



PRODUCT KNOWLEDGE · MICRONUTRIENTS

V-Transform

Zinc 21% w/w · 210 g per kg · granular

Granular zinc for soil application at sowing — season-long zinc placed once, in the root zone, at the highest concentration VAN carries.

PS 1539-1982

Licence CM/L-3132/2024

3 kg

Soil application



Vital Agri Nutrients (Pvt) Ltd · van.com.pk

For information only. VAN may change a product's composition at any stage for agronomic, efficiency or upgrade reasons.

THE PROBLEM

Two thirds of Pakistan's soils are short of zinc.

Percentage of Pakistani soils found deficient in each available micronutrient.

Zinc 64% of soils

Iron 19% of soils

Manganese 4% of soils

Copper 2% of soils

21%

zinc — 210 grams in every kilogram

the highest zinc concentration VAN carries, in a granule sized for soil placement

A 3 kg pack carries 630 grams of zinc. For a nutrient whose whole requirement is measured in grams per acre, that is a season in a small bag.



Rice and wheat are both among the most zinc-responsive crops there are, and both are grown on the ground that is shortest of it.

Zinc is the one nutrient where the deficiency in the soil is also in the people.

Pakistan's own National Nutrition Survey, 2018 — 100,304 households, the largest ever run in the country.

57%

of Punjab soils deficient in zinc

18.6%

of children under five, zinc deficient

22.1%

of women of reproductive age, zinc deficient

24.1%

in Punjab — the highest of any province



Rural prevalence runs higher than urban on both measures. This is the argument that makes zinc different from every other micronutrient VAN sells: the grain leaving a zinc-deficient field is feeding a zinc-deficient household.

The chain is real for three links. VAN will not claim the fourth.

What the evidence supports, in order, and where it stops.

1

Link one — zinc raises yield

Survey-level median wheat response in Pakistan is +8% in Punjab and +14% in Sindh. On severely deficient sites individual trials report far more, but a national programme should be costed on the medians, not the outliers.

2

Link two — zinc raises grain zinc

Pakistani wheat grain zinc rises from 24.9 mg/kg unfertilised to 28.1 with soil-applied zinc and 38.5 with foliar — about +19% and +63%. Foliar beats soil for grain concentration, consistently.

3

Link three — that would move dietary intake

Modelling on Pakistani consumption puts national dietary zinc inadequacy at 23.9%, and suggests full fertilizer adoption could roughly halve it in Punjab and Sindh.

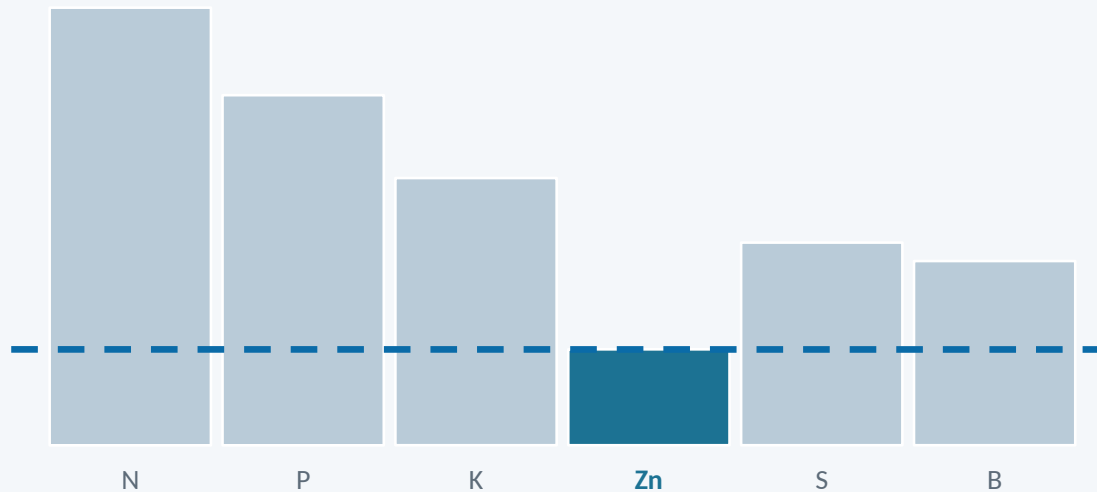
4

⚠ Link four is not closed, and we say so

The one randomised controlled trial run in rural Pakistan doubled flour zinc and raised women's intake by 30–60% — but did not produce a sustained improvement in plasma zinc. The agronomic case is strong. The clinical case is not yet made, and anyone claiming it is will be corrected by a well-briefed agronomist.

The cheapest stave in the barrel to lengthen.

Carl Sprengel set the law out in 1840; Justus von Liebig made it famous. A nutrient needed in grams limits yield exactly as hard as one needed in kilograms.



— the water line — what the crop actually yields

Placed once

A soil-applied granular zinc at sowing addresses the shortage for the whole season in a single operation, at the point the grower is already in the field. A foliar corrects; a granule prevents.

The staves show the shape of the problem, not measured soil values. A soil test is what tells you your own — VAN Lab publishes its prices.

Granular at sowing, or liquid on the leaf.

VAN makes both. They answer different questions and a field team should know which is which — this is the commonest confusion in the micronutrient range.

V-Zinc 10% — liquid, foliar

Zinc sulfate sprayed onto the leaf, bypassing soil chemistry entirely.

- Corrects a shortage that is already showing
- Fast — available on contact
- Has to be repeated; one spray is one moment's supply
- The right answer when the crop is standing and short

V-Transform — granular, soil

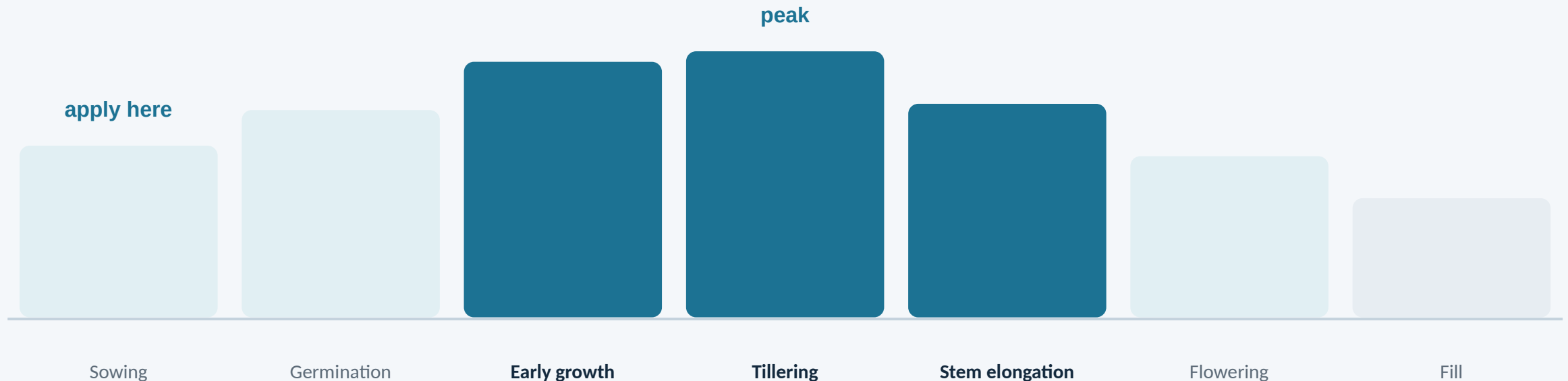
Zinc placed into the root zone at sowing, at 21% concentration.

- Prevents the shortage instead of correcting it
- Season-long supply from one operation
- Goes on when the grower is already in the field for land preparation
- The right answer when the soil test is known before the crop is sown

Best practice on a soil known to be zinc-short is both: granular at sowing to set the baseline, foliar in-season if the crop still asks.

Zinc is an early-season nutrient. Place it before the season starts.

Relative zinc demand across a cereal season. Zinc runs the enzymes of vegetative growth and the auxin synthesis that sets plant architecture.



Granular zinc goes on at land preparation or sowing, so that the supply is already in the root zone when the demand curve rises — rather than being sprayed on after the plant has already made its decisions about size.

The band shows the shape of demand, not measured uptake for a named crop.

What is actually in the bag.

A small bag carrying a season of a nutrient measured in grams.



V-Transform — 3 kg

ZINC

Zn 21% w/w — 210 grams per kilogram

PER PACK

A 3 kg pack carries 630 grams of zinc

FORM

Granular — sized for spreading and for placement with the seed drill

ROUTE

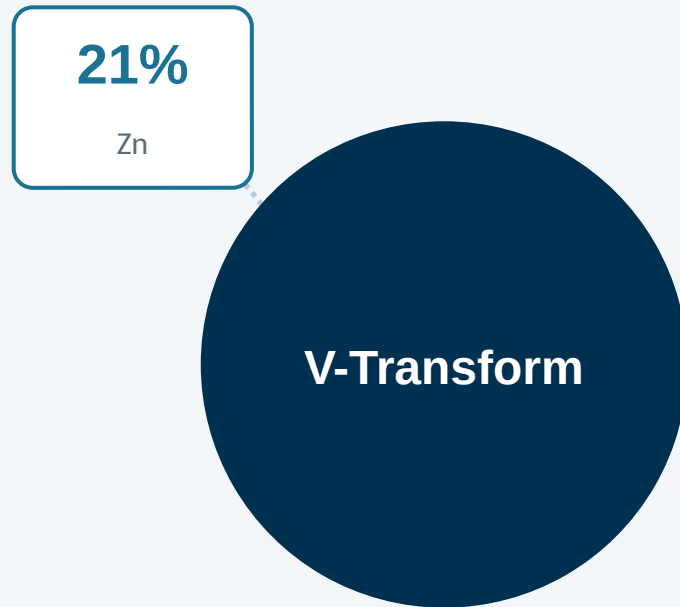
Soil application at land preparation or sowing

STANDARD & LICENCE

PS 1539-1982 · PSQCA marks licence CM/L-3132/2024

What the label declares.

As registered under PS 1539-1982 and as published on van.com.pk.



CONCENTRATION

210 g / kg

the highest zinc concentration in the VAN range

FORM

Granular

for soil placement, not for the tank

TIMING

Sowing

placed before the demand curve rises

What zinc is actually doing in there.

Zinc builds nothing. It runs the machinery that builds everything.

1 300+ enzymes

Activates over three hundred enzymes — a cofactor, not a building block

2 Auxin synthesis

Central to auxin, the hormone that governs stem elongation and architecture

3 Protein synthesis

Required for protein synthesis and ribosome integrity

4 Root vigour

Supports root development, which then governs everything else

5 Grain filling

Improves grain filling and seed set

6 Human nutrition

Zinc in the grain is zinc in the diet — a zinc-short soil makes zinc-short food

Zinc is suppressed by the two things Pakistan does most.

Established interactions between soil nutrients — after Mulder. These describe how nutrients behave with one another, not how V-Transform performs.



Works with

Sulfur acidifying the root zone improves zinc availability — VAN's coated urea helps zinc for this reason

Balanced zinc supports the enzyme systems nitrogen and carbohydrate metabolism depend on

Correcting zinc often raises the return on nitrogen already applied

Granular placement in a concentrated band saturates the fixing capacity of a small soil volume



Competes with

Excess phosphorus suppresses zinc — decades of heavy DAP on Pakistani soil is a principal cause of the 64% figure

Excess calcium — calcareous ground — suppresses zinc as well

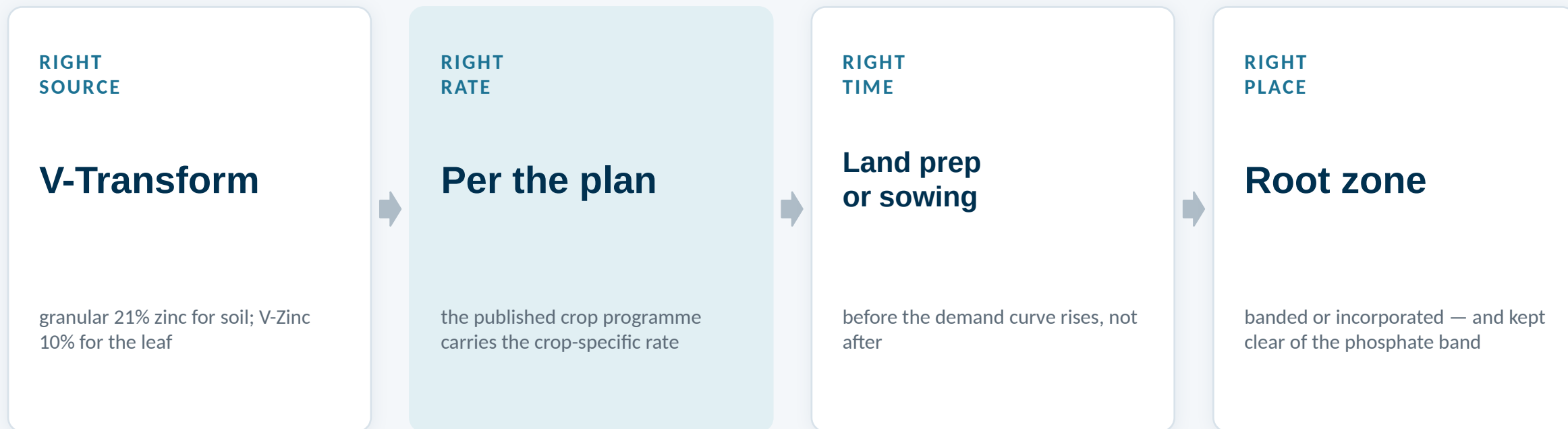
Excess zinc in turn reduces iron, phosphorus and calcium uptake; more is not better

 Do not place granular zinc in direct contact with a concentrated phosphate band — zinc phosphate is poorly soluble and both are lost

The last line is the practical one for a soil-applied zinc. Separate the bands, or separate the operations.

Right source, right rate, right time, right place.

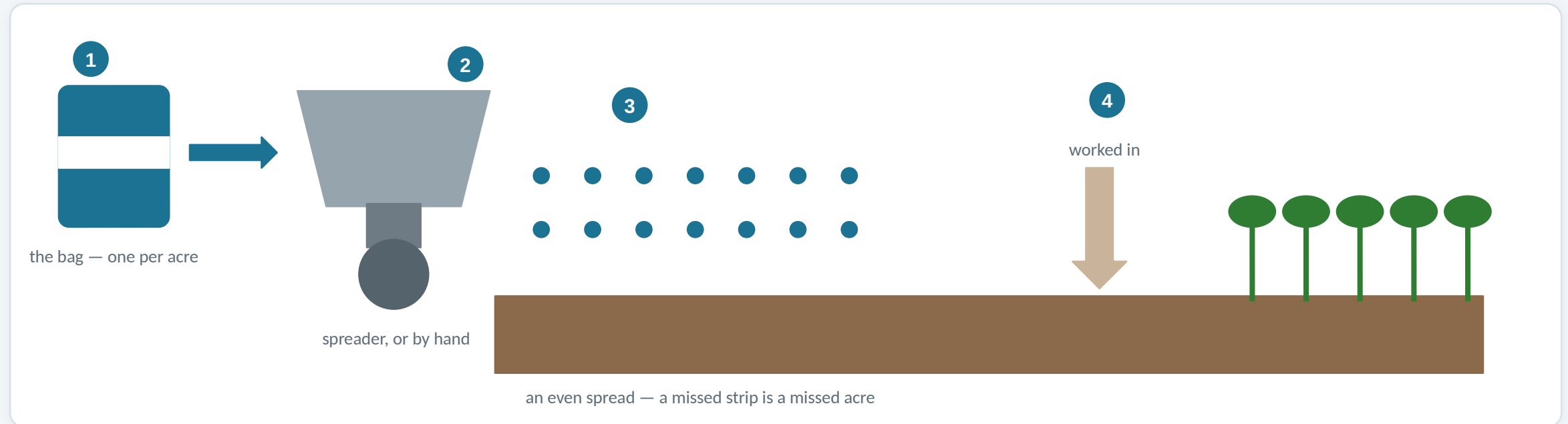
A granular zinc is a placement product. Everything about it is the fourth R.



Broadcast onto an untilled calcareous surface, a granular zinc is largely captured before a root reaches it. Incorporation is not optional.

An even spread, then worked in.

A granular zinc has to sit where the roots will find it.



1 Measure it

Per the published crop plan.

2 Spread evenly

Spreader or by hand. A missed strip is a missed acre and it shows at harvest, not on the day.

3 Work it in

Incorporate into the root zone. Material left on the surface is not where the roots are.

4 At the right stage

At land preparation or sowing, into the root zone.

Doses are per acre, from VAN agronomy. Incorporation is not optional — it is the difference between feeding the crop and feeding the surface.

SOURCES

Where every figure in this deck came from.

Pakistan soil zinc

Soil Fertility Research Institute, Government of the Punjab — 57% of Punjab soils zinc deficient. ⚠️ Undated. Rehman, A. et al. (2020), Front. Sustain. Food Syst. 4:591722 — about two thirds nationally, over 70% of South Punjab wheat soils

Yield and grain zinc

Joy, E.J.M. et al. (2016), Plant and Soil 405:257–273 — wheat +8% Punjab, +14% Sindh; grain Zn 24.9 → 28.1 soil-applied, → 38.5 foliar

Human deficiency

National Nutrition Survey 2018, Government of Pakistan with UNICEF and Aga Khan University — 100,304 households. Children under five 18.6%; women 15–49 22.1%; Punjab women 24.1%

⚠️ The clinical limit

Lowe, N.M. et al. (2022), Frontiers in Nutrition 8:809783 — doubling flour zinc raised intake 30–60% but produced NO sustained improvement in plasma zinc

Soil chemistry

Alloway, B.J. (2008), Zinc in Soils and Crop Nutrition, 2nd edn, International Zinc Association and IFA. ⚠️ Industry-association co-publication, but written by an academic soil scientist and the standard reference

Analysis, standard, licence

van.com.pk — V-Transform, zinc 21% w/w (210 g/kg), PS 1539-1982, CM/L-3132/2024

National deficiency figures

64% zinc, 19% iron, 2% copper, 4% manganese — as cited in VAN's VL-Micromix deck

Zinc physiology

Standard plant physiology — not manufacturer-specific

Nutrient interactions

After Mulder's chart — established relationships

⚠️ Separate product

The "Iron Chelation" deck in the LMS folder belongs to a separate chelated-iron product (VAN, 19 Aug 2026), not to V-Transform

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