



SOSTM

SUPER
ORGANIC
STIMULATOR

Agricultural soil improver.

WHAT IS IT?

It is an agricultural soil improver that restores and promotes the biodiversity of the rhizosphere, increasing the bioavailability of nutrients such as inorganic N (NH_4 and NO_3) and Phosphorus (PO_4), in soils of poor agricultural quality, improves the absorption of Chemical or organic fertilization processes, increases the percentage of germination, increases root density and contributes to the movement of phytopathogenic microorganisms present in soils due to their high proliferation rate [1]. **SOS™** contains a select range of 19 strains of microorganisms that have been harvested over a 20-year period, such as *Pseudomonads*, *Citrobacter*,

Bacillus, *Yeast*, *Achromobacter*, *Aeromonads*, *Alcaligin* and *Flavanones* at a minimum concentration of 1.00×10^{10} CFU/L (See the content certificate for more information). This group of microorganisms underwent an accelerated adaptation process during their reproduction, improving their ability to be able to quickly consume large amounts of nitrogen salts, other compounds and survive in conditions of low carbon source and oxygenation. The formulation is supplemented with essential elements of rapid assimilation such as magnesium, sodium, potassium and phosphorus [2].

Diagram 1. **SOS™** Microorganisms that re-establish the nitrogen cycle.

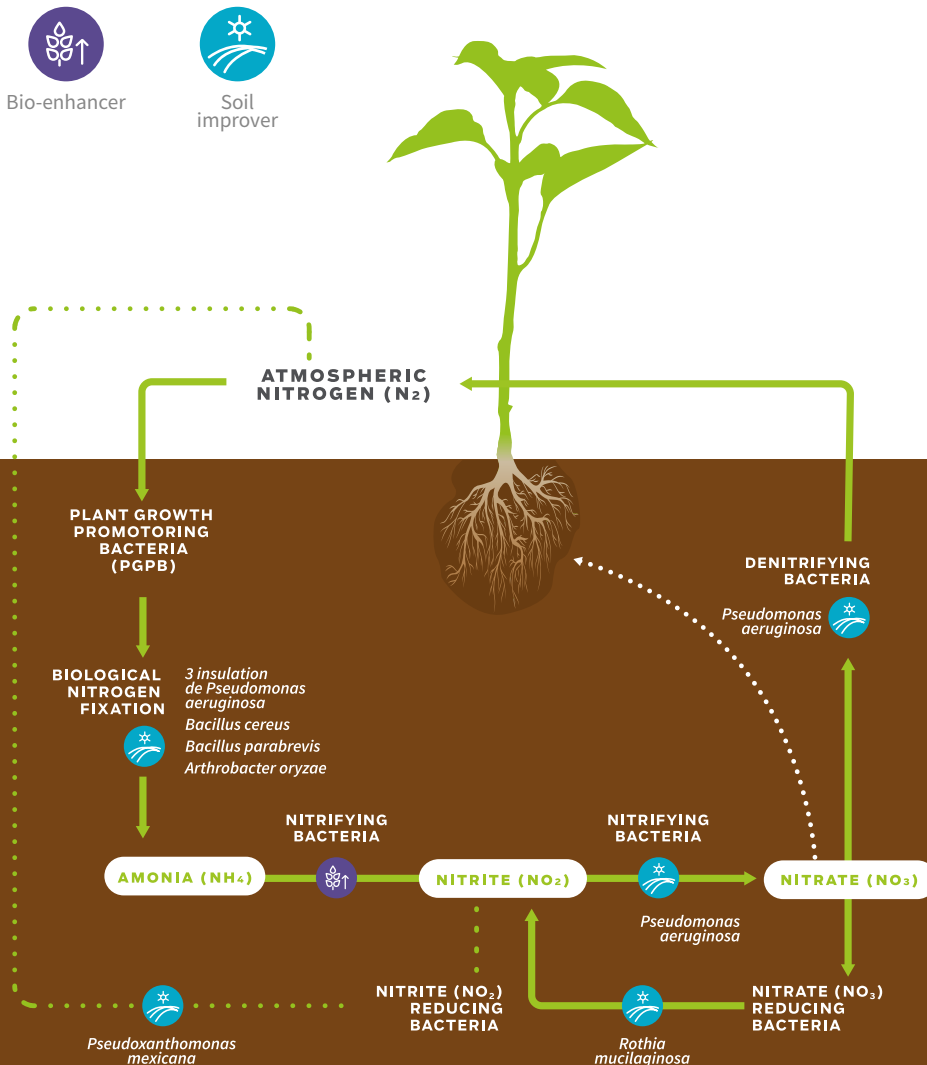
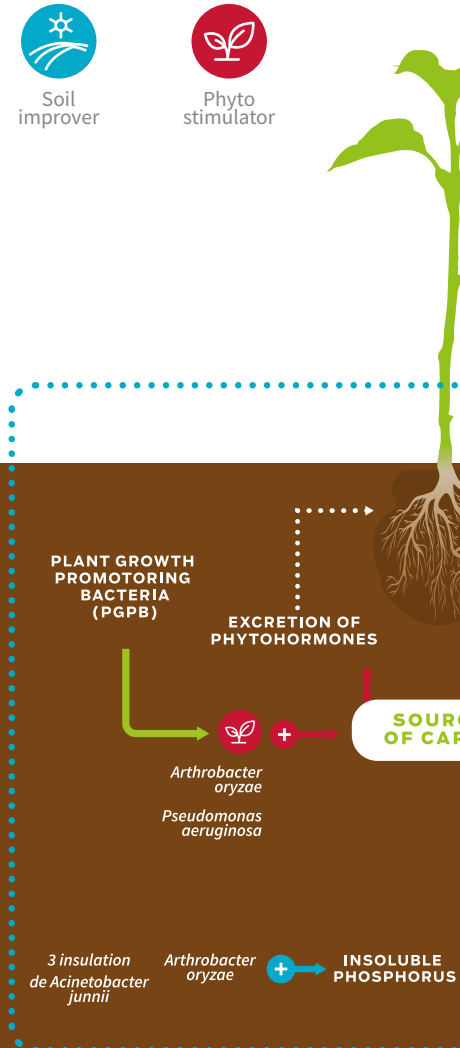


Diagram 2. Carbon biotransformation, excretion of phytohormones and solubilization of phosphorus.



USES AND APPLICATIONS

Due to its microbial complex, **SOS™** has different modes of action simultaneously, see diagram 1.

cretion of phosphorus.



BIOTRANSFORMATION OF CARBON

CESS OF CARBON






Sacharomyces cerevisiae
Acinetobacter baumannii
Citrobacter freundii
Pseudomonas pseudoalcaligenes

SOLUBLE PHOSPHORUS



FORMATION OF BIOMASS

Diagram 3. Entomopathogenic microbial composition, and pesticide degrading bacteria.

-  Biosurfactant
-  Bioremediatory
-  Exclusion of phytopathogens



ENTOMOPATHOGENIC BACTERIA

Bacillus cereus
Pseudomonas aeruginosa



PESTICIDE DEGRADING BACTERIA



Pseudomonas pseudoalcaligenes
Citrobacter koseri


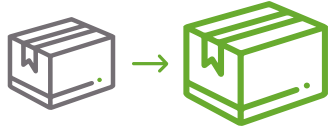





BIO SURFACTANT BACTERIA

Pseudomonas indica



¿HOW DOES IT WORK?

Table 1. The **SOS™** product has multiple mechanisms of action, which are defined by the different groups of microorganisms.

| MECHANISM | DESCRIPTION | BENEFITS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|-----------|-------------|---------|----|------------|------------|-------------|--------|--------|-------------|----|-------|-------------|------|------|--------------|------------|-----------|--------------|-----------|-----------|--------------|-------------|------------|-------------------|-------------|-----------|-------------------|-------------|------------|-------------------|-------------|-------------|
| <p>SOIL IMPROVER</p>  | <p>Pseudomonas and bacilli are bacteria involved in the biological fixation of nitrogen, transforming atmospheric nitrogen into ammonium, so that it can be incorporated into the rhizosphere and in turn the nitrifying bacteria make it into nitrate (NO₃), which can be assimilated to plants. The soil is also improved, through the bioconversion of organic solid waste, improving the availability of carbon sources [1].</p> | <table border="1"> <thead> <tr> <th>Variables</th> <th>C (control)</th> <th>CTB SOS</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>7.96(0.03)</td> <td>7.89(0.04)</td> </tr> <tr> <td>CT (mg*g-1)</td> <td>359.91</td> <td>360.43</td> </tr> <tr> <td>NT (mg*g-1)</td> <td>22</td> <td>13.67</td> </tr> <tr> <td>PT (mg*g-1)</td> <td>2.14</td> <td>1.24</td> </tr> <tr> <td>COD (mg*g-1)</td> <td>120.77(8)A</td> <td>76.15(5)C</td> </tr> <tr> <td>NOD (µg*g-1)</td> <td>2.61(0.5)</td> <td>2.88(0.7)</td> </tr> <tr> <td>POD (µg*g-1)</td> <td>0.63(0.09)B</td> <td>1.84(0.2)A</td> </tr> <tr> <td>NH4-Disp (µg*g-1)</td> <td>3.130(0.4)C</td> <td>8.9(1.7)A</td> </tr> <tr> <td>NO3-Disp (µg*g-1)</td> <td>133.54(16)B</td> <td>242.8(23)A</td> </tr> <tr> <td>PO4-Disp (µg*g-1)</td> <td>16.96(0.8)B</td> <td>23.61(1.7)A</td> </tr> </tbody> </table> <p>SIGNIFICANT DIFFERENCES IN SOIL SPECIFICALLY IN COD, POD AND AVAILABLE NUTRIENTS (NH₄, NO₃ Y PO₄) [1]</p>  <p>UP TO 30% MORE PRODUCTION.</p> | Variables | C (control) | CTB SOS | pH | 7.96(0.03) | 7.89(0.04) | CT (mg*g-1) | 359.91 | 360.43 | NT (mg*g-1) | 22 | 13.67 | PT (mg*g-1) | 2.14 | 1.24 | COD (mg*g-1) | 120.77(8)A | 76.15(5)C | NOD (µg*g-1) | 2.61(0.5) | 2.88(0.7) | POD (µg*g-1) | 0.63(0.09)B | 1.84(0.2)A | NH4-Disp (µg*g-1) | 3.130(0.4)C | 8.9(1.7)A | NO3-Disp (µg*g-1) | 133.54(16)B | 242.8(23)A | PO4-Disp (µg*g-1) | 16.96(0.8)B | 23.61(1.7)A |
| Variables | C (control) | CTB SOS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| pH | 7.96(0.03) | 7.89(0.04) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>BIOREMEDIATORY</p>  | <p><i>Pseudomonas</i> solubilize phosphorus compounds and other elements, regenerate saturated soils due to the excessive handling of fertilization. Microorganisms are adjuvants in the administration of chemical or organic fertilization [3].</p> |  <p>AT HIGHER CO₂, HIGHER CONCENTRATION OF MICROORGANISMS IN SOIL.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>BIO-ENHANCER</p>  | <p>SOS™ is a bio formulate that contains a wide variety of microorganisms, which help restore soil biology and stimulate the growth of species of native microorganisms [4].</p> |  <p>SOS CONTROL</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>PHYTO STIMULATOR</p>  | <p>Bioformulation contains Plant Growth Promoting Bacteria (BPCP), which form a symbiotic association with plants to promote plant development through mechanisms such as the excretion of phytohormones and the biological fixation of nitrogen [5].</p> |  <p>INCIDENCE OF BOTRYTIS IN BESAN CUCUMBER IN HYDROPONIC GREENHOUSE [5].</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>EXCLUSION OF PHYTOPATHOGENS</p>  | <p>SOS™ integrates in its formula entomopathogenic microorganisms like some species of bacillus with the capacity to displace phytopathogen by competition of space and resources, some strains contained in SOS™ have antagonistic effect against <i>phytopathogenic fungi</i> [5].</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

¿HOW IT IS APPLIED?

CROP AND DOSES:



| CROP | CYCLE | APPLICATION L/HA | WEEKLY | TOTAL L/HA |
|----------------|----------|------------------|--------|------------|
| Red tomato | 6 months | 1.25 | 24 | 30 |
| Chilli pappers | 5 months | 1.25 | 16 | 20 |
| Cucumber | 4 months | 1.25 | 12 | 15 |
| Pumpkin | 4 months | 1.25 | 12 | 15 |
| Watermelon | 4 months | 1.25 | 12 | 15 |

WORKING RANGES:

| PARAMETER | RANGE | DESCRIPTION |
|--|---|---|
| Metabolism | Anaerobic facultative | They can be grown in environments with limited oxygen availability. |
| Ecology | Saprophyte facultative | Contributing to the decomposition of organic matter and maintaining soil fertility. |
| Osmorregulation | Halotolerant, < 3 Electric Conductivity | They are stable in highly saline soils, or in saturated nutrient solutions. |
| Temperature maximum development | 35 ± 2 °C | They remain viable even at temperatures of 45 to 60 °C [6]. |
| PH | Neutrophils, pH 6 to 8 | pH outside this range generate loss of microbial viability. |

PREPARATION:

1. Wear suitable protective clothing and eye protection.
2. Use suitable measuring tools such as graduated cups, graduated cylinders and scales to dispense the required amount of product.
3. Before opening the product, shake the container for 30 seconds.
4. Adjust the pH of water to use at 7.
5. Pour into a container the required amount of product, the amount of water depends on the area to be treated (1 L/200 L of water).
6. The product can be applied in the system of drip irrigation (Half the time that the irrigation lasts), drench, in head of valve, as well as in rolled irrigation.

INTERVAL BETWEEN APPLICATIONS:

Preferably **weekly**, however, can be **applied every fortnight**.

SAFETY INTERVAL (SI):

A safety interval between the last application and the harvest is not necessary.

COMPATIBILITY:

- ✗ **Do not mix the product** with chemical or organic antimicrobial agents such as antibiotics, bactericides, bacteriocytes and fungicides. Leave a window of 7 days between applications.
- ✓ Can be applied in conjunction with chemical and organic fertilizers, is **compatible** with other **inoculants and entomopathogen agents**.
- ✓ Can be applied **the same day that insecticides are used, but not the same container**.

CONTRAINDICATIONS:

Apply the mixture on the same day of preparation. Do not expose the product to direct sunlight.



NOTE: The information provided herein should not be construed as an express or implied warranty, or implied, statutory duty, provided solely as a solicitation. You should read the label before using the product.

RESULTS IN FIELD



Cycle of applications in Crop of indeterminate growth tomato with Belher (customer).



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The LIVENTIA logo is displayed in a white rounded rectangle. The word "LIVENTIA" is in a bold, black, sans-serif font. The letter "I" is replaced by a cluster of small, colorful dots in yellow, orange, and red. The letter "A" is replaced by a cluster of small, colorful dots in blue, green, and purple.

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