

## Independent confirmation of Ecotain® environmental plantain's nitrate leaching-reducing capability

After several years in the market, Ecotain® environmental plantain has been confirmed by DairyNZ to be an effective tool for reducing nitrate leaching on farms. Released by Agricom in 2017, Ecotain was developed in a Callaghan Innovation funded programme (Greener Pastures – which included partnerships with Plant and Food Research and Massey and Lincoln Universities), after it was determined that targeting nitrogen leaching from the urine patch was the most practical approach to reducing this leaching loss. In addition, Agricom have seen farmers adopt Ecotain to take advantage of the high-quality feed it offers and its ability to support production in spring and autumn.

DairyNZ, through an MPI supported programme, have introduced a plantain evaluation system which they are continuing to develop, to assess the effectiveness of plantain cultivars in reducing nitrate leaching. The intention is to provide farmers and regulators confidence for what plantains to sow. As at July 2022, AgriTonic and Ecotain (a mix of Agritonic and Tonic) are the only plantain products classed by the Evaluation System as Effective, based on independent assessment of published data.

Research supports Ecotain having four nitrate leaching reduction actions: it increases urine volume from livestock therefore diluting nitrogen concentration, reduces the amount of dietary nitrogen being cleared in urine, and reduces the conversion of ammonium to the more leachable nitrate both in the urine from cows that are grazing plantain, and in the soil where plantain is growing. The Evaluation System currently considers the actions for reducing urinary nitrogen, and further research is underway to confirm the soil-based actions, with an aim to include these by 2027.

The OverseerFM model currently accounts for reductions in urinary nitrogen from plantain pastures. Depending on the farm system, the model shows that a farm with 30% plantain in the diet can achieve around 7-26% reduction in nitrate leaching. It is expected that further reductions will be possible with the outcomes of current research on the soil-based effects.

Highly versatile as a functional forage, Ecotain environmental plantain can be grown as a pure sward or special purpose crop, or as part of a mixed ryegrass/clover/Ecotain pasture. It can be undersown into existing pastures and can add extra feed quality and longevity, in addition to its nitrate leaching reduction properties.

Adam Hardie, Farm Manager at Darroch's Grazing, says they've been growing Ecotain on their Bankside, Canterbury farm for around ten years. Initially, it was planted with a view to harness its environmental benefits, but also prompted by the animal health advantages, with the plant's extensive root system able to effectively pass on minerals to the cows, alongside its high levels of protein and palatability. They've continued to grow it and have also noticed that if they get any grass grub taking out pasture, the self-seeded plantain always grows back.

Adam says his advice to anyone wondering if it's worth sowing Ecotain is that it's great for adding value to any farming situation, dryland or irrigated.