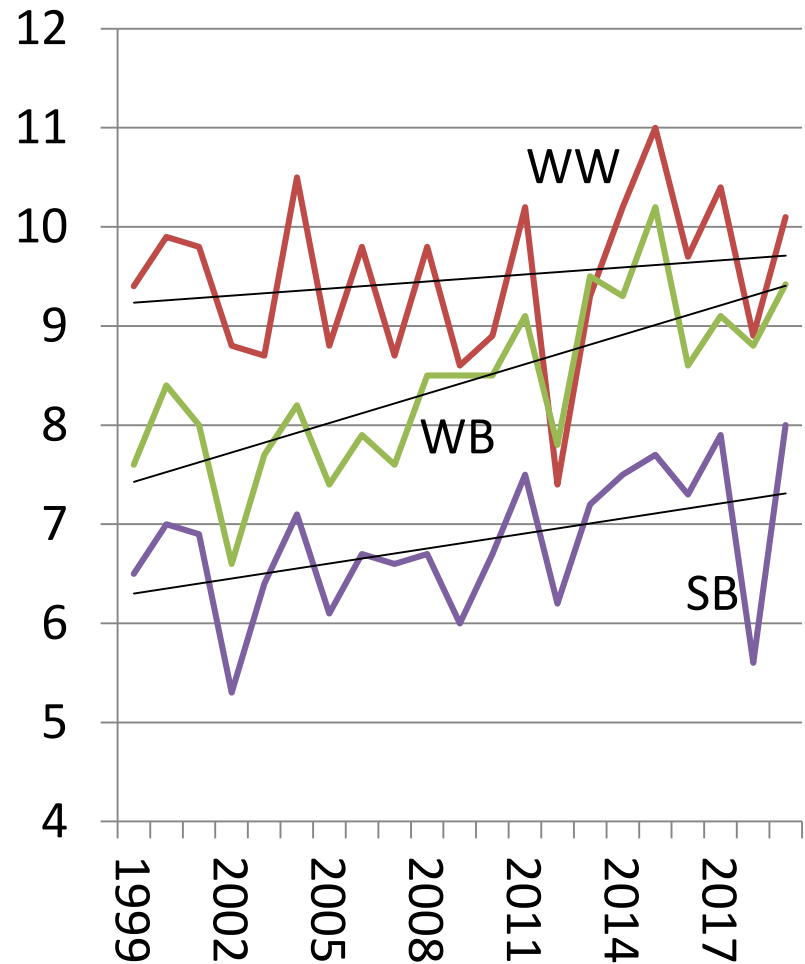
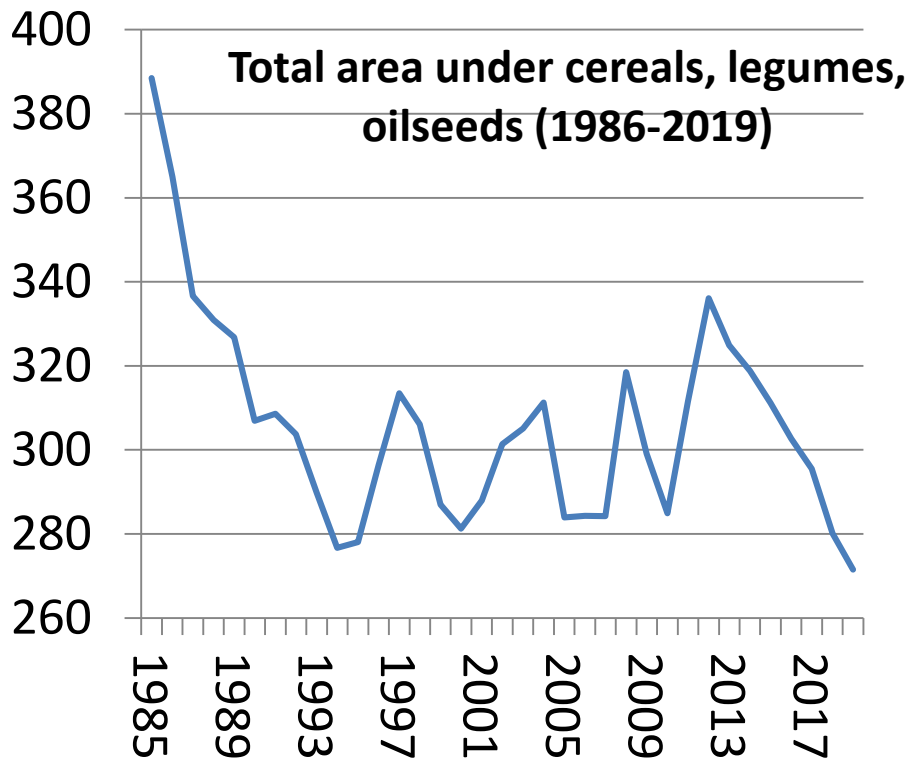




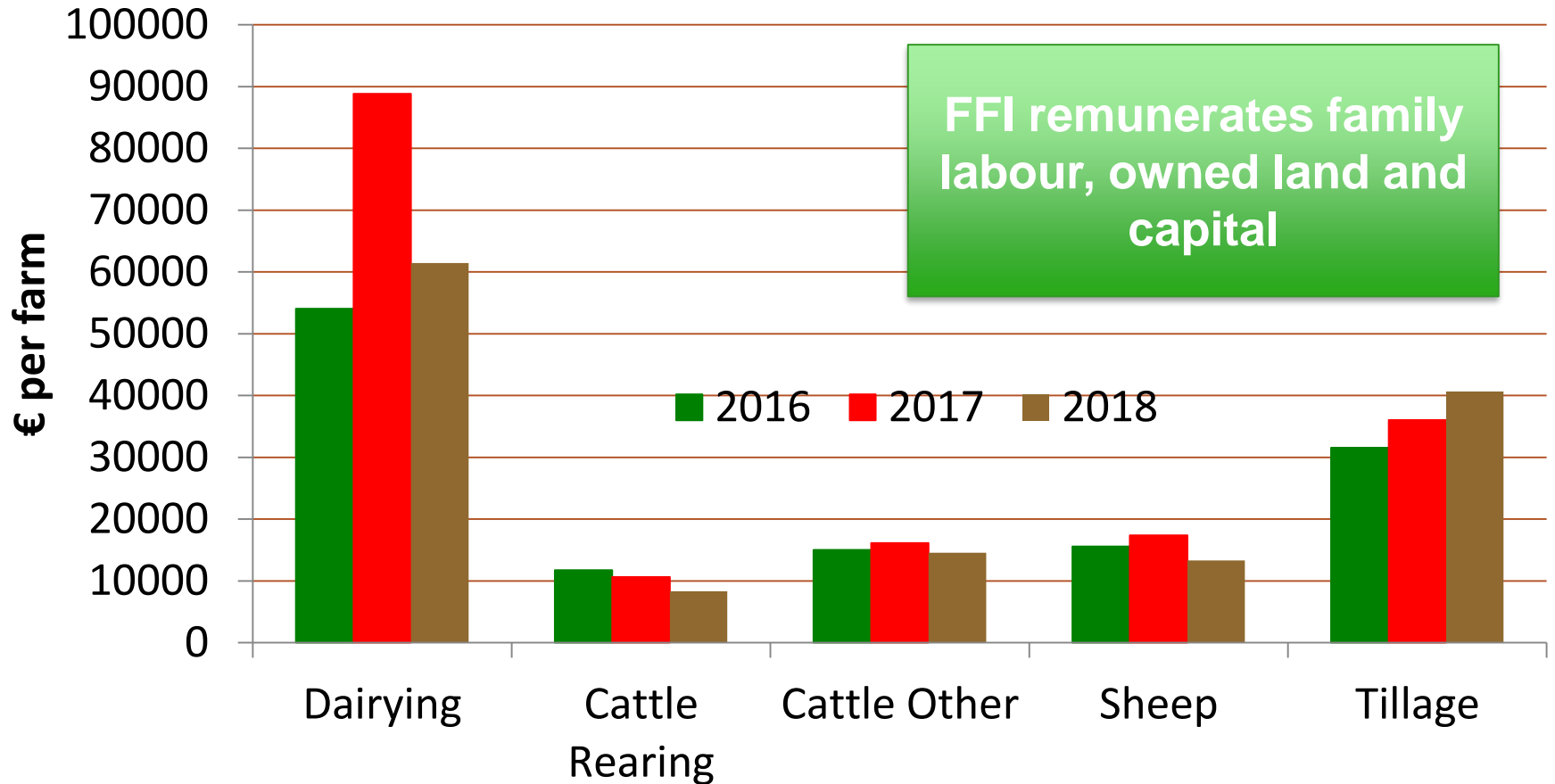
# The Tillage Sector in Irish Agriculture

Professor Gerry Boyle, Director Teagasc  
Irish Tillage and Land Use Society Winter Conference, Athy, 4<sup>th</sup>  
December, 2019

# Area ('000ha) and Yield (t/ha) trends

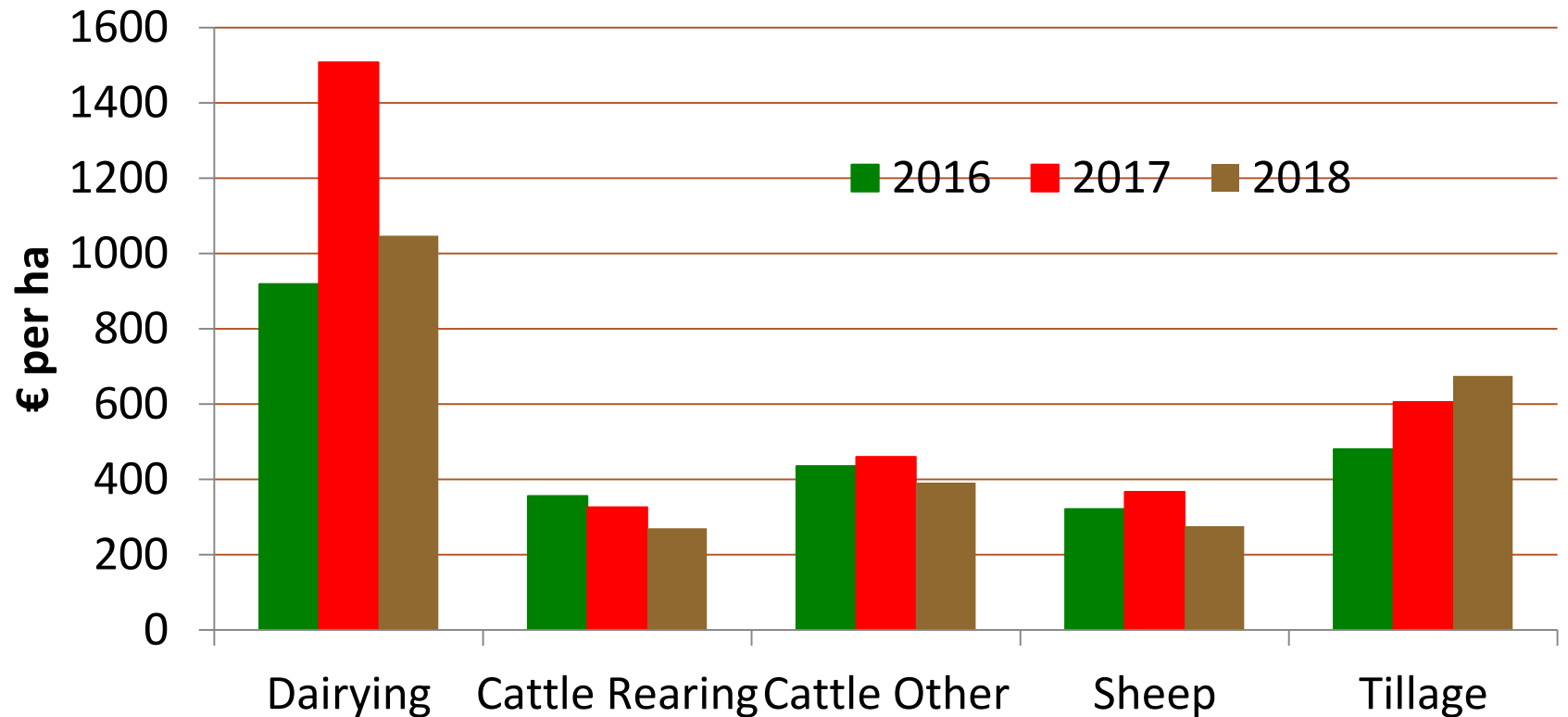


# Family Farm Income per farm



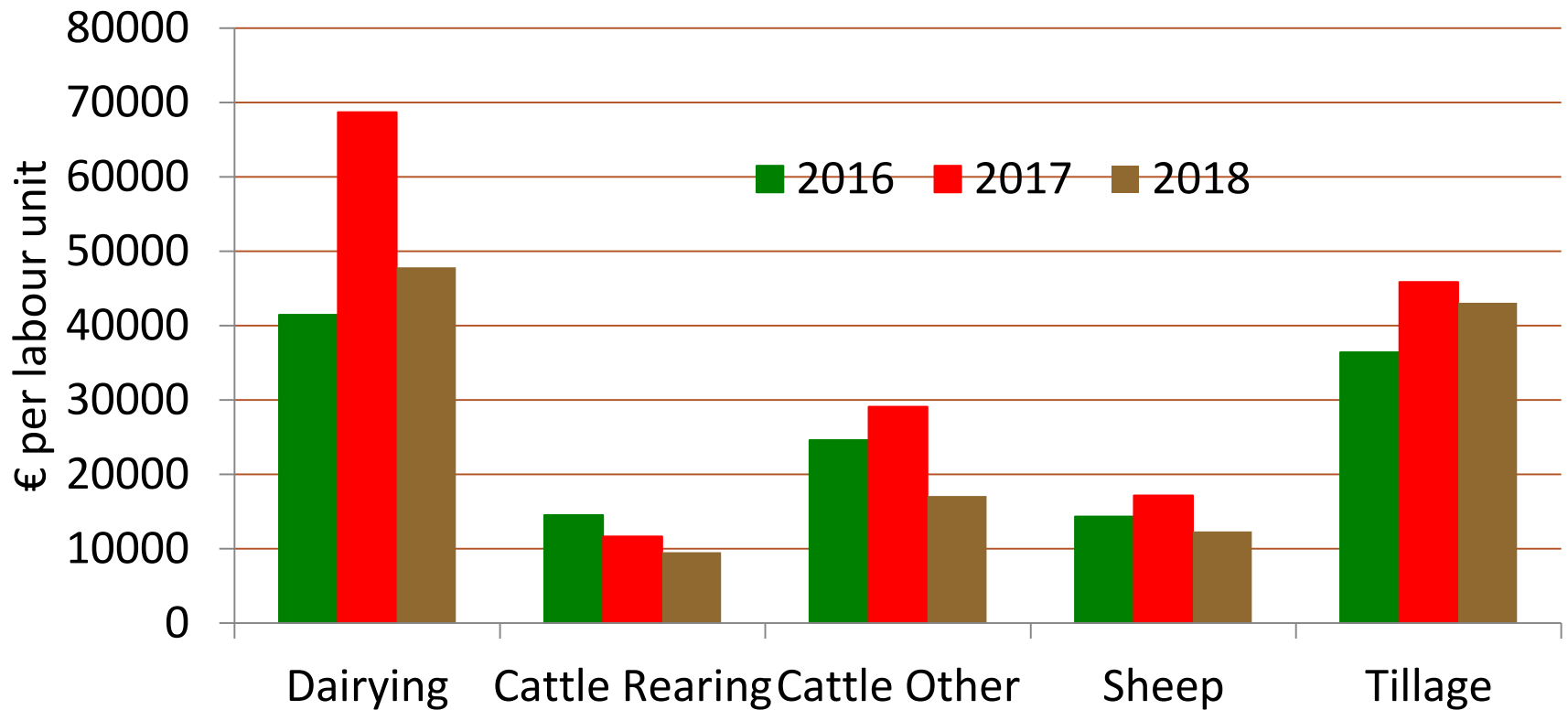
Source: Teagasc, National Farm Survey

# Family Farm Income per UAA



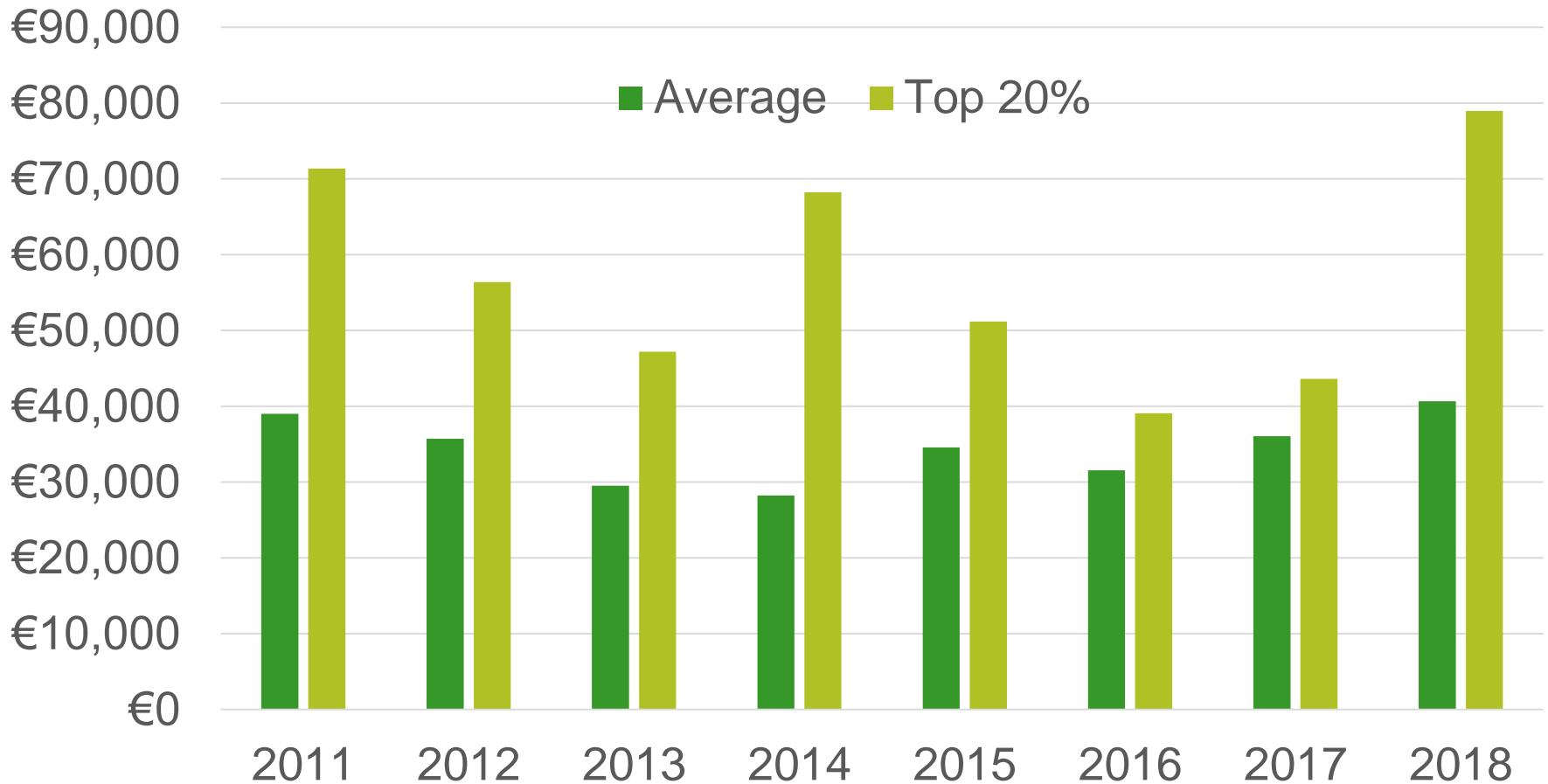
Source: Teagasc, National Farm Survey

# Family Farm Income per unpaid labour unit



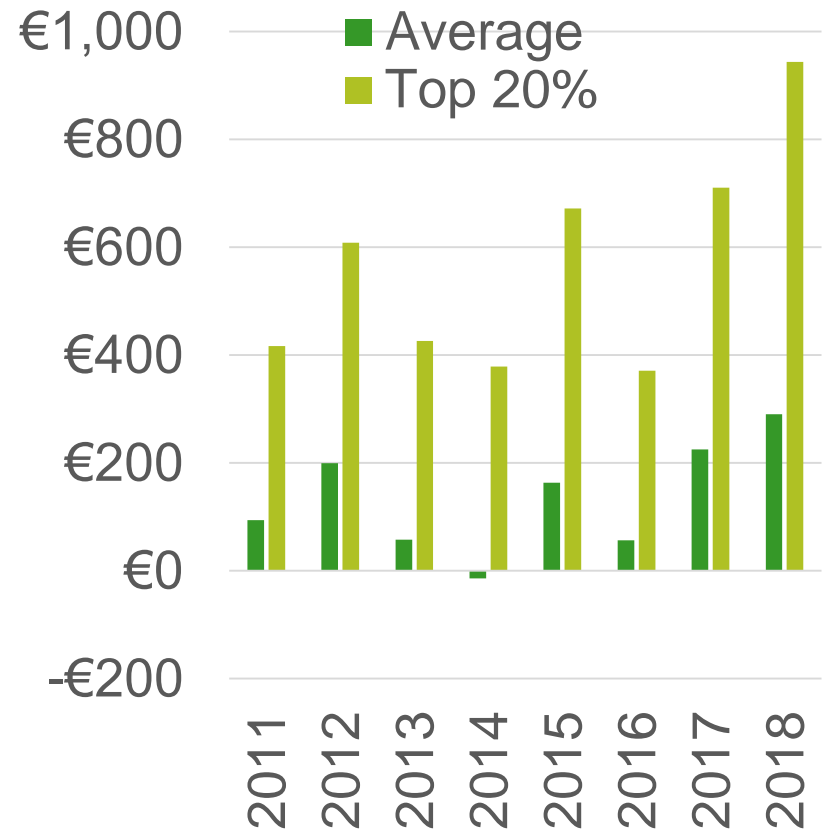
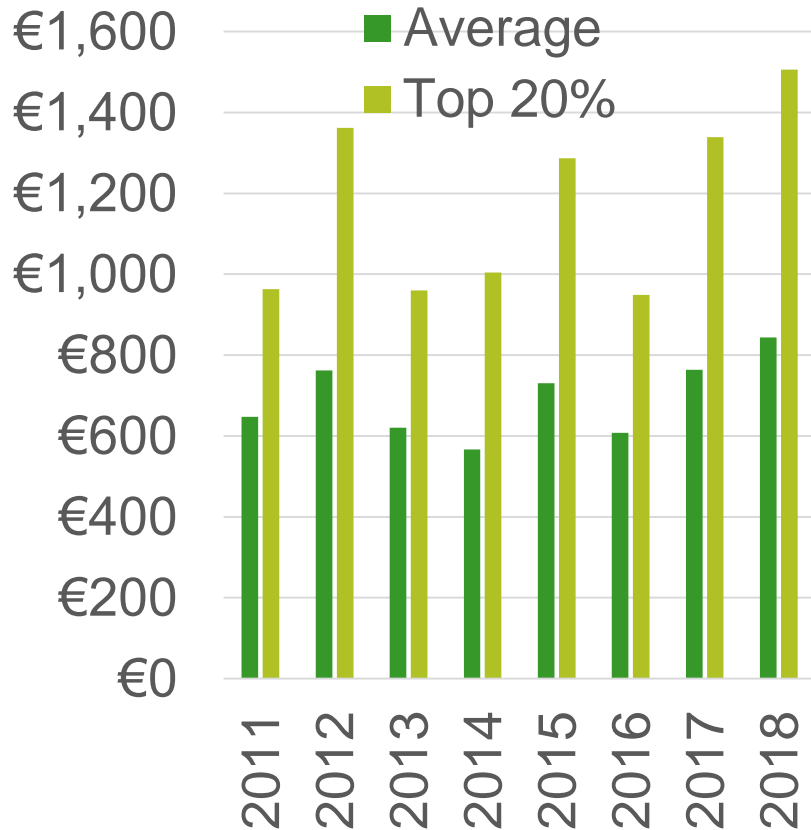
Source: Teagasc, National Farm Survey

# Tillage Farms – Average and Top 20% FFI per farm



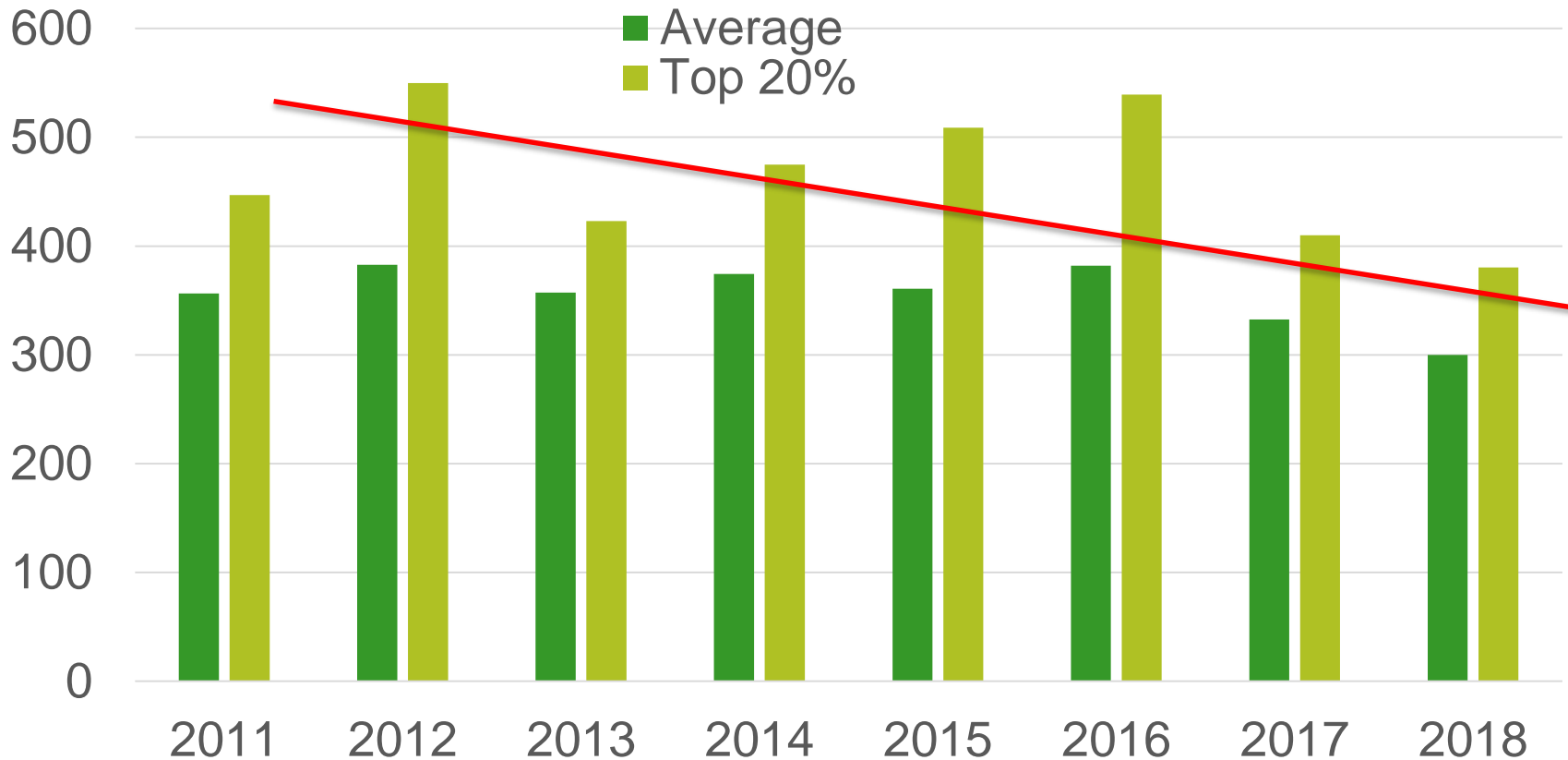
Source: Teagasc, National Farm Survey

# Tillage Average and Top 20% Farm GM/ha and NM/ha



Source: Teagasc, National Farm Survey

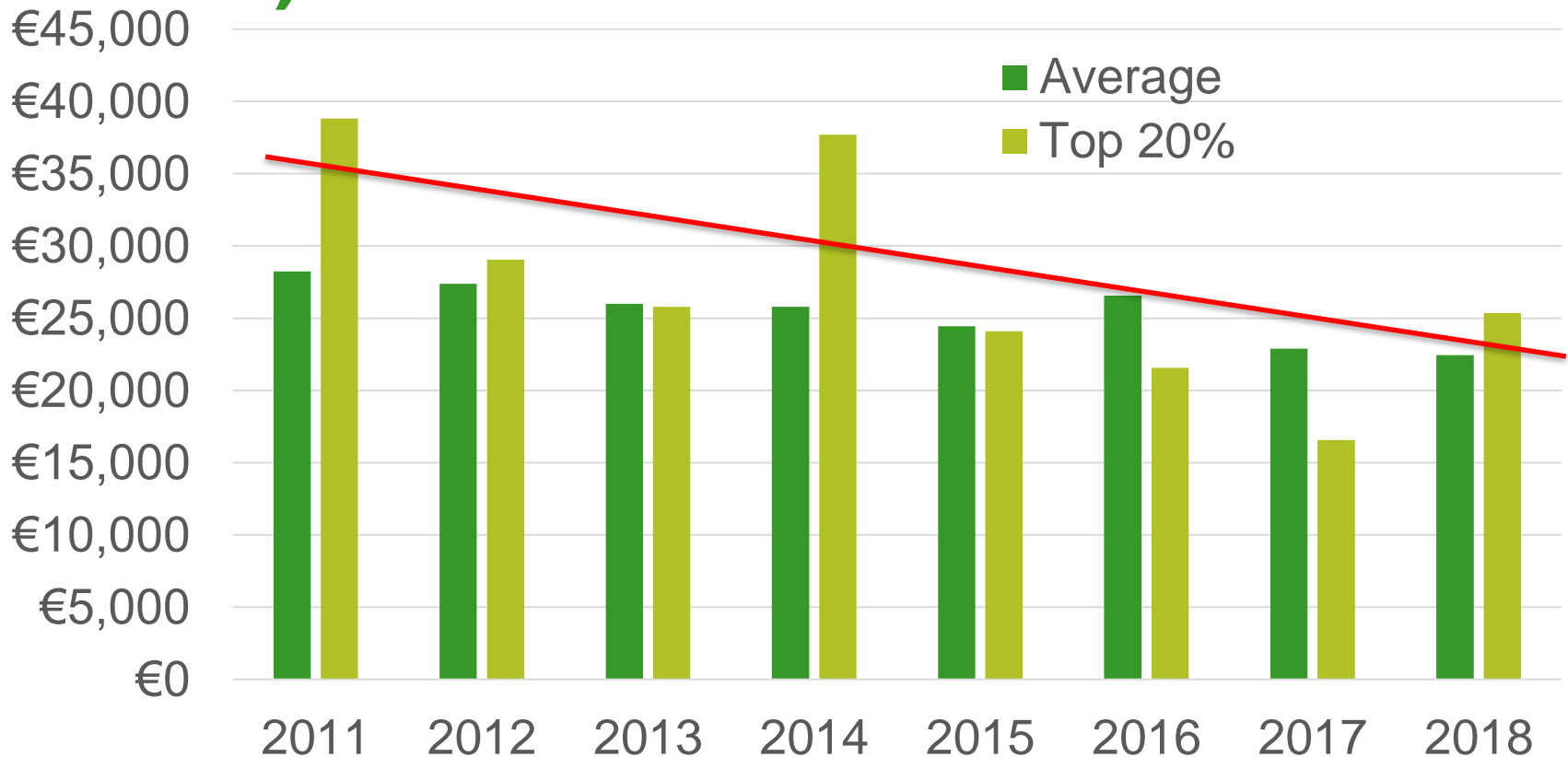
# Tillage Farms BPS per ha Average and Top 20%



**Source: Teagasc. National Farm Survey**

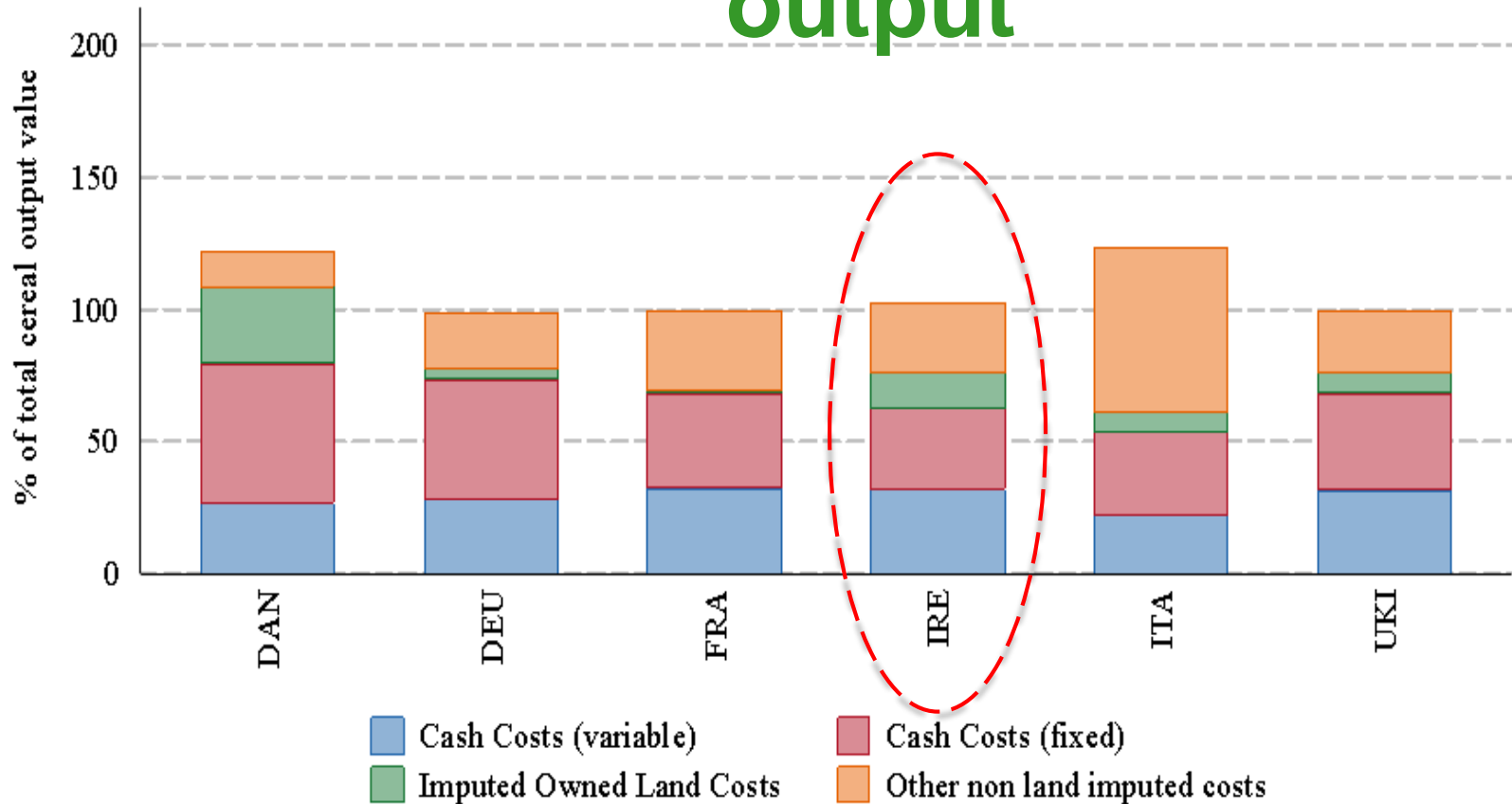


# Tillage Farms Average and Top 20% Total Direct Payments (per farm)



Source: Teagasc. National Farm Survey

# Competitiveness: costs as % of total output

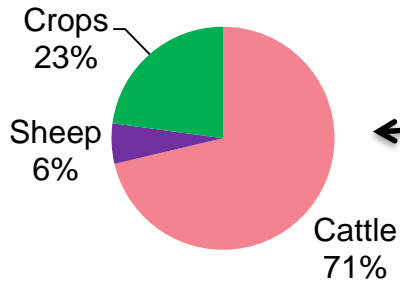


- Second lowest cash costs as a per cent of output
- Economic costs also lower than the average

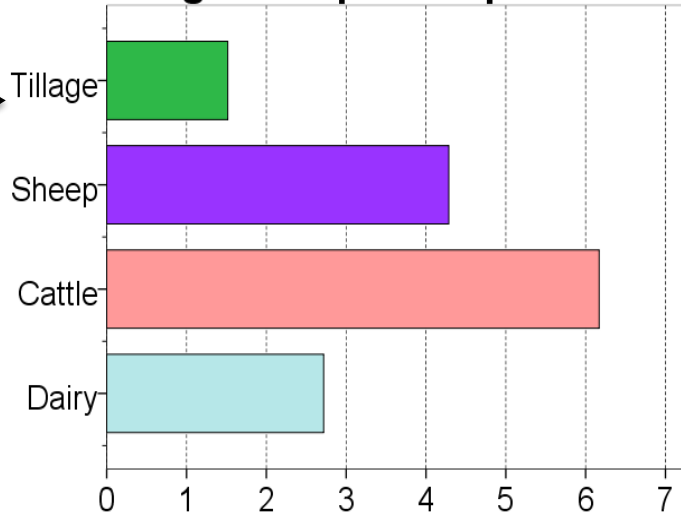
Source: Thorne et al., 2017

# Environmental sustainability

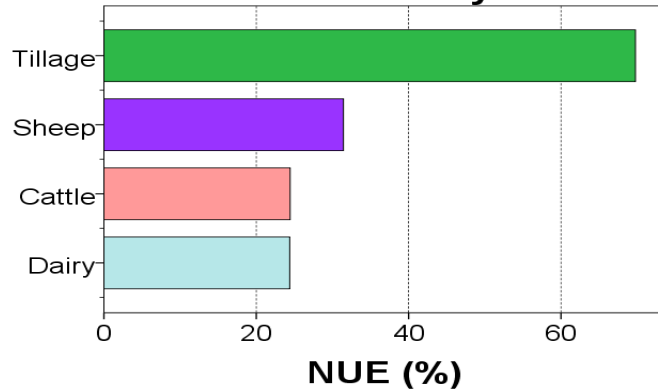
Allocation of GHG



Ag. GHG per Output

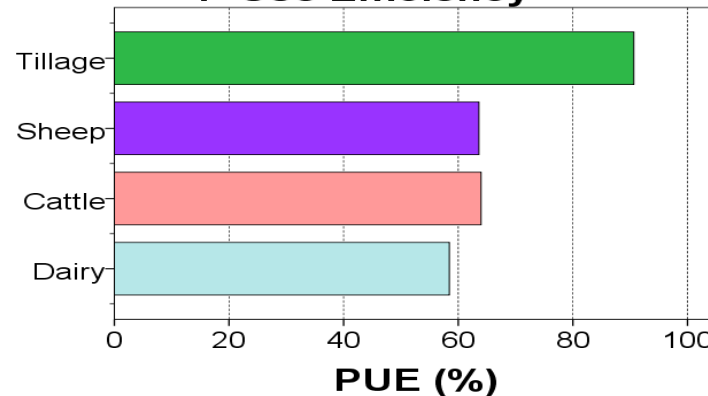


N Use Efficiency

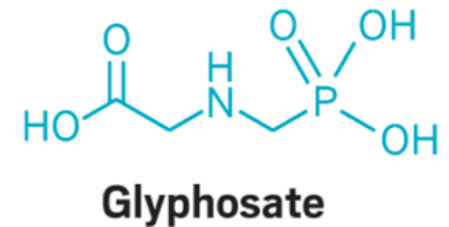
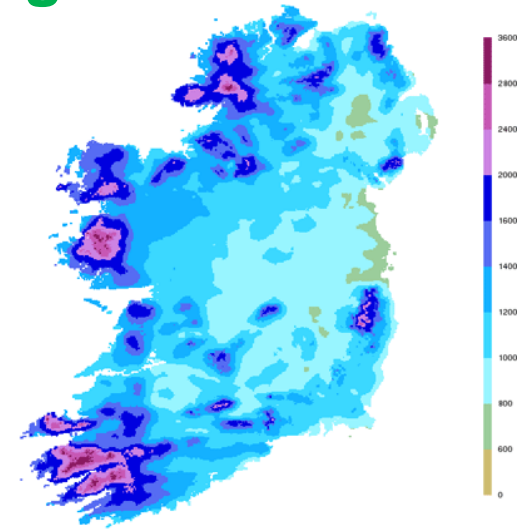


kg CO2 eqv / €

P Use Efficiency



# Challenges ahead for Irish Tillage Sector?



# Current Teagasc research focus

## Break Crops



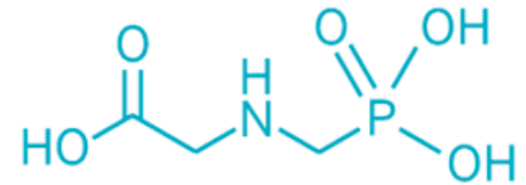
Expand rotational choice  
Improved genetics (beans)

## Cereal Production



- Improved genetics
- Biotic stress resistance
- Options post-CTL
- Oats development
- Disease diagnostics

## Challenges



## Glyphosate

To quantify impact and  
options post-2023

## Potato



Sustainability through  
innovative breeding

## IPM



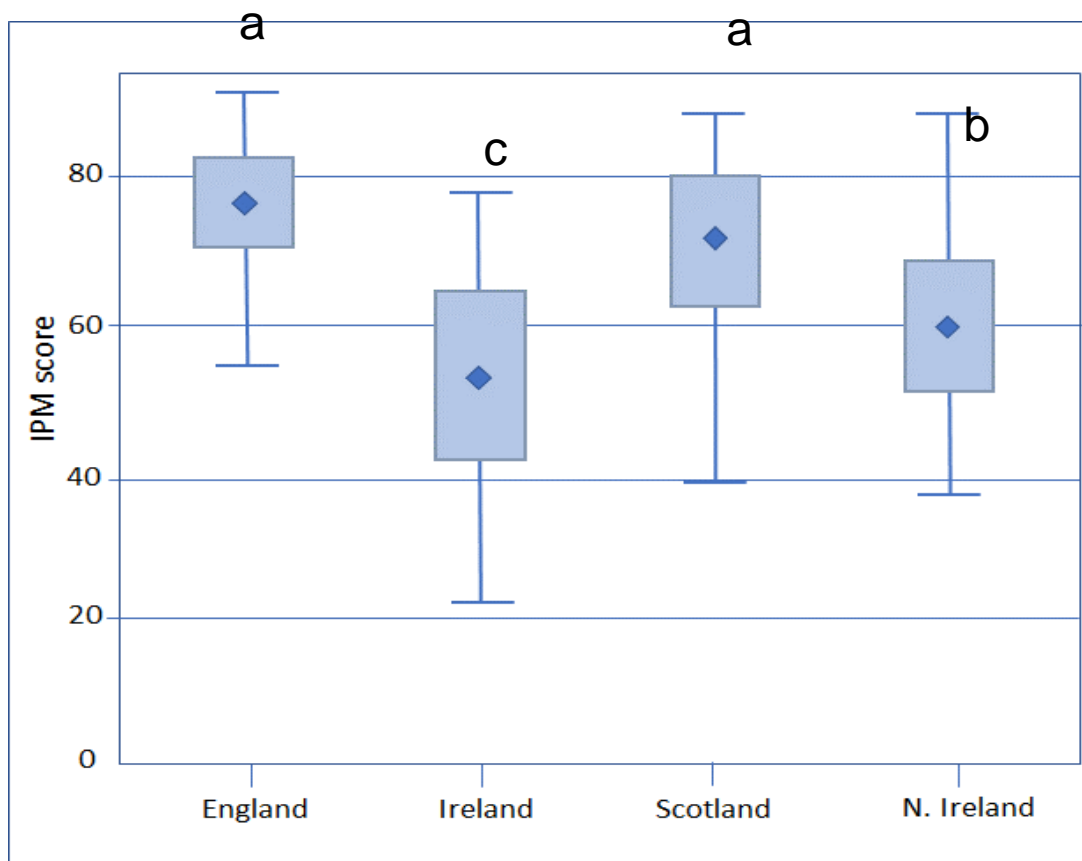
Crop-to-crop

## Grass Weeds



# Differences in IPM adoption across countries

IPM Score



## Factors Driving IPM

1. Farm size
2. Relationship with advisor
3. Familiarity with IPM
4. Understanding of IPM
5. Source of information

## Four Challenges for Irish Agriculture

### Abiotic Stress Tolerance



### Disease Resistance



### Nutrient Use Efficiency



### Import Replacement



## Actions

- Identifying novel sources of resistance to septoria & Fusarium
- Characterizing the physiological responses of barley to cold/flooding
- Developing new approach to crop improvement with improved genetics in barley, wheat, potato, ryegrass, oats and beans

# Accelerated breeding of novel varieties ...



Protocols initiated in Oak Park in 2019 using LED lights to 'speed breed' high value breeding lines

Standard lighting v. LED optimum  
(2 growing cycles pa v. 4 growing cycles pa)

**Standard**

**LED**



Potato breeding lines, sown 16.10.19

**Standard**

**LED**



Wheat breeding lines, sown 16.10.19



# Key future activities 1/2

- More crops for premium markets  
e.g. malting barley, food oats/oils, seed, etc.
- More robust cropping systems: rotations, cultivations, targeted nutrients and IPM
- Reduce risk through diversification within rotations
- Integrated soils and field environmental sustainability through crop genetics and agronomy to support stakeholder technology adoption and consumer awareness

# Key future activities 2/2

- Multi-disciplinary Integrated Crop Management Platform commencing 2020 ... new rotational systems
- Management strategies to overcome new challenges (disease in cereals, new grass weeds, etc)
- Promote collaborative farming (labour and machinery)
- Control of grass weeds and enhance knowledge of sustainable soil systems
- Strategies to reduce imports – Proteins, fresh cut chips, wheat for distilling, etc.
- Promote greater use of Irish cereals (possible role for Bord Bia?)

Thank you