steps to control outlay can yield an environmental as well as cost benefit.

Shay Phelan

Crops specialist Teagasc Crops, Environment and Land Use Programme.



Now that we are well into the season, farmers are thinking of fertiliser costs and whether savings can still be made. This is not straightforward. Where organic manures were used, these help reduce the requirement for chemical fertilisers, as they are a good source of N, P and K.

Another area to consider is the total amount of nitrogen required on crops. This will vary based on the BER ratio of the price of a kilo of grain versus a kilo of nitrogen. Teagasc published tables at the beginning of the year based on the prices that were available then, but these have changed, so farmers need to look at the revised tables.

From Table 1, we can see that where nitrogen was purchased at the lower prices, e.g €650/t, that the economic optimum total amount of nitrogen required is similar to other years at the high grain prices, e.g. €350/t, so the adjustment to the total nitrogen is small – 5kg/ha.

However, where expensive nitrogen was purchased, e.g €1,000/t, and is being used to top dress winter wheat crops, and where grain was forward sold at relatively low prices e.g €250, then the economic optimum maximum nitrogen rate is much lower and rates should be lowered by up to 53kg/ha.

Every situation is different, so farmers should use the table to estimate how much total nitrogen is economic to apply to their crops based on their average nitrogen cost and grain price. Catch crops in 2021 grew very well



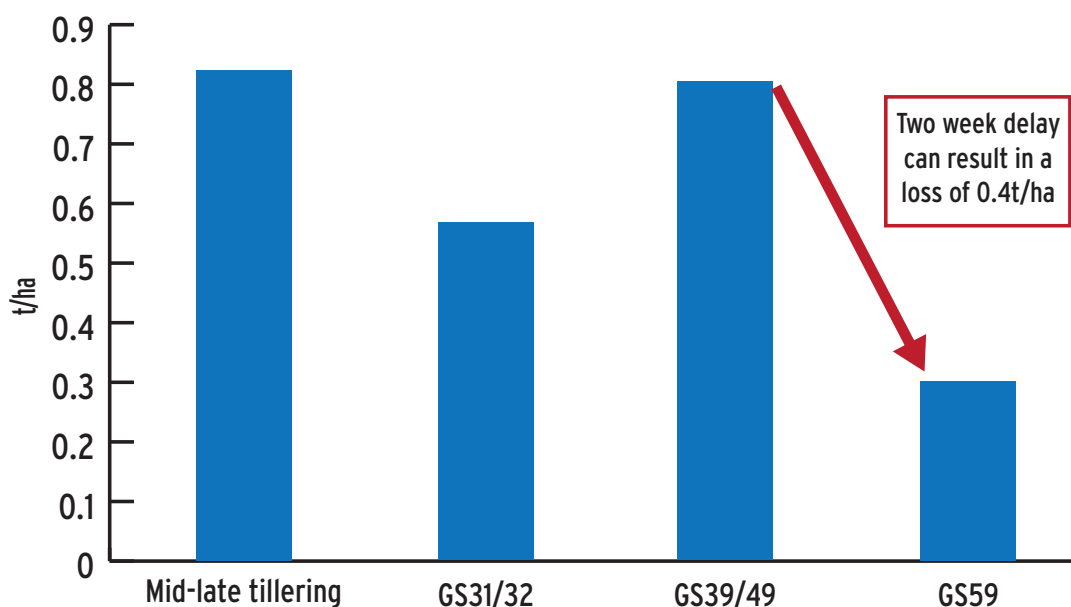
Tom Tierney.

and trapped quite a lot of nitrogen in many cases. From a survey carried out on some of the Tillage Signpost

farms, up to 50kg/ha of nitrogen had been recovered from the soil from some of these crops, many of which

Table 1: Adjustment to economic optimum N rates (kg/ha) for wheat based on CAN (27% N) as N source.

Grain / Fertiliser N (CAN)	€650	€700	€750	€800	€900	€1,000	€1,100
€200	36	-42	-47	-53	-64	-75	-86
€250	-22	-26	-31	-35	-44	-53	-62
€300	-12	-16	-20	-23	-31	-38	-45
€350	-5	-8	-12	-15	-21	-27	-34

Figure 1: Response to fungicide timings in barley.

were brassica-based mixes.

How much of this nitrogen is available in the short-term depends on the species and whether the material is mostly leafy or stemmy material.

Where the crops contained mostly leaf, then this is considered to be readily available, but the amount of available nitrogen could vary significantly, so target a reduction of up to 10kg/ha of nitrogen on spring crops in 2022.

When the material was stemmy, the nitrogen was considered to be relatively unavailable to the following crop. In which case, don't make any significant adjustment to your rates.

Looking forward to the 2023 season, it seems that fertiliser prices will remain at the current levels.

While grain prices will somewhat offset the high fertiliser prices, farmers should start planning now to reduce their requirement for mineral fertilisers.

This may include growing catch crops, using organic manures, planting beans or peas, or adjusting the total amount of nitrogen based on the BER. Don't wait until the crops are in the ground in the autumn to begin planning.

Farmers should also look at the grain markets and perhaps forward sell a portion of their crops. This will reduce the risk of prices falling in 2023 and leaving growers suffering both high input prices and low grain prices.

Likewise, when it comes to crop protection, there are areas where the risks are lower and savings can be made. Teagasc trials have shown, over a number of years, that the re-

sponse to a leaf 4 (T0) is very limited and does not justify the cost of a fungicide unless you are dealing with yellow rust.

In fact, if an Azole is used at this timing, then it will reduce the efficacy of the Azole used later in the programme, so for most winter wheat crops, a three-spray strategy will be sufficient. In barley, research has shown that 50% rates of fungicides will give adequate control of diseases when timed properly.

Timing the final fungicide on barley at the awns peeping stage (GS 39/49) will be more effective than applying it two weeks later when the heads are fully emerged.

The earlier timing has been shown to increase yields by up to 0.4t/ha, compared to waiting until the heads are fully emerged.

In recent years, we have seen more tillage farmers opt to use reduced cultivation systems as a way to reduce diesel and labour costs and to help growers establish crops faster.

While this is not a short-term solution for 2022, it may well be worth considering in the longer-term depending on your farm circumstances.

One leading farmer in this area is Tom Tierney from Prosperous, Co Kildare. Tom is a Teagasc Tillage Signpost farmer and is also a member of BASE Ireland.

Tom implements conservation ag principles on his own farm and also farms in partnership with his neighbour, Gordon Lucas, totalling 165ha of owned and long-term leased land.

Tom's farm practices cover cropping, diverse crop rotations and using organic manures where possible.

Other practices include eliminating insecticides, reducing pesticides and synthetic fertilisers.

Crops grown on the farm include winter and spring cereals, winter oilseed rape, spring beans and forestry. Ivan Whitten is Tom's Teagasc advisor.

"We have been direct drilling for six years. A diverse crop rotation and cover cropping is used to improve soil health habitat and counter-act the challenges of the weather, grass weeds and the diversity of soils ranging from heavy clay to peat," says Tom.

"Multi-species cover crop six-way mixes of vetch, berseem clover, buckwheat and phacelia are grown to trap nutrients, improve soil structure and biome which makes direct drilling process work easier."

Clovers are routinely used in cover crops mixes and this year, they were introduced to an OSR crop as a combination crop to help supply some of the nitrogen requirement for cash crops. Tom also uses compost to improve soil health and offset fertiliser requirements. He chops straw on the headlands and participated in the Straw Incorporation Scheme in 2021, where all the oaten straw was chopped.

This will help to reduce P and K requirements in the years ahead.

"For the last six years, our aim with no-till and conservation agriculture has been to keep expensive inputs to a minimum, without compromising yields," concludes Tom.

"It's good for the environment, but in times like these, it's also very good for the bottom line."