

THIS ISSUE

- New publication from Julian.
- Secondment of Raniel at Aarhus University.
- Secondment of Prasanth and Sophia at Goldcrop.
- Secondment of Emery at University of Hohemheim

Julian's first publication: Nutrient leaching across diverse crop rotations

Recently, Julian published her first PhD paper in Agriculture, Ecosystems & Environment. The study investigated nitrogen (N), phosphorus, and carbon leaching across six 7-year crop rotations in Canada, examining the effects of crop type, forage composition, forage duration, and fertilizer source. Perennial-based rotations reduced nitrate-N leaching by 50% compared with annual-based rotations, although this benefit came with trade-offs, including increased dissolved reactive phosphorus and dissolved organic carbon losses.

Key management takeaways:

- Optimise forage termination timing and method (avoid fall termination; consider no-till),
- Plant fall cover crops to capture mineralised nitrogen,
- Reduce or omit nitrogen fertiliser after legume-rich stands.

Read the full paper: <https://doi.org/10.1016/j.agee.2026.110658>

Julian Nyaga



Raniel Valencia on secondment.



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Leaching losses of nitrogen, phosphorus, and carbon in diverse 7-year crop rotations including annual and perennial crops

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Raniel's secondment: From root sampling to methane analysis

Raniel completed a rewarding interdisciplinary secondment at Aarhus University in Denmark from April to May. During his time at the university, Raniel was actively involved in a variety of research activities. His work included assisting with root sampling for species identification using Fourier Transform Infrared Spectroscopy, and gaining hands-on experience with in situ studies on fibre degradability in different grass cultivars. A key focus was setting up and running in vitro ANKOM fermentation experiments to evaluate the effects of seaweed extracts on methane production - a critical component of his own PhD research.

The secondment also provided valuable training in data analysis and the study of plant compounds, such as tannins, which may help reduce enteric methane emissions. He had the opportunity to present preliminary findings from his UK research to the department, receiving constructive feedback.

Raniel Valencia

Intersectoral Secondment



Sophia's and Prasanth's intersectoral secondment at GoldCrop

During the summer, DRs Prasanth and Sophia completed their industrial secondment at Goldcrop in Cork, Ireland, as part of the LegumeLegacy training, under the supervision of Dr Patrick Cashman.

The main objective of the secondment was to gain hands-on experience in how a company operates and to get exposure to different areas of the business. It was also a valuable opportunity to explore how PhD researchers can collaborate with industry and learn about career pathways in the sector.

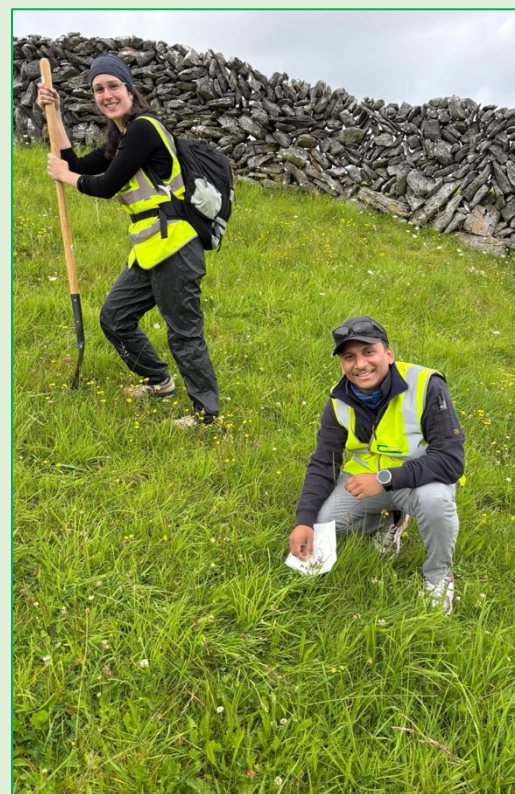
Over two intensive weeks, Prasanth and Sophia participated in activities across various divisions at Goldcrop, including grassland seed mixture preparation and packaging, marketing, technical sales and logistics. They visited company headquarters to see how commercial grassland seed mixtures are processed, and attended visits with farmers, variety trial sites and key industry events, including the Bandon Co-op Reseeding Event, Arratipp Open Day and Grange Beef 2026.

They also visited the Teagasc Forage Breeding programme for Perennial Ryegrass, white clover, Red Clover, Sainfoin, Birdsfoot Trefoil and forage herbs. This provided an excellent opportunity to learn more about the Pasture Innovations collaboration between Teagasc and Goldcrop and see how forage varieties transition from breeding research into commercial practice.

One of the highlights was a field trip to the Aran Islands to collect local bird's-foot trefoil (*Lotus corniculatus*) ecotypes for the forage breeding programme. The local population is particularly valuable as it has adapted over generations under rotational grazing pressure, making it a potential source of traits that improve intensive grazing tolerance. Bird's-foot trefoil is also an interesting forage legume to include in grassland mixtures, particularly due to its potential to mitigate enteric methane emissions in cattle, reduce N leaching risk and reduce ruman bloat risk with high clover diets.

Overall, the secondment was a rich and rewarding experience, providing Prasanth and Sophia practical insights into the role of a seed company within the forage sector and a better understanding of how research and industry can work together to translate research into practice.

Prasanth Bendalam and Sophia Philadelphi



Interdisciplinary Secondment

Emery's Secondment at the University of Hohenheim

Emery completed his academic secondment at the University of Hohenheim, Germany, in July 2026 as part of the LegumeLegacy Doctoral Network.

During the secondment, Emery worked with fellow Doctoral Researcher Sophia Philadelphi on wheat quality analysis. He gained hands-on laboratory experience processing wheat samples from the one of the LegumeLegacy experimental sites, including sample preparation, milling, and collecting near-infrared (NIR) spectral data.

He then worked on data curation and statistical analysis using Diversity-Interactions (DI) models to investigate whether diversity in the preceding grassland could have legacy effects on the grain quality of the follow-on wheat crop. The secondment combined laboratory and statistical work while strengthening collaboration between the two PhDs, with the analyses contributing towards a joint research publication.

Emery Wang



Emery (left) and Sophia (right) processing the grain samples.



LegumeLegacy is an MSCA Doctoral Network

<https://legumelegacy.scss.tcd.ie/>

This newsletter was edited by Doctoral Researchers Die Hu and
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