Strategic Research Programme 2016 -2021

Economic and Societal Impacts of RESAS Funded Soft Fruit Research

RESAS Funding Supports Long Term Skills and Capacity

Physiologists
Geneticists
Molecular biologists
Statisticians
Field biologists
Biochemists
Pathologists

Growers
Processors
Agronomists
Levy boards
Government
Consumers
Retailers

Germplasm
Populations
Genomic information
Field plots
Polytunnels
Controlled environments
Analytical facilities

Cultivars
Management systems
Novel crops
New products
P&D Management

‘Glen’ raspberries

‘Ben’ blackcurrants

RESAS Funding Supports Long Term Skills and Capacity

Over **£4.5M** in external funding for fruit related research during the present strategic research programme

Oct 2015 – Apr 2019: Improving yield stability in the UK **blueberry** crop. Innovate UK £1.49M (JHI, JHL, Soil Essentials, M&S, Castleton Farms, Thomas Thomson Ltd, S&A Produce Ltd., Delta T Devices, AHDB)
Jan 2018 – Mar 2019: Feasibility of developing a novel breeding methodology to improve **raspberry** flavour. Innovate UK £333K (JHI, JHL, BioSS, S&A Produce Ltd., Total World Fresh, Delytics Ltd.)
Oct 2018 – Sep 2020: Plant sensing to determine environmental impact on **cherry** fruit development. Innovate UK £495K (JHI, JHL, BioSS, Thomas Thomson Ltd., Berry Gardens, Castleton Farms, Mothive)
Apr 2016 – Jul 2019: Improving **strawberry** functional properties by manipulation of the physical growing environment. Innovate UK (KTP) £181K (JHI, PJ Stirling Farms)
Mar 2019 – Feb 2022: Developing the Scottish **honeyberry** industry. Innovate UK (KTP) £180K (JHI, Scottish Honeyberries Ltd.)

Knowledge Exchange

Knowledge Exchange

SEFARI

Fruit for the Future

On the trail to an improved raspberry

Knowledge Exchange

SEFARI

Examples of Impact

SEFARI

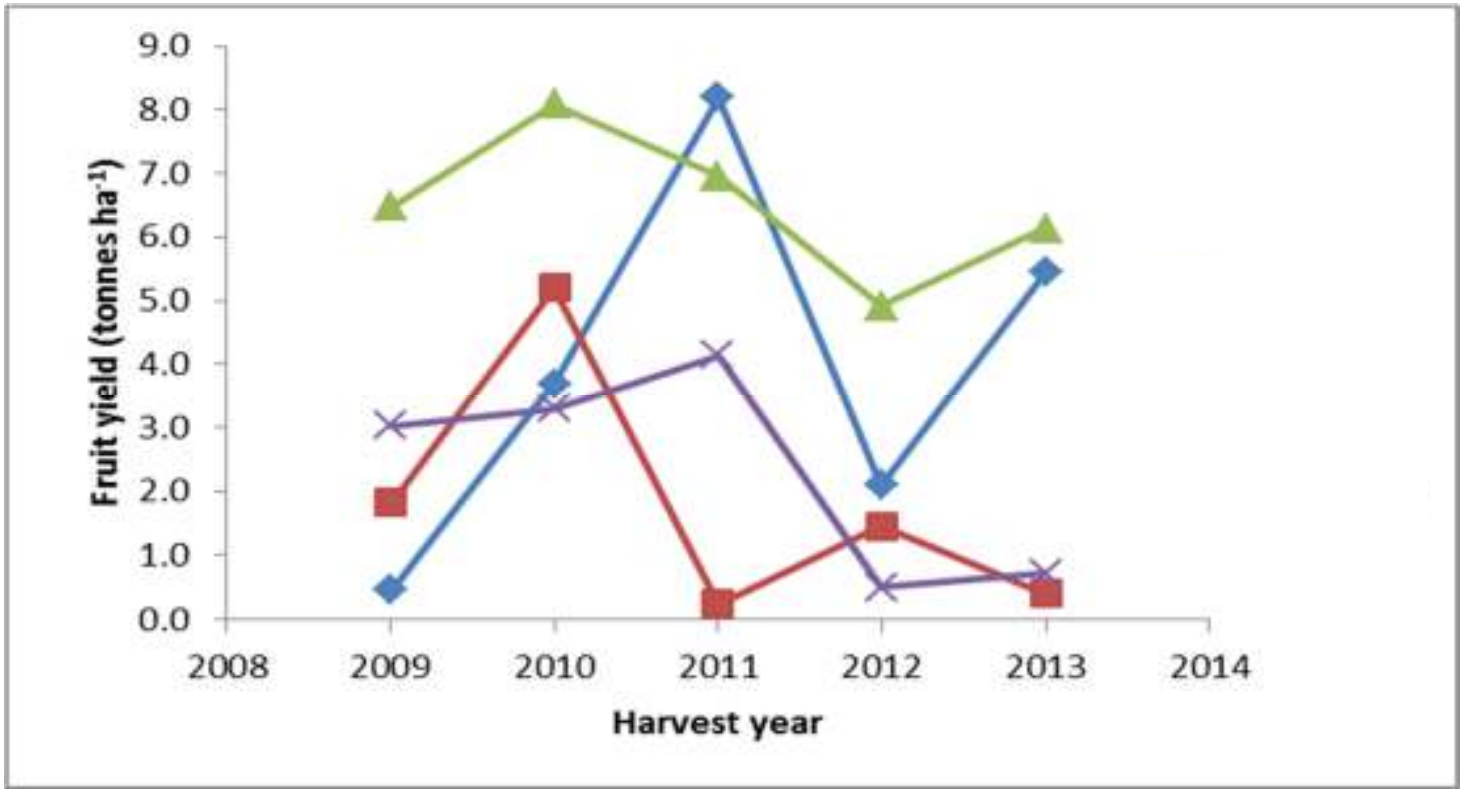
Enhancing Yield Stability in Blueberry

- UK blueberry market value ~£340M
- Only 5% met by home grown fruit
- Multiple retailers keen to supply more UK grown fruit
- Massive potential for expansion of UK market
- Key barriers:
  - Crop establishment
  - Yield instability

Examples of Impact

Enhancing Yield Stability in Blueberry

Value lost £8000 ha^{-1} ↕

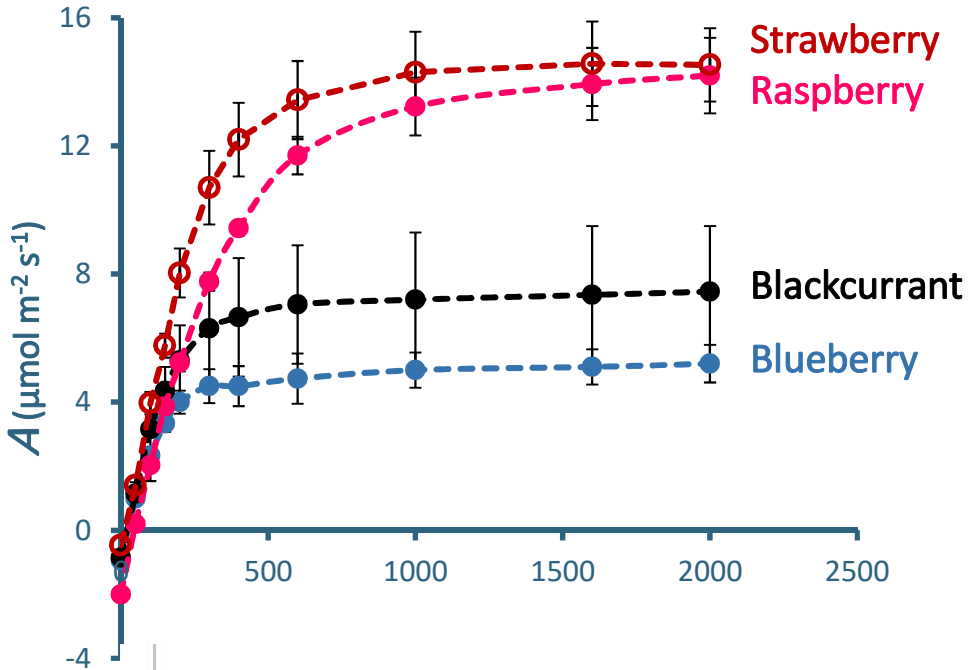


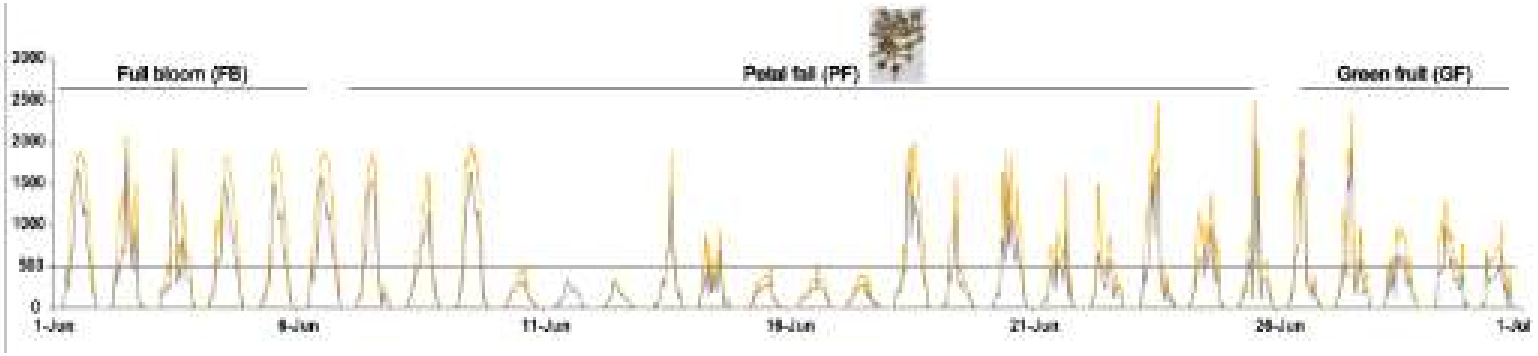
- Yield instability results from 'catastrophic' environmental events
  - Frost damage
  - Pests and disease
- Yield instability results from 'subtle' environmental limitations

Examples of Impact

SEFARI

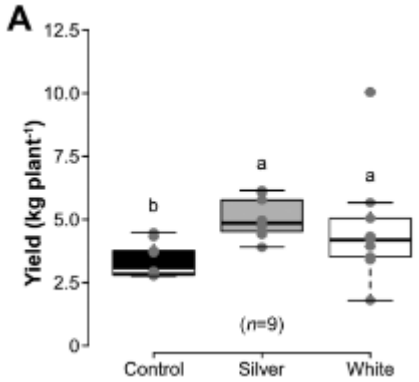
Enhancing Yield Stability in Blueberry





Examples of Impact

Enhancing Yield Stability in Blueberry



~50% increase in fruit yield

Examples of Impact

SEFARI

Enhancing Yield Stability in Blueberry

- Increased crop value of ~£15K per hectare per annum
- Full scale application grower holdings in 2019
- Expect further uptake in coming years
- Key breeding targets for improved yield and yield stability identified
- Exploitation via blueberry breeding consortium

Examples of Impact

SEFARI

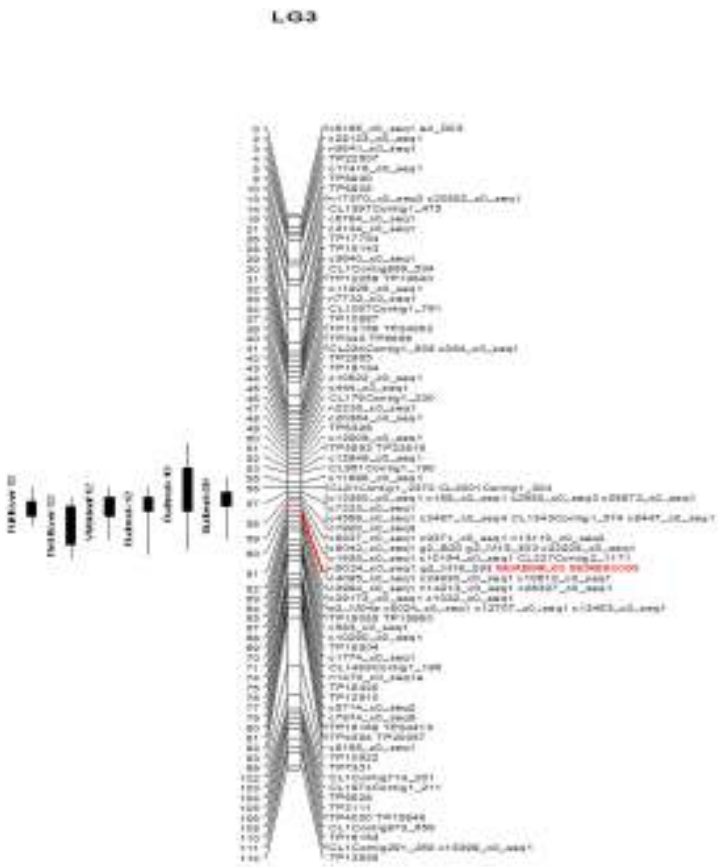
Improving Dormancy Break in Blackcurrant

- UK blackcurrant production is almost exclusively for Ribena
- Value at farm gate ~£10M (Ribena ~£140M)
- Biggest threat to UK production is uneven bud break caused by milder winters

Examples of Impact

Improving Dormancy Break in Blackcurrant

- Defined new, cultivar specific models of bud burst
  - Identification of most appropriate cultivars for future production – industry resilience
- Defined use and efficacy of key dormancy breaking treatments
  - Continuity of high quality cultivars
- Mapping of genes associated with dormancy release onto new GbS linkage map of a high x low chill mapping population
  - Future proofing through the release of better adapted cultivars



Future Impact

SEFARI

- A key challenge is stability of productivity under a changing climate
  - Cherry June drop
  - Bud break
  - Crumbly fruit disorder
  - Blueberry yield instability
- Complex phenotypes controlled by multiple genes interacting with environment
- RESAS funds appropriate mix of skills to tackle these industry issues

ADVANCED PLANT GROWTH CENTRE

Thank you

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