

# Nutrition management in Lentils



Government of South Australia  
Northern and Yorke Natural  
Resources Management Board

**Aim:** To evaluate a range of nutrition products and their effect on lentil yield.

**Background:** The sandier soil types of the NSS region are typically low in nutrition including Zinc, Phosphorous, Sulphur and Potassium. This trial is a continuation of a number of year's work observing the effects of a several nutritional products and their impact on lentil yield.

**Table 1. Summary of yield assessments.**

Product	Rate	Timing	Yield T/ha	Yield % of UTC
End N	40L/ha	Canopy closure	1.59 a	118
Nutrisync D	0.375L/ha	Canopy closure	1.57 a	117
SOA spread	70kg/ha	Canopy closure	1.47 ab	110
Urea spread	32kg/ha	Canopy closure	1.41 ab	105
Zip	3L/ha	Canopy closure	1.41 ab	105
Nutrisync D	0.75L/ha	Canopy closure	1.38 bc	103
UTC			1.34 bc	100
Activist Zinc	4ml/kg	Seed dressing	1.20 c	90
Co-efficient of Variation			13.2%	
LSD 5%			0.18	

- Means followed by the same letter do not significantly differ.

## Discussion:

This trial returned some exciting results with most products returning a yield greater than the untreated with the best two (End N and Nutrisync D @ 0.375L/ha) seeing a significant yield gain. Endurance N is a product from Agrichem that is 15% nitrogen and 34% Sulphur. These two elements are readily leachable in the sandy soils in the NSS region so it is not surprising to see that this combination product yielded well. The application of N and S is often linked and it appears that in this situation at least, Endurance N has the combination ratio correct.

The response from Endurance N, Urea and SOA demonstrates the benefits of applying nitrogen to lentil crops. At early stages of pulse growth, there can be times where the roots cannot take up enough N to satisfy growth requirements, even with the addition of rhizobium inoculants. This practice may well be worth considering during particularly cold and wet periods on sandy soils.

Loveland's Nutrisync D again returned a positive yield response, albeit with the lower rate giving a better yield than the higher rate. This product contains phosphorous, potassium, boron and molybdenum as well as inositol which assist in remobilizing nutrients in the plant. A 17% yield increase from the lower rate is an economic response.

Zip from Agrichem contains phosphorous, potassium and zinc which are naturally all essential nutrients for crop growth. Perhaps with only a 3% yield increase, it can be summarized that it is the sulphur and nitrogen components of the other products that led to the big yield gains.

The seed dressing Activist Zinc appears to have been applied in a fashion that affected early crop growth. Germination was poor in these plots and it will have to be revisited next season.

Further investigation of these products and possibly more is worthwhile to try to get to the bottom of the exact nutrient requirements of lentils in sandy soils. Possibly looking at timing of application will also see some differences appear.

**Take Home Points:**

- Some significant responses were measured in this trial with the greatest response being to nitrogen and sulphur.
- 2013 was a Decile 9 (very wet) growing season rainfall year, so it is no surprise that nutrients that leach through the soil profile provided the best results.
- It is not common to think about applying further nutrients to lentil crops, but this trial has provided evidence that post emergent nutrition can further increase yields in this crop.
- A response of up to 0.25 T/Ha provided an economic return of around \$140/Ha (\$600/T for lentils on 13/12/13) which should interest growers in the NSS region.



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