

RD2.1.8 Novel Crops

RD lead contact

Pete.lanetta@hutton.ac.uk

Aim:

Development of new blueberry cultivars with high fruit and nutritional quality combined with early and late ripening and climate resilience.

There is increased demand for blueberries fuelled by recognised health benefits. UK blueberries currently supply 5% of this demand - significant expansion is feasible but imported varieties often fail to establish and perform.

Marker-assisted breeding and improved phenotyping are being used for variety improvement. Traits such as climatic adaptation and season extension are being combined with other important traits like fruit quality and yield.

A new blueberry breeding programme has been established to identify varieties adapted to local climate and where possible to extend the fresh market season.

Research Objectives

- Novel cropping approaches and novel crops to realise more sustainable protein and biomass production, plus novel food and feed formulations
- Investigating the use of novel floral, fruit and native crops: *Humulus lupulus* (Hops), *Vaccinium angustifolium* (low- and high-bush berry) and Scottish native flora to strengthen the Scottish economy



Blueberry Research

- Studying underlying mechanisms controlling yield stability to develop improved management practices and accurate yield prediction models
- Identifying cultivars best adapted to the local climate
- Looking at native wild blueberries in the hope of transferring higher anthocyanin content, plant vigour, fruit colouring and seasonality into the commercial blueberry
- Examining the role of naturally occurring symbiotic fungi in enhancing plant establishment to promote a rapid return on investment



Native wild blueberry species



Hyperspectral camera platform to identify early plant stress

Acknowledgements

The work of RD2.1.8 is funded by the Scottish Government's Rural and Environment Science and Analytical Services (RESAS) Division.

Additional thanks to: AHDB, M&S plc, Berry Gardens, Total Produce, S&A (UK) plc., JHL Blueberry Breeding Consortium, SoilEssentials, Delta-T Devices, Thomas Thomson (Blairgowrie) Ltd., Castleton Farm Ltd for their collaboration

Impact

- A successful UK variety that achieves significant market share across half the season would be worth in excess of £90 Million per annum
- This research identifies the combined impact of genetics and environment on the development of blueberry fruit and has led to the formation of the first UK led blueberry breeding consortium

