AGRIFOOD QUALITY ESTIMATION USING SPECTRAL TECHNIQUES

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Kick-off cofunded Projects Seminar
18th March 2021

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grand agreement no 862665 ICT-AGRI-FOOD.

Goal and context

- Democratize the use of spectral imaging
- Optimize resource use efficiency both at pre and post harvest level
- Reduce food waste
- Reduce packaging
- Increase production

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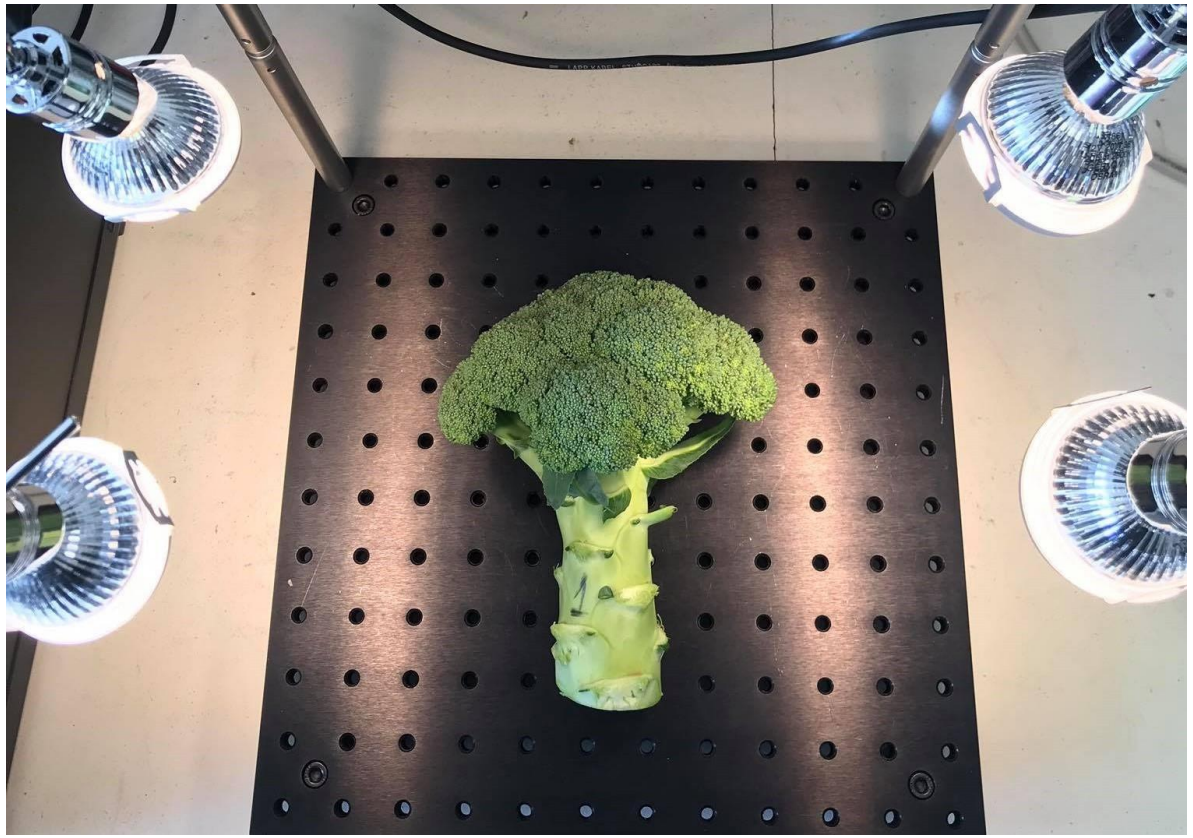
Main project activities / challenges

- Spectral image acquisition pre and post harvest
- Destructive quality assessment
- Selection of most relevant bands
- Modeling of spectral information and quality characteristics for each crop
  - Colour/Firmness/Water content/Soluble Solids/ Dry matter
- Standardization of spectral image acquisition/pre and post processing



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Objectives

Obj 1

Advances in the exploitation of emerging sensing technologies across the supply chain

- Develop expertise in the use of HIS as a robust quality evaluation tool at both field and post-harvest level.
- Reveal HIS sensor-specific limitations and define “global” imaging principles.

Obj 2

Study the effects of the in-field treatment on the post-harvest product quality characteristics

- A spatiotemporal analysis of the critical characteristics.
- More transparent and reliable product quality evaluation.

Obj 3

Analysis and availability of data to all the stakeholders involved

- Correlation of product parameters and significance analysis will boost data utilisation across all supply chain stages.
- Big volumes of spectral data will be translated into product quality indices.
- Better understanding and forecast of the product life cycle.

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Potential impact

ECONOMY	quality monitoring → production increase
	waste minimization
	appropriate product labelling (quality, safety, authenticity, and standards compliance)
ENVIRONMENT	inputs decrease
	10% food waste reduction
SOCIETY	make agriculture more attractive to young people
	give access and transparency to value-chain actors
	raise awareness on agrifood products' lifecycle
EU Farm2Fork	Food loss and Waste prevention
	Sustainable Food Production
	Sustainable Food consumption
	Sustainable Food processing and Distribution

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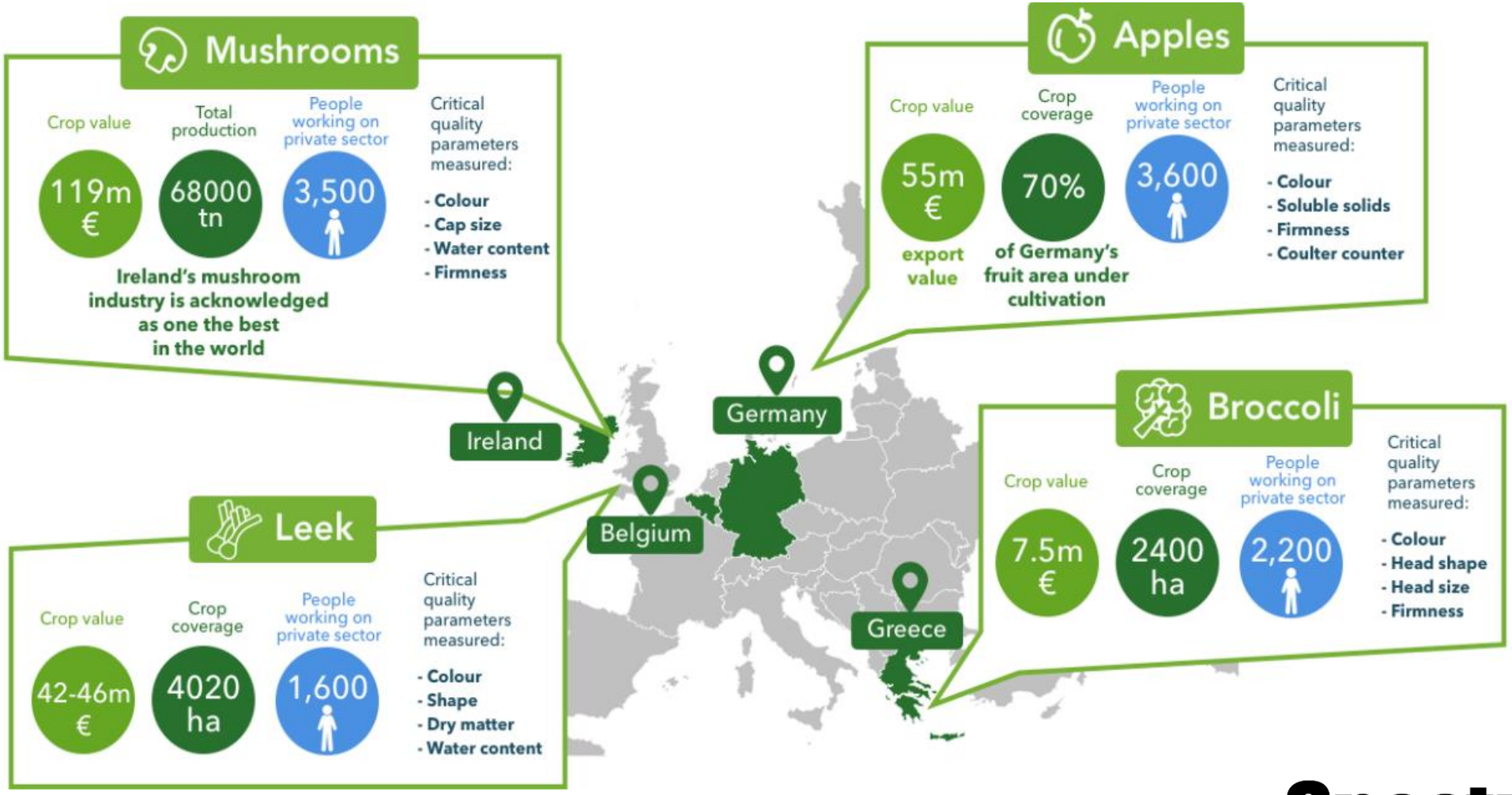
Research approach & activities



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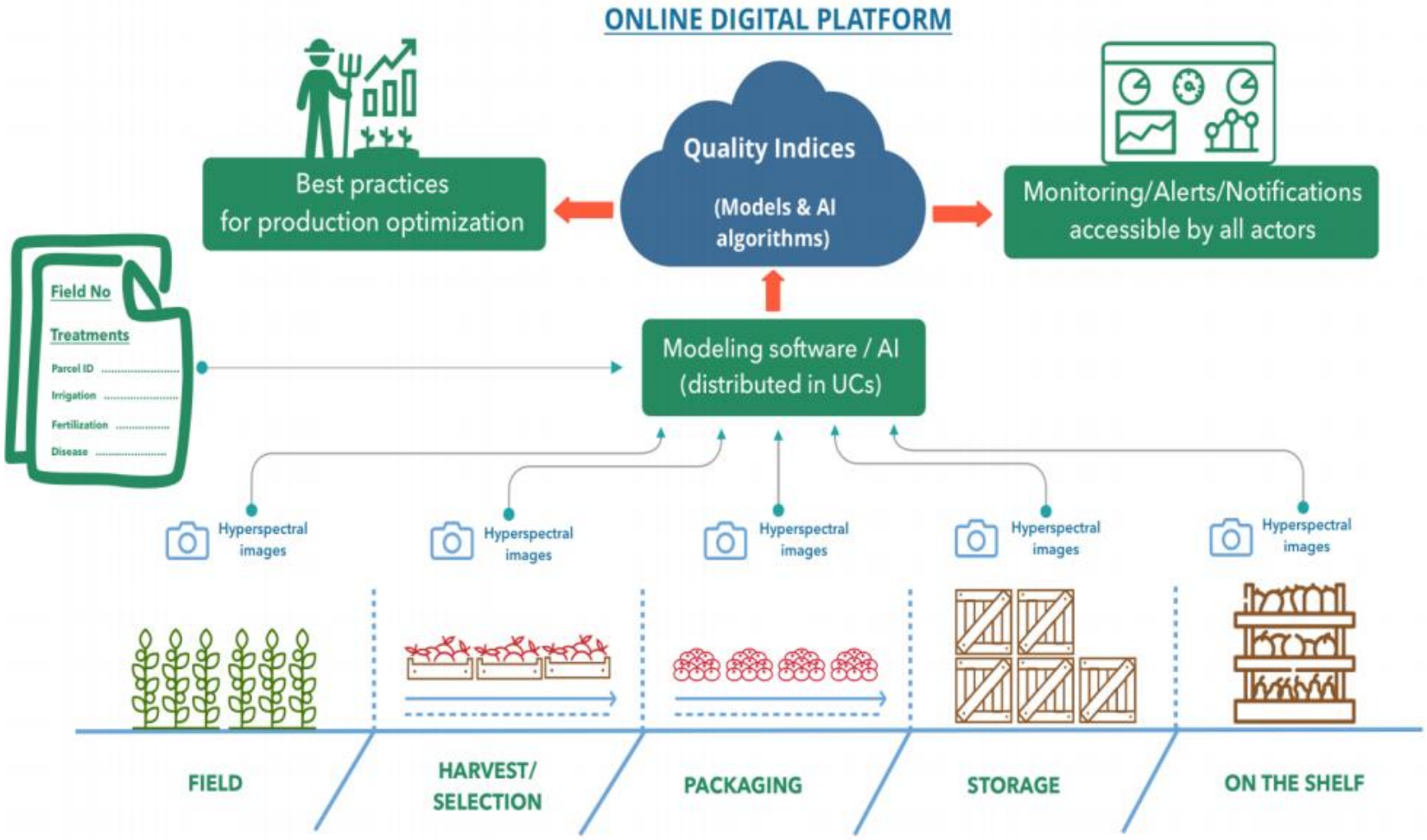
Research approach & activities



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Cooperation with Stakeholders - Value Chain

- Continuous feedback from existing network of relevant stakeholders
- Selection of the most important quality parameters and inputs for each crop, after discussion with the industry

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Dissemination and outreach

- Website
- E-Newsletter
- Social networks
- Press releases (10)
- Dissemination Videos (4)
- Workshops fairs exhibitions (30)
- Non scientific publications (20)
- Scientific publications (5)
- Demonstrations of use cases (8)
- Interaction with ongoing partner activities

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Dissemination and outreach

Target group	Key message
Rural agri-businesses	SPECTROFOOD will enhance businesses for the full control of resources, waste management and quality of the food distributed.
Farmers	SPECTROFOOD is going to bridge the pre-harvest treatment with the postharvest food quality. It will deliver objective measurements to you to ask more for better quality products.
Research and scientific community	SPECTROFOOD aims to directly connect pre-harvest treatments with postharvest control and monitoring, all the way to the quality of the final product. This will be achieved by utilising AI tools and hyperspectral imaging technologies. The use of standard data exchange formats will enable synergies with other systems and widely-adopted quality evaluation protocols.
Industries (including technology providers and developers), start-ups and SME's - Investors	SPECTROFOOD provides tools, services, and guidelines enabling the agri-food value chain actors to optimise their production and processes.
Policy makers	SPECTROFOOD aims at making AI and HIS mainstream in the agri-food value chain for the upgrade of the rural agri-businesses, the increase in food production, and the minimisation of the agri-food sector's environmental footprint.
End-users and the general public	SPECTROFOOD will help a deeper understanding of how food quality can be sustainably improved, via the use of state-of-the-art technologies, to ensure food security.

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Partners

AGRICULTURAL UNIVERSITY OF ATHENS
ΓΕΩΠΟΝΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ

ATB
Leibniz-Institut für
Agrartechnik und Bioökonomie

UCD
DUBLIN

inagro
ONDERZOEK & ADVIES IN LAND- & TUINBOUW

ILVO
Instituut voor Landbouw-,
Visserij- en Voedingsonderzoek

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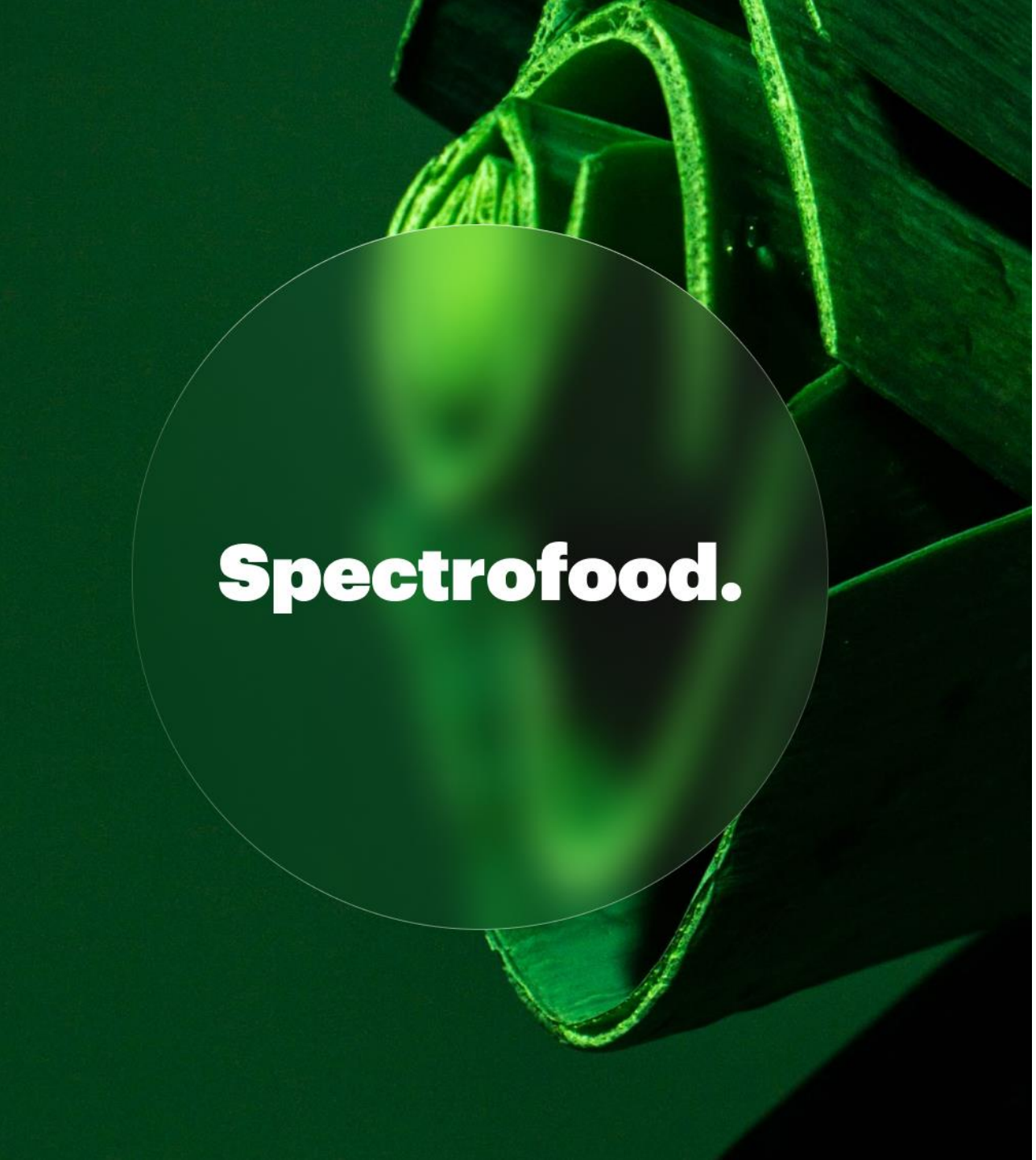

LET’S KEEP IN TOUCH!

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Thank you for your attention!