



Field Trial Results



LEGUME
technology

part of Green Universe
Agro Group



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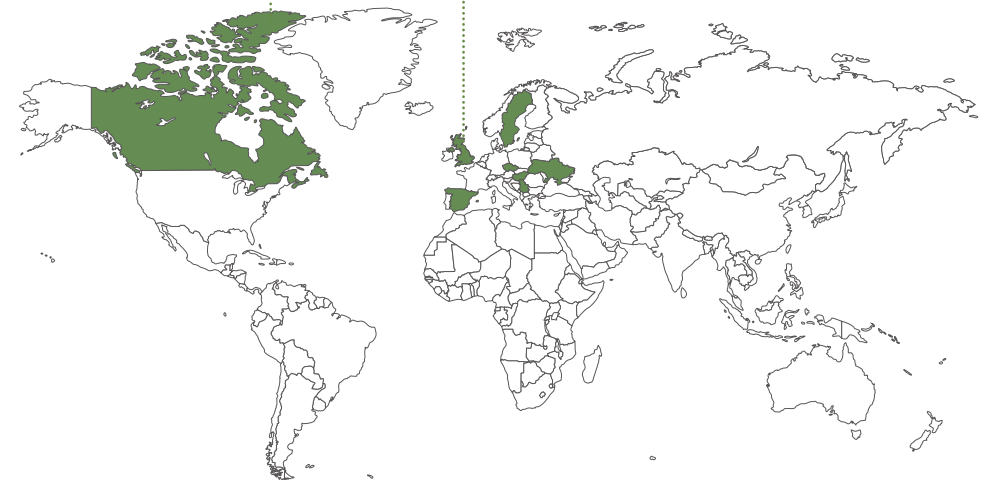
Field trial locations 2019-2022

NORTH AMERICA

- Canada

EUROPE

- Czechia
- Hungary
- Serbia
- Spain
- Sweden
- UK
- Ukraine

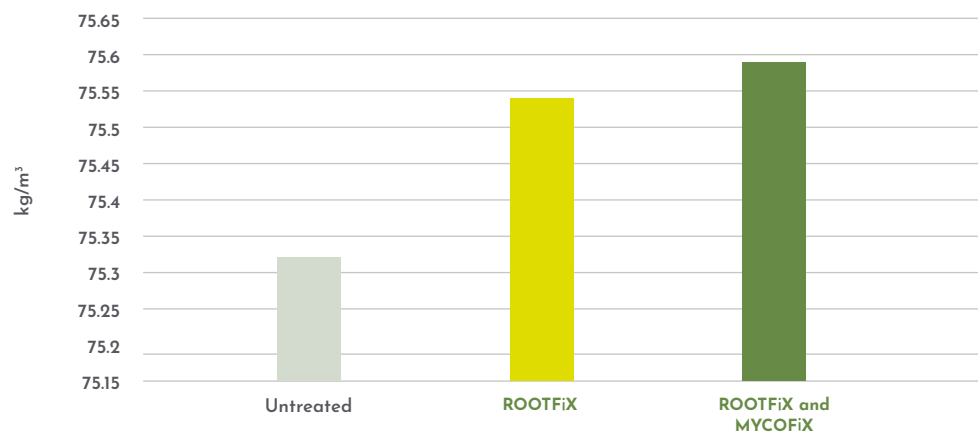


Winter Wheat

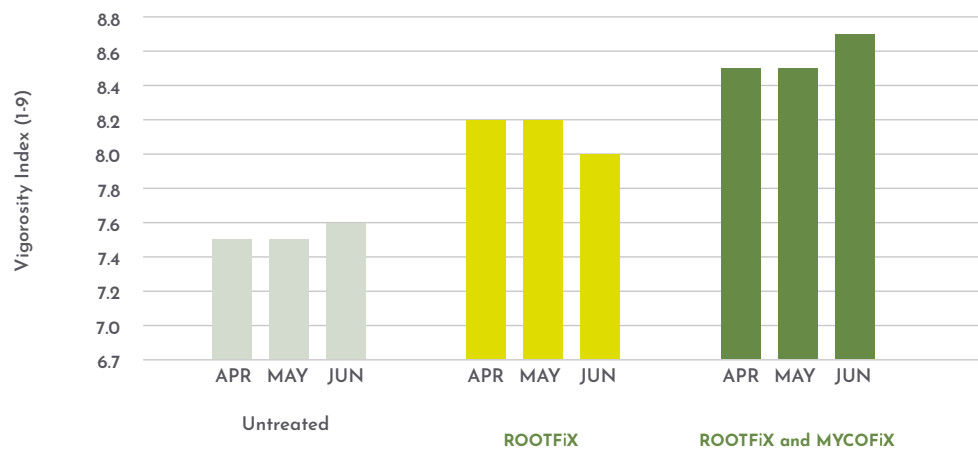
ROOTFiX and MYCOFiX

ZS Kluky, Czech Republic
2019-2020

Winter wheat: Yield (kg/m³)



Winter wheat: Vigorosity index overview



Winter Wheat, Summer Wheat, Spring Barley And Corn

ROOTFiX

Ontario, Canada
2020-21

Yield data (kg/ha)

CROP	UNTREATED SEED	CONVENTIONAL TREATMENT	ROOTFiX	LSD 95%
Spring Barley	4.718	4.823	5.103	0.4
Corn	Not available	12.369	12.754	1.3
Winter Wheat	4.487	4.473	5.096	0.2
Spring Wheat	3.717	3.822	4.018	0.5

- WORSE THAN UNTREATED SEED
- BETTER THAN CONVENTIONALLY TREATMENT
- BETTER THAN UNTREATED SEED
- SIGNIFICANT INCREASE IN YIELD/TREATMENT



Corn

MYCOFiX

Zaragoza, Spain
2016

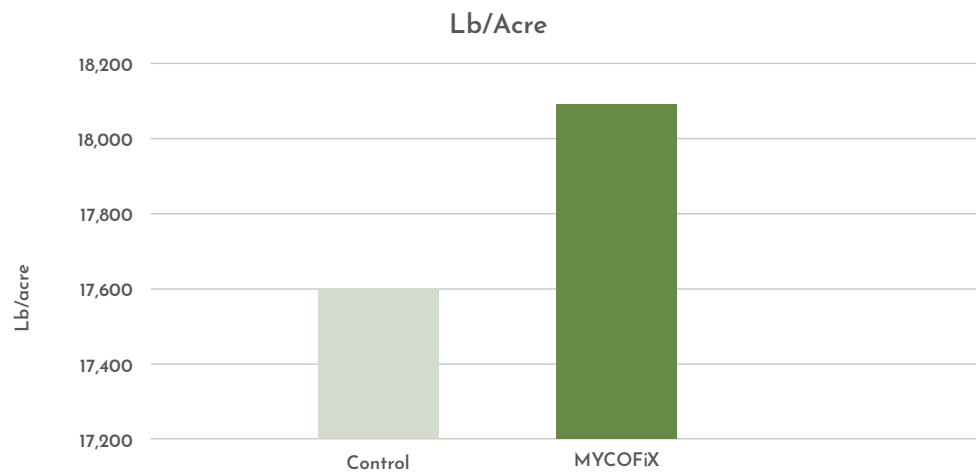
CONTROL

MYCOFIX



CONTROL

MYCOFIX

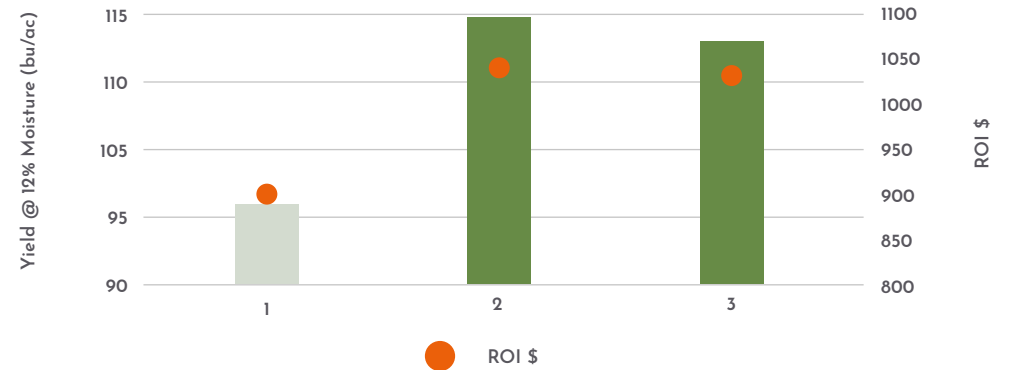


Oats

MYCOFiX

Canada
2021

TREATMENT	YIELD (bu/ac)	MOISTURE	YIELD @ 12% MOISTURE (bu/ac)	% DIFFERENCE	ROI
1 Commercial Standard (Raxil Pro MD)	132	16.4%	96.59	-	\$902.11
2 Mycofix + Raxil Pro MD	133	13.9%	114.82	+18.9	\$1,058.42
3 Mycofix + Flo Rite + Raxil Pro MD	131	13.9%	113.09	+17.1%	\$1042.29



CONTROL

MYCOFIX



Soybean

LIQUIFiX, MOLYFiX, MYCOFiX and ROOTFiX

Keszthely, Hungary
2020



Yield (kg/plot)

TREATMENT	CORR. YIELD (%)	CRUDE PROTEIN MEAN (g/100 g DM)
Control	5.52	43.23
4 mL/kg seed LIQUIFIX	5.88	44.53
4 mL/kg seed LIQUIFIX + 1,3 mL/kg seed MOLYFIX	5.88	45.82
4 mL/kg seed LIQUIFIX + 4 mL/kg seed ROOTFIX	6.15	45.87
4 mL/kg seed LIQUIFIX + 1 g/kg seed MYCOFIX	6.02	45.62

Fresh weight data (kg seed/plot) were corrigated to 14% seed moisture and to 555 plants per parcel

Soybean

LIQUIFiX

Taliándörög, Hungary
2019

VARIETY	INOCULANT	CORRECTED AVERAGE YIELD (t/ha)*	AREA (ha)	CORR. AVERAGE YIELD (%)	EUROS PER Ha**
Zelma	Control	2,297	0.39	-	-
Zelma	Competitor	2,652	0.38	15%	+213
Zelma	Liquifix	2,835	0.38	23%	+323

Water content correction: 14 %-ra

**Assume 1 ton = €600



Gross profit €/Ha

Soybean

LIQUIFiX AND LIQUIFiX

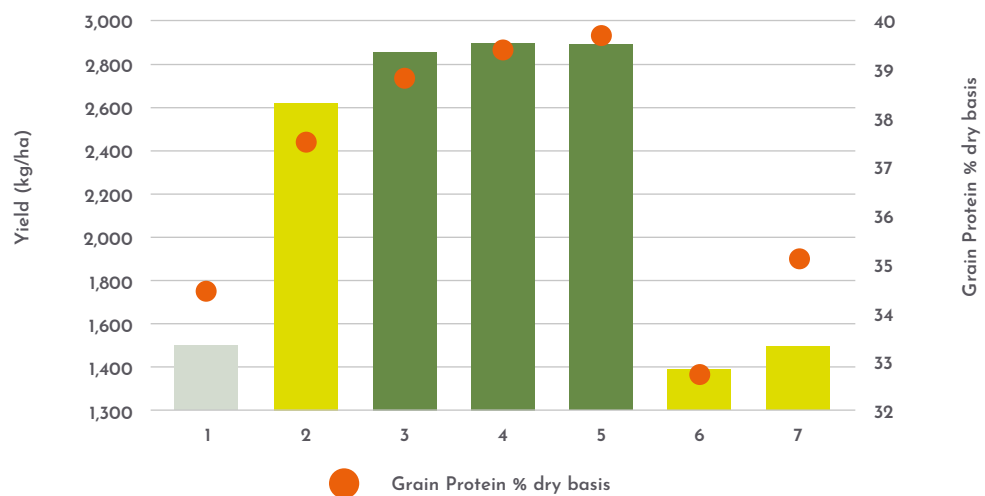
Guelph, Canada
2019

Effects of Inoculation Treatments in Exp. LTSI in 2019.

TREATMENT	YEILD Kg/Ha AT 13% MOIS	GRAIN PROTEIN % DRY BASIS
1 Uninoculated Control - Bare Seed	1557	34.4
2 Optimize (2.8 L/ton)	2606	37.4
3 LIQUIFIX (4L/ton)	2848	38.9
4 LIQUIFIX 120 (4L/ton LIQUIFIX) + 500g/ton colorant premixed 15 days before planting	2976	39.3
5 LIQUIFIX 120 (4L/ton LIQUIFIX) + 500g/ton colorant premixed at planting	2961	39.7
6 120-day pre-inoculated P04A60R LEFT-side borders	1398	32.8
7 120-day pre-inoculated P04A60R RIGHT-side borders	1557	35.2
Variety: Pioneer P04A60R	Prob> F	<0.0001
Row width: 76cm or 30"	LSD.05	264

Planting date 24th May. Harvest date 14th October

Values shown are for nodule sampling at the R4 soybean development stage.

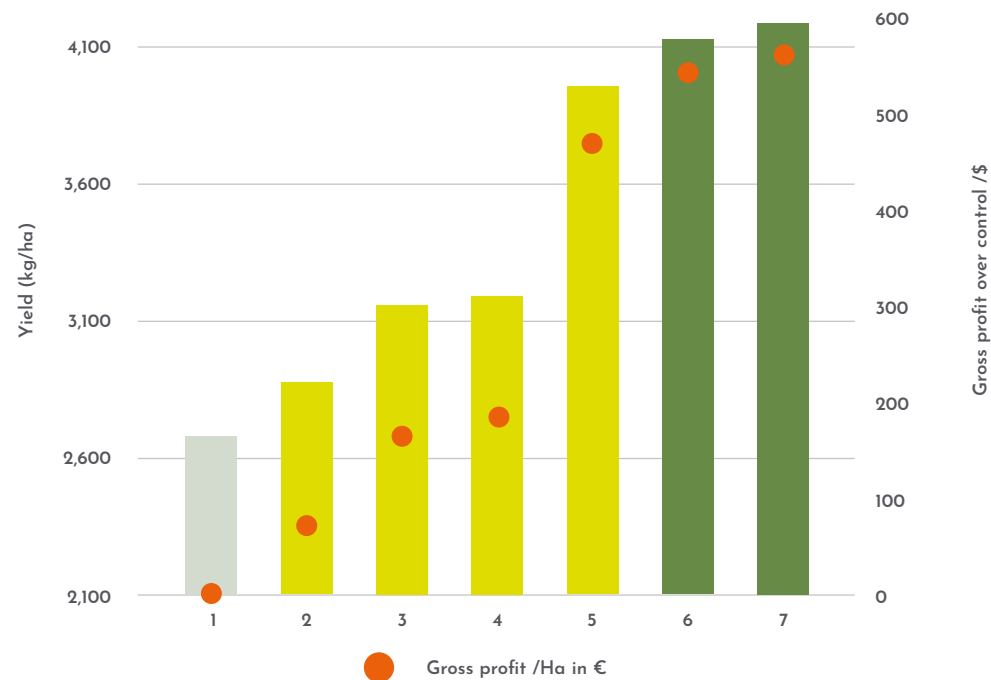


Soybean

LIQUIFiX AND LEGUMEFiX

Spain
2020

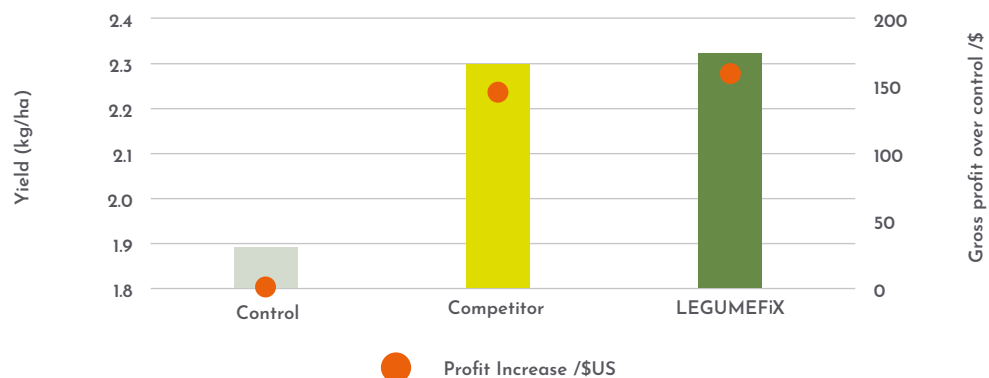
TREATMENT	YIELD kg/Ha	GROSS PROFIT /Ha IN €	PROTEIN / %
1 Control	2,700	0.0	38.6
2 Competitor A	2,904	71.4	39.3
3 Competitor B	3,178	167.3	40.7
4 Competitor C	3,216	180.6	41.7
5 Competitor D	3,967	443.5	41.9
6 LIQUIFiX	4,137	503.0	41.0
7 LEGUMEFiX	4,218	531.3	40.8



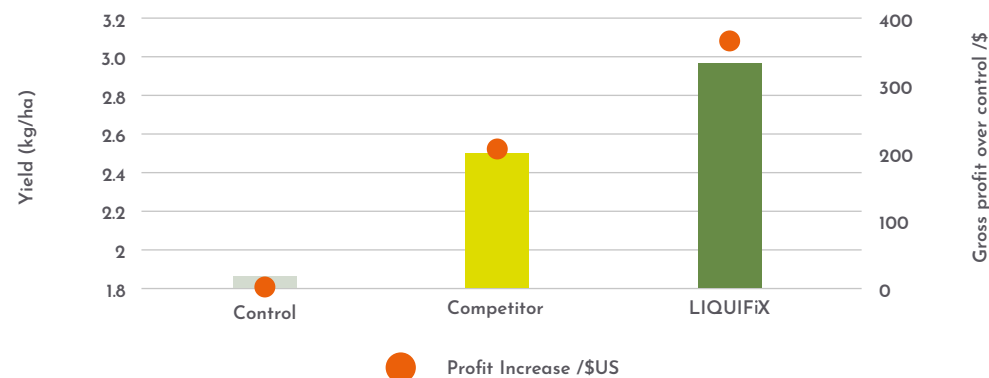
LIQUIFiX AND LEGUMEFiX

Ukraine
2019

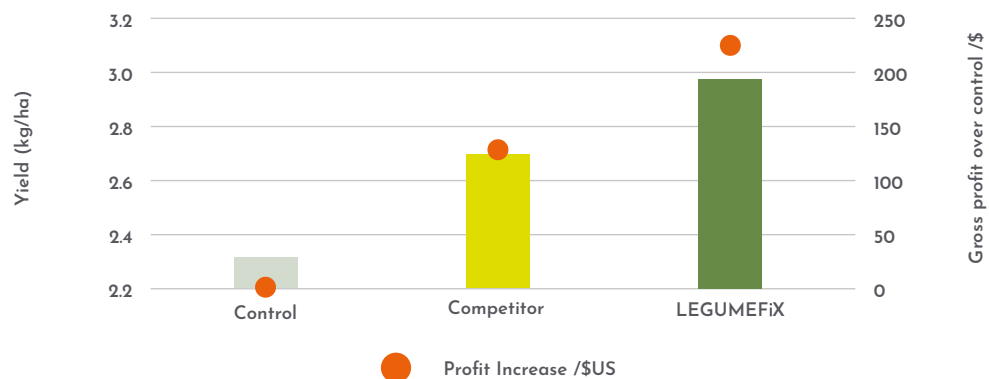
Site 1: Comparison of LEGUMEFiX and Competitor Peat Product



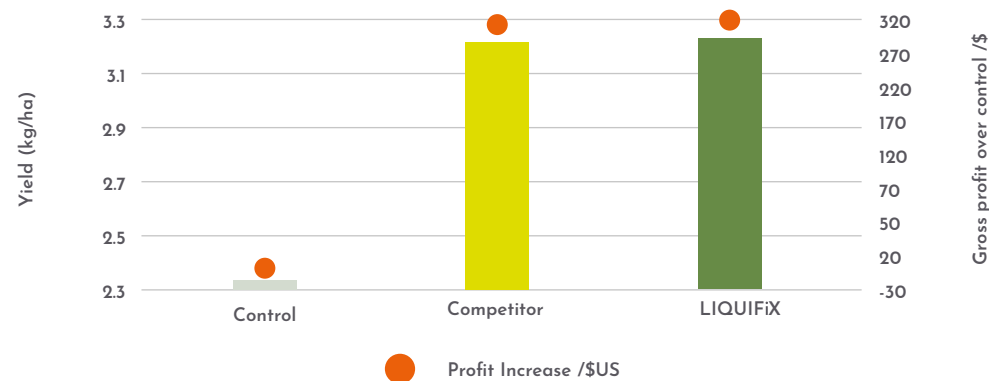
Site 1: Comparison of LIQUIFiX and Competitor Liquid Product



Site 2: Comparison of LEGUMEFiX and Competitor Peat Product



Site 2: Comparison of LIQUIFiX and Competitor Liquid Product

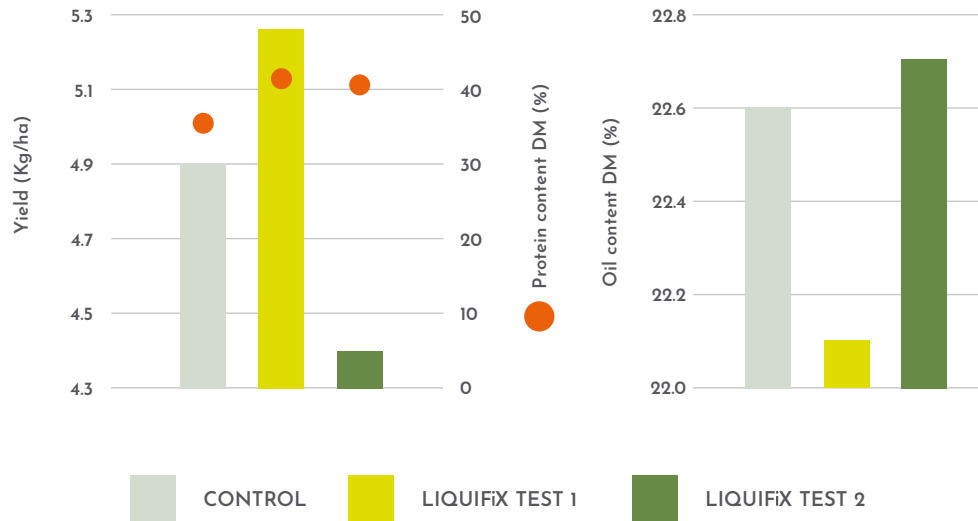


Soybean

LIQUIFiX

Serbia
2020

Donau Soja results in Serbia - harvest date 23/09/2020

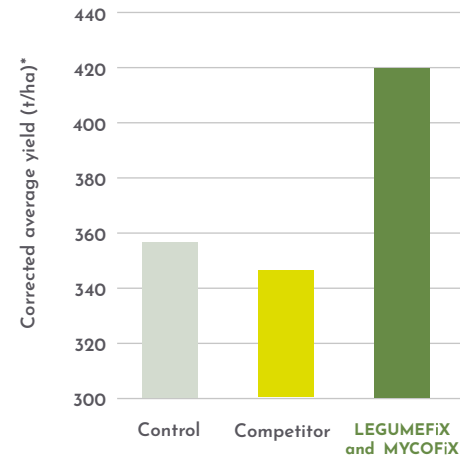


Chickpeas

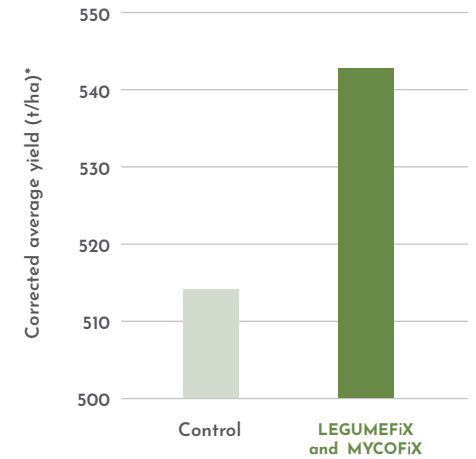
LEGUMEFiX and MYCOFiX

Spain
2020

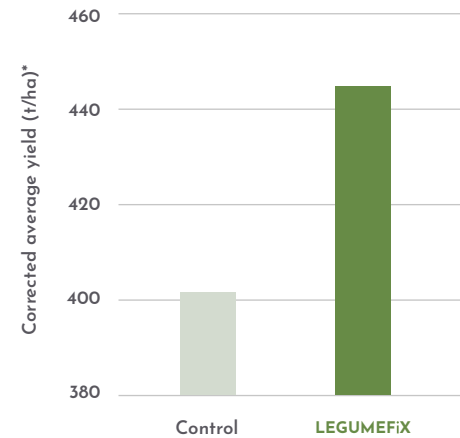
Trial Site 1 (Kg/ha)



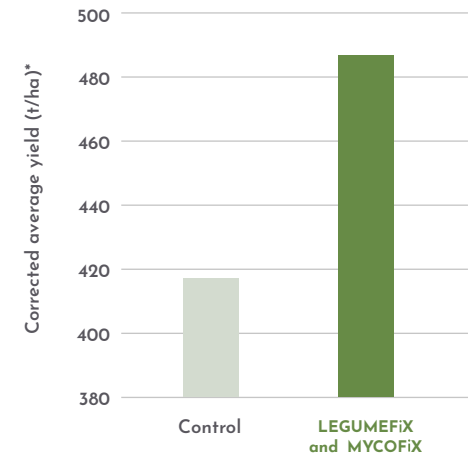
Trial Site 2 (Kg/ha)



Trial Site 3 (Kg/ha)



Trial Site 4 (Kg/ha)



LEGUMEFIX

Sweden
2020

Experiment Locations

- Svalöv (Skåne): history of lucerne cultivation
- Tenhult (Småland)
- Rådde (Västergötland)
- Lilla Böslid (Halland)



Measurements

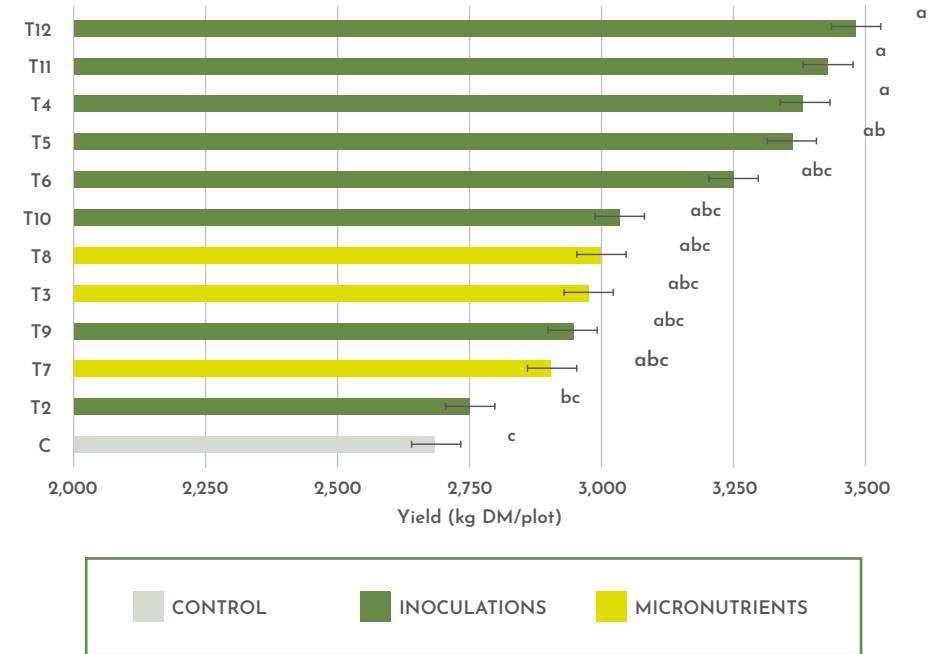
Establishment year and production year

- Yield
- Height
- Leaf colour
- Plant density
- Protein concentration
- Nodulation (2019 only)
- NDVI
- Some locations: chlorophyll content, Yara N-Sensor

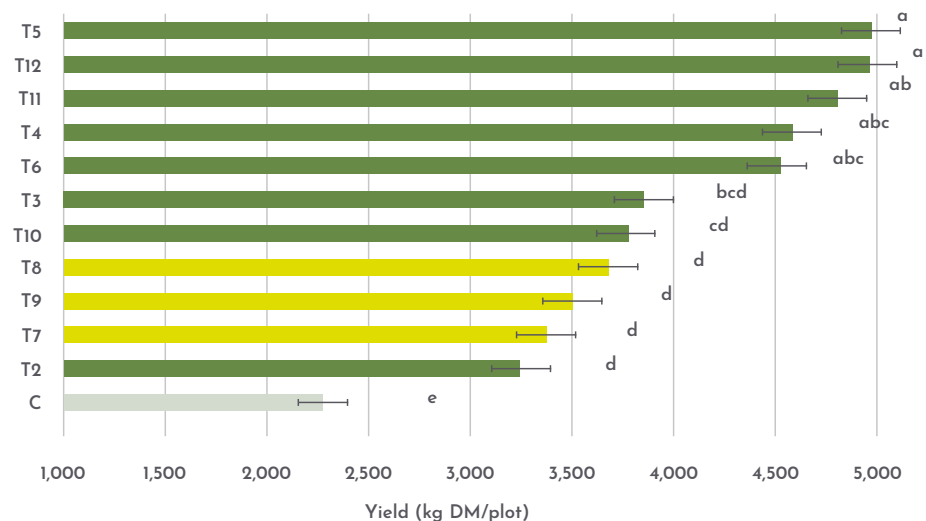
No inoculation

The control (no inoculation) treatment at Tenhult station in September 2019. The plants are smaller and more yellow than the inoculated treatments on either side.

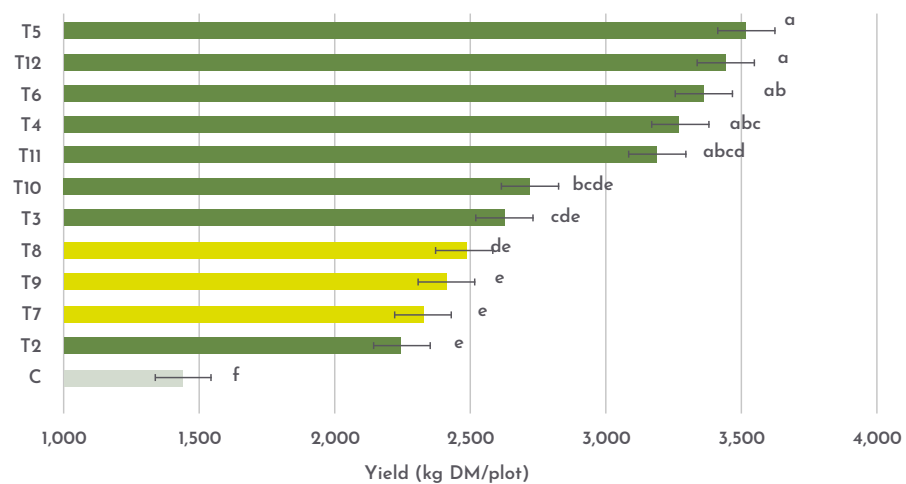
Establishment year yield (Rådde)



Production year Harvest 1 (Rådde)



Production year Harvest 2 (Rådde)



LIQUIFiX, MYCOFiX and ROOTFiX

United Kingdom
2020

	g/5 PLANTS	% CHANGE
No treatment	25.2	0
WAKIL	25.2	0
LIQUIFiX	35.5	41
LF + ROOTFiX	37.8	50
LIQUIFiX + MYCOFiX*	59.8	137

* visually better nodulation

	no treatment	WAKIL	LF + MYCOFiX
g/5 PLANTS	127.1	97.5	153.3
% CHANGE	0	-23	21
	5	3	4
	3	2	5
NO. PODS/PLANT	3	3	2
	3	3	4
	4	2	4
AVERAGE	3.6	2.6	3.8
TOTAL NO. OF PEAS	106	75	117
WEIGHT OF PEAS	22.9	17.8	28.9
WEIGHT PER PEA	0.22	0.24	0.25

Yield based on:

- Average number of peas per plant
- Average weight of peas in that treatment
- 90 plants per m2

Peas

ROOTFiX

United Kingdom
2022

VALUES	UNTREATED	ROOTFiX	DIFFERENCE
Height (cm)	45.40	53.14	+17.0%
SPAD	44.47	47.95	+7.8%
Pods per plant	6.02	8.06	+33.9%
Plant density/m ²	39.20	70.80	+80.6%

UNTREATED

TREATED

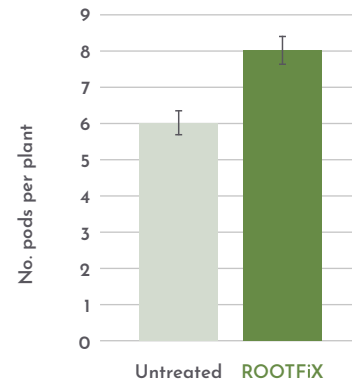


 Areas of no plant growth in the untreated field

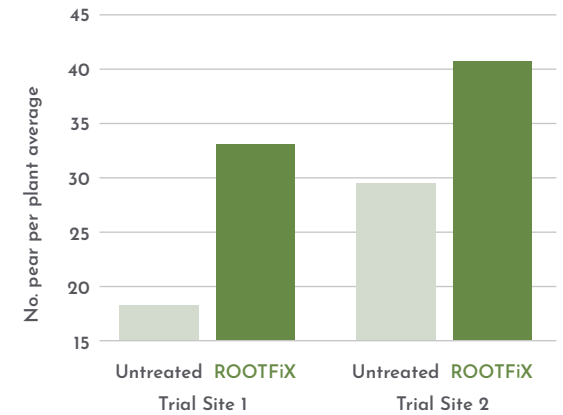
Peas



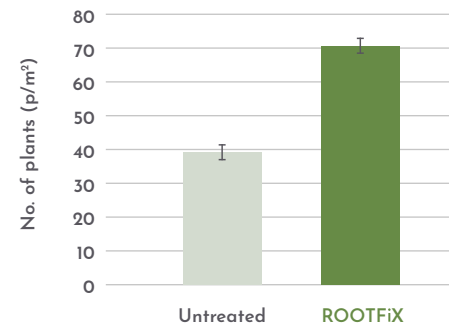
No. Pods per plant



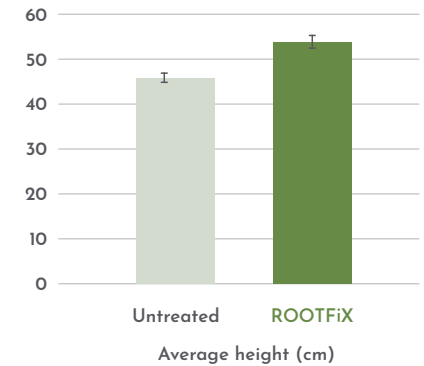
No. Peas per plant



Density (plants/m²)



Height (cm)



ROOTFiX

As a part of our ongoing Research and Development plans to field trial ROOTFiX in all major cereals, initial results from laboratory scale tests on rice show extra phosphate supply and ability to withstand drought conditions among other benefits.

Recent results on rice in a pot trial

1. Treated and untreated seeds with ROOTFiX were sowed into a sand/vermiculite mix containing insoluble phosphate
2. Seedlings were watered with a phosphate-free nutrient solution
3. Healthy growth of the treated seedlings demonstrates the presence of phosphate solubilization in the soil due to ROOTFiX.
4. Stunted growth in the control seedlings demonstrates phosphate stress as they can't access the insoluble phosphate in the soil without ROOTFiX.
5. Plants were also exposed to a period of drought to catalogue the impact of ROOTFiX on plant health with limited access to water.

Reponse to temporary drought conditions

TREATED UNTREATED



Phosphate solubilization

TREATED UNTREATED



Day 8

UNTREATED

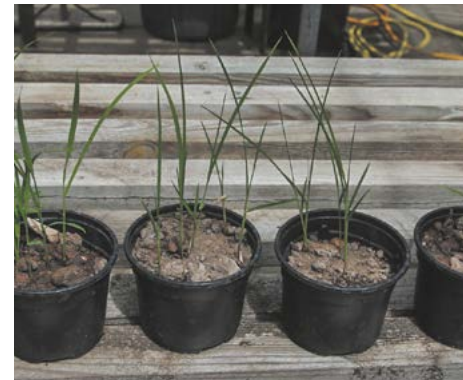


TREATED



Day 12

UNTREATED



TREATED





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