The critical role of research, education and advice in driving agricultural development – lessons from Ireland

Professor Gerry Boyle, Director Teagasc, Ireland, Thirteenth Meeting of the Ministers of Agriculture from South Eastern Europe (SEE), Pristina, November 12th, 2019
Why public investment in Research, Advice and Education (RAE)?

- If the State doesn’t invest in RAE the private sector will not fill the gap
- Investment in a properly resourced and managed RAE system will yield sustained long-term returns (e.g. improved animal genetics) unlike recurring subsidies
- Every country’s agricultural sector has unique challenges that require unique Research solutions
- But without an Advisory Service that’s focused on farmers’ needs Research of itself will not be sufficient to improve productivity and farm incomes
- And without a good Education Service farmers will not be able to fully absorb the Research or Advice
Irish agriculture in summary

- Total area: 69,798 sq km
- Agricultural area: 50,000 sq km (72%)
- Pasture: 81%
- Forestry: 12%
- 140,000 farmers
- Average farm: 33 ha
- Family farms

- Milk: 37%
- Cattle: 33%

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Ireland’s export performance and main destinations 2017-2018

Ireland exports about 90% of its production … sufficient for ~ 50 million people
Family Farm Income (FFI) (includes subsidies) 2011-2017

FFI remunerates family labour, owned land and capital

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Teagasc in brief

- Teagasc – pronounced “Chawg-ask” means “instruction”
- Teagasc – The Irish Agriculture and Food Development Authority
- An autonomous state agency with responsibility for agri-food research, advisory/extension and education
- Integrated functions in a single organisation established in 1988; Research 1958; Education and Advisory late 19th century
- Annual expenditure €195 m. and 1260 total staff – 70% State grant
- 248 researchers + 253 Ph.D. students; 76 subject-matter specialists; 66 teachers; 300 farm advisors; 7 research centres; 51 advisory offices and 7 colleges
Our philosophy
‘Knowledge is the lever of riches’
Teagasc research: from farm to gut

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Our focus is to drive profit from productivity

- Profit = productivity x relative output and input prices
- In medium to long run ... change in relative prices ~ constant
- Technology adoption/innovation >> productivity >> improved profit
- Example: improved dairy genetics …
AI sire selection for dairy cows driven by Economic Breeding Index (EBI)

- EBI denominated in € and reflects dairy profitability (= monetary value of genetic gain)
- AI companies accepted EBI for dairy sector
- Very high rate of adoption
- Key factors in developing the EBI ...
  1. farmer ownership of the underlying genetics data
  2. ‘independent’ research team to produce credible EBI
Trend of EBI in Irish dairying

Profit per lactation (€)

Year of birth

Benefit to cost ratio 18 to 1

DNA selection 2009

€5/year

€12/year

€25/year

EBI
The Teagasc Agricultural Knowledge Innovation System (AKIS) …
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The three-legged stool ...
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Cascade model - operational version of Teagasc AKIS

140,000 Farmers

Component research

Research Farms
- Dairy
- Beef
- Sheep

45,000 Clients

Commercial farms
- Beef – 22
- Sheep – 13
- Dairy – 100

14,000 Discussion Group members

Component research

Dairy
- Component research

Beef
- Component research

Sheep
- Component research

Open Days

Social Media

Publications

Farming Media

Farm Walks

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Discussion Groups – structured ‘Peer to Peer’ learning

- 15-20 members managed by farmers and facilitated by trained advisors
- 20% more likely to adopt new technologies and best management practices
- Higher margins (+11%) for Discussion Group members vs Non-Members
- In dairying lower production costs
Prioritize investment in farm modernization and ...
... in the technologies of the future

- Plant and animal genomics and related technologies
- Human, animal and soil microbiota
- Digital technologies
- New technologies for food processing
- Transformations in the food value chain system

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Support capability building in RAE organisations

- Encourage networking opportunities at EU research and innovation fora (e.g. EURAGRI and EUFRAS)
- Support sabbatical leave and staff exchanges at EU RAEs
- Encourage research collaborations with EU RAEs
- Provide Ph.D. and M.Sc. scholarships to enable students to study at EU RAEs
Top 20 participants 2018 Calls

Over €22 m. since 2014
Concluding comments

- Resist the temptation to prioritise recurrent subsidies over investment in farm modernization and RAE
- Investment in RAE is essential to drive productivity and incomes but …
- It’s also critical to dealing with climate change, water quality and scarcity and managing biodiversity
- Support RAES to build capability
Thank you