

PRACTICE ABSTRACT II

How to check whether a Rhizobium-based formulation actually increases the production of my snap bean seeds?

Rhizobia are naturally occurring soil-borne bacteria, which fix nitrogen in symbiosis with legumes. In beans, an additional inoculation of seeds with such bacteria can increase nitrogen fixation. Rhizobia - based solutions are commercially available and are included in the authorized list of inputs for organic agriculture (<https://www.inputs.eu/input-search.html>).

How to test the positive effect of nitrogen fixation by Rhizobium?

Compare the following treatments (T) with each other for the biomass produced, yield of seeds or growth of the plants at a given stage:

- T0: plants are not inoculated and not fertilized with nitrogen
- T1: plants are not inoculated, but fertilized with nitrogen
- T2: plants are inoculated and not fertilized with nitrogen

For each treatment, use an individual pot or planting container or make sure to have enough space between the differently treated plants. This will prevent the spread of Rhizobia or nitrogen leakage, which could influence the results.

How can I see that plants are inoculated with Rhizobium?

Have a look at the roots of some plants shortly before flowering. Inoculation has been effective when you can see small nodules attached to the roots.

What effect can Rhizobium interaction have on snap bean production?

We tested RhizoFix® RF-60, Feldsaaten Freudenberger on eight different snap bean varieties, which were grown in Brittany (France) under organic conditions. Plant Aerial dry weight of inoculated plants was significantly higher compared to the other two treatments without inoculation. In addition, our results showed that inoculation led to an increase of about 40% in seed production. This is a benefit that can be used not only for producing seeds for propagation, but also for the production of dry seeds for consumption.



Roots of inoculated plants with visible Rhizobium nodules (Solenn Pérennec, OBS).



Seeds of different snap bean after inoculation (Solenn Pérennec, OBS).

PRACTICE ABSTRACT II

How to check whether a Rhizobium-based formulation actually increases the production of my snap bean seeds?

THE AUTHORS

Amelie Detterbeck is an agronomist with a strong interest in seed sciences, holding a doctoral degree in plant physiology. After her studies she joined Euroseeds, the voice of the European seed sector, as a researcher for the BRESOV project.

Solenn Pérennec is an agricultural engineer specialising in plant protection. After 12 years as an advisor to vegetable growers, she joined OBS, a seed creation and production company, as head of open field and protected crops. In the framework of the BRESOV project, she conducted several trials on beans and cabbage.



Amelie Detterbeck

ameliedetterbeck@euroseeds.eu



Solenn Pérennec

solenn.perennec@obs.bzh

THE PROJECT

BRESOV SHAPING THE FUTURE OF ORGANIC BREEDING & FARMING

BRESOV aims to tackle the nutritional challenges of a growing world population and changing climatic conditions by enhancing productivity of different vegetable crops in an organic and sustainable farming infrastructure. BRESOV works on broccoli, snap bean and tomato as those staple vegetable crops have significant roles in meeting our global food and nutritional security goal, and under organic conditions can contribute to storing carbon, introduce nitrogen and improve organic soil quality.

Do you want to stay up to date about our BRESOV activities?



www.bresov.eu

