Strategic planning of your dairy business

UCD Lyons: Investigating the high yield, high stocking rate option

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Acknowledgements

Team Effort!

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- Dr Bridget Lynch
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- Dr Jenny Davis
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Presentation Outline

- Rationale
- 2016 performance
- What are the key challenges?

Rationale for the System

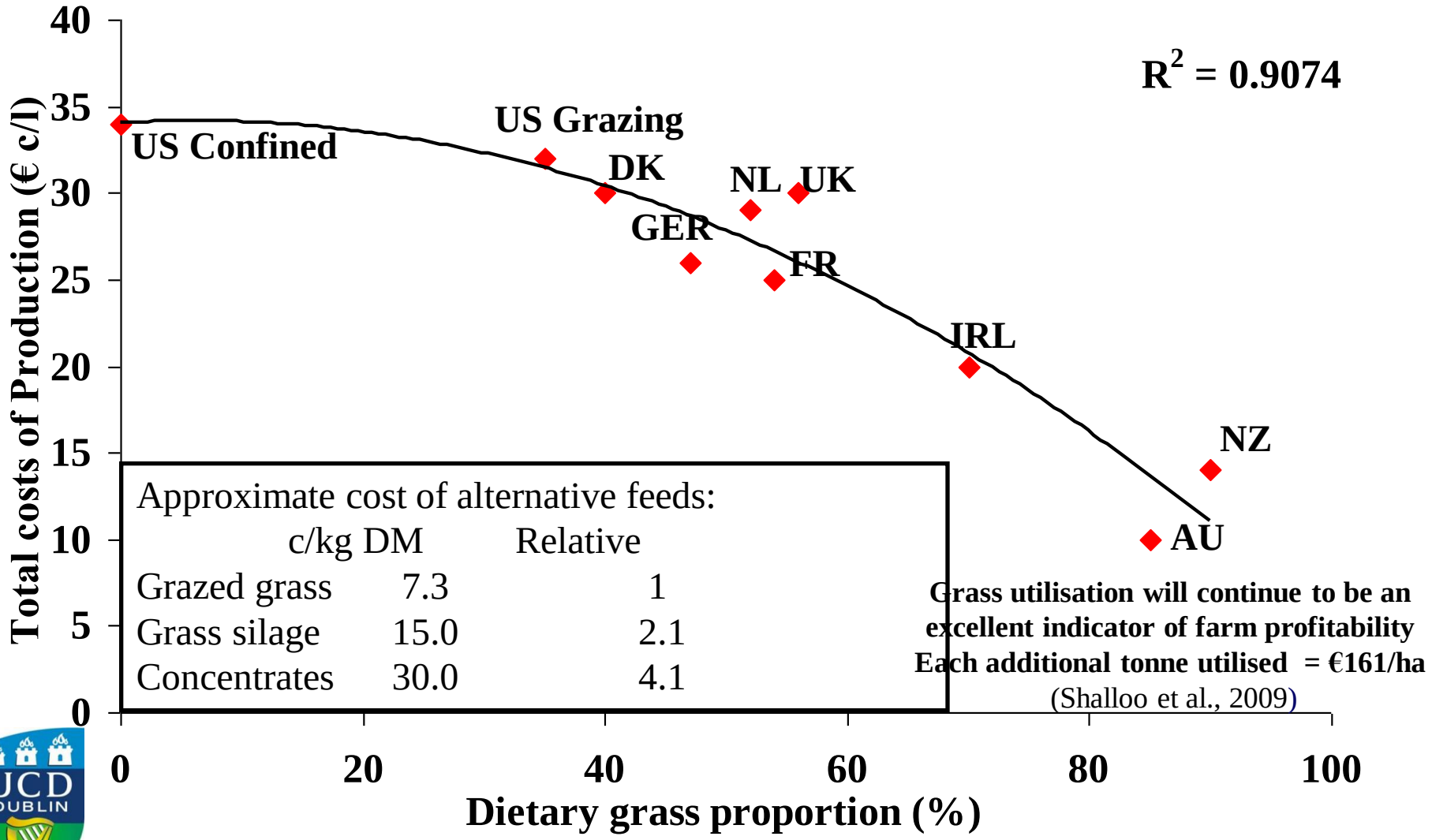
- It is widely recognised that grass based systems will predominate in Ireland post quota abolition

Challenges Post Quota

- Restricted/Fragmented land holdings
- Labour
- Environment
- Profitability
- Cost of Expansion
- Sustainability

Grassland Systems Will Predominate

Increased grazed grass proportion in the animal diet decreases milk production Costs - reducing feed, labour and capital investment costs



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Land as a Limiting Factor

- A limiting factor to expansion on many dairy farms is the availability of land around the milking platform (MP)
- eProfit Monitor data for spring milk producers (Ramsbottom 2016, per comms) indicates that the average MP is 43ha and stocking rate on the MP is 2.54 cows/ha (2.2 cows/ha whole farm)
- Farm fragmentation - the average farm in Ireland consists of 3.5 land parcels (O'Donnell, 2014)
- Survey of Tipperary Co-op suppliers in 2016: every hectare farmers have on the MP, they have another 0.6/0.7 ha away from the MP (Mullane 2016, per comms)
- A higher input – higher output spring calving grazing system may prove to be attractive in such a scenario

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Dairy Systems Research at UCD Lyons

- The main aim of the research at UCD Lyons Farm is to evaluate the feasibility of a higher input/output grazing system within a limited land holding scenario

- Focus: Maximise milk/milk solids output from the existing land holding which involves high output from individual cows and high stocking rates on the MP

- This will occur most efficiently through maximising the use of grazed grass/home grown forage in the system and the strategic use of supplementation thereafter

Dairy Systems

Low input

- Max utilisation of least cost feed
- Competitive resilience
- But may be suboptimal in periods of higher milk prices

But what about the middle ground?

- High solids per ha
- Maintain grass focus
- Moderate use of purchased feed
- Flexibility to adapt input use

High input

- TMR, confinement
- High output
- Scalable
- Reliance on purchased feed
- Risky (ability to cope with volatility)?
- Complexity
- Cost control issues

For farmers that consider such systems what are the KPIs for success?

Targets at Lyons

Parameter	Target
Stocking rate on milking platform	3.4 LU per ha
Stocking rate whole farm	2.25 LU per ha
Milk yield per cow	7,500-8,000 kgs
Milk solids per cow	625 kgs
6 week in calf rate	70%
Concentrate (kg/cow/year)	1,500 kgs
% diet as grazed grass	51
% diet as grazed grass and grass silage	75

60 cows on 17 ha

Genetics of the herd –September 201

	EBI(€)	Milk (€)	Fert (€)	Calv (€)	Beef (€)	Maint (€)	Health (€)	Mgt (€)
High milk	136	46.2	53.3	36.8	-7.0	4.4	0.5	1.4
Low milk	139	43.7	59.2	36.5	-8.4	5.5	0.6	1.4
Average	**137**	**44.9**	**56.3**	**36.7**	**-7.7**	**5.0**	**0.6**	**1.4**
	Milk (Kg)	**Fat (Kg)**	**Prot (Kg)**	**Fat (%)**	**Prot (%)**	**Calv Int (days)**	**Surv (%)**	
High milk	188	11.1	7.8	0.07	0.02	-2.4	2.0	
Low milk	33	10.5	5.4	0.16	0.08	-3.0	1.8	
Average	**110**	**10.8**	**6.6**	**0.11**	**0.05**	**-2.7**	**1.9**	

January 2017
Top 10% = €120
National average: €65

Why that route with genetics?

- Coming from a high output liquid milk HF herd
- Focussed on EBI since the beginning
- ICBF analysis showing potential of EBI

System, herd-size, ***Breed*** * EBI Comparison

System & EBI	Herds	Calvings	EBI	CI Days	6 week rate	Days calve 50%	MS/cow/day	Milk ppl	Milk value
Spr, 150 & BW	**408**	**178.3**	**€149.7**	**379.7**	**66.9**	**29.8**	**1.26**	**31.06**	**€4.99**
Top 10%	120	201.9	€179.7	372.8	74.2	25.0	1.28	32.26	€5.11
2	79	174.6	€159.1	374.7	70.3	26.7	1.29	31.29	€5.13
3	36	177.8	€149.8	376.8	68.1	29.3	1.26	30.93	€4.95
4	43	190.7	€143.7	383.5	63.3	34.0	1.26	30.72	€4.98
Mid 50%	27	166.4	€137.0	383.6	64.4	30.0	1.31	30.56	€5.19
6	24	158.5	€131.5	392.4	57.1	38.7	1.17	30.06	€4.66
7	28	134.6	€124.5	385.7	58.4	36.0	1.20	29.81	€4.70
8	22	137.8	€115.4	393.6	60.4	32.0	1.12	29.74	€4.47
9	16	168.3	€103.4	383.7	57.6	35.1	1.23	30.10	€4.89
Btm 10%	13	179.1	€64.6	396.4	52.5	41.8	1.25	28.90	€5.04
Spr, 150 & JEx	**81**	**245.0**	**€174.7**	**375.4**	**70.7**	**27.5**	**1.23**	**34.46**	**€4.94**
Top 10%	61	252.1	€182.6	374.5	71.6	26.9	1.24	34.80	€5.02
2	12	246.8	€159.1	379.1	70.6	29.1	1.19	33.82	€4.81
3	2	216.0	€152.1	366.2	74.1	24.0	1.17	32.69	€4.71
4	2	173.0	€144.4	370.0	80.0	23.0	1.10	31.16	€4.23
Mid 50%	3	219.3	€136.6	376.1	61.9	33.7	1.14	33.61	€4.54
9	1	64.0	€102.9	408.3	14.0	45.0	1.26	34.16	€4.89
Grand Total	8804	79.5	€129.8	389.4	58.6	36.1	1.21	30.52	€4.87

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Grassland management throughout the grazing season

- Grazed grass is the corner stone of this system
- Grass is measured in every paddock on a Monday morning with a platemeter and covers are entered i
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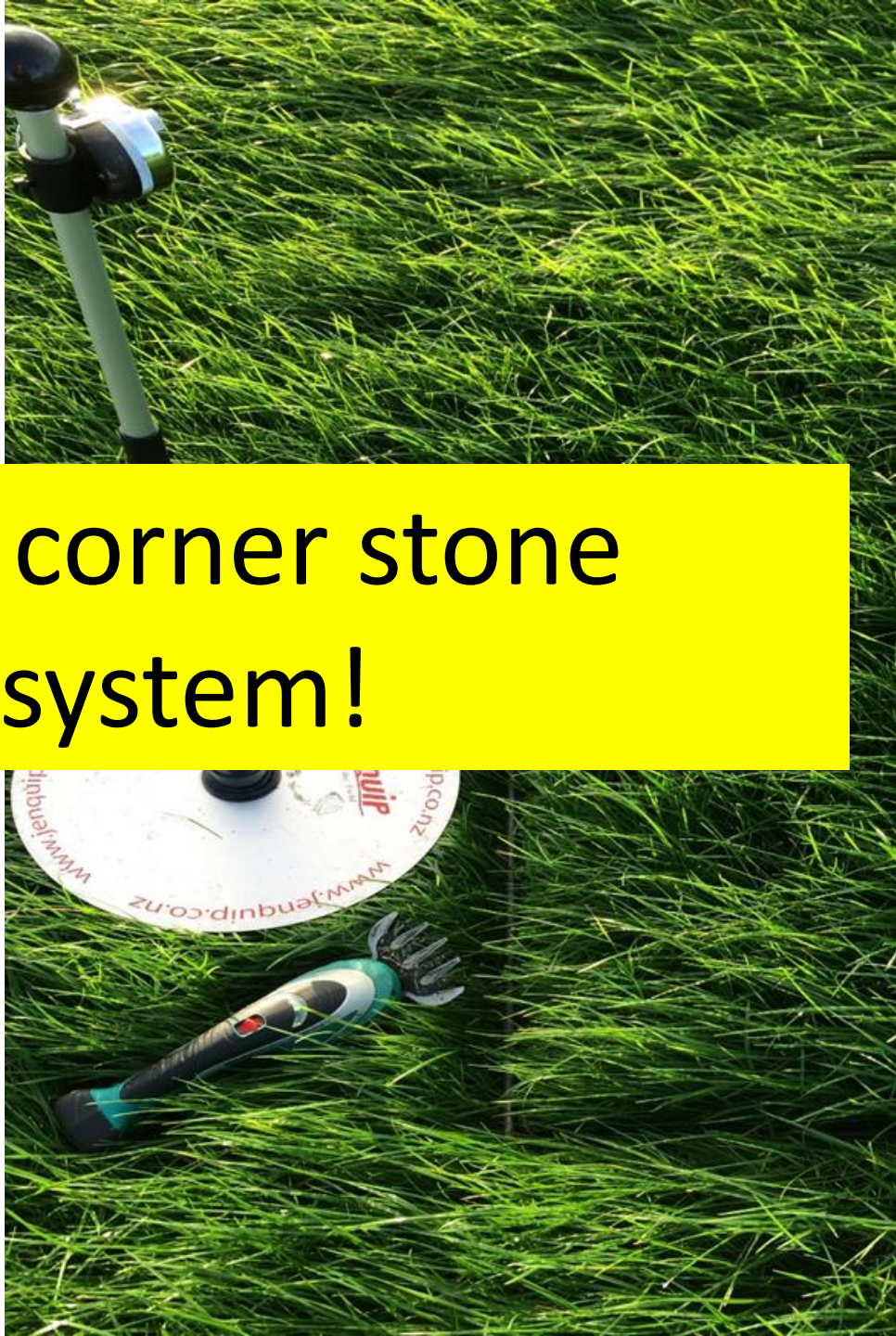
- Spring rotation planner;
- Grass wedge
- Baled silage used to manage surplus/quality
- Topping where necessary

Grass is the corner stone of the system!



Grassland management throughout the grazing season

- Grazed grass is the corner stone of this system
- Grass is measured in every paddock on a Monday morning with a platemeter and covers are entered into Agrinet
- Three conventional grassland management tools are used throughout the grazing season (1st February – 21st November) to manage grass demand and supply:
- 60:40 Autumn planner;
- Spring rotation planner;
- Grass wedge
- Baled silage used to manage surplus/quality
- Topping minimal but used when necessary

2016 Feed Budget

In order to achieve and sustain high milk and milk solids output along with good fertility, high energy intakes are essential

Days in milk	0-20	20-60	60-120	120-180	180-240	240-270	270-305	306-365 (dry)*	Total annual DMI (t DM)
Milk yield	31	34	32	27	22	19	15	-	7500
Silage DM	12	0	0	0	0	6	10	11	1.5
Grass DM	0	15	16	15	13	6	0	-	3.6
Concentrate	8	8	7	3.5	2.5	2.5	6	-	1.3

Actual tonnes DM: Grass silage 1.8; Grazed grass 3.2; Concentrate 1.3
Total DMI: 6.3 tns
Grazed grass: 51%
Grazed grass + silage: 79%

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Financial Assumptions

	Low Input	Moderate Input (Lyons)
SR Cows/ha milking platform	3.50	3.40
SR Overall LU/ha	2.50	2.25
Milk Solids (kg/cow)	450	625
Milk Solids (kg/MP ha)	1,530	2,130
Concentrates (t DM/cow)	0.25	1.30
Grazed Grass (t DM/cow)	4.10	3.70
Grass Silage (t DM/cow)	1.10	1.50
Milk output (€/cow)	1,863	2,597
Milk output (€/ha)	4,652	5,847
Gross Margin (€/cow)	1,304	1,675
Gross Margin (€/ha)	3,256	3,771
Net Margin (€/cow)	786	955
Net Margin (€/ha)	1,963	2,150
Breakeven milk price (€/kg MS)	2.39	2.62

* Milk price €4.14 /kg MS; Conc Price €300/t DM; Fixed costs 9 C/L

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2016 Performance

- 2016 is the first full year of this study - early days for results
- Systems research requires several years for concrete conclusions as this overcomes a specific ‘year’ effect on the results
- Cows are milk recorded twice monthly and these results are compared with the daily yields from the milking parlour

2016 Performance

- 305 days: 7400 kgs
- Sold: 7150 kgs (est)
- 590 kgs MS
- 4.54% fat and 3.45% protein

2016 Grassland Performance

Grass Summary	Week 30/11/2016
AFC (kg DM/ha)	815
Cover/LU (kg DM/ha)	-
Fertiliser N (kg/ha)	235
Fertiliser P (kg/ha)	9.3
Fertiliser K (kg/ha)	31.7
Turnout by day	Mid Feb
Turnout full time	1st March
Full time housing to date	6 days in April & > Oct 28th
Start date of closing	7th Oct
Full time housing date	October 28th
Target closing cover	700-750 kg DM/ ha (Dec 1st)
Grass growth (t/ha)	13.06
Silage on MP (t/ha)	1.7

2016 Reproductive performance

	Overall
Number of cows	58
Submission rate	91%
First serve conception rate	43%
Average conception rate	50%
6 week pregnancy rate	59%
Empty rate (12 weeks)	9%

Financials – 2016: Preliminary Results

	Lyons 2016
SR Cows/ha milking platform	3.30
SR Overall LU/ha	2.20
Milk Solids (kg/cow)	590
Milk Solids (kg/MP ha)	1,947
Concentrates (t DM/cow)	1.30
Grazed Grass (t DM/cow)	3.20
Grass Silage (t DM/cow)	1.80
Milk output (€/cow)	
Milk output (€/ha)	
Gross Margin (€/cow)	
Gross Margin (€/ha)	
Gross Margin (c/l)	
Net Margin (€/cow)	
Net Margin (€/ha)	
Net Margin (c/l)	

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Concentrates (t DM/cow)	1.30
Grazed Grass (t DM/cow)	3.20
Grass Silage (t DM/cow)	1.80
Milk output (€/cow)	
Milk output (€/ha)	

Gross Margin (€/cow) = €1400
Gross Margin (€/ha) = € 3000
Gross Margin (c/l) = €0.19

Net Margin (€/cow) = €700
Net Margin (€/ha) = € 1600
Net Margin (c/l) = €0.10

Future Challenges

- Increasing grass grown from current 13 tonnes
- Better matching grass and concentrate input
- Improving fertility performance vs 2016


Thank You