



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

The Irish Agriculture and Food Development Authority

An Introduction to the Teagasc Agricultural Knowledge and Innovation System (AKIS)

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“Innovations and knowledge transfer challenges for Farm Advisory Systems 2014– 2020 programming period”, Vilnius, Lithuania

Outline

- Teagasc – a brief history
- Teagasc Mission and Goals
- Structure and funding of Teagasc
- The Teagasc AKIS
- Key components of the Teagasc AKIS
- Adviser to farmer communication channels
- Research to adviser communication channels
- Evaluation of advisory/extension outputs, outcomes and impact
- Future challenges and direction

Teagasc

- Teagasc – Pronounced “Chawg-ask” is a Gaelic word meaning “teachings” or “learnings”
- The Irish Agriculture and Food Development Authority
- An autonomous state agency
- Established in 1988 as an amalgamation of two separate bodies embracing Research, Education and Advisory/Extension
- State Advisory/Extension and Education service a legacy of 100+ years
- Agricultural research 50+ years - establishment of The Agricultural Institute in 1958 with the assistance of Marshall Aid

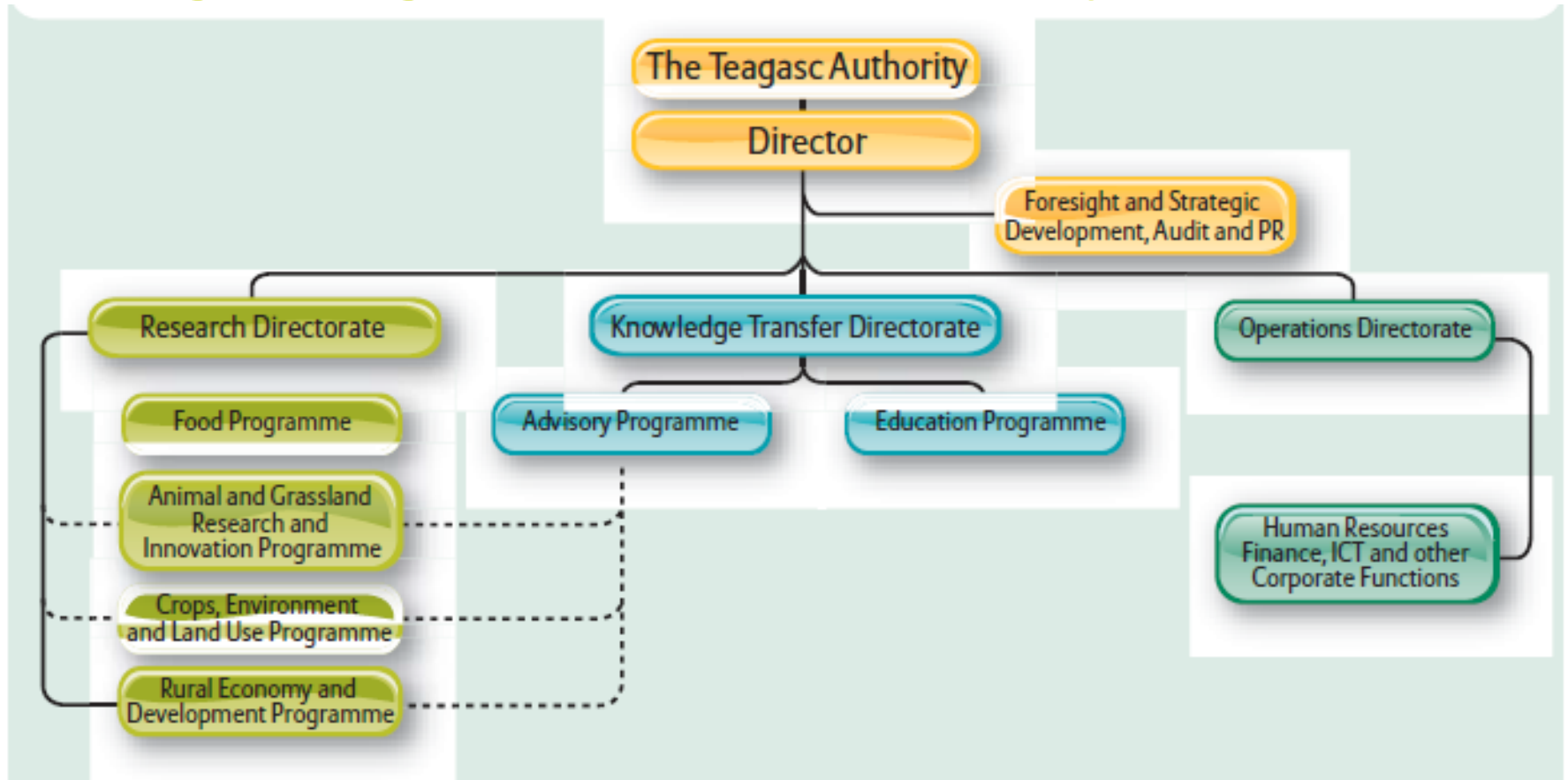
Teagasc Mission

“To support science-based innovation in the agri-food sector and broader bio economy so as to underpin profitability, competitiveness, and sustainability”.

Teagasc Goals

1. “Improve the competitiveness of agriculture, food and the wider bio-economy”
2. “Support sustainable farming and the environment”
3. “Encourage diversification of the rural economy and enhance the quality of life in rural areas”
4. “Enhance organisational capability and deliver value for money”.

Teagasc Organisational Chart January 2012



Teagasc Sites Map December 2012

- Head Office, Research Centre and Advisory
- ▲ Research Centre and Advisory
- Advisory Centre
- Research Station
- ▲ Teagasc College and Advisory
- ▲ Private College
- Planned Closure



December 2012	
Advisory offices	51
Teagasc colleges	4
Private colleges	3
Research centres	8

Teagasc Advisory Staff and Walsh Fellows on the 01/01/2013

	Advisory Region Staff 01/01/2011	Advisory Region Staff 01/01/2012	Advisory Region Staff 01/01/2013	% of total Teagasc staff	Advisors	Teachers	Managers / Admin.	Other Support Staff	Walsh Fellows 01/01/2013
Knowledge Transfer Advisory Regions	403.7	391.4	359.9	32%	239*	32	84.7	3.8	15

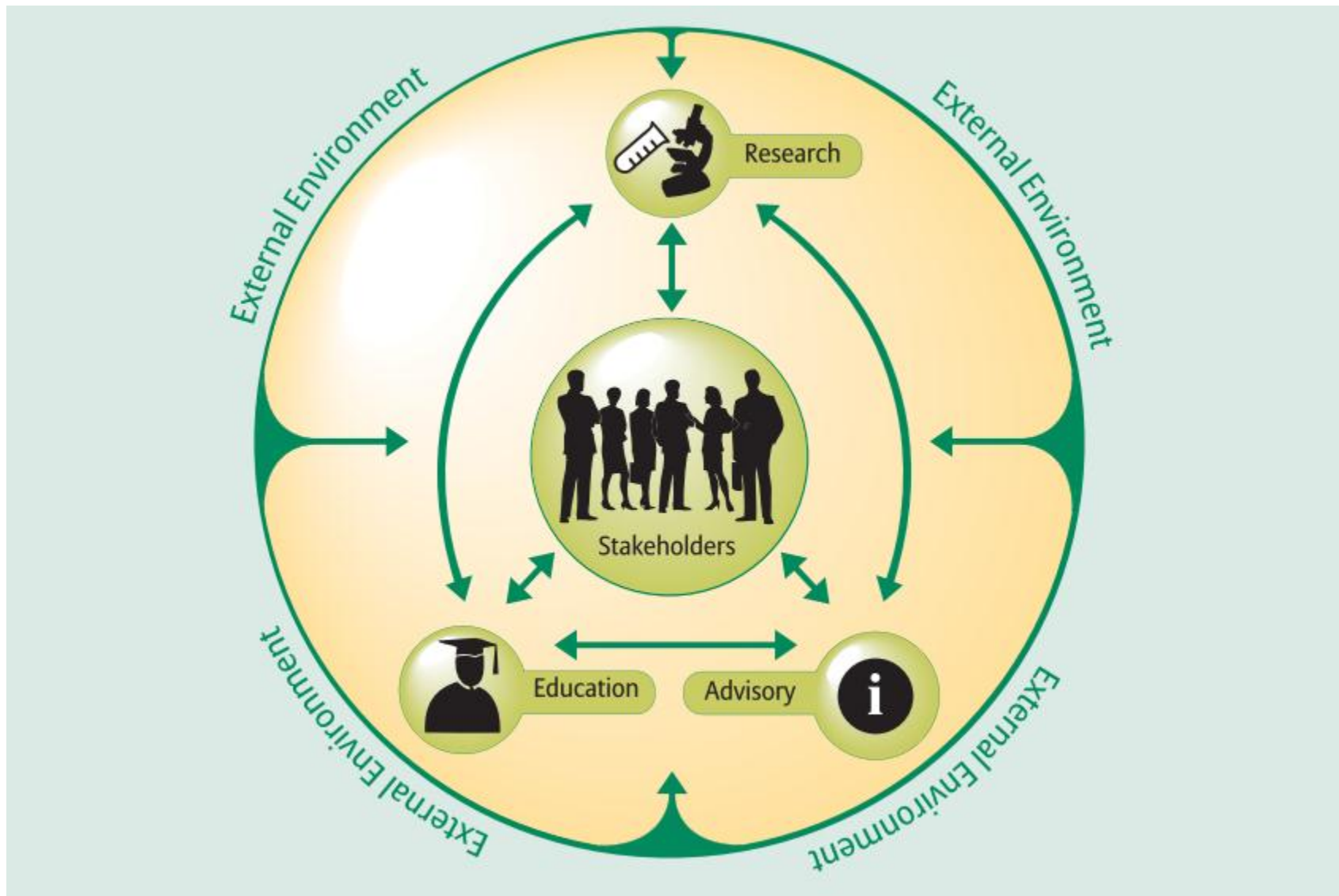
* Teagasc Advisor numbers fell in 2012 from 258 on the 01/01/2012 to 239 by year end due to retirements, redeployment, and restrictions on recruitment.

Teagasc Advisory income and Expenditure 2011 to 2013

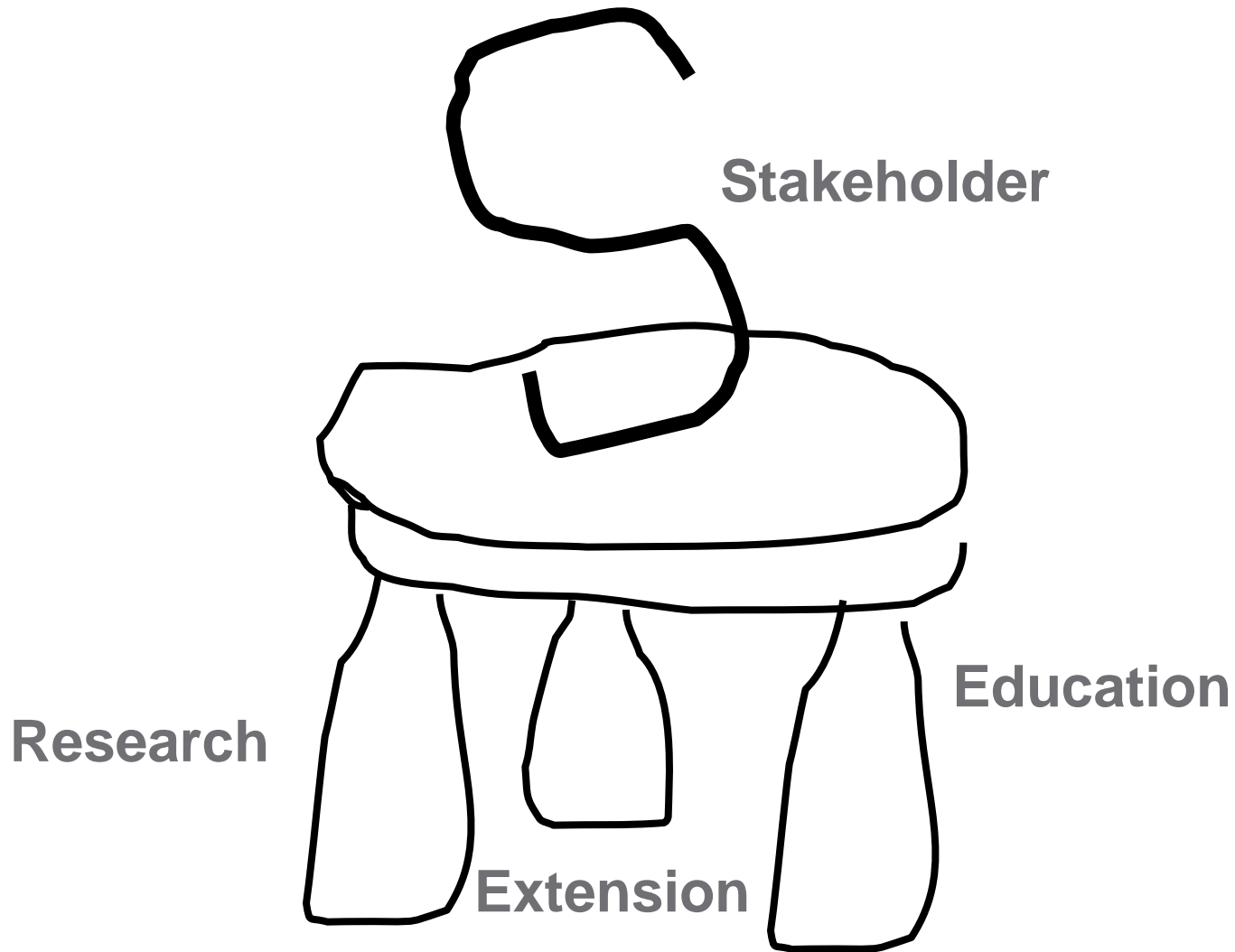
Management Accounts	2011	2012	2013
	Actual	Actual	Budget
	€ '000	€ '000	€ '000
<u>Income</u>			
Knowledge Transfer Advisory Income	11,943	12,345	11,617
<u>Expenditure</u>			
Knowledge Transfer Advisory Expenditure	31,621	28,902	27,466
% of Advisory exp. recovered from Advisory Charges	38%	43%	42%
Advisory exp. * as a % of total Teagasc Spend	24%	23%	22%

* Total Expenditure excluding pensions

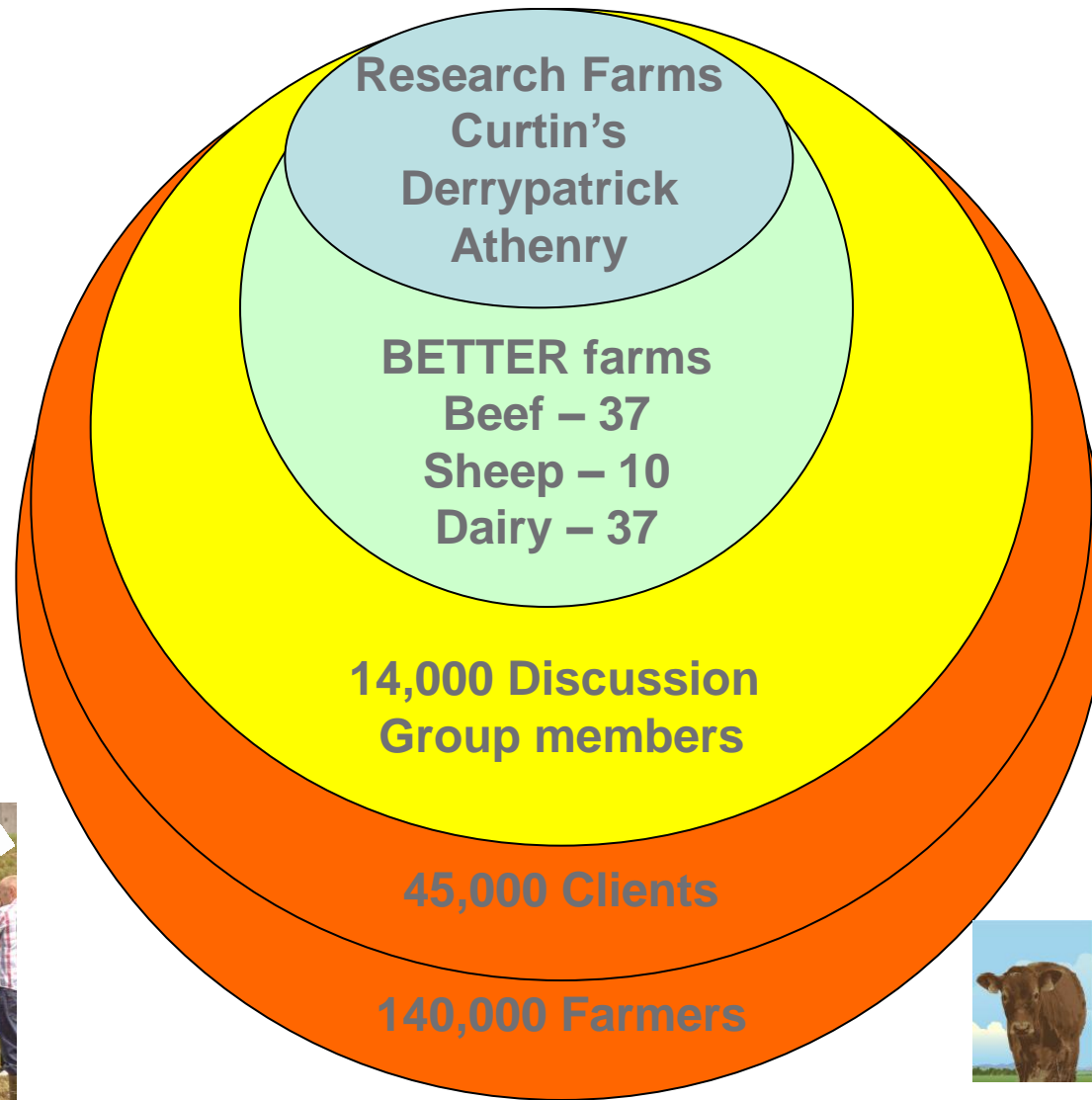
The Teagasc AKIS ...



The three-legged stool ...



Cascade model - operational version of Teagasc AKIS



Research to adviser communication channels

- Integrated programme structure – Research and Knowledge Transfer (KT) departments (subject matter specialists) report to the same Head of Programme
- Regular In-service Training (monthly) sessions and Webinars
- Regular communications between subject-matter specialists and advisers, including phone conferences
- Regular publication of Technology Updates (short versions of newly published research in KT-usable format)
- Special research “open days” for advisers
- International study visits

Adviser to farmer communication channels

- Discussion Groups (DGs)
- “One-to-one” (consultancy)
- Open days (exhibits of technology/practices)
- Farms walks' (structured visits to “model” commercial farms)
- Publications
 - T-Research (Teagasc - quarterly)
 - Today's Farm (Teagasc - bi-monthly)
 - Newsletters (Teagasc - monthly)
 - Farming Media
- Web [Webinars, Apps, Facebook & Twitter (Interactive Q&As)]



Teagasc KT advisory models and tools

- Models (cascade or ripple model)
 - Research Demonstration farms
 - BETTER FARMS (commercial farms with intensive advisory input)
 - Discussion Groups (DGs)
- Tools (software & databases)
 - e-Profit Monitor (Teagasc and Irish cattle Breeding Federation)
 - Cost Control Planner (Teagasc)
 - Financial Planner (Teagasc)
 - Pasture Base Ireland (Grass Production Database - under development)

Teagasc research demonstration dairy farms

Curtin's Farm – Southern region

- 48 ha (soil: free draining sandy loam over Karst limestone)
- 140 cow spring calving dairy herd
- Farmlet systems research
- Develop and appraise alternative pasture-based dairy systems focused on sustainable high profit per hectare milk production for the southern region.

Ballyhaise Farm (agricultural College) – Northern region

- 32 ha (soil: clay/loam Drumlin)
- 110 cow spring-calving dairy herd
- Farmlet systems research/education resource
- Develop and demonstrate high profit per hectare pasture-based dairy systems for the northern region.

Teagasc research demonstration farms (Beef and Sheep)

Derrypatrick Beef Farm (Principal beef production region - East)

- 62 ha (soil: heavy brown earth gley)
- 100 cow spring calving suckler herd
- Farmlet systems research
- Evaluate alternative cow genotypes in pasture-based suckler systems focused on maximising gross margin/ha (target €1000/ha)

Athenry Sheep Farm (West of Ireland)

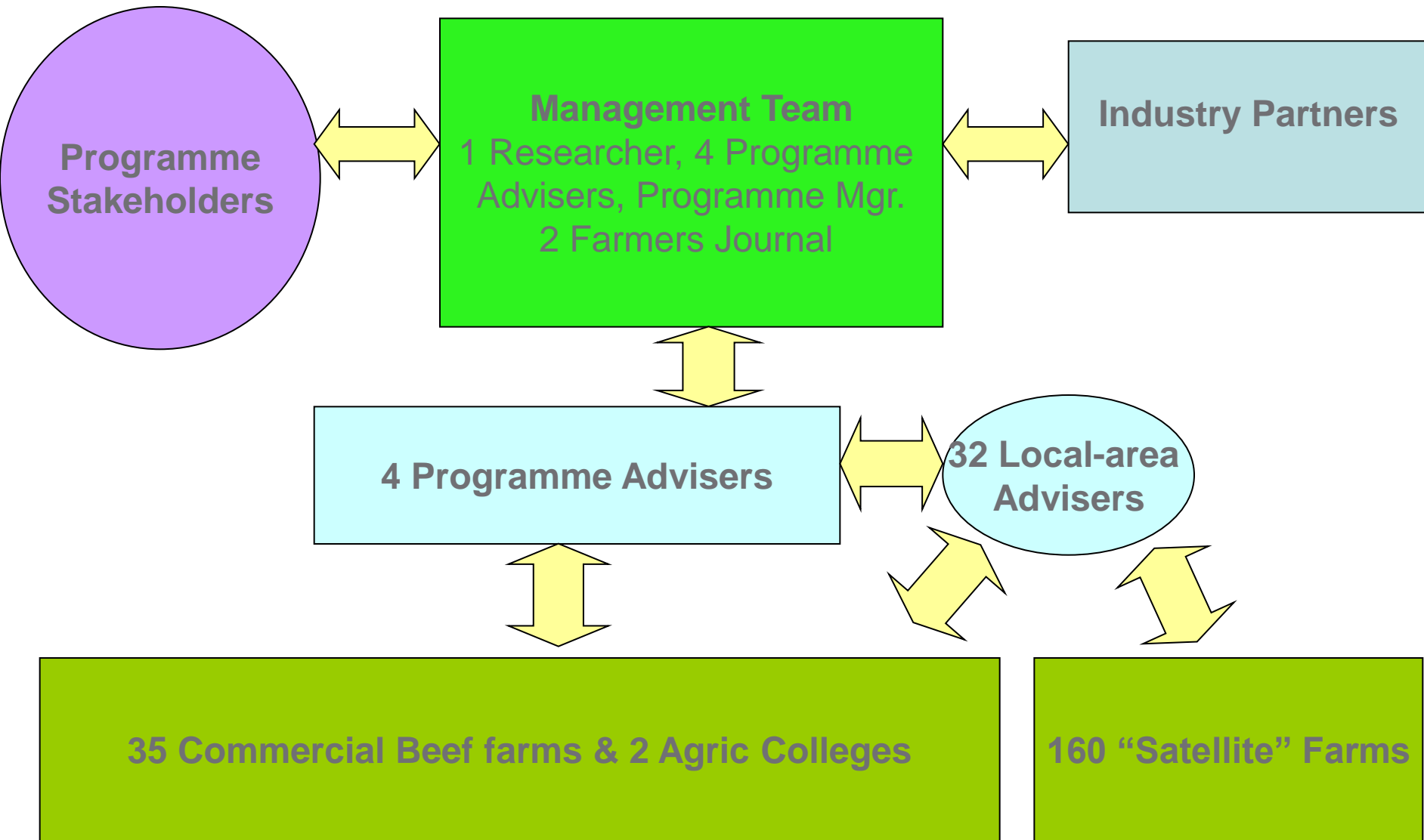
- 30 ha (soil: free draining stony loam over limestone rock)
- 360 ewe lowland March lambing flock
- Farmlet systems research and Demonstration
- Development of profitable and sustainable pasture-based systems of lamb production to demonstrate the potential and operation of high output/ha sheep flocks

Teagasc/Irish Farmers Journal BETTER Beef Programme

- BETTER ... “Business, Environment and Technology Through Extension and Research”
- A national 3-year programme (2nd phase) to demonstrate the potential to increase the gross margin on suckler and beef farms to €1,000/ha through an intensive farm advisory programme.
- Focus on enhancing the level of technical efficiency on a small group of participating farms (35 in the current programme).
- Dissemination of the results from participating farms to the wider population of Irish beef farms through (i) weekly reports in the farming media (The Irish Farmers Journal) throughout the year and (ii) regular farm walks, seminars, etc.



BETTER Beef Programme structure



Discussion Groups – Structured Peer to Peer learning

Discussion Groups: 15-20 members managed by farmers and facilitated by advisers

Substantial shift away from “one-to-one” delivery and toward Discussion Groups in recent years

Early 1990s :Teagasc incorporates discussion groups into advisory programmes

Mid 1990s : industry (mainly dairy co-ops) become involved in discussion group programmes

2009-: state support for formation of discussion groups (Dairy, Beef and Sheep)



Benefits of Discussion Group membership (Dairy)

- Discussion Group members are up to 20% more likely to adopt new technologies and best management practices
- Positive impact on grassland, breeding and financial management
- Changes made by group members in last three years: grassland management (70%); breeding and fertility (13%); and reduced costs (11%)
- Discussion Group members earned €247 premium per hectare in gross margin terms
- Discussion Group members earned 2 to 3 cent more per litre than non group members
- Gross Margin/hectare on a 50-cow and otherwise identical farm of a DG member is about €2600 compared to €2350 for the non-member.
 - A difference of 11% as a result of membership)

Tools: Example - Teagasc eProfit Monitor (ePM)

- Secure online access for farmers and advisers to enter and analyse farm financial data
- Multi-enterprise (dairy, cattle, sheep and tillage) analysis possible
- Central database with regular secure backups
- Each enterprise's performance can be assessed against a benchmark/standard
- Give feedback to the farmer on the results
- Work with the farmer in using the results in decision making for the year ahead

Farmer: Example Farm

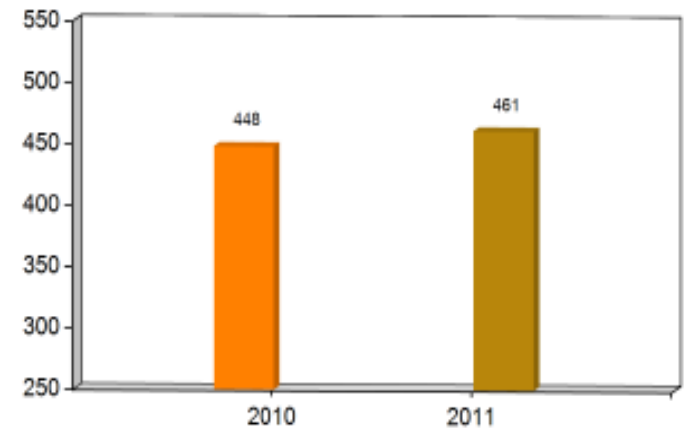
Code:

Advisor:

Physical Farm

	<u>This Year</u>	<u>Last Year</u>	<u>% Change</u>	<u>Target</u>
Farm Ha	45.20	45.20	0%	
Stocking Rate (LU/ha)	2.24	2.16	+4%	2.5
Dairy Cow Numbers	63	62	+2%	
Milk Platform Ha	27.00	26.90	+0%	
Milk Plat Stocking Rate	2.33	2.30	+1%	3.3
Litres Milk Produced	400,703	388,477	+3%	
Protein %	3.27%	3.22%	+2%	3.60%
Fat %	3.76%	3.72%	+1%	4.20%
Kg MS per Cow	461	448	+3%	442
Kg MS per Milking Platform Ha	1,075	1,033	+4%	1460
Co-op Price (cent/litre)	33.85	29.30	+16%	31
Replacement Rate	41 %	27 %	+52%	18%

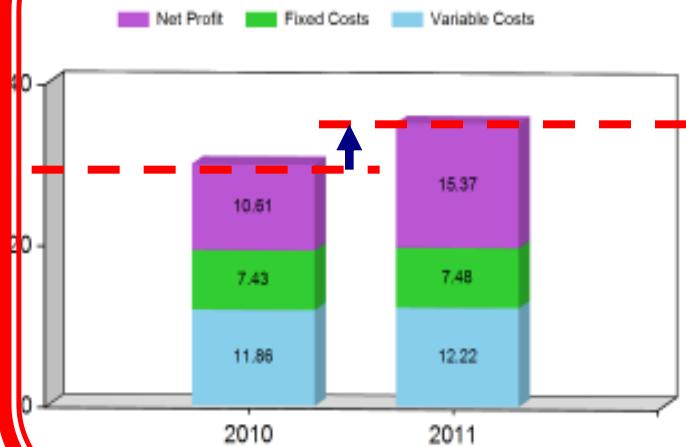
Milk Solids Production (kg /cow)



Financial Farm

	<u>Per Litre</u>	<u>This Year</u>	<u>Last Year</u>	<u>% Change</u>	<u>Target</u>
Gross Output	cent	35.07	29.90	+17%	36.30
- of which milk sales	cent	33.54	29.07	+15%	34.00
Total Variable Costs	cent	12.22	11.86	+3%	7.85
Gross Margin	cent	22.85	18.04	+27%	28.45
Total Fixed Costs	cent	7.48	7.43	+1%	7.13
Net Profit (Dairy)	cent	15.37	10.61	+45%	21.32
Total Costs	cent	19.70	19.29	+2%	14.98
Common Costs	cent	17.98	17.78	+1%	12.38
Common Profit	cent	17.09	12.12	+41%	23.92
Cash Flow Ratio (Whole Farm)		54 %	57 %		40%

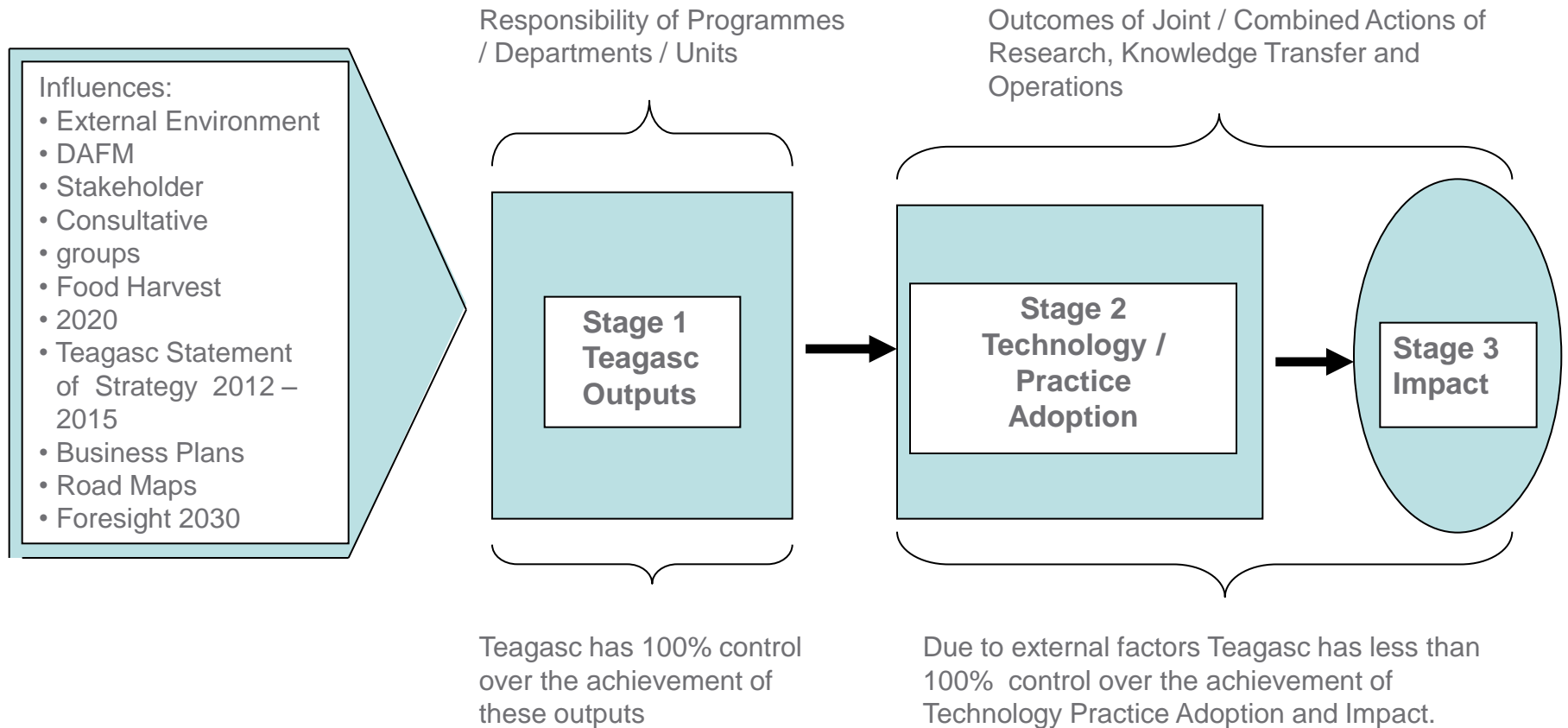
Breakdown of Gross Output (cent)



Per Farm Ha

Whole Farm Net Profit	€	1,325	875	+51%
Whole Farm Net Prof. (Incl DP's)	€	1,686	1,238	+36%

Teagasc Performance Management Framework



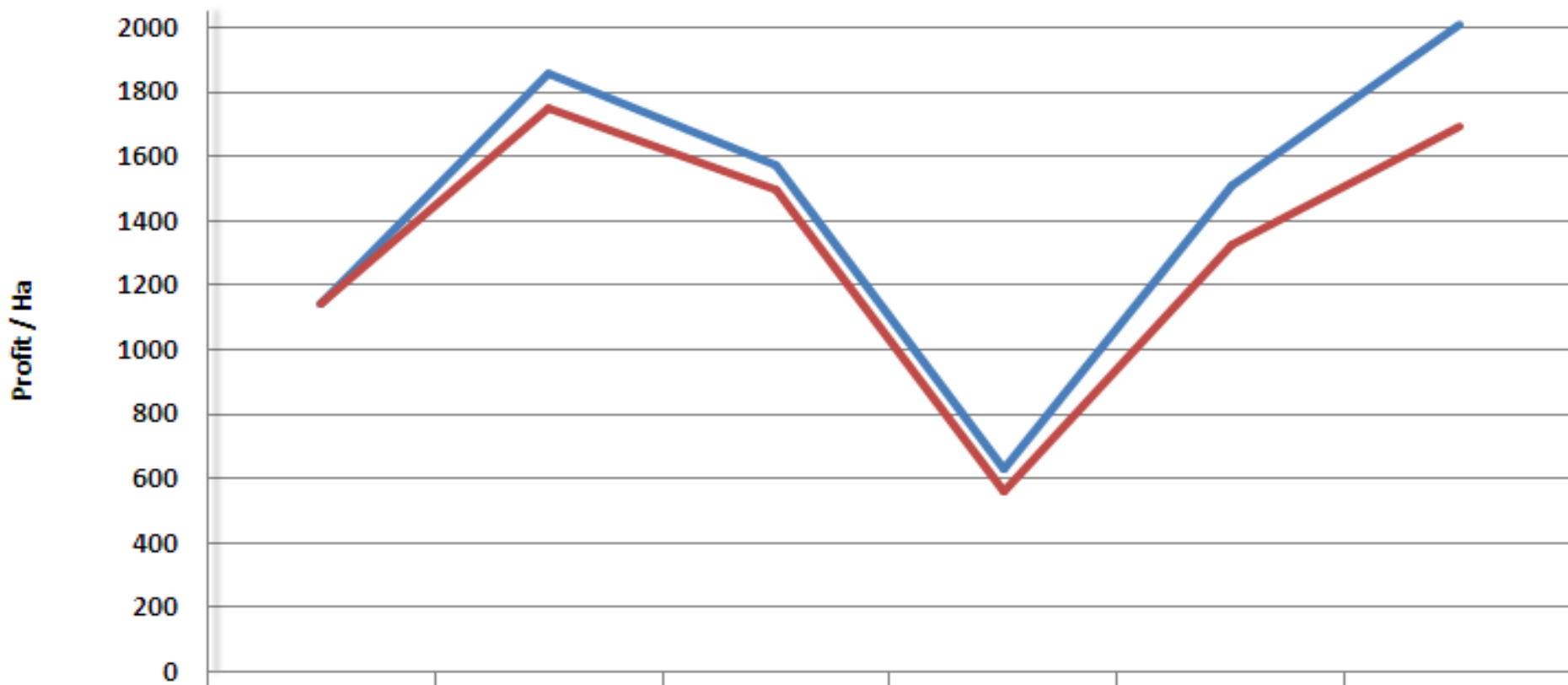
Selection of Knowledge Transfer (Advisory) Outputs for 2013

Indicator	Total
No of Advisers (Dec 2012)	238.8
1 Clients	42,131
2 Visits	21,977
3 Consultations	61,660
4 Discussion /Project Groups	697
Farm Planning Activities	
5 SFP submitted	41,400
6 Profit Monitors	6,579
7 DEP/ BTAP / other physical farm plan	5,266
8 Full Farm Business Plans	1,442
Environment / Regulation Activities	
9 Simple Fertiliser Plans	10,545
10 New Derogations	458
11 Derogation renewals/ revisions	2,778
12 Cross Compliance Support	5,919
13 TAMS	613
14 AEOS	734
15 REPS Records	8,113
Other	
16 No. of BETTER/Monitor Farms	96
17 Total No. of Meetings / Seminars	86
18 Total No. Farm Walks /Demos	158
19 Total Other Events	102

Selection of Teagasc 2013 Practice Adoption and Impact KPIs

<p><u>Dairy Practice Adoption</u></p> <p>Grass Utilisation</p> <ul style="list-style-type: none"> • Increase grass utilization by 5% base of 7.8 DM/ha <p>Breeding / Quality</p> <ul style="list-style-type: none"> • Increase Herd EBI by €10 per year • Increase the % of milk recording farms with average SCC <200,000 cells/ml from (2010) 19% to 50% 	<p><u>Dairy Impact</u></p> <ul style="list-style-type: none"> • Increase milk solids produced per hectare to 1,250 kg/ha • Reduced total production costs to less than €2/kgMS (Spring) and €2.5/kgMS (Autumn) on eProfit Monitor farms • Achieve an annual gain in profit from productivity exceeding 4% per annum
<p><u>Beef Practice Adoption</u></p> <p>Grass Utilisation</p> <ul style="list-style-type: none"> • Increase grass utilisation by 3% from 6.6 to 6.8 t DM/ha <p>Breeding</p> <ul style="list-style-type: none"> • Reduce calving interval by 2 days from 396 days to 394 days • Increase use of 4 & 5 star sires in beef herd on ICFB 	<p><u>Beef Impact</u></p> <ul style="list-style-type: none"> • 3% increase in average kg/ha liveweight (equivalent to 16kg) • Reduce cost of producing a kg of beef liveweight on eProfit Monitor farms by 2% from €1.99 to €1.95 • Achieve an annual gain in profit from productivity exceeding 2% per annum.
<p><u>Sheep Practice Adoption</u></p> <ul style="list-style-type: none"> • Increase sheep farmers participation in Sheep Ireland from 30% to 40% • Increase the average stocking rate in lowland mid-season sheep production from 8.8 currently to 11.5 ewes. <div data-bbox="144 1100 600 1165" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>* Costs at constant prices</p> </div>	<p><u>Sheep Impact</u></p> <ul style="list-style-type: none"> • 5% increase from 10.6 to 11.1 lambs weaned per hectare on eProfit Monitors farms • Reduce Costs of Production By 3% on avg from €96 to €91 per head * • Top 20% with costs < €75/head * • Increase Profit from Productivity by 2% per annum .

Using ePM to Measure Advisory Impact (profit from productivity)



	2006	2007	2008	2009	2010	2011
— Actual	1143	1858	1571	626	1510	2009
— No Gains	1143	1746	1492	557	1327	1694
PFP (€/Ha)		112	79	69	184	315

Challenges and future directions

- Industry and service challenges (some independent and some responsive)
- Sustainable intensification; larger farms; expansion (dairy) and greater price and production volatility (climate change)
- Resource constraints, especially staff, due to public-employment recruitment embargo
- Continued shift towards group-based delivery and away from “one-to-one” service
- Clearer delineation between public service function and role of the private sector (“contestability”)
- Continued need to improve and innovate knowledge transfer systems