



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

The Irish Agriculture and Food Development Authority

Education and AKIS: Some Insights from Ireland

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With contributions from Teagasc colleagues Prof. Cathal O'Donoghue, Tony Pettit, Mark Gibson and Dr. Monica Gorman (UCD)

**SCAR SWG AKIS 4 -2nd Meeting
Brussels**

Tuesday June 14th, 2016

Outline of presentation

1. Returns to formal agricultural education in Ireland
2. Masters in Innovation Support (2010-2015)
3. ConnectED
4. Teagasc Education & Training Strategic Vision Project 2016

Part 1

Returns to Formal Agricultural Education

Kevin Heanue & Cathal O'Donoghue
Teagasc

1. Background

- **Irish farmers face a future of challenges and opportunities**
 - Achieving the expansion and development targets set out in Food Harvest 2020; Food Wise 2025.
 - Producing efficiently and profitably in a volatile market environment.
 - Meeting sustainability requirements

- **Imperfect information → uncertainty → decision making**

- **It is in such a rapidly changing technological and economic environment that agricultural education is most important** (Schultz 1975; Ali and Byerlee 1991; Nelson and Phelps, 1966)

- That farmers themselves recognise positive returns from agricultural education is evident from the increased demand for agricultural education courses.

2. Literature review – 5 key themes

1) The internal rate of return to investment in agricultural education

- Derived from *human capital* literature (Becker, 1962)
- Average return of 6.5% across a range of countries and models but lower in Nordic countries and UK (8%) and Ireland (9.5%) higher than average (Harmon et al., 2003).

2) The returns to agricultural education

- Derived from *production-focused* literature (e.g. Welch, 1970; Huffman, 1999)
- Technical and allocative efficiency (Welch, 1970; Azhar, 1991).
- Innovation and technological change (Rogers, 1962; Griliches, 1957).

2. Literature review (contd)

3) The external returns to agricultural education

- 'Education externalities' or 'learning spillovers' (e.g. Weir and Knight, 2004; Foster and Rosenwig, 1995)
- Mixed evidence

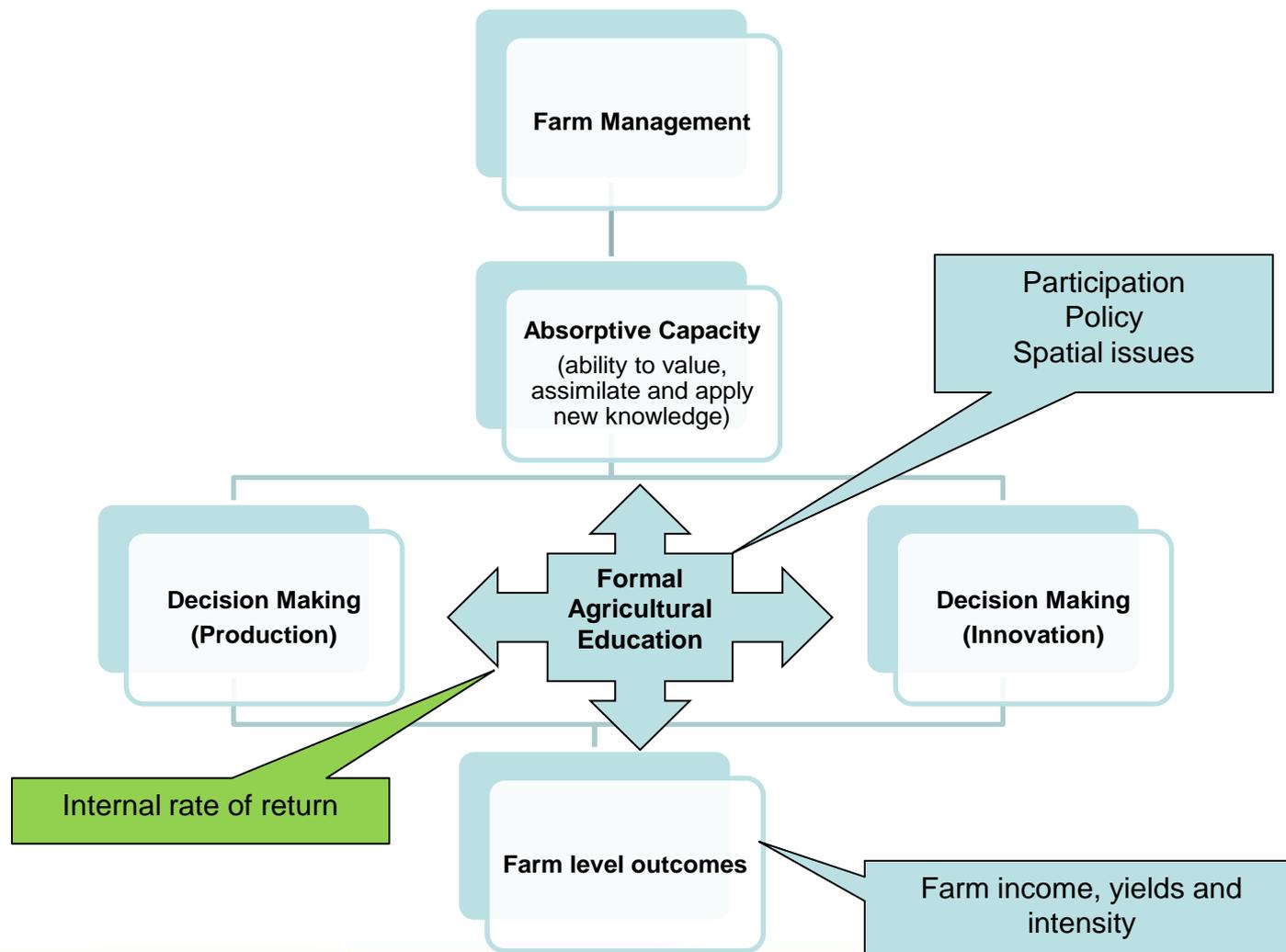
4) The role of agricultural education in rapidly changing economic & technological environments

- Modernising v traditional agriculture
- Educated farmers adjust more successfully to disequilibria (Schultz 1975; Ali and Byerlee 1991).
- Rate of return to education is greater the more technologically progressive is the economy (Nelson and Phelps, 1966)

5) The effect of agricultural education on occupational choice

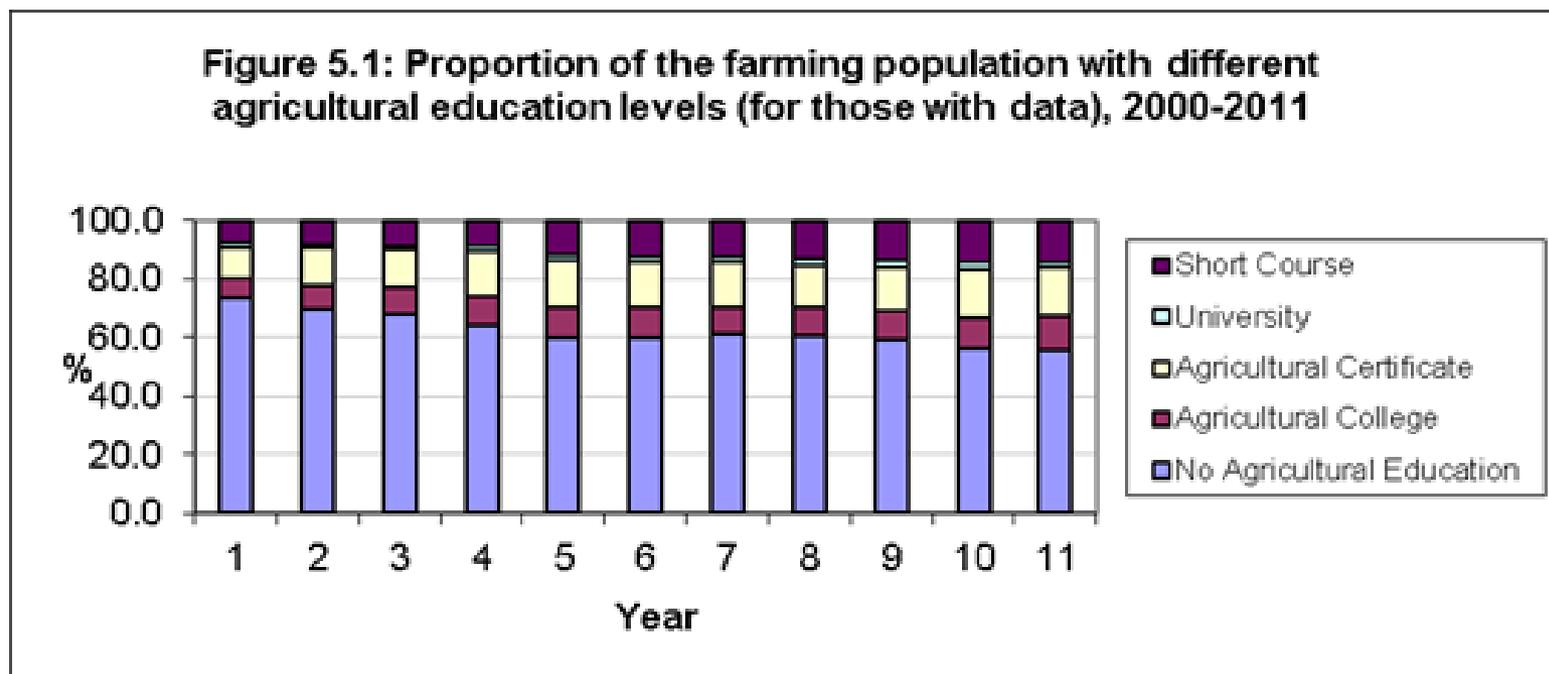
- General education – farmers respond to changing conditions by reallocating their human and physical resources (agricultural/non-agricultural activity)

Empirical focus of research report



3. Empirical Overview

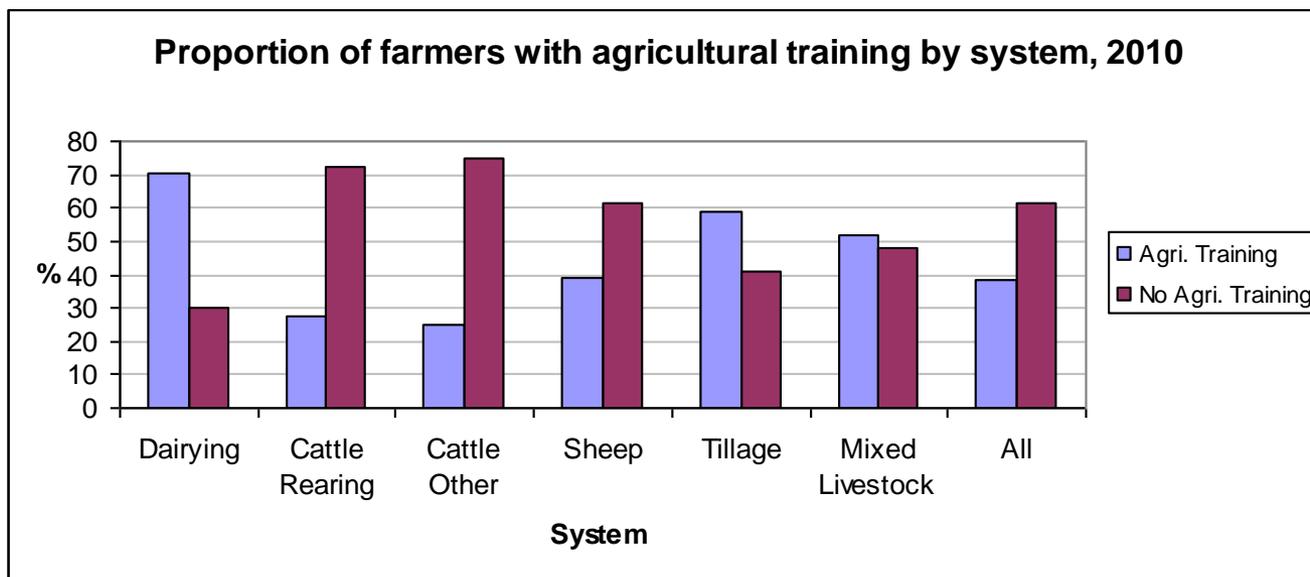
- Increase in proportion of farmers with agricultural education from 24% to 44%
- Greater increase in the proportion of farmers achieving an agricultural certificate (51%), going to agriculture college (81%) or attending short courses (81%) compared to those achieving university level agricultural training (35%).



3. Empirical Overview (contd)

- In dairy (70%), tillage (59%) and mixed livestock (52%) > than average
- In cattle rearing (28%) and cattle other (25%), < average

Figure 2: Proportion of farmers with agricultural training by system, 2010



4. Impact Analysis: Objective and Context

- **Objective of analysis**
 - To understand the return on an investment in Agricultural Education to:
 - **Farmer (Private rate of return)**
 - i.e. the benefits to the individual farmer → Market Gross Margin
 - **Society ('social' rate of return)**
 - Broader society impact of any improved farm productivity.
→ Output

- **Internal Rate of Return**
 - Interest Rates where Up-front Costs and Discounted Returns are equal
 - Estimate of returns

$$\sum_{t=c}^{\infty} (\text{Benefit}(s + \delta) - \text{Benefit}(s))_t \times (1+r)^{-t} = \sum_{t=0}^{c-1} \text{Cost}(s + \delta)_t \times (1+r)^{-t}$$

Economic Impact of Agricultural Education

Internal Rate of Return

Private rate of return substantially higher than that for tertiary education rate of 5.8%.

Higher rate of return than that calculated for Tertiary education of 5.7%

	IRR (Benefit:Cost)	
	Private	Social
<i>At Farm Level</i>	0.104	0.148
<i>With Supply Chain Impact</i>		0.263

Very high rates of social return when wider supply chain impact of improved agricultural productivity factored in

Pathways of impact

Table 7. Regression Estimates for System Yield and Intensity (Coefficient on Years of Agricultural Education)

	Coeff	SE	p-value
Dairy GO per LU	0.014	0.006	0.036
Dairy LU per Ha	0.020	0.007	0.007
Cattle GO per LU	0.026	0.007	0.000
Cattle LU per Ha	0.024	0.006	0.000
Sheep GO per LU	0.047	0.018	0.009
Sheep LU per Ha	0.050	0.014	0.000
Cereal GO per Ha	0.025	0.017	0.138
Farm DC per Ha	0.070	0.009	0.000
Farm DC per GO	-0.008	0.006	0.198

Heanue, K. and O'Donoghue, C. (2014) **The Economic Returns to Formal Agricultural Education**, Teagasc. Oakpark. ISBN: 978-1-84170-613-9

Report is available at <http://www.teagasc.ie/publications/2014/3374/index.asp>

Thank You

Part 2

Masters in Agricultural Innovation Support (MAIS) 2010-2015

Monica Gorman
UCD

Interested in a Career as an Agricultural Advisor or Education Officer?

Application forms are now available
for the following Walsh Fellowship
funded programmes:

- | MAgSc Agricultural Innovation Support
- | MAgSc Agricultural Extension & Innovation

For more details go to:
bit.ly/walshfellowships



University College Dublin
Ireland's Global University



Two Options

A

M.Agr.Sc in Agricultural Innovation Support

- **Masters by research with 15 month placement in Teagasc Advisory Office or Agricultural College**

B

M.Agr.Sc in Agricultural Extension and Innovation

- **Taught Masters with 2 year placement in Teagasc Advisory Office or Ag College**
- **Blended learning**

Overview of the MAIS programme

-
- Running since 2010
 - Research masters
 - 57 students to date (2010 – 4; 2011 – 10, 2012 – 12, 2013 – 10, 2014-10, 2015-11)
 - 21 months with 3 phases
 - Semester 1 in UCD
 - 15 month placement in Teagasc Advisory Office or Ag College
 - 3 months writing up
 - Advisory & education focussed research – topics put forward by Teagasc staff
 - Opportunity to learn the practical work of KT and ag education
 - 2 Supervisors (UCD and Teagasc)
 - Regular round table seminars
 - Some upgrades to PhDs

Key findings on student learning

- Students want to work in advisory services – high value on apprenticeship aspect
- Student's own motivation and enthusiasm critical
- Performing well on most of the critical competencies especially in terms of knowledge of advisory systems and approaches and skills for advisory work
- *“Agricultural advisory is not about being a one-stop shop for technical knowledge. It is about being able to identify the farmer's individual problem, and coming up with a solution that is both within the farmers means and capabilities that will have an effect on the ground”.*
- *‘Great program - allowed me to develop as a student, researcher, educator and person. This program will set up anyone willing to work hard up for a career in Ag Education or Advisory’.*

OUTCOMES FOR MAIS PROGRAMME PARTICIPANTS TO DATE

Year	Intake (N)	Graduated to date	Incomplete	Withdrew	Employment
2010-2012	4	2	2		1 Teagasc Farm Advisor
2011-2013	11	8 plus 1 PhD		2	3 Teagasc Farm Advisors 4 Teagasc Education Officers 1 Agronomist (private sector) 1 Breed Development Officer with Cattle Breed Society
2012-2014	12	9	2	1	4 Teagasc Farm Advisors 2 Teagasc Education Officers 2 Auditors for Farm Quality 1 Training Officer with Young Farmers 1 Marketing Officer in AgMedia 1 completing PhD

OUTCOMES FOR MAIS PROGRAMME PARTICIPANTS TO DATE (contd)

Year	Intake (N)	Graduated to date	Incomplete	Withdrew	Employment
2013-2015	10	10			3 Teagasc Farm Advisors 5 Teagasc Education Officers 1 Origin Green Ambassador 1 US Senate
2014-2016	11		10	1	1 Teagasc Farm Advisor 3 Teagasc Education Officers All still to submit theses
2015-2017	11		11		All still on programme

Part 3

ConnectED

Mark Gibson
Teagasc

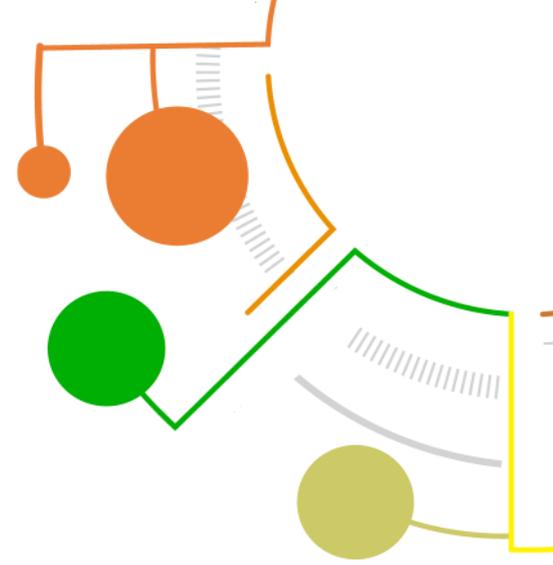
ConnectEd

Professional Knowledge Network

Mark Gibson

Key Objective

To extend Teagasc's research and knowledge transfer programmes to professionals and businesses operating within or supporting the Irish agri-food sector.



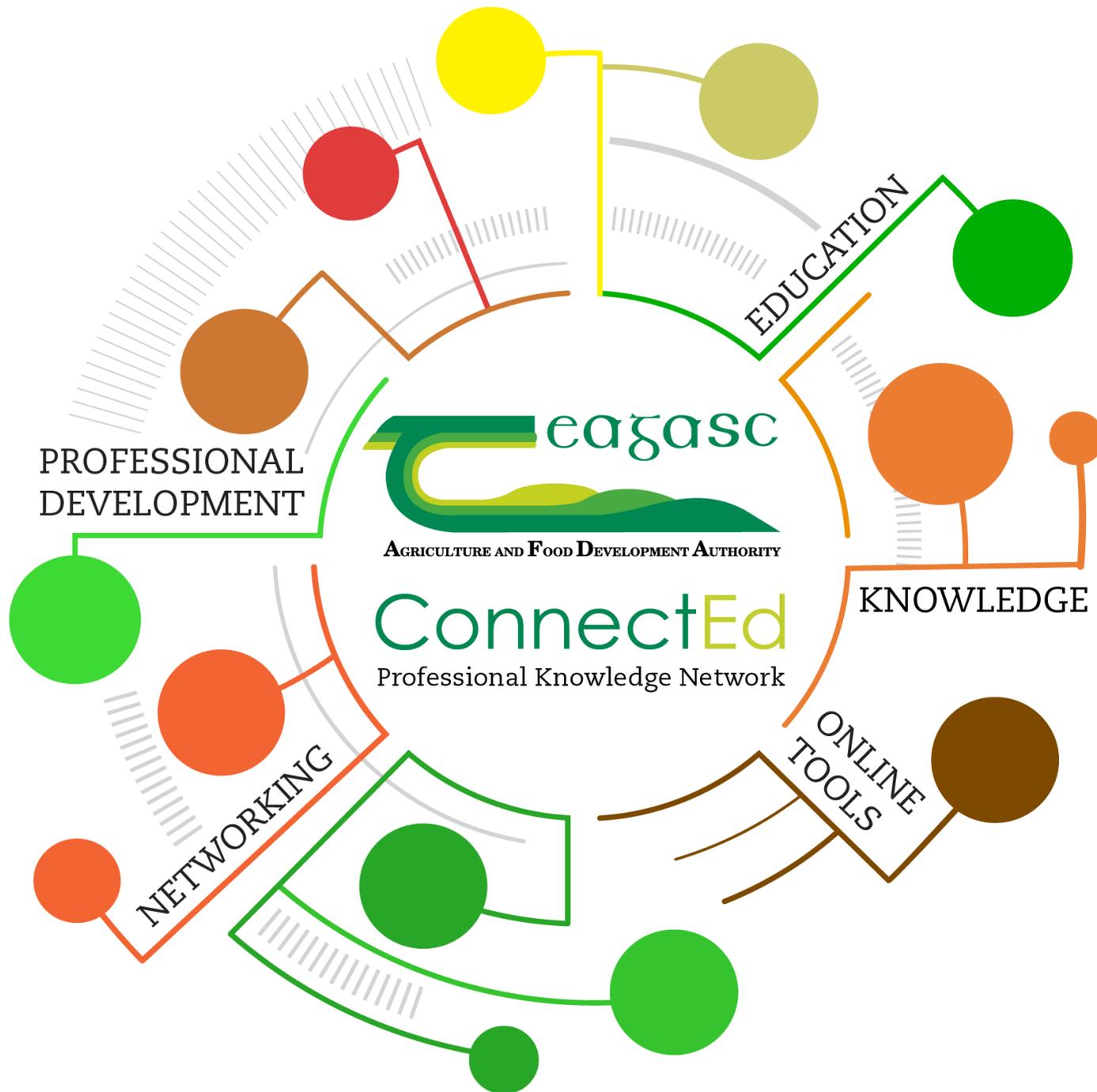
“As the agri-food sector becomes more knowledge-intensive, education and skills development are even more critical for success....”

Foodwise 2025



Feedback from stakeholders





Who is the programme aimed at?



Animal Health



Veterinary services



Agricultural consultants



Agri-food businesses



Accountants



Solicitors



Co-Operatives



Local authorities



Banking and financial



Insurance



Foresters

ConnectEd Membership

- Professional Education – CPD, QQI
- Invitations to Teagasc events
- Today's Farm, T-Research, Advisory Newsletters
- Seasonal Specialist Reports: Dairy, Beef, Crops
- Access to online NMP and eProfit Monitor
- Invitation to Regional ConnectEd Seminars
- ConnectEd eZine



ConnectEd Summary

- Powerful **platform** for communicating with professional audiences in a structured manner.
- Activities with professionals and businesses can be easily captured, credited and measured.
- ConnectEd Programme enables research programmes to directly influence industry.
- Networking opportunities for all stakeholders

Part 4

Teagasc Education & Training Strategic Vision Project 2016

Tony Pettit
Teagasc

Positioning Teagasc Education and Training to meet Future Strategic Needs

Context

- The recently published *Food Wise 2025* national vision for the agri-food sector states that ‘the agri-food sector will only achieve its full growth potential if it can meet the skills needs within the industry’. At producer level this will require the ‘adoption of the latest production technologies and processes’, and ‘.... improving the financial management capabilities of producers’.
- Such developments, the *Food Wise 2025* vision states, will require ‘...enhancements and investments in knowledge transfer and educational supports...’ The *Food Wise 2025* report makes specific action recommendations to be undertaken by the Teagasc education and training service.
- Likewise the recent *Teagasc Technology Foresight* report highlights the emerging technologies that will significantly impact on Irish farming in the future.

Positioning Teagasc Education and Training to meet Future Strategic Needs (contd)

- It is 35 yrs since a fundamental review of Teagasc education addressed the appropriate desirable qualification level for young trained farmers. Introduction of the Certificate in Farming award (commonly referred to as the 'Green Cert' programme).
- The overall thrust of the Teagasc Education Strategic Vision Project 2016 will be to best position Teagasc agricultural education and training for the next decade to meet the future human capital needs for the land based sector.
- Process: Project Workshops, Working Groups and Public Consultation
- Final report – end Q1 2017

Thank You