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Protecting Global Food Supply Chains

Debbie Rees

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- NRI multi-disciplinary centre of excellence
- Food security, sustainable development and poverty reduction.
- Focus on storage and movement of perishable food
- Food supply chains technically more challenging:
  - Populations increasingly urbanised.
  - International trade in perishables increasing.
- We have built a UK based research on postharvest handling of fresh produce to support our international programmes

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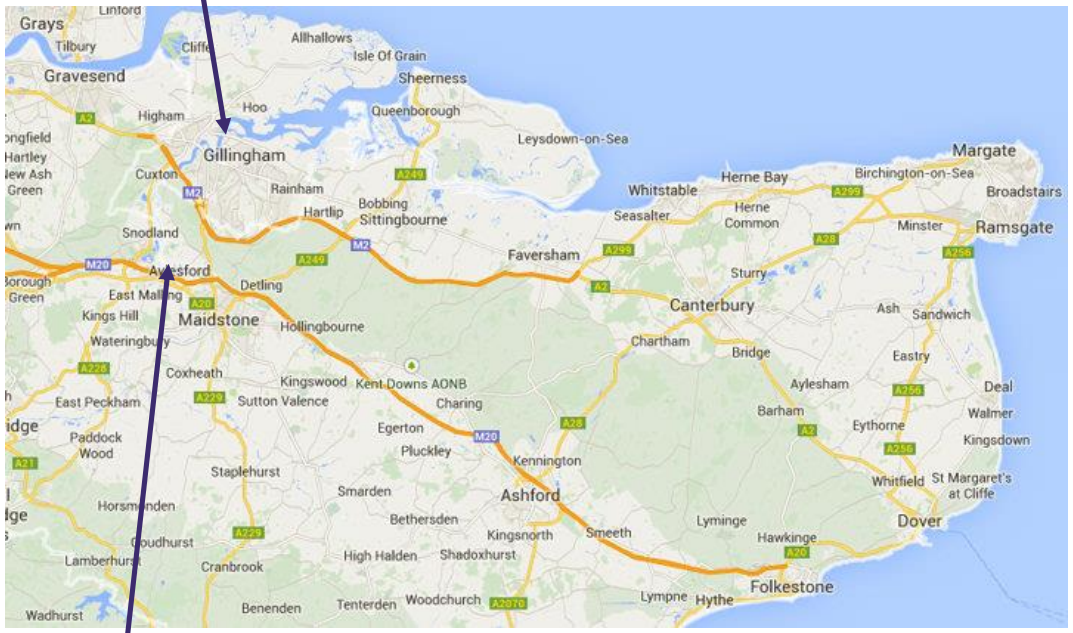
Produce Quality Centre



NIAB EMR

Set up as a joint initiative between NRI, University of Greenwich and NIAB East Malling Research

Benefitting from the complementarity of the two organisations

Opportunity for better more cost-efficient facilities

Together providing the widest range of expertise and the best facilities for post-harvest research in the UK

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Jim Mount facility at East Malling Site

State of the art storage research facility

- 10 large temperature controlled rooms
- More than 50 chambers with independent atmospheric control

University taking over full management and providing investment into this key facility

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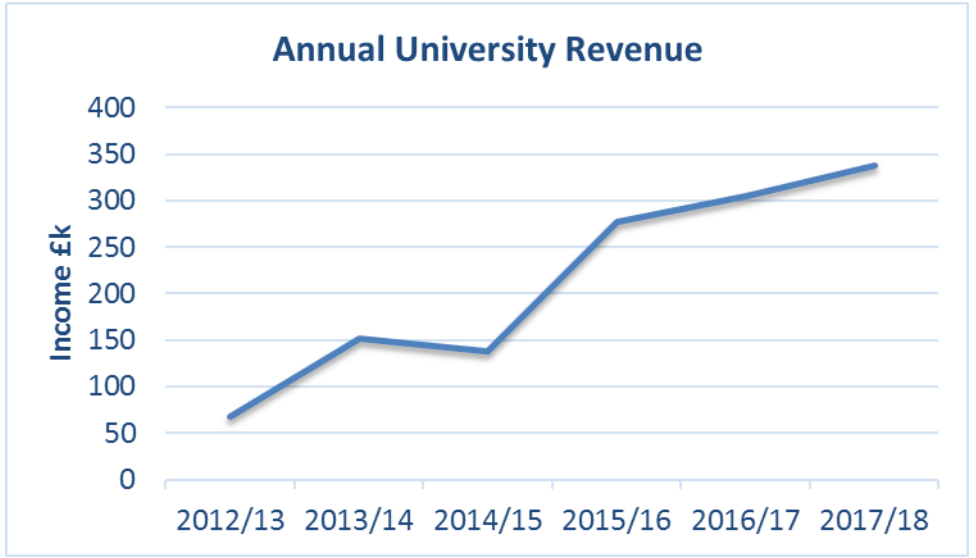
PQC: the first five years

- Supporting UK growers
- Working with commercial companies
- Developing research collaborations with the leading UK and International research groups



Annual University Revenue predicted to rise to more than £650K by 2020

Current value of contracts held by NRI >£ 800K

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Supporting UK growers

We have become a major provider
Of postharvest support to the
Agriculture Horticulture Development Board
across a range of sectors

AHDB HORTICULTURE

AHDB POTATOES

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Supporting UK apple growers

CA Storage

Storage life extended by low O_2 (and high CO_2)

Working with the UK apple/pear industry to optimise storage regimes for established and new varieties

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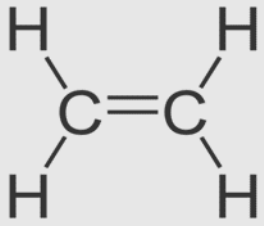
Supporting UK broccoli growers



Ethylene is a gaseous plant hormone controlling many processes important for storage quality
Ripening, sprouting, senescence

UK Broccoli production >£30M pa, high losses (£3M) during storage
Reducing losses through ethylene control
Predicting storage life through chlorophyll fluorescence sensor

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Supporting UK pumpkin growers

UK pumpkin market £15M pa, growing 20% pa.

Losses 15-20% = £2-3M pa

PQC project identified main rots and reducing rots through improved field management

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Working with commercial companies

Dynamic CA Storage

Technologies to directly detect low O_2 stress to allow lower O_2 storage

PQC working with industry to test and develop new DCA technologies

£160M stored top fruit in UK
Losses £12 – 20M pa
Estimated savings by DCA £6-10M pa

Sainsbury's

SCS LTD
STORAGE CONTROL SYSTEMS

AgriTech

AVALON
PRODUCE LIMITED

AC Goatham & son
Our future is growing

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Working with commercial companies

Using ozone for microbial control and quality retention.

100 – 300 ppb ozone in the storage atmosphere extends storage life of cucumber, peppers, grapes.

Industry needs honest impartial scientific support

thanet earth

BARFOOTS fresh thinking

onnic International

SOMNIO GLOBAL

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Southern SALADS share the passion

Working with commercial companies

Knowledge transfer partnership with Southern Salads Ltd to improve quality of cut lettuce

Estimated benefit of successful project >£1M

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Developing research collaborations with the leading research groups: Potato

LINK collaborative research

Ethylene control of sprouting in potato
Led by UoG,
James Hutton Institute, AHDB

BBSRC bioscience for the future

Dormancy control in potato and onion
Imperial College, Cranfield University,
James Hutton Institute, UoG

AHDB POTATOES

Potato Fellowship to improve processing quality
R Colgan, C. Carvalho

Research income and high impact publications

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PQC: Into the future

PQC makes an important contribution to NRI, strengthening its position as world leader in postharvest technology and loss reduction – European work complementing award-winning international work.

Ambitious plans to grow revenues (>10% per annum); focus on larger projects.

Scientific quality – high quality outputs, high quality funding streams

Opportunity for PQC to be a focal point for a regional initiative on **Food** that could engage other parts of the University (Business , Engineering and Science).

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