



USE DIRECTION

APRIL 2026

ZNTEC SPRAY-ON ZINC

53.4% (w/w) Zinc Oxide

WARNING



Very toxic to aquatic life

ZnTEC is a spray-on formulation of zinc that can be applied to compatible granular fertilisers and blends. This spray-on application is done at our Cairns Primary Distribution Centre (PDC) prior to the fertiliser being despatched.

ANALYSIS

Nutrients

- Zinc (Zn) w/w as zinc oxide 53.4%

It is a zinc oxide formulation with a very low cadmium content of less than 10 mg/kg. This makes it suitable for crops like potatoes, peanuts and leafy greens, where cadmium management is an important consideration.

DIRECTIONS FOR USE

ZnTEC can be applied to, and is compatible with the following granular fertilisers and blends of these fertilisers:

- Trigger
- Granulock Blue
- eNpower
- Muriate of Potash

@Nutrient Advantage, Granulock, Gran-Am, Easy N, Easy Liquids, Green Urea NV, eNpower, Trigger, SuPerfect, Boosta, CK88, Greentop, FodderBoosta, HayBoosta, PastureBoosta, GrassBoosta, Croplift, Cal-Am and Cal-Gran are registered trademarks of Incitec Pivot.
Incitec Pivot is a business of Incitec Pivot Pty Ltd, ABN 37 007 656 046.
@Ferticare is a registered trademark of Australian Fertiliser Services Association Inc.

This is a guide only, which we hope you find useful as a general tool. While Incitec Pivot Pty Ltd has taken all reasonable care in the preparation of this guide, it should not be relied on as a substitute for tailored professional advice and Incitec Pivot Pty Ltd accepts no liability in connection with this guide.

- Green Urea NV
- Urea
- Gran-am (with restrictions)
- DAP
- MAP
- Granulock Z
- Sulphate of Potash
- Magnesium Oxide
- Copper Granules
- Granubor
- Zinc Sulphate Monohydrate granules

ZnTEC will be available on fertilisers at a range of set zinc analyses (Zn% w/w). They are:

- 0.08%
- 0.25%
- 0.30%
- 0.50%
- 0.70%

These rates have been selected to cover as wide a range of crop scenarios as possible. Keep in mind that not every possible situation can be covered. There will still be situations where:

- a) an alternative, existing granular fertiliser containing zinc may have a better agronomic fit, or
- b) ZnTEC won't be able to be applied to crops with every fertiliser application (e.g. bananas) as:
 - amount of nutrient required by banana crops (both plant and ratoons)
 - the frequency at which granular fertiliser can be applied i.e. fortnightly or monthly
 - the current minimum zinc analysis possible (i.e. 0.08% Zn)
 - avoiding any situation where the over application of zinc could occur

Available propriety ZnTEC granular fertilisers

ZnTEC range blends have been set up for the Cairns PDC (Table 1). To cover even more scenarios, there are also IPF Custom Blends. There are thousands of custom blends, all with differing analysis and ingredients. If an existing blend does not meet your crop, soil test, enhanced efficiency fertiliser or other blend ingredient requirements like adding ZnTEC – we can create it. As-long-as the blend is compatible and adheres to standard agronomic practices it can be created.

IPF Custom Blends can be contacted on 1800 700036 or jpl.custom.blends@incitecpivot.com.au.

Table 1: ZnTEC propriety blends setup and available, from the Cairns PDC.

ZnTEC fertiliser product options	Nutrient Analysis (% w/w)							
	N	P	K	S	Ca	Mg	Zn	B
CK 140 S ZnTEC 0.25%	23.2	2.0	17.5	3.6			0.25	
CK 150 S ZnTEC 0.25%	24.4	3.0	15.5	3.0			0.25	
Innisfail Ratooner ZnTEC 0.25%	27.4		20.0				0.25	
Island Coast Ratooner ZnTEC 0.25%	27.9	1.6	17.0	0.1			0.25	
Mareeba Ratooner ZnTEC 0.25%	24.6	5.2	12.5	2.7			0.25	
Mulgrave Ratooner ZnTEC 0.25%	25.9		18.5	2.7			0.25	
Nitra King S ZnTEC 0.25%	29.7		17.5				0.25	
DAP ZnTEC 0.5%	17.8	19.8		1.6			0.50	
Delta ZnTEC 0.08%	11.6	3.6	20.5	10.1			0.08	
Banana Boosta Plant ZnTEC 0.08%	14.7	3.1	26.4	2.7			0.08	
Banana Boosta Ratoon ZnTEC 0.08%	15.6	2.3	27.4	2.0			0.08	
Banana Granulock Blue + ZnTEC 0.08%*	10.1	2.6	20.5	9.0	1.8	0.6	0.51	0.27
Banana Special K ZnTEC 0.25%	15.6		32.8				0.25	
Banana Special ZnTEC 0.25%	20.0		28.0				0.25	
Granulock Blue ZnTEC 0.25%	11.9	5.2	14.0	8.0	3.6	1.2	0.25	0.02
Green Banana Boosta Plant ZnTEC 0.08%	14.7	3.1	26.4	2.7			0.08	
Green Banana Boosta Ratoon ZnTEC 0.08%	15.6	2.3	27.4	2.0			0.08	

Note: * the '+' symbol in the fertiliser name means the fertiliser already contains zinc and that extra zinc has been applied as ZnTEC. In these situations, always check the total zinc analysis of the product as the ZnTEC application (e.g. ZnTEC 0.08%) will only be a partial contribution to the total zinc analysis.

Zinc toxicity

Zinc toxicity must be avoided. Zinc toxicity in soil, though not common, must be considered and managed. Even though zinc is a plant essential nutrient it is also a heavy metal. Once applied it can't be unapplied. Running down excessive levels of soil zinc is a long-term process.

A threshold of >10 mg/kg Zn (DPTA) could be considered an early indicator of zinc toxicity. At these levels, zinc management must be changed significantly. If zinc levels remain high land could be taken out of agricultural production.

Be aware a potential for zinc toxicity exists with over application. It is required to manage it appropriately. To avoid risk, adhere to usual agronomy principals with regular soil & plant tissue testing and follow the 5R's – right product, right rate, right time, right place and right agronomy.

ZINC FERTILISER PROGRAMS

General zinc requirements

For details of general crop requirements for zinc refer to Table 2. ZnTEC provides the potential for these typical application rates and methods to be improved with more frequent, lower analysis zinc applications.

Table 2: Typical zinc application rates and methods by crop.

Crop	Typical zinc application rate per crop (kg elemental zinc / ha)
Grain, cotton & vegetable crops (annually) Apply with/near the seed/transplant in the planting fertiliser	1.5 – 2.0 kgZn/ha
Tree crops & bananas Spread evenly under and around the trees/plants (excluding the inter-row)	1.5 – 2.0 kgZn/ha
Pasture Broadcast at intervals of around five (5) years or more	2.0 – 3.0 kgZn/ha (lower rate on lighter textured soils)
Sugarcane & bananas Apply in the planting fertiliser, to last a crop cycle*	10.0* kgZn/ha (* per crop cycle)

General granular fertiliser programs with ZnTEC

Table 3 shows general granular fertiliser programs with ZnTEC for various tropical crops.

Table notes:

- **** In sugarcane, all zinc applications need to be subsurface applied, to avoided runoff potentials into adjacent waterways**
- Available ZnTEC rates on granular fertiliser are: 0.08, 0.25, 0.30, 0.50 & 0.70 % zinc (w/w)
- The total of nutrients required (elemental kg/ha) will vary considerably with the likes of crop, variety, seasonal influences, soil test results, regulations & yield potentials. These scenarios above are only guides to indicate where ZnTEC, and it's various rate options, can fit into granular fertiliser programs
- N= nitrogen, P= phosphorus, K= potassium, S= sulphur, Zn= zinc
- Zn mono = zinc sulphate monohydrate granules

Table 3: General granular fertiliser programs with ZnTEC for various tropical crops.

Crop & fertiliser use scenario	Fertiliser applied (nutrient applied)	Target fertiliser rate (fertiliser rate kg/ha + kgZn/ha)	Applied zinc rate adjusted (kgZn/ha)	Additional notes
Sugarcane scenario 1**: 10 kgZn/ha split as: a) Plant 5 kgZn/ha plus b) Ratoon x4 1.25 kgZn/ha/ratoon	Plant = NPKS + Zn Ratoon = NPKS + Zn	Plant = 250 to 375 kg/ha + 5 kgZn/ha Ratoon = 550 kg/ha + 1.25 kgZn/ha	Plant = 4.5 kgZn/ha Zn mono Ratoon = 1.38 kgZn/ha x 4 ZnTEC = 5.52 kgZn/ha Applied (total) = 10 kgZn/ha	Plant = Zn mono planting blend Ratoon = ZnTec 0.25% Zn ratoon blend
Sugarcane scenario 2**: 10 kgZn/ha split as: a) Plant 2 kgZn/ha plus b) Ratoon x4 2 kgZn/ha/ratoon	Plant = NPKS + Zn Ratoon = NPKS + Zn	Plant = 250 kg/ha + 1.75 kgZn/ha Ratoon = 550 kg/ha + 1.25 kgZn/ha	Plant = 1.75 kgZn/ha ZnTEC Rt= 1.65 kgZn/ha x 4 ZnTEC = 6.60 kgZn/ha Applied (total) = 8.35 kgZn/ha	Plant = ZnTEC 0.70% Zn planting blend Ratoon = ZnTec 0.30% Zn ratoon blend
Sugarcane scenario 3**: 10 kgZn/ha split as: a) Plant 2 kgZn/ha plus b) Ratoon x4 2 kgZn/ha/ratoon	Plant = NPKS + Zn Ratoon = NPKS + Zn	Plant = 375 kg/ha + 2.0 kgZn/ha Ratoon = 570 kg/ha + 2.0 kgZn/ha	Plant = 1.88 kgZn/ha ZnTEC Ratoon = 1.71 kgZn/ha x 4 ZnTEC = 6.84 kgZn/ha Applied (total) = 8.72 kgZn/ha	Plant = ZnTEC 0.5% Zn planting blend Ratoon = ZnTec 0.30% Zn ratoon blend
Banana scenario 1 – Plant: 1.92 kgZn/ha split as Plant 0.19 kgZn/ha per month* * or in only 10 months out of 12 (or 10 months per crop)	Plant = NPKS kg/ha of 280 60 500 30 (non-urea blend)	Plant = 240 kg/ha per month + 0.19kgZn/ha per month* * or in only 10 months out of 12 (or 10 months per crop)	Plant = 0.19 kgZn/ha/month ZnTEC for only 10 months per crop Applied (total) = 1.92 kgZn/ha	Plant = ZnTEC 0.08% Zn plant crop blend
Banana scenario 2 – Plant: 1.25 kgZn/ha split as Plant 0.6 kgZn/ha per month* * or in only 2 months out of 12 (or 2 months per crop)	Plant = NPKS kg/ha of 280 60 500 30 (non-urea blend)	Plant = 240 kg/ha/month + 0.6 kgZn/ha per month* * or in only 2 months out of 12 (or 2 months per crop)	Plant = 0.6 kgZn/ha per month ZnTEC for only 2 months per crop Applied (total) = 1.2 kgZn/ha	Plant = ZnTEC 0.25% Zn plant crop blend
Banana scenario 3 – Plant: 2.0 kgZn/ha split as: a) Plant 0.7 kgZn/ha per month* * or in only 1 month out of 12 (or 1 month per crop) plus	Plant = NPKS kg/ha of 280 60 500 30 (non-urea blend)	Plant = 240 kg/ha per month + 0.7kgZn/ha per month* * or in only 1 month out of 12 (or 1 month per crop) Plant = 240 kg/ha per month + 1.2 kgZn/ha per month*	Plant = 0.72 kgZn/ha per month. ZnTEC for only 1 month per crop Plant = 1.2 kgZn/ha per month ZnTEC for only 1 month per crop Applied (total) = 1.92 kgZn/ha	Plant = ZnTEC 0.30% Zn plant crop blend followed by Plant = ZnTEC 0.50% Zn plant crop blend

©Nutrient Advantage, Granulock, Gran-Am, Easy N, Easy Liquids, Green Urea NV, eNpower, Trigger, SuPerfect, Boosta, CK88, Greentop, FodderBoosta, HayBoosta, PastureBoosta, GrassBoosta, Croplift, Cal-Am and Cal-Gran are registered trademarks of Incitec Pivot.
 Incitec Pivot is a business of Incitec Pivot Pty Ltd, ABN 37 007 656 046.
 ©Fertcare is a registered trademark of Australian Fertiliser Services Association Inc.

This is a guide only, which we hope you find useful as a general tool. While Incitec Pivot Pty Ltd has taken all reasonable care in the preparation of this guide, it should not be relied on as a substitute for tailored professional advice and Incitec Pivot Pty Ltd accepts no liability in connection with this guide.



Crop & fertiliser use scenario	Fertiliser applied (nutrient applied)	Target fertiliser rate (fertiliser rate kg/ha + kgZn/ha)	Applied zinc rate adjusted (kgZn/ha)	Additional notes
b) Plant 1.2 kgZn/ha per month* <i>* or in only 1 month out of 12 (or 1 month per crop)</i>		<i>* or in only 1 month out of 12 (or 1 month per crop)</i>		
Banana scenario 4 – Ratoon: 1.92 kgZn/ha split as Ratoon 0.19 kgZn/ha per month* <i>* or in only 10 months out of 10 to 12 (or 10 months per crop)</i>	Ratoon = NPKS kg/ha of 400 60 700 30 (urea blend)	Ratoon = 240 kg/ha per month + 0.19 kgZn/ha per month* <i>* or in only 10 months out of 10 to 12 (or 10 months per crop)</i>	Ratoon = 0.19 kgZn/ha per month. ZnTEC for only 10 months per crop Applied (total) = 1.92kgZn/ha	Ratoon = ZnTEC 0.08% Zn ratoon crop blend
Banana scenario 5 – Ratoon: 1.25 kgZn/ha split as Ratoon 0.6 kgZn/ha per month* <i>* or in only 2 months out of 10 to 12 (or 2 months per crop)</i>	Ratoon = NPKS kg/ha of 400 60 700 30 (urea blend)	Ratoon = 240 kg/ha per month + 0.6 kgZn/ha per month* <i>*or in only 2 months out of 10 to 12 (or 2 mths per crop)</i>	Ratoon = 0.6 kgZn/ha per month ZnTEC for only 2 months per crop Applied (total) = 1.2 kgZn/ha	Ratoon = ZnTEC 0.25% Zn ratoon crop blend
Avocado scenario 1: 1.25 kgZn/ha split as 'fruit drop' application 0.6 kgZn/ha plus 'fruit drop' + 6 weeks application 0.6 kgZn/ha	NPKS kg/ha of 37 7 67 30	255 kg/ha per application + 0.625 kgZn/ha per application At each 'fruit drop' & 'fruit drop + 6 weeks'	0.64 kgZn/ha per application ZnTEC x 2 Applied (total) = 1.28 kgZn/ha	ZnTEC 0.25% Zn fruit drop blend
Avocado scenario 2: 1.25 kgZn/ha applied as 'summer flush' application only 1.25 kgZn/ha	NPKS kg/ha of 18 7 67 30	225 kg/ha + 1.25kgZn/ha	1.28 kgZn/ha ZnTEC Applied (total) = 1.13 kgZn/ha	ZnTEC 0.50% Zn 'summer flush' application only blend
Pasture scenario 1: 2.0 kgZn/ha split as: 4 x quarterly applications of 0.5 kgZn/ha per application Tropical grass pasture 'N only'	NPKS kg/ha of 200 0 0 0	110 kg/ha per application + 0.5 kgZn/ha per application	0.55 kgZn/ha per application x 4 ZnTEC Applied (total) = 2.2 kgZn/ha	ZnTEC 0.50% Zn quarterly N pasture blend
Pasture scenario 2: 2.0 kgZn/ha split as: 4 x quarterly applications of 0.5 kgZn/ha per application Tropical grass pasture 'NPKS'	NPKS kg/ha of 200 20 50 30	155 kg/ha per application + 0.5 kgZn/ha per application	0.47 kgZn/ha per application x 4 ZnTEC Applied (total) = 1.88 kgZn/ha	ZnTEC 0.30% Zn quarterly NPKS pasture blend

©Nutrient Advantage, Granulock, Gran-Am, Easy N, Easy Liquids, Green Urea NV, eNpower, Trigger, SuPerfect, Boosta, CK88, Greentop, FodderBoosta, HayBoosta, PastureBoosta, GrassBoosta, Croplift, Cal-Am and Cal-Gran are registered trademarks of Incitec Pivot.
Incitec Pivot is a business of Incitec Pivot Pty Ltd, ABN 37 007 656 046.
©Fertcare is a registered trademark of Australian Fertiliser Services Association Inc.

This is a guide only, which we hope you find useful as a general tool. While Incitec Pivot Pty Ltd has taken all reasonable care in the preparation of this guide, it should not be relied on as a substitute for tailored professional advice and Incitec Pivot Pty Ltd accepts no liability in connection with this guide.

ZINC

Zinc is an essential plant nutrient, especially in the tropics. However, because zinc adheres reasonably tightly to soil particles, it does not move far from where it is placed. This is important as the main mechanism of zinc uptake is interception. That is plant roots bump into zinc as they grow through the soil. The more evenly zinc is distributed through the soil, the better the chance of plant roots intercepting zinc. This leads to better zinc efficiency. This is a primary concept behind ZnTEC coating.

Soil optimum ranges for zinc

General soil optimum ranges for zinc are:

- **horticulture** start with a lower limit of 2.0 mg/kg Zn (DTPA)
- **pastures** on acid soils, it's a value of 0.5 mg/kg Zn (DTPA)
- **irrigated cotton** the range commencement is pH(water) dependant. With pH's of '7.0 or less' and 'greater than 7.0' are respectively 0.35 & 0.5 mg/kg Zn (DTPA)
- **dryland cotton** the same pH(water) criteria applies, but the critical values are respectively 0.6 and 0.9 mg/kg Zn (DTPA)
- **maize**, the range commencement is also pH(water) dependant. With pH's of '7.0 or less' and 'greater than 7.0' are respectively 0.6 & 0.9 mg/kg Zn (DTPA)
- **sugarcane** there is not only a pH(water) influence, but the recognised laboratory method also changes. With pH's of '6.5 or less' use the HCl Zn method & the lower limit values is 0.6 mg/kg Zn (HCl). With pH(water) values 'greater than 6.5' use the DTPA Zn method & the lower limit values is 0.3 mg/kg Zn (DTPA)

What zinc does for crops

Zinc is an essential nutrient for plants as it:

- has a role in plant enzyme and hormone production. This is especially important in new growth
- has a role in regulating plant water uptake
- is required for chlorophyll formation

When crops are zinc deficient, symptoms can vary with plant species and even across varieties, but are generally seen as:

- distorted new growth
- new growth with smaller leaves
- shortened internodes

- reduced yield
- reduced fruit size (perennial tree crops)
- interveinal chlorosis (excluding sugarcane)
- veinal chlorosis with leaf edges & mid-rib remaining green, stunted stool, thin sticks and poor root growth¹ (sugarcane)

OTHER GRANULAR FERTILISER SOURCES OF ZINC

There are two other granular fertilisers that contain zinc:

- Granulock Z
 - a NPS compound fertiliser containing 1% zinc
 - can be applied as a straight or in blends
- Zinc Sulphate Monohydrate granules
 - a high analysis zinc fertiliser containing 33% zinc & 17.2% sulphur
 - can only be applied in blends

ZnTEC advantages over granular sources of zinc

ZnTEC's advantages over the two granular zinc sources are, it allows zinc to be applied:

- in situations where other granular zinc products are not suited, either agronomically or from a compatibility perspective e.g. urea & zinc monohydrate granules have limited compatibility, whereas urea and ZnTEC are compatible
- with potential for improved uptake efficiency by achieving a better soil distribution
- to other fertiliser straights & blends that would otherwise not contain zinc
- at much lower levels of Zn% analysis in fertilisers, which then provides improved efficiency opportunities with more frequent zinc fertiliser applications and better Zn distribution in soil
- in crops like sugarcane & bananas where an entire crop cycle's worth of zinc (i.e. 10 kgZn/ha) could be applied at planting. ZnTEC allows for smaller and more frequent zinc applications. This can better match crop requirements over time and spread the cost of zinc nutrition over the entire crop cycle, instead of concentrating it into the plant crop only.

FURTHER READING

¹ Calcino, D. et al. (2018). 'Australian Sugarcane Nutrition Manual'. 2nd Ed.



SAFETY DIRECTIONS

Refer to the Safety Data Sheet (SDS) for more detailed safety advice. Before use, read the Product Label and the SDS. Use safe work practices and avoid contact with the eyes and skin. Avoid ingestion and inhaling dust. Protective clothing, eyewear and dust masks should always be used when dealing with this product. Observe good personal hygiene, including washing hands after use. Avoid loss of fertiliser to waterways.

WARNING

This document contains information of a general nature. Before using fertiliser seek independent agronomic advice. Fertiliser programs may need to be varied depending on the plants being grown, climatic and soil conditions, application methods, irrigation, agricultural and livestock management practices, the soil's fertility, and cultural practices. ('Unforeseen Elements')

Fertiliser may burn and/or damage crop roots or foliage. Foliar burn to the leaves, fruit or other plant parts is most likely to occur when fertilisers are foliar applied at high concentrations and/or on a regular basis, different products are mixed and sprayed together at cumulatively high rates, the water is of poor quality, or the spray is applied under hot dry conditions, e.g. in the heat of the day.

Fertiliser and supplements may affect animal health. Seek independent advice before using any supplements in livestock rations.

DISCLAIMER

As Unforeseen Elements are beyond the control of Incitec Pivot Pty Ltd, in no event Incitec Pivot Pty Ltd and its related bodies corporate be liable or accept any responsibility whatsoever for any direct, indirect, punitive, incidental, special or consequential damages (including but not limited to loss of revenue, crops and livestock), in respect of the illness, injury or death of a person, damage to property (including of a third party), or any other loss whatsoever arising out of or connected with the use or misuse of this fertiliser, or its transport, storage, handling or application. Where Incitec Pivot Pty Ltd and its related bodies corporate's liability cannot be lawfully excused, it and its related bodies corporate's liability shall be limited to the replacement of, or cost of the fertiliser supplied. The buyer accepts and uses this product subject to these conditions.

COPYRIGHT

Copying or reproduction in whole, or in part, by any means, or transmission, or translation into a machine language without the written permission of Incitec Pivot Pty Ltd, is strictly prohibited.