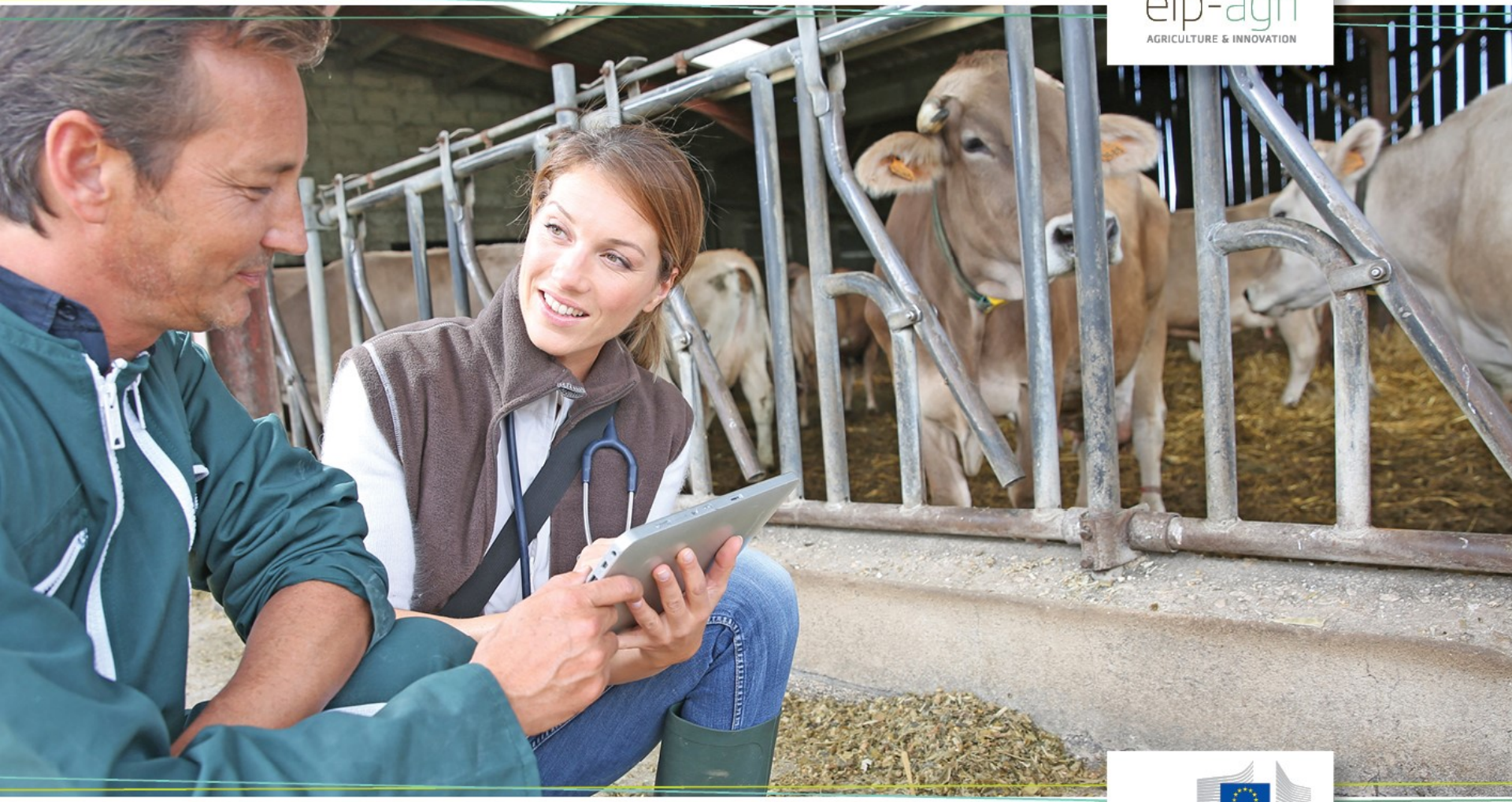
EIP-AGRI Workshop
Tools for environmental farm performance

7 - 8 February 2017 – Zagreb, Croatia

eip-agri
AGRICULTURE & INNOVATION



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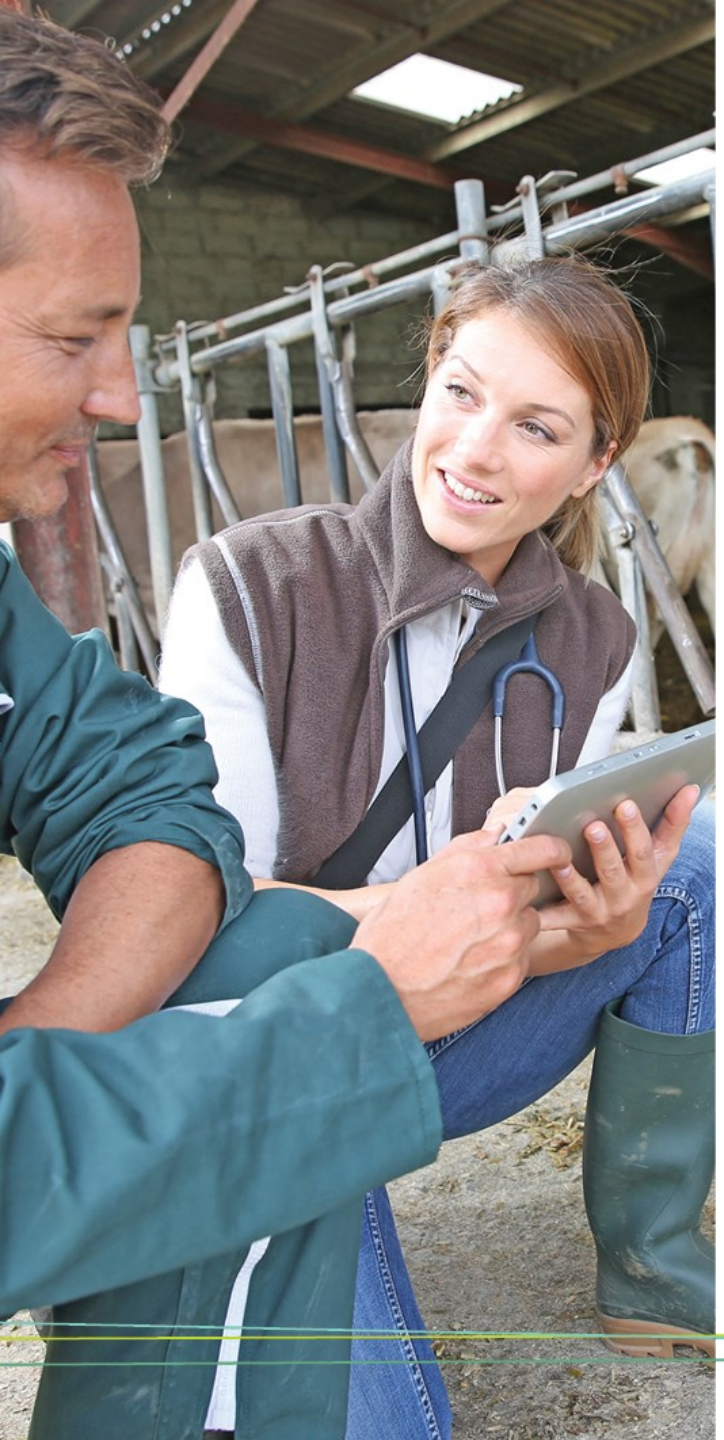

EIP-AGRI Workshop
'Tools for environmental farm performance'
Tuesday 7 February 2017, Zagreb - Croatia

12:00 – 13:00 Registration and buffet lunch

13:00 – 13:10 Welcome words

- *Iman Boot, DG Agriculture and Rural Development*
- *Krešimir Ivančić, Croatian Ministry of Agriculture*

13:10 – 13:20 Icebreaker

13:20 – 13:40 Introduction to the theme of the workshop by DG AGRI

13:40 – 14:00 Setting the scene by the coordinating experts of the workshop

14:00 – 14:45 Elevator pitches, highlighting the three main reasons for which farmers may use sustainability tools (farm initiative, food chain, legislation)
Consecutive panel reflections

- *Martijn Buijsse, Skylark, The Netherlands*
- *Vincenzo Angileri, Joint Research Centre, European Commission*
- *Simon Miller, Cool Farm Tool, UK*

14:45 – 15:45 Presentations of existing environmental sustainability tools

- ***John Lynch, TEAGASC, Ireland***
- *Romain Dieulot, FNCIVAM, France*
- *Kathryn Green, LEAF, UK*
- *François Lerin, CIHEAM-IAMM & HNV-Link Thematic Network, France*
- *Josien Kapma, Boer & Bunder, The Netherlands*
- *Dóra Mészáros, SMART, Hungary*

15:45 – 16:15 Coffee break

16:15 – 18:00 Break-out sessions

19:00 Networking dinner

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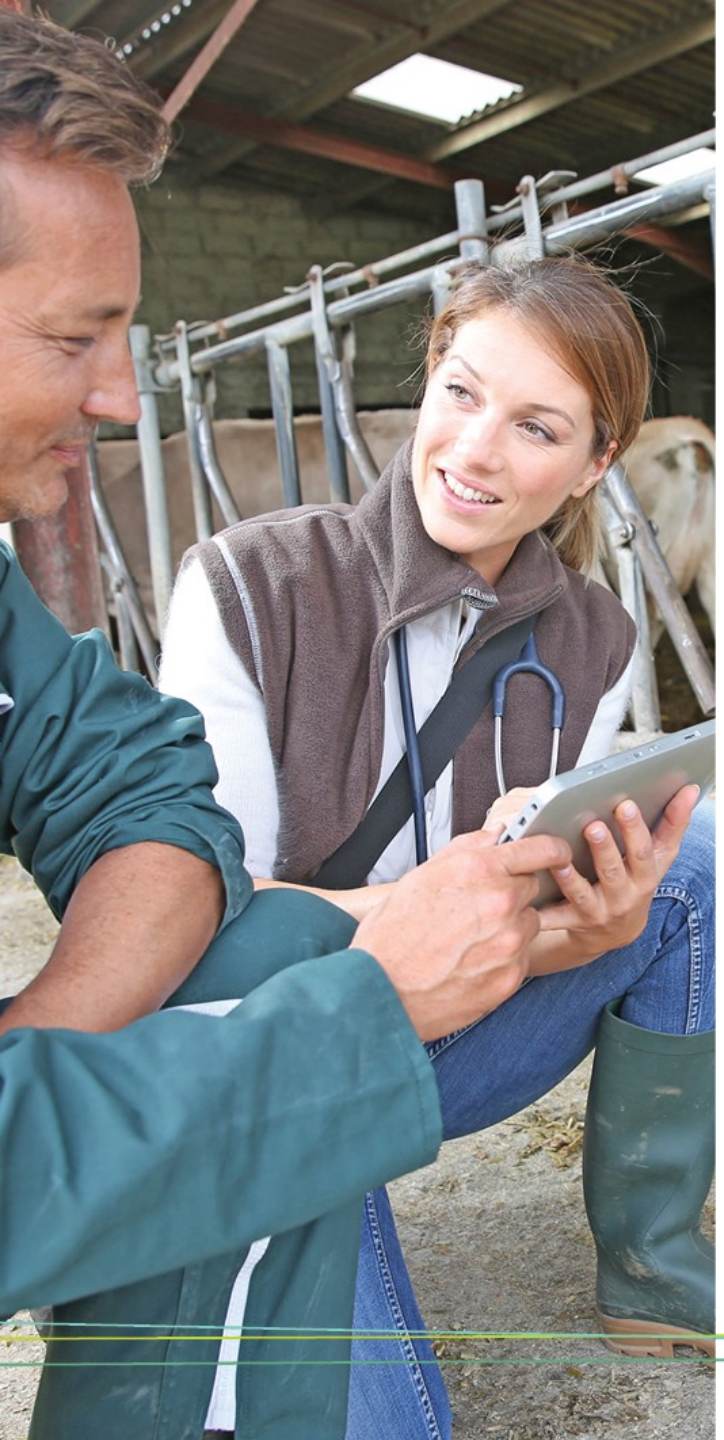

EIP-AGRI Workshop
'Tools for environmental farm performance'
Wednesday 8 February 2017, Zagreb - Croatia

09:00 – 09:30 Energiser exercise
Summary of previous day and conclusions by coordinating experts Janet Dwyer and Marta Pérez-Soba

09:30 – 10:30 Break-out session

- What does the ideal tool look like to you?
- What can you do to make such a tool become a reality?

10:30 – 11:00 Coffee break

11:00 – 11:45 Break-out session (continued)

- If you would start an EIP-AGRI Operational Group to design the ideal tool, what would be the main problem to solve or opportunity to take, who would be the partners and how would you design the project?

11:45 – 12:00 Harvesting

12:00 – 12:30 Plenary session

- What happens after the event? Concrete ideas for follow-up actions

12:30 – 13:30 Lunch and departure

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EIP-AGRI Workshop
'Tools for environmental farm performance'




John Lynch

Rural Economy and Development Programme, Teagasc, Athenry

Environmental Farm Performance Tools in Ireland

- Greenhouse gas emissions
  - Carbon navigator (dairy + beef)
- Nutrient balance
  - Nutrient management plan

Carbon navigator

- Tool aimed to show farmers 'win-win' efficiency gains
  - Reduce emissions and increase profitability
- Dairy and beef versions
- Completed by advisor/consultant and farmer together
- Input current herd and management details
- Discuss and set targets to reduce with advisor
- Uptake linked with funding and/or assurance scheme
  - Dairy Carbon navigator part of Bord Bia Sustainable Dairy Assurance
  - Beef Carbon navigator part of Beef Data and Genomics Programme

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

Herd	A9999000 Update Download Excel File Input another herd number
Farmer Name	Dan Murphy
County	Galway West
Soil Type	Moderately Drained
Area farmed (ha)	35
Average number of suckler cows	38
Average number of yearlings/followers	35

Year 2010		Current	Target	Chart	GHG change	€ benefit
Grazing season - suckler cows	Turnout Date	24/03/2010	10/03/2010	Grazing Season Suckler Cows	-2.5%	+€1509
	Housing Date	01/11/2010	15/11/2010			
Grazing season - yearlings/followers	Turnout Date	24/03/2010	10/03/2010		-1.9%	€0
	Housing Date	01/11/2010	15/11/2010			
Age at first calving	Age at first calving (months)	34.5	22.0	Age At First Calving	-3.8%	+€4392
Calving Rate	Calving rate (calves/cow)	0.0	0.0			
Live weight performance	System	Steers & Heifers	Steers & Heifers	Live Weight Performance	-0.4%	€0
	Lifetime live weight per day of age (g)	860.00	946.0			
Nitrogen Efficiency	Total CAN used (t			Nitrogen Efficiency	0%	€0
	Total urea used (t					
	Output kg beef liv					
Slurry Spread Timing	% in Spring			Manure Management	0%	+€325
	% Summer following 1st cut	0	0			
	% Later in Summer	0	0			

Set current and target performance

Impact on GHG emissions per kg

Improvement in profitability

Intuitive scoring chart

Possible actions to reduce GHG emissions

Grazing Season Length:

- ☐ Focus on effective autumn and spring grassland management. Give particular attention to minimising damage, backfenceing if necessary to limit poaching
- ☑ Early nitrogen is essential for early grass. Spread 33 Kg/Ha from mid-February weather permitting
- ☐ Carefully manage early spring grazing, limiting grazing time in wet conditions
- ☑ Manage soil fertility - sample your soil and apply P, K and lime as required
- ☐ Monitor grass covers to ensure that good quality grass is available at all times
- ☑ Improve your grassland management throu Sharing experiences in a dairy discussion group is the most effective way to improve skills.

Grazing Season Length:

```
Early nitrogen is essential for early grass. Spread 1.5 bags of Urea Kg/Ha from mid-
February weather permitting.

Manage soil fertility - sample your soil and apply P, K and lime as required

Improve your grassland management throu Sharing experiences in a dairy discussion
group is the most effective way to improve skills.
```

Grazing Season Length:

Early nitrogen is essential for early grass. Spread i.5 bags of urea from mid-February weather permitting

Manage soil fertility - sample your soil and apply P, K and lime as required

EBI:

Choose a panel of 5 high EBI bulls that compliment your herd. For most farmers fertility is the main weakness that needs to be improved.

Focus on your heifers - breeding heifers to carefully selected high EBI bulls is the fastest way to improve herd EBI and profitability

Order sufficient straws, e.g. 55 straws per 10 heifers required

Nitrogen efficiency:

Use urea, especially early in the season.

Try treated urea on a portion of the farmer for late spring, early summer applications.

Slurry Spreading:

Join GLAS selecting Low Emissions Spreading Option

Energy Use:

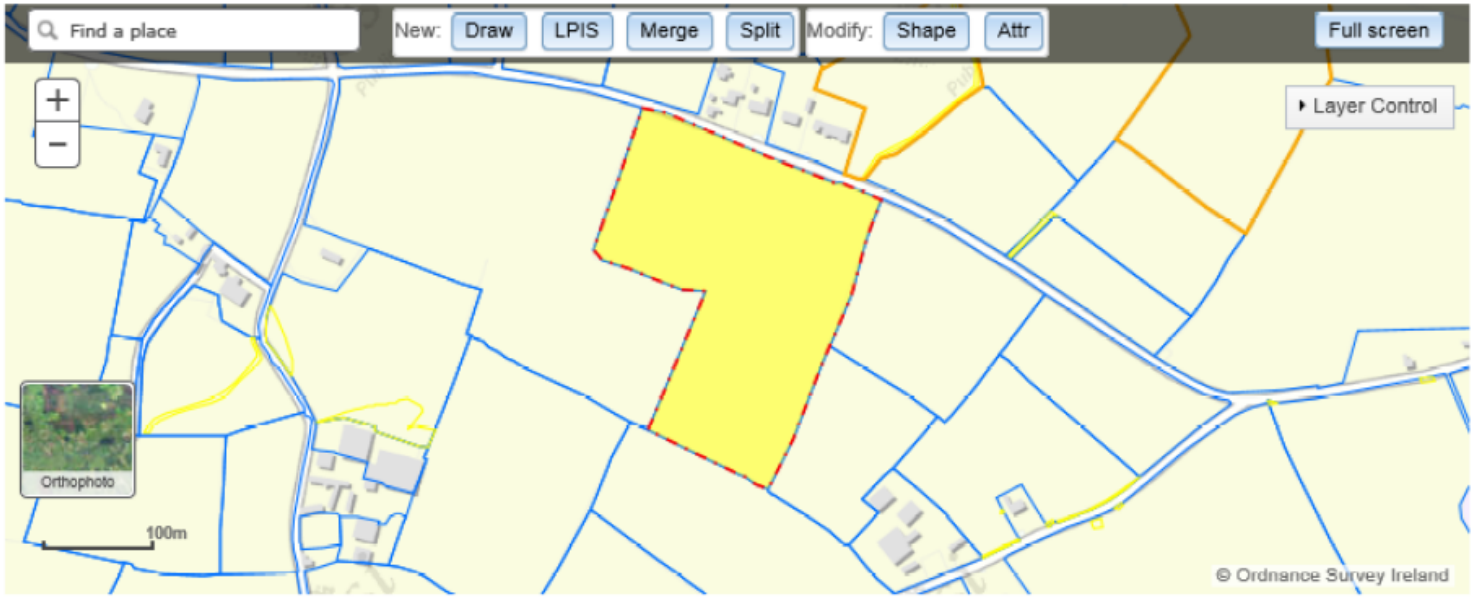
Make sure your plate cooler is working effectively. Measure the temperature of your milk entering

Nutrient Management Plan

- Mapping based tool for nutrient efficiency
- Input map and crop data, livestock, soil data
- Advisor consultation with farmer
- Outputs farmers plan in form of map
- Statutory plan in form of applications and activities undertaken
- Mandatory for GLAS (EU co-funded agri-env scheme) and derogation

Plan - Land Setup

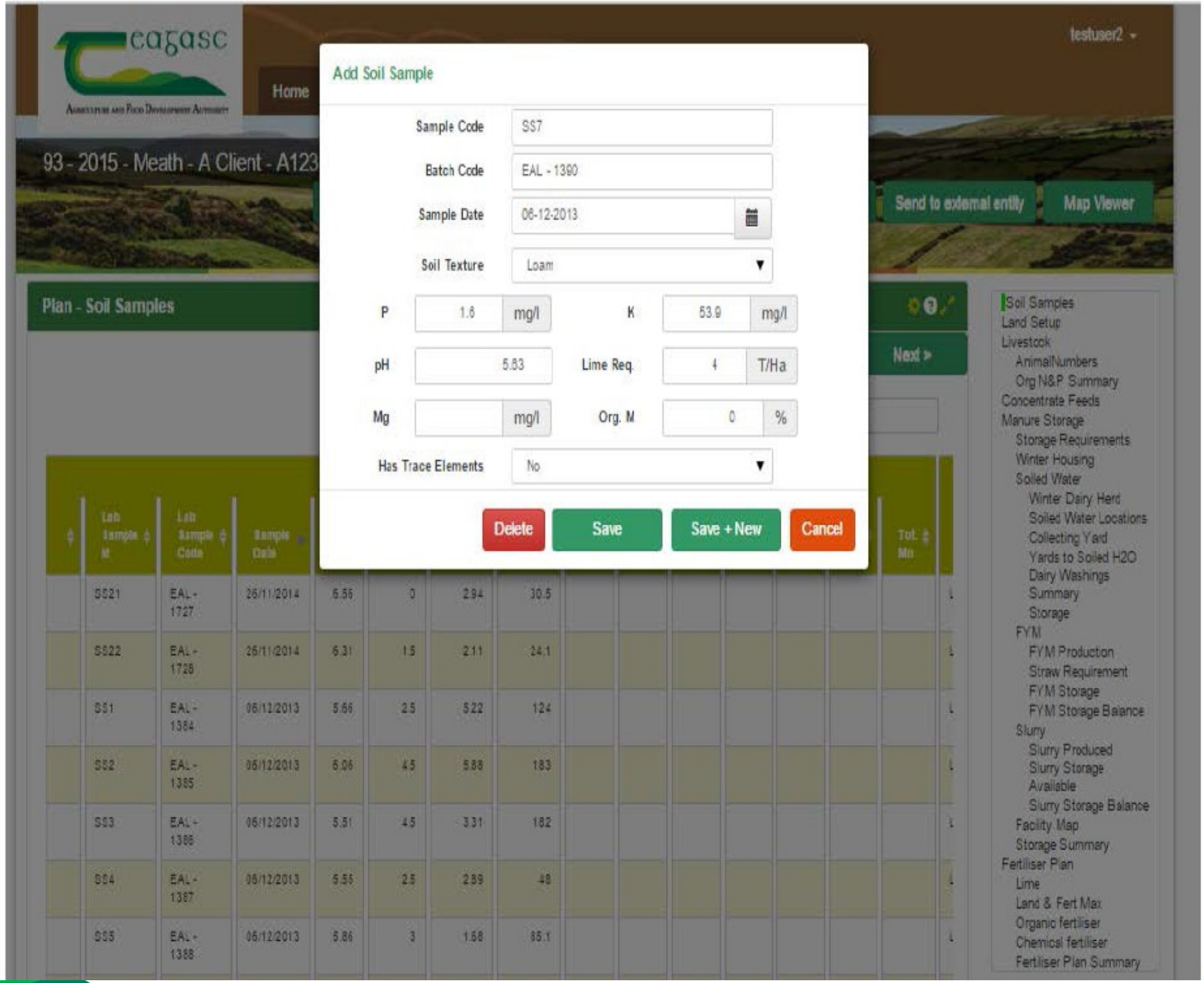
< Prev | Next >



Search:

Name	Townland	Gross Area	Ref. Area	Soil Samples Ids	First Crop	Crop 2	Options
bens		4.83	4.83	bens(01/09/15),	GLAS Hen Harrier		Zoom To
biddys	kil	1.41	1.41	grass 2(01/09/15),	Grazing		Zoom To
billys		2.91	2.91	billys(01/09/15),	GLAS Riparian Margin		Zoom To

- Soil Samples
- Land Setup
- Livestock
  - AnimalNumbers
  - Org N&P Summary
- Concentrate Feeds
- Manure Storage
  - Storage Requirements
  - Winter Housing
  - Soiled Water
    - Winter Dairy Herd
    - Soiled Water
    - Locations
    - Collecting Yard
    - Yards to Soiled H2O
    - Dairy Washings
    - Summary
    - Storage
  - FYM
    - FYM Production
    - Straw Requirement
    - FYM Storage
    - FYM Storage Balance
  - Slurry
    - Slurry Produced
    - Slurry Storage Available
    - Slurry Storage Balance
  - Facility Map
  - Storage Summary
- Fertiliser Plan
  - Cereal crop yields
  - Lime
  - Land & Fert Max
  - Organic fertiliser
  - Chemical fertiliser
  - Fertiliser Plan Summary


teagasc
Agriculture and Food Development Authority
Home
testuser2
93 - 2015 - Meath - A Client - A123
Send to external entity
Map Viewer
Plan - Soil Samples
Next »
Add Soil Sample
Sample Code
SS7
Batch Code
EAL - 1390
Sample Date
06-12-2013
Soil Texture
Loam
P
1.6
mg/l
K
53.9
mg/l
pH
5.83
Lime Req.
4
T/Ha
Mg
mg/l
Org. M
0
%
Has Trace Elements
No
Delete
Save
Save + New
Cancel
Soil Samples
Land Setup
Livestock
Animal Numbers
Org N&P Summary
Concentrate Feeds
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Winter Dairy Herd
Soiled Water Locations
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Yards to Soiled H2O
Dairy Washings
Summary
Storage
FYM
FYM Production
Straw Requirement
FYM Storage
FYM Storage Balance
Slurry
Slurry Produced
Slurry Storage
Available
Slurry Storage Balance
Facility Map
Storage Summary
Fertiliser Plan
Lime
Land & Fert Max
Organic fertiliser
Chemical fertiliser
Fertiliser Plan Summary
Lab Sample Id
Lab Sample Code
Sample Date
Tot. Mn
SS21
EAL - 1727
26/11/2014
6.56
0
2.94
30.5
SS22
EAL - 1728
26/11/2014
6.31
1.5
2.11
24.1
SS1
EAL - 1384
06/12/2013
5.66
2.5
5.22
124
SS2
EAL - 1385
06/12/2013
6.06
4.5
5.88
183
SS3
EAL - 1386
06/12/2013
5.51
4.5
3.31
182
SS4
EAL - 1387
06/12/2013
5.55
2.5
2.89
48
SS5
EAL - 1388
06/12/2013
5.86
3
1.68
85.1


Can (27%N): 4
50% K (MOP): 0.5
16% Super P: 0
Can (27%N): 4
50% K (MOP): 2
16% Super P: 0
Can (27%N): 2.5
50% K (MOP): 0
16% Super P: 0
Can (27%N): 1
50% K (MOP): 0
16% Super P: 0
Can (27%N): 2.5
50% K (MOP): 0
16% Super P: 0
Can (27%N): 4
50% K (MOP): 0
16% Super P: 0
Can (27%N): 0
50% K (MOP): 0
16% Super P: 0
Can (27%N): 2
50% K (MOP): 0
16% Super P: 0
Can (27%N): 4
50% K (MOP): 0
16% Super P: 2
Can (27%N): 0
50% K (MOP): 0
16% Super P: 0

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SIP

SUSTAINABLE INTENSIFICATION RESEARCH PLATFORM

Output

Input

EIP-Agri

Famer tools for environmental performance

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SUSTAINABLE INTENSIFICATION RESEARCH PLATFORM

Farmscoper

(ADAS)

http://www.adas.uk/Service/farmscoper

Output

Input

Table 5-3 Mitigation methods and agreed levels of prior uptake representing the present day, circa 2010. The modifiers refer to the lettered categories, such that a 'C' baseline value modified by -1 becomes a 'B'. Note that implementation rates for methods named in italics are based solely on expert opinion.

			Baseline Values			Modifiers	
Group	ID	Method Name	Free Draining	Other Soils	NVZ	Intensive Grazing	Extensive grazing
1	4	Establish cover crops in the autumn	C	B		-1	-1
1	5	Early harvesting and establishment of crops in the autumn	E	E			
1	6	Cultivate land for crops in spring rather than autumn	F	B			
1	7	Adopt reduced cultivation systems	C	E		-1	-1
1	8	Cultivate compacted tillage soils	D	D		-1	-1
7	9	Cultivate and drill across the slope	D	C			
1	10	Leave autumn seedbeds rough	D	D		-1	-1
7	11	Manage over-winter tramlines	D	D		-1	-1
7	13	Establish in-field grass buffer strips	B	B			
7	14	Establish riparian buffer strips	D	D		-1	-1
1	15	Loosen compacted soil layers in grassland fields	C	C			
7	16	Allow grassland field drainage systems to deteriorate	A	B			
7	180	*Ditch management on arable land*	A	E			
7	181	*Ditch management on grassland*	A	D			
5	19	Make use of improved genetic resources in livestock	C	C			
2	20	Use plants with improved nitrogen use efficiency	A	A			
2	21	Fertiliser spreader calibration	E	E	1		-1
2	22	Use a fertiliser recommendation system	F	F	1		-1
3	23	Integrate fertiliser and manure nutrient supply	E	E	1		-1
2	25	Do not apply manufactured fertiliser to high-risk areas	E	E	1		-1
2	26	Avoid spreading manufactured fertiliser to fields at high-risk times	F*	F*	1		

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RESEARCH PLATFORM

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ID	Capital Cost (£m)	Operational Cost (£m)	Total Cost (£m)	Environmental Benefit (£m)	Nitrate (%)	Phosphorus (%)	Sediment (%)	Ammonia (%)	Methane (%)	Nitrous Oxide (%)	Pesticides (%)	FIOs (%)	Soil Carbon (%)	Energy Use (%)	Production (%)
4	0	42	42	108	3.7	6.7	13.1	0.0	0.0	0.5	0.4	0.1	0.0	-0.4	0.0
5	0	40	40	13	0.4	0.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0	170	170	16	0.7	2.1	1.6	0.0	0.0	0.1	0.1	0.0	0.0	-0.1	1.7
7	0	-45	-45	36	1.6	0.9	2.4	0.0	0.0	0.6	-2.1	0.0	0.0	1.1	0.0
8	0	37	37	28	0.4	1.6	3.3	0.0	0.0	0.5	2.1	0.1	0.0	-0.6	0.0
9	0	8	8	18	0.3	0.9	2.2	0.0	0.0	0.0	1.9	0.1	0.0	0.0	0.0
10	0	30	30	247	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.0	0.0	-0.1	0.0
11	0	1	1	2	0.1	0.1	0.3	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0
13	1	24	25	26	0.1	1.5	3.6	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0
14	5	43	47	54	0.8	2.5	5.3	0.4	0.0	0.5	6.3	0.1	0.0	0.8	0.6
15	0	52	52	30	0.4	2.2	2.0	0.0	0.0	0.9	0.0	0.3	0.0	0.0	0.0
16	0	82	82	-18	0.2	0.6	0.3	0.0	0.0	-1.6	0.0	0.0	0.0	-0.2	0.0
19	0	-240	-240	20	0.2	0.4	0.0	0.9	1.7	0.4	0.0	0.0	0.0	0.0	-0.7
20	0	-52	-52	78	2.9	0.0	0.0	3.3	0.0	2.5	0.0	0.0	0.0	3.9	0.0
21	0	-25	-25	0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
22	0	-7	-7	5	0.3	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0
23	0	-138	-138	10	0.5	0.5	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.3	0.0
25	0	16	16	4	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.2	0.1
26	0	134	134	6	0.2	1.5	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.9
27	23	-42	-20	27	0.4	0.1	0.0	0.5	0.0	0.1	0.0	0.0	0.0	3.6	0.0
28	0	16	16	4	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
31	0	-197	-197	66	0.6	0.0	0.0	0.4	0.0	0.6	0.0	0.0	0.0	8.6	0.0
32	0	-24	-24	6	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
34	1	-4	-3	1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

eld edge ponds

Output

Input

Augmentation using FarmScoper

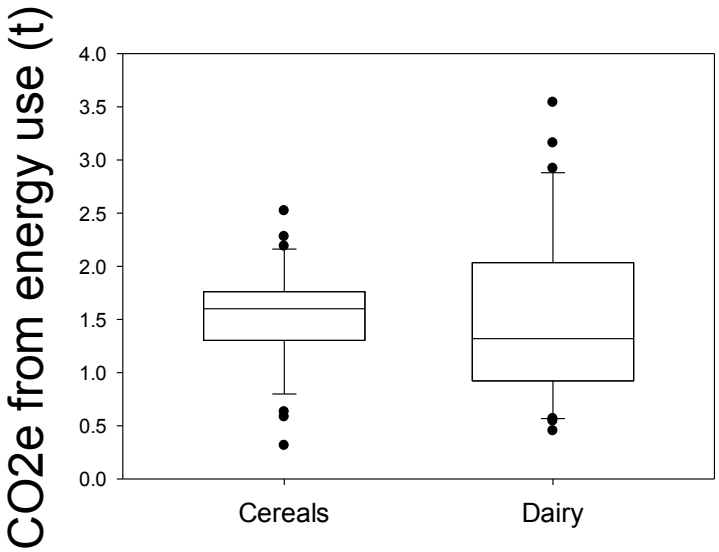
- Collection of sub-models
  - PSYCHIC: phosphorus (and sediment)
  - NEAP-N: nitrate
  - NARSES: ammonia
  - MANNER: manures
  - IPCC methodologies: GHGs
- Outputs of particular env. interest e.g.
  - Nitrate
  - Ammonia
  - Nitrous Oxide

Output

Input

Benchmarking – per hectare

Main Farm Type	NO_3-N (kg ha^{-1})		P (kg ha^{-1})		NH_3 (kg ha^{-1})		Total GHG (t CO_2e ha^{-1})	
	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ	$\bar{x}$	σ
Cereals	21.2	5.6	0.30	0.17	11.6	5.38	3.26	0.93
Dairy	24.0	10.6	0.91	0.74	37.2	15.36	12.0	4.38



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SUSTAINABLE INTENSIFICATION RESEARCH PLATFORM

Output

Input

Farm Business Survey Benchmarking

http://www.farmbusinesssurvey.co.uk/benchmarking/

RBR
Rural Business Research

Enterprise Gross Margins

Enterprise Gross Margins
England : Winter wheat (conventional)

FBS Values
(•) All performers ( ) High performers (Gross Margins est. in top 25% of population with Enterprise)

Compare On
( ) Percentages (•) Relative Rank

Enterprise Measures (£ per hectare unless stated otherwise)	FBS Values	Your values (£ per hectare unless stated otherwise)	Comparison with FBS
Crop area - conventional (non-organic) - (ha)	65.6	100	High [i]
Yield (tonnes per ha)	9.0	7.5	Low [i]
Price (£ per tonne)	**129.8**	**107**	Low [i]
Grain sales	1,167	805	Low [i]
Straw output	56	70	Average [i]
Enterprise output	**1,223**	**875**	Low [i]
Seeds	72	85	Average to High [i]
Fertilizers	206	150	Low [i]
Crop Protection	211	211	Average [i]
Other crop costs	29	12	Average [i]
Drying & Heating	6.4	2	Average to High [i]
Total Variable Costs	**525**	**460**	Average to Low [i]
Gross Margin	**698**	**415**	Low [i]


Compare with FBS (All performers)

Performance Ratios
England : Dairy (conventional) : Mixed

Please note that these results are from the 2014/15 Farm Business Survey (FBS) database, where the year end of the farm accounts falls between 31 December 2014 and 5 April 2015.

FBS Values
(•) All performers ( ) High performers (Ratio of output to input [totals] in the top 25% of FarmType)

Compare On
(•) Percentages ( ) Relative Rank

There are 151 farms in the FBS (All performers) sample fitting the above enterprise classification. The values for the measures listed below are averages for the FBS population.

Compare with FBS (All performers)

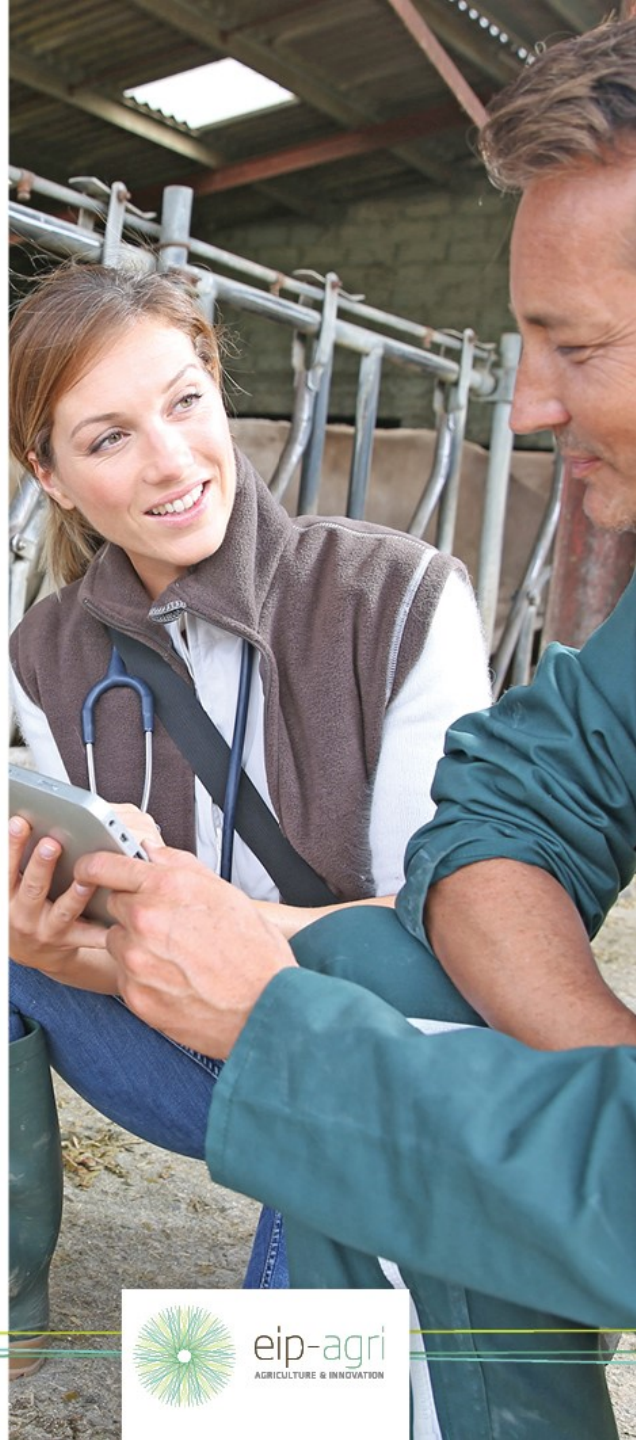
Peformance Ratio Measures (% unless stated otherwise)	FBS values	Your values (per Farm)	Comparison with FBS
Return on tenants capital (%)	11.6	13.4	115.5%
Return on total capital (%)	3.6	4.5	125.0%
Labour costs per £100 turnover	8.63	6.3	73.0%
Machinery costs per £100 turnover	11.95	12.4	103.8%
Labour plus machinery costs per £100 turnover	20.58	18.7	90.9%
Farm business income per £100 turnover	14.05	17.40	123.8%
Estimated electricity consumption (cost@standard-2014-input-price of 11p/kWh) (kilo Watt hours per dairy cows Livestock Unit (LU))	363	454	125.1%
Estimated fuel and oils consumption (cost@standard-2014-input-price of 47p/L for heat and 55p/L for fuels) (Litres per dairy cows Livestock Unit (LU))	144	123	85.4%

Standard Econ indicators + Energy and Fuel

EIP-AGRI Workshop
'Tools for environmental farm performance'

All presentations & background documents are available on the event webpage.

www.eip-agri.eu



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