The Tillage Sector in Irish Agriculture

Professor Gerry Boyle, Director Teagasc*
Irish Tillage and Land Use Society Winter Conference, Hotel Clonard, Athy, 4th December, 2019

* With acknowledgements to colleagues, Michael Hennessy and Kevin Hanrahan
Area (‘000ha) and Yield (t/ha) trends

Total area under cereals, legumes, oilseeds (1986-2019)
Family Farm Income per farm

Source: Teagasc, National Farm Survey

FFI remunerates family labour, owned land and capital
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

- Cattle: 71%
- Sheep: 6%
- Crops: 23%

Ag. GHG per Output

- Tillage:
- Sheep:
- Cattle:
- Dairy:

N Use Efficiency

- Tillage
- Sheep
- Cattle
- Dairy

P Use Efficiency

- Tillage
- Sheep
- Cattle
- Dairy

kg CO2 eqv / €

Teagasc NFS 2017
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

### Grass Weeds
- Crop-to-crop

### IPM
- IPM
  - CONTROL METHODS
    - CULTURAL
    - PHYSICAL
    - BIOLOGICAL
    - CHEMICAL
Differences in IPM adoption across countries

Factors Driving IPM
1. Farm size
2. Relationship with advisor
3. Familiarity with IPM
4. Understanding of IPM
5. Source of information
Virtual Irish Centre for Crop Improvement

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)

Potato breeding lines, sown 16.10.19

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