

Humic Acids

A part of the seed coating

Bio-stimulant

Strength from the very beginning

WASP

Water Absorbing Seed Process

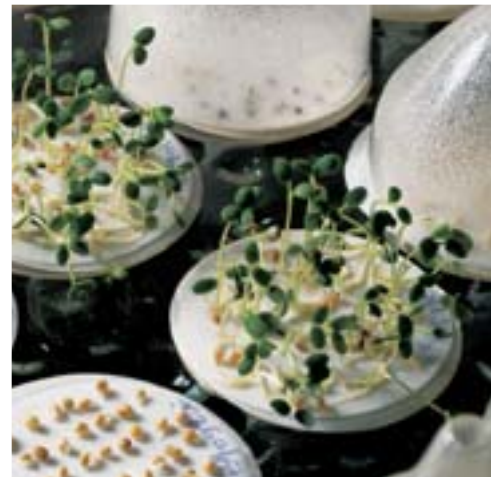
Rhizobium

Rhizobia bacteria for a better N-nodulation



Feldsaaten Freudenberg

Seed Coating Technology



Seed Coating Technology by Freudenberger

Seed coating is the application of different substances, layer by layer, in revolving drums. It is a complex process carried out by experienced technicians.

Coated seeds represent an enormous advance and can be applied to all kinds of seeds. It allows for a safe controlled and easy sowing. The advantages of this advance in seed technology can also be applied when sowing mixtures. Coated seeds can be used to advantage in extreme conditions and in challenging regions. Seed technology is the future. Our latest method of coating with its unique Water Absorbing Seed Process allows for seeding in more extreme conditions, and with minimal cultivation with a reduced irrigation requirement.

Water contact



Soaking / Imbibition



Germination

Seedling



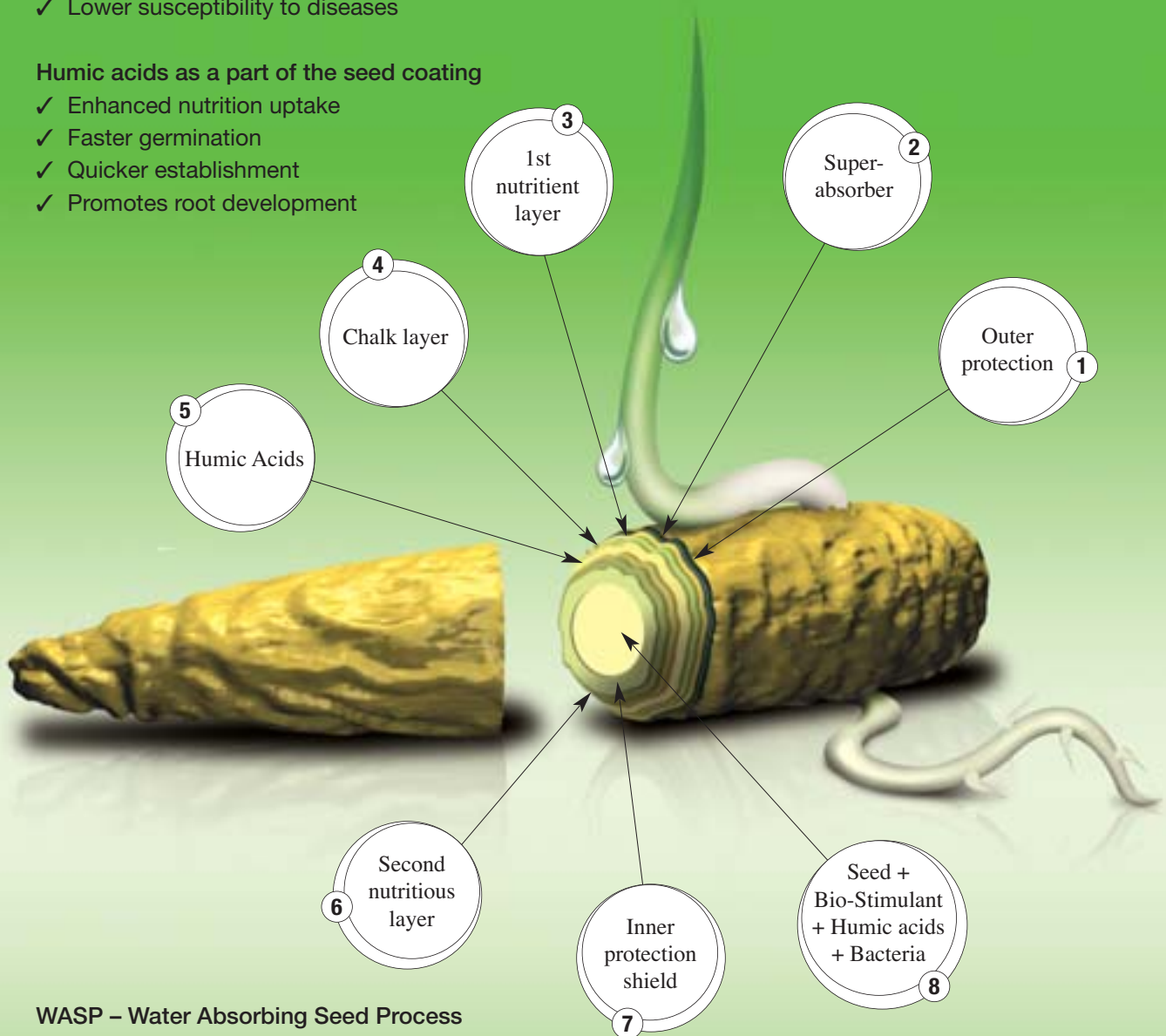
The coated seed system

Effects of bio stimulant

- ✓ Vitality
- ✓ Healthy seedlings
- ✓ Lower susceptibility to diseases

Humic acids as a part of the seed coating

- ✓ Enhanced nutrition uptake
- ✓ Faster germination
- ✓ Quicker establishment
- ✓ Promotes root development



WASP – Water Absorbing Seed Process

- ✓ Water reservoir (absorber) placed around the seed
- ✓ Absorber takes in 100 times more water than non-coated seed
- ✓ Additional water for germination and establishment of the seedling
- ✓ Overcomes stress situations

Bacteria

- ✓ Rhizobia bacteria for a better N- nodulation (clover / alfalfa)

Seed coating with humic acids

This seed treatment affects the whole plant and its life.

Seeds

The treatment of the seeds with diluted humate solution stimulates the cell membranes as well as the metabolic activities and increases thereby the germination rate.

Roots

The capacity of the root to take up nutrients is increased by using humic acids.

Plant growth

The plant development increases by enhanced cell assimilation and photosynthesis.

Before the seeds are coated with nutritious elements, they are soaked in diluted humate solution.



Humic acids as a part of the seed coat – direct contact to the seed



Humic substances can be found in all soils and waters and arise from vegetable decomposition.

Scheme of carbonisation process
 moor → peat →
 leonardite (humic acids)
 → lignite

Humic acid optimises the root development and therefore the nutrient uptake of the seedling.



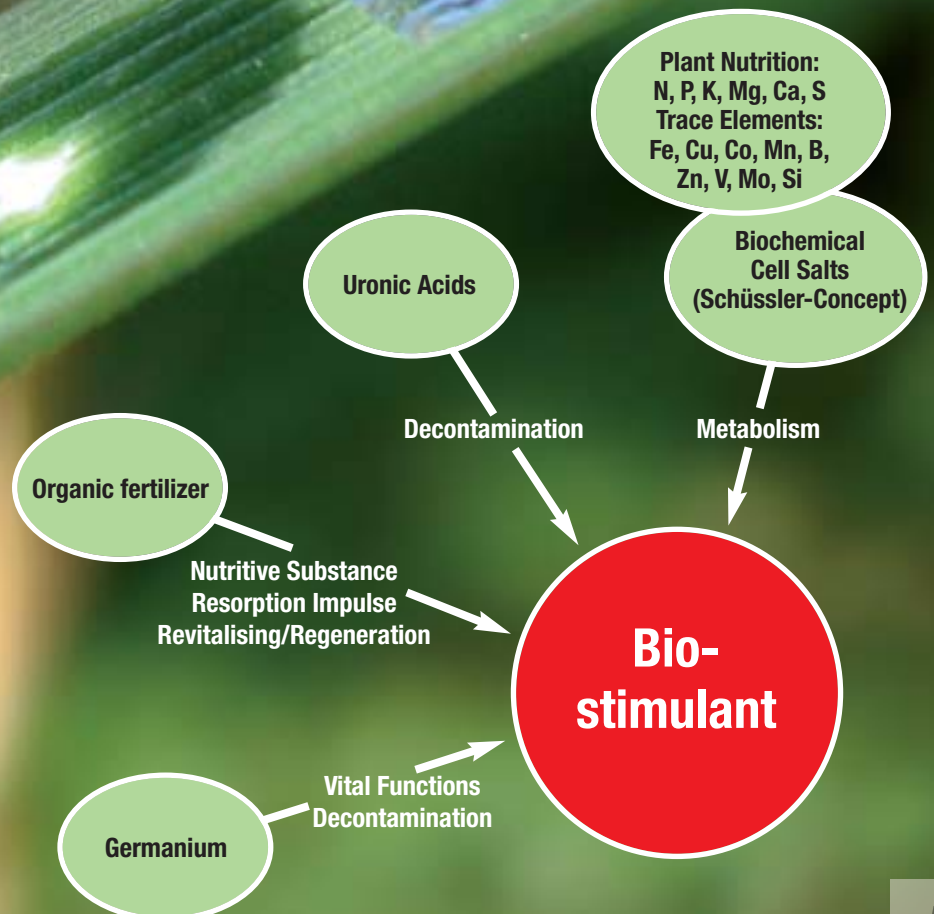
Bio – stimulant in the seed coat

Strength from the very beginning.

An innovative plant strengthening tonic to reduce the use of insecticides and fungicides.

Advantages by using Bio-stimulant

- ✓ Quality of the plants and growth will be increased
- ✓ Reduction in the susceptibility to pests and diseases
- ✓ use of fungicides can be reduced
- ✓ treated plants show an increased root-growth
- ✓ harmless for humans, animals and the environment
- ✓ efficient and economical usage



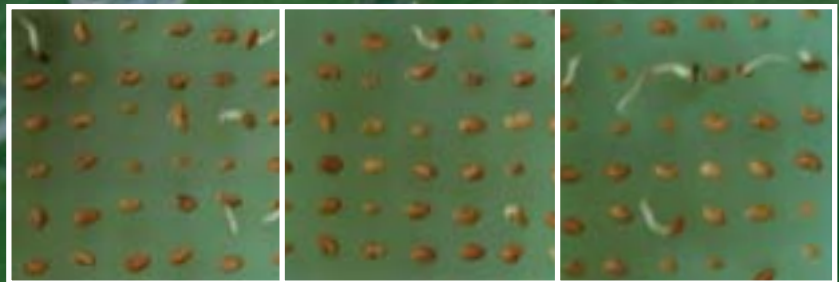
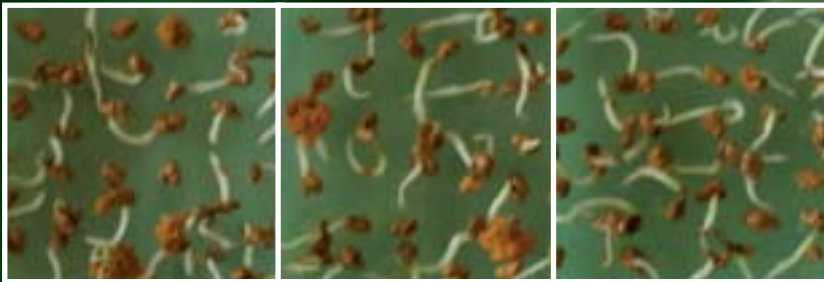
Innovation
WASP Technology
binds water



The new generation of coated seeds

WASP (Water Absorbing Seed Process) This unique seed-coating technology provides the seed(ling) with additional water and nutritious elements from the very beginning. This innovative seed-coat includes a water absorber, which ensures permanent humidity and a fast and safe germination. The additional water helps the seedling especially under dry conditions. Nearly every kind of seed can be supplied with our new WASP system.

Germination and root development with WASP



Germination and root development without WASP

Rhizobium

New technology
Inoculation & coating
For clover species
and alfalfa

Nitrogen - fixing bacterium
in the seed coat.

The seed is inoculated
and coated

- ✓ The coat protects the bacteria from UV-light and high temperatures
- ✓ Bacteria are viable and mature during storage
- ✓ Seeds can be stored up to a year without harming the viability
- ✓ Bacteria are placed close to the seed and reach the young roots of the plant, when N-Fixation can start



3 months after seeding coated lucerne
Visible Nodule-Bacterium for a better N-Fixation



Amenity Applications

Sports
Golf
Public and
Private Lawns



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Forage Applications

Grazing Swards
Silage Swards
Horse Paddocks
Clover
Alfalfa
Phacelia