

NATURCOMPLET[®]-G

Activated Humic Acids from Leonardite

Increases soil fertility
Improves fertilizer use efficiency

Factors that affect soil fertility

Chemical

- Nutrient deficiency, due to soil depletion or blockage.
- Phytotoxic ion contamination (sodium).

Biological

- Low or non-existent microbial and microfauna activity in the soil.
- Pathogenic organism contamination.
- Loss of biological balance in the soil.

Physical

- Loss of the soil physical properties, basically, loss of soil structure.
- Loss of organic matter.

Loss of soil structure

- ▶ **This is the most important factor, and also:**

“The loss of soil structure generally acts as a catalyst to accelerate the incidence of chemical and biological factors causing soil fatigue.”

Prof. Alarcon. (Cartagena University, Murcia, Spain)

- ▶ **Therefore:**

“Maintenance of the soil structure is essential to prevent crop yield losses caused by soil fatigue”

Observe the difference between a tropical soil and temperate areas

Soil structure

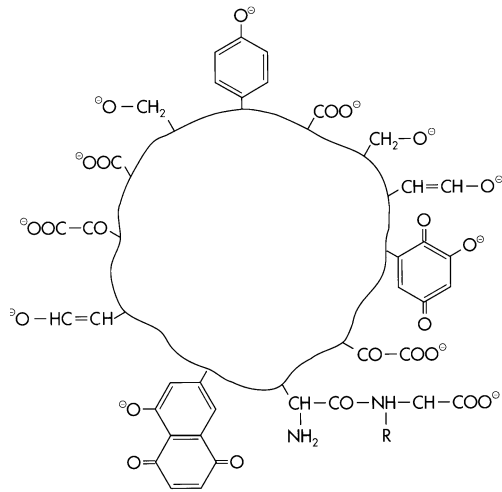
It is lost, among other reasons, due to:

- Use of heavy machinery or labor.
- Breakage of the aggregates due to differential swelling (fast moistening or drying).
- Mechanical breakage: The very irrigation process causes physical degradation of the soil (crust formation).
- The use of water with high sodium contents.
- Inadequate handling of fertilizers.
- This is all aggravated by the tropical climate (high temperatures, torrential rains, etc.), that contribute to erosion and excessive mineralization.

Soil structure

The structure conditions plant development to the same extent as nutrient content.

A deficient structure considerably decreases the effectiveness of a suitable nutritional program, given that neither root development conditions nor the nutrient vehicle to the roots are adequate.



Actions

Care for the soil structure through adequate farm management:

- Application of products to maintain and improve soil structure: soil improvers (humic acids, fulvic acids, polyhydroxycarboxylic acids, etc.) Very important.
- Use of fertilizing strategies that minimize the loss of nutrients.
- Adequate management of the fertilization process, both on a dosage and nutritional level.
- Supplementary supplies of salting out agents (sodium).

Soil improvers

- Includes products aimed at maintaining and/or improving soil characteristics from a chemical, physical or biological aspect and achieve optimum soil conditions for high production yields.
- Daymsa has the widest range available of products for soil application to establish a technical strategy for soil improvement:

Naturcomplet®-G

Improving soil fertility



Naturcomplet®-G: Extraction

- Naturcomplet®-G is a product formulated with activated leonardite for soil application.
- **Leonardite** is a plant origin mineral with a high concentration of humic acids. These come from leonardite extracted from **Daymsa's mines in Ariño (Spain)**.



Aerial view of the Santa Maria open-pit mine, at ...



...Ariño in the province of Teruel (Spain)

Partial view of the Santa Maria open-pit mine, at ...



...Ariño in the province of Teruel (Spain)

Accumulation of leonardite at the Santa Maria open-pit mine, at ...



...Ariño in the province of Teruel (Spain)



Daymsa's leonardite treatment and granulation plant in Ariño (Teruel, Spain)

Naturcomplet®-G: Presentation



Granule size 2 to 5 mm.

Naturcomplet®-G: Certifications for organic farming



Naturcomplet®-G: Composition

Naturcomplet®-G is a product formulated with leonardite activated by potassium salts, rich in humic acids.



GUARANTEED CONTENT

| | | | |
|-----------------------------------|-----|-----|-----------|
| Organic Nitrogen (N) | 1% | w/w | |
| Potassium (K ₂ O)..... | 5% | w/w | |
| Total Organic Matter..... | 35% | w/w | (50% odm) |
| Total Humic Extract..... | 35% | w/w | (50% odm) |
| Humic Acids..... | 30% | w/w | (42% odm) |
| Fulvic Acids..... | 5% | w/w | (8% odm) |
| Iron (Fe) Total..... | 1% | w/w | |

Naturcomplet®-G Humic Acids

- Loosen heavily compacted soils.
- Improve soil aeration.
- Improve soil permeability.
- Bind sandy soils.
- Increase water retention capacity.



Naturcomplet®-G Humic Acids

- **Improve nutrient assimilation.**
- **Reduce nutrient leaching.**
- **Allow for better root development.**

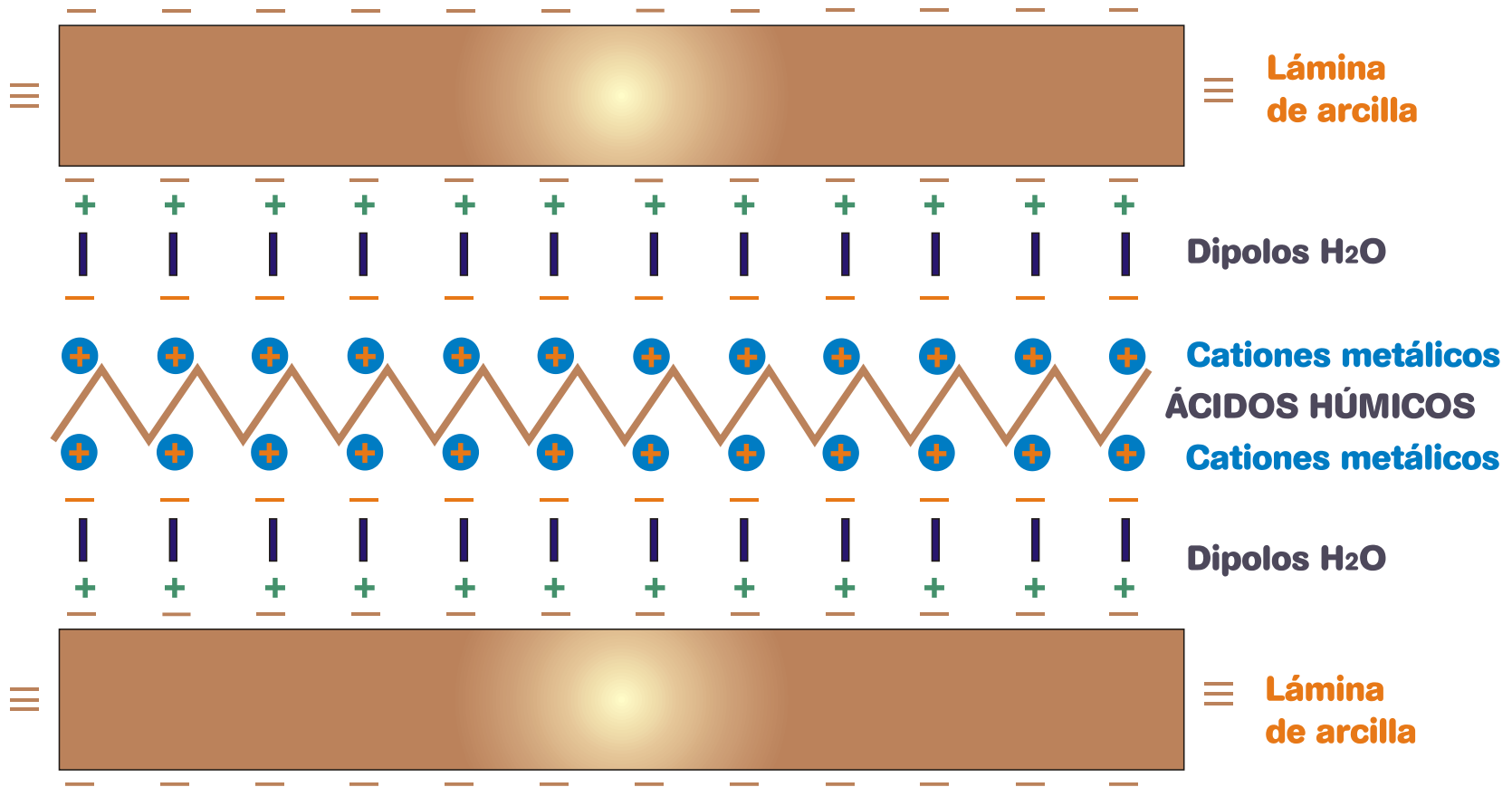


Naturcomplet®-G intervenes in soil fertility

- Improving its structure.
- Forming aggregates with the inorganic particles in the soil.
- Increasing its water retention capacity.
- Improving soil aeration.

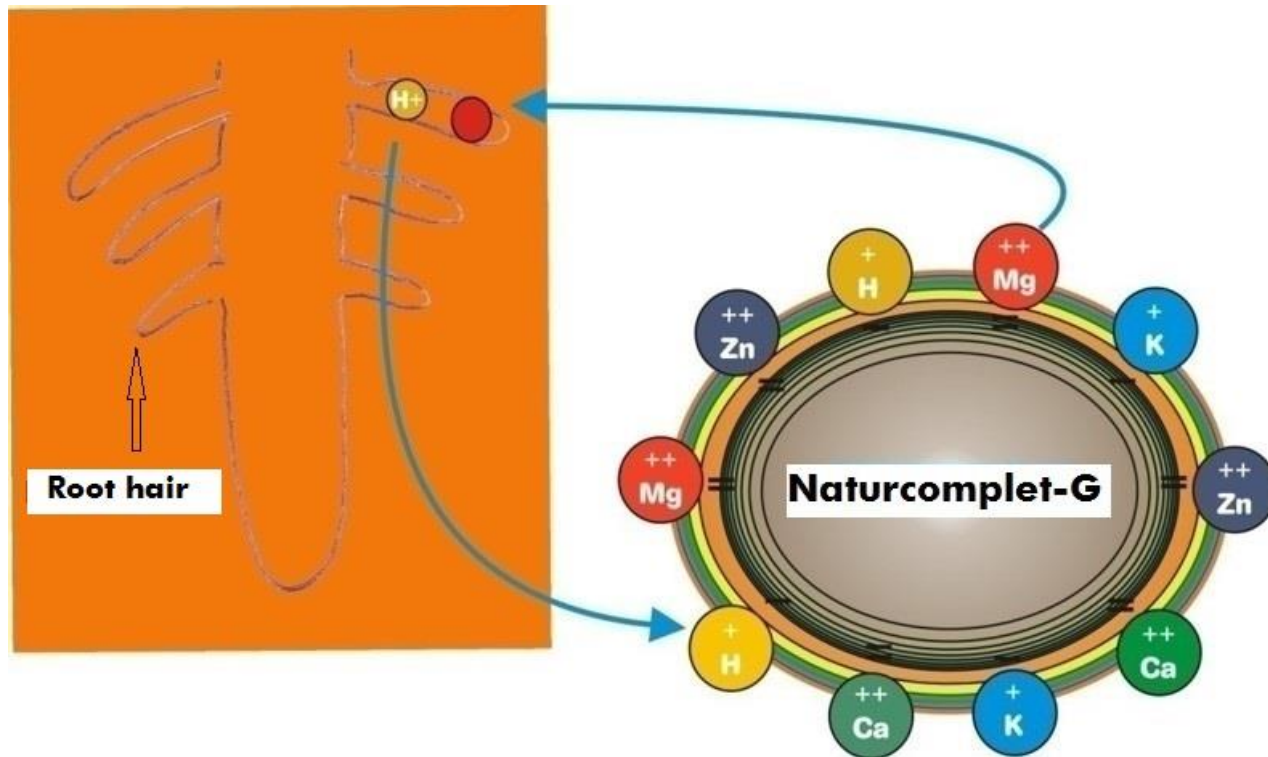


Naturcomplet®-G intervenes in soil fertility



Naturcomplet®-G improves soil fertility

The humic acids in NC-G release the cations retained in the soil through a cation exchange system. In this way, they can be absorbed by the roots. The protons, H^+ , bind to the negative particles in the product and the cations are released: K^+ , Ca^{2+} , Mg^{2+} to the soil solution.

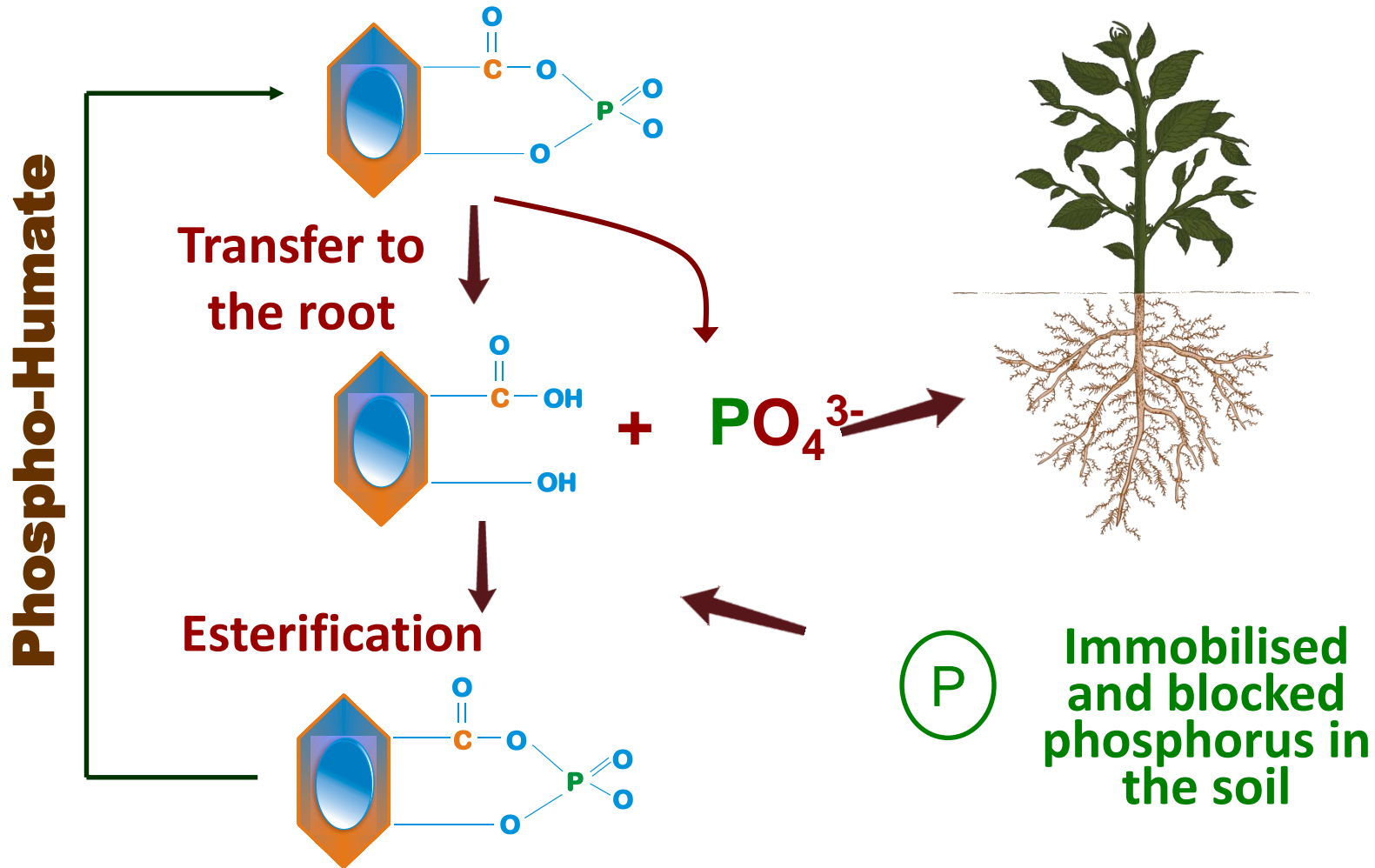


Naturcomplet®-G improves soil fertility

- Providing cation-exchange capacity.
- Chelating secondary elements and micronutrients.
- Increasing availability of phosphorus, forming phosphohumates.



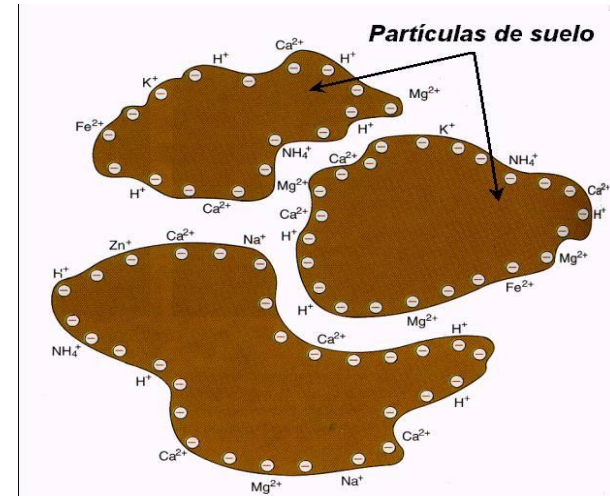
Naturcomplet®-G improves soil fertility



Naturcomplet®-G also...

Maximizes soil biological activity:
the humic acids act as an energy
source for the microorganisms in
the soil.

- Mycorrhizae
- Azotobacter, etc.

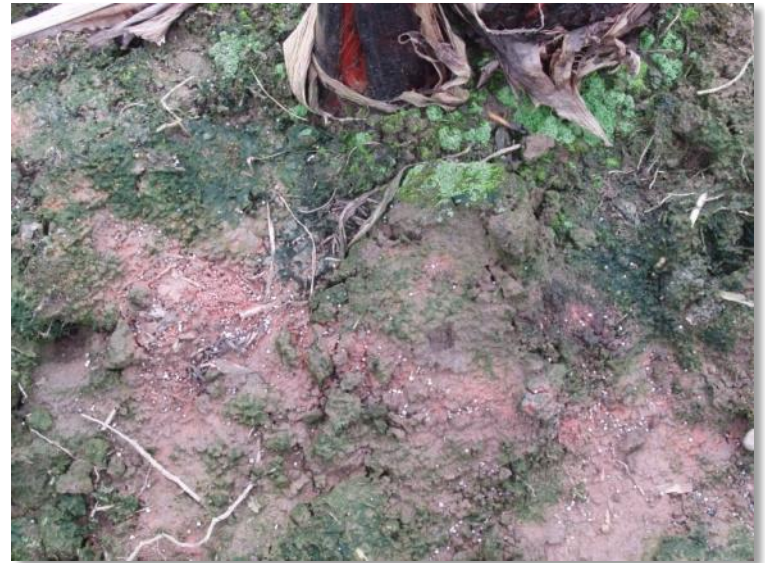


Naturcomplet®-G: Dosage and Application

Recommended dosage varies between 200-400 Kg/ha/year spread over 1-2 applications. It is recommended to increase the dosage in case of low organic matter soils, intensive crops (400-600 Kg/ha), recovery of mineralized soils, etc.

Naturcomplet®-G can be applied through:

- Mechanical extension: Using a conventional fertilizer spreader, with regular fertilizer or on its own. Although it is preferable to aim application at the planting or crop row.
- Manual extension: Deposit the required amount of product by each plant or tree. For vegetable crops, depositing part of the product on planting is recommended.



Naturcomplet®-G is different

✓ Features

- ✓ Leonardite activated by potassium salts for soil application
- ✓ High supply of fully humified OM
- ✓ Fully usable and available
- ✓ It has a number of certifications accrediting its quality. Ecolabel, ECOCERT and Eco-LOGICA
- ✓ Apply on the soil. Does not require burying

Naturcomplet®-G is different

✓ Features

- ✓ **Highly effective with a low product dose.**
- ✓ **More prolonged effect. No losses through lixiviation, above all from abundant rainfall or irrigation.**
- ✓ **It contains no toxic elements and a level of heavy metals within the maximum quality category.**
- ✓ **Its pH and solubility characteristics assure the application's success.**

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THANK YOU