



RhizoFix®

*Liquid rhizobial inoculant for the direct inoculation
of seeds immediately prior to sowing*



RhizoFix®

Liquid rhizobial inoculant for the direct inoculation of legume seeds

Rhizobia – Fertiliser Factories in Roots

Legumes have a symbiotic relationship with rhizobia (root nodule bacteria). Rhizobia are able to fix atmospheric nitrogen which is unavailable for use by plants. Rhizobia are able to transform this atmospheric nitrogen [N₂] into nitrates [NO₃⁻], which becomes available to the host plant, the legume. This process is known as nitrification and the rhizobia are nitrifying bacteria. In order to benefit from this naturally occurring symbiosis, the legume roots need to come in contact with the rhizobia bacteria. To attract the rhizobia to the roots, the legume root excretes a chemical to guide the bacteria to the root. Rhizobia populate the legume in small sacs in the roots, known as root nodules. Although rhizobia exist naturally in most soil types in Ireland, the quantity and availability for legume plants varies greatly. What causes this could



Root of a Soybean with RhizoFix®-Inoculation

be anything from soil rhizobia availability, nitrogen availability, pH, temperature or moisture. To ensure an optimum plant/nitrogen fixing relationship, legume seeds should be coated/inoculated with rhizobia. This will help to establish fertiliser factories within the root system of the legume plant.

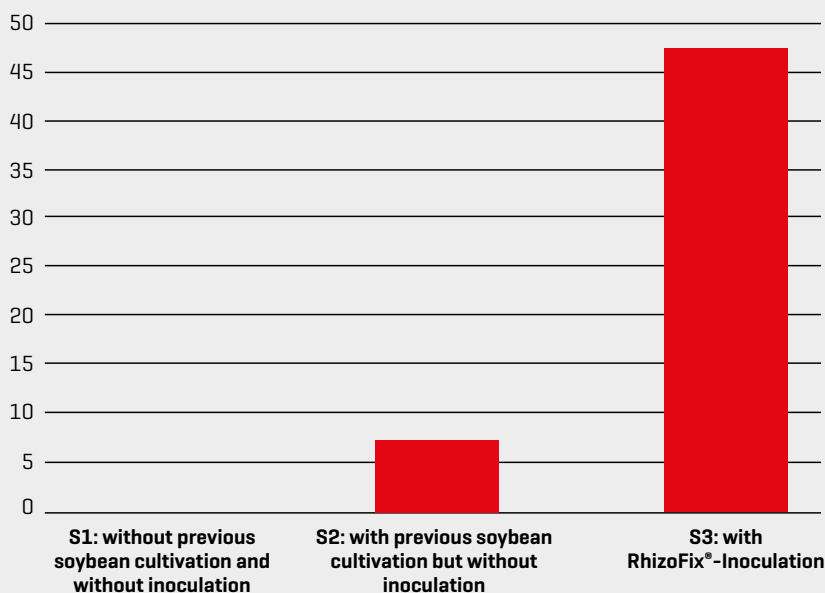
Advantages of an inoculation with RhizoFix®:

- Higher yields
- Quickest possible symbiosis between crops and rhizobia
- Direct contact with the seeds
→ fast establishment at the roots
- A specific rhizobia strain exists for each variety of legume
- Especially suitable for areas without natural sources of rhizobia
- Good growth of plant
- Easy handling of the inoculant
- Ready for use

Environmental Considerations

High nitrate levels in soils is an ever increasing environmental concern. Farmers are encouraged to reduce the amount of nitrates being spread onto land. Treatment with RhizoFix® will help to establish 'Rhizobia Fertiliser Factories' in the roots of legumes. This will ensure that the nitrates are being utilised directly by the plant and reduces nitrate leaching into soil and watercourses.

Number of rhizobia nodules per crop





White lupins without inoculation

White lupins with RhizoFix® inoculation

RhizoFix® is a liquid inoculant for legume seeds. For the last few years, Feldsaaten Freudenberger has been conducting intensive research to develop its own rhizobia strains. The best strains have been selected in many lab and praxis tests.

The objective of the selection process to find strains that quickly form a symbiosis with the host plant, while also leading to an optimum yield. RhizoFix® products make it possible to also grow legumes in areas that have no natural rhizobias. Freudenberger provides appropriate rhizobia strains for all common crops.

The product is ready to use immediately, without pre-mixing of the individual components. Only careful seed mixing is required to ensure that all seeds come into contact with the inoculant. We recommend performing inoculation directly in the seed drill or in a suitable concrete mixer or similar. A pump sprayer or a field sprayer can be used to distribute the inoculant.



Soybean without inoculation

Soybean with RhizoFix® inoculation

Name	Content	Suitable for	Application rate per 100 kg seeds	Contains enough for	Sowing rate kg/ha	Bottle contains enough for	Item number
RhizoFix® RF-10	1000 ml	Soybean (Glycine max)	750 ml	130 kg	100-150	1 ha	5210
RhizoFix® RF-20	1000 ml	Broad bean (Vicia faba)	700 ml	150 kg	150-250	0,75-1 ha	5220
RhizoFix® RF-30	1000 ml	Pea (Gattung Pisum)	500 ml	200 kg	150-250	1ha	5235
RhizoFix® RF-40	1000 ml	Vetches (Gattung Vicia)	500 ml	200 kg	100	2 ha	5240
		Lupins (Gattung Lupinus)	500 ml	200 kg	150-200	1 ha	
RhizoFix® RF-45	500 ml	Clover (Gattung Trifolium)	1000 ml	50 kg	25	2 ha	5245
RhizoFix® RF-50	500 ml	Alfalfa (Medicago sativa)	1000 ml	50 kg	25	2 ha	5255
RhizoFix® RF-60	75 ml	Common bean (Phaseolus vulgaris)	500 ml	15 kg	15	1 ha	5260



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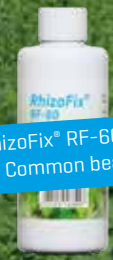
RhizoFix® RF-10 for:
Soybean



RhizoFix® RF-30 for:
Pea



RhizoFix® RF-45 for:
Clover



RhizoFix® RF-60 for:
Common bean



RhizoFix® RF-20 for:
Broad bean



RhizoFix® RF-40 for:
Lupins, Vetches



RhizoFix® RF-50 for:
Alfalfa