



Periodical Systems

PLANTS BIOSYSTEM | TECHNICAL OVERVIEW

FORMULATION | SOIL | PLANT RESPONSE | USE

Plants BioSystem

Biological crop-support additive

A technical guide to formulation, root-zone and plant-response pathways, analytical evidence, field observations, application and handling.

PRIMARY USE CONTEXT

Field crops | orchards | vegetables | greenhouse crops

FORMULATION | MECHANISM | EVIDENCE | USE



01 FORMULATION

Formulation profile

The algae- and yeast-derived, non-microbial formulation contains soluble nitrogen- and carbon-side components.

NITROGEN SIDE

Hydrolyzed amino acids + nucleotide products

A broad amino-acid profile is combined with nucleotide breakdown products.

CARBON SIDE

Oligo- and polysaccharides

Mannan, chitin and glucan are combined with green-algae and seaweed polysaccharides.

ADDITIONAL FRACTIONS

Trace minerals + organic carriers

The current TDS lists trace minerals and organic carriers. An older Chinese reference also notes fatty acids, phospholipids and ergosterol.

CHINESE CONCENTRATE REFERENCE

Total nitrogen

0.8-1.3%

Soluble organic polysaccharide

10-15%

Total P2O5

0.4-4.2%

Total K2O

0.4-3.8%

pH 7.5-9.0

Reference ranges may vary by formulation.

Sources: 2026.1 Technical Data Sheet and Chinese plant-culture additive reference. Current specification and local requirements govern final use.



02 FUNCTIONAL LOGIC

How the formulation connects to crop response

The formulation follows two connected technical routes. One begins in the root zone; the other begins with plant recognition of oligo- and polysaccharide cues.

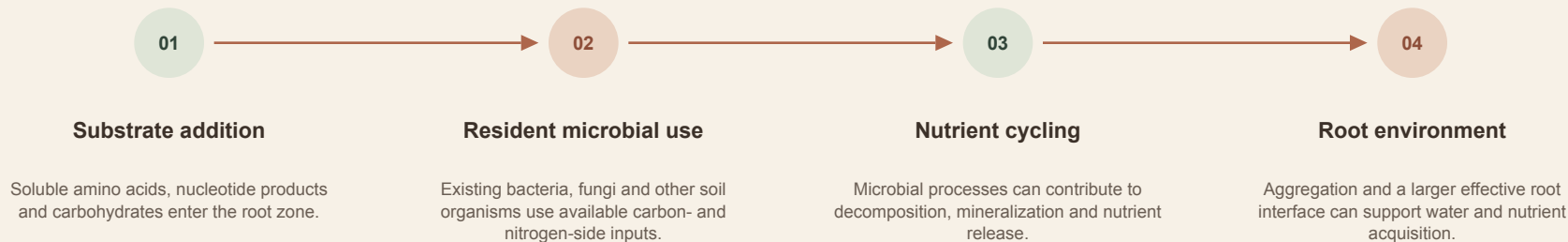




03 SOIL AND ROOT MECHANISM

Root-zone nutrition pathway

The root-zone sequence starts with soluble substrates and continues through microbial activity, nutrient cycling and the root interface.



FIELD VARIABLES

Response depends on the resident community, soil chemistry, crop stage and basal fertility program.

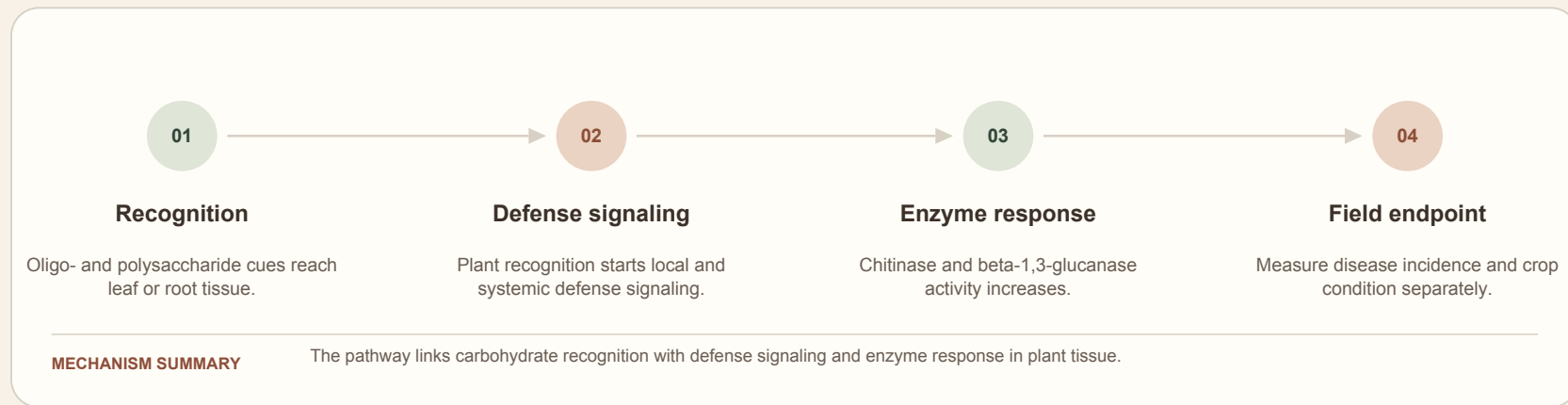
Sources: Chinese plant-culture additive reference and soil-microbiome presentation.

Soil and root mechanism

04 INDUCED RESPONSE

Plant-defense pathway

The source materials present oligo- and polysaccharides as elicitor signals that can activate defense-related responses in plant tissue.



REPORTED DISTRIBUTION TIME Foliar treatment: 8 h. Root treatment: 24 h.



05 LABORATORY SUMMARY

Analytical profile

The August 2017 analysis reports composition and selected elemental data for an algae-polysaccharide sample.

COMPOSITION CHECKS

8.18%

water-soluble polysaccharide

18

hydrolyzed amino acids reported

SELECTED MINERALS

Potassium (K)
137,739 ppm

Phosphorus (P)
26,330 ppm

SCREENED ELEMENTS

Cadmium ND at 0.5 ppm

Mercury ND at 0.5 ppm

Lead ND at 0.5 ppm

As / Cr / Cu / Ni / Zn 0.9 / 3.3 / 5.2 / 6.0 / 17.7 ppm

Source: algae-polysaccharide laboratory reports, August 2017.

Laboratory summary



06 FIELD EVIDENCE

Field observations across four crops

Four 2017 reports record treated and comparator measurements for harvested shoot mass, selected ear or fruit mass, and upper-hand mass.

TEA

+60.5%

Harvested shoot mass

26.0 vs 16.2 kg

Two treated and two comparator rows

CORN

+24.7%

Selected ear mass

192 vs 154 g

One selected ear from each group

GHERKIN

+14.5%

Selected fruit mass

126 vs 110 g

One selected fruit from each group

BANANA

ABOUT +50%

Upper-hand mass

about 6 vs about 4 kg

Comparator used another microbial product

FIELD MEASUREMENTS

The reports record treated and comparator values from four individual sites using different crop-specific protocols.

Sources: 2017 tea, corn, gherkin and banana field reports.

Field evidence



07 APPLICATION GUIDANCE

Current TDS application program

The 2026.1 Technical Data Sheet separates crop groups by dilution, seasonal quantity and application interval.

GRAINS AND FIELD CROPS

1:4,000

2 kg per hectare per season

Foliar throughout vegetative period; every 14-21 days.

FRUIT TREES AND ORCHARDS

1:500

7 kg per hectare per season

Three pre-flowering applications; five evenly spaced after flowering.

VEGETABLES AND GREENHOUSE

1:2,000

4 kg per hectare per season

Every 10-14 days; TDS states 20% lower concentration in controlled environments.

APPLICATION VARIABLES

Product strength, crop conditions and local application requirements determine the final program.



08 SOURCE COMPARISON

Dilution schedules by source

The technical documents contain schedules for different concentrates and crop programs. Each schedule remains paired with its source.

Source	Seed or root treatment	Foliar program	Root-zone program
2026.1 TDS	Not specified	1:4,000 grains; 1:500 orchards; 1:2,000 vegetables	Not specified
Legacy crop guide	Typically 1:1,000; crop-specific soak time	1:1,000-3,000 by crop and stage	1:1,000-2,000 for several crop groups
Chinese 0.8% N example	1:500 seed soak	1:1,000-1,500 seedlings to 1:500-800 vigorous stage	1:500-1,000 every 7-10 days
Green-algae presentation	1:100 seed soak	1:600-700 early to 1:300-500 flowering stage	1:300-500; wet effective root area

SOURCE CONTROL

Each dilution schedule applies to the product strength and crop program stated in its source.

09 HANDLING

Storage and handling reminders

The current TDS and legacy application guide agree on dry storage, full dissolution and controlled preparation.

01

Dissolve fully

Dilute in water and mix until the polysaccharide is fully dissolved. Crush soft agglomerates before mixing.

02

Use diluted solution promptly

The legacy guide notes rapid microbial growth and odor when diluted material is held.

03

Protect the concentrate

The current TDS specifies 5-25 C, a cool dry location, 24 months unopened and use within 6 months after opening.

04

Check rain and tank mixes

Foliar material can wash off in rain. Perform a jar test before combining with fertilizers or pesticides.

CORE PRINCIPLE

Keep dry, dissolve fully and apply accurately.

Current product label and local regulations govern storage, compatibility and field use.

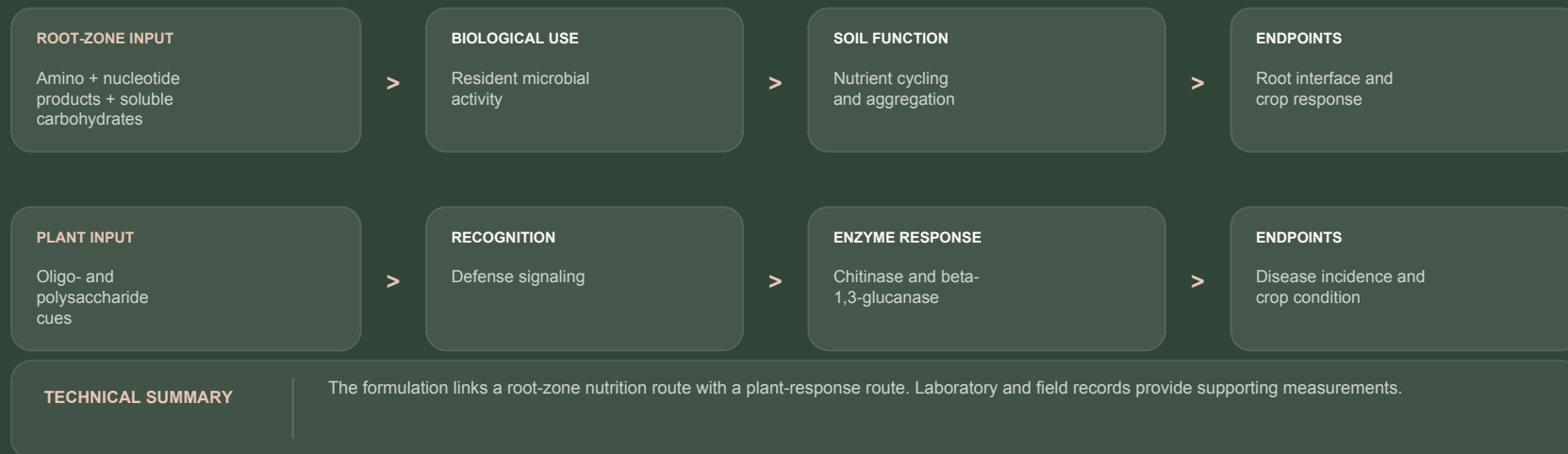
Handling



10 CONCLUSION

Technical conclusion

Plants BioSystem combines two crop-support routes: the root-zone biological system and induced plant response.





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END OF TECHNICAL OVERVIEW

Thank you for your time.

For the current specification, crop protocol or a controlled pilot discussion, contact the Periodical Systems technical team.

TECHNICAL FOLLOW-UP

info@periodical.systems

www.periodicalsystems.com

Technical documents, laboratory reports and application guides are available on request.

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