EBIC's feedback to the call for evidence on the "Roadmap towards Nature Credits"

1. Introduction

Summary

EBIC welcomes the opportunity to comment on the Roadmap to Nature Credits initiative and asks the European Commission to:

- List plant biostimulants as an eligible intervention under Nature Credits;
- Adopt the FPR [Regulation (EU) 2019/1009] and standards EN 17700-1:2024 to EN 17700-5:2024 [EN 17700:2024 series] as the baseline certification framework;
- Implement proportional, tiered Monitoring, Reporting, and Verification (MRV) based on agreed proxy indicators;
- Ensure that biostimulants are explicitly considered in the Horizon Europe and LIFE pilot calls following the expert group's first outputs in 2026, so that their impacts can be validated against the agreed KPIs and methodologies, and integrated into the first full-scale Nature Credit framework

Plant biostimulants are defined under the Fertilising Products Regulation (Regulation (EU) 2019/1009) according to the four functions they provide to plants, which are underpinned by a substantial body of peer-reviewed science and demonstrated in accordance with European standards (EN 17700:2024 series). This harmonisation and standardisation provide a robust baseline for their integration into the EU's emerging Nature Credits framework.

The plant biostimulants sector plays a critical role in the world's response to climate change across the full mitigation, adaptation, and resilience agenda. Biostimulants improve the availability of confined nutrients in the soil or rhizosphere, plant nutrient use efficiency, abiotic stress tolerance, and crop quality. These four functions of plant biostimulants can contribute directly to the EU's priority Nature Credit categories of soil fertility, water quality, climate mitigation, biodiversity, and food security.

Author	EBIC Secretariat	Date	19/09/2025	Status	Final
Distribution	Public	Classification	Public		

Recent analysis prepared for the European Investment Bank under the fi-compass initiative highlights the scale of climate risk facing EU agriculture, with annual average losses already exceeding €28 billion and projected to rise significantly by 2050. Within the hazard–exposure–vulnerability framework applied in that study, biostimulants are a practical lever on the vulnerability function: by stabilising crop yields, optimising agricultural input use, and buffering crops against environmental stresses, they reduce vulnerability and enhance resilience.

In the context of the call for evidence for feedback on the Roadmap towards Nature Credits, EBIC would like to submit a contribution.

2. Economic and Policy Context

- **Climate costs and yield risk:** Climate-related yield losses across the EU are already estimated at €17.4 billion per year, with total agricultural losses projected to rise to €40–47 billion by 2050, driven primarily by abiotic stressors such as drought, frost, excess precipitation, and heatwaves (Howden, Risklayer & KIT, 2025). Abiotic stress accounts for up to 80% of all crop losses, vastly exceeding losses from pests and diseases, which typically represent only a small fraction by comparison (Buchanan et al., 2000; García-García et al., 2020). These vulnerabilities are expected to worsen under climate change scenarios, particularly in rainfed and marginal production zones.
- **Soil fertility and nutrient losses:** In parallel, EU soils are losing 1–2% of organic carbon annually, reducing their capacity to retain nutrients and water (European Commission, 2023). Nitrate leaching from synthetic fertilisers remains a leading cause of groundwater contamination, while agricultural emissions of nitrous oxide (N_2O), a greenhouse gas nearly 300× more potent than CO_2, continue to rise due to over-fertilisation and poor nutrient use efficiency (EEA, 2022; Smith et al., 2007).
- **Farmland biodiversity decline:** On-farm biodiversity continues to decline across Europe, primarily due to landscape simplification, soil degradation, and intensified agrochemical inputs (IPBES, 2019; European Environment Agency, 2020). This loss directly undermines agroecosystem resilience and long-term food security.
- **Biodiversity and crop resilience:** Biostimulants can stimulate soil microbial diversity and enzymatic activity, which underpin nutrient cycling and strengthen crop resilience. These functions align with the biodiversity and ecosystem service objectives of the Roadmap.
- **Financing gap and role of nature credits:** Addressing these risks requires new investment flows. The EU's own estimates place the biodiversity financing gap at €65 billion per year, a scale of need that public funding alone cannot meet (European Commission, 2023). The Nature Credits Roadmap is a response to this challenge, aiming to mobilise private finance through certified, high-integrity environmental outcomes linked to farming and land management.

- **Why biostimulants fit:** Biostimulants enhance nutrient use efficiency, reduce nitrate leaching, mitigate abiotic stress--related yield losses, and stimulate soil biological activity. These combined functions make them a practical, scalable, and science--backed tool for delivering nature-positive outcomes at farm level, while acting directly on the “vulnerability factor” identified- in the EU’s hazard–exposure–vulnerability risk modelling framework (Howden, Risklayer & KIT, 2025; Rowan & Howden, 2025).

  By stabilising yields under stress, buffering crops against climate shocks and optimising nutrient use, biostimulants reduce vulnerability and enhance resilience. Crucially, their impact can be measured and verified using established methodologies, making them highly compatible with crediting systems.

  By aligning with the five outcome areas of the Nature Credits Roadmap (soil fertility, water quality, climate mitigation, biodiversity, and food security) biostimulants represent a ready-made, certifiable contribution that can be integrated into the Nature Credits framework during the 2025–2027 development phase.

3. Scientific Evidence of Biostimulant Impacts

As outlined in Section 2, the Nature Credits Roadmap targets five priority outcome areas: soil fertility, water quality, climate mitigation, biodiversity, and food security. Under Regulation (EU) 2019/1009, plant biostimulants are defined by four functional claims that directly support these outcomes:

- Improved nutrient use efficiency
- Enhanced tolerance to abiotic stress
- Improved crop quality traits
- Increased availability of nutrients in the soil and rhizosphere

This section provides a synthesis of peer-reviewed literature and field data demonstrating how biostimulants deliver measurable, certifiable impacts aligned with the Roadmap's objectives. Each sub-section maps scientific findings to relevant functional claims, proxy indicators, and key performance metrics.

3.1 Nutrient Use Efficiency (NUE)

- **Increased NUE:** Multi-year trials in barley and grassland showed 20-25% fertiliser savings without yield penalty, with NUE gains of 30-60% (Goñi et al., 2021; Quille et al., 2022; Quille et al., 2024). Similar improvements are observed in tomato and pepper (Ali et al., 2016).
- **Enhanced nitrogen uptake and assimilation:** Documented in spinach (Carillo et al., 2019) and tomato (Colla et al., 2017).

- **Improved phosphorous use efficiency:** Observed in potato and cereals, including enhanced P uptake and internal translocation (Han et al., 2021).
- **Improved root growth and nutrient uptake efficiency:** Reported in maize, tomato, and wheat with microbial inoculants (Efthimiadou et al., 2020; Katsenios et al., 2021; Yadav et al., 2021).
- ***Improved nitrogen uptake and root development*:** Several categories of biostimulants have been shown to release bioactive compounds that stimulate root growth, enhance nutrient absorption, and improve nitrogen use under a range of soil and climate conditions (Brown et al., 2015; Fragalà et al., 2023; Quille et al., 2025).

3.2 Abiotic Stress Tolerance

- **Drought and salinity:** Protein hydrolysates improved antioxidant responses and osmotic balance in lettuce and beans (Lucini et al., 2015; Ikuyinminu et al., 2022).
- **Heat stress:** Ascophyllum extracts enhanced pollen viability and fruit set in tomato under high temperatures (Carmody et al., 2020).
- **Cold stress:** Chitosan and microbial inoculants improved resilience through better ion balance and root vitality (Rahman et al., 2018; Pandey et al., 2018).

3.3 Crop Quality

- **Protein and nutritional content:** Seaweed extracts in grassland increased crude protein and digestibility (Quille et al., 2024).
- **Fruit quality:** Apple and cherry trials confirmed improved nutraceutical and antioxidant profiles (Graziani et al., 2020; Soppelsa et al., 2018; Afonso et al., 2024).
- **Vegetables:** Seaweed extracts improved broccoli phytochemicals (Lola-Luz et al., 2014) and tomato antioxidant content (Ali et al., 2016). Protein hydrolysates increased tomato flavour and metabolite content (Colla et al., 2017).

3.3 Soil and Rhizosphere Nutrient Availability

- **Improved nutrient retention and microbial activity**: Documented across multiple biostimulant categories, with increased cation exchange capacity, improved nutrient holding potential, and enhanced microbial function in diverse soil types (Canellas et al., 2015).
- **Reduced nitrate leaching and nitrous oxide emissions**: Lysimeter studies show biostimulant-treated plots under reduced-N regimes can exhibit 20–30% lower nitrate leaching and 9–22% reductions in N_2O emissions, while maintaining yield and crop quality (Quille et al., 2024).

- **Enhanced rhizosphere biodiversity and enzyme activity**: Certain biostimulant applications have been associated with greater microbial diversity, enzyme expression, and functional resilience in the rhizosphere, key indicators of improved soil nutrient cycling (Castellano-Hinojosa et al., 2021).

4. Mapping Biostimulant Impacts to Nature Credits Outcomes

The following table synthesises the evidence presented in Section 3, mapping it to the five outcome categories identified in the Nature Credits Roadmap.

Nature Credits Outcome	**Biostimulant Contribution (Examples)**
Soil fertility & nutrient cycling	Protein hydrolysates enhance nitrogen assimilation (Carillo et al., 2019; Colla et al., 2015); arbuscular mycorrhizal fungi (AMF) increase phosphorus mobilisation (Yadav et al., 2021); increases in soil organic carbon linked to microbial and rhizosphere activity (Canellas et al., 2015).
Water quality & reduced losses	Seaweed extracts reduce nitrate leaching in grassland lysimeters (Quille et al., 2024); improved soil structure and infiltration enhance water retention and reduce runoff (Lucini et al., 2015); microbial inoculants improve nutrient recovery efficiency and reduce loss risk (Pandey et al., 2018).
Climate mitigation	Biostimulants improve nutrient use efficiency and reduce fertiliser demand without yield penalty, lowering emissions intensity (Quille et al., 2025; Carillo et al., 2019; Colla et al., 2015). Yield stability under drought, heat and salinity stress is maintained with seaweed and other biostimulants (Goñi et al., 2021; Lucini et al., 2015; Han et al., 2021). Improved nutrient recovery reduces nitrous oxide emissions under reduced-N regimes (Quille et al., 2024; Pandey et al., 2018).
Biodiversity & resilience	Microbial inoculants increase soil microbial diversity and enzymatic activity (Efthimiadou et al., 2020; Katsenios et al., 2021); chitosan and seaweed extracts enhance crop resilience to abiotic stressors (Rahman et al., 2018; Carmody et al., 2020); stimulation of rhizosphere biodiversity improves nutrient cycling (Castellano-Hinojosa et al., 2021).
Food security & crop quality	Biostimulants increase fruit/tuber set, size and weight (Ali et al., 2016; Colla et al., 2017; Wang et al., 2015); improve colouration and skin firmness (Soppelsa et al., 2018; Afonso et al., 2024); enhance sugar content (°Brix) and

	flavour quality (Graziani et al., 2020); raise protein and mineral content in cereals, fruit and vegetables (Carillo et al., 2019; Yadav et al., 2021); support yield stability under abiotic stress and during regenerative transitions (Ikuyinminu et al., 2022).

These examples show how biostimulant impacts can be mapped directly onto the five outcome areas identified in the Nature Credits Roadmap. By demonstrating measurable contributions to soil fertility, water quality, climate mitigation, biodiversity, and food security, biostimulants provide outcomes that are certifiable, evidence-based, and aligned with existing EU law.

5. Monitoring, Reporting & Verification (MRV) for Biostimulant Outcomes

To ensure biostimulants can be integrated into Nature Credits, outcome tracking should build on the four FPR claims and align with the impact categories set out in the Roadmap (soil fertility, water quality, climate mitigation, biodiversity, and food security). EBIC is not proposing a new MRV system but showing how FPR and CEN standards can be linked to practical KPIs and proxies so that outcomes are certifiable.

Illustrative mapping of outcomes, KPIs and tools
(examples, not exhaustive)

Nature Credits Outcome	Relevant Biostimulant Contribution	Example KPI / Proxy Metric	Possible Tools / Methods*
Soil fertility & nutrient cycling	Improved nutrient uptake and assimilation; enhanced nutrient availability in the rhizosphere	Nutrient use efficiency indices (RE, IE, PFP); changes in soil organic carbon (SOC)	Farm nutrient balance sheets; EN 17700-1:2024, EN 17700-2:2024 and EN 17700-5:2024 protocols; soil sampling and remote sensing
Water quality & reduced losses	Lower nutrient leaching; improved root systems and soil structure	Nitrate leaching reduction; phosphorus retention; infiltration rate	Direct measurement: Lysimeter trials; field infiltration tests; Model outputs: Cool Farm Tool; Soil scanning (baseline data for models): Interra Scan; LandScan DSC

Climate mitigation	Reduced fertiliser demand; improved efficiency under stress	Modelled N_2O emission reductions; yield stability under drought/heat; yield gap reduction	*Direct:* N_2O flux chambers (research) *Model:* DNDC, APSIM; Yield Gap Atlas *Proxy:* Stress indices (thermal, ET, NIR, Chl fluorescence)
Biodiversity & resilience	Stimulation of microbial diversity and enzymatic activity in soil	Microbial respiration; enzyme activity (e.g. dehydrogenase, phosphatase); DNA-based microbial diversity scores	*Direct:* Soil biology assays; enzyme activity *Proxy:* Farmer-led indices (earthworms, pollinators)
Crop quality & food security	Improved nutritional quality and market value	Protein content; antioxidant levels; digestibility; yield stability over multiple seasons	Lab assays; market quality tests; long-term farm records

** To ensure proportionality and reduce burdens on farmers, the system should allow for low-cost field-level indicators such as earthworm density, vegetation diversity indices, and pollinator observations to complement more expensive laboratory analyses.*

MRV for biostimulants should be outcome-focused and proportional. Certification should build on rigorous product validation (EN-compliant trials) and then use credible proxies (e.g. SOC, NUE indices, yield stability, microbial activity, quality parameters) to track outcomes over time at farm and landscape level.

Embedding these proxies into the hazard–exposure–vulnerability framework already used in EU risk modelling would further enhance credibility: biostimulants reduce vulnerability by stabilising yields, improving nutrient use, and strengthening soil biology, thus directly delivering on the outcomes that Nature Credits seek to certify.

6. Conclusion

Plant biostimulants are science-based, standardised, and field-proven tools that can deliver the high-integrity outcomes required under the EU's Nature Credits framework. They already operate within a harmonised legal and technical environment (FPR 2019/1009 and EN 17700:2024 series), making them uniquely well placed to demonstrate measurable, certifiable impacts.

Recognising their role will:

- Support the EU's ambition to improve soil fertility and nutrient cycling by increasing nutrient use efficiency and soil organic carbon.
- Enhance water quality and availability by reducing nitrate leaching and improving soil structure and infiltration.
- Contribute to climate mitigation by reducing fertiliser demand, lowering nitrous oxide emissions, and maintaining yield stability under abiotic stress.
- Strengthen biodiversity and crop resilience through stimulation of microbial activity and diversity in the rhizosphere.
- Safeguard food security and crop quality by helping farmers manage abiotic stresses and maintain yields while improving nutritional and market quality traits.

EBIC therefore asks the European Commission to:

- List plant biostimulants as an eligible intervention under Nature Credits;
- Adopt the FPR (2019/1009) and EN 17700:2024 series as the baseline certification framework;
- Implement proportional, tiered MRV based on agreed proxy indicators;
- Ensure that biostimulants are explicitly considered in the Horizon Europe and LIFE pilot calls following the expert group's first outputs in 2026, so that their impacts can be validated against the agreed KPIs and methodologies, and integrated into the first full-scale Nature Credit framework;
- Include EBIC in the forthcoming expert group on Nature Credits.

By aligning with the five outcome areas set out in the Nature Credits Roadmap, biostimulants provide a ready-made, evidence-based contribution to Europe's mitigation, adaptation, and resilience agenda. With existing legislation, standards, and field evidence, they represent a "shovel-ready" opportunity for the EU to operationalise Nature Credits at scale, ensuring that Europe's farmers are both rewarded financially and empowered agronomically to deliver on Europe's climate and biodiversity objectives.

7. Bibliography

Afonso, S., Oliveira, I., Ribeiro, C., Vilela, A., Meyer, A.S. & Gonçalves, B. (2024). Exploring the role of biostimulants in sweet cherry (*Prunus avium* L.) fruit quality traits. *Agriculture*, 14(9). https://doi.org/10.3390/agriculture14091521

Ali, N., Farrell, A., Ramsubhag, A. & Jayaraman, J. (2016). The effect of *Ascophyllum nodosum* extract on the growth, yield and fruit quality of tomato grown under tropical conditions. *Journal of Applied Phycology*, 28(2), 1353–1362. https://doi.org/10.1007/s10811-015-0608-3

Buchanan, B., Gruissem, W., & Jones, R. (2000). *Biochemistry and Molecular Biology of Plants*. American Society of Plant Physiologists.

Brown, P. and Saa, S. (2015). Biostimulants in agriculture. *Frontiers in Plant Science*, 6, p.671. Available at: https://doi.org/10.3389/fpls.2015.00671

Canellas, L.P., Olivares, F.L., Aguiar, N.O., Jones, D.L., Nebbioso, A., Mazzei, P. & Piccolo, A. (2015). Humic and fulvic acids as biostimulants in horticulture. *Scientia Horticulturae*, 196, 15–27.

Carillo, P., Colla, G., Fusco, G.M., Dell'Aversana, E., El-Nakhel, C., Giordano, M., Pannico, A., Cozzolino, E., Mori, M., Reynaud, H. & Rouphael, Y. (2019). Morphological and physiological responses induced by protein hydrolysate-based biostimulant and nitrogen rates in greenhouse spinach. *Agronomy*, 9(8), 450. https://doi.org/10.3390/agronomy9080450

Carmody, N., Goñi, O., Łangowski, Ł. & O'Connell, S. (2020). *Ascophyllum nodosum* extract biostimulant processing and its impact on enhancing heat stress tolerance during tomato fruit set. *Frontiers in Plant Science*, 11, 807. https://doi.org/10.3389/fpls.2020.00807

Castellano-Hinojosa, A., Meyering, B., Nuzzo, A., Strauss, S.L. & Albrecht, U. (2021). Effect of plant biostimulants on root and plant health and the rhizosphere microbiome of citrus trees in huanglongbing-endemic conditions. *Trees*, 35, 1643–1656.

Colla, G., Cardarelli, M., Bonini, P. & Rouphael, Y. (2017). Foliar applications of protein hydrolysate, plant and seaweed extracts increase yield but differentially modulate fruit quality of greenhouse tomato. *HortScience*, 52(9), 1214–1220. https://doi.org/10.21273/HORTSCI12200-17

Colla, G., Nardi, S., Cardarelli, M., Ertani, A., Lucini, L., Canaguier, R. & Rouphael, Y. (2015). Protein hydrolysates as biostimulants in horticulture. *Scientia Horticulturae*, 196, 28–38.

Efthimiadou, A., Katsenios, N., Chanioti, S., Giannoglou, M., Djordjevic, N. & Katsaros, G. (2020). Effect of foliar and soil application of plant growth promoting bacteria on growth, physiology, yield and seed quality of maize under Mediterranean conditions. *Scientific Reports*, 10, 21060. https://doi.org/10.1038/s41598-020-78034-6

European Commission (2025). *Roadmap towards Nature Credits*. COM(2025) 374 final, Brussels, 7 July 2025. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52025DC0374

European Commission (2025). *Questions and answers on Nature Credits Roadmap*. Brussels, 7 July 2025. https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1679

Fragalà, F., Puglisi, I., Padoan, E., Montoneri, E., Stevanato, P., Gomez, J.M., Herrero, N., La Bella, E., Salvagno, E. & Baglieri, A. (2023). Effect of municipal biowaste derived biostimulant on nitrogen fate in the plant–soil system during lettuce cultivation. Scientific Reports, 13, Article 7944. Available at: https://doi.org/10.1038/s41598-023-35090-y

García-García, A. L., García-Machado, F. J., Borges, A. A., Morales-Sierra, S., Boto, A., and Jiménez-Arias, D. (2020). Pure organic active compounds against abiotic stress: a biostimulant overview. *Front. Plant Sci.* 11:575829. doi: 10.3389/fpls.2020.575829

Geelen, D., Xu, L., Ruttens, A., Vangronsveld, J. & Remans, R. (2022). Effectiveness of biostimulants in increasing yield and abiotic stress tolerance in crops: a meta-analysis. *Frontiers in Plant Science*, 13, 836702.

Goñi, O., Łangowski, Ł., Feeney, E., Quille, P. & O'Connell, S. (2021). Reducing nitrogen input in barley crops while maintaining yields using an engineered biostimulant derived from *Ascophyllum nodosum* to enhance nitrogen use efficiency. *Frontiers in Plant Science*, 12, 664682. https://doi.org/10.3389/fpls.2021.664682

Graziani, G., Ritieni, A., Cirillo, A., Cice, D. & Di Vaio, C. (2020). Effects of biostimulants on Annurca fruit quality and potential nutraceutical compounds at harvest and during storage. *Plants*, 9(6), 775. https://doi.org/10.3390/plants9060775

Han, X., Xi, Y., Zhang, Z., Mohammadi, M.A., Joshi, J., Borza, T. & Wang-Pruski, G. (2021). Effects of phosphite as a plant biostimulant on metabolism and stress response for better plant performance in *Solanum tuberosum*. *Ecotoxicology and Environmental Safety*, 210, 111878.

Howden, Risklayer & KIT (2025). *Climate Resilience and Agricultural Insurance: Market Mapping and Risk Modelling for the EU*. Fi-Compass Technical Report for the European Investment Bank.

Ikuyinminu, E., Goñi, O. & O'Connell, S. (2022). Enhancing irrigation salinity stress tolerance and increasing yield in tomato using a precision engineered protein hydrolysate and *Ascophyllum nodosum*-derived biostimulant. *Agronomy*, 12, 809. https://doi.org/10.3390/agronomy12040809

Katsenios, N., Andreou, V., Sparangis, P., Melessanaki, K., Vellios, E., Bantis, F., Barouchas, P., Djordjevic, N., Chanioti, S. & Efthimiadou, A. (2021). Evaluation of plant growth promoting bacteria strains on growth, yield and quality of industrial tomato. *Microorganisms*, 9(10), 2099. https://doi.org/10.3390/microorganisms9102099

Lucini, L., Rouphael, Y., Cardarelli, M., Canaguier, R., Kumar, P. & Colla, G. (2015). The effect of a plant-derived biostimulant on metabolic profiling and crop performance of lettuce grown under saline conditions. *Scientia Horticulturae*, 182, 124–133.

Pandey, C., Negi, Y.K., Maheshwari, D.K., Rawat, D. & Prabha, D. (2018). Potential of native cold tolerant plant growth promoting bacilli to enhance nutrient use efficiency and yield of *Amaranthus hypochondriacus*. *Plant and Soil*, 428, 307–320.

Quille, P., Claffey, A., Feeney, E., Kacprzyk, J., Ng, C.K.-Y. & O'Connell, S. (2022). The effect of an engineered biostimulant derived from *Ascophyllum nodosum* on grass yield under a reduced nitrogen regime in an agronomic setting. *Agronomy*, 12, 463. https://doi.org/10.3390/agronomy12020463

Quille, P., Kacprzyk, J., O'Connell, S. & Ng, C.K.-Y. (2024). The role of an *Ascophyllum nodosum* extract in lowering the environmental impact and improving nitrogen use efficiency in pasture systems under a reduced nitrogen regime. *Journal of Applied Phycology*, 36, 1533–1544. https://doi.org/10.1007/s10811-024-03182-5

Quille, P., Kacprzyk, J., O'Connell, S. & Ng, C.K.-Y. (2025). Reducing fertiliser inputs: plant biostimulants as an emerging strategy to improve nutrient use efficiency. *Discover Sustainability*, 6, 128. https://doi.org/10.1007/s43621-025-00910-w

Rahman, M., Mukta, J.A., Sabir, A.A., Gupta, D.R., Mohi-Ud-Din, M., Hasanuzzaman, M., Miah, M.G., Rahman, M. & Islam, M.T. (2018). Chitosan biopolymer promotes yield and stimulates accumulation of antioxidants in strawberry fruit. *PLoS One*, 13(9), e0203769. https://doi.org/10.1371/journal.pone.0203769

Rowan, D. & Howden, M. (2025). The economic cost of climate change in European agriculture. Report prepared for the European Commission.

Smith, K.A., et al. (2007). 'Exchange of greenhouse gases between soil and atmosphere', *European Journal of Soil Science*, 58(4), pp. 682–702.

Soppelsa, S., Kelderer, M., Casera, C., Bassi, M., Robatscher, P. & Andreotti, C. (2018). Use of biostimulants for organic apple production: effects on tree growth, yield, and fruit quality at harvest and during storage. *Frontiers in Plant Science*, 9, 1342. https://doi.org/10.3389/fpls.2018.01342

Wang, M., Chen, Y., Zhang, R., Wang, W., Zhao, X., Du, Y. & Yin, H. (2015). Effects of chitosan oligosaccharides on the yield components and production quality of different wheat cultivars (*Triticum aestivum* L.) in Northwest China. *Field Crops Research*, 172, 11–20.

Yadav, R., Ror, P., Rathore, P., Kumar, S. & Ramakrishna, W. (2021). *Bacillus subtilis* CP4 in combination with arbuscular mycorrhizal fungi promotes biofortification, yield and metabolite production in wheat under field conditions. *Journal of Applied Microbiology*, 131, 339–359. https://doi.org/10.1111/jam.14951

For more information on this paper, please contact David from the EBIC Secretariat (david@prospero.ag).

EBIC is the European Biostimulants Industry Council, the trade association for plant biostimulants in Europe. Founded in 2011, our vision is sustainable agriculture supported by the global adoption of plant biostimulants. We are dedicated to fostering the growth, development and fair regulation of our industry. We promote plant biostimulants as essential to advanced food systems, providing education, advocacy, and support to members, policymakers, and farmers.