

Alternatives to CAN on crops

Consider the pros and cons before changing to another fertiliser type.

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High N prices may stimulate growers to look at alternatives, if available, to the traditional CAN type products, the main alternatives being urea (protected or unprotected) and UAN.

Unprotected urea is usually a cheaper source of N than CAN, but there are two points to remember. Firstly, urea has a lower bulk density than CAN, which means that it is more challenging to spread evenly over wider bout widths (see pages 26-27).

The second point is that N in urea form is susceptible to loss as a result of ammonia volatilisation into the air. When this happens, the amount of N available to the crop is reduced.

Unprotected urea can give similar yields to CAN in many situations, but where N is lost to the air, yields can be reduced compared to similar amounts of CAN-type products.

This phenomenon will be most likely where unprotected urea is applied to drying soils and in high pH situations such as areas where lime has been recently applied.

That said, the advent of protected urea, where a substance called a urease inhibitor that slows down the breakdown of the urea in the soil is coated onto the urea granule, has largely eliminated this issue.

This was demonstrated by a spring barley trial in Teagasc Oak Park protected urea and CAN gave similar yields, while unprotected urea gave a lower yield. This means that protected urea is a suitable N source for arable crops, but keep in mind it has the same application challenges as normal urea.

Protected urea can also reduce greenhouse gas emissions but the effect on arable land will be much more modest than on grassland. A list of protected urea products is available



Urea (left), CAN (top) and protected urea (right).

on the Teagasc website.

Urea ammonium nitrate (UAN) or liquid N is also gaining some popularity. It is a mixture of urea and ammonium nitrate in solution, which is applied using a sprayer equipped with special nozzles or dribble bars.

Because it is applied with a sprayer, it allows for very uniform application, even over very wide bout widths. A particular advantage is that it allows even application of the full fertiliser rate to the edge of the sown area without getting fertiliser into hedgerows etc.

It also allows a more even application on the ins and outs, particularly where GPS-controlled sprayers are used.

It is less affected by weather conditions such as wind, allowing greater flexibility in spreading dates.

However, because it contains 50% of

N in the form of urea, N can be lost to the air. If this happens, liquid N can give lower yields than the same rate of N applied as CAN. This problem can be alleviated by the addition of urease inhibitors to the spray tank where necessary.

While liquid N can be applied with a normal sprayer, it should not be applied with 'normal' spray nozzles, so there will be cost involved with equipping the sprayer with the required dribble bars/liquid N nozzles.

Like all fertilisers, liquid N is corrosive and great care needs to be taken in washing down the sprayer after use.

In summary, while there are alternatives to CAN available which may offer cost savings, growers should familiarise themselves with the pros and cons before changing to these fertilisers.