Niab Fruit

Newsletter
Autumn 2025

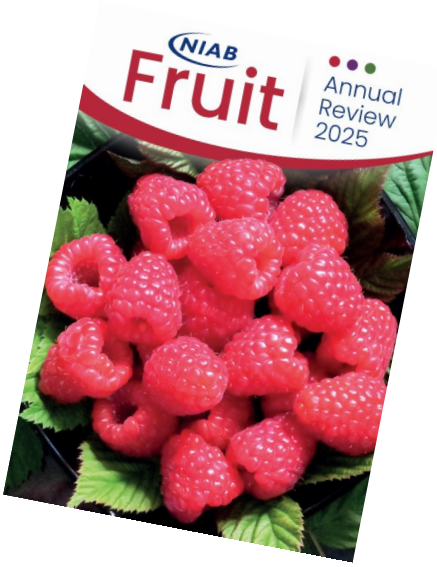
Welcome to Niab Fruit

Niab Fruit was set up in 2023 as an outreach programme with the aim of keeping the fruit industry informed of Niab's latest research projects and the results that can make a difference to fruit production.

Dedicated pages on the Niab website provide you with various resources including details and results from our wide range of research projects on both tree fruit and soft fruit crops. You can also find electronic versions of our recent publications and presentations made at recent events along with the outputs from our various demonstration centres.

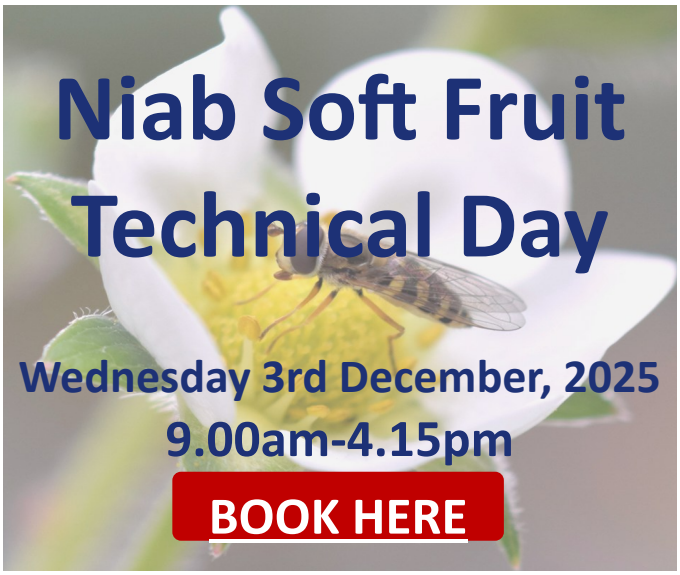
In addition, you can find links to The Apple and Plum Best Practice Guides and a dedicated website providing an overview of the Collaborative Training Partnership for Fruit Crop Research, which provides summaries of the reports produced by our many PhD students who have trained in horticultural research.

Earlier this year, we published our Niab Fruit Annual Review 2025 which has provided the industry with an overview of the current portfolio of fruit research that is led by Niab at our East Malling site, with progress reports and results that will support grower businesses.



In this year's Autumn Newsletter, we bring news of a range of events and activities that Niab has been involved in along with news of up-coming events and some of the newest fruit research projects that began in 2025.

Scott Raffle
Niab Knowledge Exchange Manager



This year's annual Soft Fruit Day will be presented by Niab as a hybrid event with spaces for up to 60 people to attend in person and an opportunity for others to view on-line through live streaming. Sessions will include the latest developments in pest management in soft fruit crops, new Growing Kent & Medway funded research to improve post-harvest quality, and research to support the improvement of resource use efficiency in the soft fruit sector. A final session will be dedicated to presenting and discussing progress in the soft fruit genetic improvement network (SF GIN).

For the full programme details and to book your place at the event, visit niab.com and click on Events.

BAPL/Niab Apple and Pear Day

On 10th February 2025, Niab jointly hosted an Apple and Pear Technical Day with British Apples and Pears Ltd, held at The Mumford Building at East Malling.

A total of 80 people attended with a further 110 joining using the live stream that was broadcast. The programme incorporated talks from Niab staff on research into pest and disease control, precision orchard management and Growing Kent & Medway's Growing Green programme. These were interspersed with talks from industry agronomists and growers providing an insight into several new commercial developments and experiences of novel approaches to crop management.

There are plans to repeat the event at East Malling in 2026 and a date of Tuesday 10th February has been set. Look out for more details over the winter months.

Growing Kent & Medway support the Living Land Show - 6th May 2025

In May, Niab's Growing Kent & Medway team exhibited at The Living Land Show at Kent's County Showground near Maidstone. The event is organised by the Kent County Agricultural Society to educate primary school children from the ages of 8-10 about where their food comes from, how it is produced and what forms it takes. This year, the GK&M team worked with **Fermenti**, a startup business that has received support from the GK&M programme, to teach children about their digestive system and the route that their food takes through their bodies.

Fermenti uses a fermentation process to produce healthy snack foods and is run by Marie-Laure Prevost. Their demonstrations included the 'Digestive Funfair', where we quizzed the children on their knowledge of the digestive system; 'Digestive Detective', where Marie explained how different foods affect our digestion; and a hands-on demonstration of how healthy poo (soggy Weetabix) moves through the gut (soggy stockings).

For more on Fermenti, there is **a new video** featuring Marie explaining more about her work and how support from Growing Kent & Medway helped turn her passion for the microbiome into a successful start-up.

Marie-Laure Prevost, from Fermenti, is pictured with GK&M team members Dominic Hill, Sally Reeves and Scott Raffle.

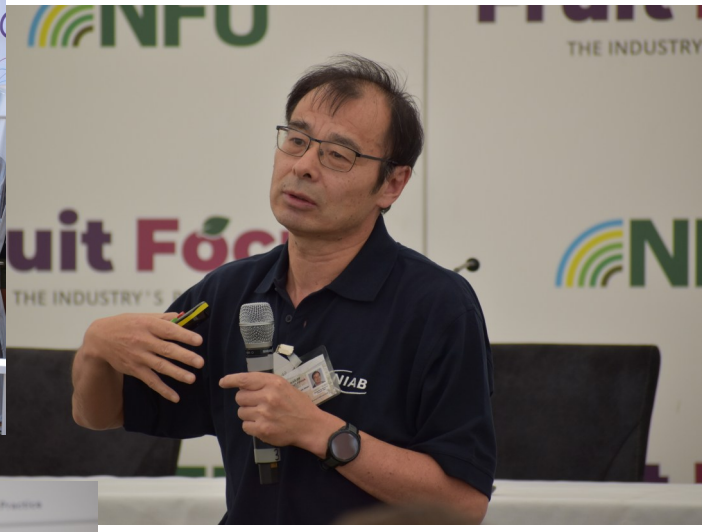
Fruit Focus 9th July 2025, East Malling

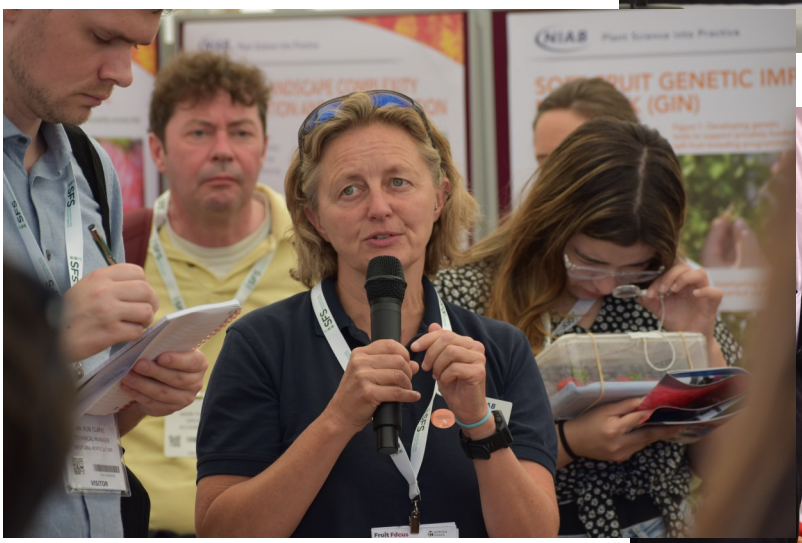
Niab and Growing Kent & Medway presented a wide range of fruit research to visitors at Fruit Focus 2025, an annual event hosted by The East Malling Trust and Niab at the East Malling site.

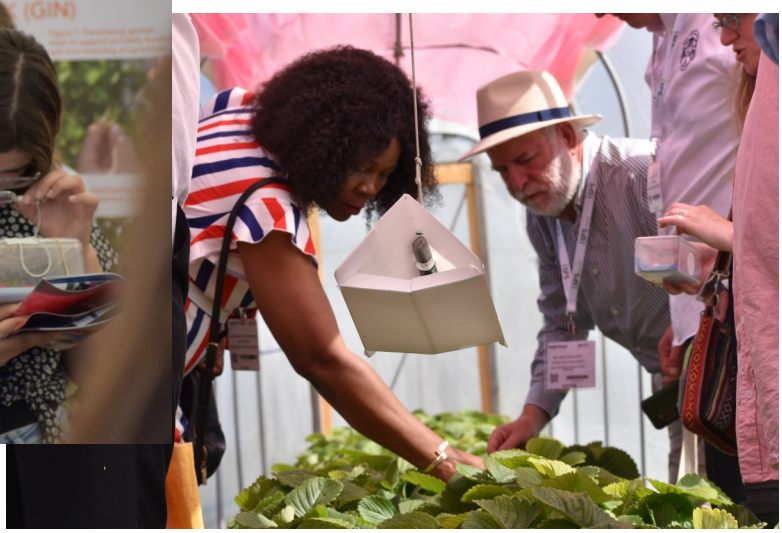
The Niab and Growing Kent & Medway stand promoted our glasshouse and trials services, our vine and wine research, and a number of crop science and pest and pathogen projects. With two guided visits on the stand, visitors learned about our research into the use of bait sprays for fruit pest control, coir recycling, non-invasive techniques to identify pathogens in cherry, and brown marmorated stink bug, a new pest of fruit crops in the UK.

Niab also hosted a number of research tours on the site, featuring Mark Else, Michelle Fountain, Luis Felgueiras, Sarah Arnold, Katia Zacharaki, Trevor Wignall, Charles Whitfield and Matevz Papp-Rupar to allow visitors to find out more about specific projects including research to employ hoverflies for strawberry pollination, a project to improve precision orchard management, research into plum irrigation and fertigation, research into vineyard management and investigations into vertical farming of strawberry. In addition, a Niab Research Hour allowed us to present results on five different research projects funded by Growing Kent & Medway and others with presentations on 'Improving raspberry propagation', 'Brown marmorated stink bug', 'Precision orchard management' and the 'Soft Fruit Genetic Improvement Network'.

Growing Kent & Medway showcased three businesses whose innovations have been supported by our funding and business services: Aridom Sanex presented their work on strawberry decontamination via dry fogging, Aures Packaging outlined their work on sustainable food packaging from brewers' spent grain, whilst Re-Generation Earth demonstrated biochar for carbon capture and soil health.





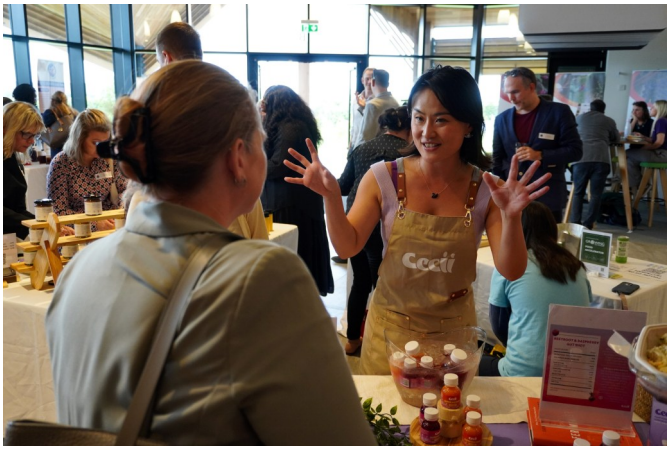


Showcase Day
18 September 2025

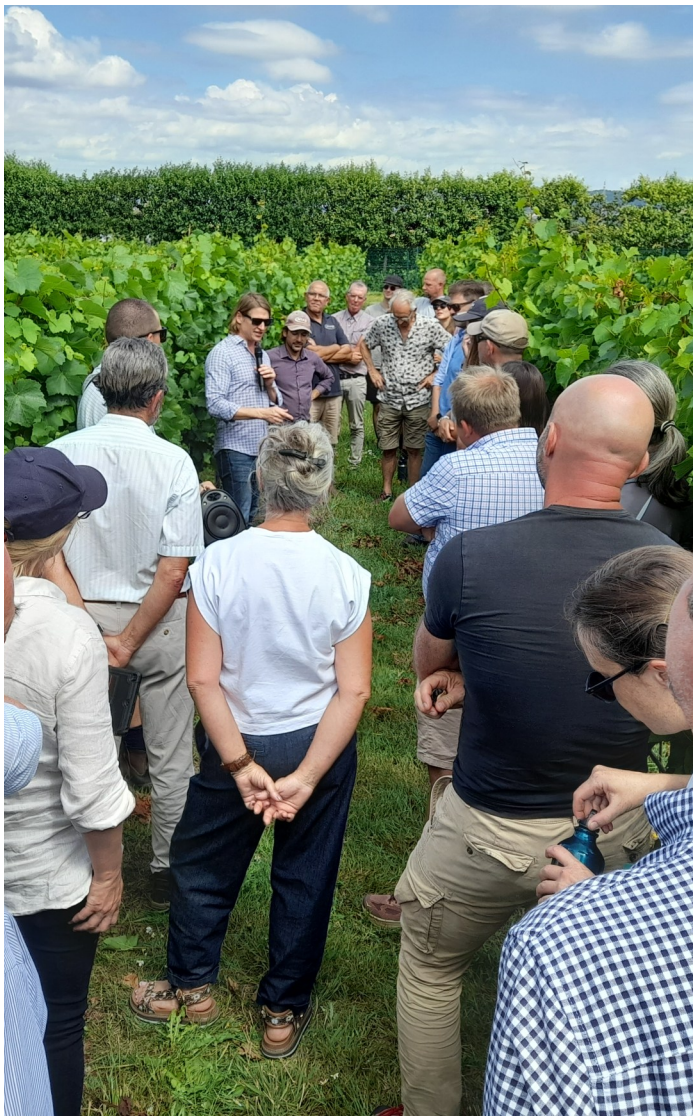
Growing Kent & Medway held its annual Showcase Day event at East Malling on 18th September, with over 100 guests attending to hear the impact the programme has made in advancing research and innovation in the region.

The morning conference featured a range of speakers, including representatives from UK Research & Innovation, Kent County Council, research organisations and local business owners.

Sixteen exhibitors showcased innovative, nutritious, and tasty food products – including cacti-based chocolates, gut-health shots and freeze-dried baby food. The event allowed guests to view some of Niab's new facilities and learn more about our research into Total Controlled Environment Agriculture approaches to strawberry production and enhancing the quality of raspberry propagation. There was also a tour of the vine and wine research at East Malling.

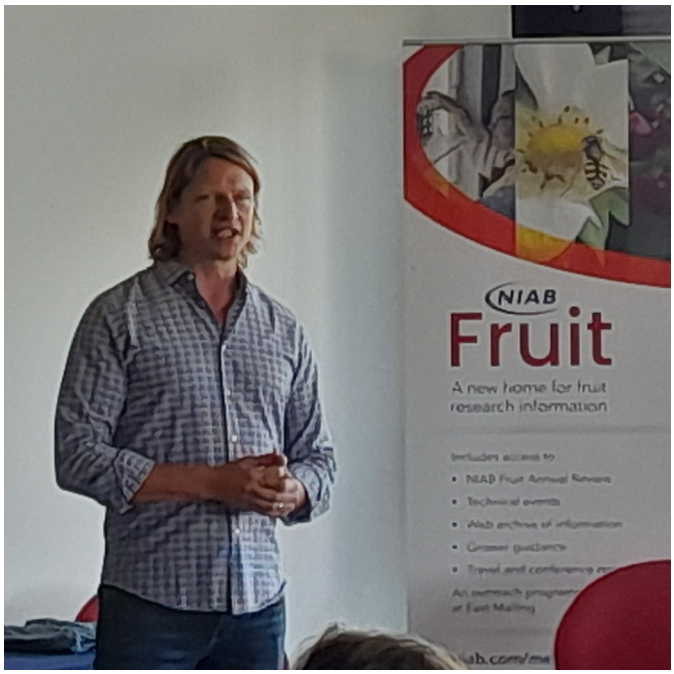


A clear theme that came through the many talks and discussions was the value of strong networks and good collaboration in driving innovation and economic growth – an important message as we look to build and grow the next phase of Growing Kent & Medway.



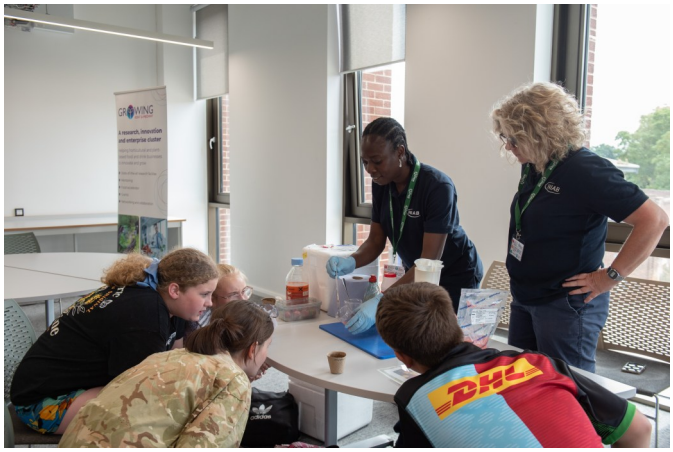
Viticulture workshop at East Malling

On 18th July 2025, Niab hosted an event for the vine industry when world-renowned American viticulture consultant and educator Fritz Westover led a vineyard workshop for UK vine growers and agronomists. From establishing young vines, to pruning and vineyard management, Fritz covered a vast array of topics of interest to the delegates which led to discussions about vine longevity, reducing production costs and soils and crop covers. The event was held at Niab's research vineyard at East Malling.



Students experience a taste of agritech careers

In partnership with The STEM Hub, Growing Kent & Medway invited 180 secondary school children to Canterbury Christ Church University on 4th July to explore the amazing array of science, technology and engineering roles involved in food and farming. From computer vision counting ripe cherries to 3D printers creating tasty snacks, the students had first-hand experience of some very exciting agri-tech careers available.



Several Niab staff members from East Malling took part in the day to deliver hands-on, practical workshops to inspire the next generation of plant scientists! Sarah Arnold presented 'Marvellous hoverflies – how beneficial insects can be used in fruit production', Louisa Boyer-Robinson presented 'The secret life beneath our feet – the fascinating world of arbuscular mycorrhizal fungi' and Deborah Babalola, Joy Adzovie, Sally Reeves, Dom Hill and Scott Raffle provided a simplified version of how we study genetics and carry out breeding of fruit crops.

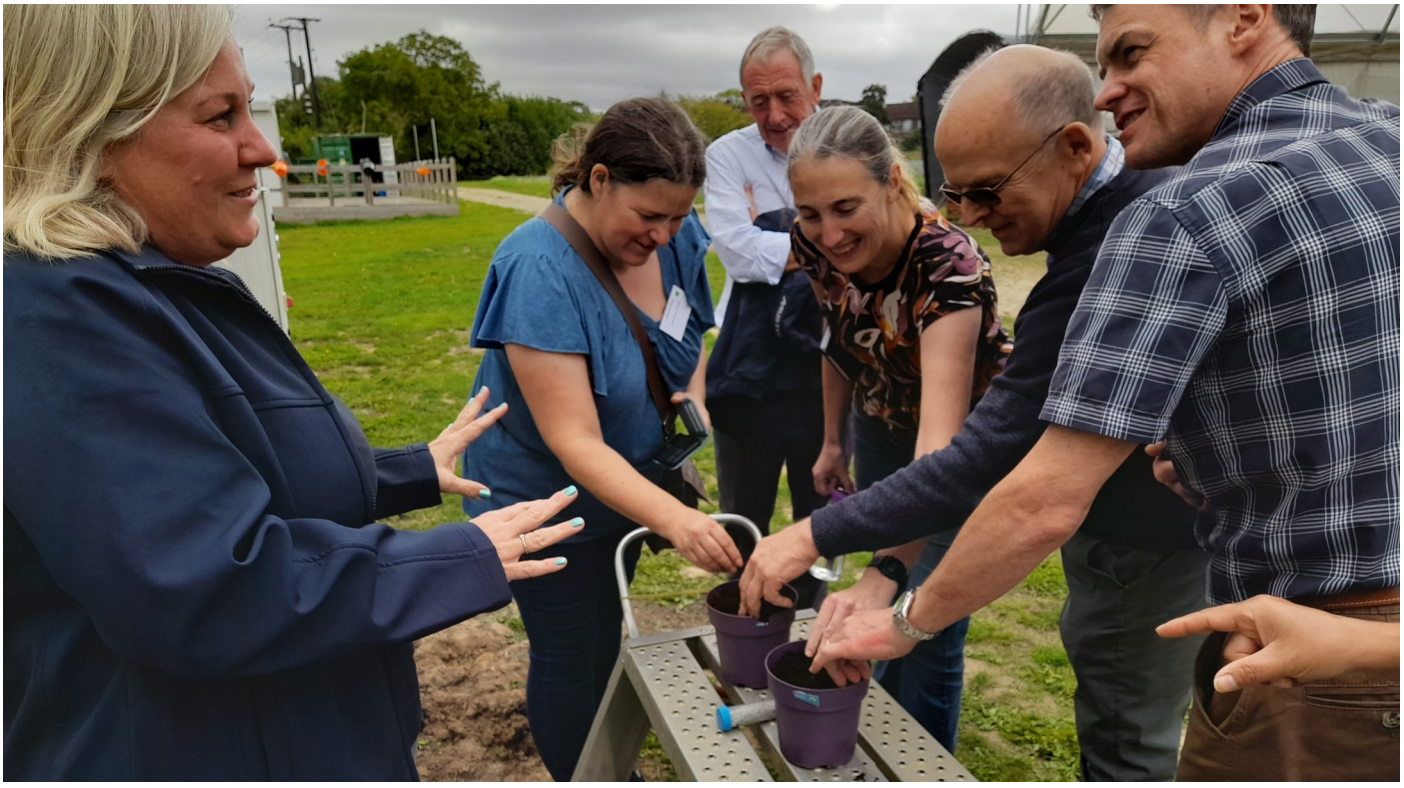
We were also kindly supported by the University of Kent, University of Greenwich, Russell IPM and Canterbury Christ Church University staff.

Niab hosts the CEUG Conference - 9 & 10 September 2025

In early September 2025, Niab hosted the annual conference of the Controlled Environment Users' Group at East Malling. Following the success of hosting at our Cambridge site in 2024, Niab was pleased to host again this year, allowing the delegates to learn more about the wide range of expertise and facilities being employed at East Malling.

The event offered Niab staff the opportunity to engage with a different audience, who learned more about our research into maximising strawberry yields in controlled environment growth rooms, research into digital crop management of tomato and cucumber, novel approaches to pest control in protected soft fruit and how the Growing Kent & Medway programme has supported the horticulture, food and drink sectors in Kent.

There were visits to the Wine Innovation Centre, the Produce Quality Centre (managed by University of Greenwich) and a chance to learn about how Niab research into recycled coir is helping soft fruit growers reduce their carbon footprint.



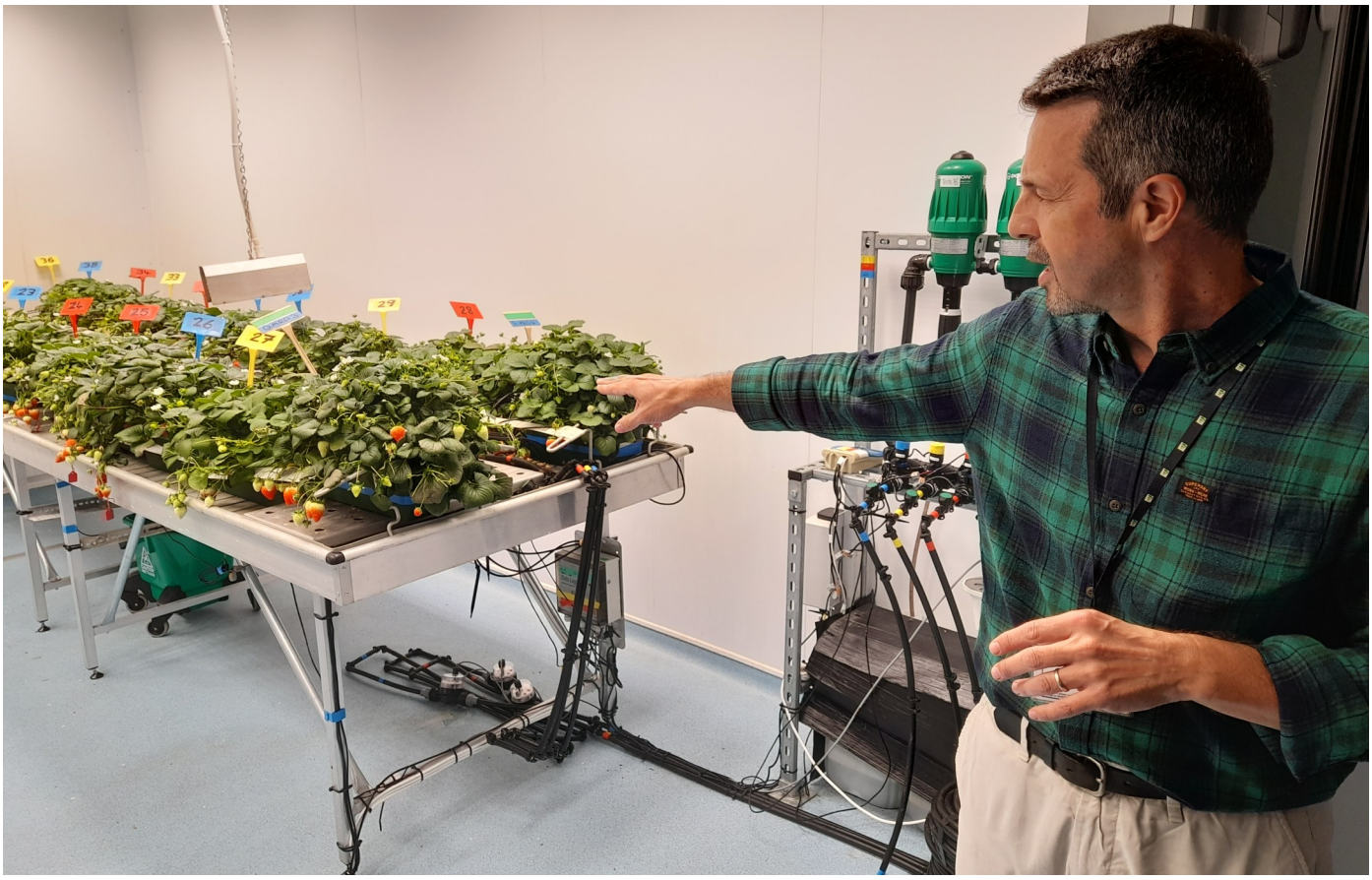
Niab Fruit Agronomists' Day - 30th September 2025

Niab welcomed 55 fruit agronomists to its East Malling site in Kent in September. Drawn from companies such as Agrii, Agrovista, Hutchinsons, Delphy, FAST, ADAS, Angus Soft Fruits, Berry Gardens Growers and others, the event was set up to allow industry agronomists to meet Niab scientists and learn about our latest fruit research and discuss the issues that they are facing in the field.

The event was split into tree fruit sessions in the morning, soft fruit sessions in the afternoon and a lunchtime session covering topics relevant to both. Brilliant September sunshine allowed much of the event to take place outdoors in research plots allowing some of the projects to be more accessible to the agronomists.

Tree fruit topics included research into apple canker, apple scab, spring pests of apple, plum irrigation and fertigation, precision orchard management and soil health. Soft fruit topics included thrips identification, coir recycling, maximising strawberry yield potential using total controlled environment atmosphere management, raspberry propagation, aphid management and soft fruit pollination. Updates on the invasive pests spotted wing drosophila and brown marmorated stink bug were presented in the lunchtime session.

Niab staff used the opportunity to discuss issues with the agronomists that are causing problems in the field and explore potential collaborative opportunities with the industry.



New Projects 2025/26

Niab has begun work on a series of fruit research projects this year which all seek to make fruit production more sustainable. Whether developing more sustainable methods for improving crop health and crop protection, producing plants in a more sustainable way with reduced inputs, or improving the efficiency and speed of fruit plant breeding, all seek to increase efficiency of production in ways that are sympathetic to the environmental problems growers face today. The projects are summarised below and are grouped according to the scientific discipline that they fall into.

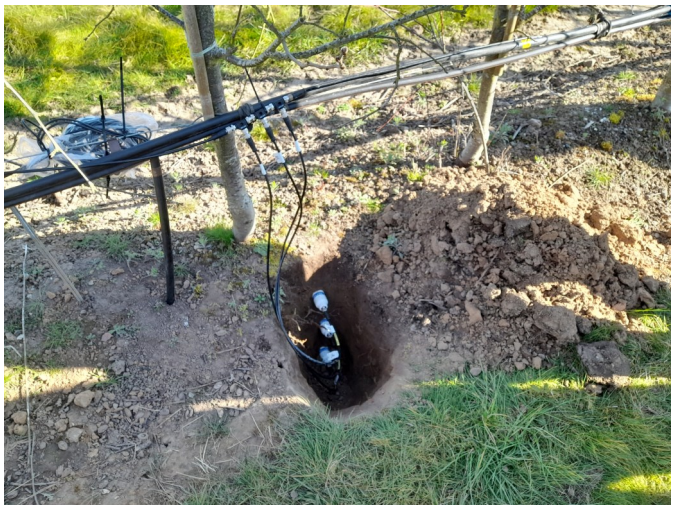
CROP SCIENCE AND PRODUCTION SYSTEMS

Title: SNAP: Sustainable nitrogen application project
Funder: Innovate UK
Industry partners: Hutchinsons, Orion Future Technology and Outfield
Term: January 2025 to December 2026
Niab project leader: Eleftheria Stavridou

Niab has been a research partner in previous Innovate UK projects to develop a prototype variable rate orchard sprayer and further develop techniques to precisely manage orchards using resources more efficiently, benefiting the local environment. In this project, our crop science team will work with industry partners to develop precise application of nitrogen in commercial apple orchards. Variable use of nitrogen rather than broadcast application will provide more even crop growth leading to increased yields whilst reducing both waste fertiliser and environmental damage.

Title: Sensor-based precision fertigation of stone fruit to improve nutrient use efficiency, yields, and quality whilst lowering emissions
Funder: Defra Farming Innovation Programme
Industry partners: The Orchard Fruit Company (Lead), A.C. Hulme, Domum Agrum, Delta-T Devices, Driemtech, EDT directION, Fotenix, Soil Moisture Sense and Torry Hill Farm
Term: January 2025 to December 2027
Niab project leader: Mark Else

This project seeks to match supply of water, nitrogen, phosphorus and potassium to tree demand in plum and cherry crops. It will develop novel technology for measuring nitrogen, phosphorus and potassium concentrations in soil solutions at different rooting depths in real-time. The work will also make use of a

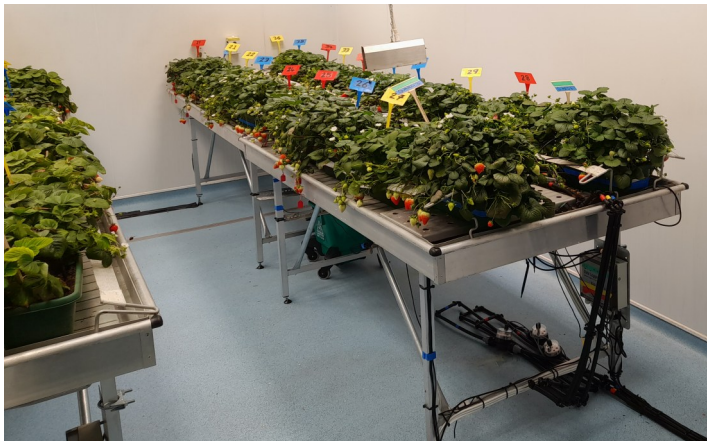


vast array of new technology including soil moisture sensors that will inform low-input water and fertiliser strategies that reduce the loss of water and nutrients from the rooting zone. The impacts of these treatments on greenhouse gas emissions from orchard soils will also be measured.

Title: Flowering companion plants and chitosan influences biodiversity, soil health, grape juice and wine composition (Flower Chi)
Funder: Growing Kent & Medway
Industry partners: Baker Consultants, Chitolytic, Gusbourne Estate, Westwell Estate and Wine GB
Term: May 2025 to February 2026
Niab project leader: Belinda Kemp
Vineyard growers are under increasing pressure to develop more sustainable methods of pest and disease control. Niab will carry out trials at their East Malling research vineyard and on two commercial vineyards to demonstrate sustainable, practical solutions to reduce disease pressure, increase beneficial insects, decrease pests, and increase soil health without impairing grape juice and wine chemistry. This will be achieved using the volatile rich, long-flowering German chamomile plant with pest deterrent components which will be used as a companion plant along with the compatible biopesticide product chitosan.

Title: TCEA N-demand: Optimising nitrogen and CO_2 inputs to improve assimilation and yields in TCEA strawberry production
Funder: Innovate UK
Industry partners: Innophyte Consulting Ltd (Lead) and Flex Farming Ltd
Term: January 2025 to December 2026
Niab project leader: Mark Else

Early attempts at producing strawberries in total controlled environment agriculture (TCEA) systems have been unsuccessful, in part due to over-vigorous canopy growth due to excessive fertiliser and water use, which limits light penetration and increases disease risk. In this project, Niab is working with industry partners to develop and test a low-nitrogen growing strategy in TCEA conditions which will be supplemented with CO_2 extracted from the atmosphere. Lower nitrogen use will reduce crop growth and production costs while we will test if photosynthetic capacity can be maintained with additional CO_2.



Title: Resilience in agrifood systems: supply chain configuration analytics lab (RASCAL)
Funder: UKRI
Industry partners: Queen's University Belfast, University of Cambridge and University of Plymouth
Term: January 2025 to December 2027
Niab project leader: Eleftheria Stavridou
This project will study the balance between UK food production and imports, especially in light of disruptions caused by economic, political or climate factors. An interactive digital lab will be created than enables exploration of multiple scenarios involving cascade risks, and potential mitigation interventions. To ensure that the UK is better prepared for unexpected challenges, this project is part of a wider UKRI funding programme to ensure the robustness of UK supply chains and to help secure essential resources and food supplies for the future.

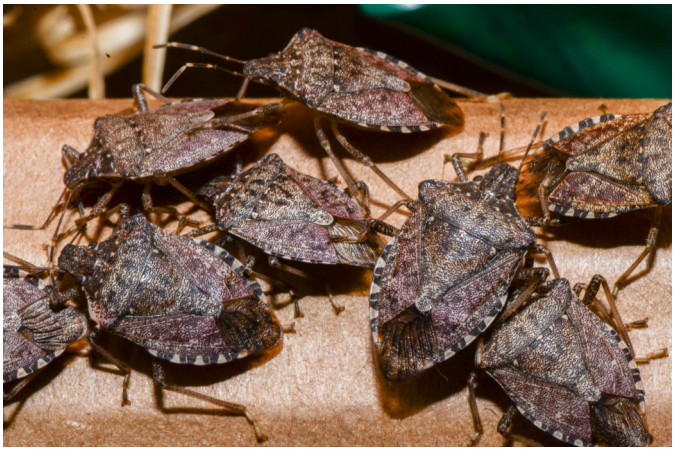
PEST AND PATHOGEN ECOLOGY

Title: Apple canker efficacy trial
Funder: Horticulture Crop Protection Ltd
Term: October 2024 to July 2025
Niab project leader: Matevz Papp-Rupar

Niab pathologists have done an extensive volume of research into novel approaches to controlling apple canker in recent years, most recently successfully reducing canker spread through the use of arbuscular mycorrhizal fungi in new and established orchards. However, with continual losses of conventional spray products, new products are urgently required. In this project, Niab set about assessing six new treatments, applied in the autumn to a canker infected Gala orchard at 20%, 50% and 90% leaf fall. They were compared to a water control and a standard fungicide programme.

Title: A multi-species thrips surveillance panel for strawberries using flower-wash eDNA and qPCR
Funder: Innovate UK
Term: August 2025 to April 2026
Niab project leader: Francis Wamonje

Niab entomologists have previously designed and validated qPCR-compatible species-specific primers to identify and confirm the presence of western flower thrips in strawberry crops. In this project, similar primers will be developed for rose thrips, onion thrips and flower thrips, allowing us to create a four-species diagnostic panel. In addition, the team will establish a novel sample acquisition method that collects environmental DNA from strawberry flowers allowing us to detect DNA left by visiting thrips, eliminating the need to trap or view them on the plant to confirm their presence.



Title: Brown marmorated stink bug (*Halyomorpha halys*) surveillance in the UK
Funder: Defra
Term: January 2025 to April 2026
Niab project leader: Francis Wamonje

Previous surveillance by Niab for brown marmorated stink bug (BMSB) has indicated that not only is the pest being identified more frequently in the UK, but that it is starting to establish breeding populations in UK conditions. In this project Niab entomologists will continue to monitor and track BMSB activity through the deployment of pheromone traps in high-risk areas whilst also broadening outreach to transport companies, campervans and motorhomes which appear to be importing the pest. This will be done in collaboration with the BMSB Industry Working Group and industry partners.

Title: Screening UK habitat for the presence of forest bug (*Pentatoma rufipes*) and brown marmorated stink bug (BMSB; *Halyomorpha halys*) parasitoids.
Funder: The Worshipful Company of Fruiterers
Term: April 2025 to March 2027
Niab project leader: Francis Wamonje

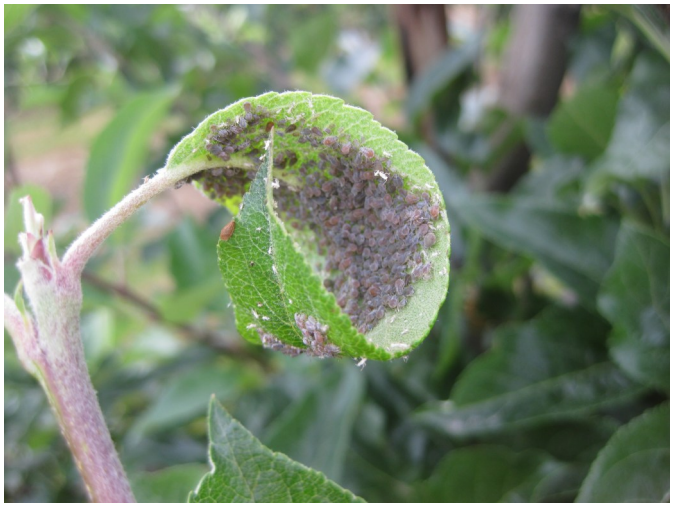
The loss of broad spectrum pest control products from the crop protection armoury available to fruit growers has led to an increased incidence of new pests such as the forest bug (*Pentatoma rufipes*) which is causing increasing levels of damage to apples and pears. The invasive pest brown marmorated stink bug (*Halyomorpha halys*) is also a new threat and growers have insufficient control measures available for either of these pests. This project will investigate if UK native parasitoids exist and if they could be used as a sustainable control measure.

Title: POLLEN: Pollinator observations linked to environmental DNA in mango and avocado agroecosystems
Funder: Cambridge – Africa ALBORADA Research
Industry partners: Kenyatta University and The National Museums of Kenya
Term: January 2025 to December 2025
Niab project leader: Francis Wamonje

Mango and avocado production contributes significantly to the agricultural economy in Kenya but current monoculture practices are harmful to natural ecosystems and knowledge of the impact of pollinator diversity on crop productivity is limited. Niab will work with its research partners to develop innovative eDNA monitoring methods for bee diversity and establish the connection between diverse pollinator presence and productivity in mango and avocado cropping systems.

Title: PAPPLe lll
Funder: British Apples and Pears Ltd
Industry partners:
Term: April 2025 to March 2026
Niab project leader: Michelle Fountain

Niab has been supporting British Apple and Pear Ltd's (BAPL) technical programme of research for the past two seasons. In this current programme of work, Niab aims to develop, evaluate and deliver new strategies for pest and disease. The work will focus on BAPL's priority pests and diseases. We aim to improve apple scab and canker management, test new controls for rosy apple aphid, apple blossom weevil and pear blossom weevil. We will also up-date the risk register with new scientific findings and future invasive pests and diseases.



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