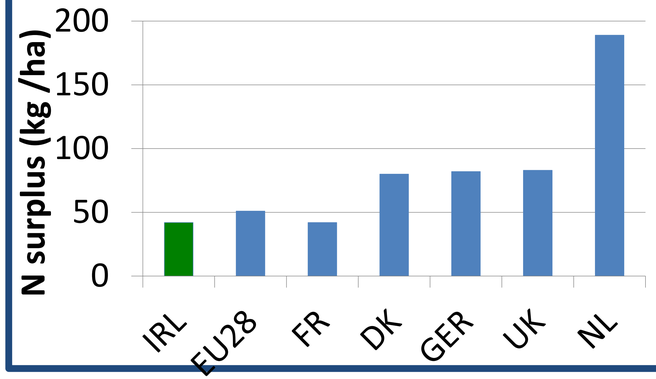
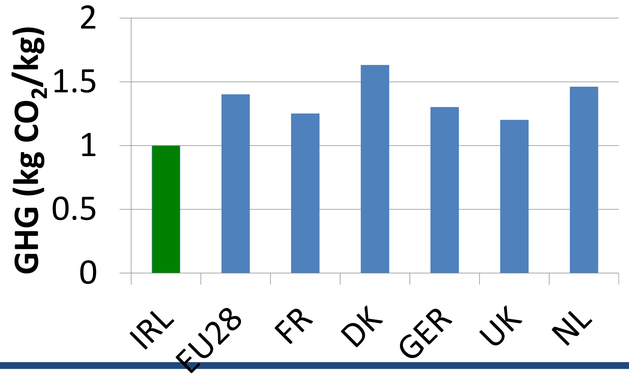
Future Systems:

Growing sustainably: *long term, profitable, environmentally benign, high quality food, human/ animal friendly*

Sustainability – why should we be concerned?

- More profitable
- EU commitments (air, water, biodiversity)
- Customers care: expanding €4 bn export-based
- On-farm uniquely important – IRL can lead…





Getting the basics right…

Adequate on-farm infrastructure, NMP best practice, grazing management, soil fertility

KPIs: a system view is essential

	NFS	Top 10%	Future
Net profit (€/ha incl. labour)	473	1,032	2,500
Dairy EBI (€)	86	122	200
Herd age (No. calving's /cow)	3.4	4.1	4.5+
Pasture utilised (t DM/ha)	7.3	9.6	13.0
Chemical N (kg/ha)	180	250	150-250
N surplus (kg N/ha)	164	225	160
N use efficiency (%)	25	26	35
Total NH_3 (kg NH_3 eq./ha)	47	65	46
Total GHG (t CO_2 eq./ha)	9.2	13.9	12.6

Growing Sustainably

Dairy Research Ireland
funded by Irish Dairy Farmers

New practices for Intensive dairy farms

1. Grass white clover pastures

- Reduce chemical N application
- 7 – 10% increase in milk solids
- 10% reduction in carbon footprint
- Increase farm profit by €150/ha

2. Low Emissions Slurry Spreading (LESS)

	Splashplate		Trailing shoe	
	Spring	Summer	Spring	Summer
N recovery (%)	25	15	40	30
Available N (kg/ha)	20	13	33	23
N value (€/ha)	21	14	35	24

3. Protected Urea Fertilisers

- Similar grass DM yield response
- 73%↓ in N_2O (GHG's) & 78%↓ in Ammonia

Compared to CAN 27% N

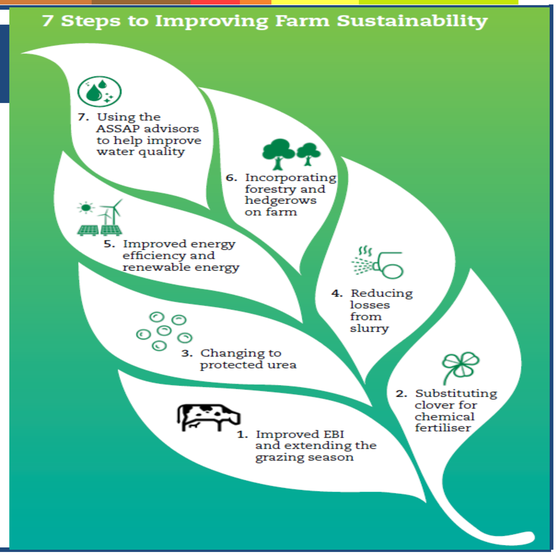
Compared to Urea 46% N

4. Concentrate level & CP%

5. Protecting biodiversity

6. Energy & water efficiency

7. ASSAP – ↑ Water Quality



Take home messages

- Growing sustainably is achievable >>more profitable & efficient farms
- Future systems will rely primarily on:
  - Appropriate farm infrastructure/ NMP'ing
  - Efficient ruminants: ryegrass clover pastures
  - Medium SR & lower N imports (feed/fert)
  - Use of protected urea/ LESS methods