

Stimuplant: Lucerne Inoculant

Reg. No. L 5879 Act.36 of 1947

Use *Rhizobium meliloti*-bacteria for the effective nitrogen-fixation on species of *Medicago* and *Melilotus* like: *Medicago sativa* (lucerne), annual Medics and "sweet clover".

Important: Not suitable for *Medicago rugosa* (Paragosa Medic).

Stimuplant is the first registered lucerne inoculant in South Africa.



Nitrogen is required by all living organisms for the synthesis of proteins, nucleic acids and other nitrogen-containing compounds. The earth's atmosphere contains almost 80% nitrogen gas. It cannot be used in this form by most living organisms. However, nitrogen can be converted into a useable form by lucerne and other legumes when it grows in the presence of a specific rhizobium bacterium. These bacteria can infect the roots of leguminous plants, leading to the formation of nodules where the nitrogen fixation takes place. The host plant and the bacteria have a symbiotic relationship. The bacterium's enzyme system supplies a constant source of reduced nitrogen to the host plant and the plant furnished nutrients and energy for the activity of the bacterium.

After harvest legume roots left in the soil decay, releasing organic nitrogen compounds for uptake by the next generation of plants. Where legumes are planted for the production of hay, a large volume of the nitrogen will be removed from the soil by the hay.

Why is Rhizobium so specific?

The relationship between a certain rhizobium and a specific legume is very unique. Specific genes determine which Rhizobium strain infects which legume.



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How does nodulation work?

Nodulation starts with the colonization of the legume roots by the rhizobium. The sooner the colonization takes place, the sooner the development of root nodules and the sooner the rhizobium will start nitrogen fixation. In optimal conditions, there is a series of events that has to happen in a specific order for nodulation to take place. Rhizobium infects the legume through the root hairs on new young roots. This can happen approximately 4-12 days after germination. The initial infection develops very quickly in visible nodules, more or less 3-5 weeks after the plant has germinated, depending on the plant species and the growing conditions.

What is needed for Rhizobium to survive?

Rhizobium only exists as living vegetative cells and is therefore very sensitive to any changes in their environment. If exposed to stress factors like heat, extreme pH and toxic chemicals, the rhizobium will struggle to survive. Like all other bacteria, rhizobium will survive and grow at its best in optimum conditions when they are provided with nutritional elements and water at a suitable pH. Rhizobium is also aerobic bacteria and needs oxygen to survive.





Inoculation of lucerne seeds should take place before germination of the seed:

- The inoculant is mixed with water and a sticker, and then applied directly to the seed as a slurry.
- Keep the seed away from direct sunlight as this may kill the bacteria (a short period of exposure will not be harmful).
- Plant the seeds as soon as possible after inoculation. Drying of the seed can also kill the bacteria.
- If the seed is not planted within 24 hours after inoculation, inoculation will have to be repeated.

Lucerne Inoculants can be applied along with B-RUS.

What is B-RUS?

B-RUS colonizes the rootzone and prevents the establishment of pathogens. This improves the plants' resistance against infections. B-RUS may lead to an increased root hair development and so enlarges the root surface that will be exposed to the soil, this leads to an improved intake of water and nutrients.

Use the Stimuplant Lucerne pack for the best results!

The Lucerne pack contains the following:

- 2* 200g Lucerne Inoculant
- 1* 200g B-Rus Growth stimulant
- 1* Sticker
- 1* Molybdenum micro element mixture

1 Lucerne packet is equal to the amount of product needed for 1 hectare of lucerne establishment. Everything you need is packed conveniently, including a mixing bottle for the sticker as well as molybdenum.



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LUCERNE INOCULANT contains *Rhizobium meliloti* bacteria. Reg. No. L5879 Act 36 of 1947

B-Rus contains *Bacillus subtilis*.

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LUCERNE INOCULANT

Contains *Rhizobium meliloti* bacteria
Registration No. L 5879 Act 36 of 1947

Bacterial legume inoculant for the effective nitrogen fixation on species of *Medicago* and *Melilotus* like: *Medicago sativa* (lucerne), annual medics and sweet clover NOT suitable for the use on *Medicago rugosa* (Paragosa medic).

Active Ingredient: Living legume bacteria for lucerne
(*Rhizobium meliloti* breed RF14 bacteria)

Lot No:

Exp. Date:

Manufactured by: Stimuplant BK

Reg no. 1989/004756/23
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Warnings:

- Keep cool (4-25°C dry, dark space)
- Do not use inoculants after it has expired
- Do not store near toxins
- Do not use for other legumes
- Do not use with other fungicides, except Tiram if seed treatment is required.
- NB: AN OVERDOSE ON THE SEEDS ARE NOT HARMFUL
- Not harmful to humans or animals



Direction for the use of inoculants only

- Only use as indicated
- Mix 300ml water with 1 packet (200g) of inoculant containing (1-1.5g) resolved STIMULYN and mix this with 12.5 kg of seeds.
- Spread the seeds in a cool area and out of direct sunlight to dry.
- Plant the treated seeds as soon possible
- Avoid any direct contact with superphosphate before and after treatment with inoculant.
- Use the inoculants immediately after opening the packet.

Net Mass 200 g

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Dossage

1 packet 200g per 12.5kg of seed

Use a double dosage under poor planting conditions or where Tiram containing seed treatment is used.

TESTED AND RECOMMENDED BY THE RESEARCH INSTITUTE FOR PLANT PROTECTION
OF THE AGRICULTURAL RESEARCH COUNCIL.
LEGUME SEEDS SOULD BE INOCULATED WITH EVERY PLANTING.

