

 grow better with
LEGUGUARD[®]

RESULTS REPORT
2020 - 2023

SHAPING THE FUTURE WITH LIFEBLOOD & FACTS

Who is **SEEDFORWARD**?

2018

Company foundation,
20 employees by now

3,000 m²

Production and research facilities at the site in
Osnabrueck, Lower Saxony



State-funded research &
innovation projects



Continuous development
of new products



Cooperation with all
renowned breeders

290,000 ha

GUARD acreage in Germany
and the EU including both
organic and conventional farms



MORE THAN A NUTRITION COCKTAIL

5x

more macro nutrients

N, P, K, S, Mg, Ca

6x

more micro nutrients

Mn, Zn, Mo, Fe, B, Cu

4x

more soil activators

Humic acids, rock flour, plant extracts, silicon

8x

more biostimulants

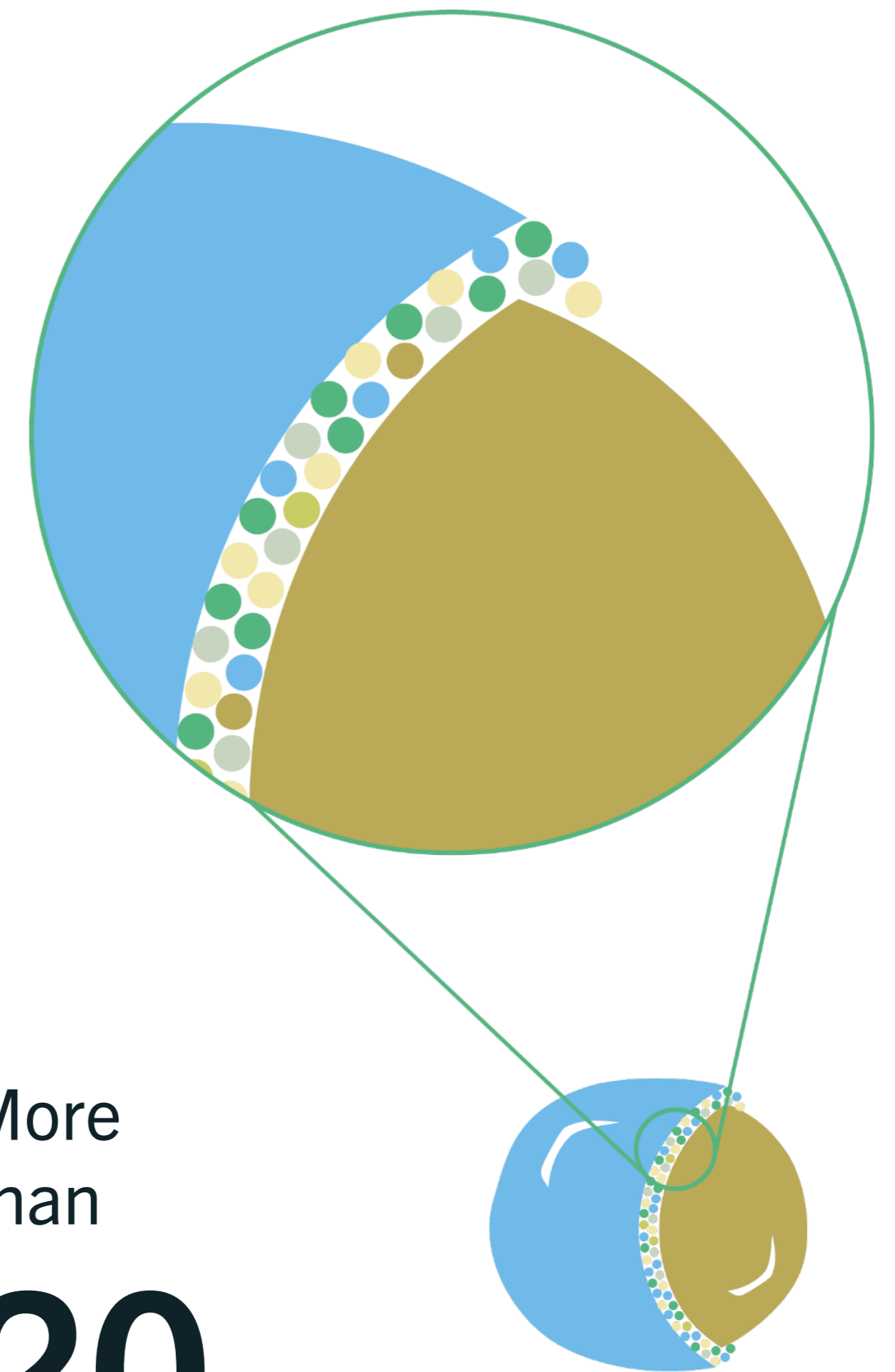
Organic acids, microorganisms, plant extracts (incl. algae), humic acids, silicon, technical additives as support

Values compared to other seed treatments on a nutrient or biostimulant base. Effects may depend on seed, soil and environmental factors. As of: 08/2022

More than

20

Selected and carefully balanced active ingredients and nutrients!



MAIN FACTS

Convincing product quality.



CROP ESTABLISHMENT

Improved field emergence due to stronger shoot power and germination capacity



NUTRITIONAL EFFICIENCY

More efficient resource usage through greater root mass and thus improved nutrient and water absorption



VITALITY

Stress-resistant crop development in all growth phases, thus providing best preconditions for assured yield stability

SAVINGS POTENTIAL

Fertilizer savings

Seed savings

IMPACT ON EARNINGS

Securing earnings/add. revenue

Crop rotation solution

Humus composition

All our products are also available as FIBL listed versions, compliant with EU Regulation VO (EG) 834/2007.



grow better with
LEGUGUARD®

MADE IN
GERMANY

READY
TO USE

MICRO
PLASTIC
FREE

RELIABLE FROM THE START.

Future proof without constraints.

- ✓ Compliant with current EU-directives
- ✓ Organic version listed for organic farming in Germany
- ✓ Extensively tested in the lab and field
- ✓ Approved by independent trials facilities
- ✓ 12 months shelf life



Pea 2021, site: Wallenhorst, variety: Astronaute
In comparison: check left, LEGUGUARD right



MODE OF ACTION



A good start cannot be replaced.

Quicker & more even swelling

Increased attraction and binding of water molecules due to contained hygroscopic substances and surfactants

Homogeneous field emergence

Results from increased germination and vigour of seedlings and established layer of beneficial microorganisms in the soil directly around the seed and developing roots

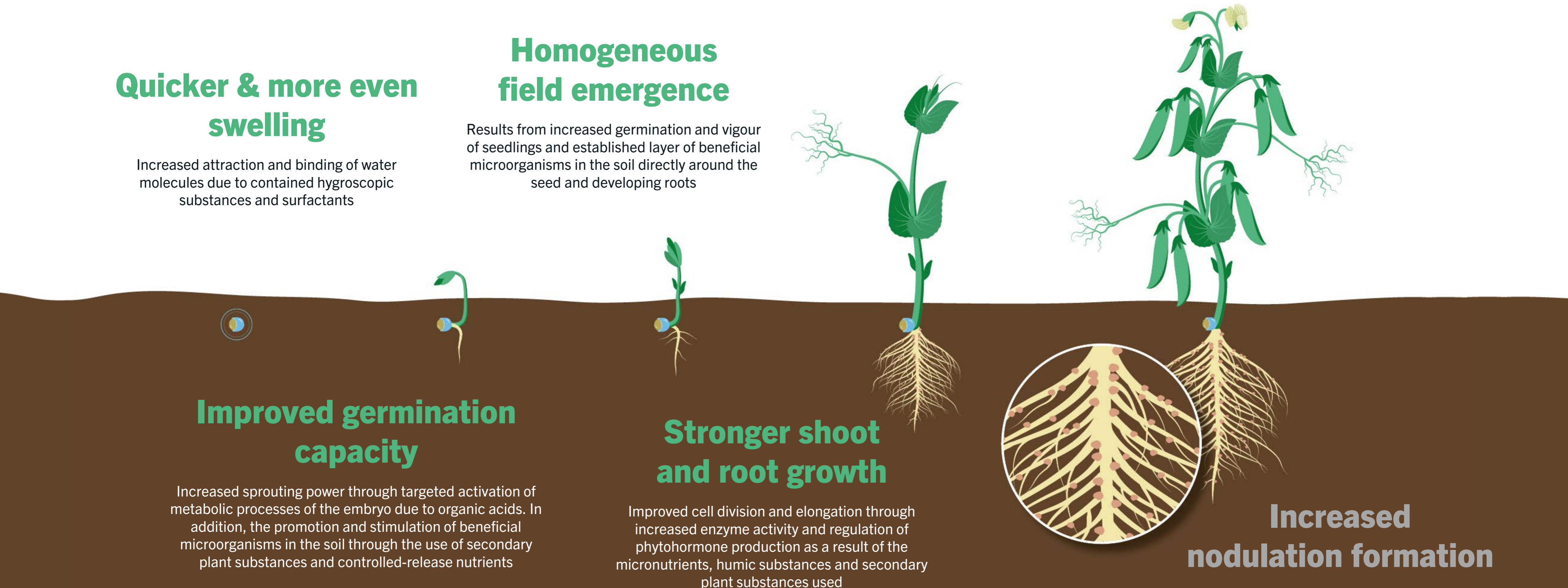
Improved germination capacity

Increased sprouting power through targeted activation of metabolic processes of the embryo due to organic acids. In addition, the promotion and stimulation of beneficial microorganisms in the soil through the use of secondary plant substances and controlled-release nutrients

Stronger shoot and root growth

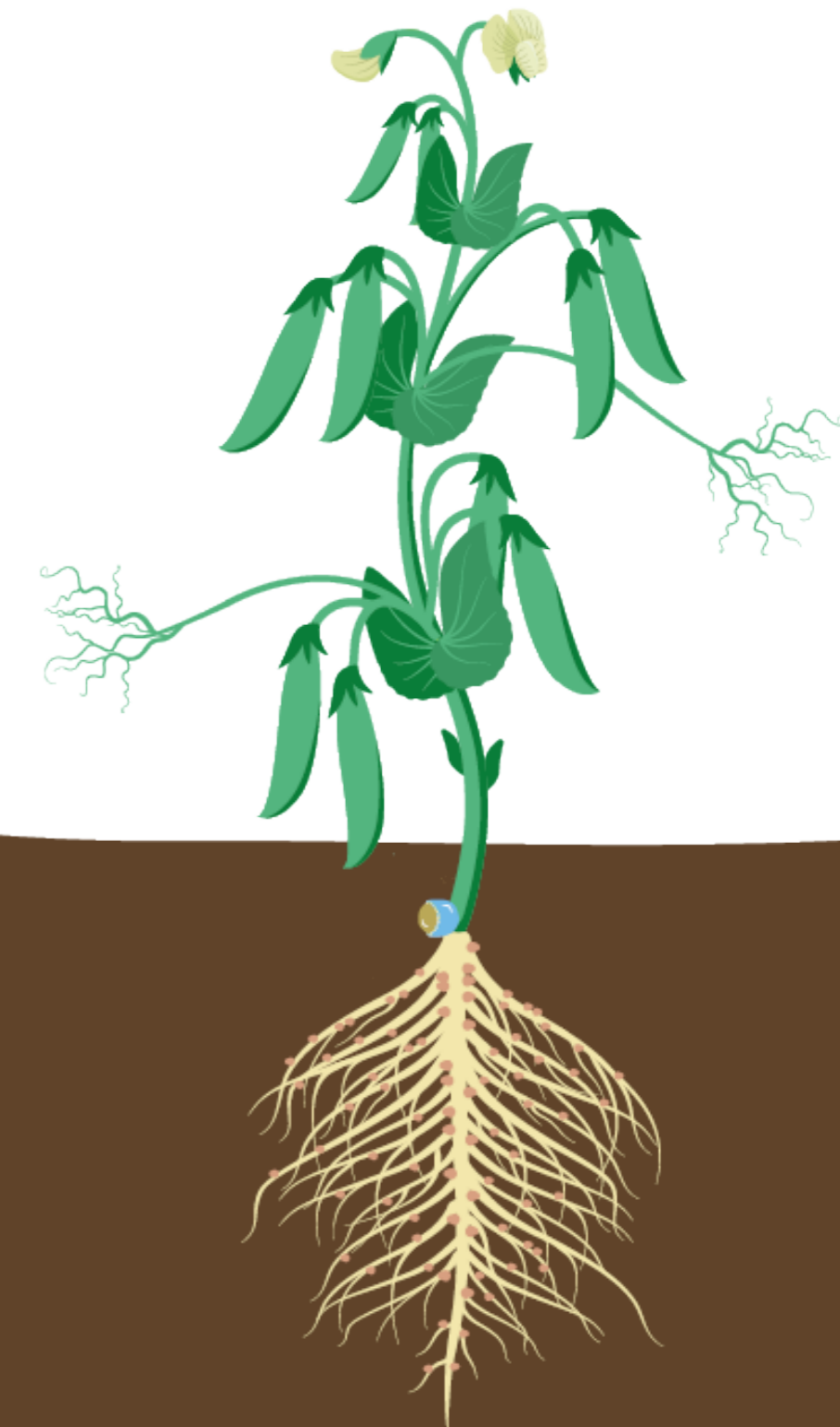
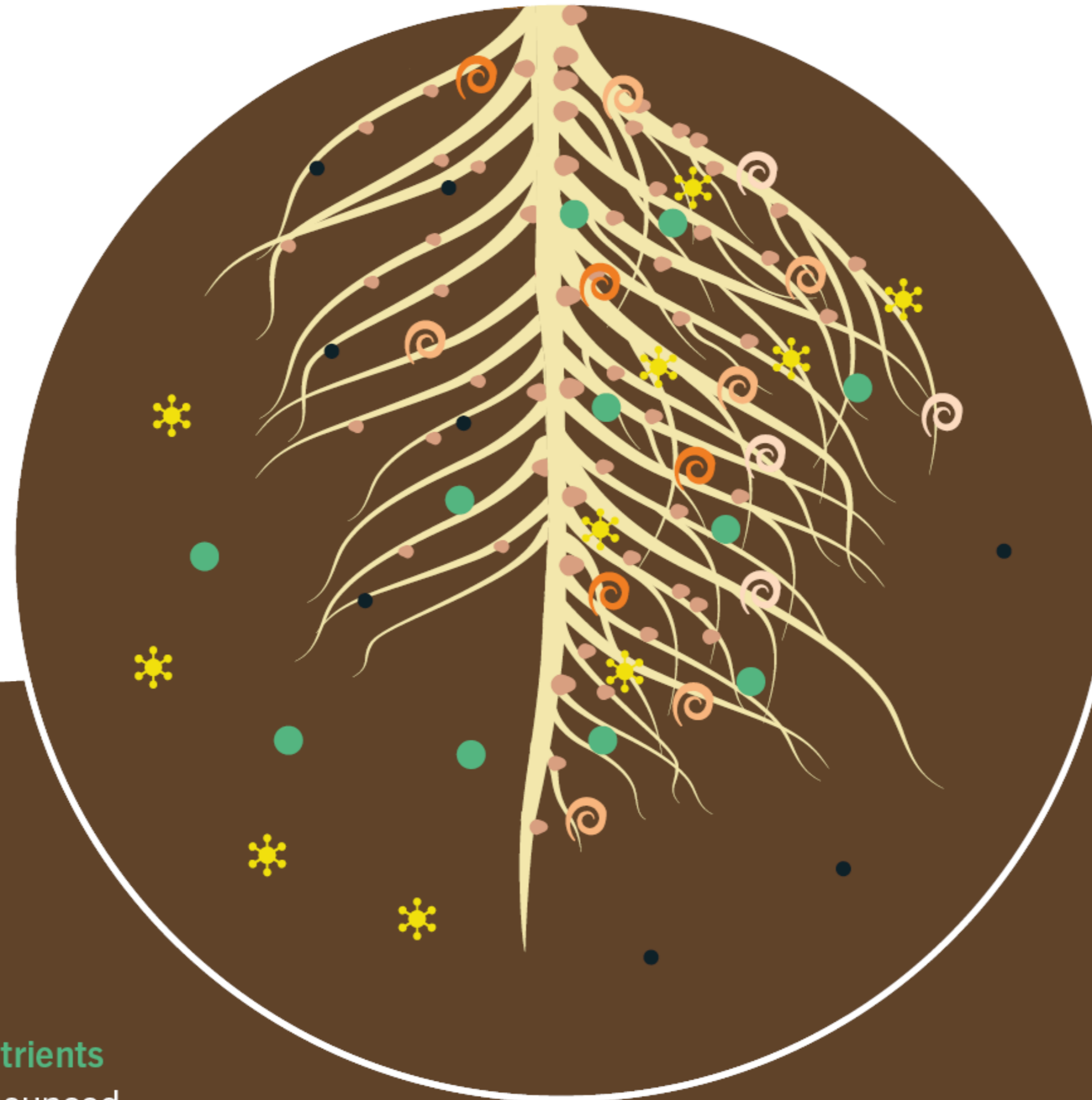
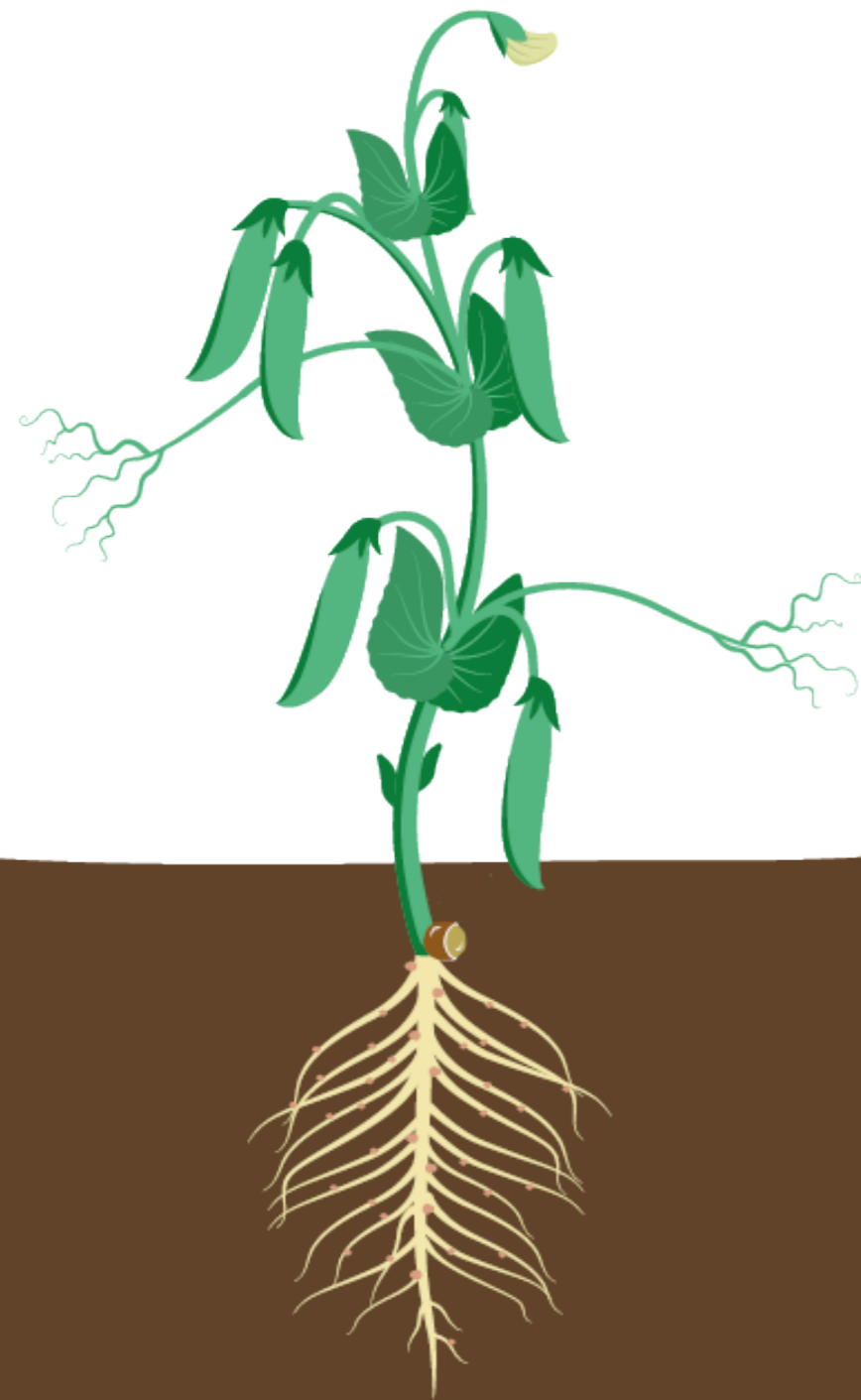
Improved cell division and elongation through increased enzyme activity and regulation of phytohormone production as a result of the micronutrients, humic substances and secondary plant substances used

Increased nodulation formation



check

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Tapping and utilisation of immobile nutrients

● due to organic acids and more pronounced root development (enlarged root surface)

Promotion of the colonisation of positive microorganisms

✱ by secondary plant compounds, consequence: displacement of pathogens

Stimulation of microorganisms

⊙ due to organic acids

⊙ due to increased exudates

⊙ due to secondary plant compounds and micronutrients



PRODUCT ADVANTAGE #1

RELIABLE GERMINATION

Make the most out of the vegetation period with **increased vigour (+ 6%)** and reliable germination!

Pea 2023, site: Winsen/Luhe, variety: Alvestra KWS
Data based on results from our own as well as independent trials, available in the LEGUGUARD results report.





PRODUCT ADVANTAGE #2

PROMOTION OF NODULATION

Higher N-fixation performance due to targeted promotion of nodule formation!

Pea 2021, site: Wallenhorst, variety: Astronaute
Data based on results from our own as well as independent trials, available in the LEGUGUARD results report.





PRODUCT ADVANTAGE #3

YIELD STABILITY

Increased root mass (+ 20%) and surface area ensure more efficient development and use of resources (immobile nutrients, water) – the best prerequisites for **assured yield stability** (+ 5% additional yield)!

Faba bean 2021, site: Westerkappeln, variety: Fanfare
Data based on results from our own as well as independent trials, available in the LEGUGUARD results report.



check

LEGUGUARD

EFFECTS IN KEY FIGURES

Certified trials 2020 – 2022

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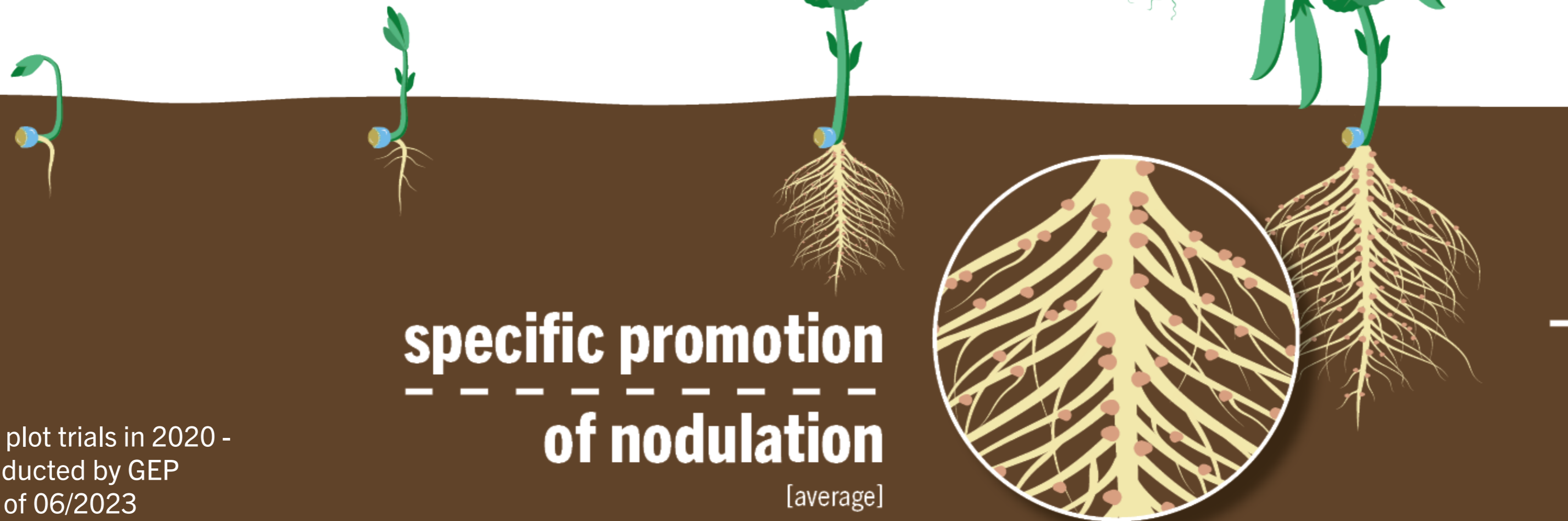
+ 6 %
germination power
[average]

improved
pod formation
[average]

+ 5 %
additional yield
[average]

specific promotion
of nodulation
[average]

+ 20 %
root mass
[average]

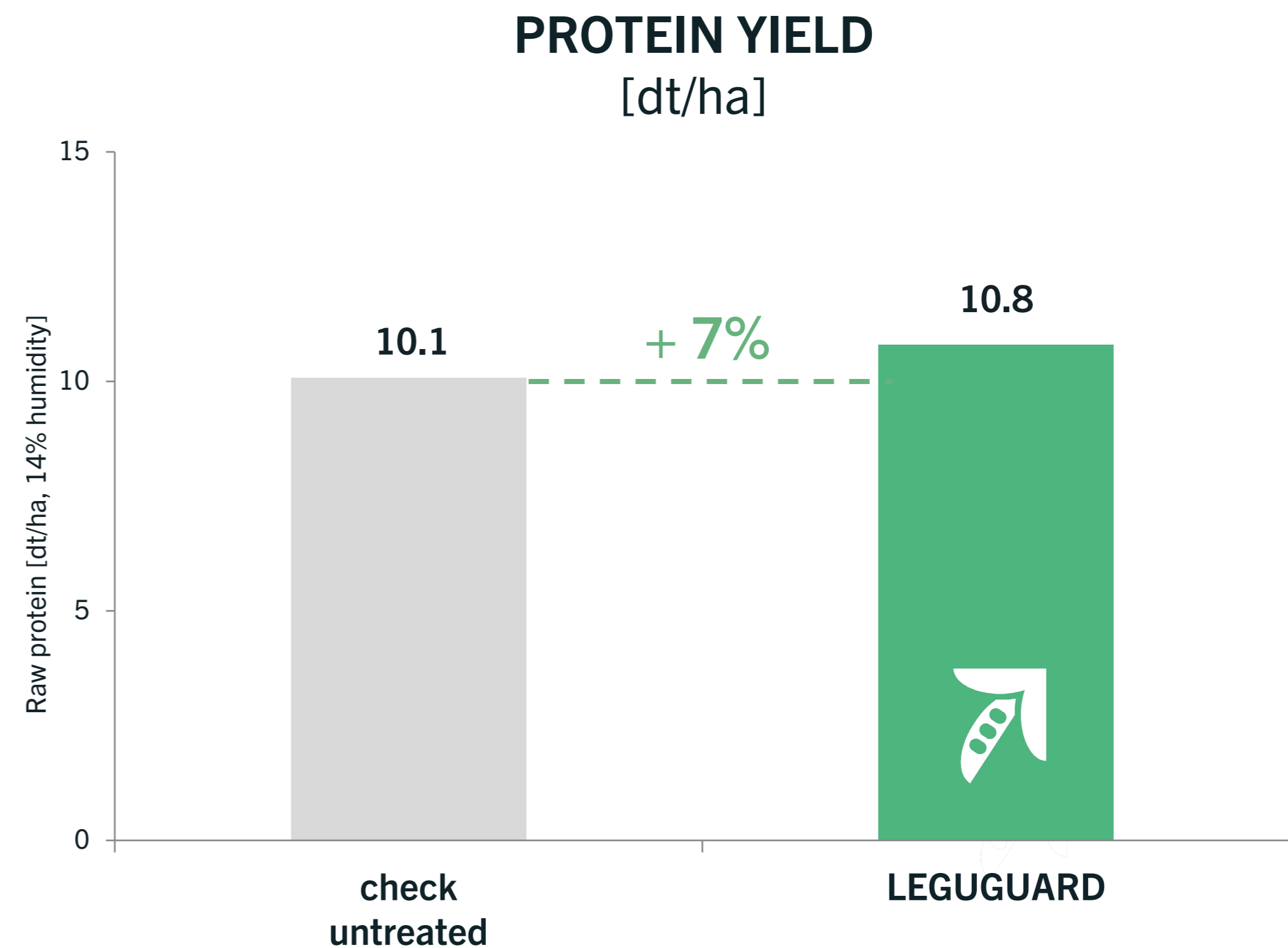
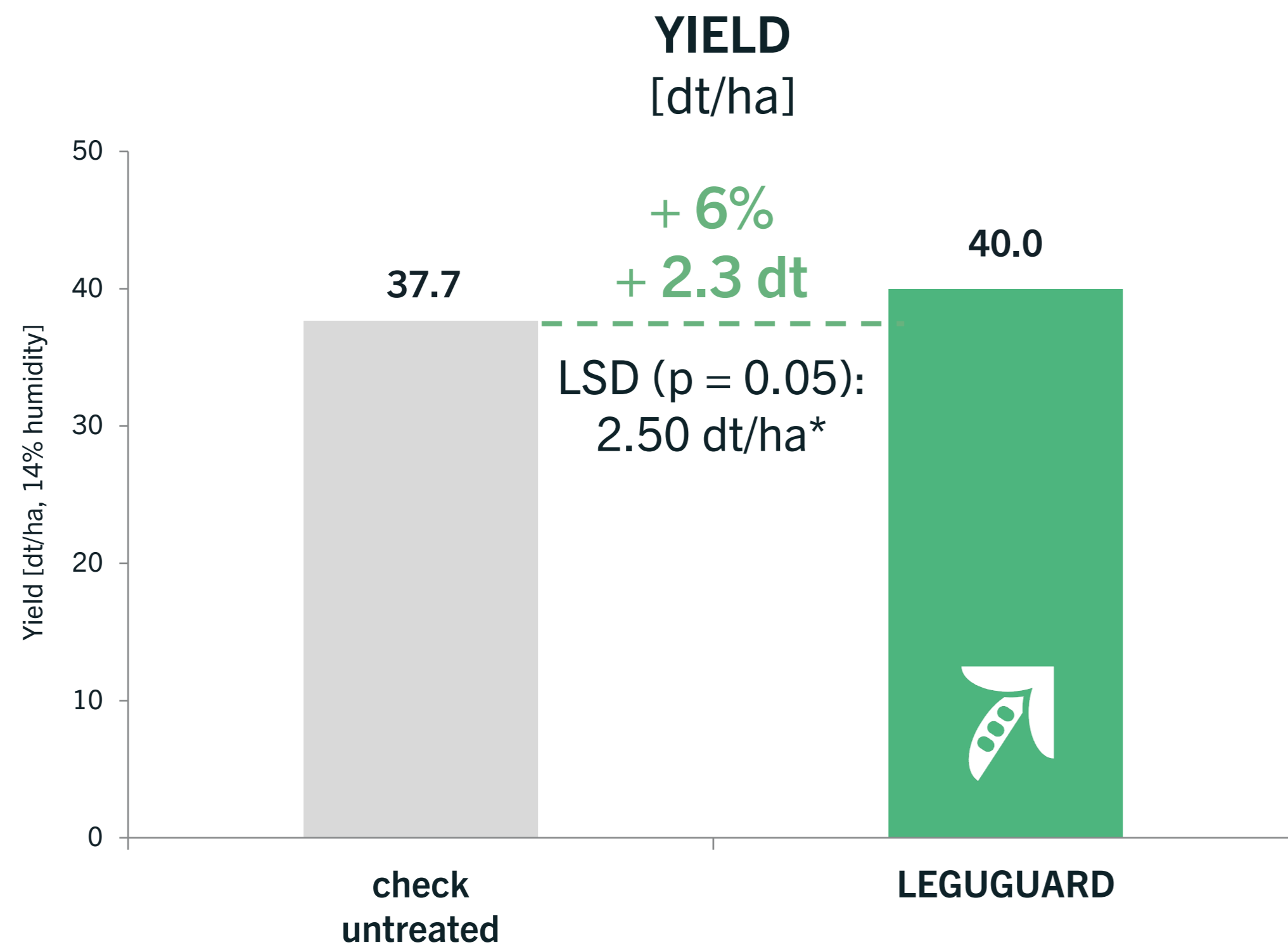


The data are based on 10 plot trials in 2020 - 2022, 3 of them were conducted by GEP certified trial facilities. As of 06/2023

INDEPENDENT TRIALS

FABA BEAN 2023

Plot trial in Huntlosen at a GEP-certified trial facility

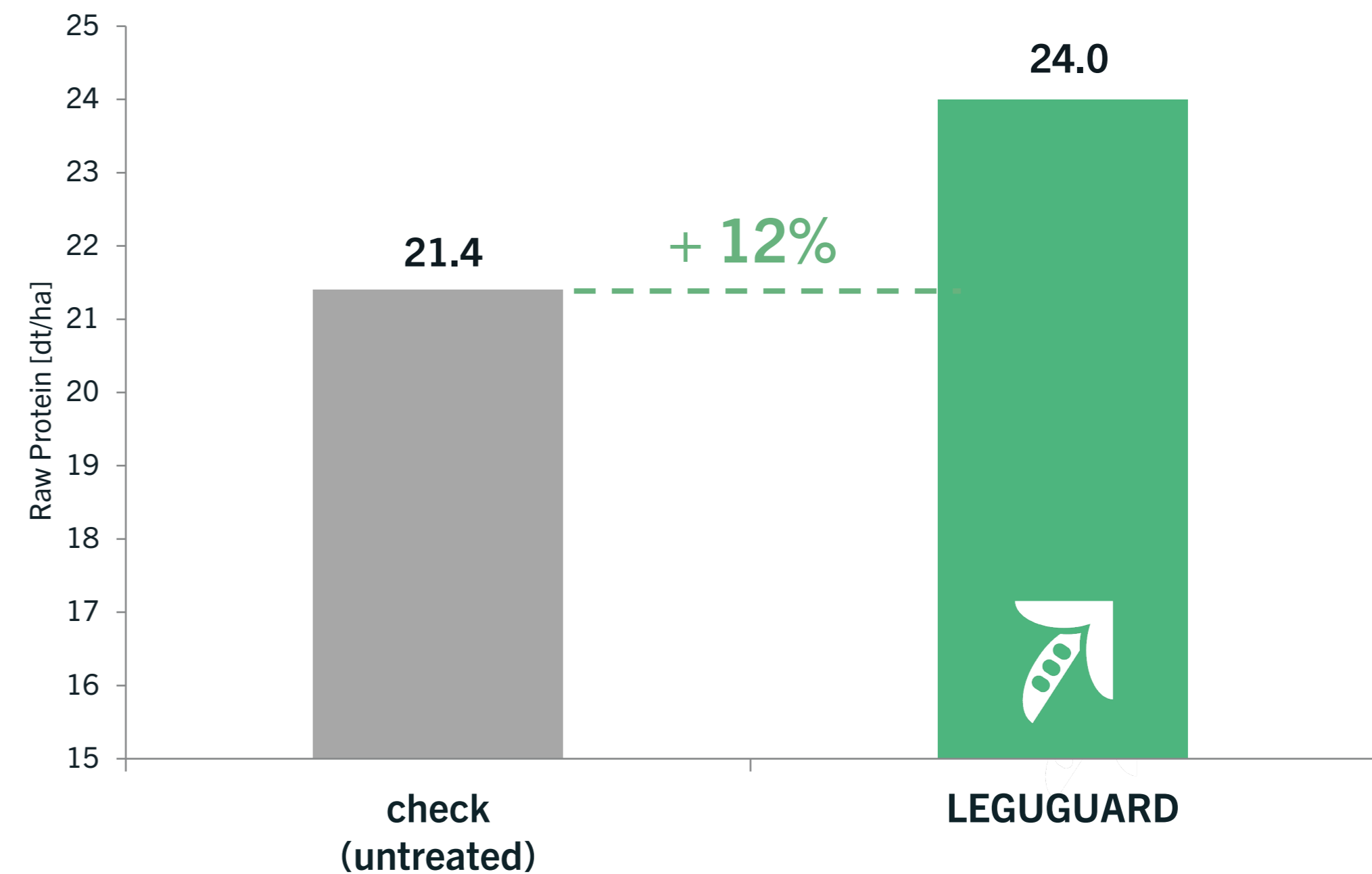
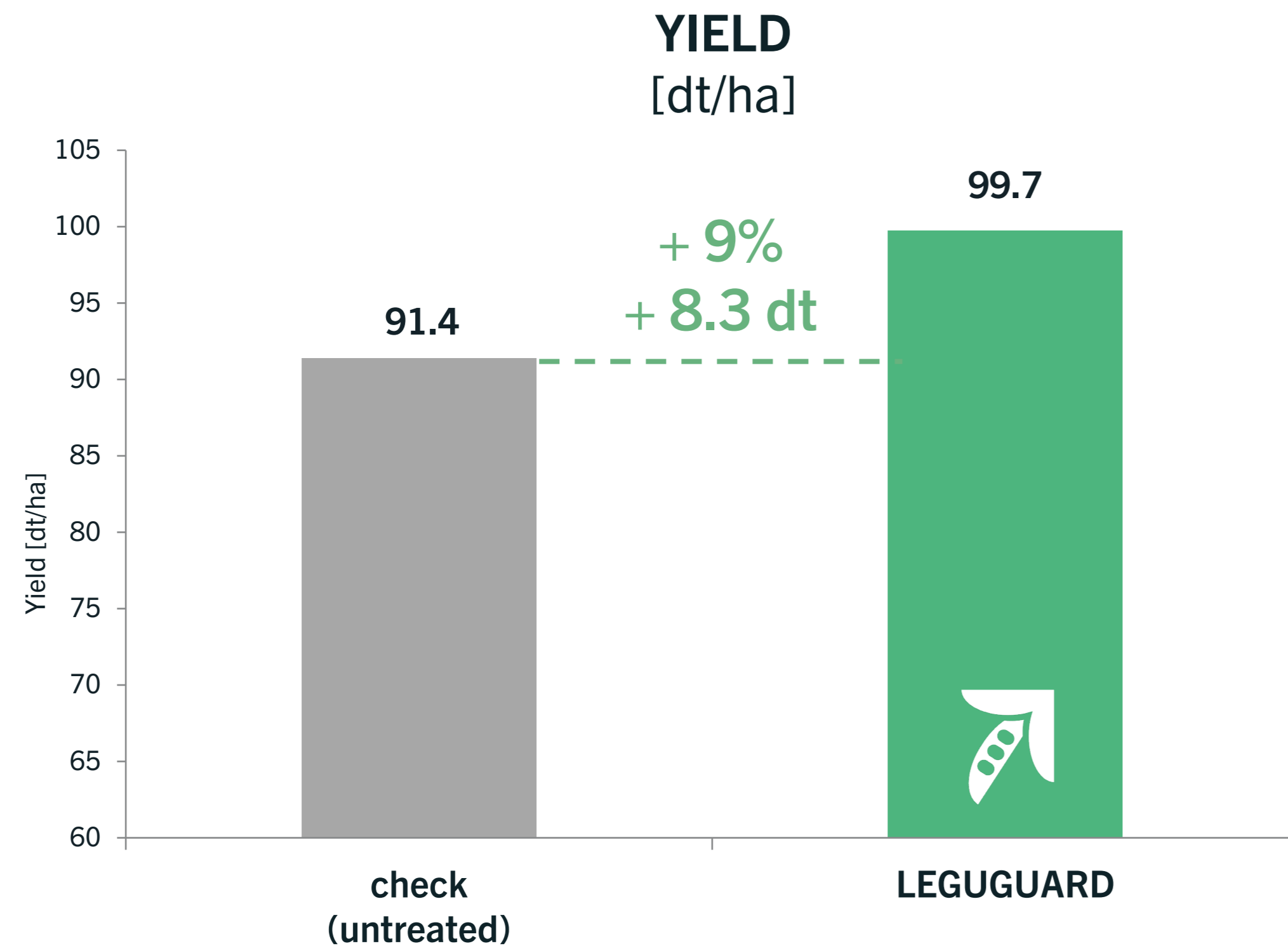


Variety: Trumpet | Huntlosen (Lower Saxony), 2022 | Plot trial, n = 4 repetitions | Trial facility: Plantus GbR, GEP-certified

*For the statistical evaluation of our trials, we use the standard scientific probability of error of $\alpha = 5\%$. At EU level, however, an increase in the probability of error to $\alpha = 15\%$ is permissible for the statistical evaluation of field trials in relation to the performance of biostimulants products.

YIELD WITH LEGUGUARD 2022

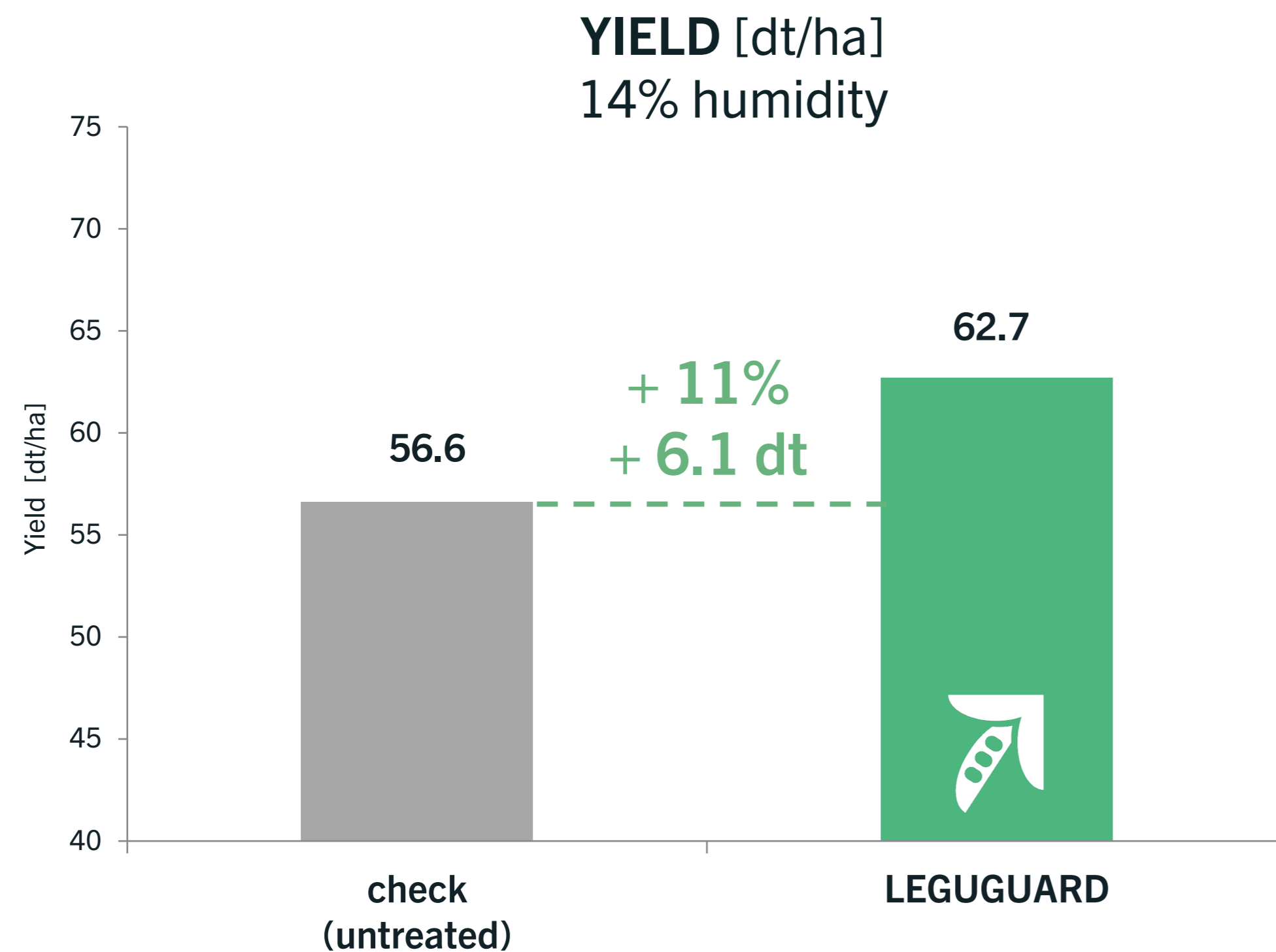
Plot trial faba bean in Dorum (Lower Saxony)



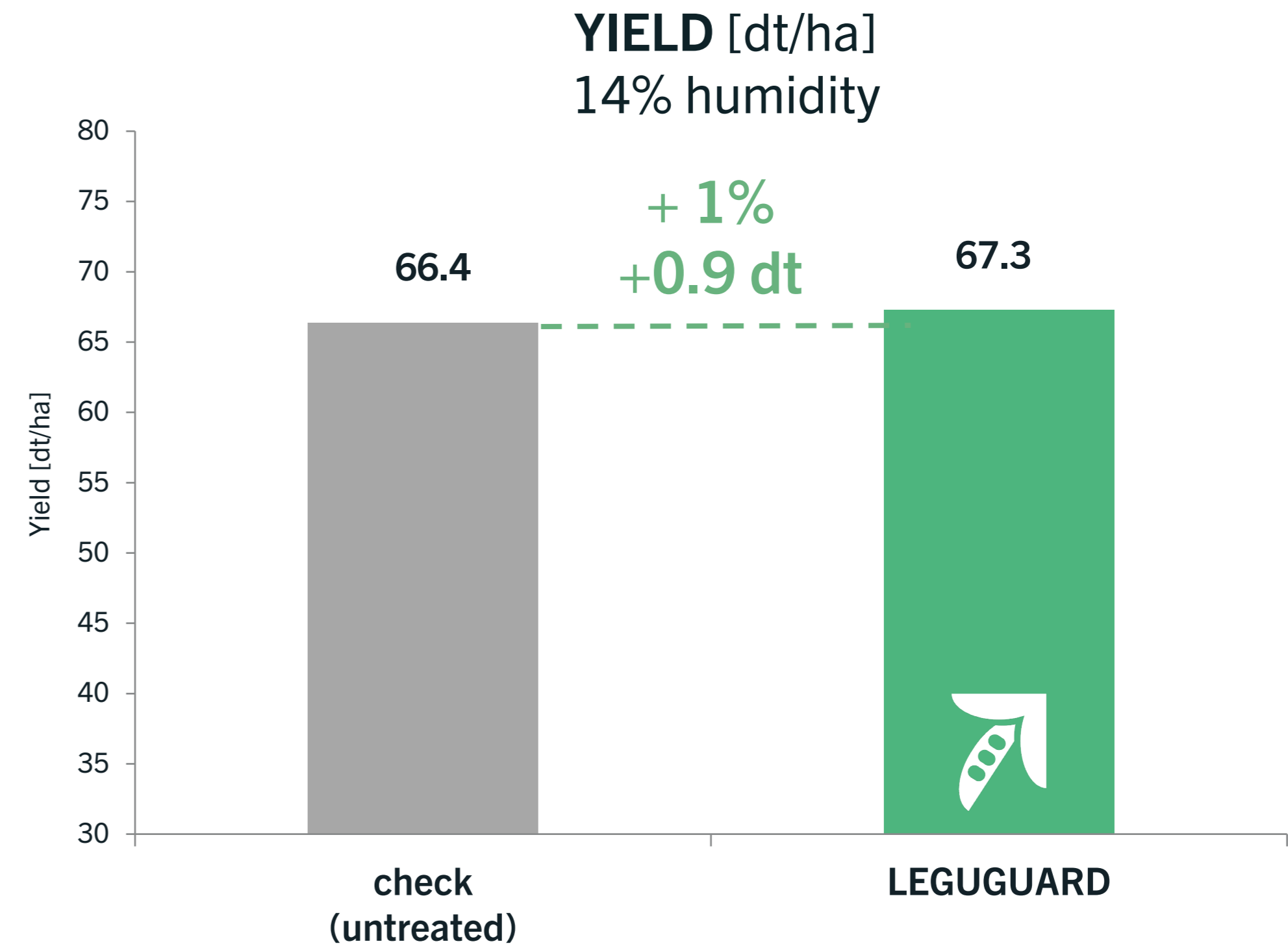
Variety: Fuego
Dorum (Lower Saxony), 2022
Plot trial, n = 4 repetitions per treatment
Field trial management: Plantus GbR, GEP certified field trial institution

YIELD WITH LEGUGUARD 2022

Plot trials faba bean in Ilsfeld (Baden-Wuerttemberg)



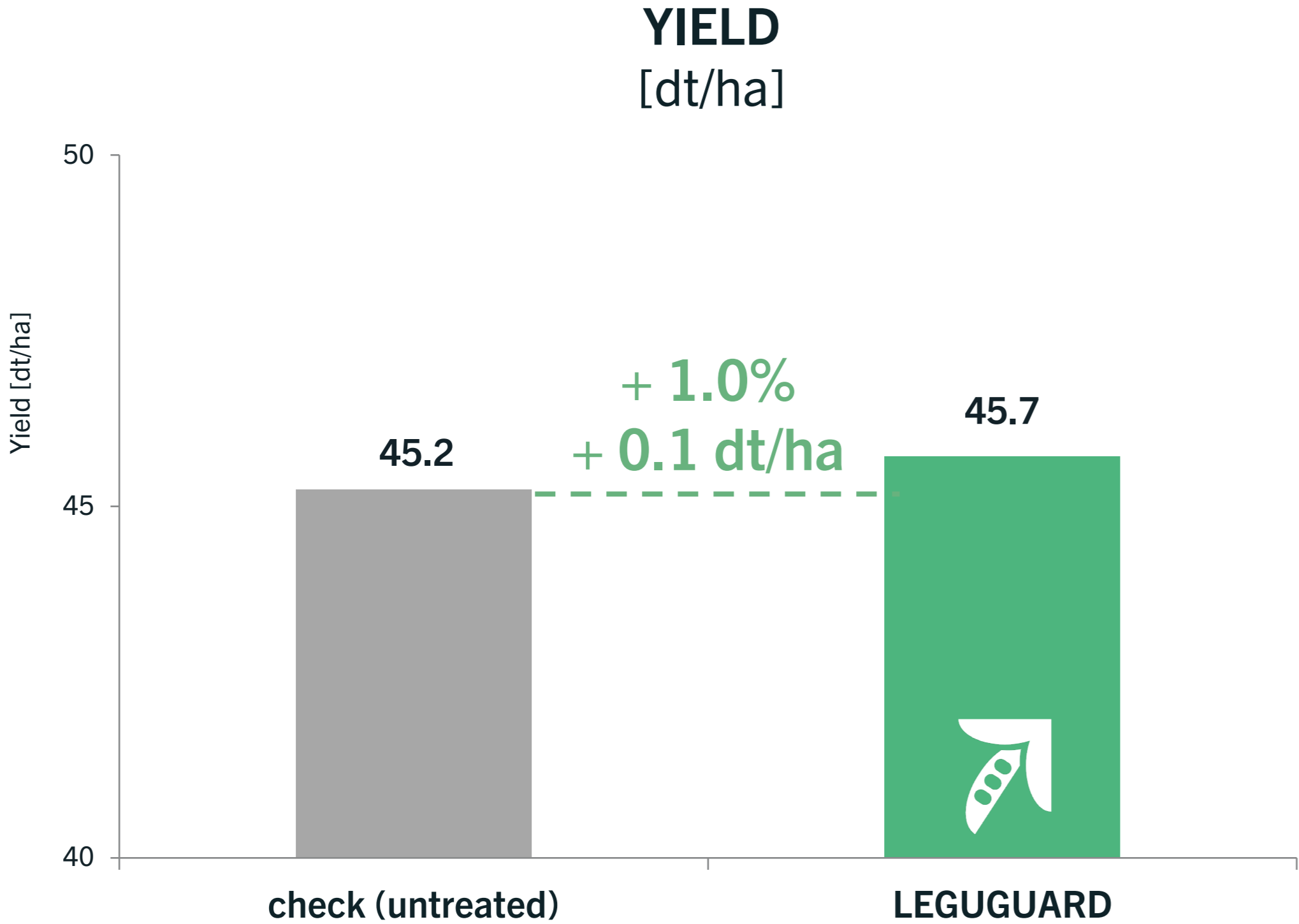
Variety: Fanfare
Ilsfeld (Baden-Wuerttemberg), 2022
Plot trial, n = 3 repetitions per treatment
Field trial management: Staphyt, GEP certified field trial institution



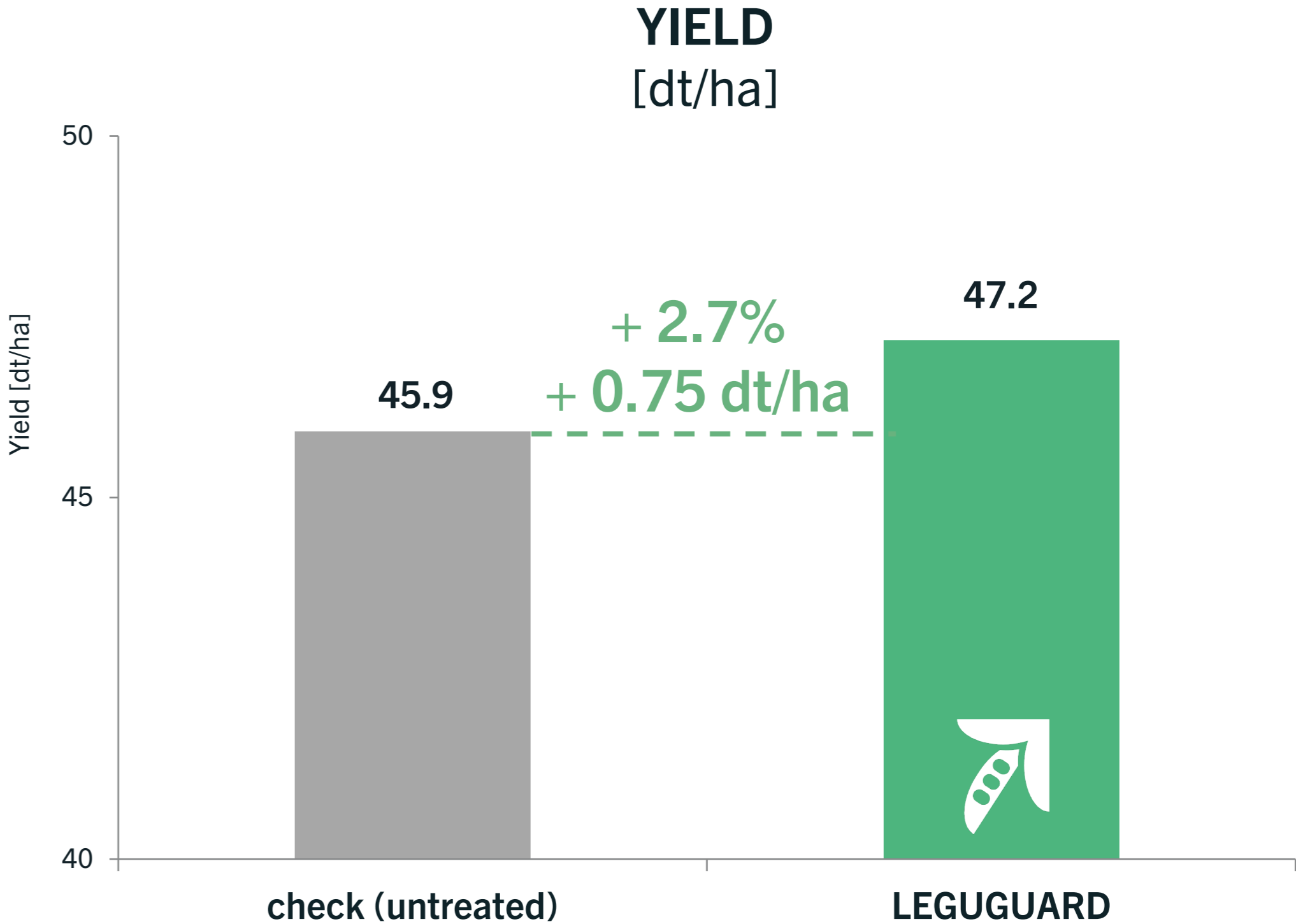
Variety: Trumpet
Ilsfeld (Baden-Wuerttemberg), 2022
Plot trial, n = 3 repetitions per treatment
Field trial management: Staphyt, GEP certified field trial institution

YIELD WITH LEGUGUARD 2022

Strip trial faba bean in Westerkappeln (North Rhine-Westphalia)



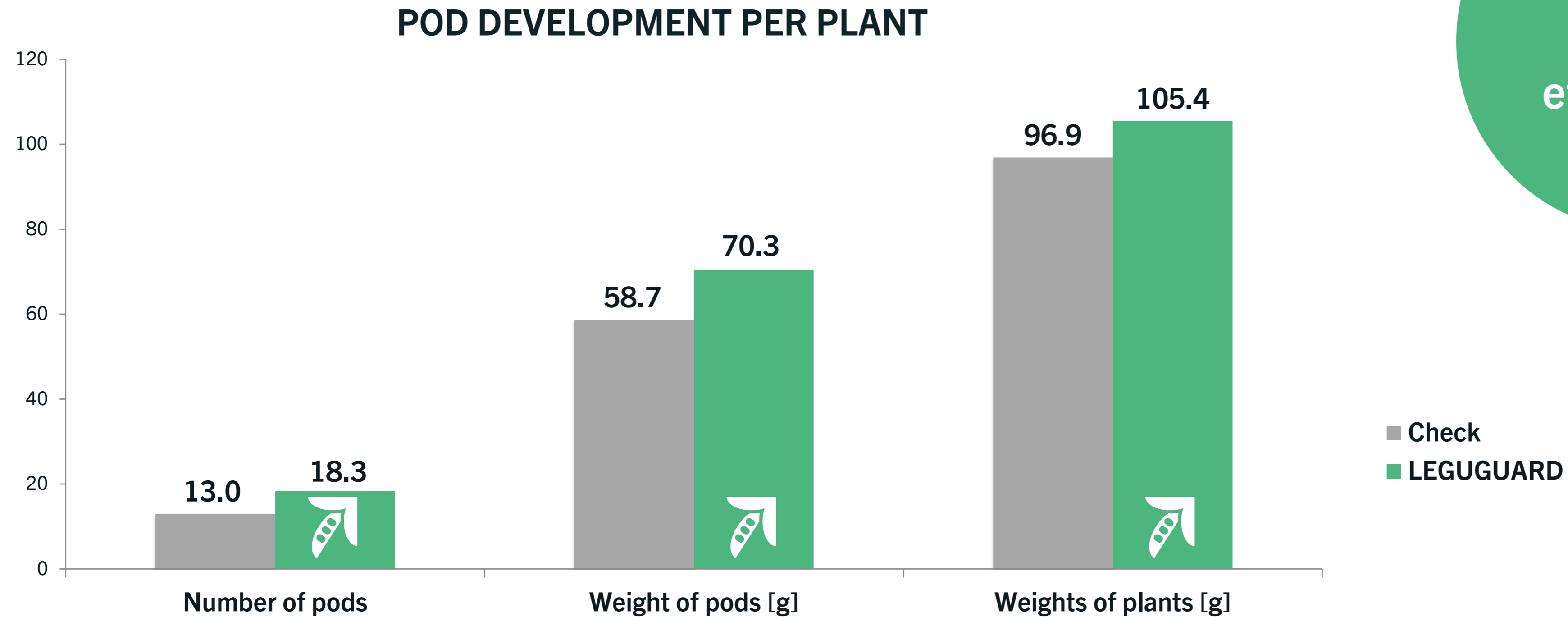
Variety: Trumpet
Westerkappeln (North Rhine-Westphalia), 2021
Strip trial



Variety: Fanfare
Westerkappeln (North Rhine-Westphalia), 2021
Strip trial

YIELD WITH LEGUGUARD 2021

Strip trial faba bean in Westerkappeln (North Rhine-Westphalia)



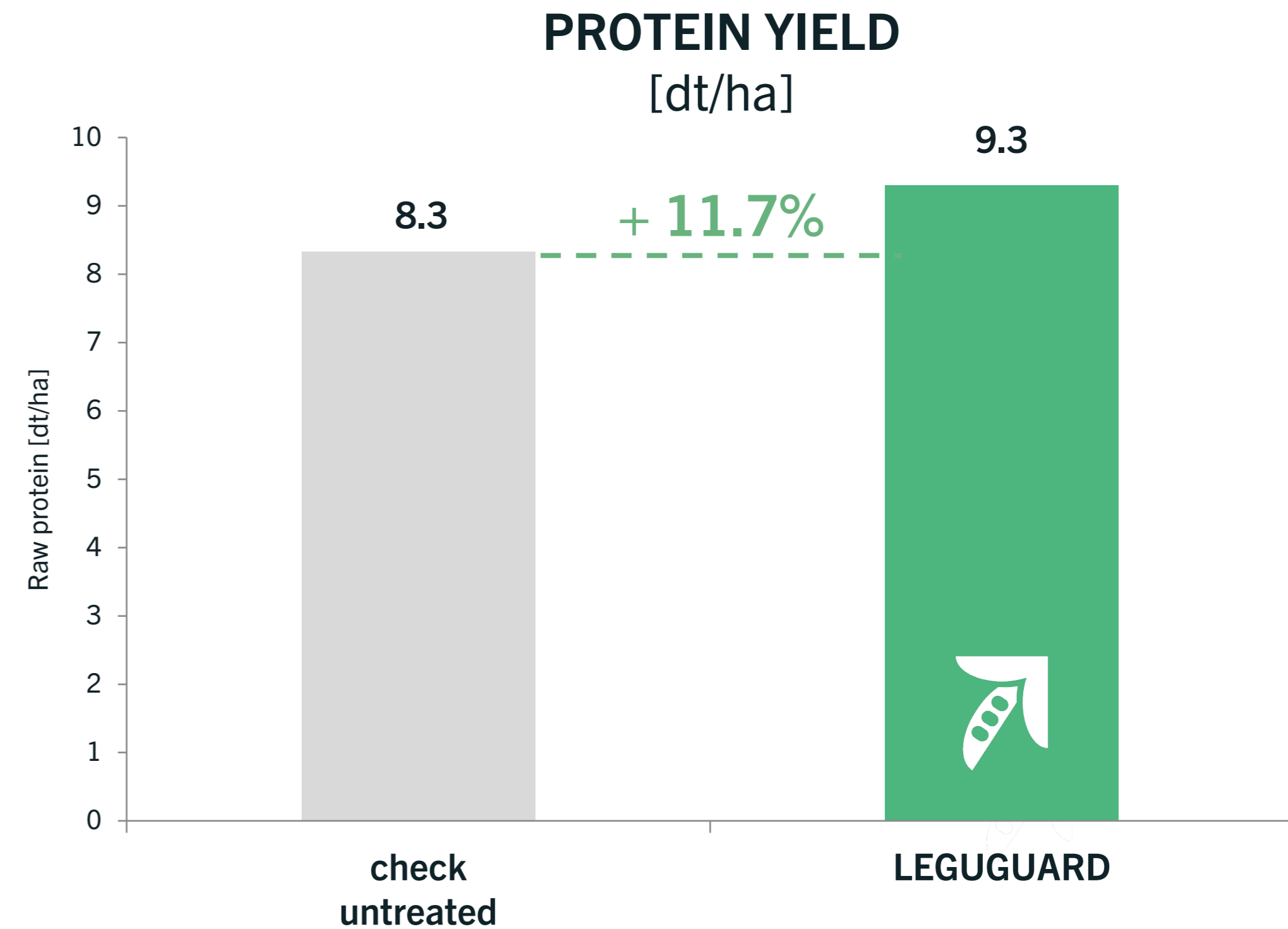
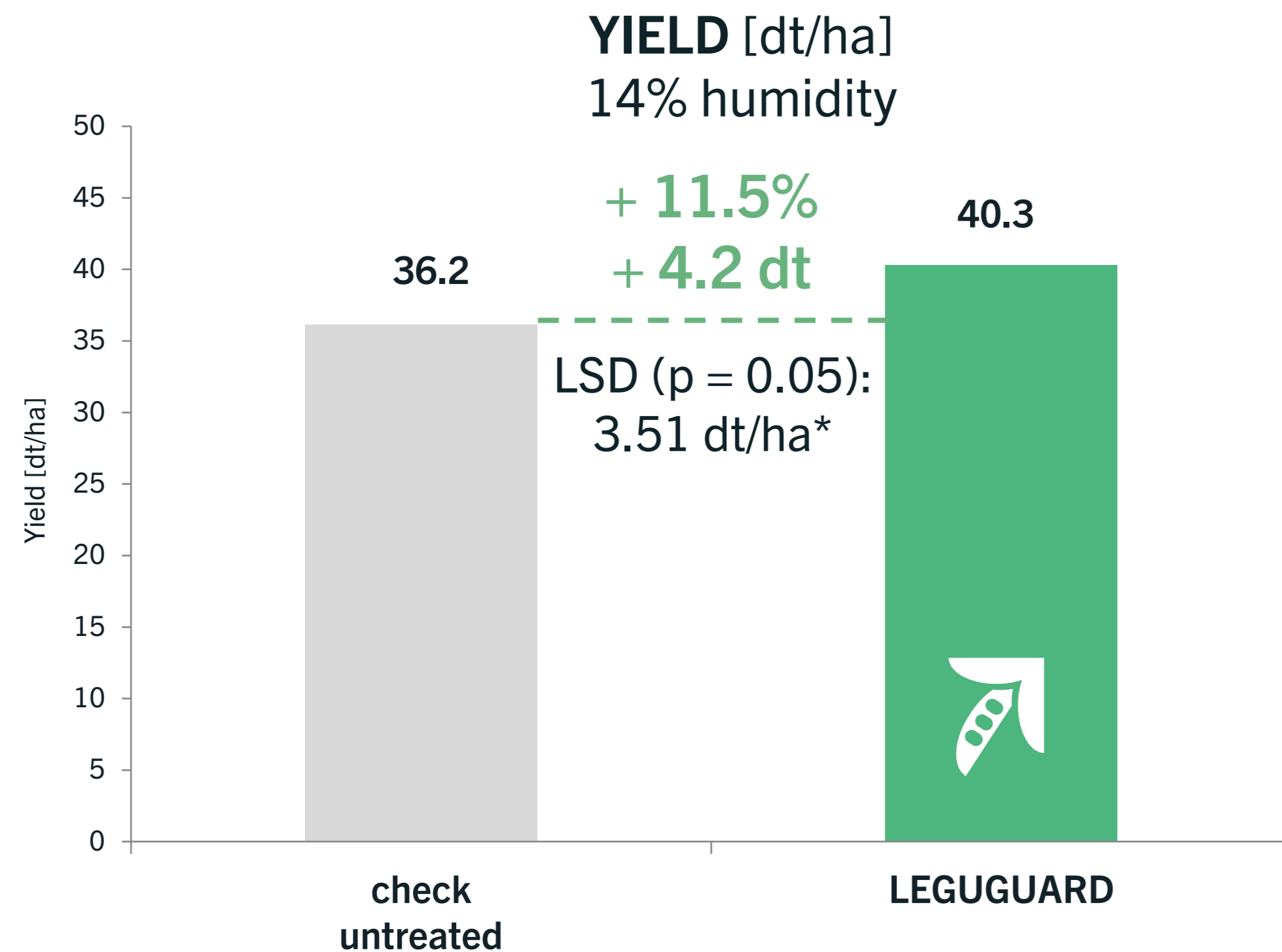
Increased nutrient efficiency!

Variety: Fanfare
Westerkappeln (Nordrhein-Westfalen), 2021
Strip trial

INDEPENDENT TRIALS

GRAIN PEA 2023

Plot trial in Huntlosen at a GEP-certified trial facility

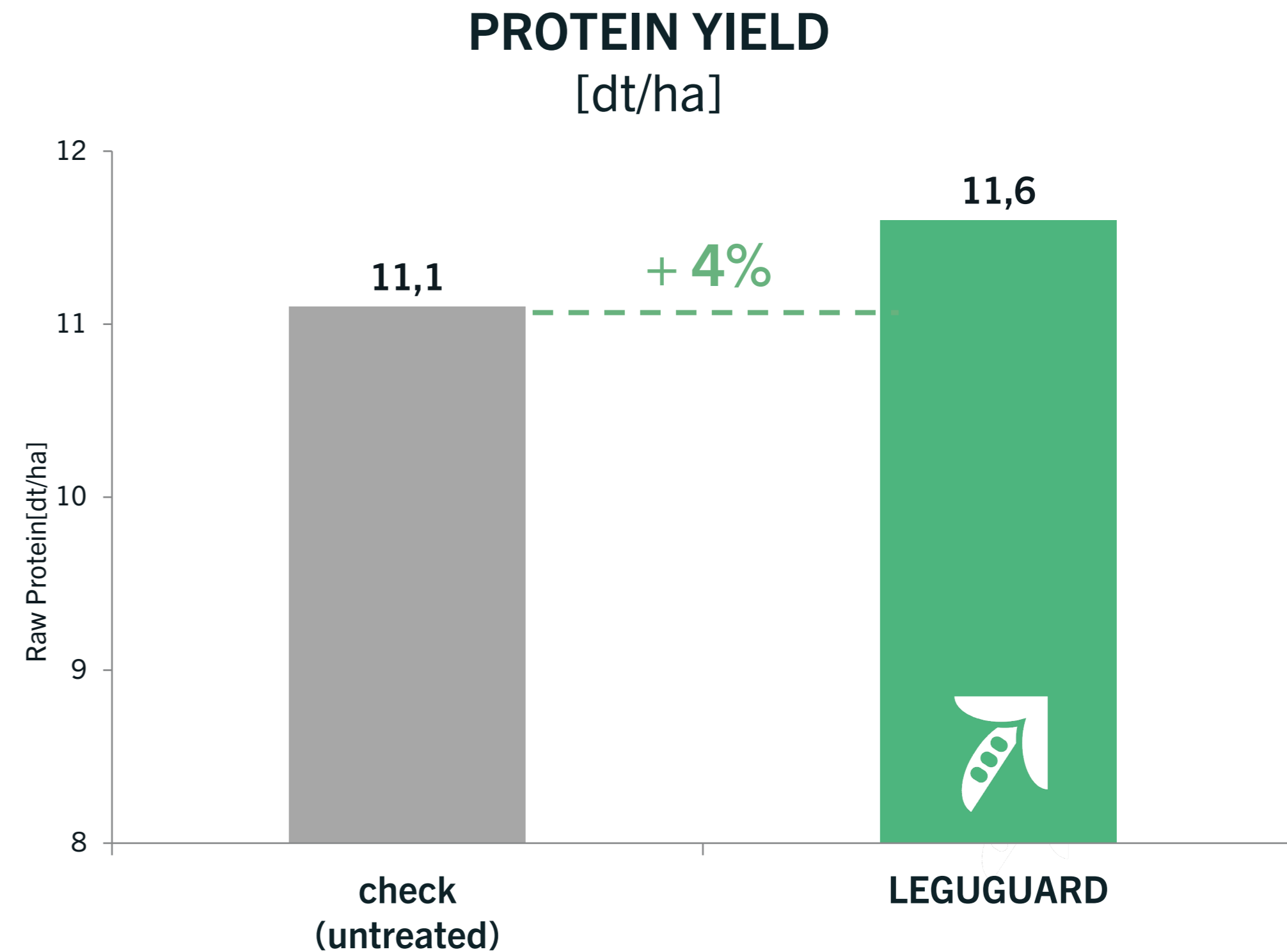
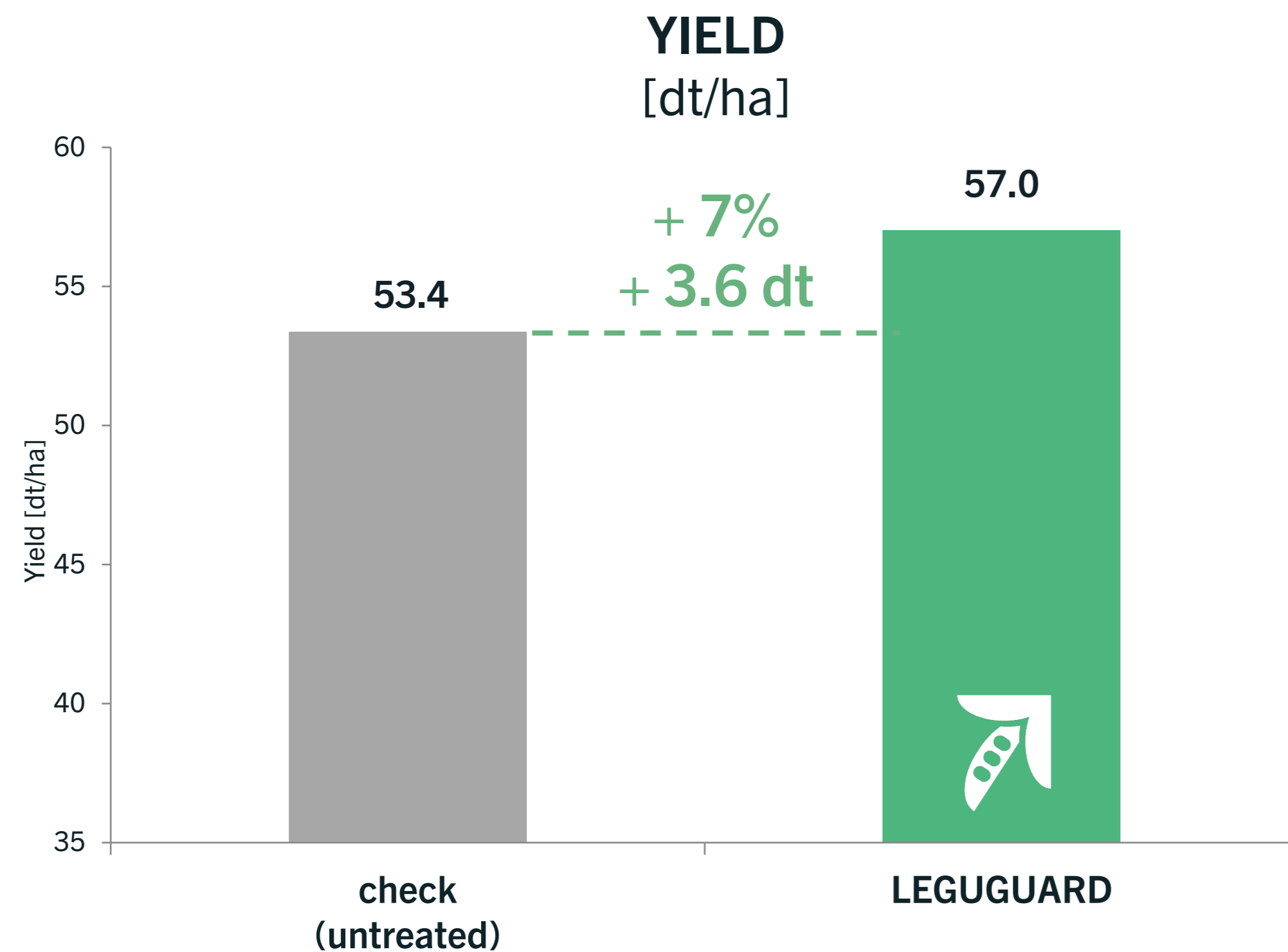


Variety: Astronaute | Huntlosen (Lower Saxony), 2023 | Plot trial, n = 4 repetitions | trial facility: Plantus GbR, GEP-certified

*For the statistical evaluation of our trials, we use the standard scientific probability of error of $\alpha = 5\%$. At EU level, however, an increase in the probability of error to $\alpha = 15\%$ is permissible for the statistical evaluation of field trials in relation to the performance of biostimulants products.

YIELD WITH LEGUGUARD 2022

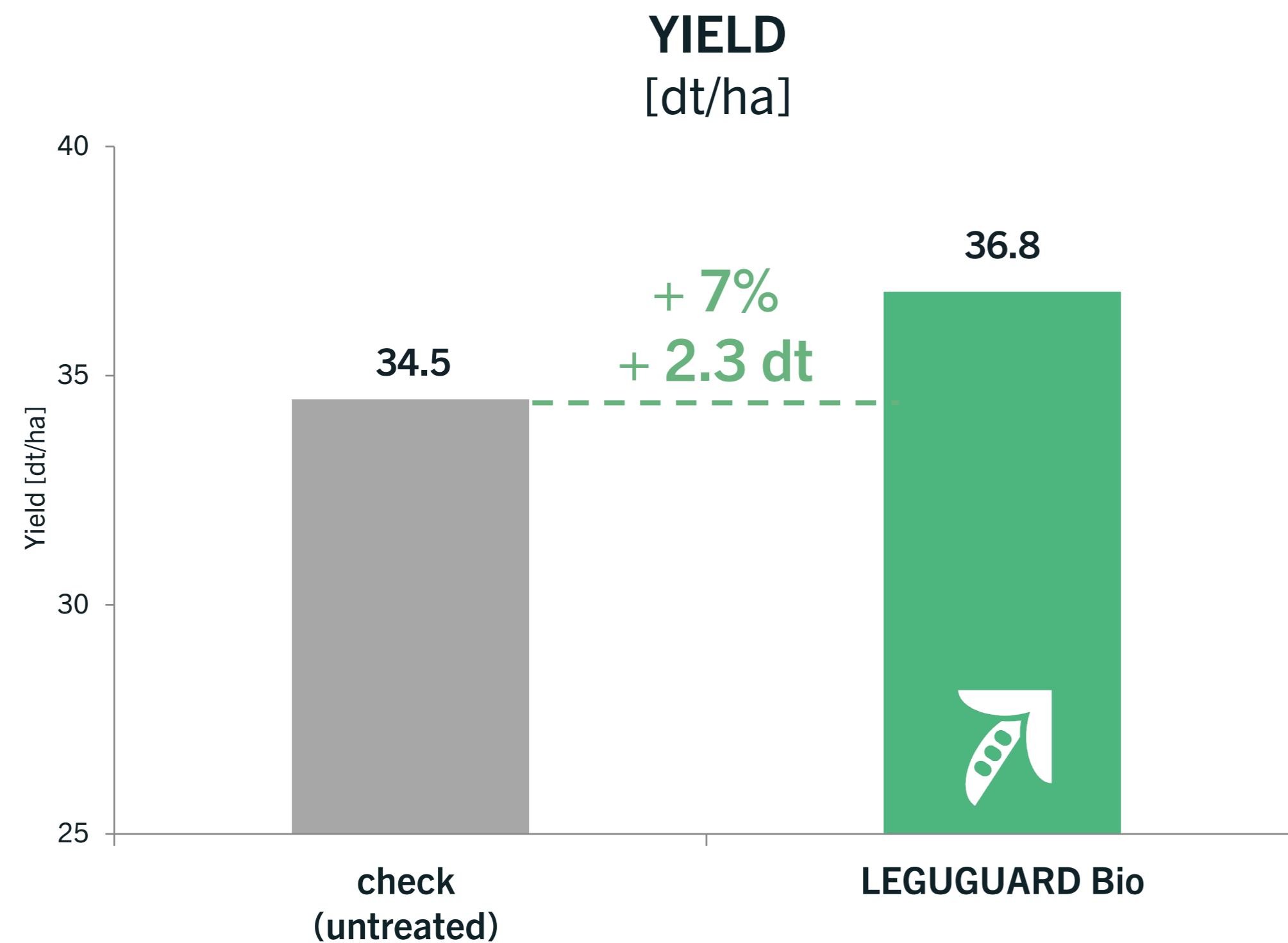
Plot trial grain pea in Huntlosen (Lower Saxony)



Variety: Astronaute
Huntlosen (Lower Saxony), 2022
Plot trial, n = 4 repetitions per treatment
Field trial management: Plantus GbR, GEP certified field trial institution

YIELD WITH LEGUGUARD Bio 2022

Plot trial grain pea in Rupennest (Lower Saxony)

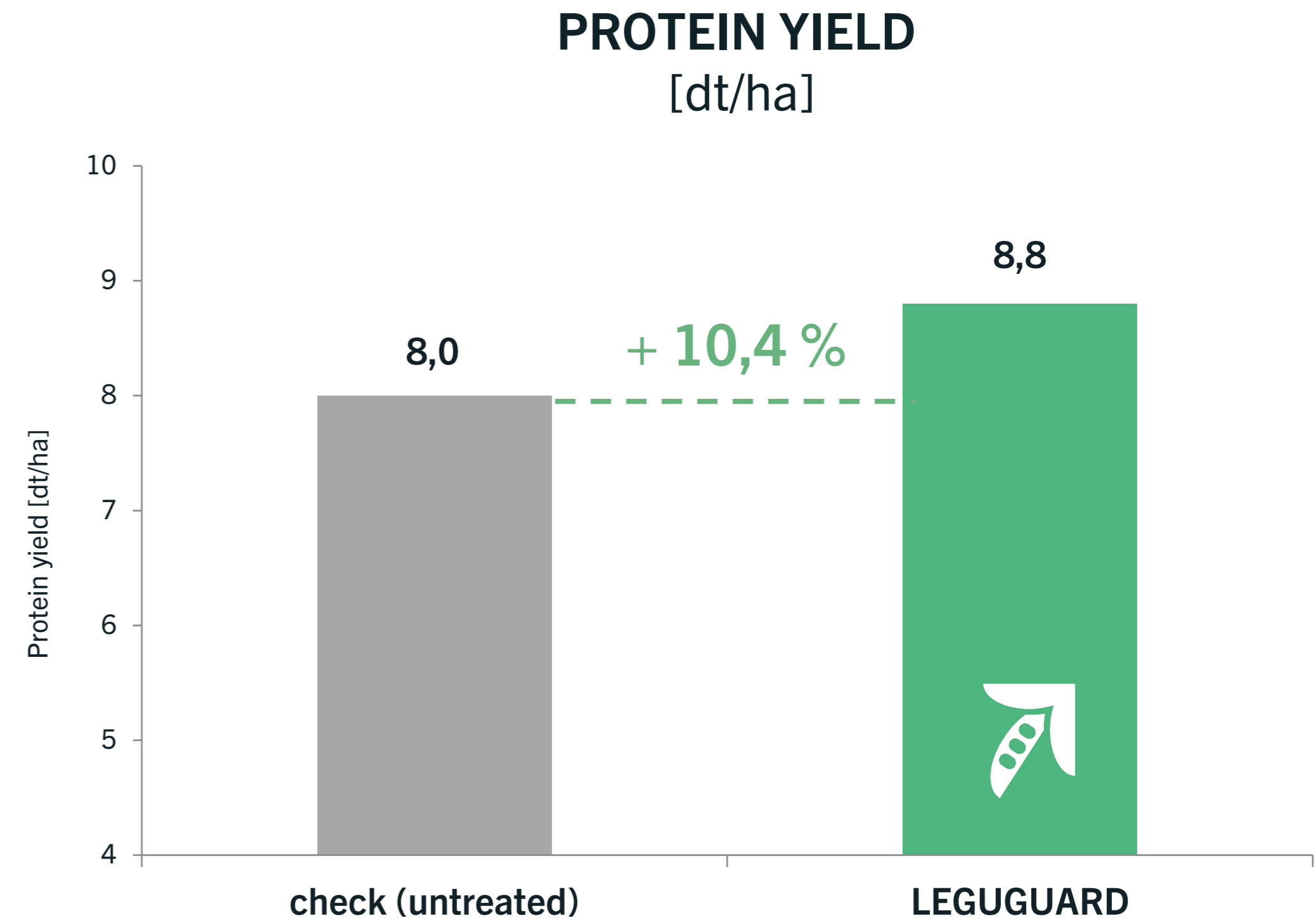
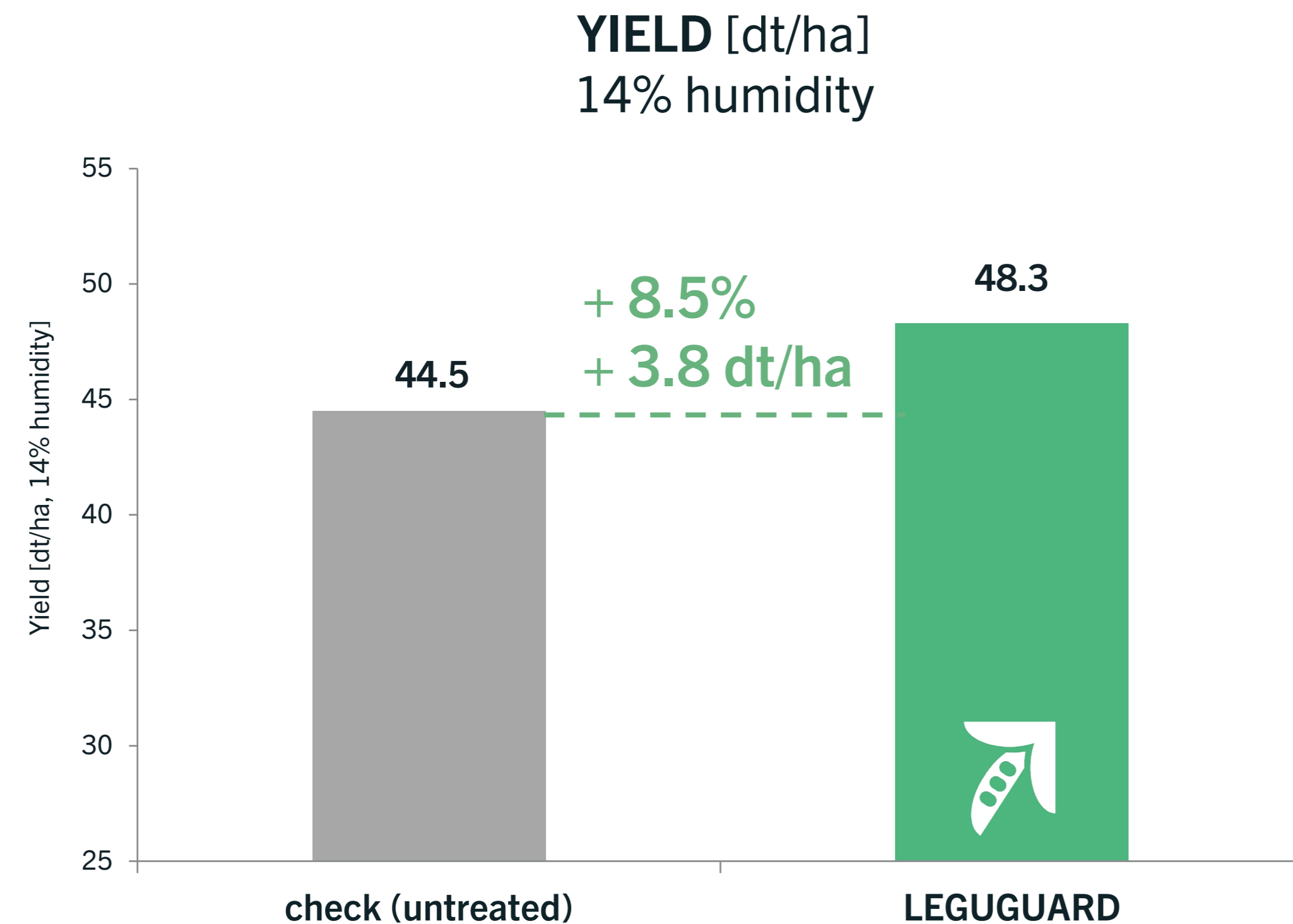


Variety: Salamanca
Rupennest (Lower Saxony), 2022
Plot trial
Field trial management: Raiffeisen Ems-Vechte



YIELD WITH LEGUGUARD 2021

Strip trial grain pea in Wallenhorst/Osnabrück (Lower Saxony)



Variety: Astronaute
Wallenhorst/Osnabrück (Lower Saxony), 2020
Strip trial

NOTE: The LEGUGUARD trial strip had a sandy patch. The additional yield with LEGUGUARD would therefore probably have been even greater with the same soil conditions. Check was grown on "better" soil than LEGUGUARD. With LEGUGUARD considerably more uniform maturation, no lodging, better pod formation. Check: lodging and much darker brown.

READY FOR THE FIELD



Also available as a product of
SAATEN-UNION GmbH.



Currently available on seed from **L. Stroetmann Saat, Rudloff, und DSV**, via **RE Ems-Vechte** also on LG and Syngenta genetics.
Also available as a product of **farmsaat AG.**



So far only for home gardening: Seeds treated with **VEGGIEGUARD** are available as a brand of the company **Bruno Nebelung GmbH.**



All products are also available for **organic farming.**

AVAILABLE IN THE FUTURE



Further products
are already undergoing extensive trials.

LET'S GO FORWARD TOGETHER

Experience meets innovation.



Jan Ritter

Founder & CTO
SEEDFORWARD
ritter@seedforward.de

