"Addressing nutrient surplus at farm level"

Encouraging cooperation between multiple stakeholders in Ireland

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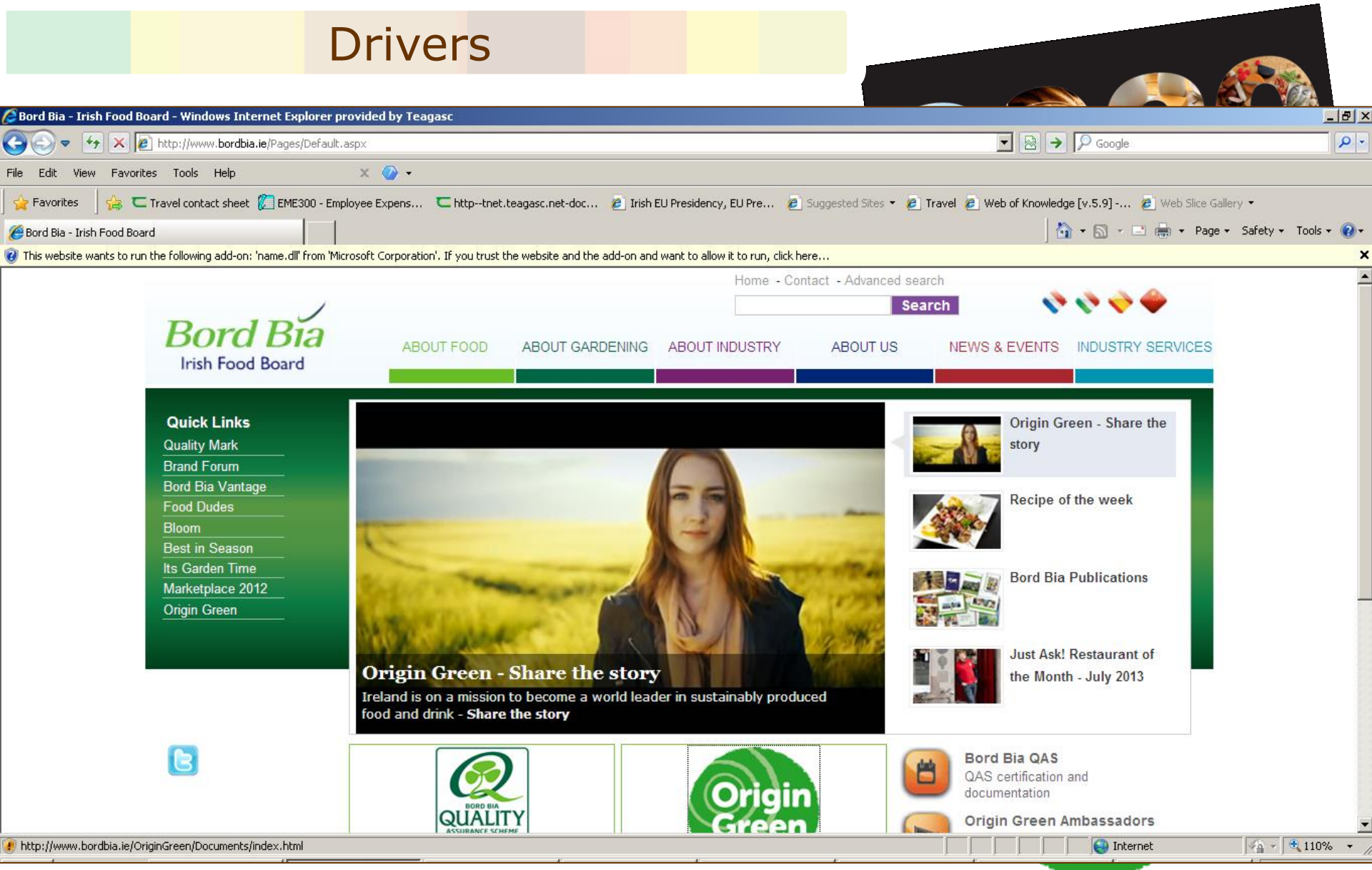
Drivers


Bord Bia - Irish Food Board - Windows Internet Explorer provided by Teagasc
http://www.bordbia.ie/Pages/Default.aspx
File Edit View Favorites Tools Help
Favorites
Travel contact sheet
EME300 - Employee Expens...
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Irish EU Presidency, EU Pre...
Suggested Sites
Travel
Web of Knowledge [v.5.9] -...
Web Slice Gallery
Bord Bia - Irish Food Board
Page Safety Tools
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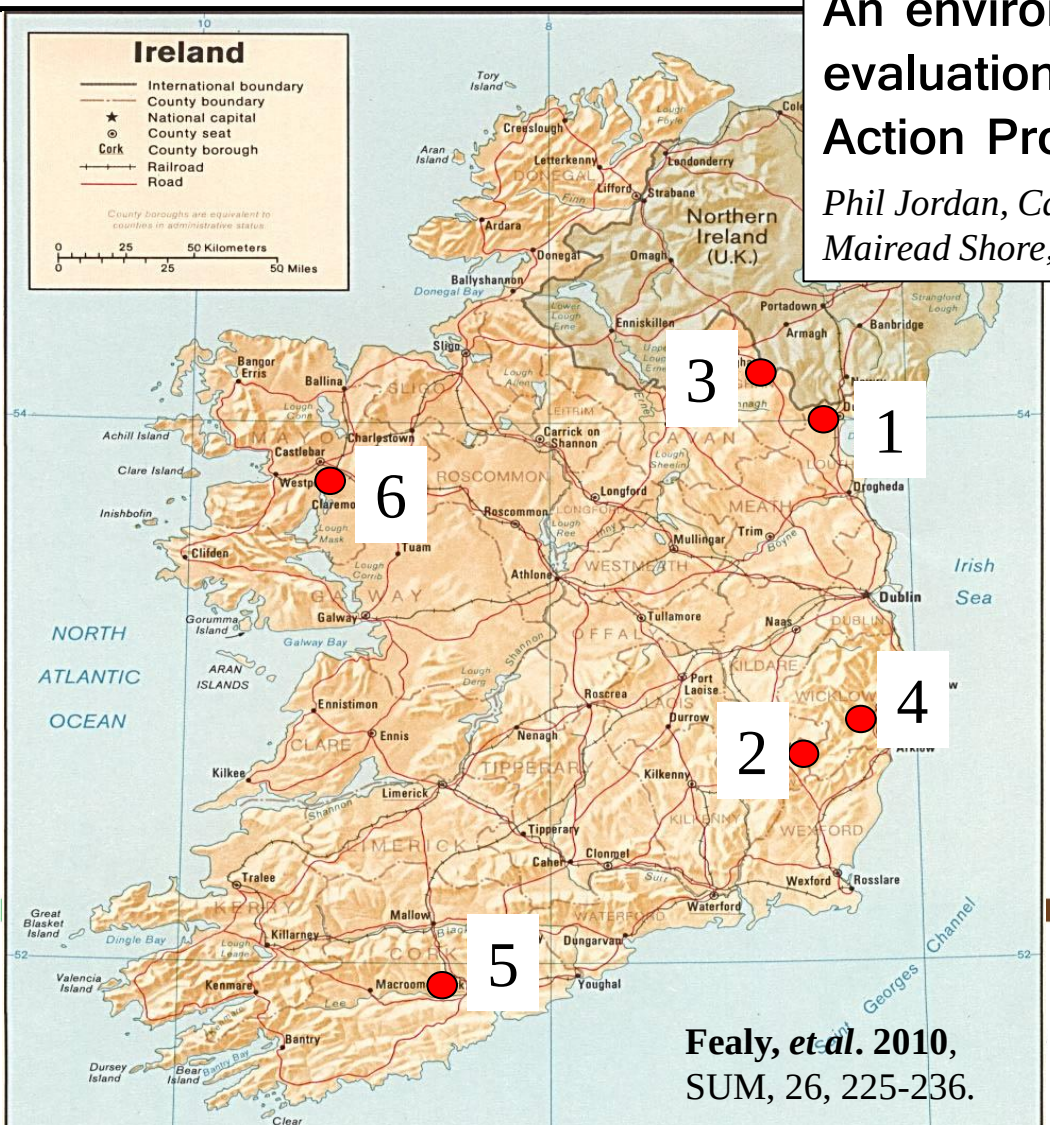
Home - Contact - Advanced search
Search
Bord Bia
Irish Food Board
ABOUT FOOD
ABOUT GARDENING
ABOUT INDUSTRY
ABOUT US
NEWS & EVENTS
INDUSTRY SERVICES
Quick Links
Quality Mark
Brand Forum
Bord Bia Vantage
Food Dudes
Bloom
Best in Season
Its Garden Time
Marketplace 2012
Origin Green
Origin Green - Share the story
Ireland is on a mission to become a world leader in sustainably produced food and drink - Share the story
Origin Green - Share the story
Recipe of the week
Bord Bia Publications
Just Ask! Restaurant of the Month - July 2013
Bord Bia QAS
QAS certification and documentation
Origin Green Ambassadors
http://www.bordbia.ie/OriginGreen/Documents/index.html
Internet
110%

Research Partnerships with farmers

AGRICULTURAL CATCHMENTS PROGRAMME

An environmental and socio-economic evaluation of the Nitrates Directive National Action Programme in Ireland

Phil Jordan, Cathal Buckley, Per-Erik Mellander, Noeleen McDonald, Mairead Shore, and Ger Shortle



Fealy, *et al.* 2010, SUM, 26, 225-236.

Intensity factors	Hydrology factors
1. Arable	– P risky [9 km^2]
2. Arable	– N risky [11 km^2]
3. Grassland	– P risky [6 km^2]
4. Grassland	– P risky [10 km^2]
5. Grassland	– N risky [8 km^2]
6. Grassland Karst	– P risky [30 km^2?]

Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

AGRICULTURAL CATCHMENTS PROGRAMME

Data collection driven by a science, extension and technical partnership with farming stakeholders

Wall et al., 2011 ES&P 14, 664-674.

Understanding Farmer Behaviour

Nutrient management practices on catchment farms (N=271)

Nutrient Management Practice of farms in 2010 (baseline)	Numbers Adopting	% Adopting
Chemical fertiliser recording at field level	201	74%
Springtime organic manure application	191	70%
Soil testing	180	66%
Chemical fertiliser field calibration	170	63%
Organic manure recording	156	58%
Liming	140	52%
Organic manure field calibration	130	48%
Estimation of nutrient content of organic manures	128	47%
Nutrient management plan	72	27%
Org. manure application – Trailing shoe, band, injection.	14	5%

Teagasc Sustainability Demo Farm




Kildalton Agricultural College, 2014

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Mission

"To develop a sustainability demonstration farm that is transformational in its ambition"

Sustainability

- Environmental
- Economic
- Social
- Incl Animal Welfare

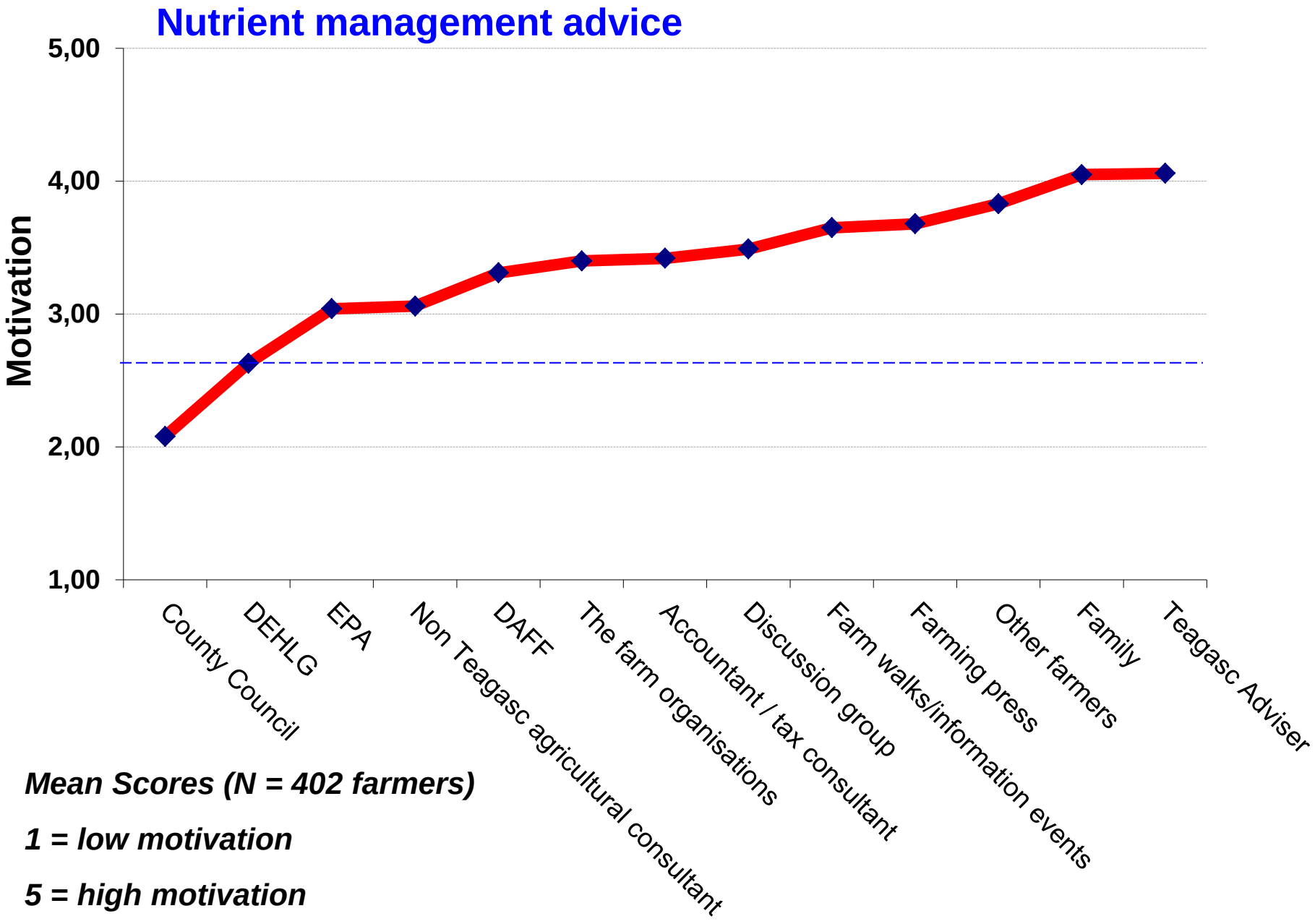
Demonstration

- Train / immerse the next generation of farmers
- "Proof of technologies" – operational farm as a test-bed

Transformational

- Over and above compliance
- Anticipate future policies, e.g. WFD, Climate Bill, Energy Independence

Motivating farmers – Knowledge Transfer/ Advice



Mean Scores (N = 402 farmers)

1 = low motivation

5 = high motivation

Supporting farmers

Farmer	John Farmer	
Address	Address 1 Address 2	
County (Zone)	Cork	
Herd No.	X 2341567	
Year	2012	

Land Areas		
Total	22.40	ha
Grassland	22.40	ha
Non-Grassland	0.00	ha
% Grassland	100%	
Stocking Rates		
Whole Farm	190	kg/ha
Grassland	190	kg/ha

Total Manures (t)	Available	Allocated
Cattle Slurry	250	232
Soiled Water	740	781

Total Fertilizers	Tonnes
Urea (46%N)	4.2
25-4-0	3.1
CAN (27%N)	6.6
50%K (MOP)	0.8
16% Super P	0.5

Straight N Fertilizers	Tonnes

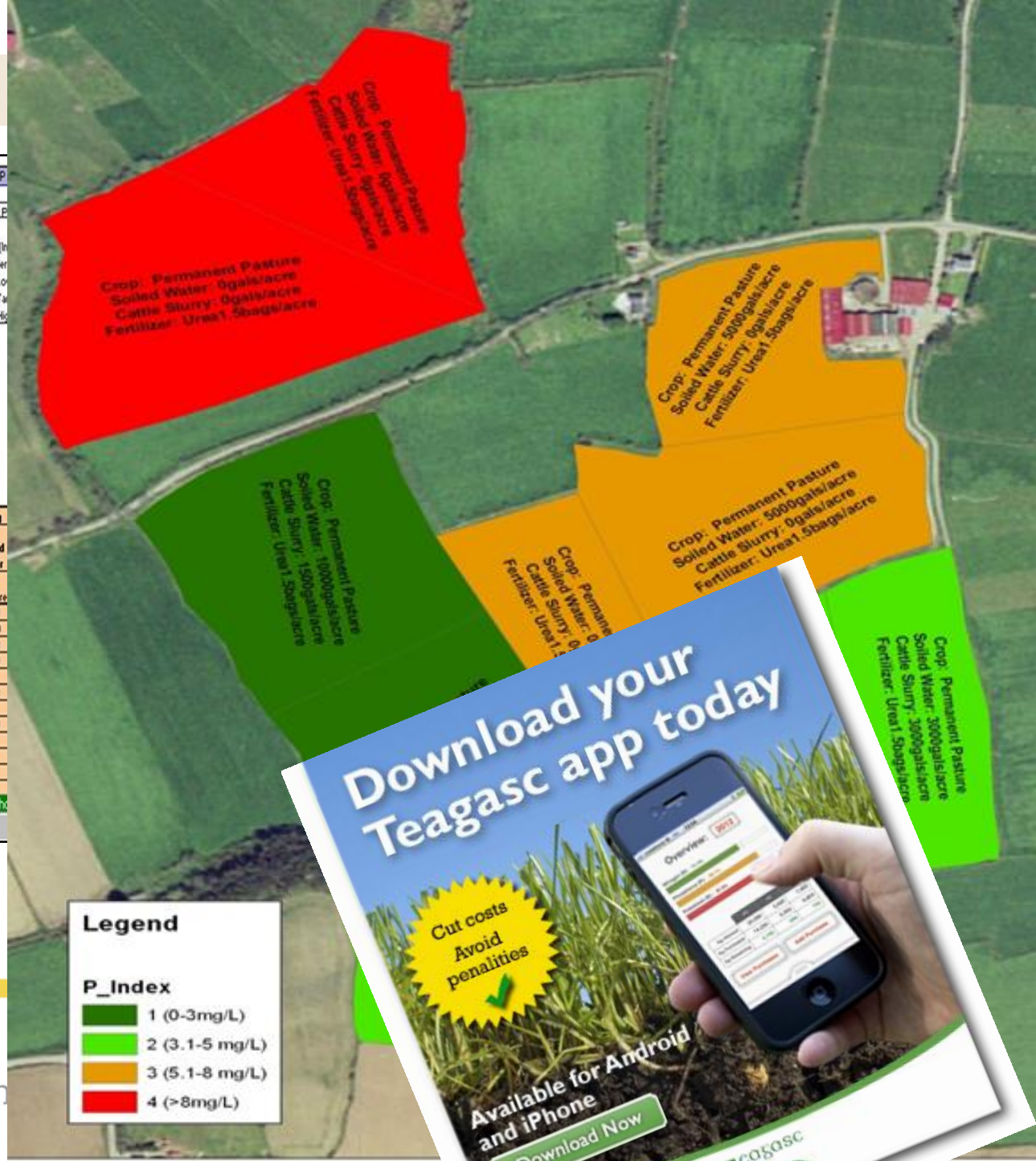
Lime (i.e. Ground Limestone)
Where the lime requirement is > 7.5 t/ha (3 t/acre), apply 7.5 t/ha (3 t/acre in year one), and the remainder after 2 years.

Total Requirement 89 tonnes

		Area	Index		Nutrients Applied				Manures / Slurry	
					Lime	N	P	K	Cattle Slurry	Soiled Water
Field Name	Crop	ha	P	K	t /acre	units /acre	units /acre	units /acre	gals/acre	gals/acre
5001	Grazing	2.5	1	2	2	192	18	86	1500	5000
5002	Grazing	2.3	1	1	1.6	187	21	113	1500	10000
5003	1 Cut + Grazing	2.4	2	1	2	177	31	134	3000	3000
5004	1 Cut + Grazing	2.1	2	2	3	177	31	134	3000	3000
5005	1 Cut + Grazing	1.9	2	4	3	177	32	0		
5006	Grazing	1.8	3	3	3.2	183	8	27		5000
5007	Grazing	2.6	3	2	0	177	0	0		
5008	Grazing	2.3	3	3	0	183	8	27		5000
5009	1 Cut + Grazing + Reseed	1.7	4	4	0.8	177	0	25		
5010	1 Cut + Grazing	2.8	4	3	1.2	177	0	100		

Livestock | Concentrate P | Storage Facilities | Fertiliser Plan | Fertilizer Program | Who

Ready



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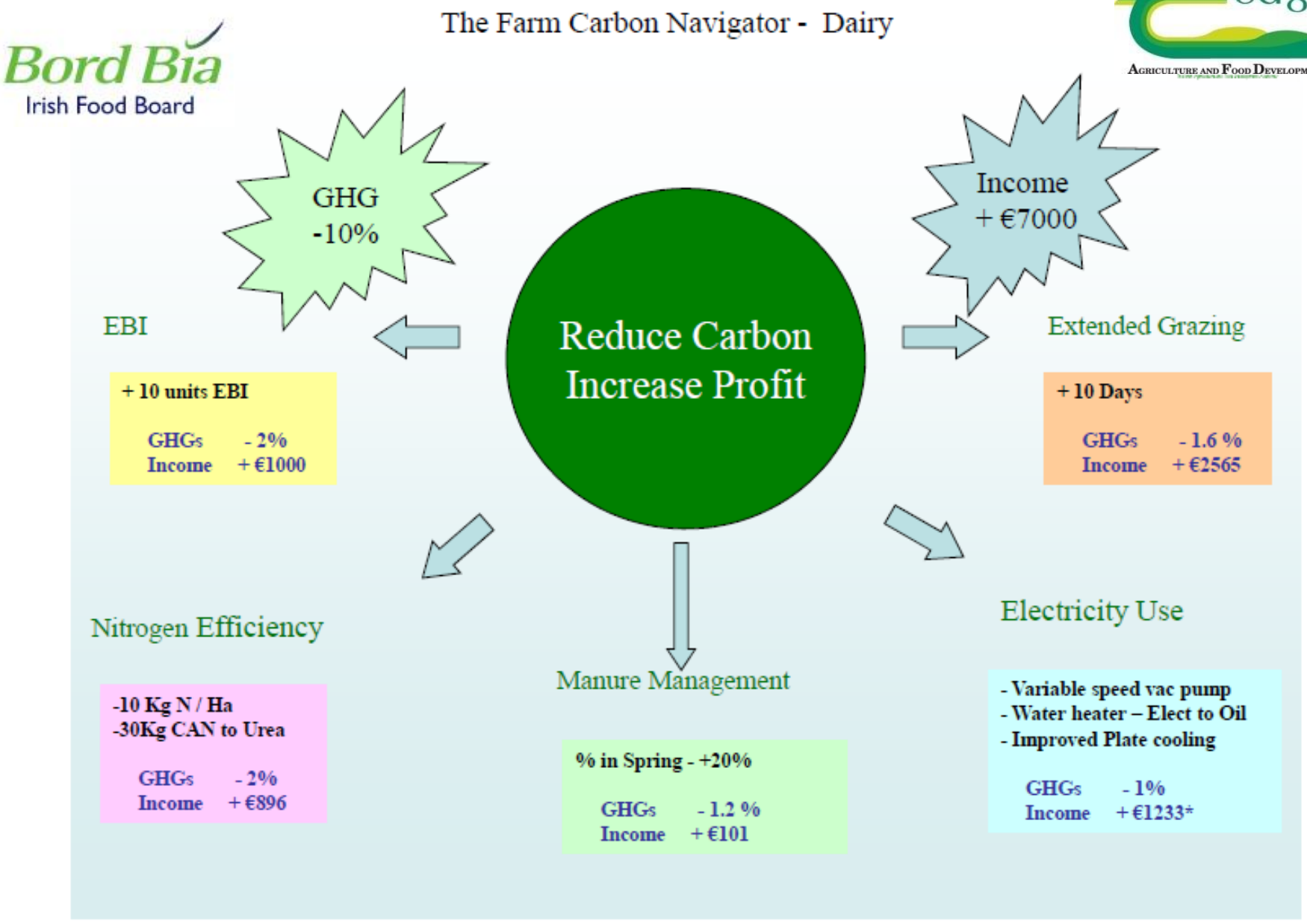
Supporting farmers – Options/examples



Bord Bia Teagasc Carbon Navigator

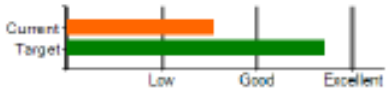
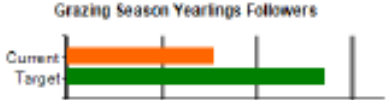
This facility will apply Farm Enterprise Information collected at the last audit to the Carbon Navi

Herd 51111199 *

Update | Download Excel File

Potential impact of meeting all targets

-20.0% +€13445

Year 2010		Current	Target	Chart	GHG change	€ benefit
Grazing season - suckler cows	Turnout Date	24/Mar	10/Mar		-2.5%	+€1509
	Housing Date	01/Nov	15/Nov			
Grazing season - yearlings/followers	Turnout Date	24/Mar	10/Mar		-1.9%	+€2208
	Housing Date	01/Nov	15/Nov			
Age at first calving	Age at first calving (months)	30.2	28.0		-0.7%	+€773
Calving Rate	Calving rate (calves/cow)	0.8	0.9		-8.3%	+€3010
Live weight performance	System	Steers & Heifers	Steers & Heifers		-0.4%	+€4497
	Lifetime live weight per day of age (g)	860.00	946.0			
Nitrogen Efficiency	Total CAN and equivalent N in Compounds (t)	18.0	7.0		-1.9%	+€1300
	Total urea used (t)	0.0	5.0			
	Total concentrate fed (t)	12.0	12.0			
	Output kg beef live / ha	473.8	500.0			
Slurry Spread Timing	% in Spring	30	70		-4.3%	+€148
	% Summer following 1st cut	30	30			
	% Later in Summer	40	0			
	Application Method	Splash Plate	Splash Plate			

Update

Managing Expectations – Timelines for policy to take effect

Using the nutrient transfer continuum as an evaluation framework

SOURCES

Mobilisation

Pathways

DELIVERY

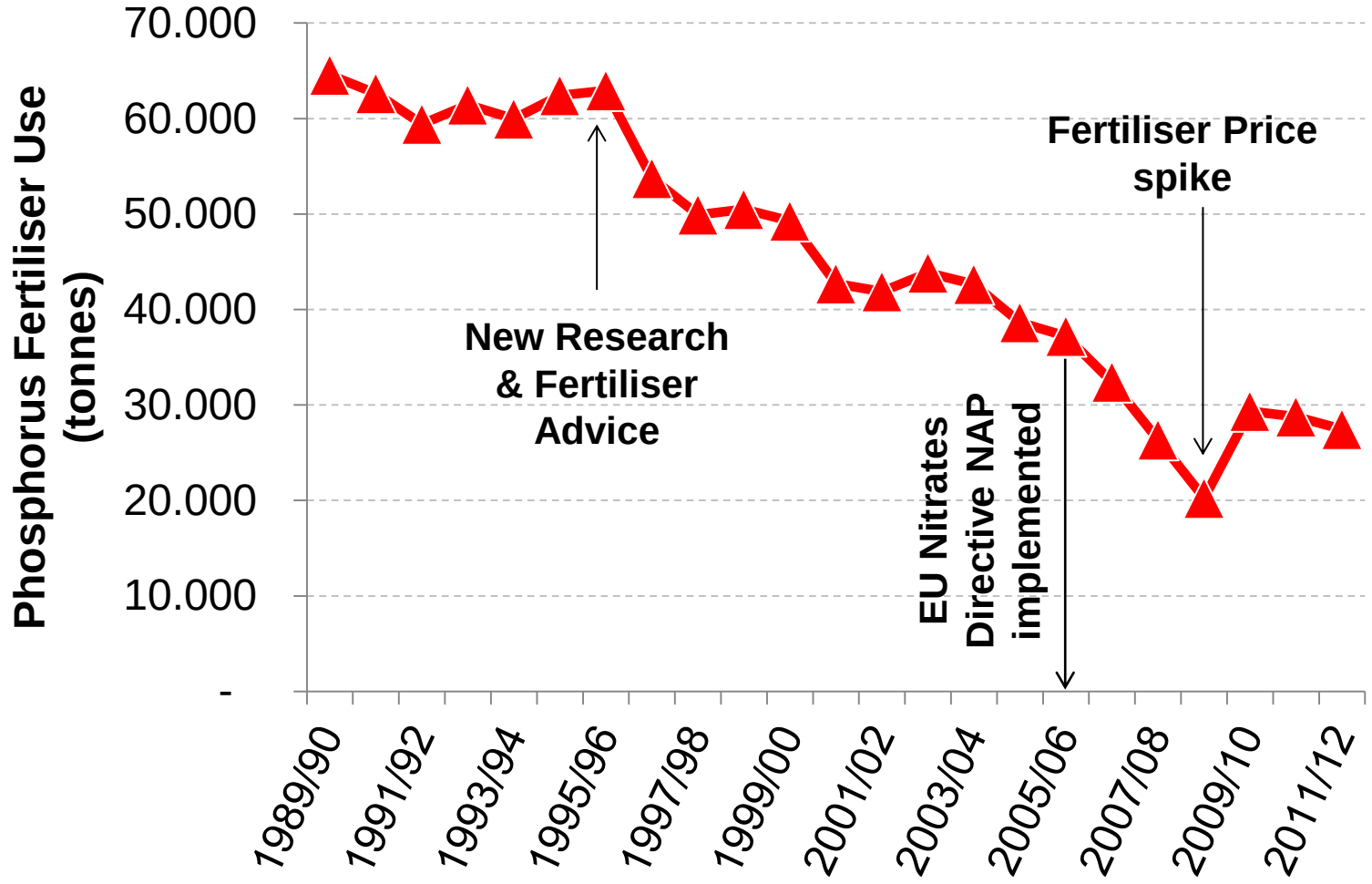
IMPACT

- ***Non-synchronicity issues (lag-times)!***

Fenton et al, 201l, ES&P; Wall et al. 2011 ES&P

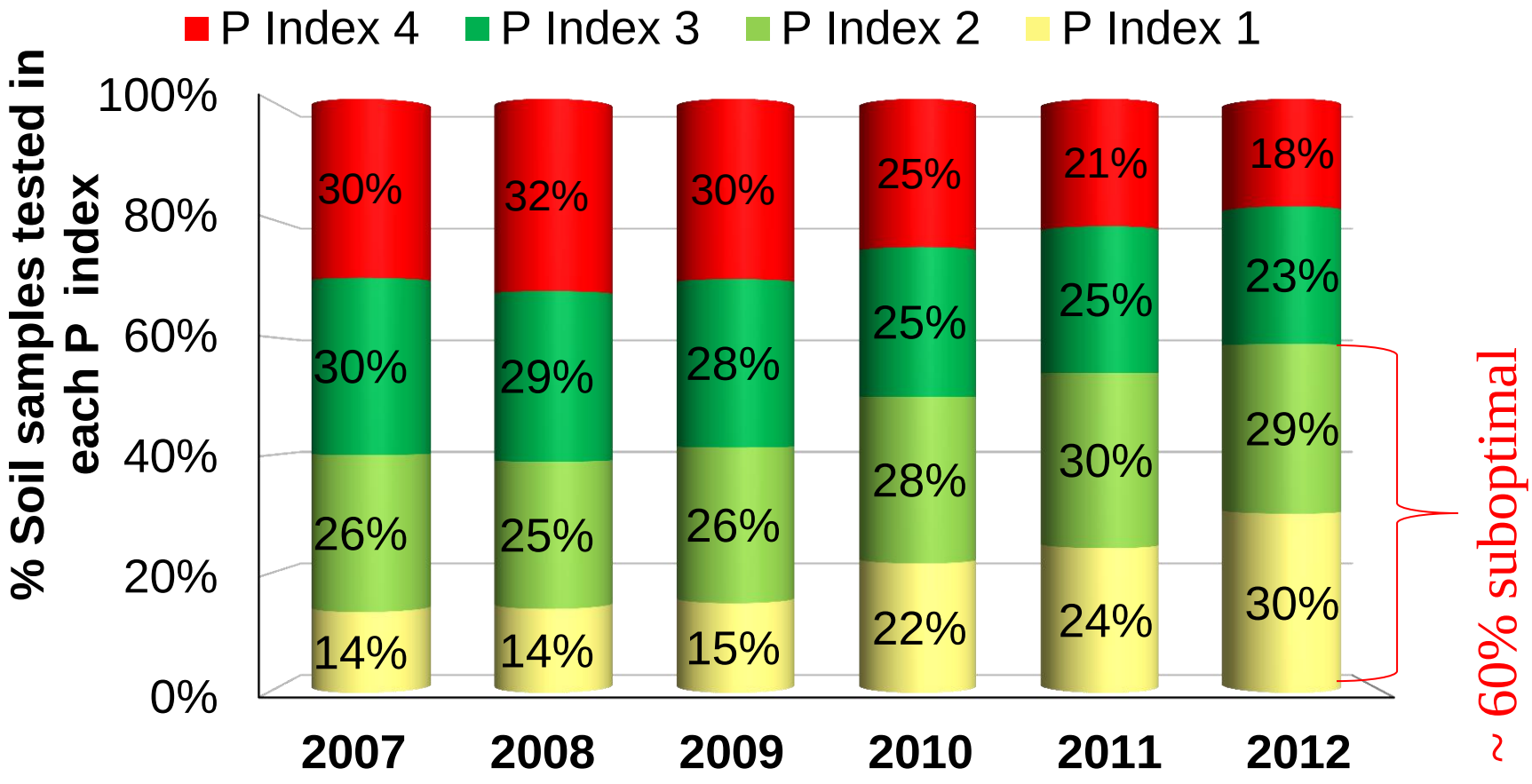
Assessing change

Phosphorus fertiliser use in Ireland 1990- 2012



Measuring Success

National soil P fertility trends



**Soil P index based on Morgan's Extractable P levels*

Thank you

www.teagasc.ie

www.teagasc.ie/agcatchments

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