RAND EUROPE

RESEARCH BRIEFING

AI ecosystems in the Netherlands and the UK

Agrifood & agritech

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This research is sponsored by the UK Foreign, Commonwealth & Development Office (FCDO)

1. Purpose and context

This briefing highlights key findings on opportunities for UK–Netherlands collaboration in artificial intelligence (AI) for agrifood and agritech technologies, drawing on RAND Europe's assessment for the Foreign, Commonwealth & Development Office (FCDO) of AI ecosystems in both countries. The report was commissioned by FCDO in 2025 to provide an evidence base on the strengths and challenges in both countries' national AI ecosystems, as well as to explore areas for complementary action and synergy in light of the 2025 UK–Netherlands Innovation Partnership.

2. Overview

The UK and the Netherlands are both strong AI ecosystems with complementary strengths. The UK offers scale, global connectivity and research depth, with a tech sector worth around £1 trillion and AI revenues growing by 68% in 2024.[1] Public institutions such as the Department for Science, Innovation and Technology (DSIT), UK Research and Innovation (UKRI) and the Alan Turing Institute anchor the ecosystem, while start-ups can benefit from greater investment depth and a more advanced hyperscale and data centre capacity compared to the Netherlands. The Netherlands has a smaller but highly networked ecosystem supported by strong public-private coordination and strategic importance in AI value chains through semiconductor and enabling technology strengths.

Both countries share similar strategic priorities around innovation-led growth, responsible regulation, compute and data resilience, and skills development, while also facing similar constraints in talent and infrastructure. Existing cooperation through Horizon Europe, the G7 and the OECD AI Principles, alongside the 2025 UK–Netherlands Innovation Partnership, means that there is already a coherent foundation for bilateral cooperation between the two countries.

3. Sectoral overview and strategic positioning

This briefing is part of a wider analysis organised around three priority sectors for UK–Netherlands AI ecosystems:

1. compute for AI,
2. life sciences and health technologies and
3. agrifood and agritech.

1 Department for Science, Innovation and Technology & UK Research and Innovation (2025). 'UK Compute Roadmap'. Department for Science, Innovation and Technology (2025). 'Artificial Intelligence sector study 2024'.

These sectors were selected because they capture different but complementary forms of bilateral opportunity and can demonstrate a strong industrial foundation and policy prioritisation in both countries. Compute functions as a foundational enabler of wider AI capability and resilience; life sciences and health technologies represent an area of shared strategic strength, with strong research, innovation and policy alignment in both countries; and agrifood and agritech represents a domain of complementary advantage, combining Dutch applied leadership with UK strengths in R&D and digital innovation.



Compute for AI

Foundational enabler

- Underpins AI capability across sectors
- Combines UK compute scale with Dutch connectivity and sustainability strengths
- Relevant for sovereignty, interoperability, and infrastructure resilience



Life sciences & health technologies

Shared strategic strength

- Strong in both countries across research, innovation, and policy priorities
- Existing collaboration base in medical research and translational health AI
- Offers scope for deeper coordination, joint validation, and clinical adoption



Agrifood & agritech

Complementary strength

- Dutch leadership in applied agrifood innovation
- UK strengths in upstream R&D, sensing and digital tools
- Offers scope to combine different capabilities in joint pilots and testbeds

4. Agrifood and agritech overview

Agrifood and agritech are an area of strategic advantage in the AI ecosystems of both the UK and the Netherlands. While both countries recognise AI as a critical enabler of productivity, sustainability and resilience in food systems, the Netherlands displays a more mature and integrated agrifood AI ecosystem, whereas the UK contributes strong upstream research, digital innovation and enabling technologies.

Patent and investment evidence highlights Dutch leadership in applied agricultural AI. Patent activity in agriculture and food-related classifications is higher in the Netherlands than in the UK, reflecting a more advanced commercialisation pipeline in areas such as horticulture and smart agricultural machinery. **The UK agrifood and agritech ecosystem is smaller in scale but demonstrates significant strengths in research, experimentation and digital innovation.**

In both countries **AI is viewed as a response to acute structural pressures** rather than incremental optimisation. These pressures include labour shortages, climate volatility, constraints on fertiliser and water use, and rising energy costs. Despite strong innovation activity, AI adoption by farmers and producers remains uneven in both ecosystems, particularly among smaller agricultural enterprises. Barriers to adoption include fragmented data systems, uncertainty around data ownership and liability, variable digital skills and limited trust in AI-enabled decision-support tools.

Taken together, these dynamics create a strong foundation for bilateral cooperation. **The Netherlands offers deployment-ready environments, system integration and scaling capacity, while the UK offers upstream innovation, flexible experimentation and digital capability.** Coordinated action which connects UK R&D with Dutch applications, validation and market pathways offers clear potential to accelerate AI adoption in agrifood systems in both countries, while supporting shared objectives around sustainability, productivity and food-system resilience.

Key findings for the agrifood and agritech sector



4.1 Policy insights

Agrifood and agritech are strategically prioritised in both countries but occupy different positions in national AI agendas. In the Netherlands, agrifood is embedded as a core AI application domain through sector-specific strategies. Dutch policies emphasise AI-enabled agrifood and agritech developments as system-wide transformation goals, reflecting the sector's central role in the economy. In the UK, agritech is positioned as a frontier innovation domain within a more horizontal AI strategy. Policy instruments focus on stimulating innovation, productivity growth and environmental resilience, but without the same level of sectoral centrality seen in the Netherlands.

Both countries face similar structural pressures which elevate the policy relevance of AI in agrifood, including labour shortages, climate volatility, input scarcity and sustainability constraints. However, policy approaches diverge in emphasis: Dutch strategies stress coordinated system transition and deployment readiness, while UK policies place greater weight on upstream R&D, experimentation and enabling technologies.



Why this matters: Shared pressures create a strong rationale for cooperation but differences in policy framing mean bilateral initiatives are most effective when they align Dutch strengths in deployment and system integration with UK strengths in upstream innovation and flexible experimentation.



4.2 Industry insights

The Netherlands holds an industrial lead in AI-enabled agrifood and agritech, underpinned by scale, integration and export orientation. The Dutch agrifood sector accounts for around 10% of the national economy and employment, with venture capital investment in agrifood technologies reaching approximately $730m in 2025, making it one of the country's top investment domains. Patent analysis shows strong Dutch activity in agricultural and food-related international patent

classification (IPC) classes, reflecting more mature commercialisation pathways. Industrial leadership is concentrated in areas such as horticulture, controlled-environment agriculture, agricultural robotics and smart machinery, supported by globally competitive firms and dense supply-chain integration.

The UK agritech industry is smaller in scale but displays strong innovation capacity and niche specialisation. UK agritech investment reached approximately $575m in 2025 and is supported by a dispersed ecosystem of startups, research organisations and testbeds. Industry activity focuses on agricultural robotics, sensing technologies, climate monitoring, biotechnology and AI-enabled quality control. However, evidence suggests that commercial uptake remains uneven and that many innovations stall at pilot or early-deployment stages.

Across both ecosystems, adoption remains uneven, particularly among smaller producers. Barriers include capital constraints, fragmented data systems, uncertainty around data ownership and limited trust in AI tools, despite proven technical potential.

Why this matters: The UK offers a strong pipeline of early-stage innovation and specialised technologies, while the Netherlands provides proven routes to deployment and scaling. Joint initiatives can reduce commercialisation risk and accelerate adoption by combining complementary industrial strengths.

What industry can do now

- **Develop joint pilots that pair UK technologies with Dutch growers, producers and agrifood platforms. In addition, a complementary strand could support reverse exchange, enabling UK farmers, firms and policymakers to learn directly from Dutch approaches to adoption, integration and scaling.** Industry-led pilots can build on existing experimental farms, commercial sites and greenhouse infrastructure and can anchor early-stage innovations in real operational environments, helping to bridge the gap between R&D and large-scale deployment.
- **Use bilateral business networks and existing connections to identify market entry and scale-up opportunities.** Existing innovation ecosystems such as Wageningen Food Valley and UK agritech clusters can act as entry points for partnerships, investment and deployment. These networks can also facilitate connections between business partners, technology developers and end-users, reducing barriers to adoption.
- **Build partnerships around practical use cases such as robotics, precision farming, controlled-environment agriculture and supply-chain optimisation**. Partnerships grounded in practical applications create clearer pathways from innovation to implementation. By focusing on priority areas, stakeholders can pool resources and expertise to deliver scalable, high-impact solutions across the agrifood system.

What further support could provide

- **Bilateral dialogue on aligning rules on gene editing and precision breeding.** Regulatory alignment can help establish long-term pathways for convergence and meaningful harmonisation and offers a route to reduce fragmentation and create clearer, more consistent frameworks for innovation. This would benefit developers and producers operating across jurisdictions while supporting smoother market access and supply-chain integration. It would also improve the commercialisation potential of gene-editing technologies and resulting products as they would be able to cater to a much larger market.

4.3. Academic and research landscape

Both the UK and the Netherlands demonstrate strong research bases in AI-enabled agrifood and agritech innovations, but with distinct profiles. The Netherlands benefits from highly concentrated and globally recognised research clusters, most notably Wageningen University & Research and the Wageningen Food Valley, which integrate AI research with applied agricultural science, industry collaboration and realworld deployment. National research programmes coordinated through the Dutch Research Council (NWO) and the National Innovation Center for Artificial Intelligence (ICAI) further reinforce this applied, mission-driven research model focused on sustainability, productivity and system optimisation.

The UK research landscape is broader but more dispersed, spanning universities, dedicated agritech research institutes and applied centres such as Rothamsted Research, Fera Science and the UK AgriTech Centre. UK strengths are particularly evident in upstream AI research, data science, modelling, sensing technologies and earlystage experimentation, but generally have weaker links to largescale agricultural deployment environments.

Scientometric and qualitative evidence indicate that bilateral research collaboration exists but remains underdeveloped in agrifood compared to life sciences. Collaboration tends to be projectbased and mediated through European or multilateral frameworks rather than by sustained bilateral programmes.

Why this matters: The Netherlands' highly integrated research-to-deployment pathways complement the UK's strength in discovery-level research in agrifood and agritech. Structured exchanges, shared testbeds and joint pilots could substantially increase the translational impact of agrifood AI research in both countries.

What researchers can do now

- Joint research capabilities to establish AI agrifood living labs to test technologies such as precision spraying, automated monitoring, greenhouse optimisation and decision-support tools in operational environments. Living labs offer clear advantages by enabling co-design between

developers and end-users, ensuring solutions are practical, user-centred and more readily adopted. This helps to uncover context-specific challenges early and accelerates scaling through stakeholder buy in. As a pragmatic first step, these initiatives can build on existing infrastructure and networks such as experimental farms, greenhouse facilities and established innovation clusters in both countries, reducing set-up costs and accelerating implementation. However, they can also be resource-intensive to coordinate and may face challenges around governance, data sharing and aligning incentives across diverse participants.

- Form cross-border consortia for Horizon Europe projects, particularly where UK firms bring AI tools or sensing technologies and Dutch partners bring deployment-ready environments and supply-chain integration.

What further support could provide

- **Expanded joint R&D programmes in gene editing and precision breeding.** Greater cooperation in gene editing could generate important scientific benefits, but near-term progress requires funding arrangements and approval pathways. In practice the most feasible forms of collaboration are likely to be targeted academic exchanges, joint workshops and pre-competitive research pilots.
- **A bilateral data interoperability framework for agriculture.** Shared principles and technical standards could help ensure that agricultural datasets from both countries can be used more reliably across research, advisory and commercial settings. Initial areas of focus could include common metadata standards, shared crop and soil data ontologies, and clearer rules for data access and use to support cross-border collaboration and innovation.

5. Opportunities for bilateral collaboration in AI for agrifood and agriculture

The opportunities below are primarily areas where policy and institutional support could strengthen the conditions for collaboration between researchers, firms, farmers and other agrifood actors in both countries. Some, such as living labs and Horizon Europe joint bids, are also directly relevant to external stakeholders in the near term. Others, particularly those related to agricultural data interoperability and gene editing, are more likely to depend on coordinated policy action, technical alignment and, in some cases, longer-term regulatory change.



Table 1. Agrifood and agriculture opportunity matrix

	High impact	Low impact
High feasibility	**Horizon Europe joint bidding and projects.** Joint bids offer a practical route to fund collaborative agrifood AI projects, combining UK research strengths with Dutch deployment-ready ecosystems. Horizon schemes could support pilots, living labs and SME participation while embedding cooperation in wider European networks. **Agrifood AI living labs.** Joint UK–Netherlands living labs could bring together farmers, agritech SMEs, universities and regulators in pilots to test AI tools in scalable real-world settings. This would support experimentation, build trust in adoption and create routes to longer-term collaboration and potential for commercialisation in both the Netherlands and the UK.	**Regulatory dialogue on gene editing and precision breeding.** A structured bilateral dialogue could help both sides exchange lessons and explore longer-term areas of convergence. However, meaningful regulatory alignment remains difficult given the UK's post-Brexit approach and the Netherlands' position within the EU system.
Low feasibility	**Aligning rules on gene editing/precision breeding.** Regulatory alignment remains challenging due to the UK's post-Brexit liberalisation and the Netherlands' position within the EU regulatory system. While both sides could explore long-term pathways for convergence, meaningful harmonisation would depend on changes at the EU level and therefore carries low feasibility in the near term. **Expanded joint R&D programmes in gene editing.** Efforts to increase cooperation in gene editing could deliver major scientific benefits but are constrained by divergent regulatory environments, funding rules and approval processes. Cooperation is still possible through targeted academic exchanges and pre-competitive research pilots, but scaling would require systemic regulatory shifts. **Bilateral data interoperability framework for agriculture.** Shared principles and technical standards could improve the interoperability of agricultural datasets across both countries. This could support cross-border research and commercial partnerships.	

This brief describes work done by RAND Europe in *Mapping AI ecosystems in the Netherlands and the United Kingdom* by Shyam Krishna, Lara Marie Otto, Adam Urwick, Scott Warnier, Ishita Puri, Manuel Hernandez Gonzalez, RR-A4654-1, 2026 (available at www.rand.org/t/RRA4654-1). To view this summary online, visit www.rand.org/t/RBA4654-3. RAND Europe is a not-for-profit research organisation that helps to improve policy and decision making through research and analysis. RAND Europe's publications do not necessarily reflect the opinions of its research clients and sponsors.
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