

Teagasc Notes for week ending Friday 17th January 2020

Teagasc Sustainability Series – 2. Protected Urea

The Government's Climate Action Plan aims to replace 50% of the straight CAN used on Irish grasslands with protected urea. This gives farmers a cost effective option to reduce GHG (Green House Gas) emissions without reducing production. At the start of each fertiliser season there is always much debate on the most cost effective source of nitrogen (CAN 27% N or Urea 46% N), this debate has become much more active with a new option in the form of Protected urea.

So what is Protected Urea, what do Teagasc mean when they use this term?

Protected urea is urea fertiliser treated with a urease inhibitor, making urea safe from ammonia-N volatilisation loss which is the problem with ordinary urea. At present only three urease inhibitors are registered under the National or EU fertiliser regulations (Table 1).

Table 1 – Urease Inhibitors that are currently registered under National or EU Fertiliser Regulations.
NBPT
2 - NPT
NBPT + NPPT

Where can I find a list of products protected with the urease inhibitors above?

Teagasc will keep a list updated on the Soil Fertility Website under the protected urea tab

<https://www.teagasc.ie/crops/soil--soil-fertility>

How will a farmer be sure the fertiliser he / she is buying urea protected with a urease inhibitor?

The bag or label should state 'urea with urease inhibitor' and also the type of inhibitor used.

How can I be sure the urease inhibitor is on the fertiliser at the right rate to protect it?

Department of Agriculture, Food and the Marine will be carrying out market surveillance to ensure that the use of urease inhibitors on fertiliser sold to farmers meet with regulatory requirements.

What does the research say about protected urea yield performance?

Teagasc research conducted at Johnstown Castle and other sites around the country has shown that urea protected with a urease inhibitor consistently gives the same yield as CAN. At times of the year when CAN yields were up, protected urea yields were also up. However, if growth conditions were unfavourable due to weather the yields of both fertilisers were reduced.

What does the research say about GHG emissions?

In trials conducted at six sites around the country protected urea reduced emissions compared to CAN. As a result if farmers shift to using protected urea in place of CAN they can reduce emissions on farm and nationally we can get credit for these GHG emission savings.

What does the research say about Ammonia?

The research shows that the registered urease inhibitors (Table 1.) make urea safe from ammonia volatilisation, meaning more N is retained to grow grass compared to ordinary urea.

When can I use protected urea?

You can use it throughout the growing season in the straight N or N+S slots in your fertiliser program, use standard compound fertilisers to apply P and K e.g. 18:6:12. Apply 50% of grassland P requirements in March / April (1st / 2nd split) time and apply the remaining 50% in May / June. Applying a 50:50 split of P will ensure early season P for grass yield and mid-season P in grazed grass.

Will protected urea cost me more?

Protected urea is currently ~ 10% cheaper per unit of N than CAN and ~10% more expensive than Urea.

Is urea protected with a urease inhibitor safe to handle?

Like all other fertilisers protected urea should be handled with care and with reference to the manufacturer's safety guidance. The safety data sheet for urea with a urease inhibitor do not indicate a requirement for additional handling precautions compared to those recommended for CAN.

In Conclusion

Protected urea is safe to use throughout the growing season in the straight N slots in a fertiliser program giving reliable yield and reduced emissions cost effectively.