



THE LIVING FOUNDATION OF AGRICULTURE

Soil, where food begins

How living inoculants, targeted nutrients and soil stimulants
rebuild the foundation that every harvest depends on.

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“The only way to a healthy soil is a healthy plant.”

REKA, FOUNDING PRINCIPLE

WHY THIS PAPER

Yield is a symptom. Soil is the cause.

For half a century the industry optimised what happens above the ground. The next gain sits below it.

Growers across Europe and Asia are meeting the same wall. Inputs go up, response goes down, and the margin narrows from both ends at once. The pattern is consistent enough that it is no longer a series of local problems. It is a structural one, and it starts in the first thirty centimetres of the profile.

Soil is not an inert substrate that holds a crop upright. It is a living system in which fungi, bacteria and roots trade carbon for nutrients continuously. When that exchange weakens, fertiliser stays in the soil instead of moving into the plant, water runs off instead of being held, and stress that a resilient crop absorbs quietly turns into loss.

Reka was founded in January 2024 to work on precisely that layer, building on more than a decade of product development inside Koppert Biological Systems. This paper sets out the problem as we measure it, the approach we take, the portfolio that follows from it, and what growers have seen in the field.

It is written for agronomists, distributors and growers who want to understand the mechanism, not only the claim.

THE CASE IN FOUR NUMBERS

33%

of the world's soils are moderately to highly degraded.
FAO

95%

of the food we eat is produced on soil.
FAO

80%

of land plant species form a symbiosis with mycorrhizal fungi.

10_{mln}

viable spores per litre in Vici Fix, produced in vitro.

01 CHAPTER ONE

Soil under pressure

Degradation is rarely dramatic. It is a slow loss of carbon, structure and biology that appears in the accounts long before it is visible in the field.

Three losses that compound

Carbon goes first. Intensive rotation with little organic return draws down soil organic matter year on year. Each fraction of a percent lost takes water holding capacity and cation exchange with it, so the same rainfall and the same fertiliser deliver less.

Structure follows. Heavier machinery on wetter ground compacts the profile. Aggregates collapse, pore space closes, and roots meet a pan they cannot cross. Water that should infiltrate now stands on the surface or leaves the field entirely.

Biology goes last, and quietly. Fungal networks are the slowest part of the system to rebuild. Once hyphal

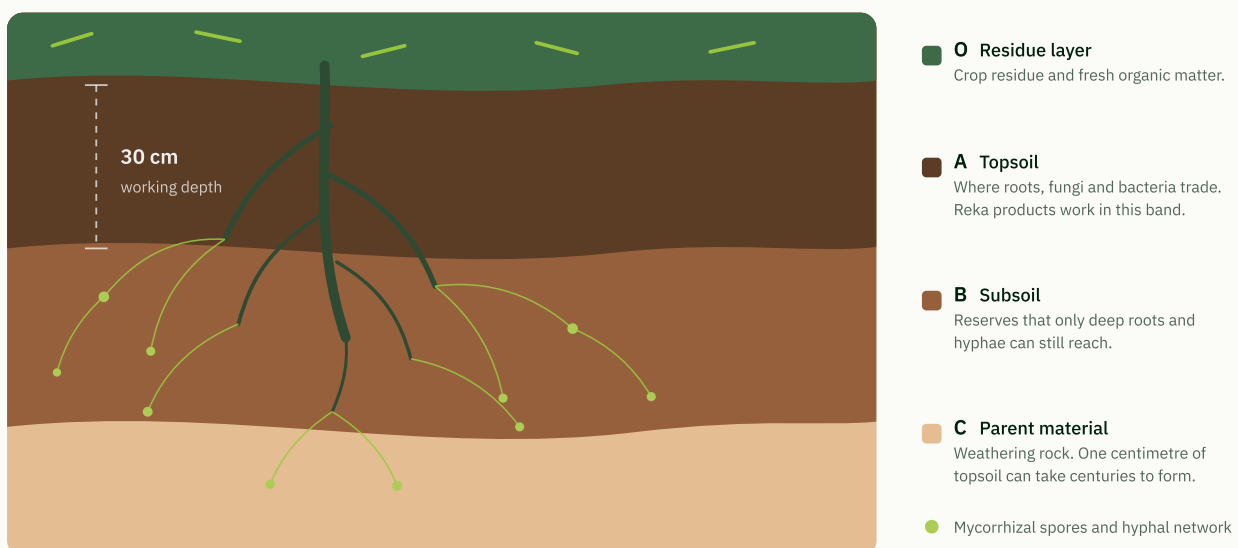
networks are broken by tillage and left without a host, nutrient delivery reverts to what the root can reach on its own, which is a fraction of what the soil actually holds.

Why more input stops working

The three losses reinforce each other. Applied phosphorus binds to soil particles within days and becomes unavailable. Nitrogen leaches past a shallow root system. The grower responds by raising the rate, cost rises, uptake does not, and residue pressure grows.

This is the point at which the honest answer is not another kilogram. It is repairing the mechanism that moves nutrients from soil into plant.

FIGURE 1 · WHERE THE EXCHANGE HAPPENS

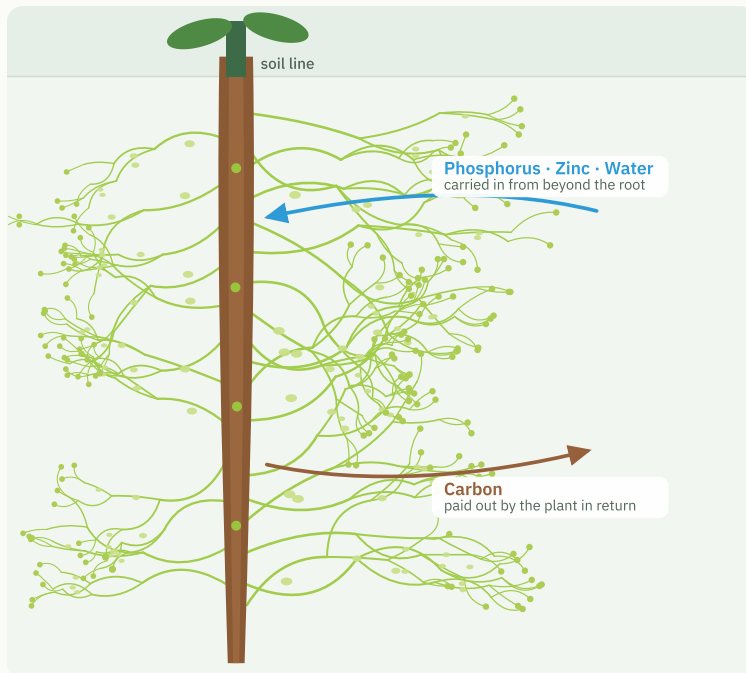


02 CHAPTER TWO

The Reka approach

One question drives the portfolio. How do we restore the exchange between soil biology and root, reliably enough that a grower can plan around it?

FIGURE 2 · THE SYMBIOSIS WE BUILD ON



The hyphal network is drawn to the scale of its function, not its physical size.

01 Colonise

Spores germinate at the seed or in the root zone and enter the root cortex within days.

02 Extend

Hyphae grow far past the root hair zone into pores that a root itself can never enter.

03 Exchange

Phosphorus, zinc and water move toward the plant. Plant carbon moves out to the fungus. Both sides gain, which is why the relationship holds.

04 Endure

A colonised crop carries drought, heat and salinity better, and keeps doing so across successive cycles.

WHAT WE OPTIMISE FOR



People

Every product is built to meet food safety, environmental, residue and quality requirements, so the person applying it and the person eating the crop are both covered.



Planet

Better uptake means less applied nutrient for the same crop, and less of it leaving the field. Veni Biosulfur goes further and is produced from an industrial waste stream.



Profit

A biological input has to pay for itself in the season it is used. We size rates and products around that test, and we publish what trials actually showed.

03 CHAPTER THREE

The portfolio

Three families, one logic. Put the biology in place, feed it and the crop correctly, then remove the stress that would otherwise break the exchange.

● Inoculants Living organisms that colonise the root

03 PRODUCTS

Panoramix	A fully natural microbial seed treatment for maize, soy and wheat, combining mycorrhiza, <i>Bacillus megaterium</i> , <i>B. amyloliquefaciens</i> and <i>Trichoderma asperellum</i> . Applied at 2 to 4 ml per kg of seed.
Vici Fix	Arbuscular mycorrhizal biofertiliser at 10 million viable spores per litre, produced in vitro so the formulation is pathogen free. Improves water and nutrient uptake and raises tolerance to drought, heat and salinity.
SeedSpor	Seed coating for gramineae and fruit tree seed with <i>Bacillus</i> and <i>Trichoderma</i> species. Acts as biostimulator and protector from germination onward.

● Nutrients What the crop and the biology need to work

05 PRODUCTS

Begin	Starter nutrition for the establishment phase, when root volume is still too small to forage for itself.
Veni Biosulfur	Microbially processed sulphur in a liquid foliar formulation, taken up immediately by the plant. Produced from a waste stream and aimed at sulphur deficiency.
Vidi Funda	Blend of legume meal, maize, seaweed extract and minerals. Delivers organic nitrogen and raises beneficial microbial populations in the soil.
Vidi FunCal	Vidi Funda with ready to use calcium for strong cell walls. Trials report a yield increase of more than 15 per cent.
Veni Calcium	Calcium oxide enriched with seaweed extract, formulated for foliar application and direct absorption where a soil calcium correction would arrive too late.

● Soil stimulants Keeping the system working under stress

05 PRODUCTS

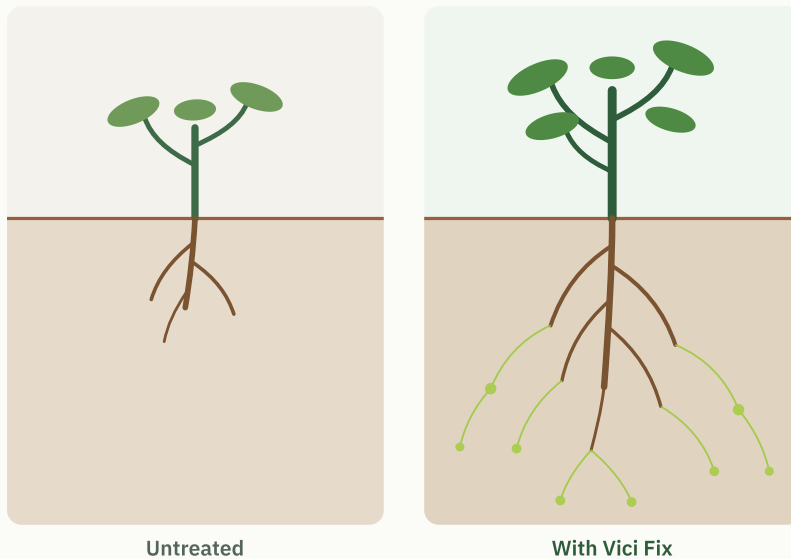
Vidi Terrum	Free amino acids in herbal extract. Supports metabolism, improves fruit set and produces larger bulbs and tubers.
Vidi Parva	Tryptophan and free amino acids with <i>Ascophyllum nodosum</i> seaweed extract, aimed at root development and soil microbial activity.
Vidi Fortum	Seaweed extract with betaine. Stimulates soil microorganisms and improves tolerance to drought and salinity across all crops.
Veni Amino	23 per cent amino acids including 15 per cent free L-amino acids from enzymatic hydrolysis, covering nearly all twenty essential amino acids.
ForzaFol	Fulvic acid in peppermint oil for abiotic stress resistance. Not compatible with calcium containing products or systemic pesticides.

04 CHAPTER FOUR · CASE STUDY

Stronger chrysanthemums

Rising root knot nematode pressure was wearing the crop down. A split trial put Vici Fix against the grower's standard programme.

FIGURE 3 · OBSERVED ROOT DEVELOPMENT



Schematic representation of the difference reported by the grower. Both sections were grown under identical conditions.

TRIAL AT A GLANCE

Crop	Chrysanthemum
Grower	Rubens nursery
Challenge	Root knot nematodes
Product	Vici Fix
Design	Treated and untreated sections
Partners	Van Iperen, Koppert, Reka

WHAT THE GROWER REPORTED

- A visibly stronger root system in the treated section.
- Improved plant vigour and a healthier, more resilient crop.
- Performance that held up across several successive cycles.
- Now part of the grower's standard programme.

"Plants treated with Vici Fix developed a stronger root system and showed improved plant vigour, resulting in a healthier and more resilient crop."

RUBENS NURSERY · FROM THE FIELD

15%+

yield increase reported for Vidi FunCal in separate trial work.

One nursery is not a dataset. It is a signal, and it is the kind of signal we then take into replicated work with distributors and research partners before a claim reaches a label. The trials we run with Koppert Belgium, Van Iperen and Hanseplant follow the same route.

05 CHAPTER FIVE

From spore to soil

Reka is young as a company and old as a body of work. The products in this paper carry more than a decade of development behind them.

HOW WE GOT HERE

- 2012**
The Veni, Vidi, Vici line launches in Germany.
- 2013**
Panoramix introduces microbial seed treatment for arable crops.
- 2017**
Mycorrhiza product development begins in earnest.
- 2021**
Manufacturing capacity established in India.
- 2022**
Headquarters open in Bleiswijk, the Netherlands.
- 2024**
Reka is founded in January as an independent company, out of Koppert Biological Systems.
- 2025**
Hyderabad comes online, one of the world's largest single location mycorrhiza production sites.

WHY WE PRODUCE IT OURSELVES

A biological product is only as good as the batch in front of you.

Living inoculants are unforgiving. Viability drops with the wrong temperature, the wrong carrier or the wrong month in a warehouse. A grower does not see any of that. They see a product that worked last season and did nothing this one.

That is the reason we produce in house rather than buying in bulk biomass. Vici Fix spores are produced in vitro, which keeps the formulation pathogen free and lets us guarantee the count on the label rather than estimate it.

It is also why we distribute through partners who understand the crop rather than through the widest possible channel. Koppert Belgium, Van Iperen and Hanseplant sit close enough to the grower to catch a problem while it can still be fixed.

WHERE TO FIND US

Bleiswijk, NL
Head office

Belgium
Koppert
Belgium

Hyderabad, IN
Production

Kazakhstan
Hanseplant

50+

years of combined experience across the team.

14

specialists across research, development, operations and supply chain.

13

products across inoculants, nutrients and soil stimulants.

3

continents served, with shipping worldwide.

Start with a single block.

We would rather be judged on one section of one field than on a brochure. Pick a crop that is under pressure, split the block, and let the season decide.

01

Talk to an agronomist

We start from the crop, the soil analysis and the current programme, not from a catalogue.

02

Run a split block

Treated and untreated under identical conditions, with your own distributor present.

03

Decide on the result

If it does not pay for itself, it does not belong in your programme. We will say so first.



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