

Case study: Soil health in orchards

You could say that soil is literally the foundation for producing crops, and all farmers know that having healthy soil is fundamental to sustainable and resilient crop production. At Sainsbury's we also recognise the role healthy soil has to play in the supply of safe, sustainable, nutritious, and affordable food. Working with our suppliers to encourage and support soil health is a key goal for Sainsbury's.

For some years, the agricultural industry has worked to better understand soil health and how to measure it. One of the key pieces of research in this area has been the 'Soil Biology and Soil Health Partnership' (1) led by NIAB (2); this work formed part of the AHDB Great Soils project (3). The Soil Biology and Soil Health Partnership examined and tested ways to look at soil structure, nutrition and biology (3 key pillars to assess soil quality and health) for a range of arable and livestock farming systems.

However, working alongside our Crop Action Groups (4), we identified that the available tools weren't suitable for monitoring soil health in permanent orchard situations. Starting in 2019 we connected with the Soil Biology and Soil Health Partnership and began working with NIAB (providing technical soils expertise) and other partnership collaborators, such as Yara (experts in soil analysis). We then undertook a workshop with our orchard growers, and adapted the techniques that were developed for use in combinable crops (like wheat) and in pasture grassland, so that they could be used in orchards; where you have rows of crops and alleyways.

The technique that we created involved sampling across the orchard at points within the tree lines and in the alleyways between rows of trees, to build up a picture of soil health at an orchard level. The fledgling method was piloted in 2020, along with ongoing collaboration with our growers to refine the approach. Wider testing was then undertaken in 2021/2022, and from this a robust approach to testing soil health in orchards was developed. This provides Sainsbury's growers with traffic light indicators across a range of key soil health scores.

Findings were initially presented back to the participating growers through our interaction groups, with discussion at these groups building understanding of the findings and any actions required to support soil health. Following this, the key learnings have been presented at an event for all our orchard fruit growers internationally, to help share learning and best practice. As a next step, Sainsbury's are currently working with wider suppliers and growers to look at how and where this type of approach might best be used. This can help us to support healthy soil and promote resilient production. The soil health in orchards project will continue to deliver for Sainsbury's and our growers, by helping them to optimise their soil management and overall soil health.

1 - <https://ahdb.org.uk/soil-biology-and-soil-health-partnership#:~:text=The%20programme%20is%20designed%20to,partners%20and%20six%20industry%20partners.>

2 - <https://www.niab.com/research/agronomy-and-farming-systems>

3 - <https://ahdb.org.uk/greatsoils>

4 - <https://www.about.sainsburys.co.uk/sustainability/plan-for-better/our-stories/2019/05042019-pesticides#:~:text=What%20are%20Crop%20Action%20Groups,to%20share%20data%20and%20insights.>