

BIOLOGICAL PRODUCTS AND SOIL HEALTH

nexus AG
CUSTOMISED CROP SOLUTIONS

Table Grape Conference 2026

5 August 2026

BIOLOGICAL PRODUCTS | Groups

BIOSTIMULANTS

BIOLOGICAL CONTROL

BIO-FERTILISERS

BIOSTIMULANTS

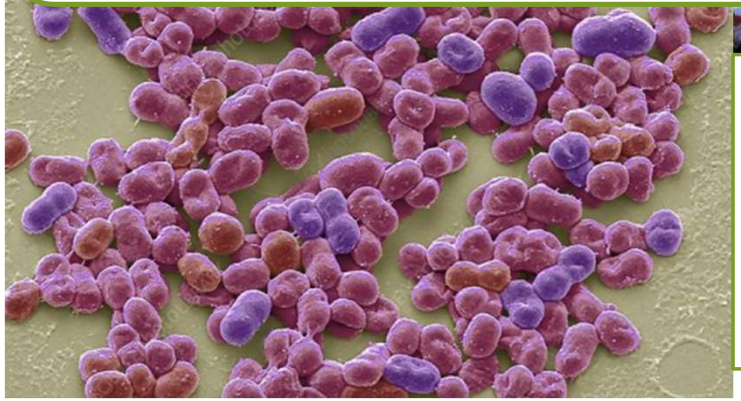
MICROBIAL

(microbial inoculation)

Nutrient Use Efficiency (NUE)
Bio-fertilisers

Plant growth promotion (PGP)

- **Improve nutritional status of plants**
- **Regulate plant growth**
- **Improve environmental condition of the soil** (root development and health)



Trichoderma sp.

Bacillus sp.

Mycorrhizae

Yeasts



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BIOSTIMULANTS

NON - MICROBIAL

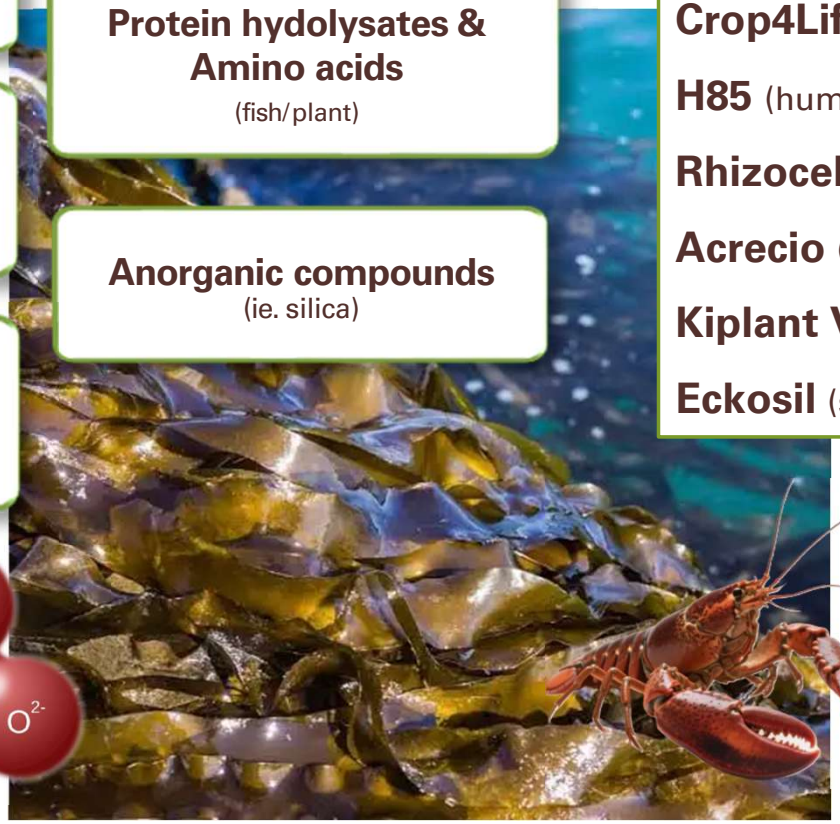
Seaweed & Plant extracts

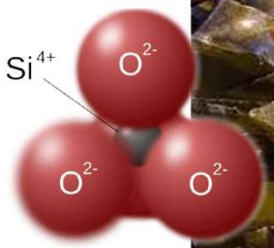
Organic acids
(humin / fulvin)

Biopolymers
(ie. chitosan)

Protein hydolysates & Amino acids
(fish/plant)

Anorganic compounds
(ie. silica)







Kelp products (Afrikelp, Kelpak)

Crop4Life

H85 (humic acid)

Rhizocel (humic&fulvic acid)

Acrecio (amino acids, humic&fulvic acid)

Kiplant VS-04 (chitosan)

Eckosil (silica)

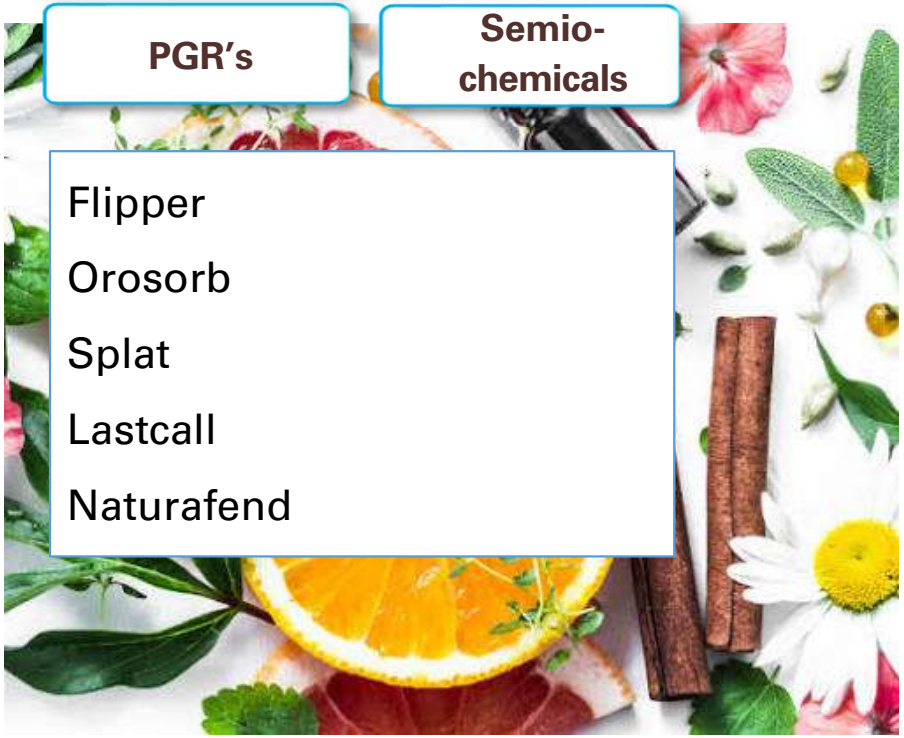
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BIOLOGICAL CONTROL

BIO-PESTICIDES

BIO-CHEMICALS

- Plant extracts
- Organic acids
- PGR's
- Semio-chemicals



- Flipper
- Orosorb
- Splat
- Lastcall
- Naturafend

MICROBES

- Bacteria
- Fungi
- Protozoa
- Viruses
- Yeasts
- Other

- Serenade
- Double Nickel
- Eco77
- Julietta
- Cryptogran / Cryptex

BIOLOGICAL CONTROL

MACRO- ORGANISMS

Insects

Mites

Nematodes







Predatory mites - Spidex

Predatory beetles - Cryptobug

Parasitic wasps – Aphytis, Perminitus

EPN's - Larvanem



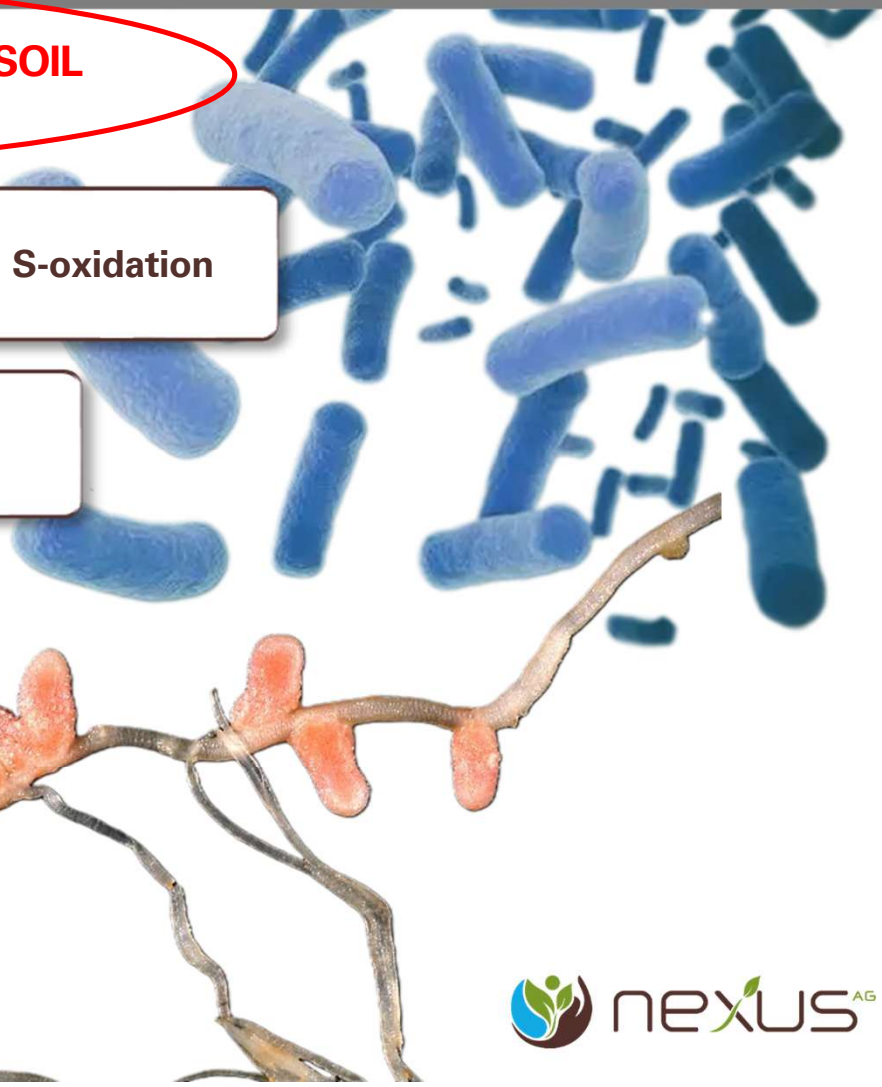
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BIO-FERTILISERS

MICROBES used to improve plant nutrient uptake **FROM THE SOIL**

(converts nutrients to a form that plants can take up more easily)

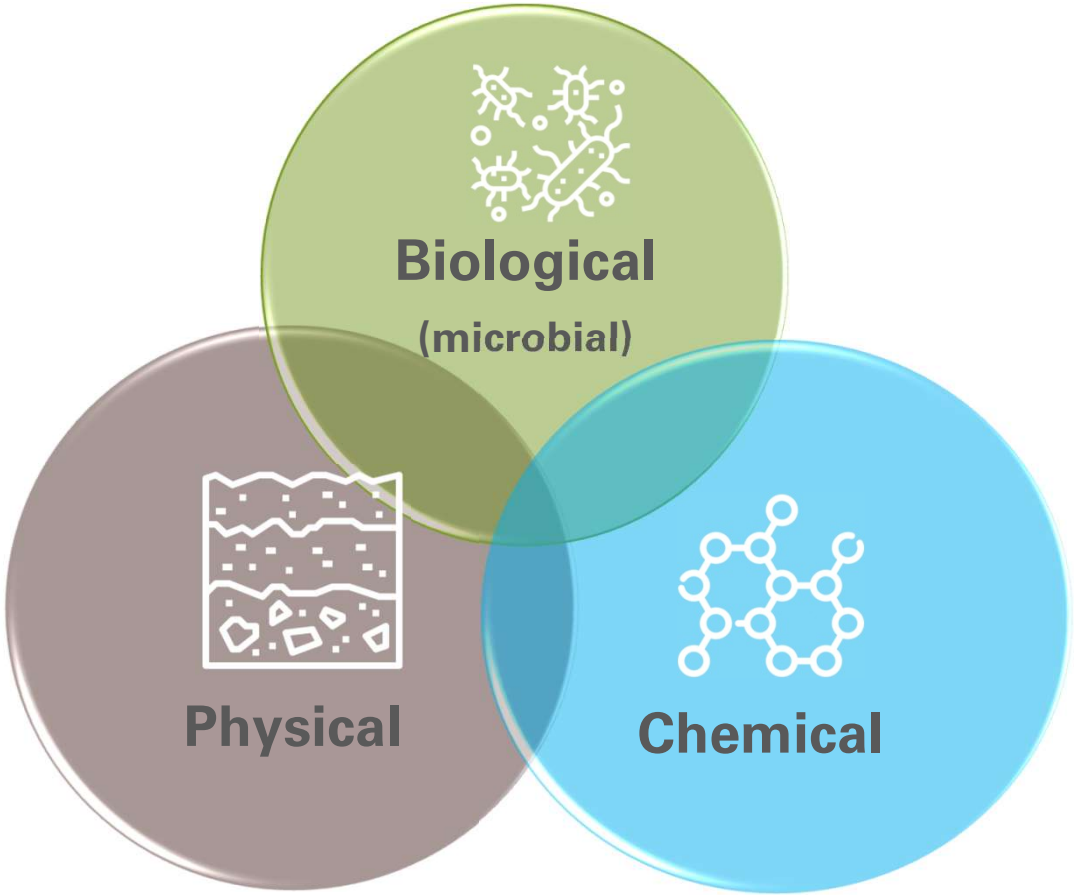
- N - fixation
- P_2O_5 Solubilisation and mineralisation
- K-solubilisation
- S-oxidation
- Micro Element Chelate
- Nutrient mineralization
- Seed Treatments



- Bacillus spp. (Seed treatments)
- Pseudomonas sp. (P – solubilisation)
- Azospirillum sp. (N – fixation)
- Rhizobium sp. (N – fixation)
- Mycorrhizae sp.

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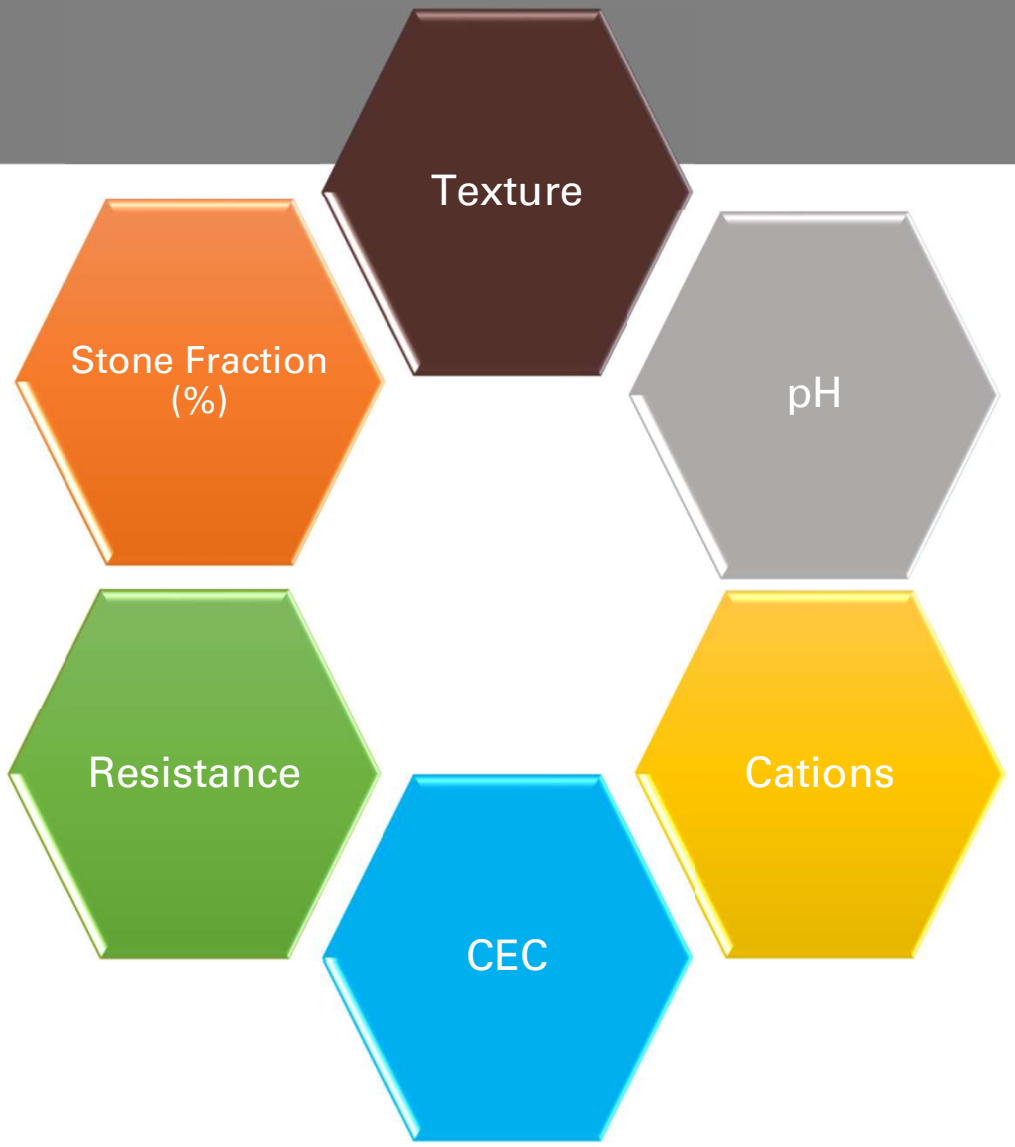
SOIL HEALTH (Soil Function)




Physical
Penetration Resistance
Gross Density
Aggregate stability
Slaking
Infiltration
Water Holding Capacity

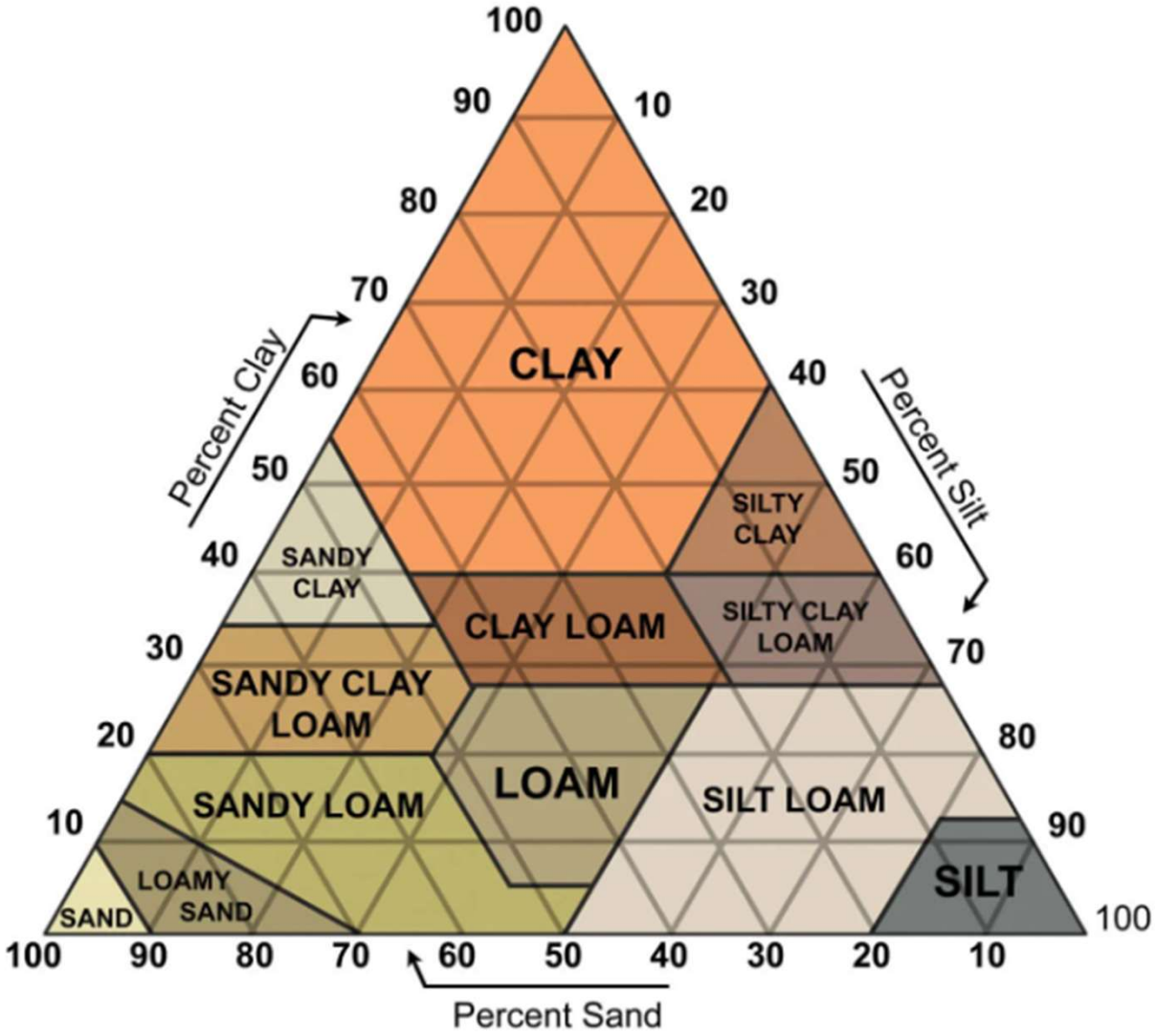
Chemical

From soil analyses



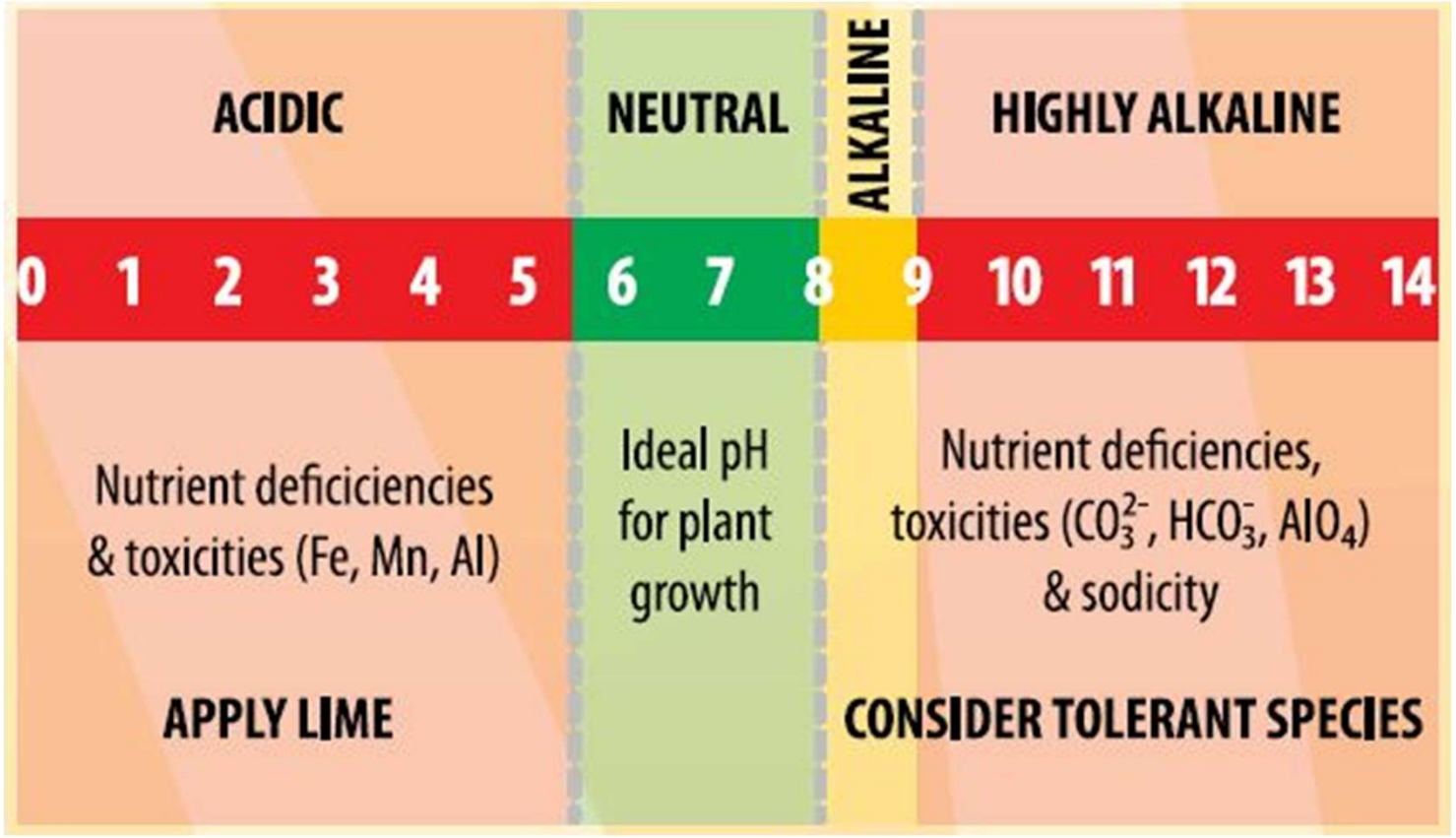
Chemical

Texture



Chemical

pH

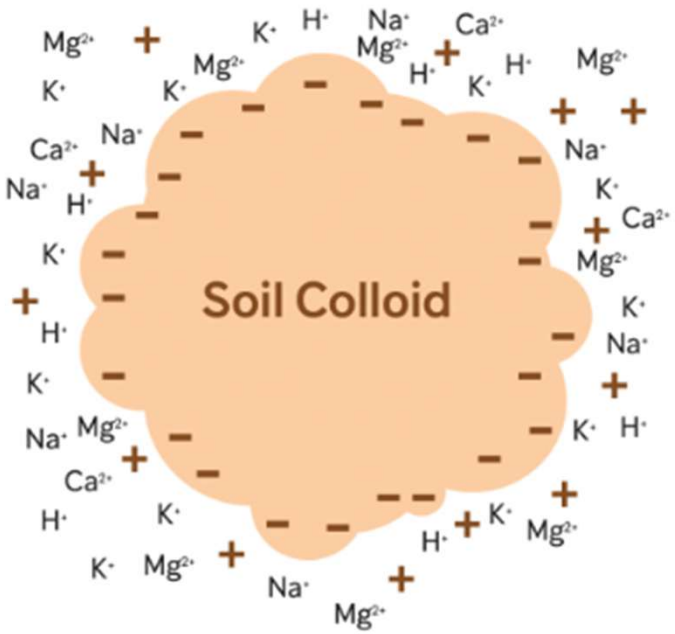


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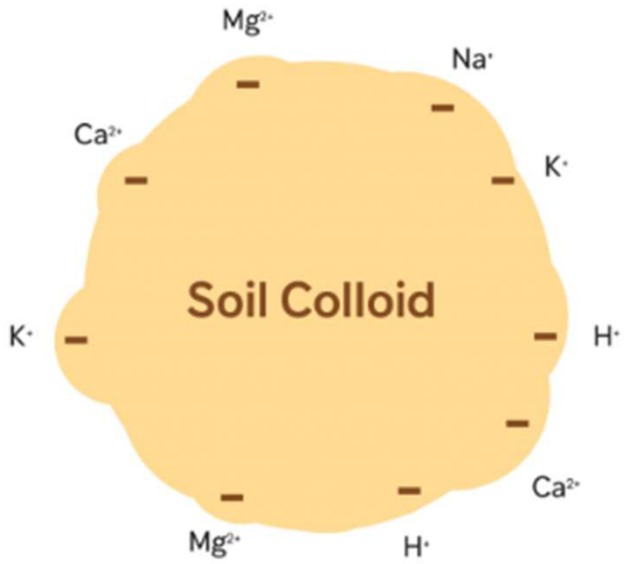
Chemical

CEC

HIGH CEC SOIL



LOW CEC SOIL



Capacity of the soil to adsorb plant nutrient cations (+ charged molecules)

Chemical

Resistance

Inversely proportional to soil salinity

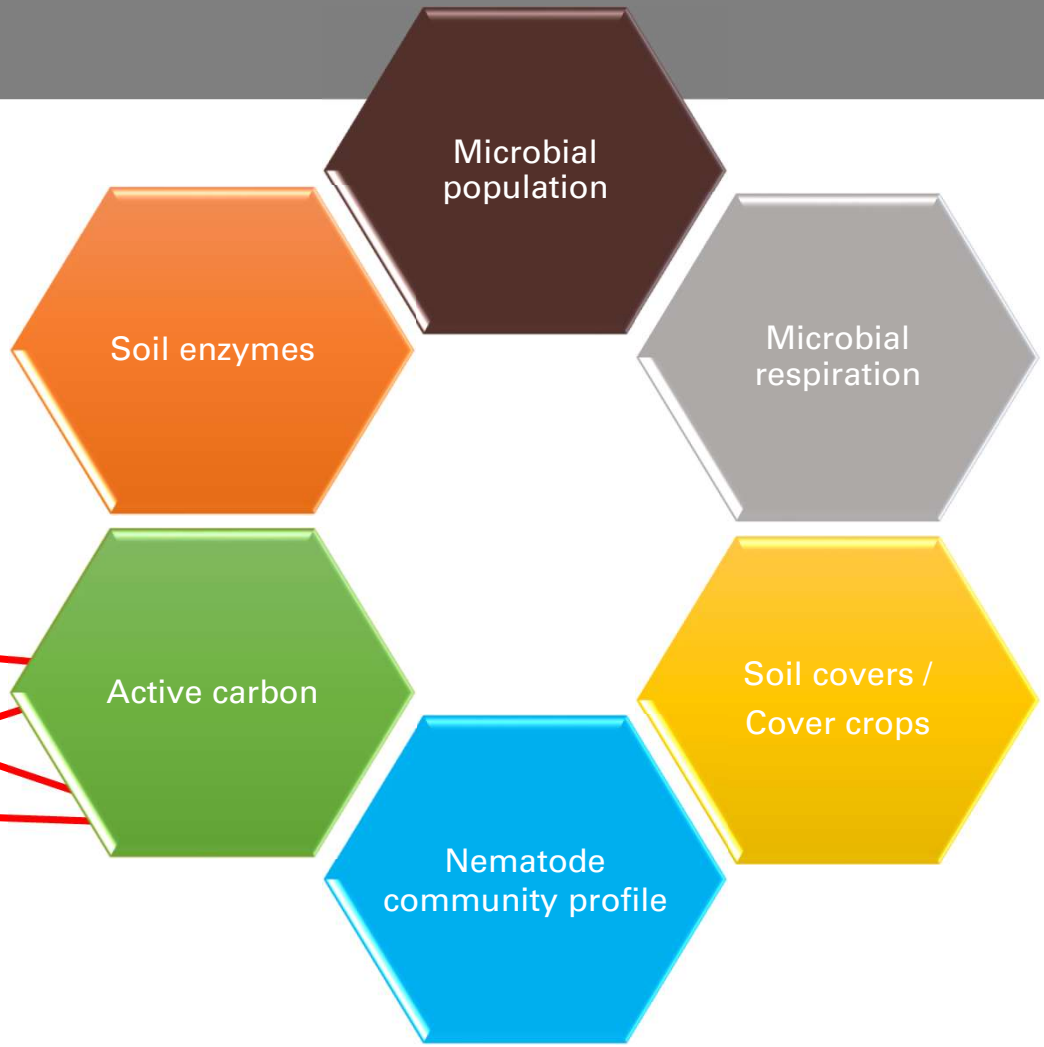




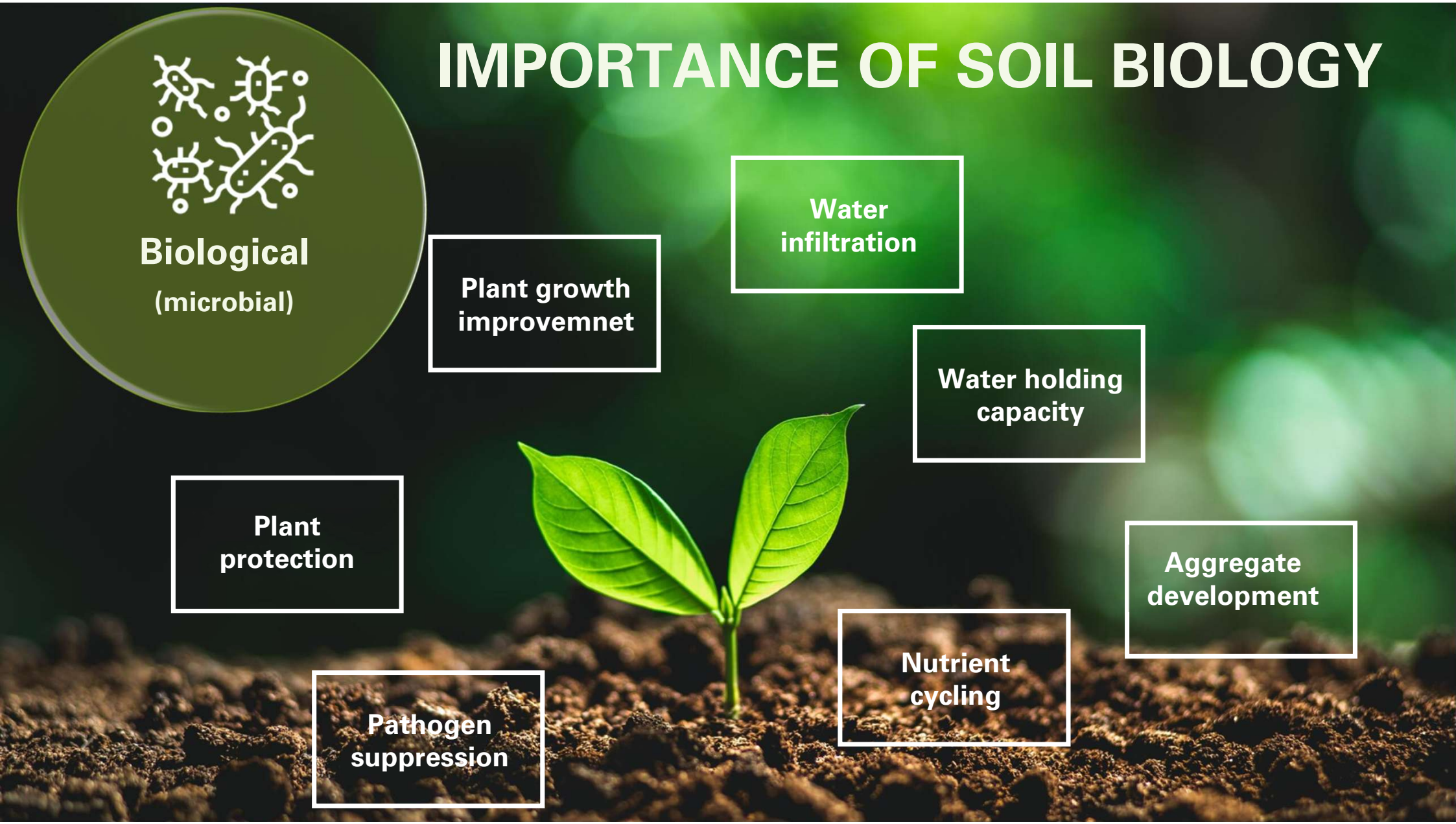
Biological

(microbial)

The challenge is to determine AND interpret the biological component.



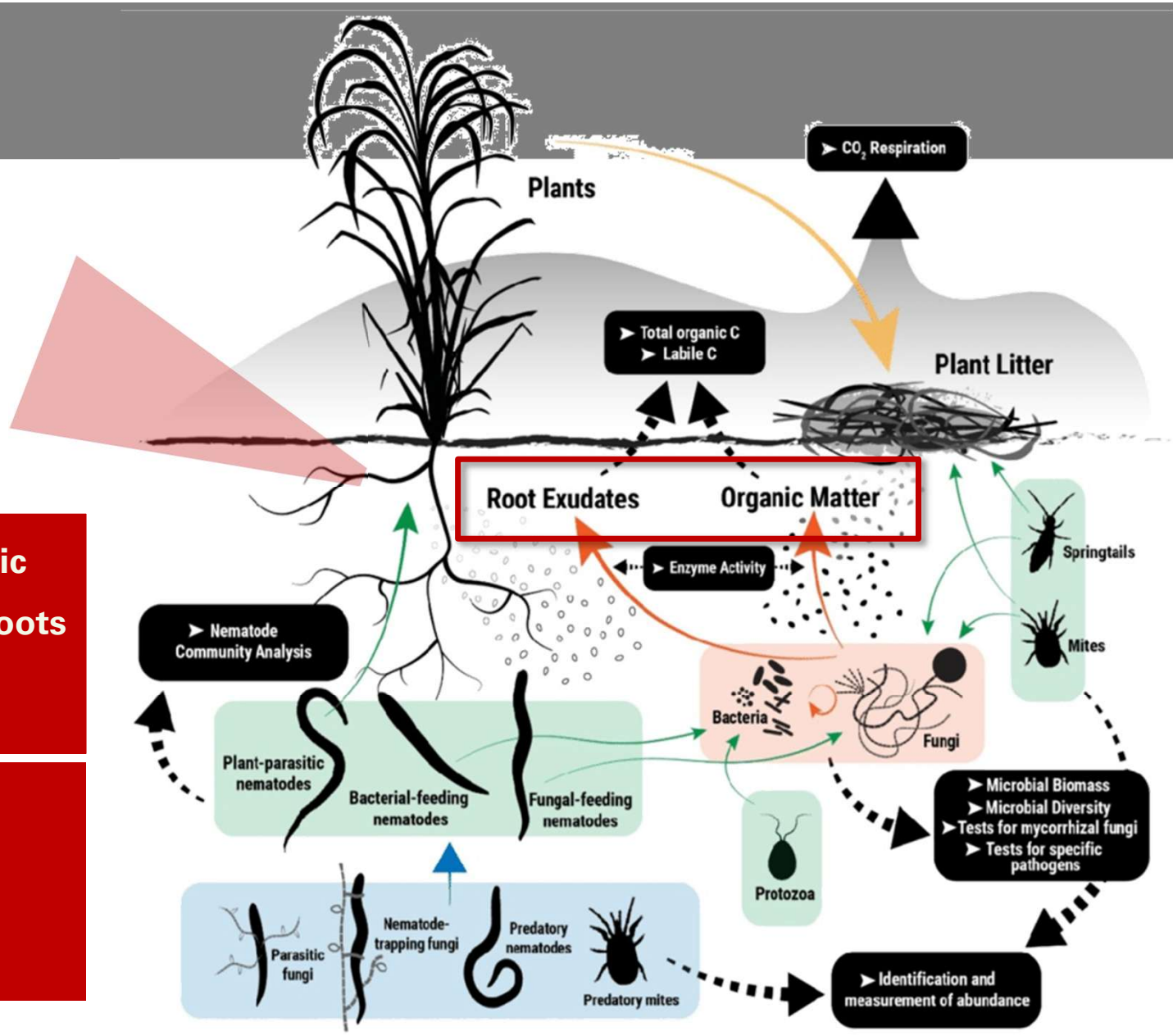
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IMPORTANCE OF SOIL BIOLOGY
Biological
(microbial)
Plant growth improvemnet
Water infiltration
Water holding capacity
Plant protection
Aggregate development
Nutrient cycling
Pathogen suppression

Biological
(microbial)

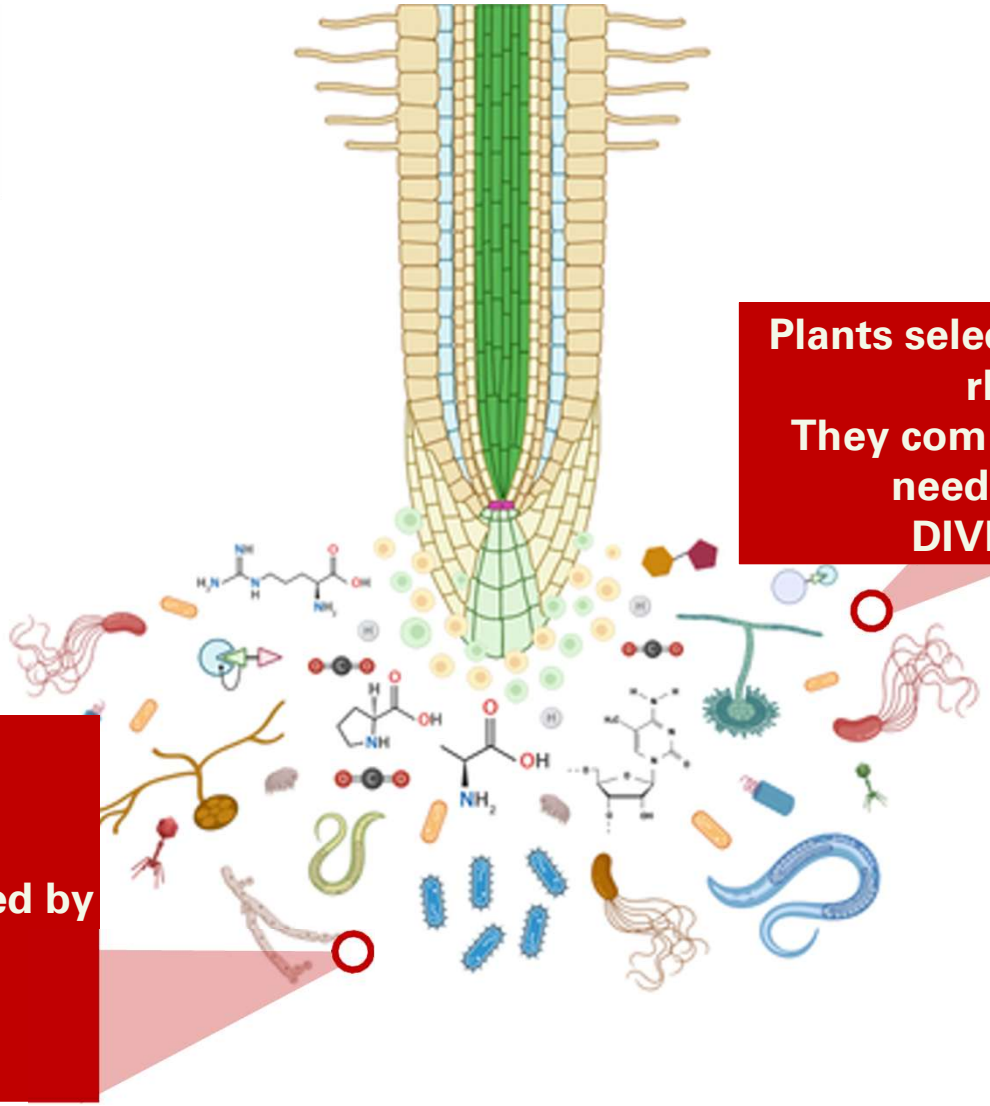
30–35% of the plant's photosynthetic products (sugars) are exuded by the roots to feed soil microbes

HEALTHY PLANTS
=
HEALTH MICROBIAL POPULATIONS



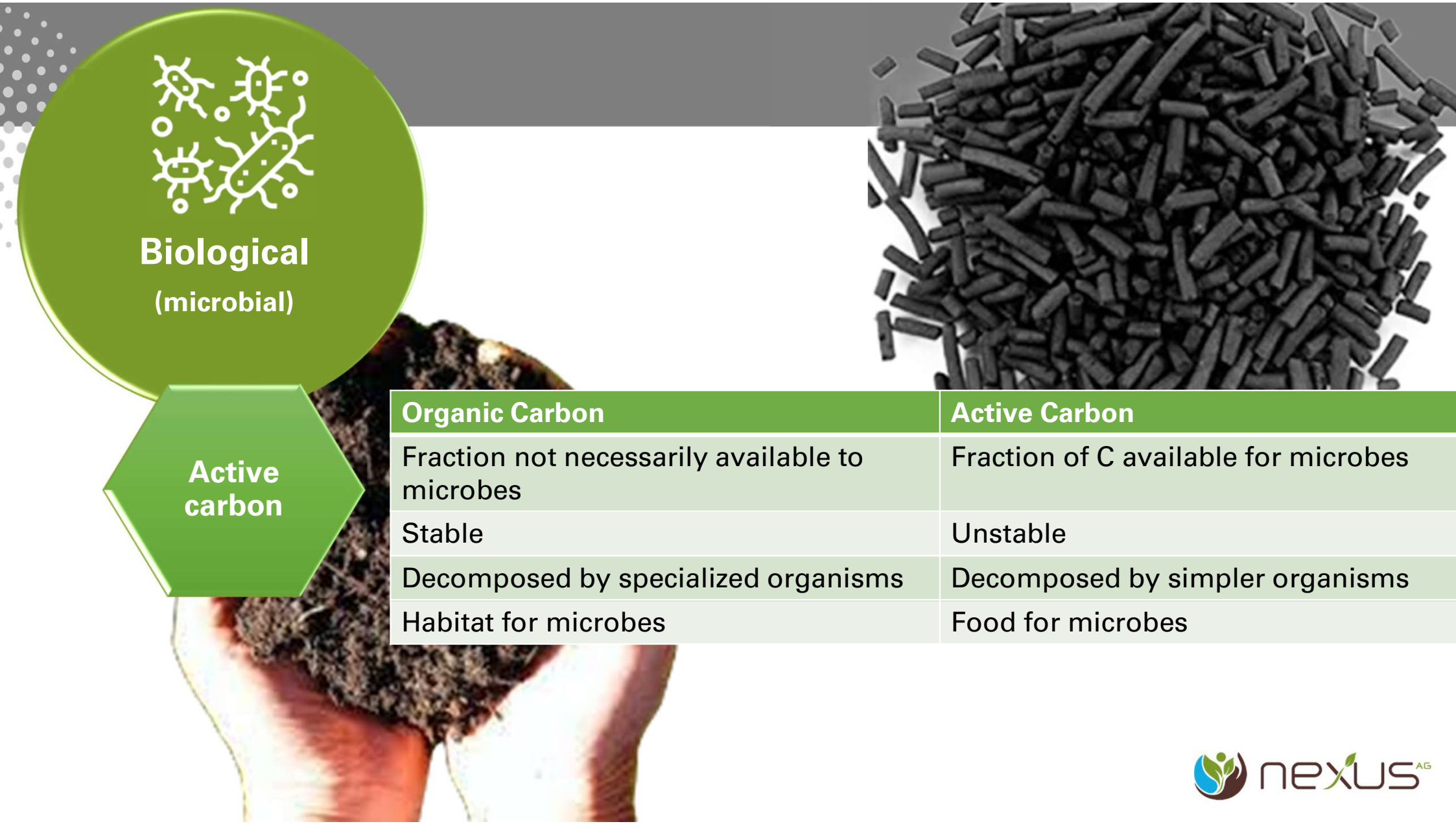
Biological

(microbial)



Plants select for microbes in the rhizosphere.
They communicate what they need (ie. Nutrients).
DIVERSITY is key.

Exudates (sugars, organic acids, allelochemicals, hormones) are secreted by the roots to feed soil microbes.



Biological

(microbial)

Active carbon

Organic Carbon	Active Carbon
Fraction not necessarily available to microbes	Fraction of C available for microbes
Stable	Unstable
Decomposed by specialized organisms	Decomposed by simpler organisms
Habitat for microbes	Food for microbes

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KEEP IN MIND!!

Biological

(microbial)



First, correct the physical and chemical properties of the soil before looking at the biology.

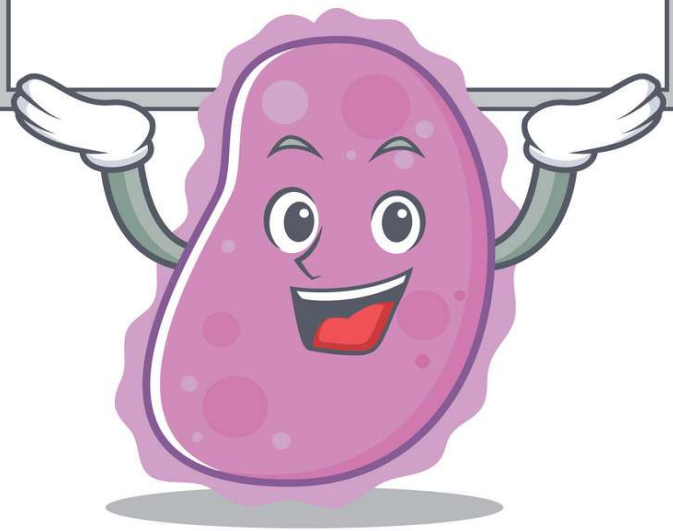
- The aim of using biological products is to make our nutrition programs more effective (managing N, P, and K levels).
- Biological products are not a “quick fix” → a long-term strategy.
- “Recipes” won’t necessarily work → find out (by testing) what works on your farm, under your unique circumstances.

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Thank you



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