



PRODUCT KNOWLEDGE · BALANCED NPK

Crop Force

15-15-15 · 12-12-18

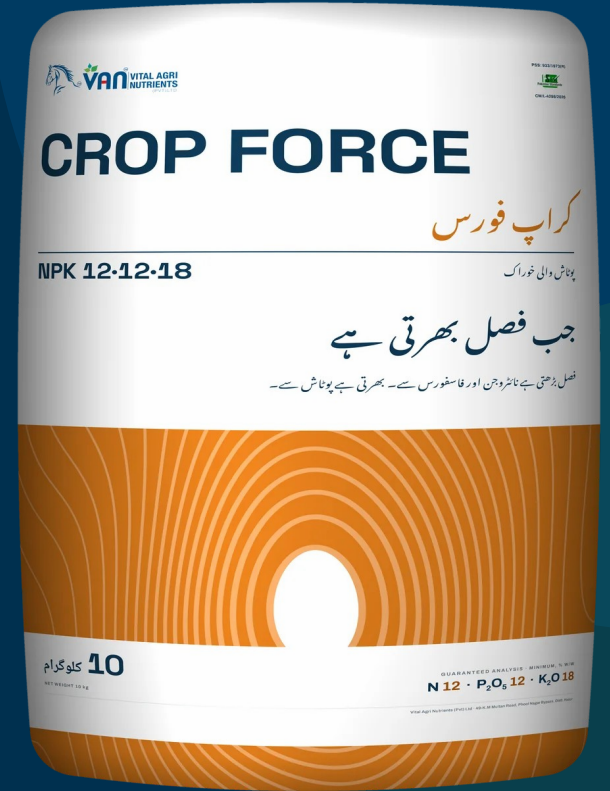
Two balanced grades from one brand — an equal-thirds NPK for building the plant, and a potash-forward grade for the stage that sets and fills the crop.

PS 933-2026

Licence CM/L-4298/2026

Two grades

Formerly Crop Star

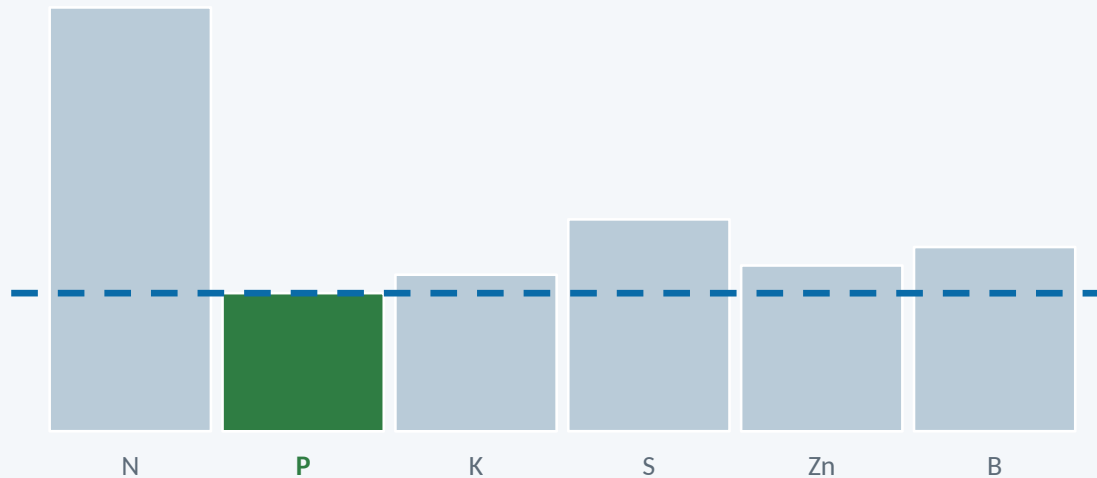


Vital Agri Nutrients (Pvt) Ltd · van.com.pk

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

Balance is not a slogan. It is the only thing that raises the barrel.

Carl Sprengel set the law out in 1840; Justus von Liebig made it famous. A balanced grade exists because raising one stave alone raises nothing.



— the water line — what the crop actually yields

83 : 1

Pakistan applies eighty-three tonnes of nitrogen for every one of potash. That is not a fertilizer programme, it is one very tall stave beside five short ones. A balanced NPK is the cheapest correction available to a grower who has been buying urea alone.

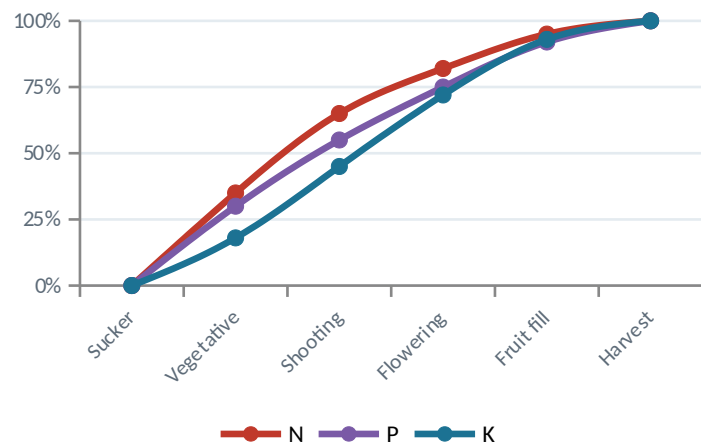
The staves show the shape of the national problem, not measured soil values. A soil test is what tells you your own — VAN Lab publishes its prices.

In these crops, potassium demand peaks last.

Cumulative share of season-total uptake, from planting to maturity.

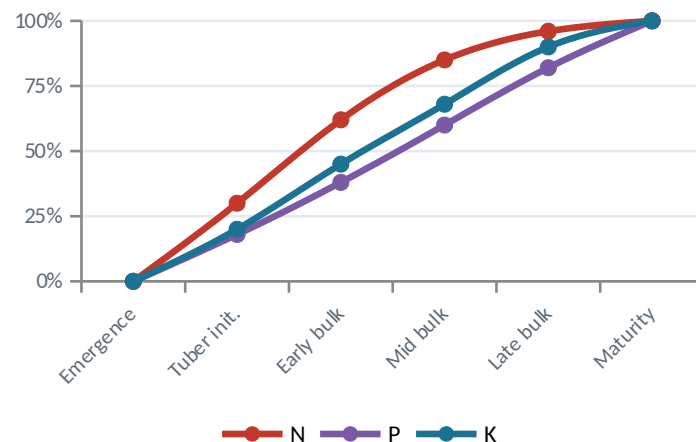
Banana

≈6.6 kg K and 2.0 kg N removed per tonne of fruit — Yara Australia



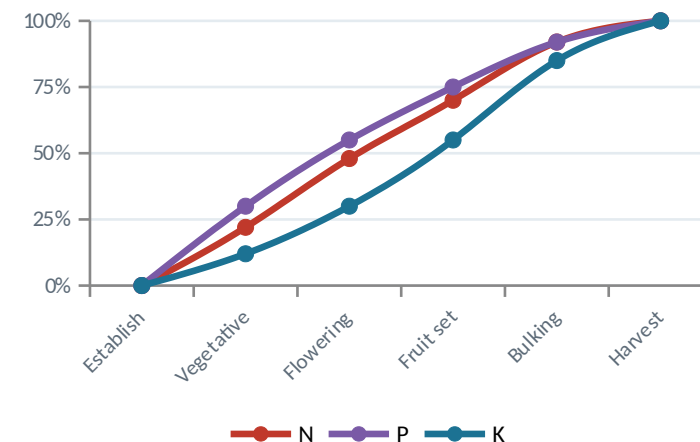
Potato

199 kg N · 77 kg P₂O₅ · 369 kg K₂O per hectare — Heard, Manitoba 2004



Tomato

Haifa's stage ratio moves from 1:1:1 to 5:3:10 by fruit maturation



Potato tuber potassium accumulates at 3.6 kg K₂O per hectare per day in late bulking, while the leaf gives up only 0.8. The soil has to still be supplying it. That is what the 12-12-18 grade is for.

Curves are cumulative SHAPE, anchored to published timing statements from Yara, Haifa, FAO and Heard (2004) — not measured Pakistani field values. Totals are as cited.

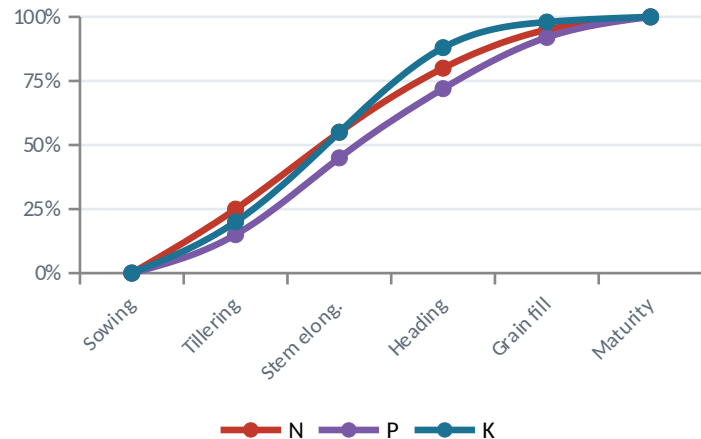
AND WHERE IT DOES NOT

In the cereals it is the opposite. Potash is an early nutrient.

The same cumulative curves, for three of Pakistan's four biggest crops.

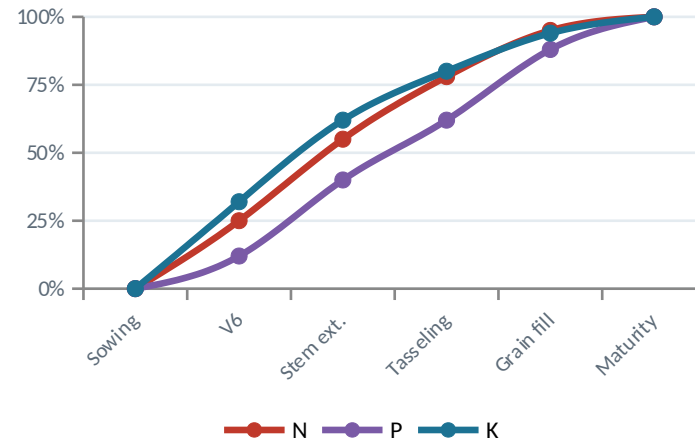
Wheat

>80% of all nutrients taken up by ear emergence — FAO. K accumulation maxes at flowering; under 20% goes to grain fill



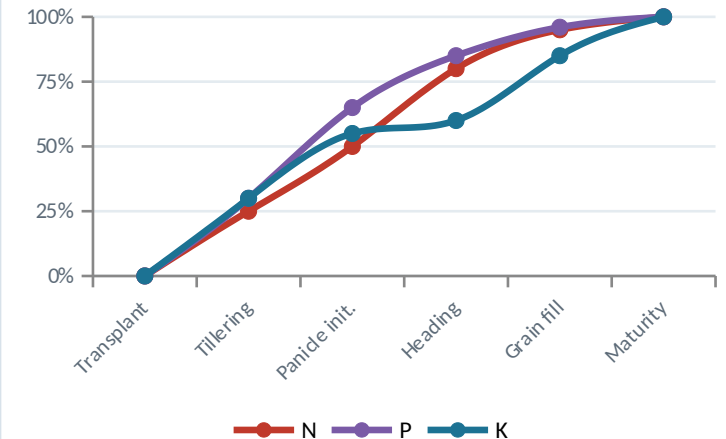
Maize

≈200 kg N · 85 kg P₂O₅ · 200 kg K₂O per ha at 7 t grain — Yara



Rice

FAO: about 55% of K and 65% of P absorbed by early panicle initiation



Yara measures 80% of maize potassium taken up before the generative stages even begin. A potash-weighted grade applied late to maize is late. This is why VAN sells two grades and not one — and why it will not tell you the same grade suits every crop.

Curves are cumulative SHAPE, anchored to published timing statements from FAO, Yara and Montana State Extension EB0191 — not measured Pakistani field values.

Same brand, two jobs.

The grade is chosen by growth stage, not by crop. Both carry the same three nutrients; what changes is the ratio between them.

15-15-15 — equal thirds

Nitrogen, phosphorus and potash in equal measure.

- For building the plant, and for the cereals — 80% of maize potassium is taken up before the generative stages begin
- Where a soil test shows no single nutrient dominating the shortage
- The safe default when there is no soil test at all
- Basal, or early side-dress

12-12-18 — potash forward

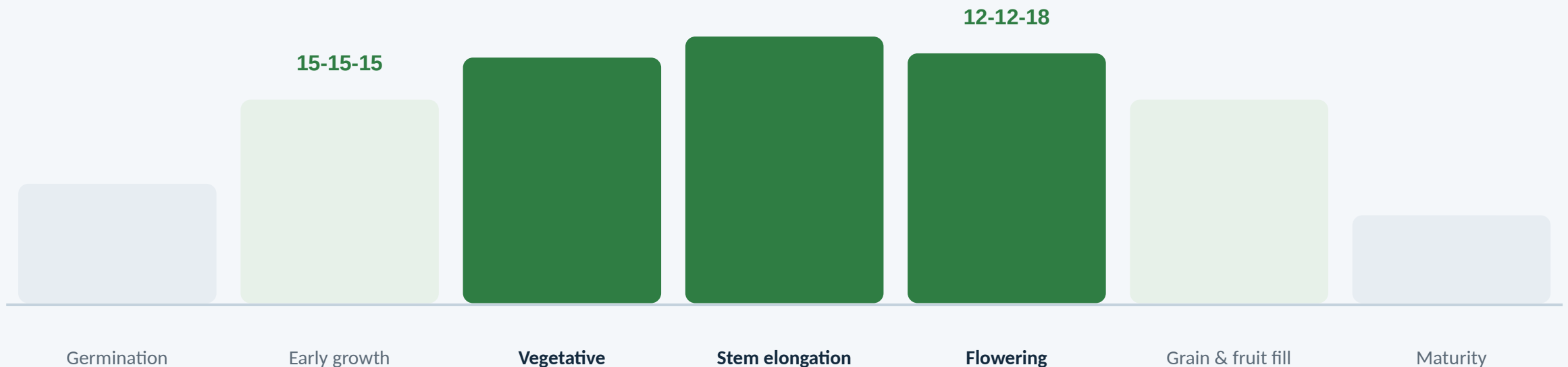
Half again as much potash as nitrogen or phosphorus.

- For setting and filling the crop: flowering, grain fill, tuber and boll development
- Banana, potato, tomato, strawberry, guava and mango take up most of their potassium after flowering — the curves two slides back
- Matches the uptake curve rather than the bag
- Mid-life, at the second application

A grower running one grade all season is running the wrong one for half of it.

Nitrogen leads. Potassium finishes.

Relative demand for the three macronutrients across a season. They do not peak together, which is exactly why two grades exist.



Apply 15-15-15 into the building phase and 12-12-18 into the setting and filling phase. One grade applied twice is a compromise; two grades applied once each is a programme.

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

One licence, one specification, and three ways to get it into the crop.

What a distributor actually needs to know before quoting.

1

15-15-15 — soluble powder

For fertigation. Dissolves fully, so it goes down a drip line or into a drum at the head of the watercourse without leaving residue in the filter.

2

15-15-15 — granular

For broadcast and side-dressing. The same analysis in a form that spreads with normal equipment and can be placed beside the row.

3

12-12-18 — the potash-weighted grade

Weighted to potash for the stage where Pakistani programmes usually run short. Soil-applied at the point the crop's potassium curve turns upward.

4

Both grades, one licence

PS 933-2026 and PSQCA marks licence CM/L-4298/2026 cover both. One certificate of analysis regime, one QC lab, one batch trail.

A blend and a compound are not the same product sold two ways.

The distinction is physical, it is measurable, and it is the reason a compound costs more to make.

A bulk blend

Separate granules of N, P and K, physically mixed.

- Particles differ in size, shape and density
- Denser particles are thrown further by a spreader than lighter ones
- Measured chemical segregation in blends averaged 13.6% in one independent study — a 50/50 blend came out 35/65 after handling
- Stays safe only inside tight tolerances: particle diameters within 10% of each other

A true compound

Every granule carries the full ratio.

- Same analysis, density, shape and size in every granule
- Nothing to segregate in the bag, the truck or the spreader
- The manufacturer of the best-known compound range claims ten times the phosphate landing sites per square metre against an equivalent blend
- Removes the need for the quality-control discipline rather than demanding it

⚠ Stated honestly: the independent literature does not say blends are bad. It says blends are safe only within tight particle-size tolerances. The compound's real argument is that it takes that discipline off the grower and puts it in the plant. The 10× landing-sites figure is a manufacturer calculation published without its working.

VAN is not inventing a category. It is entering one, with the local grade.

What the international compound NPK houses actually claim — and where they disagree with each other.

1

The balanced grade is a global staple

Yara sells a 15-15-15 under YaraMila; EuroChem has sold Nitrophoska since 1927 and calls it the world's first complex fertilizer; Grupa Azoty, Borealis and OCP all carry a triple-15. Nobody treats it as exotic.

2

And so is the potash-weighted grade

Yara's YaraMila COMPLEX is 12-11-18 — within a point of VAN's 12-12-18 — and is sold explicitly for “trees, vines and most specialty crops, which typically have a higher demand for potassium.” VAN reached the same grade from the same uptake curves.

3

The pitch is distribution, not chemistry

Every one of them sells on the same line: the ratio arrives in every granule, so it arrives evenly. Not one of them claims the compound changes soil chemistry.

4

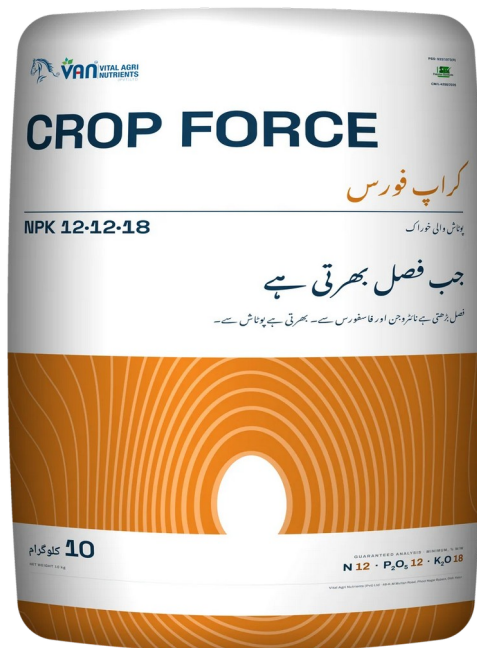
! And there is a real counter-argument

Nigeria's government has publicly said triple-15 is not suited to its soils and moved toward soil-specific blends; OCP's own African strategy is customised blending backed by soil mapping. A balanced grade is a starting point, not a substitute for a soil test. VAN Lab exists for exactly that reason.

THE PACK

What is actually in the bag.

Two grades, both registered under the same Pakistan Standard.



Crop Force 12-12-18 — current pack artwork

GRADE 15-15-15

N 15% min · P₂O₅ 15% min · K₂O 15% min

GRADE 12-12-18

N 12% min · P₂O₅ 12% min · K₂O 18% min

STANDARD

PS 933-2026, the Pakistan Standard for multinutrient fertilizer

LICENCE

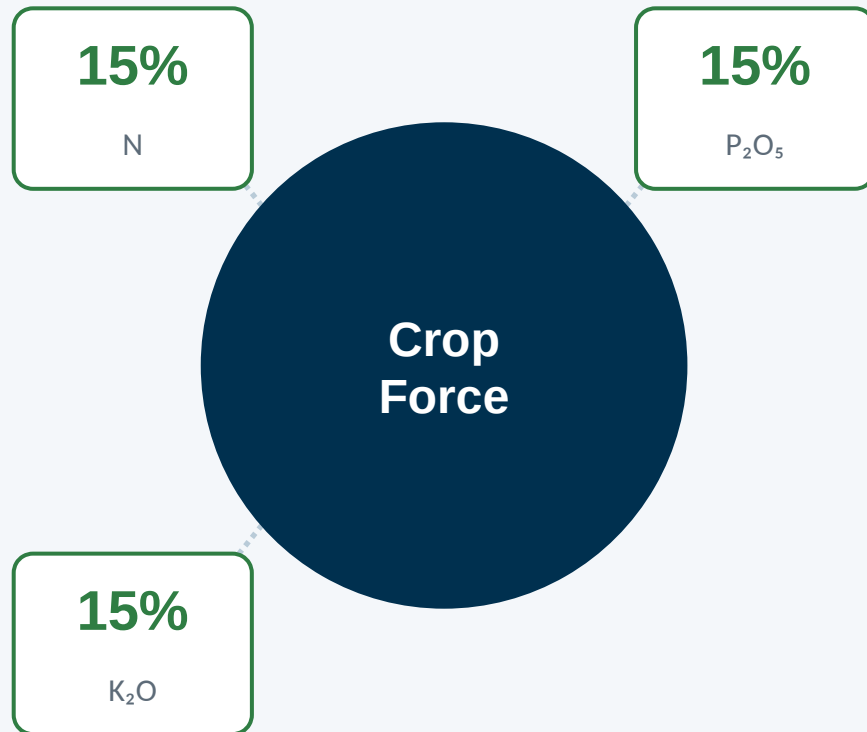
PSQCA marks licence CM/L-4298/2026

NOTE

Formerly sold as Crop Star. Same product, renamed in July 2026.

What the label declares.

Grade 15-15-15, as registered under PS 933-2026. The 12-12-18 grade is 12 • 12 • 18.



SECOND GRADE

12-12-18

the same three nutrients, weighted to potash

STANDARD

PS 933-2026

multinutrient fertilizer

LICENCE

CM/L-4298/2026

PSQCA marks licence, printed on the pack

A balanced grade is an argument about ratios.

Established interactions between soil nutrients — after Mulder. These describe how nutrients behave with one another, not how Crop Force performs.



Works with

Balanced nitrogen supports sulfur, magnesium and molybdenum uptake

Balanced phosphorus supports magnesium; balanced magnesium supports nitrogen and phosphorus back

Balanced potassium supports iron and manganese uptake

The three together hold each other in range — which is the entire case for a compound grade over three separate bags



Competes with

Excess nitrogen suppresses potassium, copper and boron — the exact consequence of a urea-only programme

Excess phosphorus suppresses zinc, iron and copper

Excess potassium suppresses calcium, magnesium and boron

Every one of these is an argument for a ratio rather than a maximum

Read the right-hand column as a description of Pakistani practice: heavy nitrogen, heavy phosphate, almost no potash — and a micronutrient problem that follows from both.

What the three are doing.

Three nutrients, three jobs, and none of them substitutes for another.

1 N — canopy

Builds leaf area, and leaf area is what intercepts the light that makes the crop

2 N — protein

The backbone of every amino acid and every protein

3 P — energy

ATP is a phosphate molecule; phosphorus pays for every other uptake

4 P — roots & seed

Drives early root architecture and concentrates in grain and seed

5 K — water & transport

Governs water relations and moves sugars to where they are stored

6 K — quality & standing

Cell-wall stability, resistance to lodging, and the quality a buyer pays for

WHERE IT IS USED

Across field crops and horticulture.

Crop Force appears in VAN's published crop programmes; the grade is chosen by stage.

Garlic

Watermelon

Banana — 1st year

Citrus — 5 years and over

Wheat

Maize

Cotton

Potato

Onion

Tomato

Chili

Sugarcane

Rice

Tobacco

Strawberry

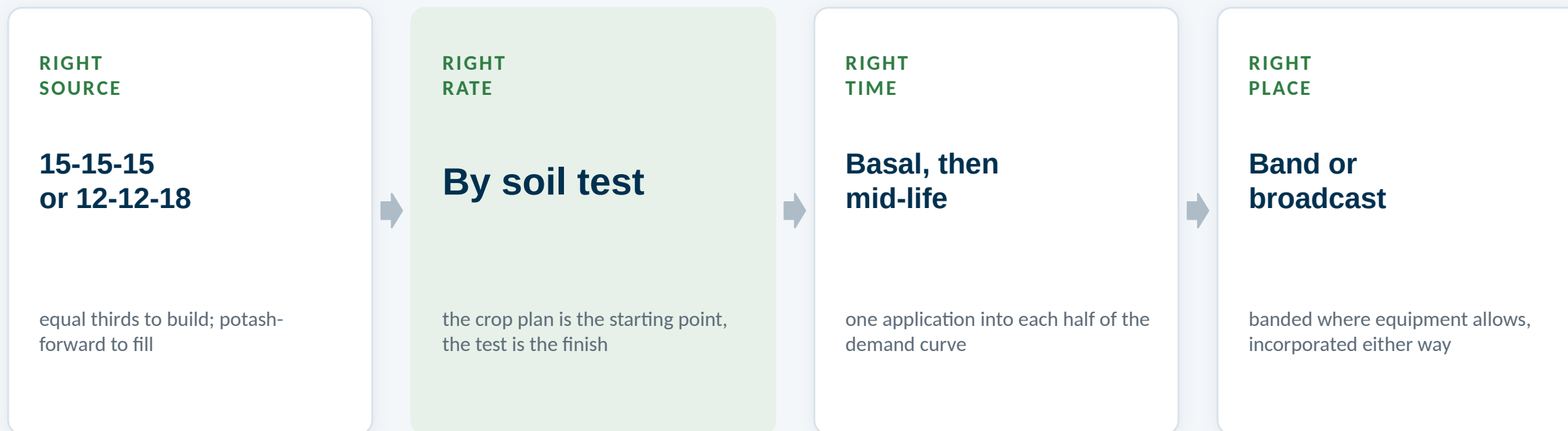
Published stages and rates are in the crop plans at van.com.pk/crops/. Beyond those, the 12-12-18 grade is agronomically suited to mango, guava and managed orchards generally — stated as VAN agronomy guidance, not as a published programme.



Where a soil test shows one nutrient dominating the shortage, a straight product beats a compound one. Balance is the default, not the answer to everything.

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

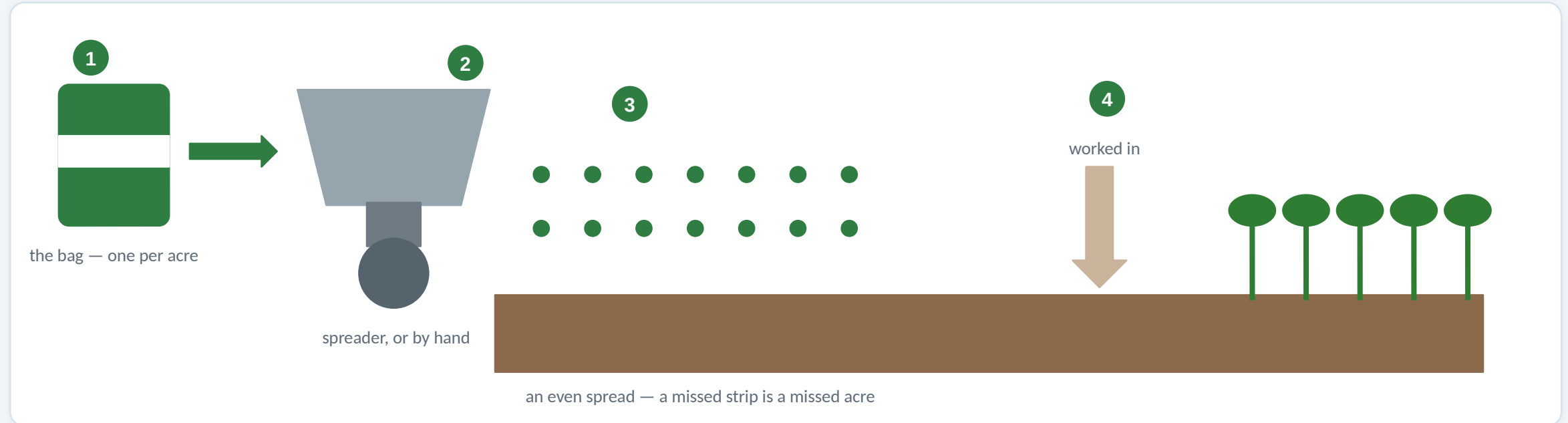
The grade is the fourth R in disguise: choosing 15-15-15 or 12-12-18 is choosing the right source for the stage.



A compound grade removes the commonest field error — applying three products at three different rates and getting the ratio wrong between them.

An even spread, then worked in.

The granular grade is spread; the soluble grade goes down the line.



1 Measure it

By soil test.

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.

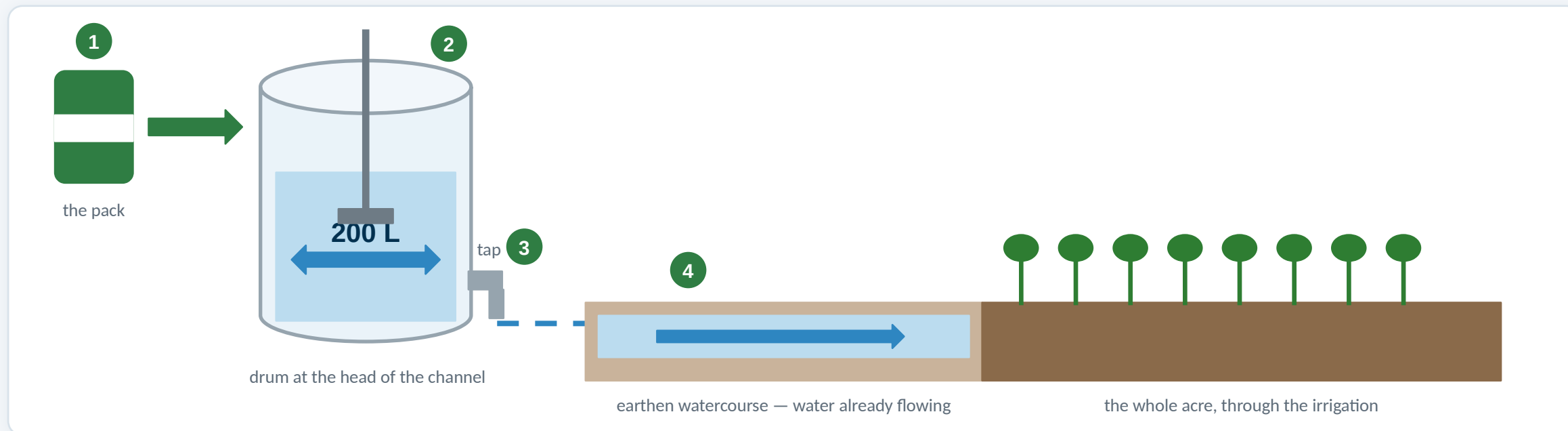
4 At the right stage

Basal at sowing, then again at mid-life.

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

The soluble grade goes in at the drum.

The same 15-15-15 analysis, in the form that dissolves — for a grower running fertigation rather than a spreader.



1 Measure it

Per the published crop plan — 1 kg to 1 bag per acre by crop. Weigh it. A guessed dose is the commonest error in the field.

2 Dissolve and agitate

Into a 200 L drum of water at the head of the watercourse. Stir until it is fully in solution — undissolved product settles and blocks the tap.

3 Meter it in

Open the tap so the drum empties across the whole irrigation, not in one slug. The water should already be flowing.

4 At the right stage

At the stage the crop plan names, not at a fixed interval. Into the wetted root zone, across the whole acre.

Crop Force has three routes: fertigation and foliar for the soluble powder, broadcast and side-dressing for the granular. The grade decides the ratio; the form decides the route.

What is behind the bag.

1

PS 933-2026

Registered against the Pakistan Standard for multinutrient fertilizer.

2

Licence CM/L-4298/2026

PSQCA marks licence, current, printed on the pack.

3

Tested before it ships

Every batch is tested in VAN's own PNAC-accredited laboratory, ISO/IEC 17025:2017, LAB-336.

4

Certificate on request

Send the batch number off the bag and VAN will send the certificate of analysis for that batch. Free, no sample, no form.

Four reasons, and none of them is a yield claim.

1

One bag, three nutrients

Removes the ratio error that three separate bags invite.

2

Two grades, two stages

A potash-forward grade for the half of the season when potassium demand is highest.

3

Registered, not blended on a floor

PS 933-2026 and a current PSQCA licence, batch-tested before it ships.

4

The correction Pakistan needs

A country applying eighty-three parts nitrogen to one of potash does not need more nitrogen.

SOURCES

Where every figure in this deck came from.

Analysis, standard, licence	van.com.pk — Crop Force 15-15-15 and 12-12-18, PS 933-2026, CM/L-4298/2026
Former name	Crop Star, renamed Crop Force July 2026
National nutrient ratio	van.com.pk — 3,808,775 t nitrogen against 45,735 t potash, 2023
Nutrient interactions	After Mulder's chart — established relationships
Law of the minimum	Carl Sprengel (1840), popularised by Justus von Liebig
Crop programmes	van.com.pk/crops/
Uptake — banana	Yara Australia nutritional summary — ≈6.6 kg K and 2.0 kg N removed per tonne of fruit; peak K demand around flowering. Manufacturer literature
Uptake — potato	Heard, J. (2004), Manitoba Soil Science Society — 199 kg N, 77 kg P ₂ O ₅ , 369 kg K ₂ O per ha; tuber K accumulating 3.6 kg K ₂ O/ha/day in late bulking
Uptake — cereals	FAO, Plant nutrition for food security, Ch. 8; Yara corn nutritional summary (80% of K before the generative stages); Montana State Extension EB0191
Uptake — tomato	Haifa tomato crop guide — stage ratio 1:1:1 → 5:3:10. ⚠️ Haifa cites no sources for those ratios
⚠️ Curve shape	All uptake curves in this deck are cumulative SHAPE anchored to the timing statements above. They are not measured Pakistani field data
Blend segregation	Miserque, O. & Pirard, E. (2004), Chemometrics and Intelligent Laboratory Systems 74:215–224 — mean chemical segregation 13.6%; a 50/50 blend became 35/65 after handling
Spreading physics	Ohio State University Extension FABE-550.1 — particle diameters within 10% to avoid segregation; 4.7 mm urea spreads 65 ft against 33 ft for 1.7 mm
Compound positioning	Yara (YaraMila and YaraMila COMPLEX 12-11-18), EuroChem (Nitrophoska), Grupa Azoty (Polifoska 15), ICL, OCP. ⚠️ All manufacturer literature; the 10× landing-sites figure is published without its working
⚠️ The counter-argument	Nigeria's federal position that triple-15 does not suit its soils, and OCP Africa's soil-mapped custom-blending strategy

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