

Livestock Systems Research Department

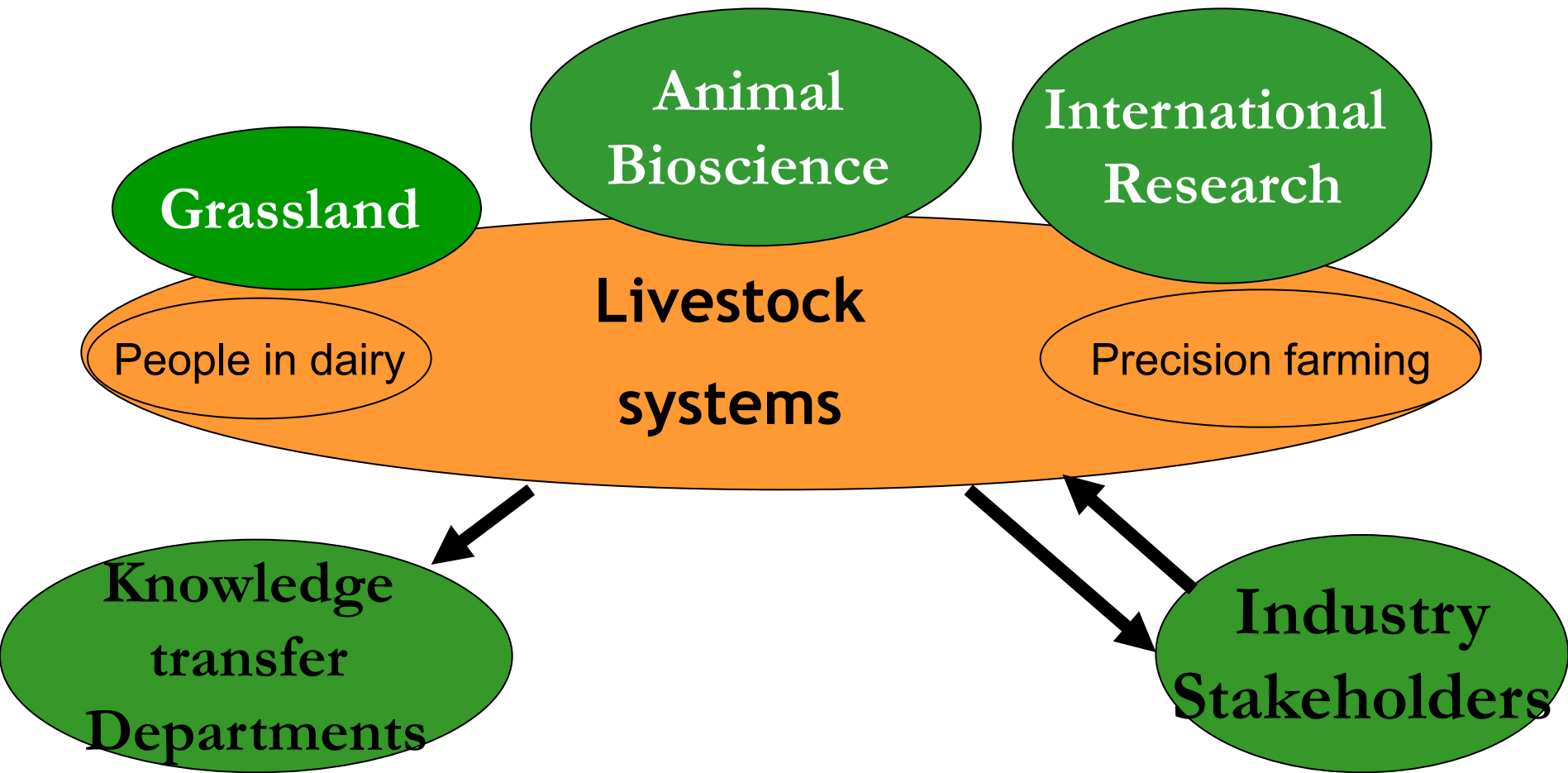


Department Objectives

- Generate & procure new knowledge to increase profitability and sustainability of Irish livestock farmers
- Become a leading international authority on the impact of relevant technologies on the profitability and sustainability of pasture-based livestock systems
- Collaborate in delivering new knowledge and technology to our stakeholders

Department Strategy

- Procure and generate new knowledge and evaluate it's contribution using bio-economic models and farmlet systems.
- Work with stakeholders to have research relevant, funded and more readily adopted
- Publish in high quality journals to ensure the scientific merit and to become part of the international scientific community in our areas
- Use farmlet studies/demo farms to assist with knowledge transfer



Sustainable production systems

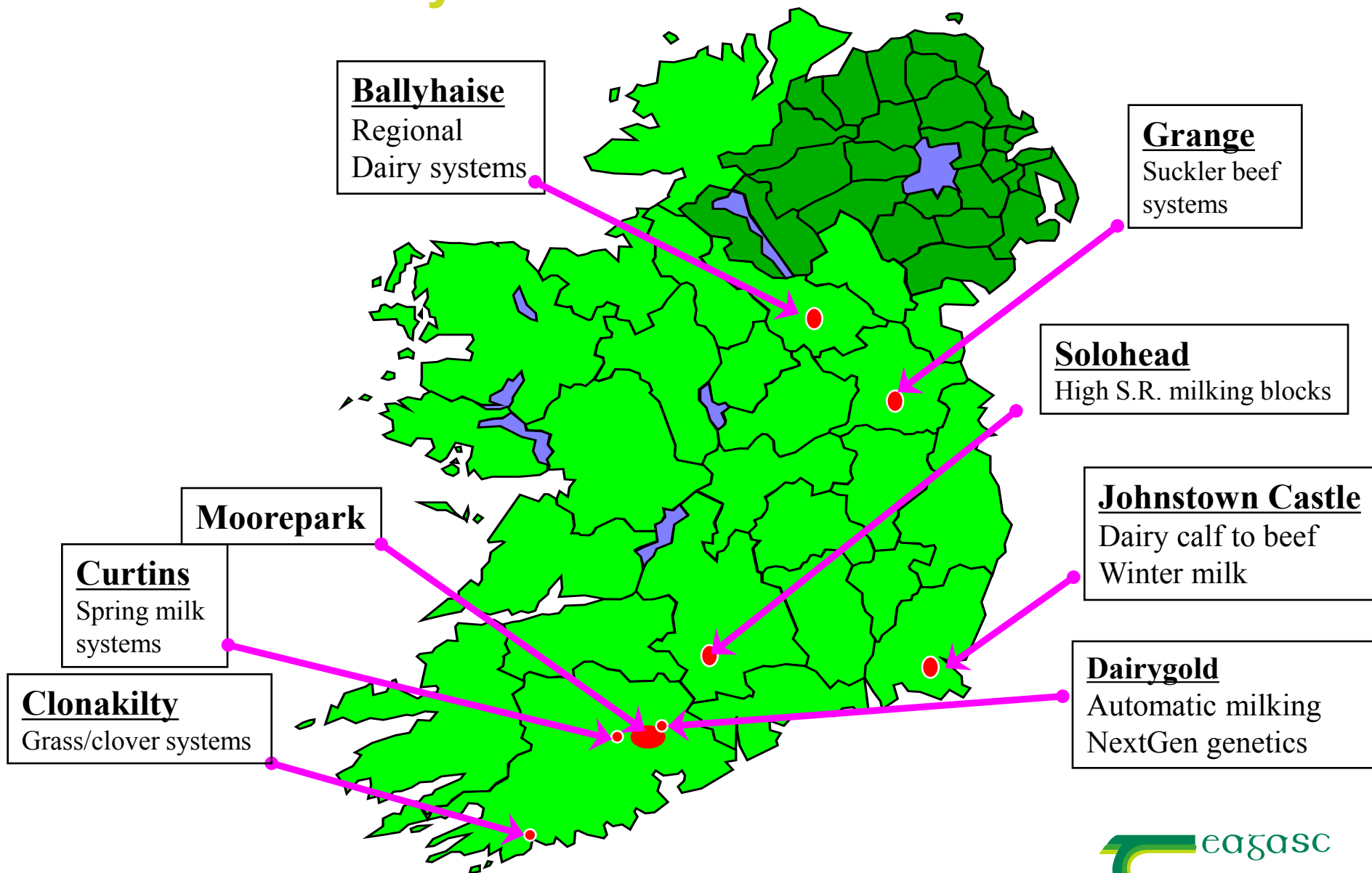
Farmlet studies to determine

- Profitability
- Nutrient output
- Labour input
- Capital input
- Impact of
 - » stocking rate
 - » Calving date
 - » Genotype
 - » Feed system
 - » Local constraints

Farmlet studies Research

- Allow greater feeding and management control, than in a large population study where we can't account for the influences of on-farm decisions
- Main methodology for detailed-evaluation of:
 - management practises and systems for profitability and feasibility
 - decision rules and technologies on a daily, seasonal and annual basis
 - Genotypes of plants and animals within controlled environment provided by our farming systems
 - Understand interactions between management changes, feed use and animal/nutrient output

Livestock systems farmlet research studies



Heavy Soils Programme

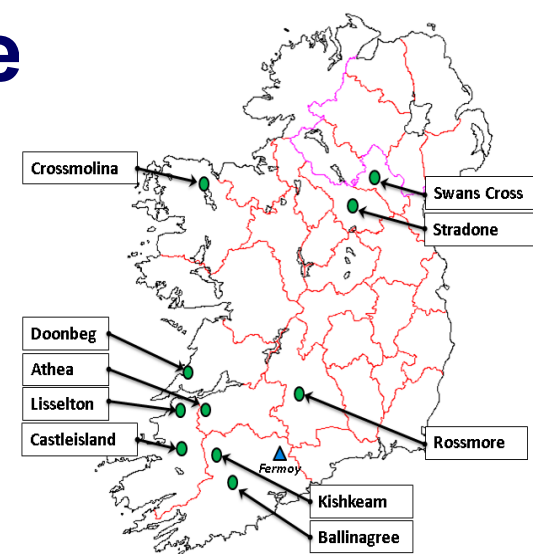
Aims

- increase profitability & productivity
- reduce volatility on farms with poorly drained soils.

10 commercial farm participants; in 8 Counties.

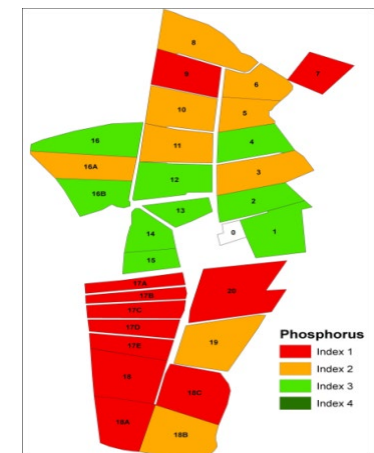
Focus on

- land drainage,
- soil fertility,
- grassland management,
- fodder reserves,
- farm infrastructure
- farm profitability.



• Collaboration with CELUP and Teagasc Advisory with support from Kerry, Dairygold, Tipperary & LacPatrick

intensive monitoring to allow for analysis of farm systems and the development of strategies to achieve programme aims



Farm systems modeling

- Dairy beef & sheep farm systems models
 - » Moorepark dairy systems
 - GHG- National inventory
 - LCA- Carbon, energy, water, nitrogen
 - Nitrogen
 - » Processing sector model
 - » Dairy calf to beef model

Farm systems modeling

- Model Uses

- » Economic analysis of farmlet experiments
- » Derivation of economic values for national breeding objectives
- » milk processing to optimise farm efficiency and dairy product portfolio
- » to reduce greenhouse gas emissions from dairy and beef systems
- » Optimising milk/beef production efficiency –within environmental/local constraints
- » Systems research prioritisation



PRECISION RESEARCH Precision
technologies
Integrated databases
Decision-support tools



- focus on integrated precision technologies with grass based dairy production
- Key areas : grass utilization, grazing and environmental management; animal care; labour productivity; and farm efficiency
- Current precision technologies include:
automated grass measurement tool (*Grasshopper*); milking robot; cow grazing monitors; cow activity monitors (such as for oestrus detection); and body condition score sensor

Future priority

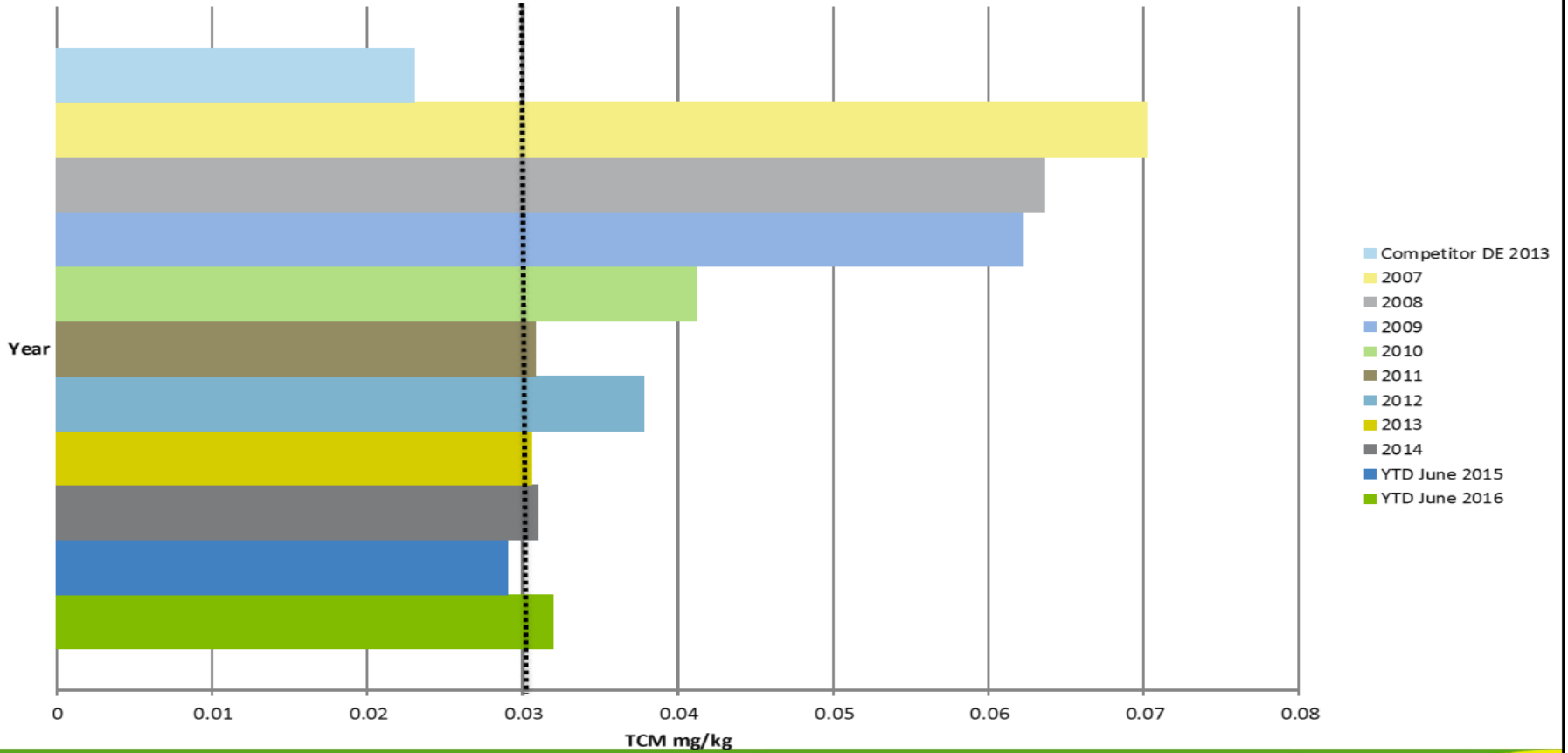
- SMART sustainable pasture systems
 - Research platform, Demonstration platform, Test-bed platform
- Range of sensors deployed for gathering relevant 'real time' data on appropriate variables;
- A system for flow, integration and conversion of that data into farm management decision support tools (DSTs);
- A sensor/technology test-bed where ICT tools can be further developed, tested and validated



Milk Quality : Focus on residues

- Two products **iodine and chlorine** assoc with 3 residues
- **Iodine** used as ingredient in animal feed and as teat disinfectant
- **Chlorine** used as disinfectant of milk contact surfaces
 - TCM
 - Chlorate

TCM Trend Average 2009- 2016 YTD



Milking machine research

1. Provide guidelines for milking machine settings and liner suitability to increase milking efficiency and minimise teat tissue congestion
2. Milking management strategies to maximise udder health and milk yield
3. Optimise efficiency of AMS systems for grass-based systems
4. Develop model to optimise the integration of renewable technologies

People in dairying priorities

- **Completed a quantitative study to determine the people resources needed for dairy expansion**
- **Skills requirement to run a successful dairy farm business; this will be used as a guide for future training programmes**
- **Identify the characteristics of a labour efficient dairy farm with particular focus on the spring period**
- **HR toolkit for existing dairy farmers that employ labour**

Demonstration farms & Decision Support Tools

- **Decision Support Tools**
 - PastureBase
 - Grass Calculator
 - Liquid Herd Calving Model
 - Carbon Navigator

- **Demonstration farms**
 - 3 Greenfield dairy farms
 - Provide leadership on sustainable dairy expansion

 - Suckler demonstration farm
 - Demonstrate best practice on suckler to beef systems

Greenfield

DAIRY PROGRAMME



www.greenfielddairy.ie





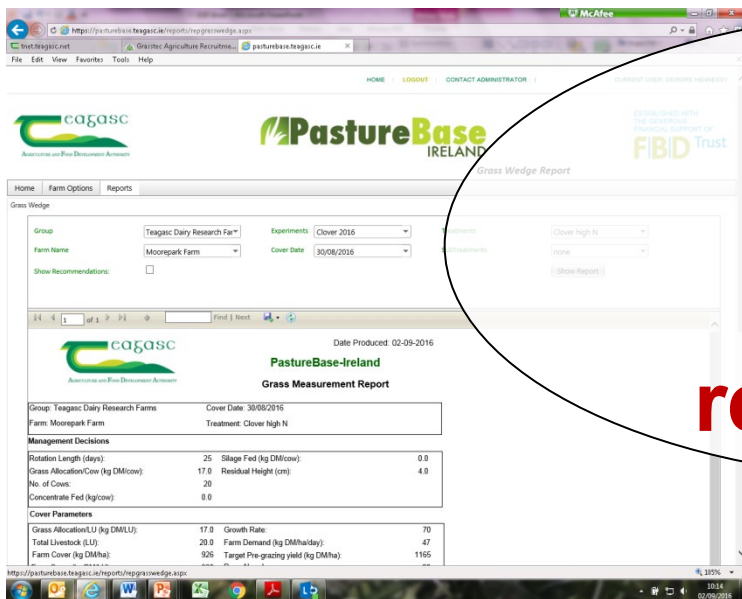
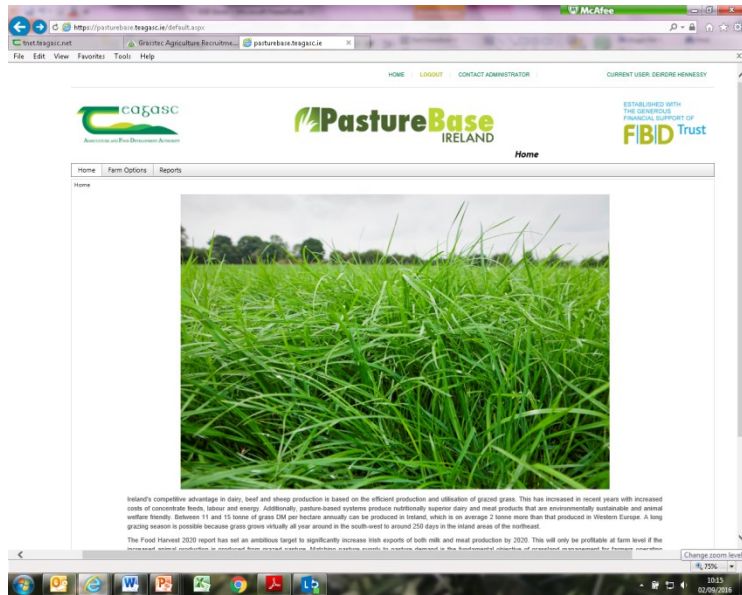
Newford

Suckler Demonstration Farm

Newford Herd, Athenry, Co. Galway



PastureBase Ireland



- Web based grassland management decision support tool – front end
- Grassland data base – back end
- Data capture by farmer
- Core measurement is pre-grazing herbage mass

- Provides farmers with information on farm cover per cow and per ha (grass available on farm), weekly grass growth, identifying surpluses and deficits

Used by farmers, advisors, researchers