BIOLOGICAL SEED INOCULATION

with unique, innovative technology

for maize, cereals, soya and legumes

NovaFerm®

Manufacturer:
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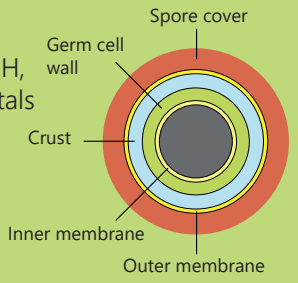
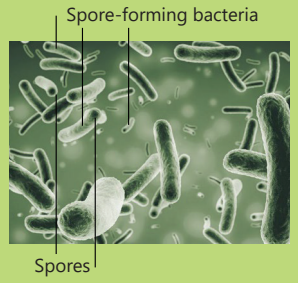
Bacterial spores

Persistent, longevity form
(endospore, cysts, cocon)

- rest form; inactive;
- tolerance against UV and solar radiation, heat, cold, pH, high tolerance to heavy metals (Cu, Zn)
  long shelf life of product
- wide range of biological
- activity; long lifespan





- **"Armored Knight"**

Spore formation

- 0 - 1. phase

In phase 0 - 1. unequal cell division occurs within the vegetative cell.

- 2. phase

As a result of detachment and encapsulation, so-called pre-spores are formed in phase 2, which can move freely within the cytoplasm of the stem cell.

- 3. phase

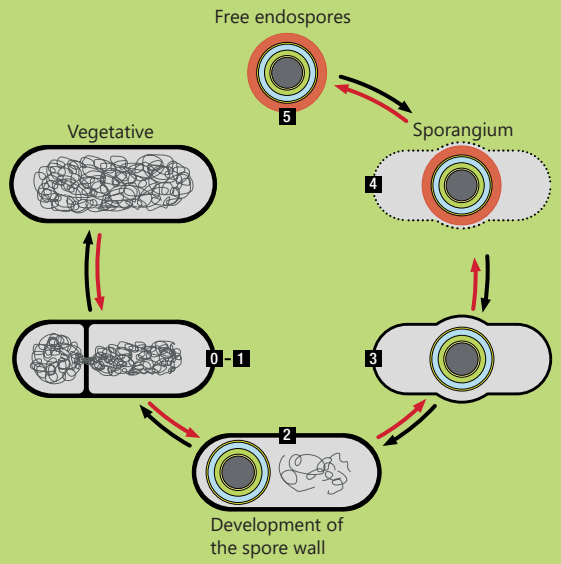
In phase 3, the peptidoglycan is taken up between the two membranes to form a crust.

- 4. phase

In phase 4. the spores are further matured by hydration to form a loosely intertwined spore coat.

- 5. phase

In the 5th and final phase, the stem cell is autolyzed, during which thick-walled, mature spores will be released.

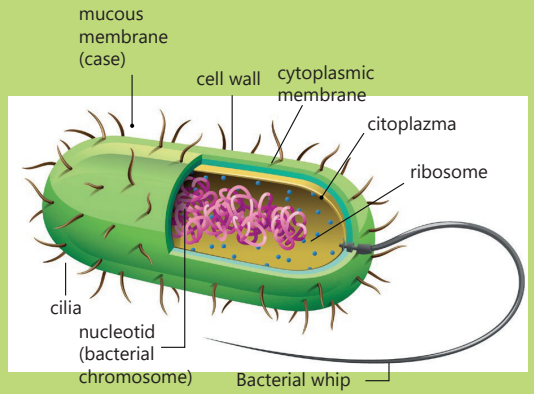


Vegetative bacterial cells

Vegetative form only

- functional, active;
- highly sensitive to UV and solar radiation, heat, cold, PH
- demolished by excess of heavy metals (Cu, Zn);
- short self life of product
  weak range of biological
- activity, short lifespan

- **"Nude man"**

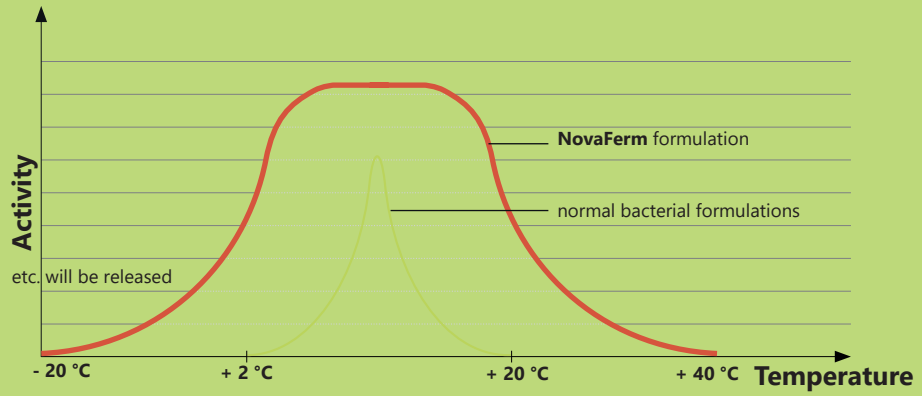


Efficiency

Bacteria versus bacterial spores or other persistent forms.

Based on the positive properties of our new bacterial preparation, we aim at a broad spectrum of effects against conventional bacteria.

According to its cold and heat tolerance, our preparations are active at both low and high temperatures.



RhizoA

Biological seed treatment with unique, innovative technology for inoculation soy and other legume plants

Bacterial strains*
Bradyrhizobium japonicum Rhizobium meliloti Bacillus licheniformis

Extremophile, symbiotic N-fixing bacterial preparate with fungistatic effect and wide biotic and abiotic tolerance

Bradyrhizobium japonicum
This strain is responsible for forming the root-nodules of soye. Our protected *Bradyrhizobium* strain is extremophile and incidentally shows very high tolerance to cold and heat.
In addition, after sowing the activity of the treated seed does not alter. It tolerates increased temperatures caused by air drying and its activity remains steady in the presence of increased levels of other heavy metals (e.g. pests, mineral fertilisers, or inoculants are applied in the same operation during sowing).

Rhizobium meliloti
This strain is responsible for forming the root-nodules of more Legumes. Our protected Rhizobium strain is extremophile and incidentally shows very high tolerance to cold and heat.
In addition, after sowing the activity of the treated seed does not alter. It tolerates increased temperatures caused by air drying and its activity remains steady in the presence of increased levels of other heavy metals (e.g. pests, mineral fertilisers, or inoculants are applied in the same operation during sowing).

Bacillus licheniformis (Bl)
This strain shows a fungistatic effect against pathogenic fungus, which presented in seed-bed and grows with the juvenile plant and protects it from infestation. The strain prevents infection of treated seed against various mycotoxin producing, phytopathogenic fungi.

Modulated Phage Trap®
The multi-component system working as seed inoculant and able to reduces the negative impact of the dangerous bacteriophages in rhizosphere. The bacterial strains show activity as a alternating special bacteriophage trap, which anchor the depressive viruses, which attack the Rhizobacteria in soil and decrease the nodulation efficiency.

Application / application rate

Soya: 2 L RhizoA / tons of seed
All other legumes: 2 - 5 L Rhizo A / tons of seed Glucose 150 g sugar/ molasses / tons of seed for agglutination agent
RhizoA can be used with all conventional inoculation processes.

RhizoB

Biological seed treatment with unique, innovative technology for inoculation of maize, wheat, barley, rye, other cereals

Bacterial strains*
Azospirillum lipoferum Bacillus licheniformis

Extremophile, associative N-fixing bacterial preparate with fungistatic effects w

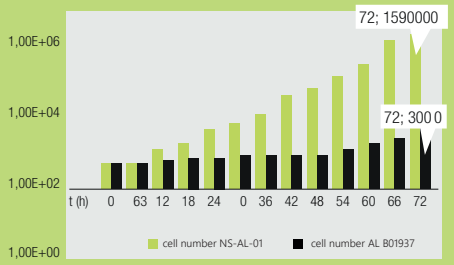
Azospirillum lipoferum
The *Azospirillum* strains of preparates fix nitrogen from the air and converts the N2 into Ammonium NH4+ and stores this in a relatively large organic molecule. This means that this kind of biologically bound nitrogen will not leach out from root-zone. In addition, these strains produce biogenic amino acids (tryptophan), root auxins and gibberellins and therefore plays an important role in root development.

Bacillus licheniformis
This strain shows a fungistatic effect against pathogenic fungus, which presented in seed-bed and grows with the juvenile plant and protects it from infestation. The strain prevents infection of treated seed against various mycotoxin producing, phytopathogenic fungi.

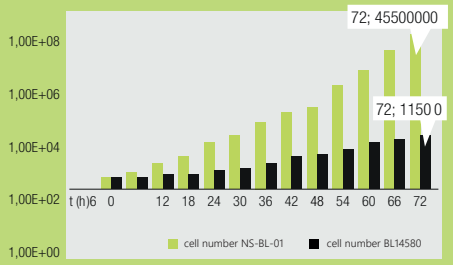
Modulated Phage Trap®

The multi-component system working as seed inoculant and able to reduces the negative influences of the dangerous bacteriophages in rhizosphere. The bacterial strains show activity as a alternating special bacteriophage trap, which anchor the depressive viruses, which attack the innoculant in soil and decrease the root-colonisation efficiency.

Growth of *Azospirillum* by UV radiation



Growth of *B. licheniformis* by UV radiation



Application / application rate

5 L RhizoB / tons seed
Glucose 150 g sugar/molasses / tons of seed for agglutination agent
RhizoB can be used with all conventional inoculation processes.

without inoculant

conventional inoculant

5 l RhizoB/tons of seed