

COMPOUND TRACE ELEMENT FERTILISERS SUPERIOR TO DRY BLENDS

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A compound fertiliser has all ingredients combined in a slurry before granulation, so all nutrients are contained in all granules. Ingredients in blended fertilisers are mixed after granulation, so while the fertiliser as a whole may contain the same level of nutrient as a compound, individual granules contain only one ingredient. When ingredients in blends are needed in minute amounts, as with trace elements, very few granules are needed to meet the total nutrient requirement, particularly if granules are large enough for good handling. The result is generally uneven and sparse distribution of trace elements through the soil due to the very low number of trace element granules in the blended fertiliser.

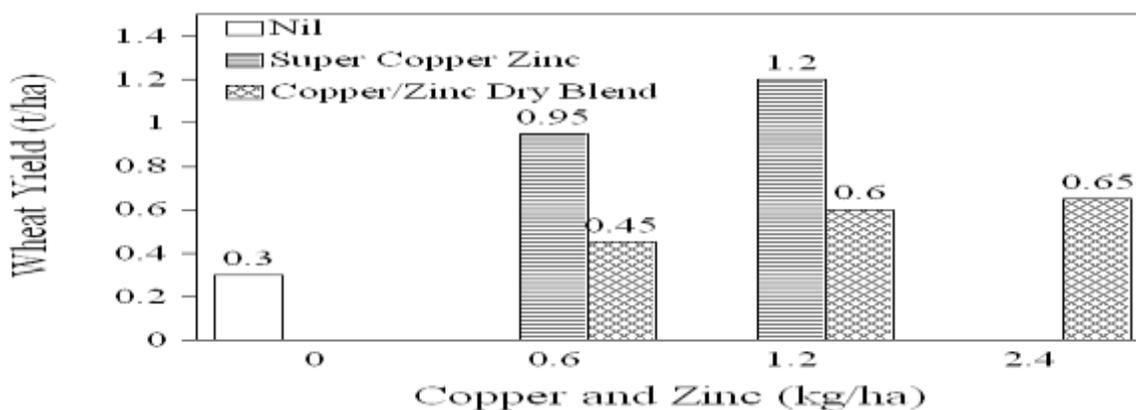
MATERIALS AND METHODS

Two new land sites, a loamy sand at West Binnu and a gravelly sandy loam at Newdegate in the south-west of WA, were chosen to compare the compound Super Copper Zinc (8.3% P, 10.1% S, 0.6% Cu, 0.6% Zn) with a dry blend of TSP (19.7% P), copper oxysulphate (10% Cu) and zinc oxysulphate (32% Zn) on Machete wheat sown in May 1993, at 2 rates of the compound and 3 rates of the blend. Nitrogen, phosphorus and sulphur were applied to plots as TSP, sulphate of ammonia (21% N, 24% S) urea (46% N) and gypsum (18% S) to ensure equivalent major nutrients between treatments. The sites were re-sown to Spear wheat in early June 1994 with only N, P and S applied.

RESULTS AND DISCUSSION

In both seasons, zinc deficiency was pronounced where the dry blend was used. Plant tissue tests from both sites showed superior uptake of copper and zinc with Super Copper Zinc. In both seasons and at both locations the compound yielded more than the blend. At Newdegate in 1994 wheat grown with 1.2 kg/ha copper and zinc in the compound yielded 0.6 t/ha more than the same rate of trace elements applied as a blend (Fig. 1).

Figure 1. Yield response in 1994 to copper and zinc applied in 1993 at Newdegate WA.



Where more copper and zinc was added to the blend to give it better distribution and availability to the plant, the yield fell in 1993 and increased only slightly in 1994. Increased zinc provided better uptake which was not matched by copper. This caused severe copper deficiency and reduced yield.