PrimeZinc10

Manufactured by Wengfu, PrimeZinc 10 is an excellent way to ensure that crops have adequate amounts of zinc available to them as they develop.

Nutrient content of Wengfu PrimeZinc 10:

	N (%)	P (%)	K (%)	S (%)	Zinc (%)
Wengfu PrimeZinc 10	10	22	0.0	1.5	1.0
MAP	10	22	0.0	1.5	0.0

Wengfu PrimeZinc 10 is a compound fertiliser – it offers 1% zinc in every granule.

Zinc deficiency is common to many soil types including calcareous, heavy clay, alluvial, saline, sandy soils and peats. It is especially common on soils low in organic matter and with high pH. Drought stress and low soil temperatures also limit zinc uptake by plants.

Good distribution of zinc through the root zone is essential to ensure efficient uptake by the crop. For this reason zinc applied as a compound fertiliser (zinc in every granule) is more effective than a dry blend where zinc distribution patterns mean that zinc is less available to the plants.

Wengfu PrimeZinc 10 is designed to replace the zinc removed from the soil by different crops:

Nutrients removed by 1 tonne of grain:

CROP GROUP	NITROGEN	PHOSPHORUS	SULPHUR	ZINC
Cereals	17 – 23kg	2.7 – 3.0kg	1.5 – 1.6kg	14 – 20g
Legumes	33 – 60kg	3.2 – 4.0kg	1.5 – 2.4kg	28 – 35g
Oilseeds	25 – 41kg	4.3 – 7.0kg	4 – 10kg	26 – 40g

www.sardi.sa.gov.au/__data/assets/pdf.../sustain_nutrient_broadacre.pdf

Wengfu PrimeZinc 10 can be used as a standalone product, or it can be blended with other products such as Wengfu Slam (19.5 : 0.8 : 0 : 23) or MAP to give specific custom blends suited to different agronomic requirements.

"Zinc deficiency is the most common micronutrient deficiency problem in the world, especially in cereal crops. Nearly 50% of cultivated soils contain low amounts of plant-available zinc.[2]"

"Zinc deficiency in agricultural crops is one of the most common micronutrient deficiencies. It is deficient in a wide range of soil types. Soils with less than 0.3mg/kg of zinc are likely to require added zinc for optimum crop production (With highly alkaline soils, the critical level may be up to 0.8mg/kg)[3]."

Zinc is one of a number of elements which are essential to plant growth. Most crops need an adequate supply of zinc for early and late season growth and to optimise yield. Deficiency symptoms are crop-specific but include stunted early season growth, shortened internode length, light coloured interveinal stripes on leaves and, in severe cases, plant tissue death.

Annual plants require zinc early in their growth stages, so one of the best ways to overcome or minimise the risk of zinc deficiency is to apply zinc with planting fertilisers. Zinc is relatively immobile in the soil, so it remains in the root zone and plant-available during the early growth stages of annual crops.

[1] Glendinning, J.S. (Ed.), 2004
Australian Soil Fertility Manual, Revised Edition.
CSIRO Publishing, Collingwood, Australia.

[2] Zinc Fact Sheets
International Zinc Association.
www.zinc-crops.org

[3] South Australian Research & Development Institute (SARDI)
Nutrition Management in Broadacre Cropping
www.sardi.sa.gov.au/_data/.../sustain_nutrient_broadacre.pdf

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PrimeZinc10

THE ZINC ADVANTAGE

WENGFU AUSTRALIA
a new force in fertiliser

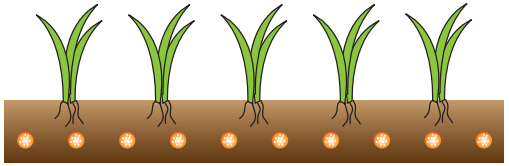
A NEW FORCE IN FERTILISER

Wengfu PrimeZinc 10 is manufactured by the addition of zinc to the ammonium phosphate base fertiliser during the granulation stage, ensuring that a known amount of zinc is incorporated into each and every granule.

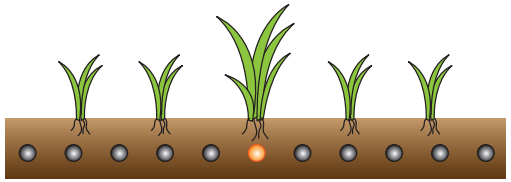
Using MAP as a base for Wengfu PrimeZinc 10 means that the zinc may be more available to plants in alkaline soils due to its acid reaction in the soil serving to reduce pH in the vicinity of the fertiliser granule.

Application of Wengfu PrimeZinc 10 at planting ensures that germinating and young seedlings have access to all the key nutrients they need to establish and grow strong: nitrogen, phosphorus and zinc are readily available from each and every granule.

Wengfu PrimeZinc 10
PrimeZinc 10 has nitrogen, phosphorus and zinc in every granule giving even distribution of nutrients which is important for effective application of zinc to crops, and critical when lower application rates are used and with narrow row spacing of crops.



Dry Blend MAP and Zinc
Different nutrients in separate granules resulting in uneven distribution and uneven plant growth.



THE IMPORTANCE OF ZINC

Zinc is an essential trace element (micronutrient) in plant nutrition; it was one of the first trace elements recognised as being essential for plant growth and plays an important role in many of the essential metabolic processes within plants.

- When zinc supply to the plant is inadequate crop yields and quality are compromised.
- Inside the plant zinc is a critical component of enzyme systems and biochemical pathways involved in carbohydrate metabolism (photosynthesis and conversion of sugars to starch), protein metabolism, metabolism of plant growth regulators (auxins), maintenance of membrane integrity within the plant, pollen formation and disease resistance.

ZINC DEFICIENCY

Zinc deficiency has been reported in Australia in many crops including grains, sugarcane, vegetables and fruit crops. It is widespread in WA, the Wimmera and the Mallee areas of Victoria and South Australia, where the soils are naturally zinc-deficient, and in many coastal pasture zones.

- Visible symptoms of zinc deficiency can appear on older and new leaves; the main symptoms are: interveinal chlorosis (yellowing of the leaves between the leaf veins), leaf bronzing, small and abnormally shaped leaves, stunting of the plant and rosette formation. Specific symptoms vary between crop species and are generally only seen in cases of severe deficiency. In wheat plants typical symptoms are overall stunting of the plant, the appearance of a long, pale green stripe on each side of the mid-vein of fully emerged leaves and tissue death (necrosis).
- In cases where zinc deficiency is present at a sub-clinical level symptoms may not be present but yield can still be severely depressed.
- Pulse crops tend to be more responsive to zinc than cereals, but significant yield increases are possible in cases of severe zinc deficiency.

Different crops vary in their responsiveness to zinc[1]:

MOST RESPONSIVE	MEDIUM RESPONSE	LEAST RESPONSIVE
Bean	Barley	Grape
Durum wheat	Clover	Lucerne
Grain sorghum	Cotton	Oats
Linseed	Potato	Pea
Maize	Soybean	Rye corn
Rice	Tomato	Ryegrass
Sub-clover	Wheat	
Sweet corn		
Citrus		

Different soils contain different levels of zinc, and several factors can affect zinc availability to the plant:

- Soil pH – zinc becomes less available as soil pH rises: the risk of zinc deficiency on high pH soils is greater than on low-pH soils;
- High soil P levels – zinc deficiency can occur on soils with high phosphate levels. High levels of either zinc or phosphorus can reduce uptake of the other – there is an antagonism between the two nutrients. When plants are zinc-deficient their ability to regulate phosphorus uptake is severely impaired, running the risk of phosphorus toxicity;
- Land forming – because zinc tends to be concentrated in the top layers of soil, land disturbance will affect zinc availability in 'cut' areas;
- Cold, wet soils – zinc deficiencies tend to become more visible in cold, wet soils due to slow rates of root growth limiting the amount of zinc available to the plant;
- Soil biological status – zinc uptake by plant roots is more efficient in soils with high levels of vesicular-arbuscular-mycorrhizae (VAM), a soil-dwelling fungus associated with plant roots;
- Reduced tillage practices – application of fertiliser in tight rows/ bands reduces the amount of zinc available to subsequent crops;
- Root pruning due to use of sulphonyl urea herbicides – reduces the overall root volume, limiting the ability of the plant to source nutrients and moisture.