agriges

Bio-semina

THE NATURAL SEED TREATMENT

Cereal productivity starts from the seed

+ safe

+ germination

+ quality

Produce more produce healthy!

Green Path is Agriges' practical response to the challenges of modern agriculture. The focus of the Green Path project is to provide technical means for abundant, environmentally sustainable and food-safe production: produce more, produce healthy.

The project involves Agriges working with research institutes, experimental centres, universities, cooperatives and farms to develop products that maximise yields, thereby reducing the use of potentially polluting chemical substances.

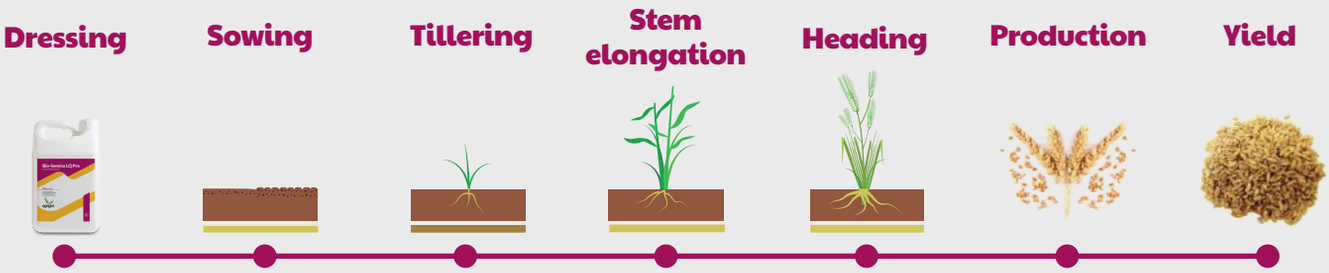
+ safe **+ sustainable** **+ production** **+ quality** **- chemical** **- pollution**

OBJECTIVES

Seed dressing with microorganisms that promote microbiological plant growth is now essential for producers in organic farming, but it is also becoming increasingly popular in the integrated farming sector, where the needs of the markets are driving the reduction of chemical products. The natural treatment makes it possible to obtain quality seeds, endowed with greater germinability and resistance to environmental stress. In fact, the products of the BIO-SEMINA line provide mycorrhizae and exclusive microbial strains capable of:

The natural seed treatment

Is this a fair investment?



- 8LI TVSHYGXMZMX] SJ XLI GVST MW MRñYIRGIH F] WIZIVEP JEC of production: seedbed preparation, number and depth of sowing, soil organic matter supply and number of roots.
- Between the end of tillering and the beginning of stem elongation, the ear has already HMïIVIRXMEXIH IZIR Mthe plant's productive potential has already been determined. At this point, the plant has reached the maximum number of tillers.
- At the stem elongation phase, the number of culms per hectare is already decisive in determining the yield.
- From the number of culms per hectare, it is possible to determine the quantity of ears per hectare.
- From the number of caryopses per ear, the ðREP SYXTYX TIV LIGXEVI is determined.
- 8LI ETTPMGEXMSR SJ 'MS IQMRE 1MRIE MRGVIEWIW XLI ðRE interaction between the selected microbial consortia and the plant from the see-dling stage up to and beyond heading.

The natural seed treatment

Products

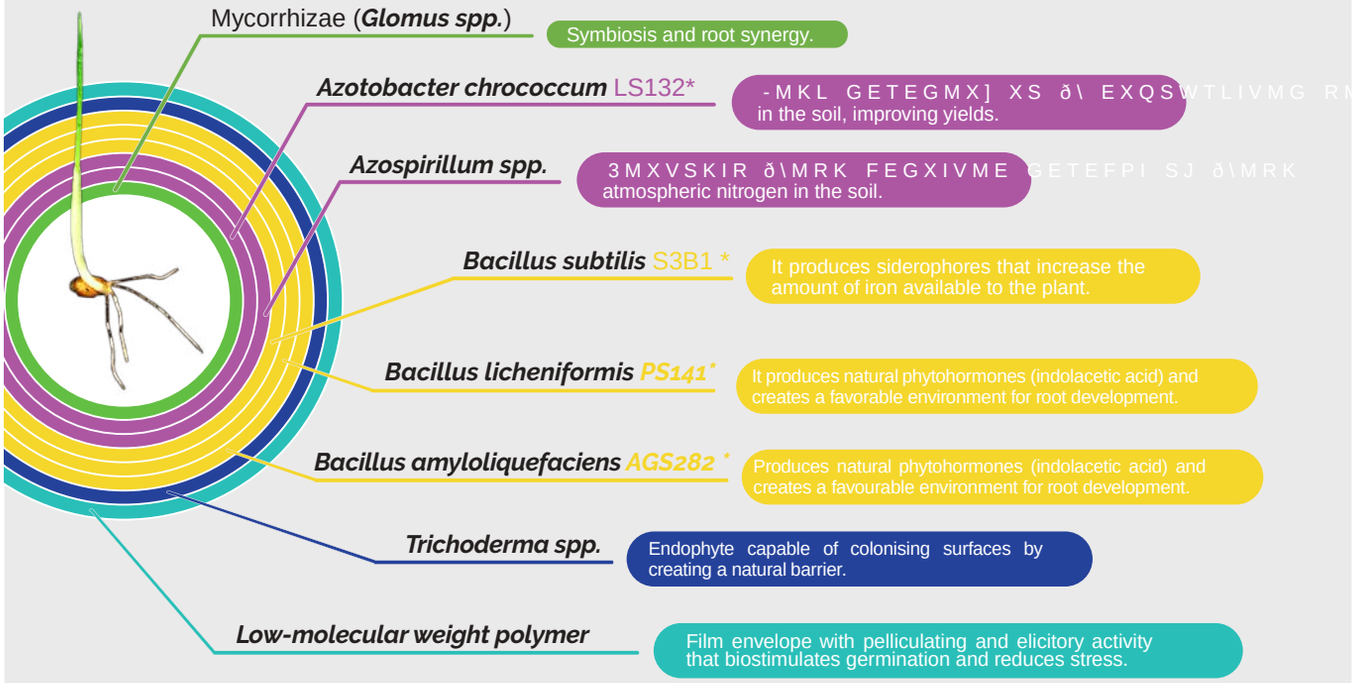
8LI '.4 *2.3& PMRI GSRWMWXW SJ PMUYMH ERH TS[HIV TVSHYGXW centrations of mycorrhizae and plant growth-promoting rhizobacteria that act synergistical-ly on the seed and seedling to promote germination and crop development. Mycorrhizae increase the root exploration surface area of the soil, ensuring greater water and nutrient YTXEOI VLM^SFEGXIVME ð\ EXQSWTLIVMG RMXVSKIR ERH QEOI MX the solubility of nutrients in the soil, especially phosphorus. Furthermore, rhizobacteria and actinomycete fungi TVSHYGI TL]XSLSVQSRIW [MXL E FMS TVSQSXMRK IïIGX sm and occupy ecological niches that could be invaded by microorganisms pathogenic to the crop.

Microorganism	Bio-Semina LQ Plus	Bio-Semina LQ Pro	Bio-Semina PW
Rhizosphere bacteria			
- *Azotobacter chrococcum* LS132*	1,0 x 10^8 CFU/g	1,0 x 10^6 CFU/g	1,5 x 10^7 CFU/g
- *Azospirillum spp.*	1,0 x 10^8 CFU/g	1,0 x 10^6 CFU/g	-
- *Bacillus subtilis* S3B1 *.	3,3 x 10^7 CFU/g	3,3 x 10^5 CFU/g	1,3 x 10^8 CFU/g
- *Bacillus licheniformis* PS141*	3,3 x 10^7 CFU/g	3,3 x 10^5 CFU/g	1,3 x 10^8 CFU/g
- *Bacillus amyloliquefaciens* AGS282 *	3,3 x 10^7 CFU/g	3,3 x 10^5 CFU/g	1,3 x 10^8 CFU/g
Mycorrhizal fungi			
- *Glomus spp.*	5,0 %	5,0 %	10,0 %
Selection of actinomycete fungi			
- *Trichoderma spp.*	1,0 x 10^8 CFU/g	1,0 x 10^6 CFU/g	6 x 10^8 CFU/g
- *Streptomyces spp.*	-	-	4 x 10^8 CFU/g

* Exclusive strain isolated and deposited by Agriges in an international reference microbial collection.

BIO-SEMINA LINE

Cereal productivity starts from the seed



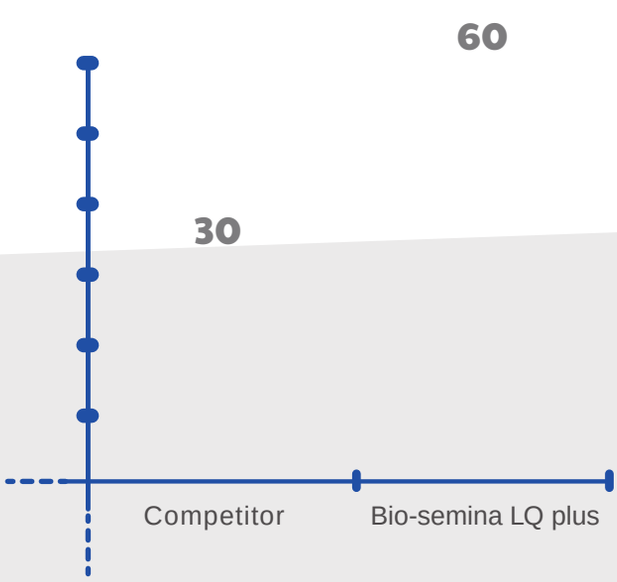
BIO-SEMINA LINE

Experimental results on durum wheat in laboratory

In collaboration with Agriges' internal laboratories, the FTS (Field Technical Service) KVSYT GEVVMIH SYX E XIWX XS ZIVMJ] XLI IïIGXMZIRIWW SJ Bio-semina LQ Plus on cereal seeds (durum wheat). The thesis being compared were: a sample treated with a competitor microbiological seed treatment product and a thesis with seeds treated with Bio-semina LQ Plus at a dose of 400 ml/100kg of seeds.

The analysis of the mycorrhization index of the roots of the young plants revealed that, in the thesis treated with Bio-semina LQ Plus, it was twice as high as in the thesis treated with the competitor.

MYCORRHIZATION INDEX (%)



MYCORRHIZATION INDEX

The thesis treated with Bio-Semina showed a percentage of mycorrhizae twice as high as that of the competitor.

Competitor

Low mycorrhizal colonisation of roots

Bio-semina LQ plus

High mycorrhizal colonisation of roots

BIO-SEMINA LINE

Results on durum wheat Spain

8LI +8 KVSYT &KVMKIW +MIPH 8IGLRMGEP IVZMGI GSRHY
SJ &KVMKIW .FIVMGE E XVMBio-seminaLQ Plus as a microbiolo- G]SJ
nic seed treatment. The trials were conducted at Yepes (Toledo, Spain) on barley, variety Comeda, and included a control treated with a microbiological competitor and a thesis with seed treated with Bio-semina LQ Plus at doses of 400 ml/100 kg of seed. The following parameters were then analysed: germination index, tillering index, and yield per hectare.

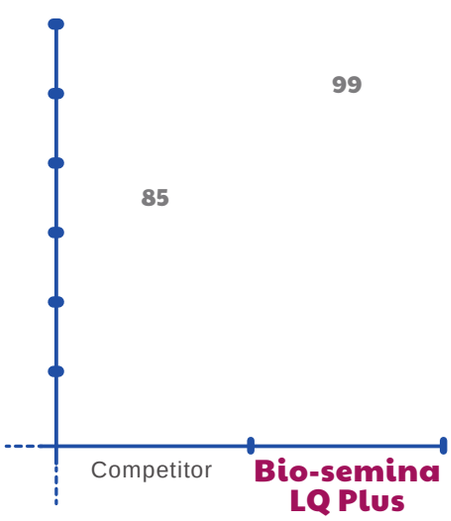
For all parameters examined, the thesis treated with Bio-seminaLQ Plus was superior to the control.

Bio-semina LQ Plus

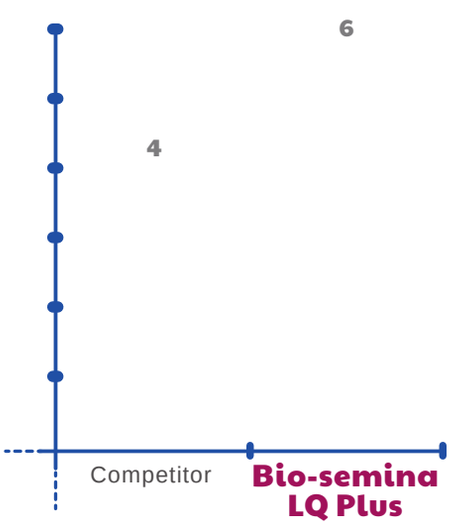
Competitor

Competitor

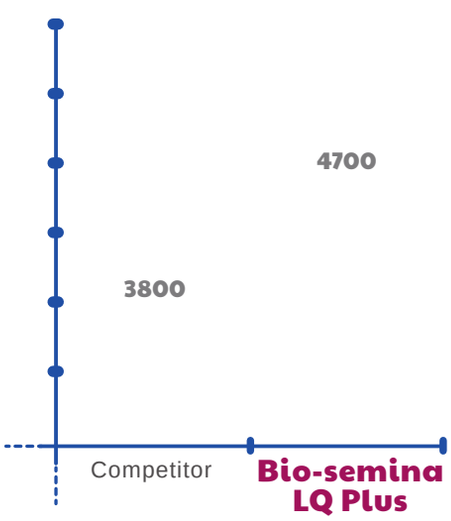
Bio-semina LQ Plus



Germination index %



Tillering index crop/plant



Yields per hectare kg/ha

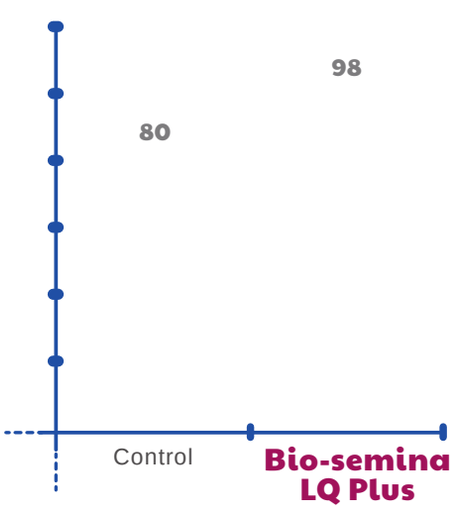
BIO-SEMINA LINE

Results on durum wheat

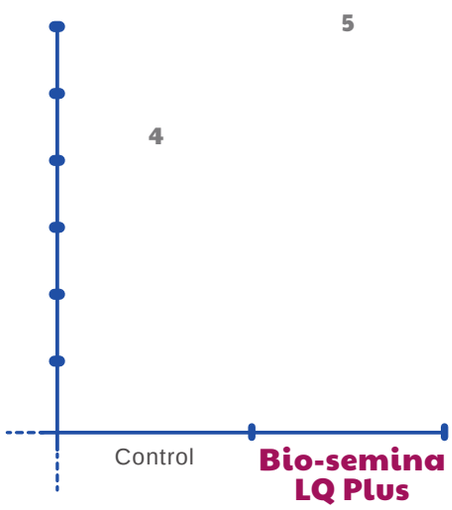
Moreover, product Bio-semina LQ Plus [E W XIWXIH MR WIZIVEP ðIPH ERH P
trials in collaboration with the National Agronomic Institute of Tunisia to verify its
IòGEG] EW E QMGVSFMSPSKMGEP WIIH XVIEXQIRX

The trials were conducted on durum wheat and included an untreated control and a thesis with seed treated with Bio-semina LQ Plus at doses of 4l/1000kg of seed.

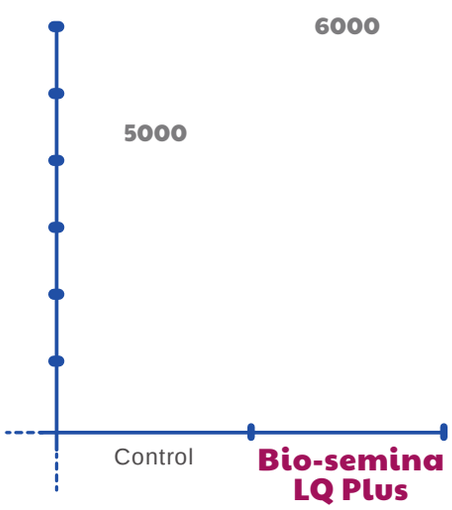
The following parameters were then analysed: germination index, tillering index and yield per hectare.



Germination index %



Tillering index crop/plant



Yields per hectare kg/ha