
The University of Nottingham Farm

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Overview

- What have we been doing?
- Why do we have a Farm?
- Key facts and where is it?
- Who works there?
- What do we produce?
- How do we produce it?
- How is the farm used for research?
- How is the farm used for teaching?
- The Farm Review
- Next steps



What have we been doing?

- Replace robots
- Expand youngstock housing
- Meet 'NVZ' regulations (slurry storage)
- Herd Health Management and Vet School provision
- VAT!
- Recruiting!
- Farm Review



Why do we have a Farm?



Research



**Teaching &
Demonstrating**



Business

Key Facts

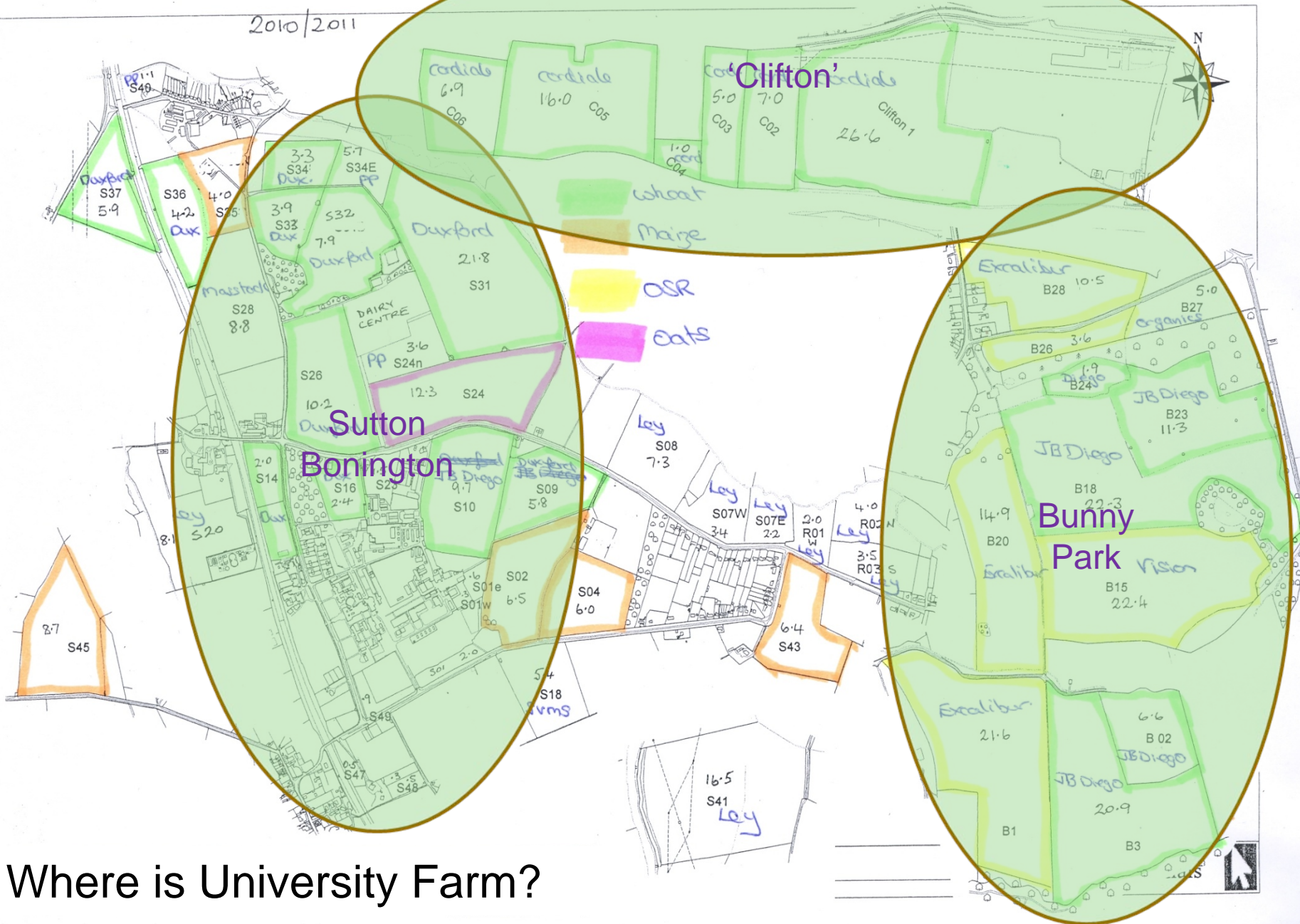
- Size: 445 hectares
- Three sites
- Precipitation: 600 mm
- Combinable crops
- Cows and followers:
Holsteins
- Stewardship
- Research & teaching
- Turnover ~ £1.1m



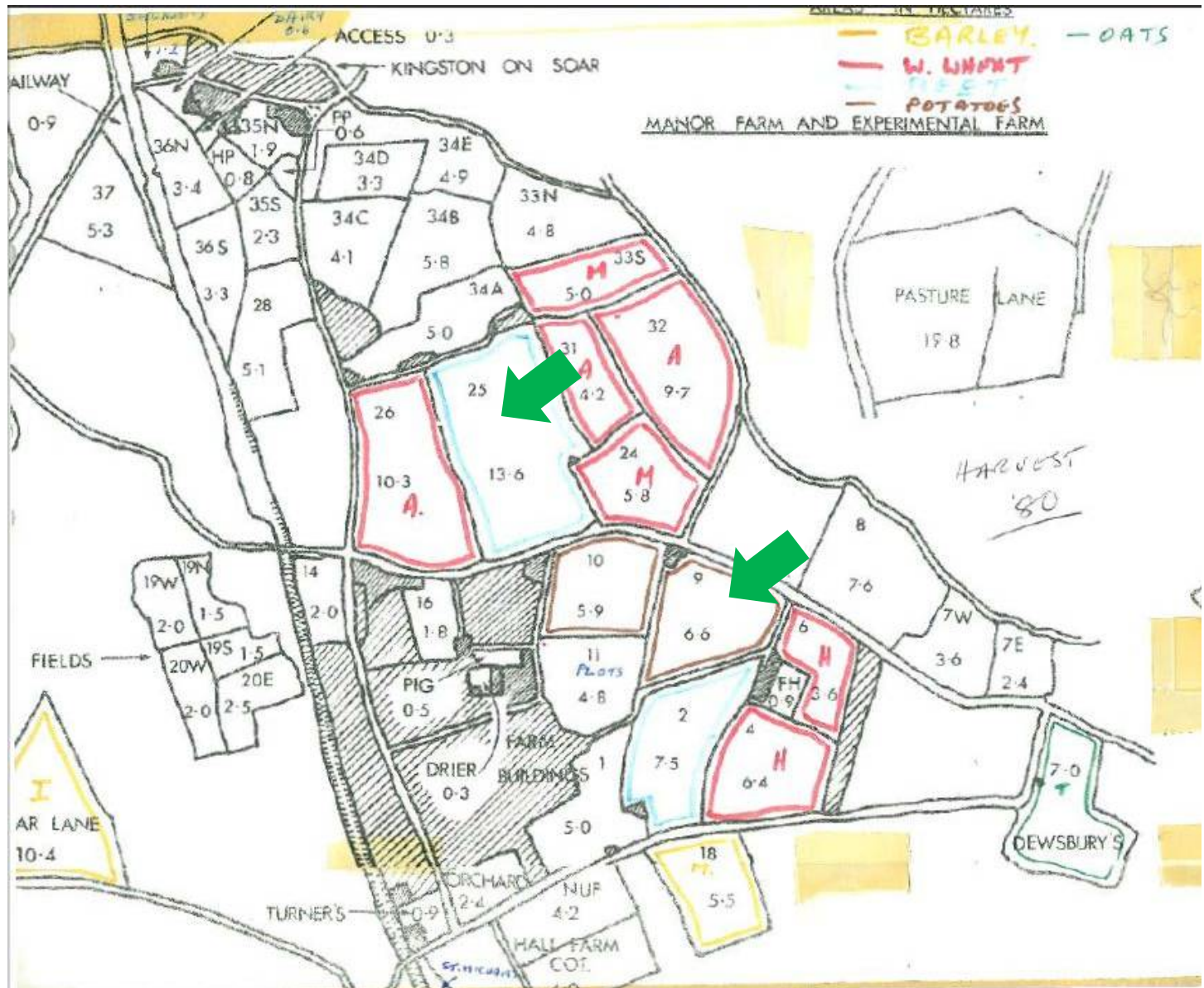
Key Facts - soils

- *Wick Series* – loamy and sandy soils over gravel
- *Dunnington Heath Series* – reddish course & fine loamy over clayey soils
- *Fladbury Series* – stoneless clay soils
- Bunny: DH, FS + Worcester: reddish clay over mudstone
- Clifton: Wharf Series: loam over gravel

2010/2011



Where is University Farm?



Sutton Bonington: 1980

Sutton Bonington: 2007



Bunny Park



‘Clifton’



Who work[ed]s there?

- Will Donger and Maggie Somerfield
 - Jon Clatworthy: Farm Manager
 - Nigel Armstrong: Herd Manager
 - Irmantas Norkus: Herdsman
 - Krzysztof Sek: Herdsman
 - Inge Norkus: Dairy Technician
 - Lucy Shaw: Farm Secretary (PT)
 - James Beeby: Contract
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What do we produce? Arable 2010



Crop	Tonnes	Five-year yield (tonnes per ha)
Forage Maize	1470	43
First Winter Wheat	1228	8.9
Straw	530	4.0
Winter Oilseed Rape	236	3.3
Second Winter Wheat	162	8.1
Winter Barley	151	7.1
Winter Beans	142	2.9
Winter Oats	99	6.5



What do we produce? Dairy 2011

	Total
Cows	174
In milk	153
Annual milk production	2m l
Daily milk production	5,300 l
Daily milk yield per cow	35 l
Milk price per litre	£0.3
Milk sales per year	£566,000
Concentrates per litre	360 g
Margin over all feeds per litre	£0.17
Margin over all feeds for the herd	£332,000



Environmental Management & Stewardship

- The farm is in a 'Nitrate Vulnerable Zone' (NVZ)
 - Organic land - 5 hectares
 - Stewardship - 16 hectares of field margins, corners, beetle banks and ponds
 - Maintenance of 'Good Agricultural and Environmental Condition' (GAEC)
 - Woodland - 18 hectares of mature woodland at Bunny Park
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How do we produce our crops and milk?

Within constraints, improve 'gross margin' contribution to overhead costs

Reduce overhead costs (per tonne and per litre) where possible

How do we produce our crops?



Second Hand
1.5 ha per hr
GPS controlled

Minimum Cultivation
2 ha per hr
GPS controlled





How do we produce our milk?



Where does the milk go?

- Tesco

- 'Arla Contract'

- Circa 5000 litres per day

- Base: 27.3ppl +

- Volume: 0.7ppl +

- Bacteria 0.8ppl +

- SCC 0.6ppl +

- 'Promar' 0.5ppl

- Total ~ 30 ppl

The Tesco logo, featuring the word "TESCO" in red capital letters above three blue diagonal stripes.

Welfare

- Cows kept indoors
- Large, open building
- Access to clean feed
- Access to milking
- 'Cow brushes'
- Ventilation & cooling
- Mattresses
- Rubber flooring

“How well cared for and healthy, clean and better milk producers the cows were”



Examples of research at the Dairy

- Reducing methane emissions
 - Dairy cow fertility
 - Oestrous detection
 - Distillers grains (bioethanol)
 - Reducing lameness (joint with SVMS)
 - Knowledge Transfer (DairyCo)
 - Microbial Fuel Cell
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Microbial Fuel Cell

University Farm produces ~
11m litres of slurry per year

NVZ regulations: must have 5
months storage capacity – 2012

Turn it into methane?
(Anaerobic Digestion) But
standard model uses maize

Turn it into hydrogen: *Microbial
Fuel Cell*

Hydrogen and electricity
Reduced 'COD'
Fertiliser



Thanks to Laura Porcu and John Andresen

Mullerup Smart Feeder



Examples of Research in Crop Science

- Drought tolerance
 - Wheat 'ear fertility'
 - 'SAFEMalt'
 - Disease control and management
 - Ancient cereals
 - Biofuel from straw
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SAFEMalt

- **“Protecting the malting and brewing quality of UK barley cultivars through effective control strategies against Fusarium head blight (Co-funded by the Technology Strategy Board, BBSRC, Velcourt Group, Syngenta, Openfield and SABMiller)**
 - http://www.nottingham.ac.uk/~sbzcer/research_food.html
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Crop Trials (Field S10)



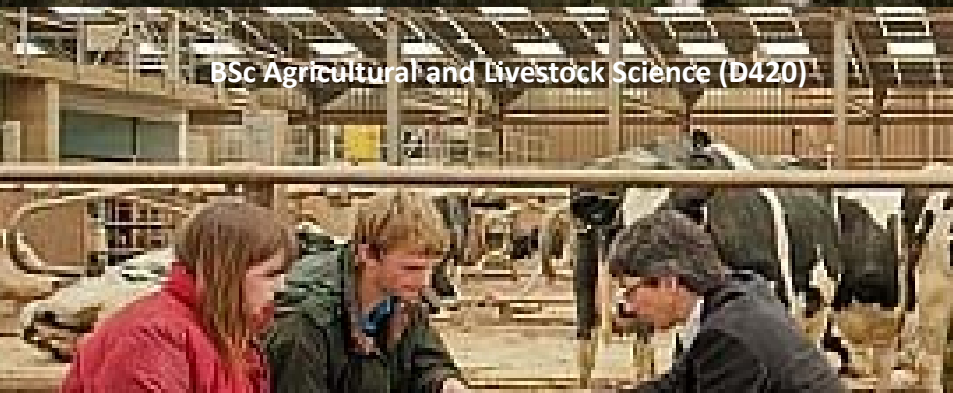
How is the farm used for teaching and students? Some examples

- Business Management: Management Consultancy
- Animal Science: Livestock Production Science
- Crop Science: Crop Management Challenge
- Research Projects
- H&S training for students
- New degrees...





BSc Agriculture(D400)



BSc Agricultural and Livestock Science (D420)



BSc Agricultural and Crop Science (D409)

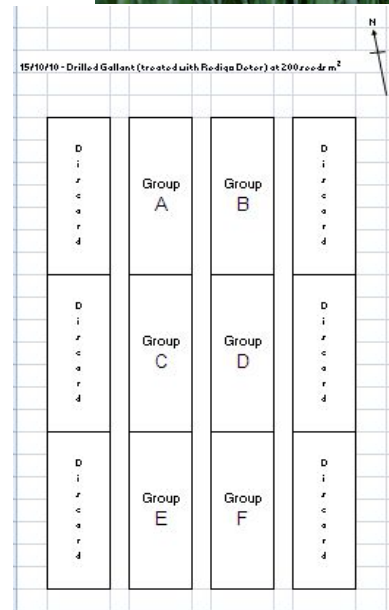


BSc Agricultural and Environmental Science (DF47)



Crop Management Challenge

- Teams grow a 'field' of wheat
- How much nitrogen?
- Disease, pest & weed control
- Timing
- Marketing



The Farm Review

"The report's terms of reference were to consider the importance of University Farm to the School of Biosciences, particularly in its role as a resource for teaching and research"

Move the emphasis more to research and teaching

Different types of livestock?

More land?

Make more of 'Farm to Fork'

Get farm staff more involved in teaching

"Improve Communication"

Less slurry on trial plots

Next steps

- Welcome new Farm Manager, Jon Clatworthy
 - Grain storage!
 - Engage with teaching and research community
 - Consolidate new degrees and teaching
 - Evaluate opportunities (AD?) and threats (CAP?)
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Our Vision: from the 'Impact' campaign

Many universities and research centres have closed or scaled down their farm-based facilities. In contrast, we have invested in infrastructure...

In response to increased interest from young people in Agriculture as a degree, we have introduced new Agricultural BSc programmes

Our research programmes in crops and livestock are expanding and increasingly we are addressing the problem of how to produce *more* food in a way that is *more* sustainable

To do this we need to understand how agricultural systems work and acknowledge that there are trade-offs between different objectives

New technologies ...have the potential to reduce pollution and improve yields through more accurate application of vital nutrients such as nitrogen fertiliser

University Farm is the 'laboratory' that allows us to do this research and test these technologies

Thank you

Any questions?

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