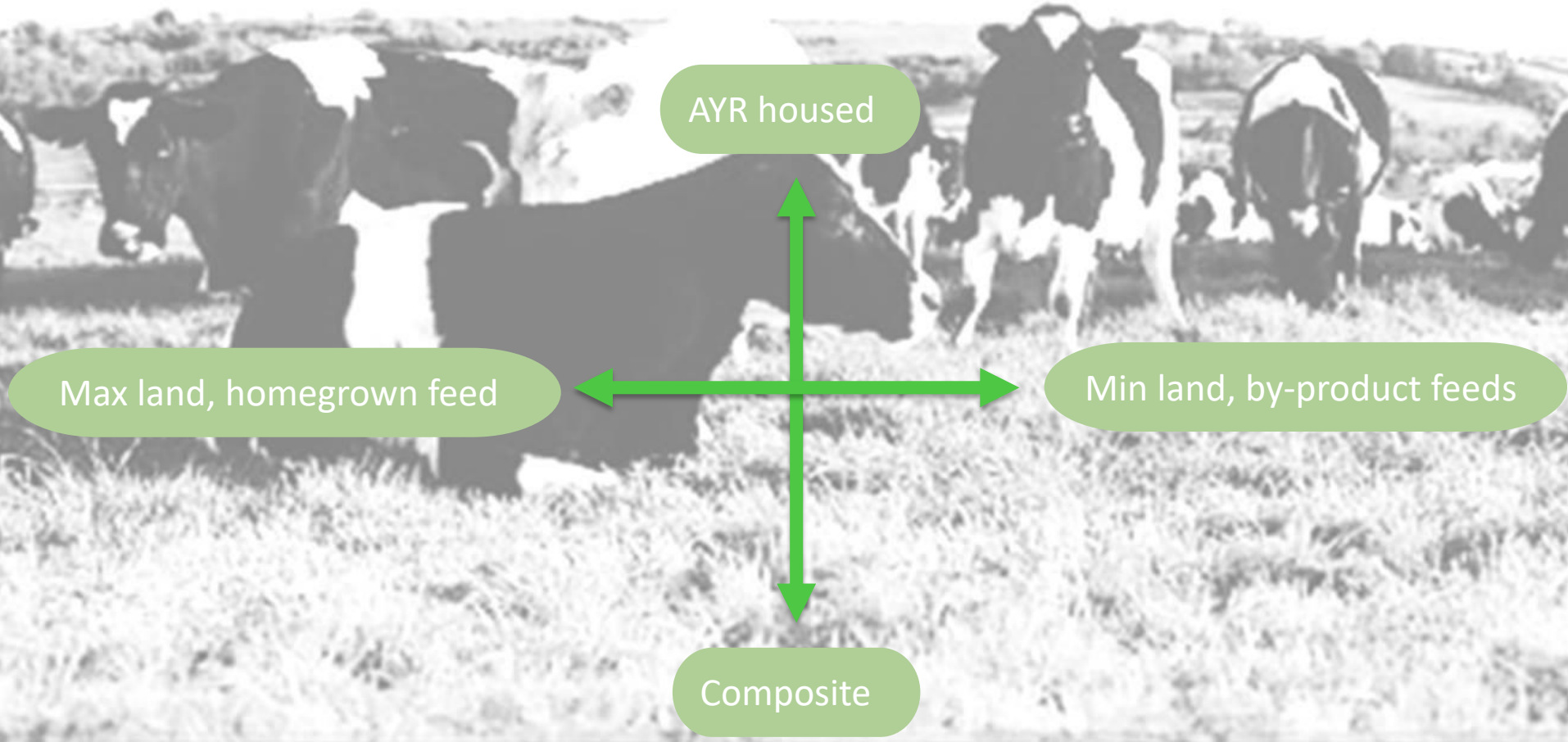
SRUC

Financial and environmental modelling using SRUC Dairy Systems data

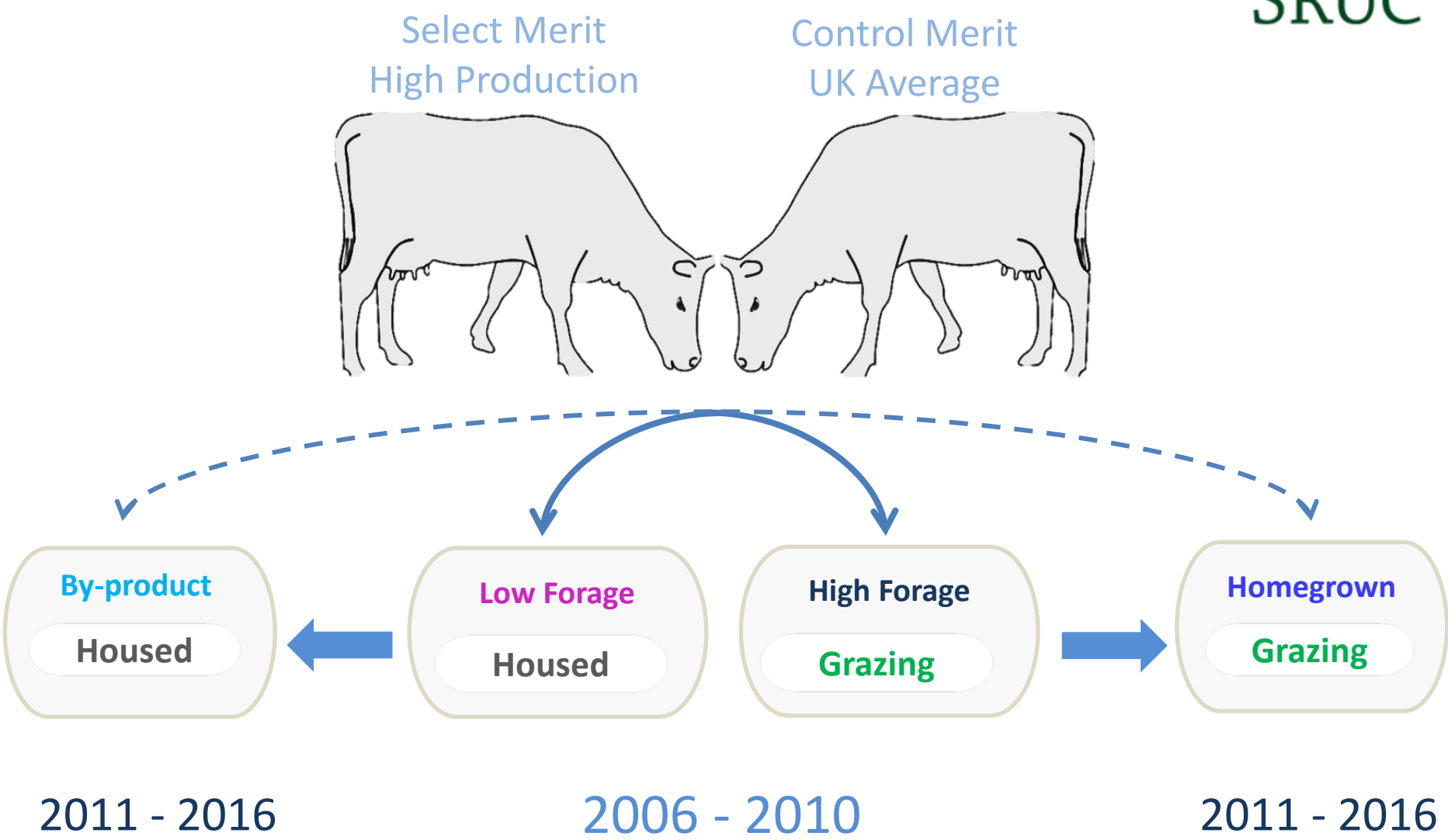
Leading the way in Agriculture and Rural Research, Education and Consulting

Todays talk

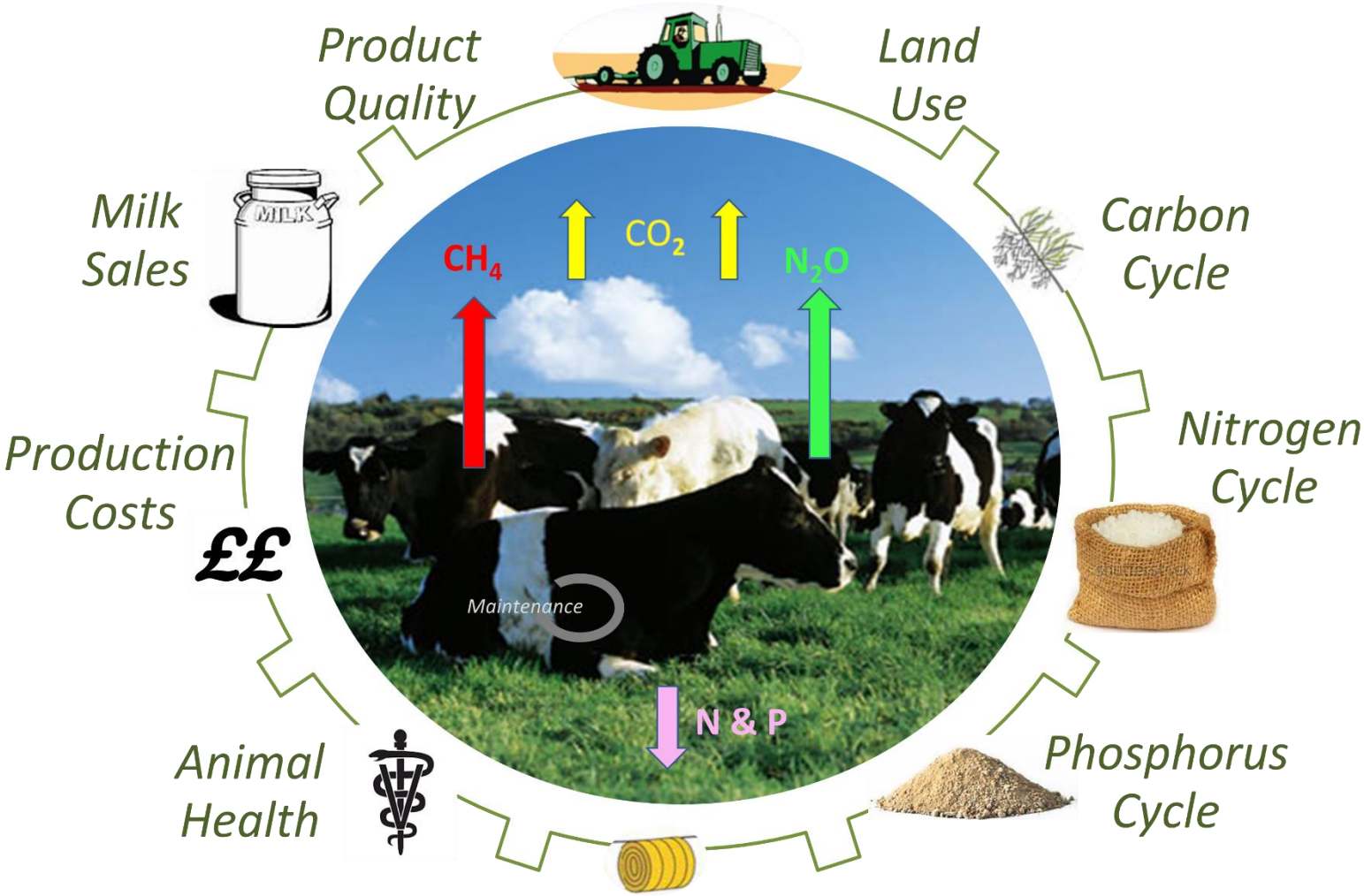
- Range of SRUC dairy management systems
- Environmental, financial & health indicators



Dairy systems: Crichton Royal Farm



Dairy system indicators

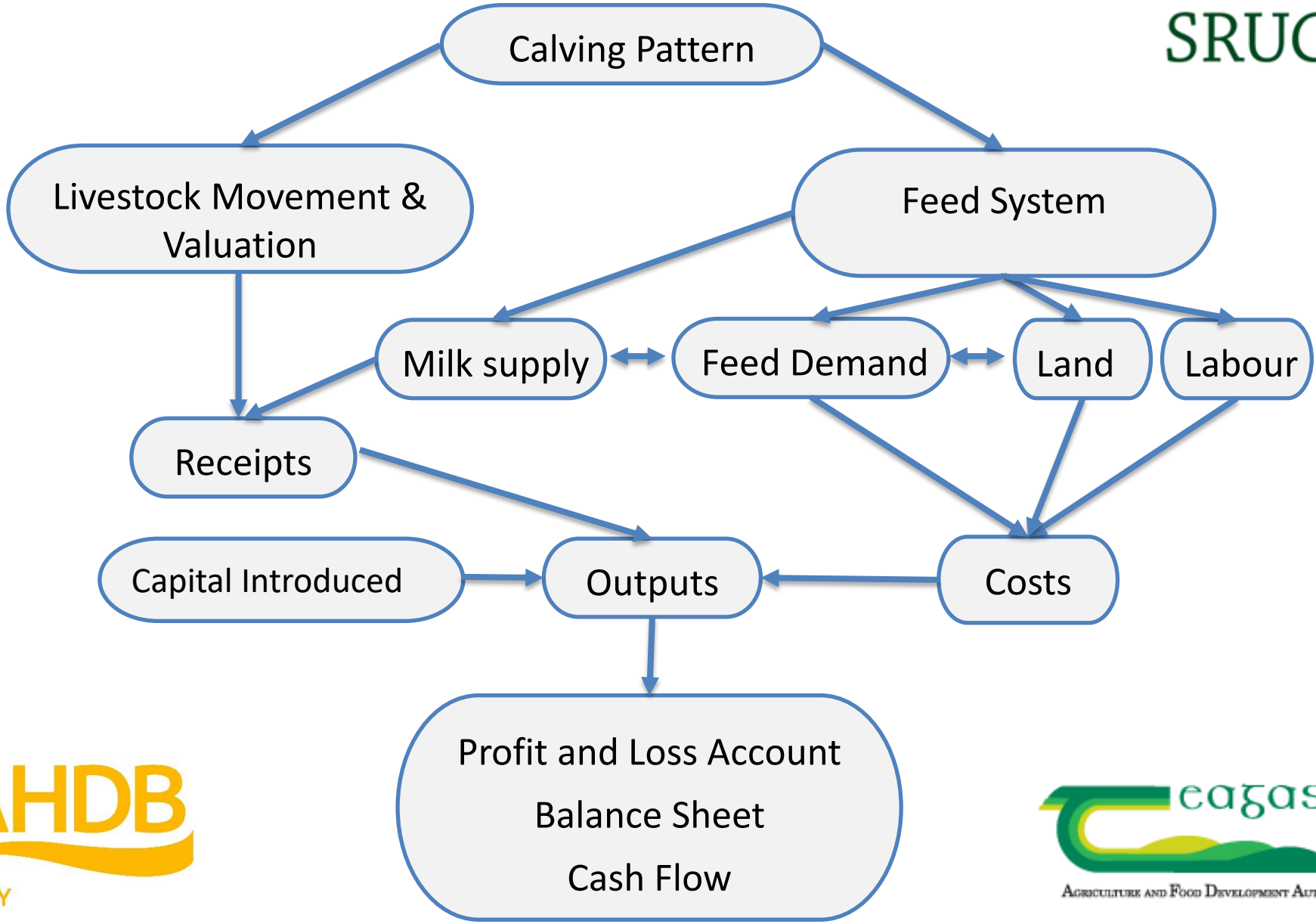


System Herd Parameters

System	HFC	HFS	LFC	LFS
Avg. milk yield kg / cow	6833	7575	8824	10553
Butter Fat %	3.81%	4.01%	3.62%	3.87%
Protein %	3.15%	3.29%	3.08%	3.31%
Replacement rate	0.30	0.32	0.30	0.32
Total grazed grass / cow	1650	1815	0	0
Total kg DM silage / cow	2173	2311	2085	2353
Total kg DM maize / cow	678	723	623	709
Total kg DM concentrate / cow	1288	1334	3813	4309

LF=Low Forage Diet HF=High Forage Diet C=Control S=Select

Financial modelling



Shalloo *et al.*, 2004 JDS 87 1945-1959

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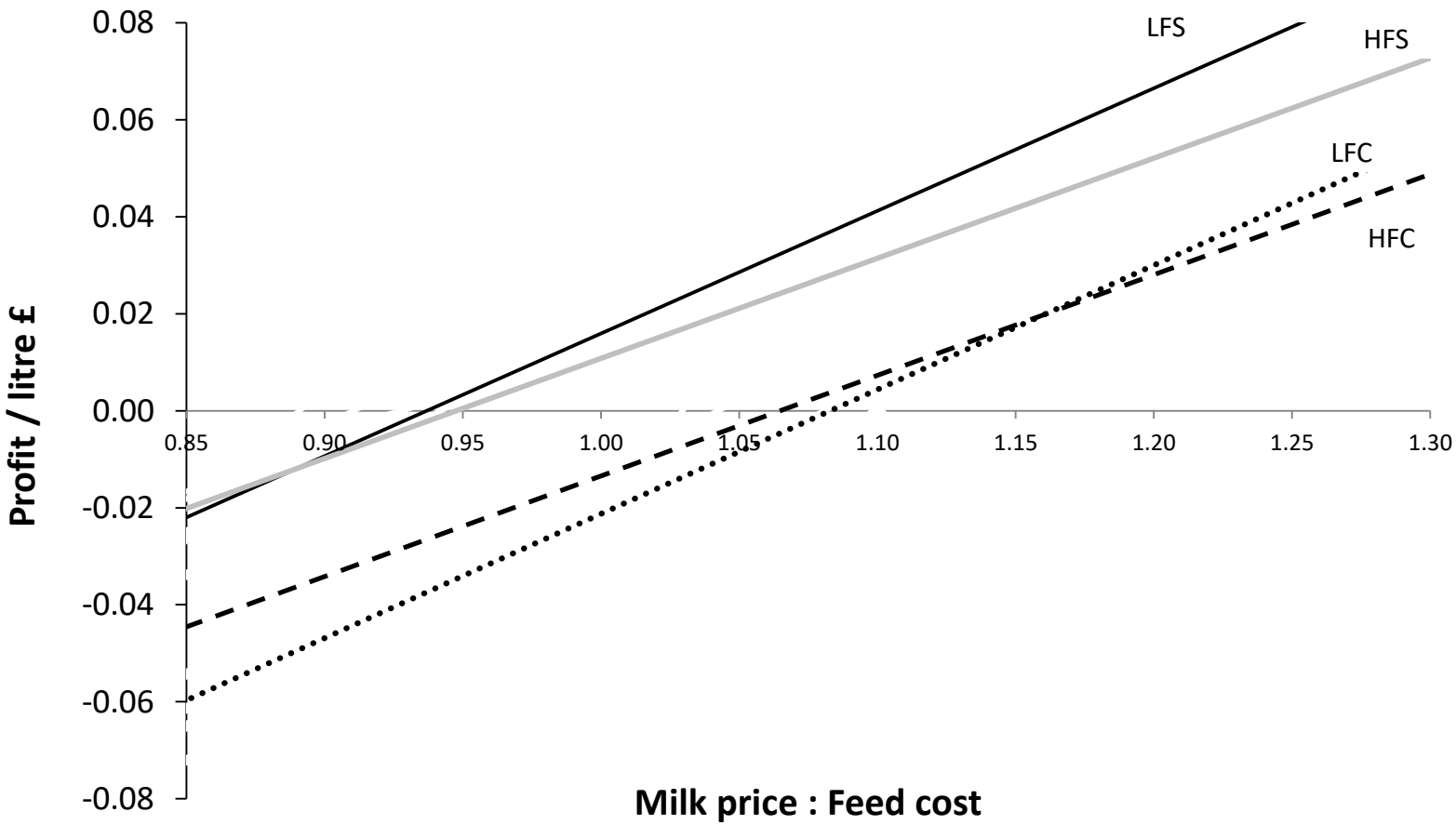

Contents lists available at ScienceDirect

Livestock Science

journal homepage: www.elsevier.com/locate/livsci

Financial evaluation of Holstein Friesian strains within composite and housed UK dairy systems

Environmental Indicators: Methods

Imported feeds, fertiliser, bedding, fixation, deposition

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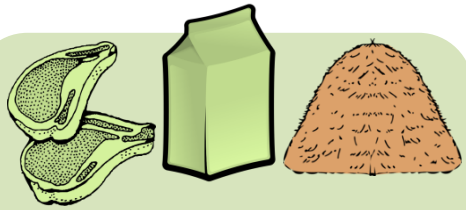

Milk, meat, manure, crop products

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N Surplus

Imported feeds, fertiliser, bedding

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Milk, meat, manure, crop products

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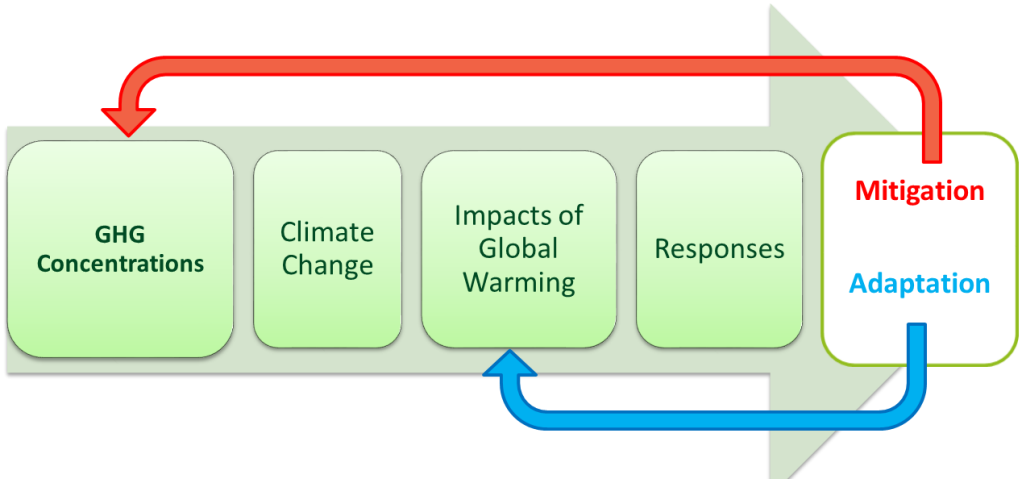
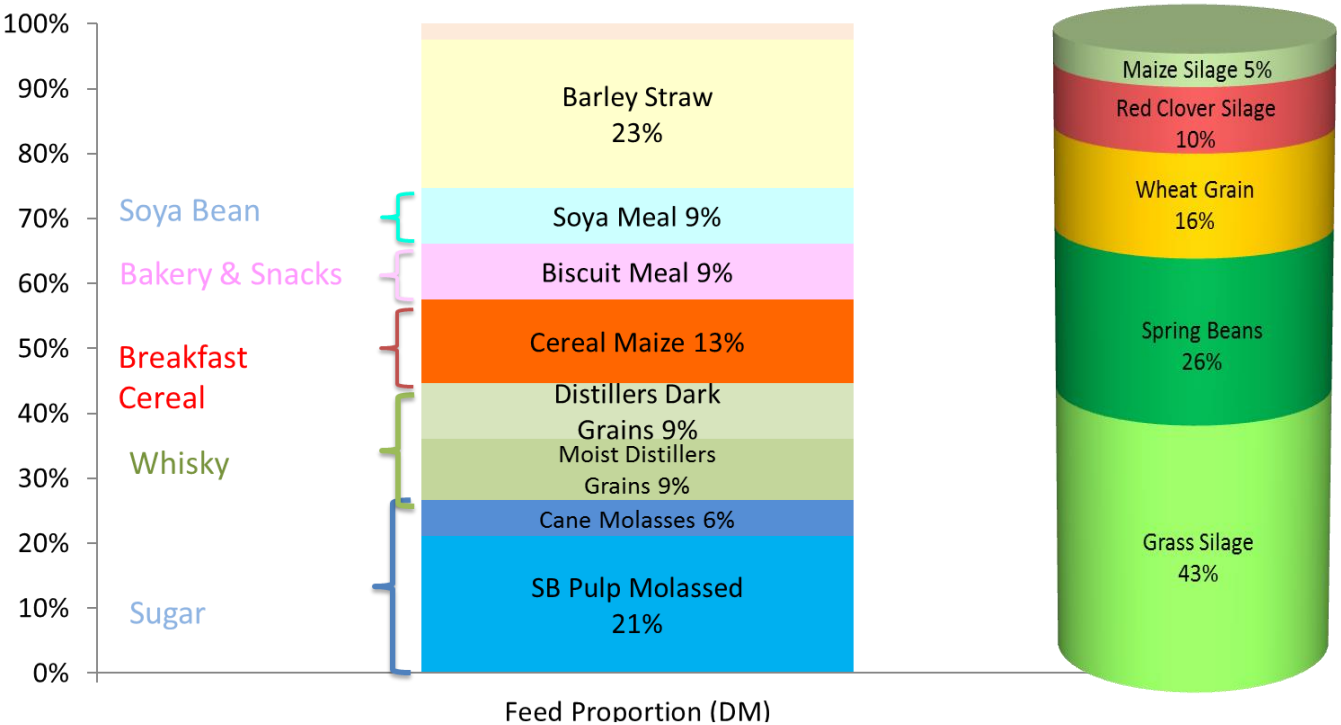
P Surplus

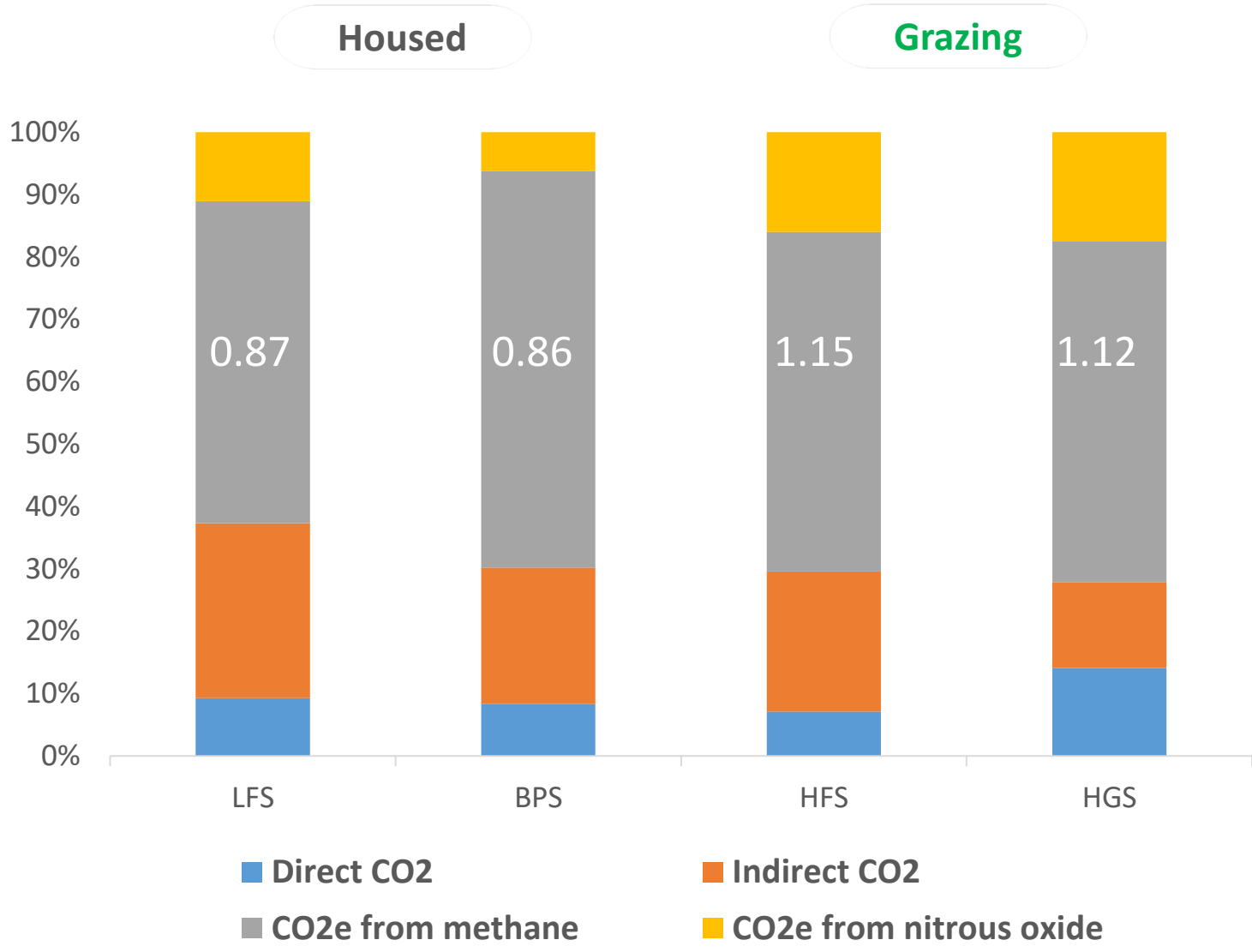


Novel systems: By-product & Home Grown

	By-product		Home Grown	
	Control	Select	Control	Select
Herd size	51	53	55	55
Body weight (kg)	632	663	611	651
Daily yield (kg)	29.7	34.6	23.2	25.1
Butterfat %	3.3	3.5	3.6	3.9
Protein %	3.1	3.2	3.2	3.4
Yield / cow (kg)	8,495	10,255	6,461	7,477



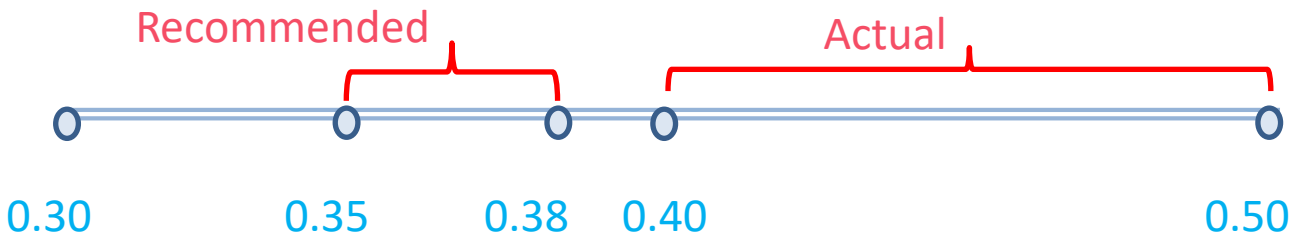
Dairy system GHG emissions / kg output



LF=Low Forage HF=High Forage BP=By-product HG=Home-grown C=Control S=Select

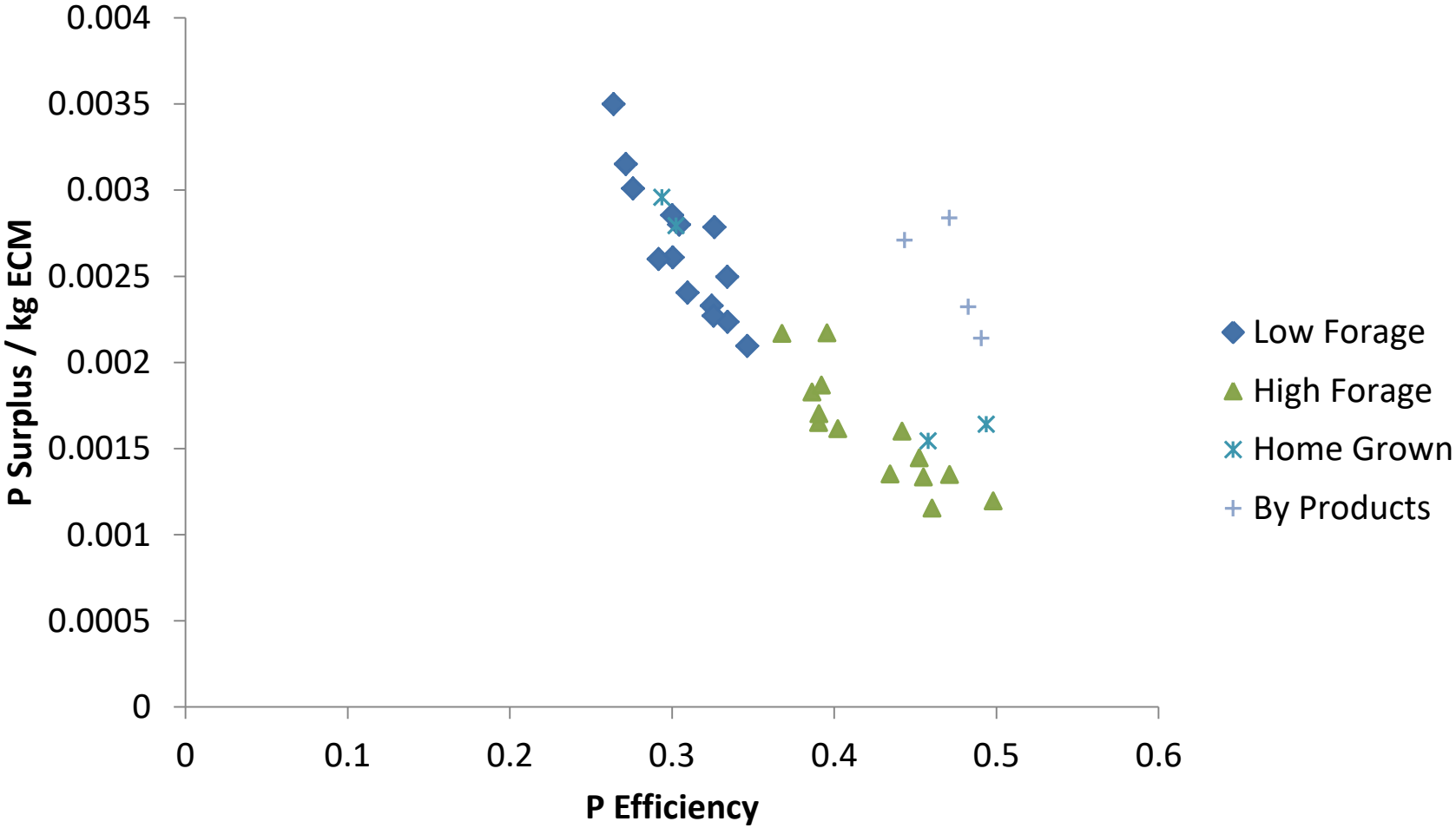
Phosphorus in SRUC diets

Diet	Dry Matter Intake (kg/day)	Phosphorus Intake (g/day)	Phosphorus % DM Intake
By-product	23.3	96.9	0.42
Low Forage	23.6	93.0	0.39
High Forage	21.2	79.7	0.38
Home Grown	20.9	81.8	0.39



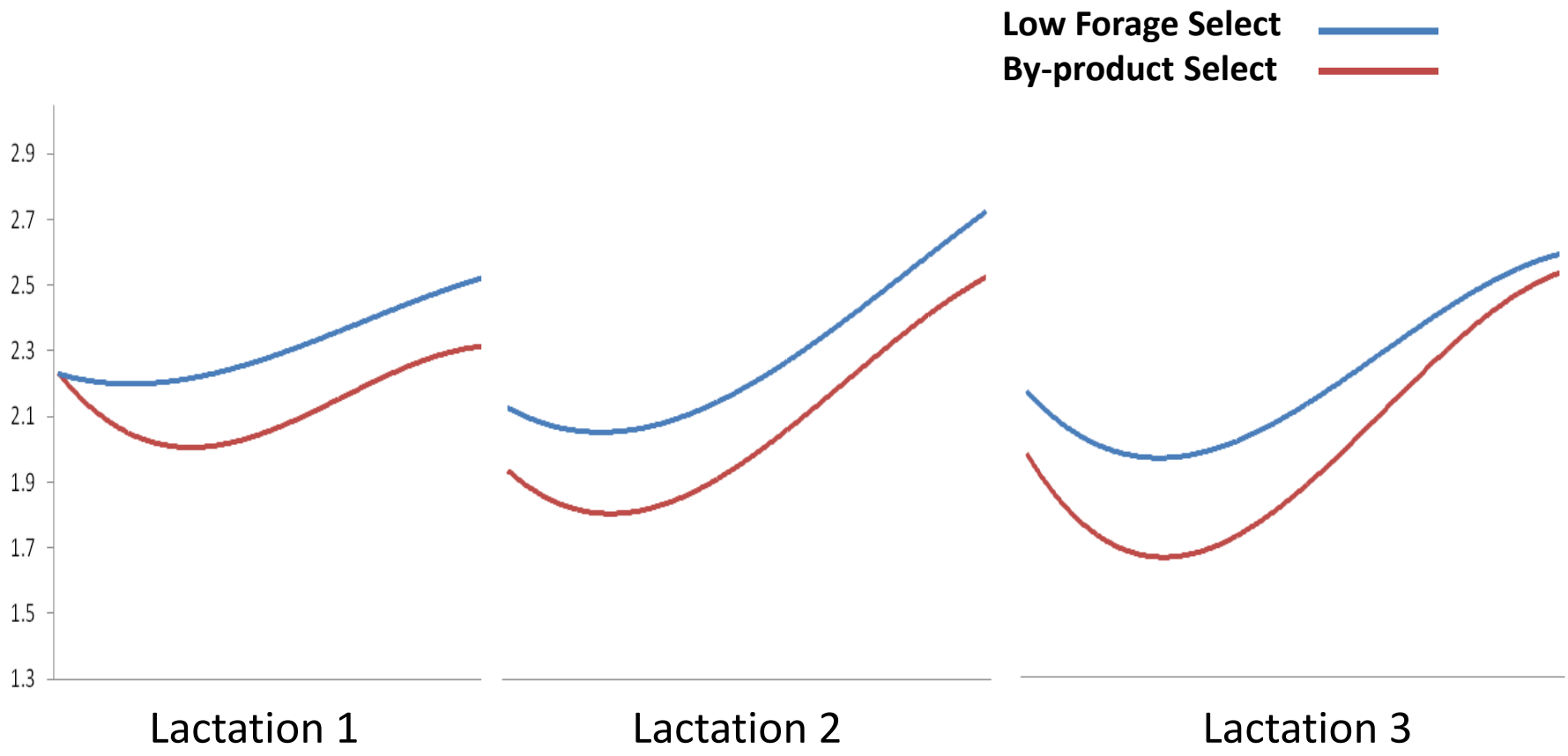
Wu & Ishler (2002)

P Efficiency Analysis



- Select more efficient than Control
- BP Manure Export
- Arable farming areas

Body condition scores



Lower averaged weekly BCS for Select merit cows in the By-product system

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Thank you for your attention.

Any comments or questions?

SRUC receives funding from the Scottish Government

Thanks to staff and technicians at Crichton Royal Farm, Dumfries, Scotland and to Ian Archibald database manger

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