# Summit Zinc & Liquid Fertilizer comparison on High pH soils

**Aim:** To evaluate various zinc strategies and compare liquid phosphorous in wheat on high pH soils.

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**Company:** SUMMIT FERTILIZERS
**Co-Operator:** Agritech Crop Research

**Farmer:** Harry Hyde
**Location:** Dalwallinu

**Background:**

Zinc deficiencies are common on high pH soils. To correct deficiencies, zinc can be applied as a raw fertilizer, seed dressing or foliar spray. To maximise effectiveness, zinc is best applied as a fully compounded granular fertilizer. Zinc added as a blend to fertilizers, are not as effective as having zinc in every fertilizer granule. This trial aims to evaluate different zinc strategies as well as compare the effectiveness of a liquid phosphorous product. Summit's new compound granular product, Zincstar is also compared.

**Trial Details:**

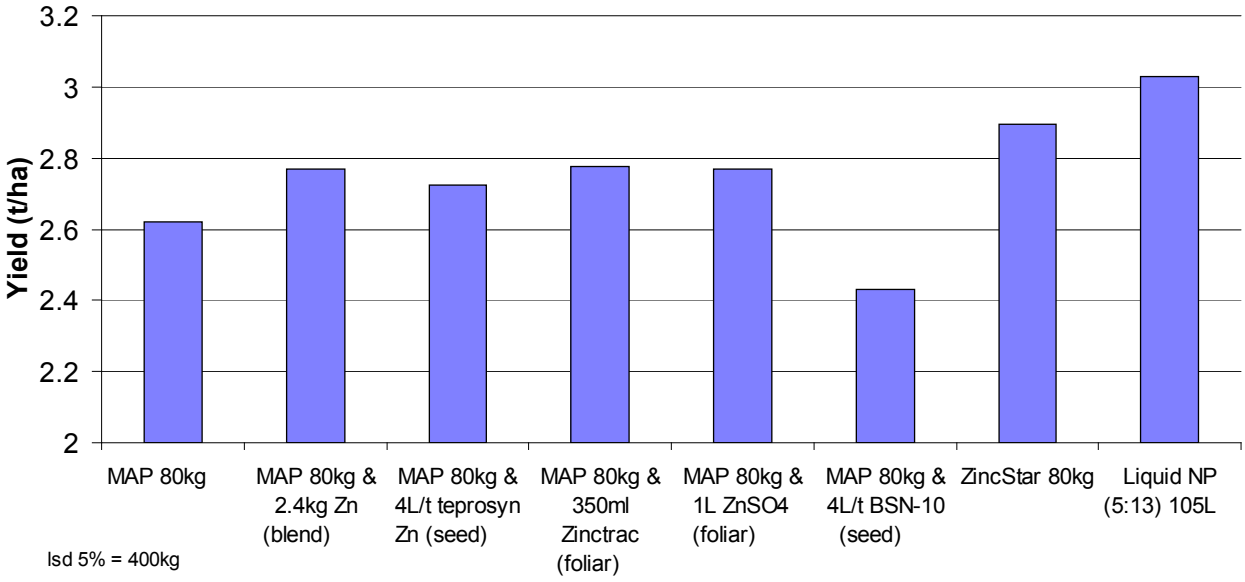
| | |
|---|---|
| Plot size and replication | 1.8*20m, 3 reps |
| Soil type | Heavy red clay |
| Sowing date | 2nd June 2003 |
| Conditions at sowing | Moist |
| Machinery | Harrington point with Gumbo boot |
| Seeding rate | Wyalkatchem @ 75kg |
| Fertiliser | Various plus N Basal to 60kg with Urea<br>Traces basal with foliar application |
| Herbicides and Insecticides | Roundup P/Max 1.5 L/ha<br>Trifluralin 2 L/ha<br>Chlorpyrifos 1 L/ha<br>Giant 900 mL/ha |
| Paddock History | 2002 =Wheat, 2001 = Pasture, 2001= Peas |

Soil Test results:

| Depth (cm) | P (ppm) | K (ppm) | Cu (ppm) | Zn (ppm) | S (ppm) | PRI | pH |
|---|---|---|---|---|---|---|---|
| 0 – 10 | 23 | 746 | 3.1 | 0.2 | 8 | 37 | **7.8** |

**Results:**

## Summit Zinc Sources Comparison, Dalwallinu 2003




The addition of zinc as a fertilizer, seed dressing or foliar spray gave a greater grain yield than the control treatment of MAP. There were no significant differences between the seed dressings and the foliar sprays, although the addition of the seed dressing, BSN-10 reduced yield.

Summit's new product, ZincStar, produced almost 300kg/ha more grain yield than the control treatment and nearly 150kg/ha more grain than the zinc blend fertilizer. The zinc blend treatment also contained 600% more zinc than the ZincStar treatment, confirming past research that blended fertilizers are less efficient in delivering nutrients to plants.

At equivalent rates of phosphorous, the liquid fertilizer treatment produced significantly (lsd = 5%) more grain yield than the control. Liquid phosphorous fertilizers have been shown to be effective on the calcareous soils of the Eyre Peninsula. These soils have very high pH and effectively lock up both P and Zinc mainly due to their calcareous mineralogy. Zinc and phosphorous deficiencies are common on high pH soils in Western Australia, however this is mainly due to iron oxides and not calcium. Little research has been conducted on liquid P fertilizers in Western Australia. The better grain yield responses of the liquid fertilizers have been a source of much conjecture. Many researchers now believe it is due to less soil sorption of P in the liquid phosphorous fertilizer compared to the granular. These liquid P fertilizers are also thought to help release 'fixed P' from the soil.

**Summary:**

- **Liquid fertilizer significantly increased grain yield above the control at equivalent P rates**
- **There were no significant differences between the zinc treatments**
- **Summit Zincstar produced 10% more grain yield than the equivalent MAP treatment**