



Irrigation Research &
Extension Committee

2024 Demonstration Report

Utrisha N in Maize



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Demonstration Summary

This trial was conducted in a farmer's maize paddock to determine the effectiveness of using Utrisha N, a bio stimulant product. Utrisha N is an alternative to using synthetic fertilisers such as urea, which will increase the sustainability of growing maize in the region. The additional nutrition supplied by the product may provide an economic advantage to maize growers in the region.

Background & Aims

Utrisha N is a new product that is being released to market by Corteva Agriscience in 2024. Utrisha N is a biostimulant product that contains a natural bacterium. When applied to crops, it is able to colonise on plant leaves, stem and roots and in return convert N₂ gas from the atmosphere into ammonium, a plant available form of nitrogen for the plant. This means that a source of fertiliser can be provided for the plant through an organic pathway meaning less synthetic fertiliser will need to be applied. Utrisha N is applied as a foliar spray and can be applied at any time during the growing season of the plant.

Due to the willingness of the grower, a small trial was conducted in a maize crop, which allowed growers in the local area to see the effects of the product. Normally, all nutrition is applied as synthetic fertilisers and Utrisha N offers an alternative that growers are willing to explore.

The trial was set up so that Utrisha N was applied to a part of an irrigation block and the rest of it remained untreated. This means that a direct comparison could be made between crop applied with Utrisha N and untreated crop.

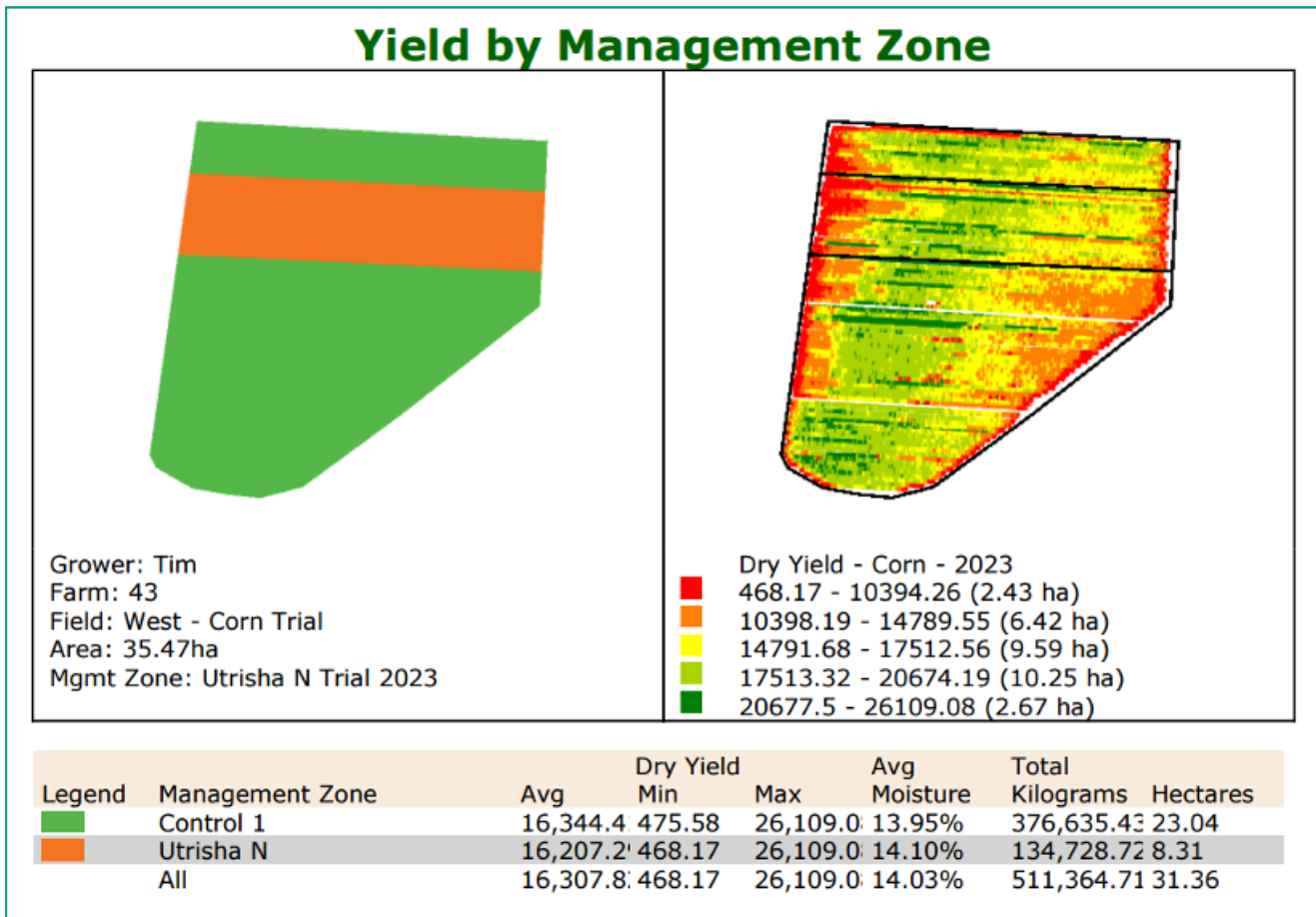
Demonstration Details

Location	Coleambally, NSW
Crop type	Maize
Irrigation system	Beds in border check

Methodology

Maize was grown in a beds in border check irrigation layout at Coleambally in a 35 hectare block. The whole block was mostly all treated the same with Maize sown on 18th October, 2023. This was later than normal as Maize was an opportunistic crop following a failed cotton crop establishment. For this reason, there was no pre-drilled nitrogen and only 400kg/ha of urea was top dressed which is lower than average application for maize in the area. Part of the block, 7 hectares, had an additional spray pass which was to apply the Utrisha N product on 17th November, at 333g/hectare.

To observe if there was any difference between the area treated with Utrisha N and the untreated area within the same block, the farmer collected yield data at harvest time.



Agronomic results

Yield maps, that were created from the yield data collected at harvest, did not show a significant difference between the untreated and Utrisha N treated areas of the irrigation block. The untreated area averaged 16.3 t/ha while the treated area yield was 16.2 t/ha. It is believed that applying Utrisha N will supply the crop with an additional 30kg/ha of N. However, the studies to prove this are mostly done in other crops such as canola and therefore may not have the same result in a maize crop. Maize has a very high nutritional requirement due to its high biomass and grain yield production which means that the additional 30kg/ha of N supplied by the Utrisha N may not have been substantial enough to impact on yield. However, the value of using Utrisha N is it being a more sustainable product than urea, as it is not a synthetic fertiliser.

Economic results

Urea, the most common N fertiliser used, can be highly variable in price due to supply and demand issues and urea being an imported product. This means that urea price will always have significant impact on gross margins and can be the determining factor in whether a crop is profitable or not. The economic advantage of using an alternative N source will depend on the urea price at the time of application. Utrisha N is applied at 333g/ha and will cost \$27/ha. If this was equivalent to applying approximately 60kg/ha of Urea (30kg N/ha), the urea price would need to be less than \$450/t. This is a relatively low price for urea meaning that Utrisha N could be a cheaper product when considering \$/kg of product. However, the trial did not demonstrate a yield advantage of Utrisha N compared to just applying urea, meaning that Utrisha N cannot replace Urea entirely but aid in reducing the amount required and hence improving overall gross margins.

Growers would be inclined to use Utrisha N as it does not require additional activities in the paddock with Utrisha N being compatible with other products that would be applied in a spray application at the same time. As growers are also focused on improving sustainable practices and reducing synthetic inputs overall, the use of Utrisha N on their farms is an important and realistic option.

Key learnings & recommendations

Using Utrisha N did not demonstrate a yield advantage over only using synthetic fertiliser however, it is proven that it could mean synthetic fertiliser use could be slightly reduced, and hence improve gross margins in growing crops such as maize.

Farmers are always looking for ways to reduce inputs and be more sustainable into the future which means that they are willing to experiment with products such as the biostimulant Utrisha N.

The recommended is that addition trials should be conducted in the area using these products, as proven local demonstrations will quickly lead to adoption by farmers who are willing to try new ideas and increase the economic performance and sustainability of their farming practices.

We recommend repeating this trial with aim of collecting more information including soil tests in order to determine the impact of reduced tillage on soil health in this layout.