

AGRICULTURAL EDUCATION: SUPPORTING ECONOMIC RECOVERY

Proceedings

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Contents

Foreword	3
Conference Programme	4
Speakers Profiles	5
Direction of EU Agriculture and Implications for Agricultural Education	9
Role of Education in Irish Economic Recovery	...	...	...	...	...	...	...	...	...	17
A New Concept of Irish Agriculture – Implications for Agricultural Education	...	...	...	...	...	...	...	...	...	24
The Challenges Facing the Teagasc Education and Training Programme	...	...	...	...	...	...	...	...	...	31
Results of EUROPEA Chavet Research Project on the Evolving Requirements for European Agricultural Education	...	...	...	...	...	...	...	...	...	38
The Northern Ireland Agricultural Education System Challenges and Perspectives	...	...	...	...	...	...	...	...	...	45
The Scottish Agricultural College Experience	...	...	...	...	...	...	...	...	...	50
Conference Closing and Programme Launch	...	...	...	...	...	...	...	...	...	54
Presentation of Teagasc 2010 National Student of the Year Award	...	...	...	...	...	...	...	...	...	56

Foreword



Teagasc welcomes you to our conference “Agricultural Education: Supporting Economic Recovery” which takes place at a time of great uncertainty in our nation and a time when all possible stimuli towards economic recovery need to be exploited.

At the height of the Celtic Tiger, the agriculture sector in Ireland was somehow the poor relation when compared with other sectors of the economy such as construction, pharmaceuticals and the tech sector. One of the few upsides of the economic collapse, however, has been a renewed recognition of the importance of an indigenous sector like agriculture and its’ potential to boost exports and fuel economic recovery. This renewed confidence in agriculture has resulted in an 80% increase in enrolments in agricultural colleges in recent years.

The purpose of this conference is to take stock of the current situation in Ireland and internationally in terms of the provision of agricultural education and to look ahead at future requirements/developments in this area as well as the drivers and trends which will set the scene for these developments. We have put together a panel of Irish and international experts on this subject and our objective is to raise the profile of agricultural education as well as benchmarking where we are at and seeking to determine the best way forward.

The generous sponsorship of FBD of the conference and the Teagasc Student of the Year is recognised and greatly appreciated.

Paddy Browne

Paddy Browne
Head of Education

Conference Programme

10.00 **Registration/Coffee**

10.30 **Opening of Conference:**

Mr Brendan Smith, TD, Minister for Agriculture, Food and Fisheries

Session 1 - The Future Challenges for Agricultural Education in Ireland and Europe

Chairperson: Professor John Coolahan, NUI Maynooth - Chairperson of Teagasc Education Forum

- Direction of EU Agriculture and Implications for Agricultural Education
Ms Mairead McGuinness, Member of the European Parliament
- Role of Education in Irish Economic Recovery
Professor John Fitz Gerald, ESRI
- A New Concept of Irish Agriculture – Implications for Agricultural Education
Dr Liam Downey, Former Director, Teagasc
- The Challenges Facing the Teagasc Education and Training Programme
Mr Paddy Browne, Head of Education, Teagasc

Discussion

12.30 **Lunch**

1.45 **Session 2 - International and Industry Perspective**

Chairperson: Mr Michael Gowing, National President Macra Na Feirme

- Results of EUROPEA Chavet Research Project on the Evolving Requirements for European Agricultural Education
Ms Elisabeth Hönigsberger, EUROPEA
- The Northern Ireland Agricultural Education System – Challenges and Perspectives
Mr John Fay, Head of CAFRE
- The Scottish Agricultural College Experience
Mr David McKenzie, Vice Principal SAC

Discussion

2.45 **Session 3 – Forum Discussion on Benchmarking Farms/Discussion Groups in Action**

Chairperson: Dr Tom Kelly, Head of Knowledge Transfer, Teagasc

Video Presentation Followed by Forum Discussion

Forum Participants

Mr Christopher McCarthy, Benchmarking Farmer

Mr Paul Fox, Teagasc Group Facilitator

Ms Laura Barry, Group Participant

Mr Adrian Van Bysterveldt, NZ Dairy Specialist

Conference Closing and Programme Launch. Professor Gerry Boyle, Director of Teagasc

3.45 **Presentation of FBD Sponsored Teagasc Student of the Year Award by Dr Noel Cawley, Chairman Teagasc Authority introduced by Professor Gerry Boyle, Director of Teagasc**

Speakers Profiles

Professor John Coolahan

John Coolahan is Professor Emeritus at the National University of Ireland Maynooth. He has lectured extensively in Ireland and abroad, is author of three books, has published over 120 articles in Irish and international journals, and has edited several educational publications. Professor Coolahan has had extensive involvement in a public service capacity as an adviser on educational policy in Ireland. At international level, he has been a consultant on education to the EU Commission, the Council of Europe, the World Bank and the OECD. He was main author, or contributor, to OECD Reviews of Education in nine countries. He was author of the Irish Country Background Reports for the OECD reviews on Teachers Matter (2003) and on Higher Education in Ireland (2004). Professor Coolahan has been Chairman of The Teagasc Education Forum since its establishment in 2002.

Ms Mairead McGuinness

Mairead McGuinness MEP, an agricultural economist, serves on the European Parliament's Agriculture and Rural Development Committee and on the Environment, Food Safety and Public Health Committee. She is active on agriculture and rural development, global development policy, the environment and food safety and security. A food policy expert, Mairead was the author of a report, endorsed by the European Parliament in 2009, on the future of the Common Agriculture Policy and Global Food Security. She is a member of a key group in the European Parliament charged with examining the EU's budget resources and expenditure in the post-2013 period. She is also a member of the Parliament's delegation to New Zealand and Australia and China and serves on Inter-Party Groups on Disability and Children's Rights. Mairead was first elected as an MEP in 2004 and was re-elected in June 2009. Prior to becoming an MEP she was a well-known journalist, broadcaster and commentator.

Professor John Fitz Gerald

John Fitz Gerald is a Research Professor with the Economic and Social Research Institute in Dublin working on macro-economic policy, and energy policy. He is a member of the Central Bank, a past President of the Irish Economic Association and a former member of the National Economic and Social Council.

Dr Liam Downey

Liam Downey, in recent years, has been involved in various EU and National Foresight projects in relation to Agriculture, Food and Rural Economies. He has been Director of four national organisations with responsibility for Agriculture, Food, Animal Health and the Environment. He has a PhD in Biochemistry and a D Sc for published research across a wide range of agriculture, food and science policy. He was awarded a D Litt by the NUI in recognition of his contribution in these fields. He also holds Honorary Professorships in NUI Maynooth and University College Dublin.

Mr Paddy Browne

Paddy Browne is Head of Education with Teagasc since May 2001. A native of County Carlow he graduated from UCD with a B Agr Sc in 1976. He worked in Counties Carlow and Wicklow as an adviser and an education officer before being appointed in 1990 as Regional Agricultural Officer based at Kildalton. He subsequently was appointed Chief Tillage Adviser still with Teagasc based at Oak Park Carlow in 1994. He completed an M Agr Sc from UCD in 1983 and an MBA from Waterford Institute of Technology in 2001.

Mr Michael Gowing

Michael Gowing is a spring calving dairy farmer milking 220 cows. He is a former winner of both the Teagasc Student of the Year and the FBD Young Farmer of the Year awards. Having previously been Macra na Feirme's National Chairperson, Michael is currently the National President of Macra na Feirme, a position he has held since May 2009. As an active young farmer, Michael draws on his personal experiences while representing the view of the Irish young farmers at home and abroad. Michael, along with his Macra colleagues, places huge importance on the continuing development of the agricultural sector through discussion groups and study tours. Michael himself often draws from experiences that he got while on a study trip to New Zealand. He was a member of the 2020 Harvest committee appointed by the Minister for Agriculture.

Ms Elisabeth Hönigsberger

Elisabeth Hönigsberger has A-levels in agriculture, home economics and farm management and teaching certificates in the agricultural sector and English. Since 1981 she has been a teacher at the School of Viticulture and Oenology in Krems, Austria. From 1981-1999 she was Executive Secretary of Women Farmers' Association, County Krems. She provides English language courses for farmers and winegrowers. Since 1997 Elisabeth has been a member of the Agricultural Coordination Office of Lower Austria (LAKO) for international relations, in-service teacher training and school development. Since 2006 she has been President of EUROPEA Austria. She is a steering group member of various Leonardo da Vinci projects (ALIE, ALIVE, EQUFAS), coordinator of eight VETPRO mobility projects on behalf of EUROPEA Austria. She received the Leonardo da Vinci Quality Award for Innovation in 2004. She is promoter of student championships in Forestry and Wine and author of "ENGLISH FOR WINELOVERS".

Mr John Fay

John Fay qualified from Queen's University Belfast in 1978 and started his career in the Department of Agriculture & Rural Development (DARD) in 1979 having completed the Diploma in Communications at Loughry College. He has worked in a number of posts within DARD primarily associated with education, training, advisory and technology transfer. During 1990/91 he was seconded to the Livestock and Meat Commission to establish the Farm Quality Assurance Scheme (FQAS) for the NI beef and sheep industry. From 1998-2002 he was principal of the former Greenmount and Enniskillen Colleges and Senior Deputy Chief Agriculture Officer within DARD. In 2003 he was appointed as Director of CAFRE, which comprises Greenmount, Loughry and Enniskillen Campuses.

Mr David McKenzie

David McKenzie's current post as Vice Principal Learning at SAC requires strategic leadership and management of SAC's Learning Division with responsibility for the development and delivery of a wide range of undergraduate and postgraduate programmes covering the three curricula areas of: Life Sciences, Environmental Sciences and Social Sciences. He is responsible for a complement of 104 full-time equivalent staff, 65 of whom are lecturers and circa 1,000 full-time equivalent students. He has primary responsibility for the strategic development and planning of SAC's Learning function. He is a member of the Executive Management Team of SAC and reports to the SAC Board on issues relating to education. He previously worked with KPMG Scotland as Head of Education/Advisory and as Principal of East Devon College, England. Prior to that he worked in a wide variety of lecturing roles. David holds a BA (Hons) in accountancy, an M Ed in Further and Vocational Education Management and an MBA from the University of Aston, Birmingham.

Dr Tom Kelly

Tom Kelly is Director of Knowledge Transfer with Teagasc. He has a masters degree in agriculture from UCD, a PhD awarded from NUI for research in calf rearing, and an MBA from the University of Limerick. He has worked as a college teacher, dairy specialist and programme manager for farm management during the last 27 years. He has taken up his current role as head of the Knowledge Transfer directorate in April of last year.

Mr Christopher McCarthy

Christopher McCarthy is as a part time suckler farmer married with two children. He was educated in St Cremins Primary School, Multyfarnham, Co Westmeath and completed his Secondary School Education in St Mary's CBS in Mullingar. He then completed the one year Certificate in Agriculture in Warrenstown Agriculture College, Co Meath, followed by a three year Farm Apprenticeship Course, and received his Farm Management Certificate in 1985. He managed a 100 cow dairy herd for two years. In 1987 he left Ireland and emigrated to America. He returned to Ireland in 1997 to take over the family farm of 30 hectares and built up a suckler cow herd, selling calves at weanling stage. He also set up a tiling company.

Mr Paul Fox

Paul Fox is a B&T Tillage and Drystock Advisor based at Teagasc, Tullamore. He has worked in the advisory service since 2008. He co-ordinates a number of farmer discussion groups, and began working with the Mullingar Level 6 Benchmark Discussion Group in late 2009. He also assisted in delivery of some of the modules on this programme. Paul has a strong background in student education, having worked as a lecturer in Kildalton College before commencing his current assignment. Prior to that, he completed a Higher Diploma in Education (UCD). His primary degree is in Agricultural Science (UCD), and he also holds a Master of Science Degree in Food Safety Management.

Ms Laura Barry

Laura Barry is a post-primary teacher of Biology, Science & Maths and part-time farmer. She has a BSc Biochemistry UCC 2000, PgDip Business & IT Smurfit School Business UCD 2002, H Dip Education NUIG 2007, Higher Certificate in Agriculture Teagasc 2010. She has worked in the financial services sector both in Ireland and Sydney before re-training as a secondary school teacher in 2007. She works part time on the family farm which is a mixed enterprise of dairy, cattle and tillage. The farm is approx 445 ha in size. The dairy consists of a milk quota of approx 385,000 gallons with cattle being milked all year round. The main focus of the cattle enterprise is on calf to beef, yearling to beef and bull beef. The tillage is made up of forage maize, winter wheat (about 138 ha) and spring barley.

Mr Adrian Van Bysterveldt

Adrian van Bysterveldt is a dairy specialist in Farm Systems. He is currently in Ireland to support the Greenfield Dairy Program and to provide training to Teagasc advisors and Irish farmers in grass management. Previously he worked for DairyNZ, firstly as a Consulting Officer and then as a Business Developer. He was on the management team of the Lincoln University Dairy Farm (LUDF). LUDF is a 720 cow commercial dairy farm where his focus is on demonstrating the application of science and technologies, particularly on pasture management. Adrian is also involved in the training of DairyNZ Consulting Officers and has presented key messages about pasture and grazing management to farmers and professionals in New Zealand, Ireland, England, Tasmania and South Africa. He also has five years experience as a Science Teacher and then went dairy farming for 16 years in the Waikato. During his time dairy farming he and his wife (Anne) progressed from a position as Manager, through 50/50 share-milking to farm ownership.

Professor Gerry Boyle

Gerry Boyle was appointed Director of Teagasc on 1 October 2007. Gerry was Emeritus Professor of Economics at the National University of Ireland (NUI), Maynooth and former Head of its Economic Department. He also holds an Adjunct Professorship at the University of Missouri, Columbia. He was previously a Senior Research Officer with the Agricultural Institute and an Economist with the Central Bank of Ireland. From 1995-1997 he served as Economic Adviser to the Taoiseach, Mr John Bruton TD. Prior to his position at Teagasc he was a Senior Associate with Farrell Grant Sparks Consulting and a Senior International Consultant, specialising in agricultural policy, with the World Bank on a number of their projects in Eastern Europe and Central Asia, including Belarus, Moldova, Russia and Tajikistan. He is a past President of the Irish Economic Association and of the Agricultural Economics Society of Ireland. He has also served as Editor of the Economic and Social Review, the European Review of Agricultural Economics and the Irish Journal of Agricultural Economics and Rural Sociology. Gerry has published an extensive range of papers and reports on public policy issues in national and EU media.

Dr Noel Cawley

Noel Cawley is a native of Gurteen, Co Sligo. He was education at St Nathy's College, Ballaghaderreen, University College Galway, and University College Dublin. After UCD he completed a post-doctoral programme in biochemistry/food science at the University of California, Berkeley. He spent three years in the UK with the Guinness Organisation. He joined the research team in the Irish Dairy Board in 1974 and has held many positions at every level in the Irish Dairy Board. He was appointed an Executive Director in 1976 and Managing Director in January 1989. He was appointed a Board Member of Bord Bia in June 1995. He was appointed to the Board of the Irish Horse Board as was Chairman from 1993 to 2001. He is an honorary life member of the RDS and is a member of the management board. He is also a member of the Executive Council of IBEC. He was appointed Chairman of Teagasc in September 2008.

Direction of EU Agriculture and Implications for Agricultural Education

Ms Mairead McGuinness
Member of the European Parliament

Chairman, Ladies and Gentlemen,

My thanks to Teagasc for their invitation to address the issue of Future Challenges for Agricultural Education in Ireland and Europe, but in particular to focus on the direction in which EU agriculture is heading and what the implications might be for agricultural education.

As someone who received a very good start in terms of education – I am extremely grateful for the benefits it bestowed on me – both at primary, secondary and third level. I studied Agriculture Economics in UCD and as is very often the case, I don't think I fully appreciated the benefits of my education on graduation day, but in the years that have followed and in the many different areas in which I have worked, it has provided me with a baseline from which to build.

Lifelong learning is a key issue for the EU and if ever a sector needed to take up the challenge of lifelong learning it is the agriculture sector, where there are always new challenges to deal with and where our knowledge and understanding of production systems and our drive for efficiencies can never stand still.

As a member of the Agriculture Committee of the European Parliament, that basic knowledge and understanding of agriculture systems and economics that I gained in UCD has been invaluable. Knowledge is power - and - the Agriculture Committee of the European Parliament has increased powers and responsibilities in the area of agricultural policy.

As you know there is currently a big debate about the future direction of EU Agricultural Policy. That debate is being keenly watched by farmers in every single member state of the EU – some are even trying to second guess the outcome of these deliberations – a point I would like to come back to in my presentation.

Let me focus on the dual theme of my paper: Firstly the direction of EU Agriculture – and secondly what this might mean for education. A few points are worth making. When we talk about direction, we usually know where we are starting from and where we want to end up. When it comes to policy, we all know that sometimes very well intentioned policy can lead us in a direction we did not anticipate.

In terms of direction of EU agriculture, it is and will be driven by reforms of the CAP – the Common Agricultural Policy. There is no harm in reminding ourselves about the stated objective of that policy as set out in the founding treaties of the EU and which remain un-amended today. The objectives as set out in Article 39 of the Treaty of Rome:

- 1 To increase productivity, by promoting technical progress and ensuring the optimum use of the factors of production, in particular labour
- 2 To ensure a fair standard of living for the agricultural Community
- 3 To stabilise markets
- 4 To secure availability of supplies
- 5 To provide consumers with food at reasonable prices

Those objectives are as valid today as they were when drafted by the founding fathers of the EU but not all of these have been achieved. The CAP has gone through many different stages and phases. We have swung from a production only policy focus in the early days, driven by price supports to a de-

coupled policy today that supports farm incomes and requires compliance with some 18 statutory requirements set out in EU legislation on public health, animal and plant health, animal welfare, and the environment.

We have gone from a position where farmers in the past were seen to be deriving their incomes from the marketplace to a time today when it is plainly obvious that farmers receive very little of their incomes from the marketplace. A 2006 Teagasc study found that a mere 2% of family farm income came from the marketplace. The early price support policy concealed, if you like, the support regime from public scrutiny until surplus production became an embarrassment.

Today's support mechanism which provides farmers with a single farm payment (direct support) is very visible and until recently you could find out what any individual farmer in the EU received as it was publicly available on the web. Yet despite the very large transfers of money from EU taxpayers to farmers, the CAP is failing when it comes to farm incomes. The policy is also under pressure when it comes to market stability with increasing volatility of prices a real problem. And we could also ask if objective 5 on providing consumers with food at reasonable prices has actually become "providing consumers with food at the lowest possible price- regardless of the consequences"?

These issues require some debate and consideration and perhaps in the question and answer session we might discuss them further. For now I want to concentrate on where the current thinking is on reform of the CAP post-2013.

So how is the CAP debate shaping up?

The Commission's communication on the future of the CAP published in November last points to **three key challenges** for agriculture:

- ★ To preserve Europe's capacity to deliver **food security**: increasing globalisation with rising price volatility, the CAP has to improve the competitiveness of the agricultural sector, enhance its value share in the food chain, ensure a diverse and high quality supply of food and address low incomes in light of the economic crisis;
- ★ The policy is also called on to help farming adapt and make a positive contribution to address **climate change** (through carbon sequestration, biomass production and reducing GHG emissions) and **environmental challenges** (such as depletion of soil, water and air quality, and biodiversity);
- ★ To mitigate the **territorial imbalances**, improving the vitality and economic potential of rural areas, in particular in "predominantly rural regions".

The document talks about **three objectives**:

Objective 1 - Viable food production - Contributing to farm incomes and limiting volatility; to improve competitiveness of the agricultural sector and its bargaining power in the food value chain; and to maintain the spatial distribution of agricultural production, including in areas with natural constraints where there is a risk of land abandonment;

Objective 2 - Sustainable management of natural resources and climate action - Securing the provision of environmental public goods by agriculture and forestry; fostering green growth through innovation; and pursuing climate change mitigation and adaptation actions;

Objective 3 - Balanced territorial development -Support for rural employment; promotion of rural economic diversification; and encouragement of structural diversity in farming systems through improving conditions for small farms and local markets.

The Commission says it is looking at three possible options for the future from maintaining the status quo to a radical shake-up of the CAP. But a more realistic option of gradual change is likely to emerge in order to avoid "*major disruptive changes*" inside the **first pillar**.

Option 1 - Continuity (Current CAP with gradual adjustments): This option would be restricted to resolving some current discrepancies, such as distributing direct payments more equitably between Member States and farmers. Even here, this redistribution would be limited, thereby ensuring continuity and stability within the current CAP;

Option 2 - Evolution (Balanced CAP reform): Another alternative would be to make major overhauls of the CAP in order to ensure that it becomes more sustainable, and reshapes the balance between different policy objectives, farmers and Member States, in particular by introducing a more targeted approach to priorities. This option would imply greater spending efficiency and greater focus on the EU value added;

Option 3 - Break up (Rural and agri-environmental policy): This more far reaching reform would go further, moving away from income support and most of the market measures, and giving priority to environmental and climate change objectives, rather than the economic and social dimensions of the CAP.

It proposes "a system that limits the gains and losses of Member States by guaranteeing that farmers in all Member States receive on average a minimum share of the EU-wide average level of direct payments".

In regard to the distribution of rural development support (**second pillar**) among Member States, the Communication proposes the use of objective criteria, "*while limiting significant disruption from the current system*".

One of the strategic aims of the proposal is to support farming communities that provide European citizens with quality and diversity of food produced sustainably, in line with Europe's environmental, water and animal welfare ambitions.

Direct payments to farmers are seen as essential for income support and to pay for those services, (public goods) including environment, water and animal welfare which the market does not reward.

The focus of discussion is on supporting '**active farmers**' for the many services provided to society. This, it is believed would increase the effectiveness and efficiency of the supports and further legitimise the CAP. Legitimacy is a key concern, because of the visibility of direct payments. There is little or no support for continuation of the historic system of payments to farmers and while the Commission has set out some ideas on this, there is no consensus on the way forward.

Overall, the Commission and the European Parliament want the CAP to be greener; there is a desire that direct payments be distributed more equitably between Member States and between farmers. And that the second pillar/rural development dimension focus more on competitiveness and innovation, climate change and the environment.

Direct payments – Pillar 1

To achieve this **greener and more equitable distribution of first pillar payments**, the Commission is proposing to **redesign and better target** support to make it more consistent with its economic (basic income support), environmental (provision of environmental public goods) and territorial functions.

There is a lot in that statement.

It is the prospect of redistribution of payments between Member States and between farmers which is exercising individual farmers, just as it is exercising the minds of officials and politicians in all Member States. There is pressure from the new Member States for higher payments.

Average per hectare payments vary enormously across the EU. Greece and Malta are at the top end of the scale with over €500/ha and Latvia at lower end of the scale on less than €100/ha. Ireland comes in at around €270 per hectare. In 2008, 82% of farmers throughout Europe received less than €5,000 in direct payments per year. But, 85pc of direct payments went to 18pc of farmers.

Recognising that changing the distribution of payments might be disruptive, the Commission proposes a system that limits the gains and losses of national envelopes “by guaranteeing that farmers in all Member States receive on average a minimum share of the EU-wide average level of direct payments”.

The new direct payments would be made up of **four main components**:

- basic income component
- green component
- additional income payments in "areas with specific natural constraints", and
- a limited voluntary coupled support.

Simplifying cross-compliance rules is also proposed.

Income Support in Detail

Basic income support will be granted through a basic decoupled direct payment, providing a **uniform level of obligatory support to all farmers in a Member State (or in a region)** based on transferable entitlements that need to be activated by matching them with eligible agricultural land, plus the fulfillment of cross-compliance requirements.

The Communication indicates that a major feature of the Commission's proposed reforms will be the *"enhancement of environmental performance of the CAP through a **mandatory 'greening' component of direct payments by supporting environmental measures applicable across the whole of the EU territory**"*.

Such a 'greening' component *"could take the form of simple, generalised, non-contractual and annual agri-environmental actions that go beyond cross-compliance"*, based on the supplementary costs for carrying out these actions. The Communication also includes the possibility of including the requirements of current Natura 2000 areas and enhancing certain elements of the GAEC (Good Agricultural and Environmental Conditions) framework.

A third component of the proposed new system of direct payments envisages an additional income support to all farmers in **areas with specific natural constraints**, in the form of an area-based payment. This payment would be complementary to the support given under the second pillar. However, given the budgetary pressures which I will allude to shortly, this may mean recycling existing funds rather than providing additional funds to the budget.

A fourth tier would be a limited voluntary coupled support that may continue to be granted *"in order to take account of specific problems in certain regions where particular types of farming are considered particularly important for economic and/or social reasons"*. While Ireland has fully decoupled payments from production, some Member States have not done so and there is a view that in order to meet the territorial objectives of the CAP, limited re-coupling of payments may be permitted.

Small Farms

Under the sections on territorial balance, the Communication underlines the importance of rural employment as the basis of the social fabric of rural areas, and the structural diversity in farming systems.

A simple and **specific support scheme for small farmers** is proposed to enhance the competitiveness and the contribution to the vitality of rural areas and to cut red tape. Improving the conditions for small farmers and developing local markets is on the agenda. But just as there is no agreement about the definition of active farmer, we do not have a definition of small farmer.

Capping of Direct Payments

The Commission proposes the adoption of an **upper ceiling for direct payments** received by large individual farms, although exemptions may be possible for large farms with high employment numbers, as **salaried labour intensity** will be taken into account.

Markets and Support Measures

The Communication outlines three policy fields concerning markets measures:

Potential **adaptations of the single CMO** including the extension of the intervention period, the use of disturbance clauses and private storage to new products.

Such market measures, and in particular the public intervention, should only be used as a safety net in case of price crises and potential market disruption.

Additionally, the Commission's agricultural "**quality package**" which was proposed recently should improve possibilities for farmers to better communicate the qualities, characteristics and attributes of agricultural products to consumers.

Improving the functioning of the **food supply chain** is on the agenda. Addressing the imbalance of bargaining power, contractual relations, the need for restructuring and consolidation of the farm sector, transparency, and the functioning of the agricultural commodity derivatives markets are all up for discussion. The **milk package** goes into detail on these issues and is moving through the Parliament with adoption expected in June.

Getting more money back to farmers is identified as a key issue for the future, particularly given the experience of the 2009 dairy market crisis.

Derivates Markets

The Communication lists, in the section on market measures, the functioning of the agricultural commodities derivatives markets as one of the key issues to be pursued.

Rural Development Instruments

As part of the proposals for rural development policy, the list of themes is expanded, with an emphasis on innovation. New measures include a **risk management toolkit** aimed at dealing with income uncertainties and market volatility, with these mechanisms being made available to Member States to address both production and income risks, ranging from a WTO green box compatible income stabilisation tool, to strengthened support for insurance and mutual funds.

The Communication also proposes new **effective delivery mechanisms**, suggesting that the current measures in the four axes would be targeted in a different way by setting quantified EU-level and programme-level targets, tied to incentives, to achieve a more outcome-based result.

The potential benefits of a more locally-led approach is emphasized, as is the importance of **strengthened coherence** between rural development policy and other EU policies, with a **common strategic framework** for EU funds being envisaged.

Consideration of using **objective criteria** for the future distribution of rural development funding is proposed, although the Commission feels it would have to limit any resulting "*significant disruption*" from the current system.

EU Budget

Alongside the debate about reforming the CAP, there is a focus on the EU's Budget post-2013, when the current financial framework (2007-2013) comes to an end.

At a time of budgetary austerity in several EU countries, there is little political appetite among Member States who are net contributors to the budget to increase their contribution. If anything there is a desire among several to cut their contributions.

Agriculture accounts for just over 40pc of EU total spending. It is a large and highly visible share of the budget. Those who understand the policy know why things are the way they are. Those who wish to dismantle the policy only see the size of the budget and point to better ways to spend the money.

At political level there are mixed messages coming from the heads of states and governments of the EU. A recent French/German/UK/Netherlands/Finland letter to the Commission called for an increase in payment by no more than the rate of inflation, thus maintaining the size of the EU Budget constant in real terms.

The letter did not call for a cut in the absolute size of the budget which is significant.

So on balance while there is a core of Member States opposed to the CAP, the joint letter from the five countries is at least a positive indication that the agriculture budget is unlikely to be slashed post-2013.

However, there remains the issue of how the budget will be distributed between Member States and between farmers – given the demands of the new Member States for more money and the belief that the historic payment system should not survive intact post-2013.

WTO Concerns

The communication from the Commission recognises that EU agriculture finds itself in a competitive environment as the world economy is increasingly integrated and the trading system is becoming more liberalised.

This trend is expected to continue in the coming years, in view of the possible conclusion of the Doha Round negotiations and of the bilateral and regional agreements currently under negotiation.

So – in summary agriculture is facing:

- More liberalisation of agricultural produce and more pressure to:
- Incorporate environmental concerns into the CAP,
- To keep territorial balance,
- To ensure food security,
- To protect and assist small farmers,
- To support active farmers ,
- To respect animal welfare, food safety and other rules,
- To try and ensure farmers get more from the food value chain.

And all of this at a time of tight budgetary pressure in the EU!

Farm Incomes

EU farm incomes are on average 50pc of incomes in other economic sectors of the economy. And of that 50pc, two-thirds comes from direct payments and subsidies, and one third from the marketplace.

These are very harsh statistics for the EU – the marketplace, sophisticated as it is, does not reward farmers for what they produce and the additional “public goods and services” demanded of them.

In the absence of the market delivering more to farmers, it is unthinkable that there would be any major erosion of the direct support payments to farmers.

In Ireland, the single farm payment is particularly important for farm incomes. For example, in 2006, the National Farm Survey, to which I referred earlier, showed that 98pc of Family Farm Income was derived from direct payments and other supports – with only 2pc coming from the marketplace. On average the figure is 75pc income from direct supports and 25pc from marketplace. Without the payments, the income position of Irish farming families would be dire. Non-farmers find this hard to believe or understand.

And it is critical that in the middle of these reform talks, we communicate the complexity of the farm income story to consumers and non-farmers, so that they understand the reasons why there is taxpayer support for the farm sector and that they know that even with direct support the income situation in farming in the EU is weak.

What Direction?

In truth EU agriculture is heading in many different directions – but central to the policy shift is a recognition that the marketplace does not and will not pay farmers a fair price for their produce, a price that reflects the value of all of the services provided by farmers, including the food products.

It brings me back to the question of fair prices to consumers. The food model that prevails, despite much other rhetoric, is that of CHEAP food....

At a time of economic crisis and when Member State Governments want to keep inflation down, there is a relentless pressure on the food supply chain. For farmers it means decreasing returns because while commodity prices may be rising, so too are farm input costs. Farm incomes will come under sustained pressure from these forces, without including competition from third country produce.

Which begs the question – can this continue and what about those important concerns about managing our natural resources in a sustainable way? We need a clear analysis on who is paying the price for

cheap food. We need to improve the returns farmers get from the market place by knowing what is actually going on along the chain. If the market does not improve returns to farmers, while the EU is trying to keep a reign on its budget, then farmers will be squeezed further. That is the unpalatable truth.

Implications for Agricultural Education

So what will all of this reform and refocus on a multi-functional more holistic agriculture mean for agriculture education? With only 7pc of farmers in the EU under 35 years of age, we have an ageing population of farmers, many of whom come from the background of the production focus of the 1980's. We need to look at life long learning for all farmers and we need to examine what skill sets new entrants to agriculture need now and into the future and equip them with those skills.

We should also appreciate that a good education should primarily equip the student – whatever the age – with an enquiring mind, so that they are able to read, to analyse, to question and challenge – we need a lot more of that in the sector. And I don't mean challenging rules imposed by EU Directive and saying NO to their imposition.

But rather providing farmers with the knowledge to see and understand that what is being imposed by way of Directives or Regulations – if properly framed and implemented – should secure their farming future. I regret to say that there has been a failure to focus on all of the many components of agriculture in our education programmes. In the past we focused on production agriculture. In more recent times the environment has been the focus. Why this artificial division? There is a pressing need for an approach to agriculture education that manages to focus on sustainable/competitive production.

I would contend that had we had the wisdom to take on board this more holistic approach to agriculture in the early days of the CAP, we could have avoided the introduction of the much dreaded EU Directives and EU cross-compliance measures. Farmers and those in the agri-sector need a much better understanding of ecosystems. It is very difficult to find the expert who has managed to marry both sides of the debate – production and environmental issues.

We also need, in my view, to decouple training courses from payments. Over 30,000 farmers will participate in REPS 4 training schemes and this is very positive, but in some cases it was a case of “do we have to do this course?” rather than having a hunger for knowledge and information. It was the pull of the cheque, not the famine for knowledge and information that forced them to attend. Such an approach is not conducive to learning - for either students or teachers.

The next generation of farmers will need to have a very wide base of knowledge and be geared towards expanding and building on that knowledge throughout their careers in agriculture. But we do need to critically look at the education and training needs of existing farmers.

There are 130 advisors working with 44,000 farmers – there will be a slashing by half of staff numbers in research, advisory and teaching, right at the time when the demands on farmers will intensify. Globally there is a consensus that we need more focus on research in agriculture and extension services, NOT less. That investment in agriculture yields results.

Role of Education in Irish Economic Recovery

Professor John Fitz Gerald
ESRI

Introduction

- The real economy
 - The current crisis
 - The role of education in growth
 - Conclusions
-

Process of Recovery

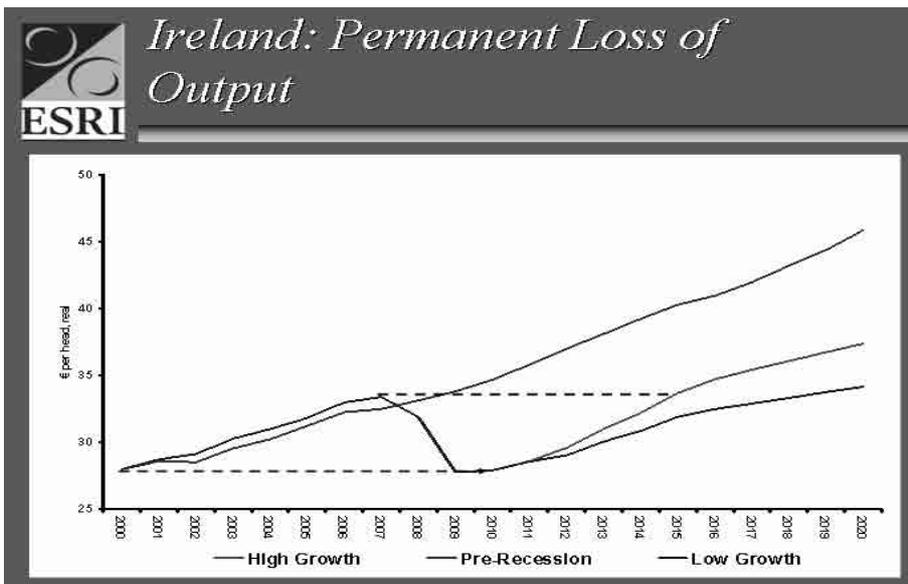
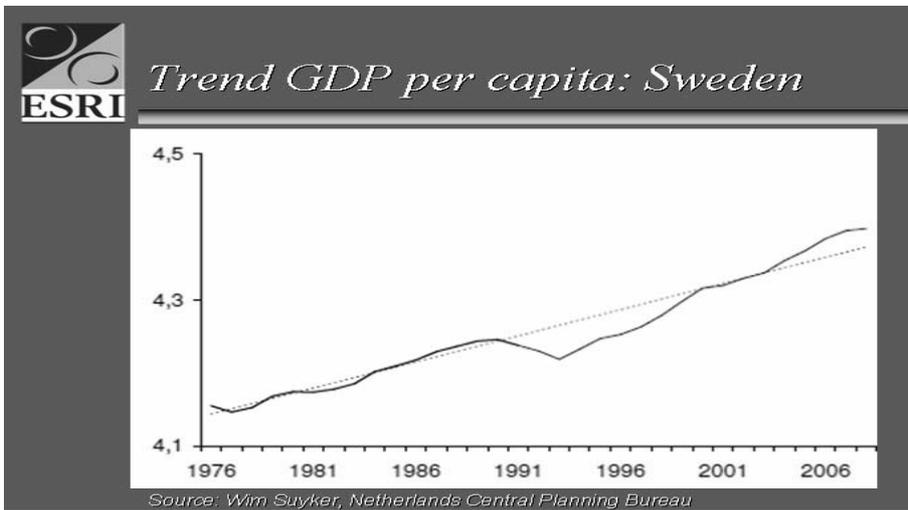
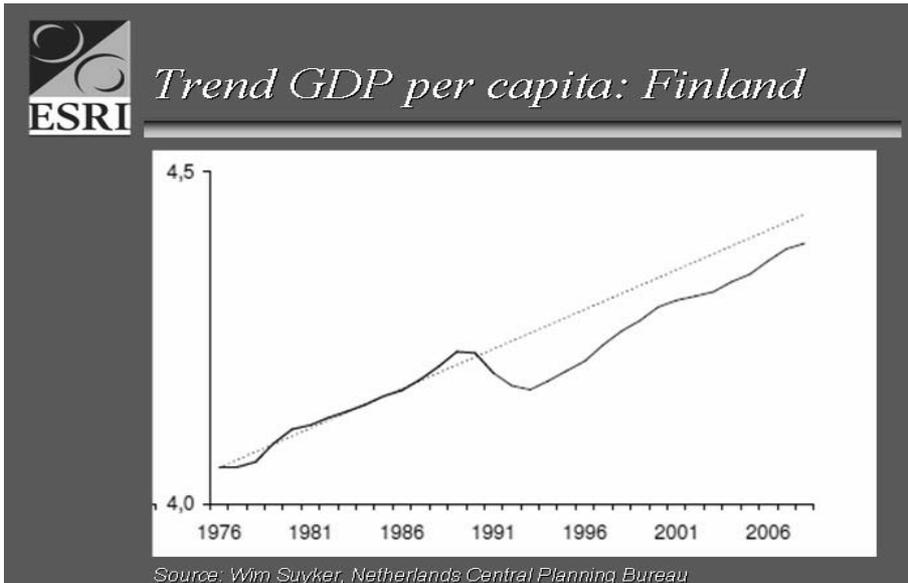
1. World demand and competitiveness
 - Export growth – Balance of Payments surplus
 - Not very job intensive
 2. BOP surplus and exports
 - Platform for future growth in domestic demand
 3. Domestic Demand growth – when?
 - Sort the deficit
 - Consumer confidence: lower savings rate
 - Return to some building & construction
 - Domestic demand creates jobs
 - Therefore, lagged response of unemployment
-

Export Sector

- Resilient
 - World growth?
 - Repricing of economy
 - Exports of goods – on track
 - Exports of services – on track
 - Balance of payments surplus
-

Domestic Demand

- Scared and scarred
 - Fiscal shock
 - Restoring their balance sheets
 - Households – saving and repaying loans
 - Companies – profitable but not investing
 - Credit?
 - Is there permanent damage?
 - Capital stock – manufacturing – some
 - Capital stock – services: vacant buildings
 - More permanent damage through debt legacy
-



Fiscal Policy

- ☐ €15 billion package (8.5% of GDP)
 - Should reach 2014 deficit target
 - Cuts consumption and investment

 - ☐ Cumulative effects over 4 years
 - **Relative to a baseline**
 - GDP: -4%
 - Government borrowing: -5%
 - Balance of payments surplus: +5%

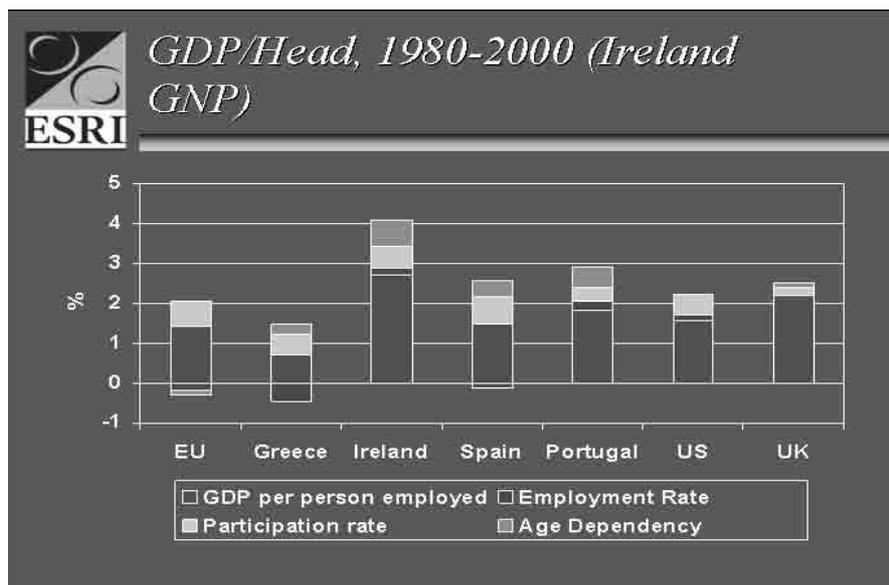
 - ☐ Growth rate of GDP c. 2.5% 2011-14
-

EU/IMF Agreement

- ☐ What we had decided to do anyway
 - Except on banking

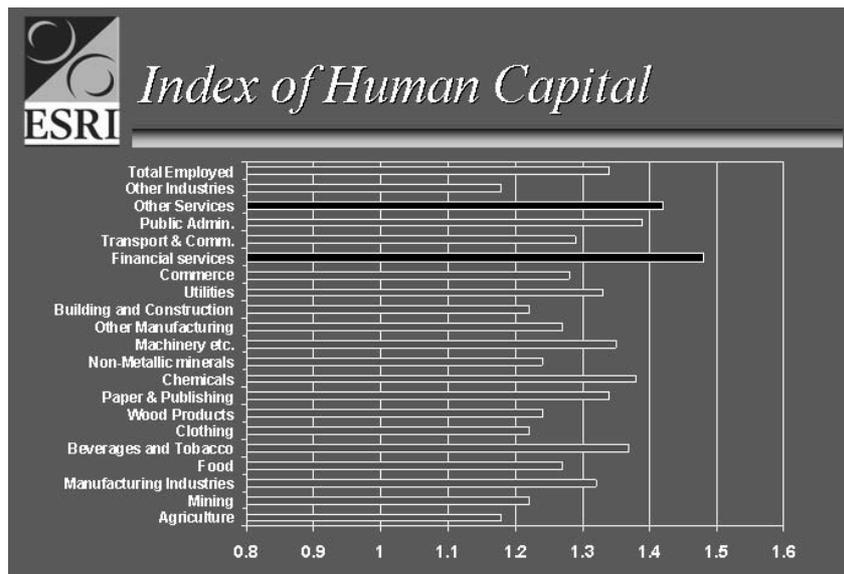
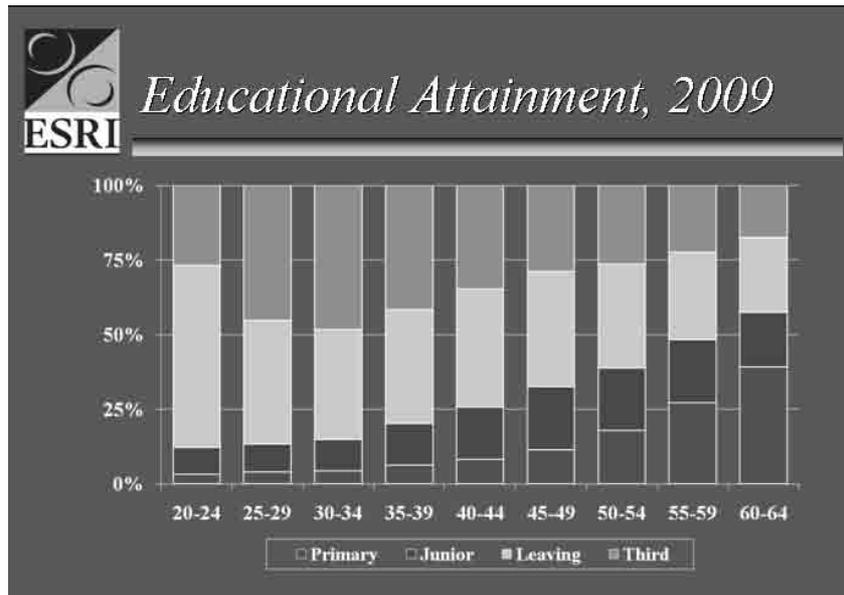
 - ☐ Getting full value from agreement

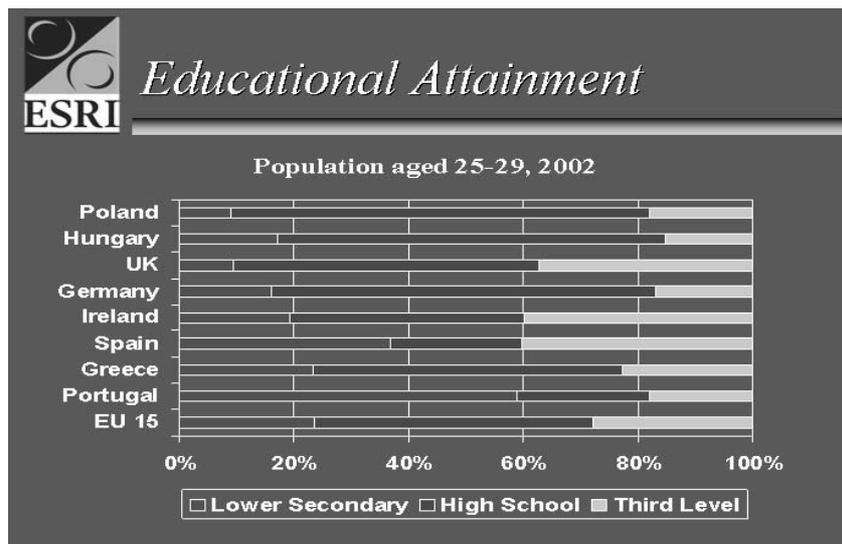
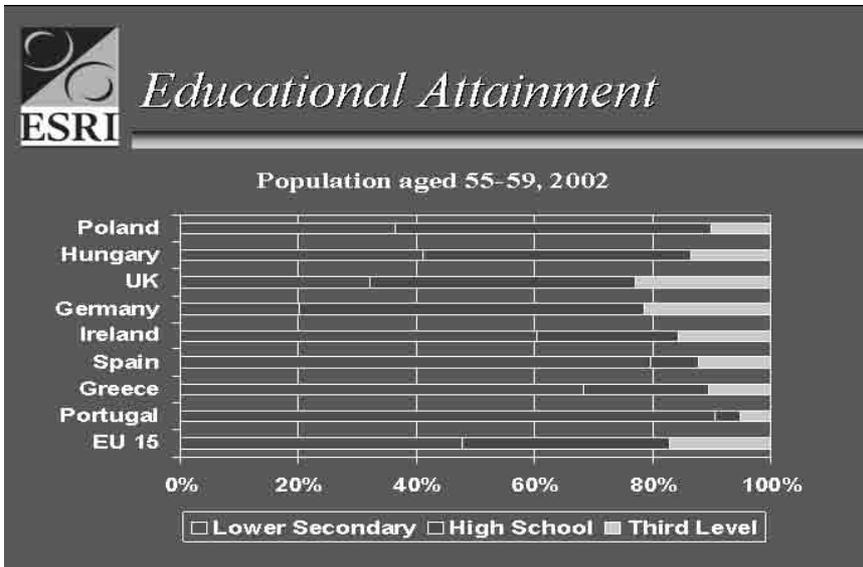
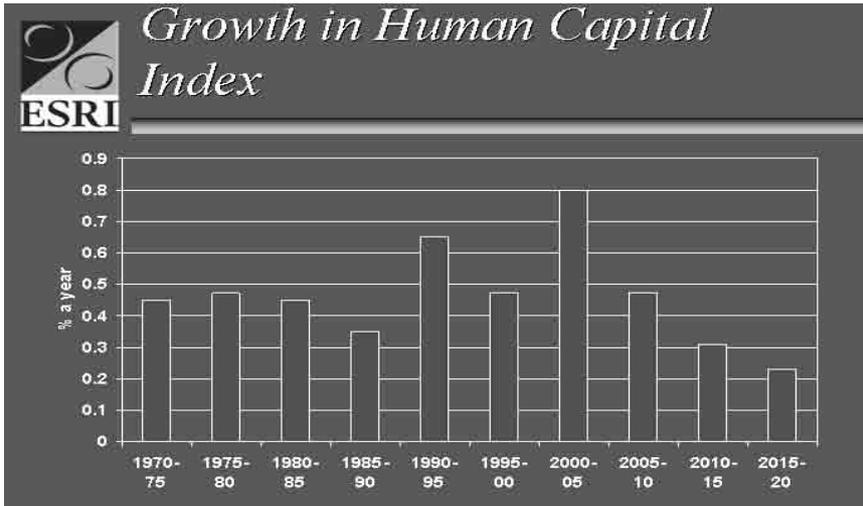
 - ☐ Option value of overdraft
 - Managing debt and interest
 - How much cash needed?
 - Borrowing short – lower interest rate
 - Could see Ireland paying less in interest
-

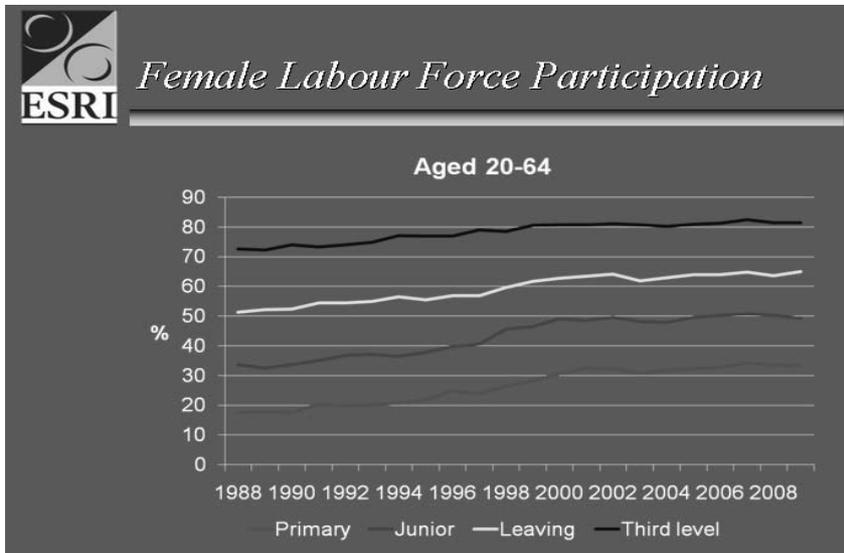
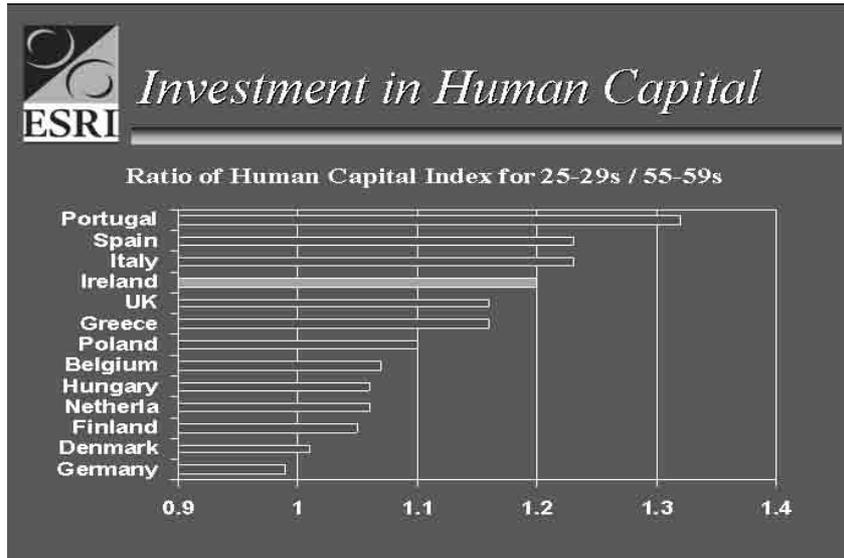


Education

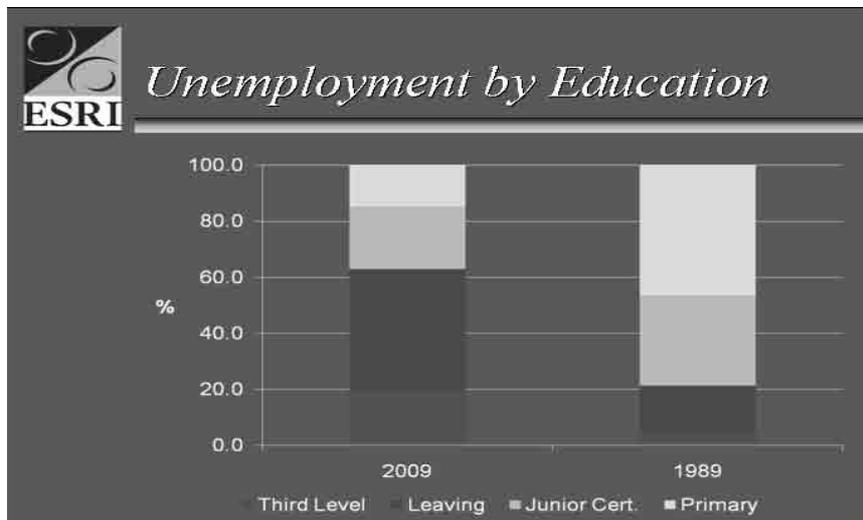
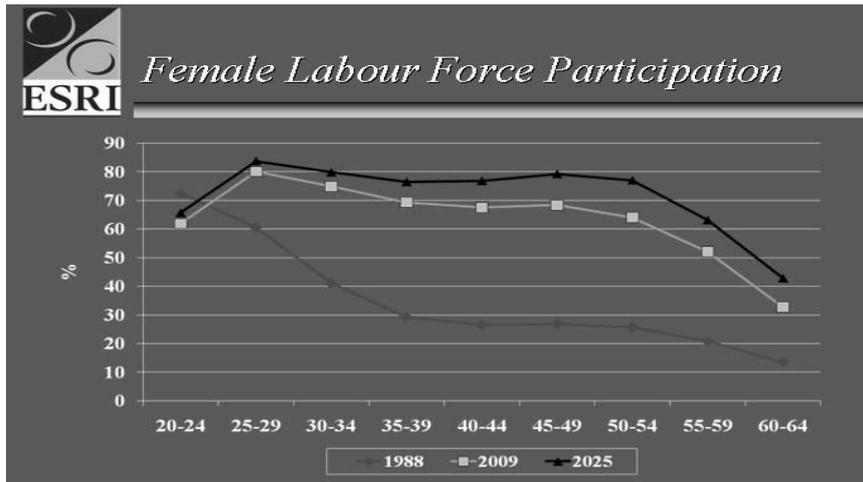
- ☐ Affects economy through three channels:
 - Increases productivity: labour demand
 - Increases participation: labour supply
 - Increases employability & reduces unemployment
 - Durkan, Fitzgerald and Harmon, 1999
 - 20% of growth 1960-92
 - Bergin & Kearney, 2007







	1990-95	1995-00	2000-05	2005-10
Female Participation	0.6	1.2	0.3	-0.2
Male Participation	-0.6	0.0	-0.2	-0.7
Education	0.4	0.2	0.4	0.3
Migration	0.0	0.8	1.3	-0.6
Natural Increase	1.4	1.2	1.3	2.1



Investment in Education

- ☐ Continuing Impact of past investment
- ☐ Impact of recession on human capital
 - Increased participation (especially males)
 - Emigration: if return – increased productivity
- ☐ Impact on productivity within & between sectors
- ☐ Impact on participation & unemployment

General Assessment

- ☐ Could outperform this – upside
 - Wont know till adjustment almost completed
- ☐ A large BOP surplus
 - platform for growth
- ☐ Implies economy will grow vigorously
 - Once the brakes are off

A New Concept of Irish Agriculture – Implications for Agricultural Education

Dr Liam Downey
Former Director, Teagasc

Sustainably-Competitive Agriculture: Towards an Educational Perspective

Liam Downey and Gordon Purvis¹

¹ School of Agriculture, Food Science & Veterinary Medicine, University College Dublin

Introduction

Europe's agri-food industries are being radically re-shaped by international policy changes, combined with a diverse range of growing public concerns, including food security, climate change and energy supply, environmental sustainability, animal health and welfare, as well as ethical foods and fair trade. These formidable challenges and uncertainties point to the compelling necessity to develop a new model of agriculture that is sustainably competitive (Purvis *et al*, in press). A primary feature of such a model is the emphasis on the sustainability of the competitiveness.

Sustainable competitiveness is a value-adding marketing strategy. It involves the development of innovative, knowledge-based farming systems that confer real agri-food advantages in terms of improved animal health, reduced environmental impacts and more consistent food products. Much of the knowledge necessary to implement this strategy already exists. A fundamental requirement for the development of a sustainably-competitive agriculture is well designed and innovative education programmes (below).

Conceptual Model

With the unprecedented economic and social complexities that now need to be addressed, notably, food security concerns, and indeed what is seen as an emerging *Food Crisis*, priority needs to be given to the development of sustainably-competitive production systems that meet the following design criteria:

- Profitable at farm level
- Produce market required food products
- Animal health and welfare needs
- Environmentally sustainable
- Can cope with climate change
- Energy efficient

Based on these design criteria, a conceptual model showing the generic components of a sustainably competitive agriculture is illustrated in **Fig. 1**

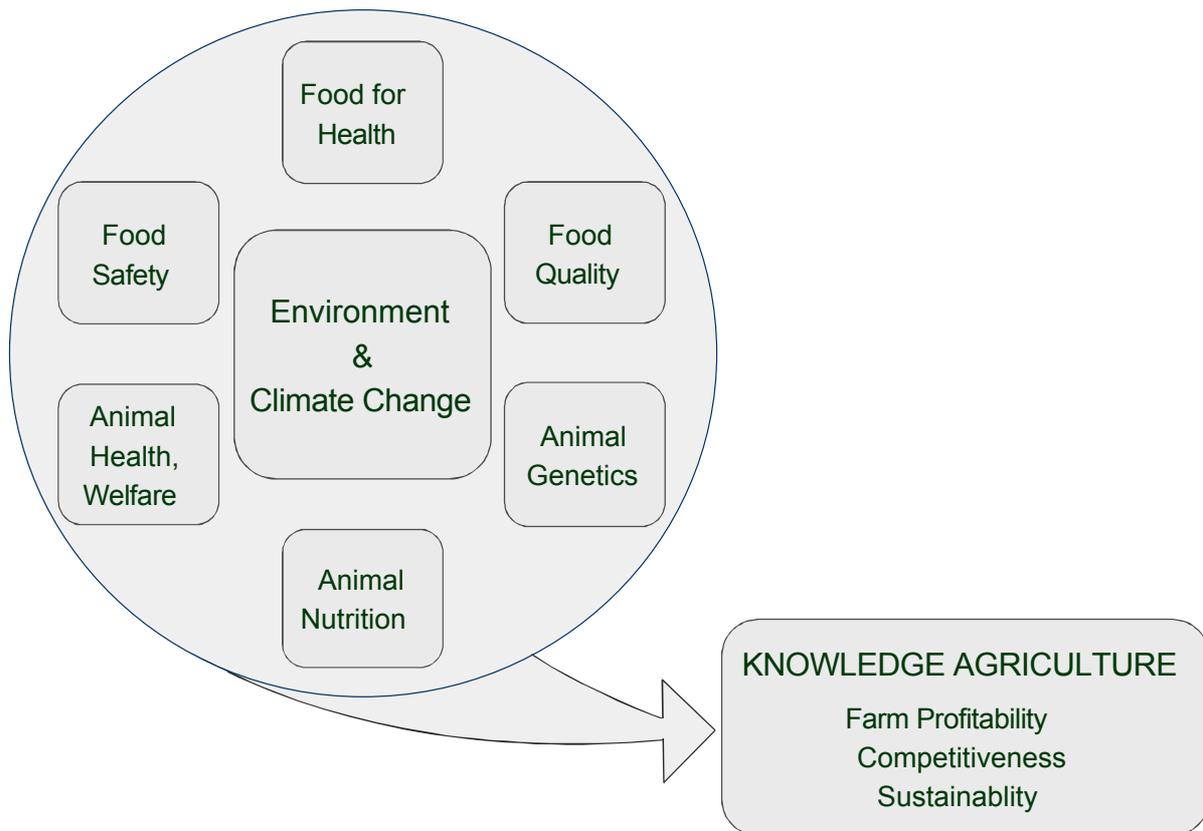


Fig. 1: The architecture of a sustainably-competitive agriculture (Downey *et al.*, 2008).

The model specifically applies to livestock systems. Analogous models for crop production systems would feature basically similar components, e.g. plant genetics/breeding, crop nutrition/ husbandry and crop pest/disease control. The relative importance of the constituent components of sustainably-competitive farming systems will vary between countries, regions, farming contexts and enterprises. Some important aspects of the individual components of the model shown in **Fig. 1** are outlined below.

By positioning agriculture in the middle ground between industrialised production and the niche opportunities provided by organic farming, development of a sustainably-competitive agriculture would confer a clear marketing advantage on food products. Similar concepts are being developed in other countries. In the UK, the Royal Society (2009) presented a concept of *sustainable intensification* of agriculture, and a more recent report focuses on *global sustainability in food and farming* (GOS, 2011). These reports highlight the requirement for increased global production of food crops to meet the needs of an expanding human population whilst protecting global ecosystems and natural environments. In the US, attention is being given to *Agriculture of the Middle*, which seeks to ensure the economic survival and continued contribution of medium-sized farmers (Gray, 2009; AOTM, 2010).

Farm Components of the Model

Animal genetics and breeding have been substantially improved in recent decades. Conversely, however, nutritionally-induced animal health/welfare problems have become more prevalent. Incidences of production related diseases are being experienced in virtually all major dairying countries (Doherty, 2007). This is evident in the post-calving loss of body condition in dairy cows and associated infertility and other nutritionally-related health and welfare problems. Production diseases in dairying are a manifestation of the cow’s inability to cope with the metabolic demands of high production and/or the unsuitability of the production conditions provided (Mulligan and Doherty, 2008). The on-farm consequential costs can be significant.

As shown in the model (**Fig 1**), animal nutrition is the keystone to delivering on the potential created by animal genetics. In addition to addressing animal health and welfare problems, animal nutrition is, as outlined below, a primary determinant of the consistency of dairy and meat products. Well-designed feeding strategies can also reduce the environmental impacts of livestock production. In developing new cattle production systems with these important attributes, the challenge is to achieve the necessary balance between the animals genetic potential and nutritional requirements; *Genetics creates the potential – nutrition delivers that potential.*

Food Components of the Model

Consistency is an imperative requirement of food products. To manufacture food products of consistent quality and functionality, raw materials of a consistent composition are a fundamental requirement. Milk produced from pasture-based production systems varies markedly in composition throughout the lactation. Consequently, dairy products manufactured from such milk exhibit significant seasonal variations in storage stability and functionality (Downey and Doyle, 2007). While these product defects are well documented, the magnitude of the impacts of seasonal pasture-based production systems on dairy and meat products is not fully appreciated and tends to be underestimated.

Extensive research undertaken in Ireland and elsewhere shows that improved nutrient intakes particularly in early lactation when nutrient requirements are highest, and again in late lactation when pasture availability can be low, would significantly reduce seasonal product defects arising from pasture-based systems (Downey & Doyle, 2007). As further detailed by Downey & Doyle, animal nutrition is in fact a primary determinant of the consistency of dairy products.

Beef produced from pasture production systems also exhibits seasonal quality problems. Incidence of what is termed *dark-cutting beef* are most pronounced during the autumn/winter period (Tarrant & Sherington, 1980). In developing new farming systems, opportunities exist to improve the safety of livestock products through the use of dietary manipulations designed to improve their nutritional value and reduce associated human health hazards, such as pathogen contamination (McGee *et al.*, 2001). Opportunities also exist to enhance human health by raising levels of potentially important health-promoting ingredients in milk and other livestock products through the use of appropriate livestock feeding strategies. For example, milk with enhanced levels of conjugated linoleic acids and vaccenic acid that can protect against some cancers may be produced by pasture-grazing (Coakley *et al.*, 2007), or through other strategic dietary manipulations (Shingfield *et al.* 2005).

Environmental Dimensions of the Model

As shown in **Fig 1**, the environment is of central importance in sustainably-competitive agriculture, both in respect of the farm and food components. Being fundamentally reliant on natural processes, agriculture is inherently dependent on the environment; which must systematically accommodate a diverse range of competing developmental pressures without the demands of one sector impacting unduly on the others. Many of the current difficulties facing agriculture stem from a failure to recognise this crucial fact.

In addition to climate change and increasing energy costs, particular attention needs to be given in designing new farming systems that ensure the protection and maintenance of environmental quality, to which regional economic viability is intimately linked (Boyle, 2009).

The development of innovative farm production systems designed to achieve these aims requires *firstly* an economic framework that adequately recognises the wider potential of such systems; and *secondly* a coherent integrative approach to their development. An important advance in this regard is the recent development (Purvis *et al.* 2009a) of a methodology to identify local agri-environmental priorities and evaluate policy options designed to ameliorate the negative impacts of prevailing farm systems.

Agronomic Model

An agronomic model depicting grass-based sustainably-competitive dairy and beef production is presented in **Fig. 2**. This illustrates the multifunctional benefits of the system, and highlights its two inter-dependent epicentres, namely *rumen function* and *pasture function*. As further detailed by Purvis *et al.* (in press), the agronomic and ecological efficiency of the system is ultimately dependent on optimising the functionality of these epicentres and their interactions. While the complex biological processes involved need to be further elucidated, much of the knowledge required to embark upon the practical development of sustainably-competitive grass-based cattle systems already exists.

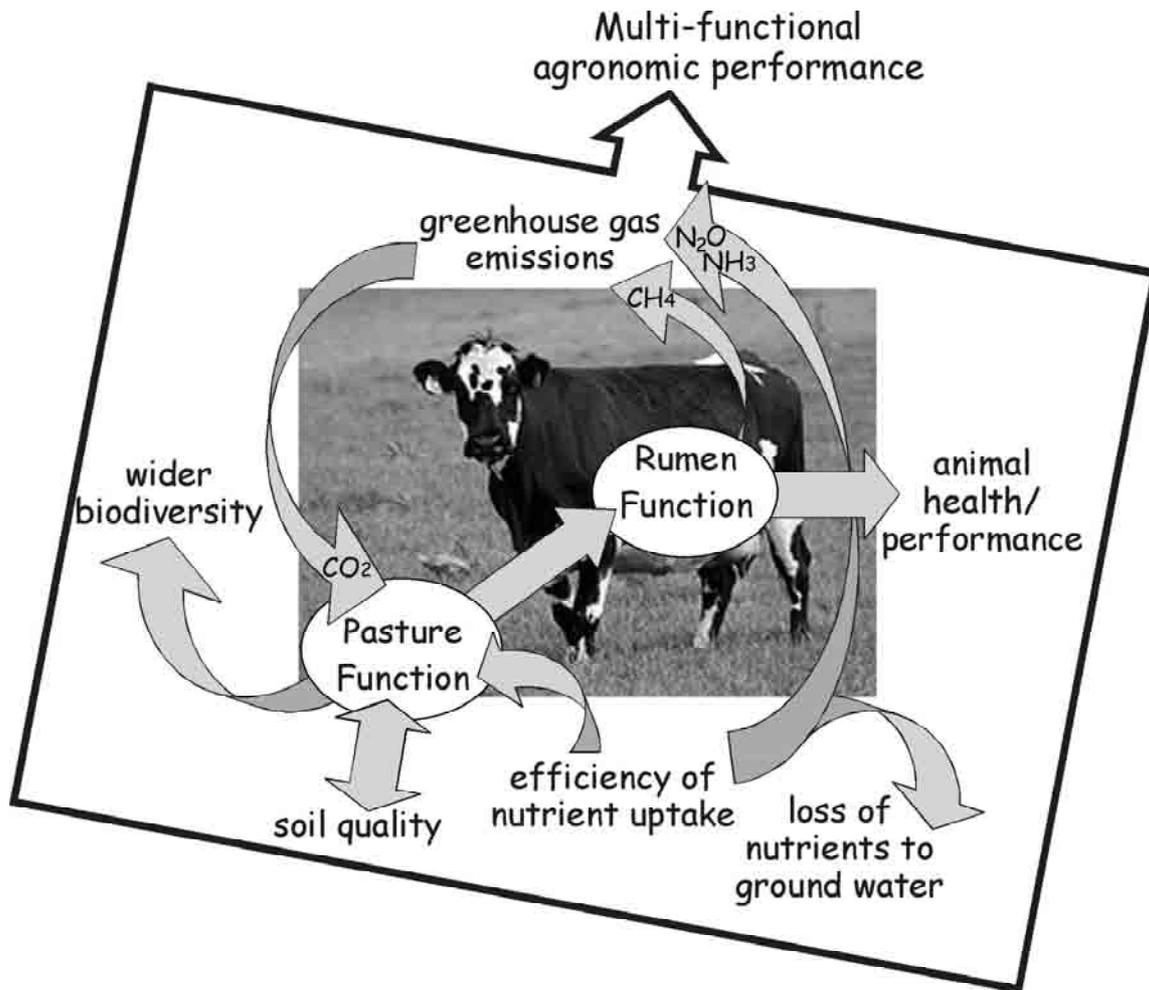


Fig. 2: An agronomic model of sustainably-competitive grass-based cattle production (modified from Purvis *et al.*, 2009b).

Educational Developments

A key determinant of a sustainably-competitive agriculture and rural economies in the immediate years ahead is the education of agriculturists and farmers, as well as providers of associated rural businesses and services. An immediate question in this regard is *What are the implications of the model outlined above for education in agriculture?* To begin with, education programmes need to be more comprehensive and better integrated. In particular, much greater priority needs to be given to the components of the model shown in **Fig. 1**.

To illustrate the scope of the education programmes required, a pen-picture is presented in **Table 1** of three essential disciplines pertaining to each of the components of the model (**Fig. 1**) as well as the overarching economic/financial dimensions.

Table 1: Core educational disciplines with respect to components of the sustainably-competitive model

Animal Genetics Population genetics Molecular genetics Breeding schemes	Animal Nutrition Nutrition – feed and forages Microbiology – rumen function Agriculture – nutrient requirements
Animal Health Veterinary – diseases/disorders Epidemiology – disease management Agriculture – farming systems	Environment Ecology – farming systems Chemistry – air/soil/water processes Environmental modelling
Food Safety Microbiology – microbial contaminants Chemistry – chemical residues Bio-engineering – process control	Food Quality Microbiology – microbial quality Biochemistry – flavour quality Bio-engineering – process control
Food for Health Nutrition – health science Biochemistry – chemical ingredients Microbiology – biological ingredients	Agricultural Economics Economics – farm and food systems Econometric modelling – farm/policy levels Finance – agri-food business

A number of these inherent educational imperatives are already reasonable well provided for. However, much increased priority needs to be given to strengthening the following disciplines:

- **Animal genetics** – quantitative and molecular
- **Animal nutrition** – rumen function and nutrient requirements
- **Environment** – functional biodiversity and ecological system performance
- **Food for health** – health science
- **Modelling** – econometric and environmental

With some of these disciplines, the expertise required has been built-up in recent years through the much increased investment in research. Accordingly, the opportunity now exists to harness the knowledge created by providing for a more systemic engagement of that expertise in education programmes.

Integrated agri-food education is a fundamental requirement for the development of a sustainably competitive agriculture. This is essential, both in respect of initial education and subsequent continuing professional development (below). How these needs can be best provided is outside the scope of this presentation, however, some strategic issues are touched upon below.

In *undergraduate education*, the initial years need to provide an indepth understanding of underlining scientific and business principles. Later years could then concentrate on the farm, food and environmental dimensions of the model, and their integration into sustainably-competitive farming systems. Creating a holistic understanding of the model, will require well-designed taught M.Sc. programmes.

In regard to *farmer education* in *agri-food*, a two-year programme structured along similar lines could be envisaged; year one would be devoted to providing the basic scientific and financial principles, followed by courses on the farm, food and environmental components of the model, and their integration into practical farming systems, with particular regard to their economic and business dimensions.

Continuing Professional Development

To capitalize on the highly educated workforce built-up in recent decades, continuing professional development (CPD) courses are, in the prevailing employment situation, an imperative across a wide range of occupations. CPD is a pre-requisite to upgrading competency levels and to underpinning future economic prospects. Such courses are urgently required in the agri-food sector. Indeed, the provision of nationally accredited professional development courses in agri-food needs to be seen as an essential component of the strategic expansion envisaged in the recent Food Harvest 2020 report (DAFF, 2010). Dedicated agri-food courses in the dairying sector are an immediate priority.

In regard to agriculture in general, CPD courses are required for prospective farm successors, and also for those that have recently embarked upon the management of farms. The CPD programmes outlined above need to be designed to support the development and effective implementation of a sustainably-competitive agriculture (Figs. 1 and 2).

Strategic Directions

With the sea-change rapidly gaining momentum in the agri-food sector, consideration needs to be given to developing a perspective of the educational requirements of the sector. Such an initiative would be opportune in providing a systemic approach to the incorporation into future education programmes of relevant aspects of the new knowledge generated by the substantial investment in agri-food research and associated areas in recent decades. It would also lead to more effective rationalisation of programmes between the four institutional providers now involved in agricultural education and training, namely the Universities, Institutes of Technology, Teagasc and VECs.

A growing concern with regard to the education of agriculturalists and other professionals engaged in related sectors, is the preoccupation of many third-level institutions with high profile scientific research and the drift away from farm-relevant priorities. This development clearly has important consequences for the provision of relevant education programmes, and ultimately, the agri-food industry. Urgent attention needs to be given to restoring the necessary balance between the education and research functions of third-level institutions. Two important issues that require immediate action are research training and continuing professional development of agriculturists and farmers (above).

Conclusions

- Global competition, based exclusively on a price-competitive model, combined with climate change are likely to exacerbate many of the concerns relating to a potential food crisis, animal health and welfare, the environment and energy supplies.
- The concept of sustainable competitiveness would address a wide range of these major concerns, and facilitate the development of a ‘*virtuous circle*’ of valued-added gain for all involved, including producers, processors and consumers.
- Education is a key determinant of the competitiveness and sustainability of the agri-food industry and rural economies in the immediate decades ahead.

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The Challenges Facing the Teagasc Education and Training Programme

Mr Paddy Browne
Head of Education, Teagasc

1.0 Introduction

- 50% increase in milk production by 2020
- 16% of all energy from renewables by 2020
- The export of agricultural know-how to third countries
- Jet fuel production from plants and algae

These are just some of the ambitious and more far reaching targets for Irish agriculture as set out in the Department of Agriculture, Food and Forestry Food Harvest 20:20 Report and the Teagasc 2030 Foresight Report. In order to achieve this vision we will need an agricultural education system that will increase the capacity of the bio-economy including leaders who are flexible, innovative and ambitious.

In this presentation, I will begin with an historical perspective regarding trends in labour supply and numbers entering agricultural education.

I will then describe the present provision of agricultural education by Teagasc with particular emphasis on recent developments and innovations

I will finish by outlining the challenges, as I see them, which face Teagasc's education and training programmes in turning out the bio-economy leaders of the future.

2.0 Historical Perspective

Table 1 outlines a number of key trends and the most striking trend is the fall in the total number of farms and the corresponding increase in the number of part-time farmers.

Table 1: Demographic and Economic Trends 1920 - 2015

Year	1920	1960	1990	2003	2008
Total number of farmers	359,700	210,331	170,578	141,527	126,400
Number of Full-Time Farmers	N.A.	N.A.	124,746	78,723	64,500
Average Farm Size (ha)	12.4	21.1	26	31.4	36.3
Agriculture as % of Total at Work	54%	34%	14.4%	6.0%	5.4%
Gap as % of GDP	N.A.	28.9%	11.9%	2.5%	2.3%

The decreasing importance of agriculture in terms of employment and contribution to the economy has also been quite dramatic. In 1920 agriculture was by far the biggest employer and the major component of the economy whereas in recent years gross agricultural output has fallen to less than 3% of gross domestic product.

However, the agri-food sector is still a very significant sector and accounts for over half of Ireland's indigenous exports and represents one-tenth of the Irish economy. While the agri-food sector accounts for 10% of total exports from the economy, when the contribution to net foreign earnings is considered, which accounts for the import content of exports, that figure almost doubles.

By 2020 it is predicted that we will have 22,000 viable farms and 53,000 part-time farmers with a further 20,000 in transition out of farming.

3.0 Agricultural Education in Ireland

The first agricultural colleges were established in 1900 and participation rates peaked in 1986 when there were over 2000 enrolments in 20 colleges and also at local centres.

Enrolments fell during the 1990's but have stabilised in recent years largely as a result of the recent upgrading of programmes. Table 2 shows the enrolment pattern in both colleges and local centres in recent years.

Table 2: Entrants to Agricultural Education 1994 – 2008

Year	Overall Number of Entrants				
	Further Level Courses		Higher Level Courses	Total	180 Hour Courses
	Local Centres	Colleges			
1994	656	1,112	n/a	1,768	350
1995	368	1,107	n/a	1,475	156
1996	512	1,157	n/a	1,669	200
1997	315	1,045	n/a	1,360	255
1998	300	1,038	n/a	1,338	224
1999	121	949	n/a	1,070	287
2000	209	1,006	n/a	1,215	307
2001	99	677	218	994	250
2002	48	657	290	995	274
2003	127	538	283	948	666
2004	105	509	229	843	707
2005	103	471	211	985	781
2006	235	407	211	848	1062
2007	120	543	231	894	1369
2008	306	755	294	1355	387*
2009	272	809	279	1360	320*
2010	188	838	275	1301	340*

*ACA Award Holders Course (Replaced 180 hour courses)

There are a number of reasons for the increase in college enrolments in recent years. These include the downturn in construction with a reduction in the numbers entering trade apprenticeships and going straight into employment. The recent upgrading of programmes has proved attractive to students. In addition, there is also renewed optimism in agriculture with prices strong at the moment and the prospect of a freeing up of the milk quota regime.

The importance of government incentives such as Stamp Duty Exemption, Installation Aid and the Early Retirement Scheme in encouraging young people into agricultural education and into farming cannot be overstated. The four year extension in the scheme of Stamp Duty Exemption is extremely welcome in this regard. However, the discontinuation of Installation Aid and the Early Retirement Scheme are having a negative impact. This, combined with the fall in the value of agricultural land has reduced the financial incentives for those entering agricultural education.

It is also worth noting that when the numbers pursuing the part-time routes are combined with those completing higher level courses it appears that many of our students are planning to combine a career outside of agriculture with part-time farming. So, while the overall numbers attending agriculture training programmes has remained relatively stable, there has been a very significant shift towards the part-time route with up to 80% of participants apparently planning to be part-time farmers.

3.1 Current Provision

Table 3 sets out the enrolments in the full range of courses delivered at the four Teagasc colleges and three private colleges in the current academic year and in recent years.

Table 3: Education Enrolments and Participation Rates in Colleges

College	Course	Numbers Enrolled			
		2007	2008	2009	2010
<i>Further Education Courses – Agriculture</i>					
Ballyhaise	Level 5 Cert in Agriculture	83	115	93	93
	Level 5 Cert in Forestry	16	18	18	18
	Level 6 Adv Cert in Dairy Herd Management	NA	NA	18	15
Clonakilty	Level 5 Cert in Agriculture	39	76	97	94
	Level 6 Adv Cert in Dairy Herd Management	16	17	32	28
Kildalton	Level 5 Cert in Agriculture	80	84	103	107
	Level 5 Cert in Horse Breeding &	38	35	24	37
	Level 6 Adv Cert in Machinery & Crop Mgt	16	15	16	10
	Level 6 Adv Cert in Dairy Herd Management	10	16	20	18
	Level 6 Adv Cert in Drystock Management	NA	20	0	13
Gurteen	Level 5 Cert in Agriculture	33	49	72	71
	Level 6 Adv Cert in Drystock Management	13	21	27	31
Mountbellew	Level 5 Cert in Agriculture	43	88	55	56
Pallaskenry	Level 5 Cert in Agriculture	39	67	80	85
	Level 6 Adv Cert in Agric Mechanisation	12	9	22	24
Total Agriculture		438	630	677	700
<i>Further Education Courses – Horticulture</i>					
Kildalton	Level 5 Cert in Horticulture	18	28	42	40
Warrenstown	Level 4 Cert in Horticulture	NA	7	NA	NA
	Level 5 Cert in Horticulture	30	34	NA	NA
Botanic Gardens	Level 4 Cert in Horticulture	20	20	23	23
	Level 5 Cert in Horticulture	37	36	67	75
Total Horticulture		105	125	132	138
TOTAL FURTHER EDUCATION		543	755	809	838
<i>Higher Level Courses – Agriculture</i>		Numbers Enrolled (Points Level)			
		<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
Ballyhaise	Higher Cert in Agriculture	6 (130)	15 (AQA)	53 (AQA)	29 (315)
Kildalton	Higher Cert in Science, Agricultural Science	18 (210)	26 (215)	24 (280)	38 (270)
	Higher Cert in Agriculture	13 (175)	37 (210)	36 (255)	26 (320)
Mountbellew	Bach Business in Rural Ent & Agri-Business	18 (155)	23 (180)	31 (260)	37 (260)
	Bach Sc in Ag & Environmental Management	18 (175)	23 (270)	28 (290)	22 (330)
Clonakilty	Higher Cert in Agriculture	17 (120)	35 (240)	36 (260)	36 (270)
Pallaskenry	Higher Cert in Tech in Agric Mechanisation	20 (205)	32 (180)	31 (280)	45 (285)
Gurteen	Higher Cert in Business in Equine Studies	24 (135)	17 (AQA)	23 (AQA)	21 (165)
Total Agriculture		134	208	262	254
<i>Higher Level Courses – Horticulture</i>					
Warrenstown	Bachelor of Science in Horticulture	18 (140)	25 (AQA)	NA	NA
Botanic Gardens	Bachelor of Science in Horticulture	59 (175)	40 (AQA)	NA	NA
Kildalton	Bachelor of Science in Horticulture	20 (190)	21 (215)	17 (255)	21 (250)
Total Horticulture		97	86	17	21
TOTAL HIGHER LEVEL		231	294	279	275
GRAND TOTAL		774	1,049	1,088	1,113

3.2 College Enrolments

Enrolments in colleges have increased again in the current year by 2% compared to 2009/2010 which represents an 80% increase since 2006. All colleges are at full capacity and have turned away students. The number of students who did not obtain a place amounts to over 230. A number of these students will be catered for in the part-time Advanced Certificate in Agriculture courses (see below). It should also be pointed out that these figures are 2010/2011 enrolments and do not reflect the total numbers attending colleges as all college courses are of either two or three years duration. The total numbers attending colleges amounts to 2,249.

3.3 Advanced Certificate in Agriculture for Part-time Farmers

In addition to the full-time courses held at colleges there is also a comprehensive programme of Advanced Certificate in Agriculture Courses for Part-time Farmers throughout the country. Some of these courses are held at night and weekends in order to facilitate part-time farmers. The syllabus is the same as for the full-time courses and the courses are generally of 2½ to 3 years duration.

Schedule of Advanced Certificate in Agriculture Courses for Part-time Farmers

Location	Year of Course	Number of Students
Galway/Clare	1	32
Mayo	1	27
Sligo/Leitrim/Donegal	1	39
Wicklow/Carlow/Wexford	2	39
Ballyhaise	2	30
Roscommon/Longford	2	26
Galway/Clare	2	15
Sligo/Leitrim/Donegal	2	32
Sligo/Leitrim/Donegal	2	31
Kerry/Limerick	3	24
Cork	3	24
Cork	3	26
Gurteen	3	52
Galway/Clare	3	28
Total	14	424

3.4 Advanced Certificate in Agriculture (Level 6 Award Holders)

A further 243 part-time farmers are also participating in the Advanced Certificate in Agriculture (Level 6 Award Holders). Following the Forum Review of Teagasc's Education Provision, these courses replaced the old 180 hour courses but are much more comprehensive in nature.

Schedule of Advanced Certificate in Agriculture (Level 6 Award Holders) Courses

Location	Year of Course	No of Participants
Kerry/Limerick	1	28
Cork	1	22
Roscommon/Longford	1	8
Galway/Clare	1	30
Kerry/Limerick	2	28
Cork	2	20
Wicklow/Carlow/Wexford	2	28
Tipperary	2	24
Ballyhaise	2	24
Galway/Clare	2	31
Total	10	243

3.5 Online ACA Courses

In addition to the above programmes, a further 340 part-time farmers are completing the Advanced Certificate in Agriculture (Level 6 Award Holders) online. These courses are run largely by local Education Officers with support from the agricultural colleges for skills training and with support from advisory colleagues in the areas of tutoring and discussion group facilitation.

3.6 Total Participation Rates

In summary, when all of the various programmes for future farmers outlined above are combined, the total number of new enrollees amounts to 1,673 and the total numbers participating in these programmes amounts to 3,256.

4.0 Recent Innovations

The information revolution that is driving changes throughout the economy, including advances in science and technology, are transforming agriculture and horticulture into a more knowledge intensive industry. As the industry becomes more knowledge-intensive, the range of skills and competencies required by producers become critical for success. We in Teagasc seek to continuously upgrade our programmes to meet these requirements. The following gives a flavour of just some of the new innovative elements of Teagasc's training programmes.

4.1 Discussion Groups and Benchmarking Farms

The classroom has been brought out onto the farm by the introduction of the discussion group methodology in recent years. Second year students now participate in a discussion group on Benchmarking Farms. These are leading edge farmers who co-facilitate the groups with the teacher or adviser. The groups meet throughout the year and track progress on the farms and are given access to the technical and financial data on the farms. This in turn enables the students to complete a major project relating to their home farm, usually the ICBF Herd-plus programme. In this way they can "benchmark" the performance on their own farm to that of the host benchmark farmer. The project also encourages students to become more involved in their family farm.

4.2 Financial Management Training

There is major emphasis now on financial management training to reflect the fact that farming must increasingly be run as a business. All the recognised Teagasc tools are employed with students required to complete an e-profit monitor and a six year computerised farm plan. Students also receive training in cost benefit analysis, investment appraisal as well as all types of taxation.

4.3 Grassland Technology

Teagasc benefits greatly from having education, advisory and research functions in the one organisation. Accordingly, new technology as it is developed is immediately packaged and made available to students. A good example of this is the grassland technology developed at Moorepark. Students, especially those on advanced specialised courses are fully exposed to measurement of grass covers and grass budgeting. Students are also required to complete a wide range of projects relating to their home farms including fertiliser plans, risk assessments and ration formulations.

4.4 Online Learning

To meet the needs of part-time farmers, Teagasc delivers the Advanced Certificate in Agriculture online to some 300 participants each year. Because of the applied nature of agricultural education, a portion of the programme is delivered face to face particularly the skills training element of the programme. This type of approach is known as blended learning and is becoming recognised as an excellent teaching methodology.

4.5 Higher Education

Teagasc is involved with six Institutes of Technology, UCD and DCU in the joint delivery of 12 higher level programmes right up to Level 8 Honours Degree level. These linkages help to raise the standing of all our programmes and provide vital progression routes for those who want to progress from further level education through higher level education.

4.6 Leadership Training

A Leadership Module was developed in conjunction with Macra na Feirme and delivered as a mandatory module by Macra development officers and college staff to all Level 5 students. The objective is to build leadership, personal growth and career competencies through membership of Macra na Feirme. Students are required to participate as club officers and organise and participate in club competitions such as stock-judging, public speaking, novelty acts etc. They are also required to participate in some form of community/fundraising project.

4.7 Proficiency Testing

Skills training has always been a core component of Teagasc's education programmes but, in recent years, proficiency testing was introduced based on the model developed by the National Proficiency Test Council in the United Kingdom. Skills training leads to a state of 'conscious competence'. However with repeated practice on the home farm and during placement, the student is expected to be proficient or have reached a state of 'unconscious competence'.

5.0 Challenges Facing Teagasc's Education and Training Programmes

5.1 Resourcing

Teagasc receives a block grant from the Department of Agriculture, Fisheries and Food to fund its three functions namely; Research, Advisory and Education. In line with many Government agencies, there has been a severe cut in Teagasc's budget and staff numbers in recent years. The cut in staff numbers has been dictated by the moratorium in recruitment in the public service which has been in place since March 2009. This has prevented the replacement of retiring staff in the organisation and this can be contrasted with the position with other state education providers who have the scope to replace front-line teaching staff as they retire. Teagasc has prioritised agricultural education and has replaced some retiring staff, but at a time of record demand for agricultural education, there is a case for Teagasc education staffing to be ring-fenced and be treated the same as other state providers.

5.2 Migration of Awards to FETAC Common Awards System

The major task of migrating all Teagasc awards to the FETAC Common Awards System is now well underway and will be completed later in 2011. This means that 54 "locked" awards which currently can only be delivered by Teagasc will be available to all registered providers. It also means that awards which are currently the sole preserve of other providers will now be available to Teagasc. Providers will also need to have programmes leading to these awards accredited by FETAC. This process presents major challenges in terms of resourcing the migration process and also in terms of increased competition from other providers. However, it also presents opportunities in making awards currently unavailable to Teagasc available to all registered providers. We are already observing an increase in interest in the areas of Agricultural and Horticultural Education from the VEC sector.

5.3 Collaboration and Co-operation

As already outlined, Teagasc has collaborated with partner Institutes of Technology and Universities in the delivery of Higher Education programmes for a long number of years.

We have also worked with FAS, Failte Ireland and the VECs in relation to specific programme components and funding arrangements. The recent Hunt Report underpinned this approach in relation to Higher Education and Research activities and it is clear that future funding will rely to a much greater extent on collaborative activities and even mergers. This will also probably be true for Further Education providers and in times of very limited resources, it behoves all providers to avoid duplication of resources and to maximise synergies in programme delivery where they exist. The involvement of VECs in Agricultural and Horticultural education referred to earlier is a case in point and, rather than going into direct competition, we need to explore how we can leverage the core competencies of all providers to the benefit of Irish Agriculture.

5.4 Expansion

Worldwide demand for dairy products is expected to rise as a result of global population growth and projected increases in per capita disposable income. The removal of milk quotas in 2015 gives Ireland, because of its favourable grass growing conditions, the opportunity to share disproportionately in this growth. A target to increase milk production by 50% by 2020 has been set in the excellent Food Harvest 20:20 Report. Teagasc is currently consulting intensively with dairy farmers, recent graduates and the dairy industry to determine the most appropriate training to equip new entrants and expanders to meet the targeted 50% increase.

5.5 Excellence and Value for Taxpayers money

There is increasing pressure on all education providers to seek to combine excellence in the delivery of programmes while at the same time ensuring maximum value for taxpayers money. The Teagasc 2030 Foresight report states that: “Teagasc will contribute to achieving the goals of the Lisbon and Copenhagen declarations by ensuring that its education programmes are continually upgraded to the highest international standards. It will produce the bio-economy leaders of the future by ensuring that its programmes are student-centred, based on a platform of innovation and excellence and responsive to the needs of a competitive bio-economy” Adhering to FETAC’s stringent quality assurance system, continuous internal and external evaluations, international benchmarking and conferences like this will all help to achieve these goals.

Value for money also implies excellence in programme delivery but, more and more, it is measured in metrics such as student/teacher ratio and cost per student FTE. These metrics are vitally important in achieving consistent efficiency across colleges and providers but should not be allowed to compromise quality through unacceptably large class sizes or an inability to provide individual mentoring to students. Of course, the return on investment in agricultural education can only be realised if course graduates return to farming. Our graduate surveys are showing that, after five years, 40% of graduates are involved in full-time farming and a further 58% involved in a part-time capacity.

5.6 Life-long Learning

Teagasc currently delivers a wide range of short courses across a wide variety of topics to some 10,000 adult farmers each year. In addition, 8,000 farmers are participating each year in over 500 Teagasc led Discussion Groups. Notwithstanding the major success of Discussion Groups as a knowledge transfer methodology, there is a challenge to convince farmers to perceive adult farmer training and discussion group participation as a vital and necessary component of ongoing in-service training in order to farm successfully. In addition, all courses should be FETAC accredited with the scope to combine minor awards towards the achievement of a major award.

Finally, with agriculture back centre stage the words of Sir Horace Plunkett over 100 years ago are as appropriate as ever today: “Thoroughly sound and modern systems of agricultural education must precede any considerable or rapid progress towards a high rate of efficiency in our chief industry.”

Results of EUROPEA Chavet Research Project on the Evolving Requirements for European Agricultural Education

Ms Elisabeth Hönigsberger
EUROPEA



Requirements For European Agricultural Education
Results Of Chavet
Challenges On Vocational Education And Training

EUROPEA, the network of training institutions in the land-based sector, was established in 1992 by a small number of countries, to have a common platform for vocational education in agricultural education and training. In 2011 EUROPEA International constitutes of 25 national associations. The presidency follows the EU rotation and delegates meet every half year. Changes, challenges on VET are very similar in all countries. Questions, demands from students, trainers, and growers are very much the same. So – why not find answers together?



CHAVET is a Leonardo da Vinci Partnership project of 12 EUROPEA countries to ensure a continuous topic in the framework of EUROPEA. The various challenges were discussed in the last 3 EUROPEA president countries (Sweden, Spain, and Belgium). The project will be finished in Hungary in May 2011.

Our main objective is: ‘To prepare European agricultural schools for new challenges’.

- 1 Enhancing knowledge among European agricultural schools about new challenges VET is confronted with due to changes in: - Environment & Climate Change; Industry & Working World; Education & School Policy; Learners & Youth Culture; Society & Consumers
- 2 Making VET more attractive and provide various products that will permit schools a better adaptation to the changes, reduce number of drop-outs, and provide for more qualified workers on different levels.
- 3 Improving the skills of participants (VET trainers, teachers & students, entrepreneurs)
- 4 Strengthening the European net of agricultural VET institutions (EUROPEA) by cooperation and working together, bringing in new centres, stakeholders and policy makers.

We started with a survey to collect opinions, ideas, suggestions etc from our target groups and learning partners. The outcomes, although statistically not reliable, were used as a starting point for discussions and further developments. During the meetings we listed problems we encountered and discussed possible effects on our training institutions. Problems such as insufficient contact between companies and schools or the fact that green VET schools are often not sustainable themselves, need to be solved. In workshops with participants from more than 20 countries we collected activities and examples of good practice and necessary tools and resources. We have to develop stronger networks with farms and enterprises, carry out training activities with firms and stakeholder, update curricula and course programs on a regular base with the involvement of entrepreneurs and consider new ways of assessments in authentic situations.

A few examples of the summary of the questions on training and education:

Students state, “The school should guide us to be more professional and encourage us to be actors responsible for environmental protection and sustainable development and be responsible citizens able to integrate into society, the working world”.

Teachers say, “We – educators – should develop active learning in real and concrete contexts and guide students in their learning to make them competent, respectful of their work, responsible and able to integrate into society and the working world”.

Growers demand from education and training to establish closer relations with the realities of the professional world, organize more internship and develop during training the sense of responsibility, teamwork.... to make future workers more professional.

Detailed outcomes of the discussions and workshops on challenges from environment & climate change, industry & working world as well as education & school policy can be seen in the attachments.

Various tools and approaches have been developed in the course of European projects between changing EUROPEA partners.

ALIE – Authentic learning in land-based education - focused on new ways of learning. A concept of an authentic learning approach was discussed and written and various tools were developed.

ALIVE – Authentic learning in vocational education - concentrated on the role of a trainer in authentic learning. Six key competences of an ALIE teacher were identified and had to be proof with a portfolio and defended in a criterion-oriented interview.

FANCAM - Towards new agronomic trainings in Europe - gave attention to the need of new job profiles and described the learning outcomes of over new jobs in the green sector.

EQUFAS – European qualification framework in the agricultural sector – tested the performance of students from five different countries during a practical abroad.

  Education and Culture DG Lifelong Learning Programme		CHALLENGES ON VOCATIONAL EDUCATION AND TRAINING – INDUSTRY & WORKING WORLD Proposals to help to cope with challenges on land-based education due to changes in agriculture and industry				
Problem to solve	Effect on the school	Objective / Task (how)	Activities /examples	Tools / resources		
Farmers' income is decreasing.	If no profit, no farmers, so less students because they can't see a future in agriculture.	Contribute to improvement of farmer's income by good entrepreneurial training for farmers (adults) and future farmers (students)	<ul style="list-style-type: none"> - To update programs in trade and economy (young) - To create specific courses for farmers, "authentic learning" experiences: workshops, visits, study cases, trips, panels, etc 	<ul style="list-style-type: none"> - New programs - Market niche studies - Study case of "business plans", young farmers projects, etc - European repertoire of "managerial courses" for farmers and "business plans" 		
Farmers reputation /image is not good	Students are not being attracted to agriculture	Improve the image of agriculture and green sector Improve the skills and attitudes of farmers about "holistic point of view about farming" and "sustainable farming" and "preserving nature"	<ul style="list-style-type: none"> -Marketing plan in cooperation with the Media and all the stakeholders - Updating programs for farmers and pupils with the new competences in "sustainability" 	<ul style="list-style-type: none"> - school journal with news - virtual network with old students and families - regular publishing of articles in local and regional newspapers - videos about "farming" or green jobs and disseminate - open door days to schools and farms for urban citizens - fairs, ... 		
Higher demand for specialized work (e.g. water features, lightening elements, differentiation landscaping/ maintenance...) High demand of qualified workers versus low social status of the profession	Challenge for schools in order they prepare students for new or more specialized jobs in "gardening" or "landscaping"	To promote entrepreneurship Better prepare the students for the future, more specialization, new competences	<ul style="list-style-type: none"> - Development of new curricula taking into account the wishes and demands of companies - More competence oriented training - To create networks with students and former students (firms) 	<ul style="list-style-type: none"> - Survey to firms about what they are looking for, new competences, so on... - European repertoire of "specialized courses" for gardeners and landscape designer - Examples of networks around Europe 		
Insufficient contact between companies and schools	Difficulties with training programs, placements, updating programs....	To promote networking To increase the involvement of firms in education and training To have a flexible and open curricula	<ul style="list-style-type: none"> - To develop networks with firms - To carry out educational and training activities with firms and stakeholders - Updating curricula and programs with the help of firms - Assessment in authentic situation (firms partnership) 	<ul style="list-style-type: none"> - Examples of networks around Europe - List of activities of networks in gardening and landscaping - Examples of good practice (like ALIE) - Problem-based learning 		
Customers demand more information from the professional	Challenge for schools in order to prepare students for this task of communication	Promotion of the image and status of horticultural professions	To update curricula and programs with this new competence of communication Networking	<ul style="list-style-type: none"> - Examples of new programs and activities of communication 		

Agricultural Education: Supporting Economic Recovery

<p>New needs of the Food Industry about healthy products, fairness, quality assurance such as the HACCP, traceability, etc</p>	<p>Future workers (students) must be trained in these new competences</p>	<p>Embracing principles of health, ecology, care and fairness and legislation enforcement along the whole food chain such as the production of meat from the stable to the table and regarding field crops from farm to fork.</p>	<p>- Update curriculum and programs - To create new courses for workers of the Food Industry We need to have consistent industry involvement in curricular development across borders in EU countries</p>	<p>- Curriculum more open, flexible and responsible - Programs for new courses - Good examples of cooperation with Food Industry - Investments at schools</p>
<p>The economic and financial global crises leading to the demand of cheap food and loss of jobs.</p>	<p>- Less interest of young people for these studies, so less students for the schools - Less money for investment in schools</p>	<p>Ways to attract students / trainees and to meet the training demands in an ever changing industry. Schools and industry must have their policy makers liaising and cooperating together to plan future demands of qualified workers.</p>	<p>- Plan of cooperation with the industry (Education Advisory Board) - Developing new plans, programs, opportunities in cooperation with the industry and other stakeholders</p>	<p>- New programs - Curriculums updated - Good examples of cooperation with Food Industry</p>
<p>Bad reputation or poor knowledge of food industry by citizens</p>	<p>- Less interest of young people for these studies, so less students for the schools</p>	<p>There is a need for public awareness through media. More TV personalities are doing this coverage about food production.</p>	<p>Educating the students and the community in the reality of food production such as the organization of fairs, exhibitions etc while these events serve as positive PR.</p>	<p>-Extra and intra - curriculum activities</p>
<p>Decreasing number of students</p>	<p>Low status of VET in some countries Big competition between schools</p>	<p>Attract new students to the schools not only from agricultural areas Change the picture of the farmer and green sector</p>	<p>- Involving the relevant industries - New/other competences - Promoting lifelong learning - Promoting attractiveness of “green sector”</p>	<p>- Networks with all stakeholders of the trade - Programs with new competences - Better methods of teaching/learning - Marketing plan for the trade and studies</p>
<p>Split of tourism and agro-tourism in some countries Growing mass tourism</p>	<p>Curricula are not updated</p>	<p>Change the mentality of people See opportunities Change the mentality of teachers, principals and country authorities</p>	<p>New curricula Children should go to farms to experience life there Innovative schools and young farmers New skills for students and knowledge of economics and negotiating</p>	<p>-Examples of curricula and programs -Promote products, safe food, animal care etc -“Sell” the landscape, make presentations about farms</p>

CHALLENGES ON VOCATIONAL EDUCATION AND TRAINING – CLIMATE CHANGE
Proposals to help to cope with the influence of Climate Change and other environmental problems on land-based education

Problem to solve	Objective	Task (How?)	Activity / Examples	Tools / resources
Low awareness of population	Raising awareness of climate change and other environmental problems among the population	Educating children	Nature school: the school could offer visits and practices (modules) of “discovering the nature” and other subjects to primary schools and other groups of children The students of the green schools could act as teachers as well in these “nature school”	- programs - didactical tools (manual) - examples from other countries
Non sustainable green VET schools	Make the green schools more sustainable	To adapt / replace the facilities / machines, etc (infrastructure) for a more sustainable ones	Cooperation with the media (show the projects of the school) Environmental projects “Make a difference day” Discussions and displays about the more “sustainable way of life”, examples from other countries (ex: Africa) Make a study of all the improvement to be introduced in the infrastructure. Asking the experts of University / NGO / Advisory service, other, to help the school to do that	- good examples national / international level (Project information / videos / presentations) Project information / videos / presentations Program / videos / presentations Docs / videos / presentations Ex: local products markets, how to cultivate vegetables, etc Videos / presentations Game: better project of European green schools Videos / presentations of these innovations
Students of green schools are not well prepared in environmental problems	Increase the knowledge (competences) and attitudes about environmental problems and how to cope with them	To adapt the “curricula” To adapt the facilities (see above) To train trainers (see below)	Replace (if possible) non sustainable facilities / machines for others that improve efficiency, with less emissions and low consumption of energy - New jobs, new qualifications?. Take information from other countries /schools, propose your own ministry for new qualifications if necessary - Introducing new modules or unities, practical, new projects - Adapting old modules - Focus on water and energy management - Climate change, etc The school as a example: - reducing emissions and consumption of energy - recycling - “bio” food in the canteen of the school from <i>To plan a train trainers course (practical one) about sustainability (see below)</i>	- Courses offered by other countries (see Fancam project) - Curricula - projects - Competition of “sustainability” for students - Webs of “ecological foot prints” - School : solar, biogas, etc energies plants/ - Presentations of the projects
Teachers of green schools are not well prepared in environmental problems	Increase the knowledge (competences) and attitudes about environmental problems and how to cope with them	To train trainers (see below)	To plan a train trainers course, practical one (Authentic Learning), about sustainability Involve teachers in the sustainable projects of the schools Cooperate with “sustainable” farmers, experts, advisory services Cooperate with other “sustainable” green schools from Europe	- Program - Didactical materials (tools) - School and its projects - Examples from other European schools

Students: How should your school change to meet the future demands?

The school should:

- guide us to be more professional and encourage us to be actors responsible for environmental protection and sustainable development and be responsible citizens able to integrate into society, the working world
- focus on social competences (honesty, independence, respect for other people & equipment, good behaviour etc.)
- have more competent teachers who apply active and participative pedagogy, who are open for and trained in technologies, project development, communication and human relationship
- promote foreign language learning for professional purposes and develop exchanges with other schools as part of mobility projects thus making us students go abroad for some months during our education
- strengthen the courses in relationship with the trade, be open to new technologies evolving with the needs of the sector and organize more internships of high quality
- update the training content permanently to anticipate future needs in close partnership with professionals and be open to the world of business, research centres, the society by closer contacts and common visits, meetings, conferences, ...
- have sufficient means to update the infrastructure, equipment and materials to meet the technological evolution of the sector and to invest in renewable energy
- provide a friendly environment outside and inside the school (places for relaxing and learning, rooms with a clear structure, flowers, colours etc.)

Teachers: What can you – as trainer – do to provide the best learning environment?

We – educators – should:

- develop active learning in real and concrete contexts
- guide students in their learning to make them competent, respectful of their work, responsible and able to integrate into society and the working world
- update - through suitable ongoing training - our economical, technological and environmental knowledge in the sector and integrate it into our courses
- increase contacts with professionals and use the results in our courses,
- open up and increase activities with the working world (media, internet, visits, conferences, ...) and exchanges with other institutions in the country or abroad

Growers: Which changes in education and training do you recommend?

Education and training should:

- establish closer relations with the realities of the professional world, organize more internship
- develop during training the sense of responsibility, teamwork to make future workers more professional
- provide more technical and practical courses, introduce courses for the future technologies and educate to the use of renewable energy, sustainable development, business management, marketing and entrepreneurship
- have sufficient resources in equipment and infrastructure to meet future needs

Conclusions - Actions

The survey results challenge us and we cannot remain indifferent. We must reflect and ask ourselves:

1. Does my teaching / learning system answer to the needs/demands expressed by the learning partners?
If no, what should be changed to meet those needs and make the system more efficient and effective?

2. What should (must) be changed in the organization of the "system" for education or training to meet the expressed needs and the future challenges?

The EUROPEA National Associations will have to consider the outcome of the investigation and undertake a reflexion on the priority themes such as:

- relations firms – schools;
- equipment / facilities in the training centres;
- foreign language learning for professional purposes;
- training of the trainers;
- the structures of organization allowing to anticipate future needs in terms of skills and certification of these skills, in accordance with the recommendations of the European Parliament and Council (ECVET)

The Northern Ireland Agricultural Education System Challenges and Perspectives

Mr John Fay
CAFRE Director

Government Policy on Education

“A successful economy is characterised by high productivity, a **highly skilled** and flexible workforce and employment growth”

- Programme for Government
 - Economic Vision for Northern Ireland
 - FE Means Business
 - Skills Strategy
-

Key Government Targets

- Increase the proportion of the working age population who are qualified at skill Level 2 and above to 80% by 2015
 - Increase the proportion of the working age population who are qualified at skill Level 3 and above to 60% by 2015
-

Agriculture in Northern Ireland

Changes over the last 25 years

- Increased size of farm holdings
 - Fewer full-time farmers / more part-time farmers
 - Increased specialism
 - Increased technology / business demand
 - Increased level of capital investment
-

Levels of Education in Farming

- Levels of qualifications amongst farmers are low.

	Number	Percent
Practical Experience	22,443	82.9
Less than 2 years course	3,403	12.6
More than 2 years course	1,217	4.5
Total	27,063	100

*2005 Farm Structure Survey

- Ongoing need for highly trained workforce
-

DARD – Education and Development Services

History

- Loughry College – established (Ulster Dairy School) 1908
- Greenmount College – established 1912
- Enniskillen College – established 1967, equine introduced in 1992

Original vision was for six NI Colleges

History

- Focus originally on practical and technical skills (craft level)
- **Late 1960's** - Introduction of National Diploma with the focus on Enterprise and Business Management

NCA was taught at the three Colleges

- **1980-90's** - Introduction of HND/Degree (in response to demand for higher level courses)
- Downturn in demand for lower level courses
-

College of Agriculture, Food and Rural Enterprise (CAFRE)

- O'Hare Recommendations – 2004
- Single College
- Rationalisation
- Specialisation
- Integration
- Comprises:
 - Enniskillen Campus
 - Greenmount Campus
 - Loughry Campus



Enniskillen Campus

Equine Studies

Equine Management
Horse Care
Farriery

Agriculture (p/t)

Greenmount Campus

Agriculture
Amenity Horticulture
Floristry
Land Based Technology
Veterinary Nursing
Environmental Conservation
Rural and Countryside Management

Loughry Campus

Food Technology
Food Supply Management
Packaging
Communications
Rural Enterprise

A Changing Provision

- Higher level programmes
 - Options in programmes
 - “Learning by doing” projects
 - More part-time programmes
 - Access and progression
 - Life Long Learning
 - Closely aligned to industry needs
-

Current Trends

- Recent upsurge in Agriculture and Agricultural Mechanisation enrolments
 - Increased demand for HE Food programmes
 - Decline in Horticulture enrolments (Economic recession)
 - Strong demand for all Equine programmes
 - Strong demand for Communication programmes – meet rural needs, mainly part-time female learners
-

Performance Measures

- Student retention rate – 88%
 - Student success rate – 84% (Landex average – 81%)
 - Employment outcomes – 88% of graduates in employment in the industry or continuing with further study
 - Education and Training Inspectorate report – FE programmes “Box 2” – very good
 - Cost of delivery/use of resources
-

Life Long Learning

- Education doesn't end at 20 yrs old
 - Life Long Learning programmes enable participants to re-skill, upskill, implement new technologies
 - Industry training (Short Courses, *Challenge Programmes*)
 - Knowledge and Technology Transfer
-

Future Challenges

- Food security and safety
- Environmental issues
- Animal health and welfare
- Increased technology and mechanisation
- CAP reform/competitiveness

Ongoing need for high calibre workforce

Investing for the Future

- Provision for the wider Rural Economy – eg Agriculture, Food, Horticulture, Equine, Rural Enterprise
- Adapt and tailor programmes to meet identified industry needs
- Strategic Partnerships – increase collaboration between Regional Colleges/Universities in Northern Ireland and beyond
- Train existing workers to a higher level

Agricultural Education is an investment for the future

The Scottish Agricultural College Experience

Mr David McKenzie
Vice Principal SAC

Land-based Education Supporting Economic Recovery

SAC Learning Taught Education Programmes

SAC's Taught Education Arrangements

Validation:

- University of Glasgow
- University of Edinburgh
- Scottish Qualification Authority (HNC/D)

Quality Assurance/Enhancement:

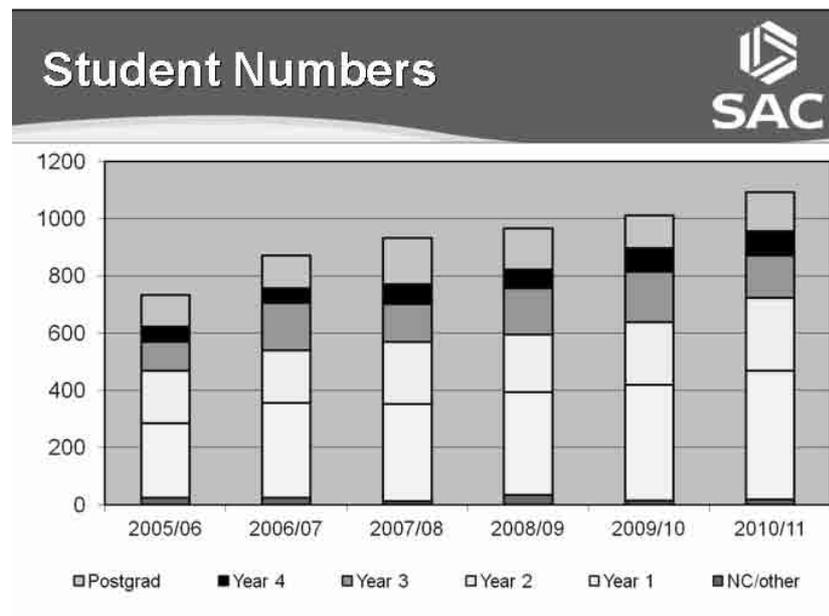
- QAA
- ELIR (2005 / 2010)

Funding:

- SFC funded for 757 HE FTEs (850 – 10.9%)

Delivery:

- 3 Campuses (Aberdeen / Ayr / Edinburgh)
 - Distance / Flexible Learning
-



Baseline Data (FTEs) by Registration Level

Registration Level	FTEs 2010/11	% 2010/11
FE	17	1.5
HNC/D	400	35.9
Degree	540	48.5
Taught PG (some registered at other institutions)	104	9.3
PhD (registered at other institutions)	54	4.8
Total	1,115	100.0

Progression

Entry to:	Students Entering	Highest Award (exit 2008)				
		Diploma	HNC	HND	Degree	Degree (hons)
Diploma	13	15%	38%	38%	0%	8%
HNC	98		68%	27%	3%	2%
HND	50			52%	34%	14%
Degree	98				45%	55%
Graduates	259	1%	28%	22%	25%	25%

Entry to:	Students Entering	Highest Award (exit 2009)				
		Diploma	HNC	HND	Degree	Degree (hons)
Diploma	7	0%	86%	14%	0%	0%
HNC	132		83%	9%	8%	1%
HND	67			46%	21%	33%
Degree	67				45%	55%
Graduates	273	0%	42%	16%	20%	22%

Annual Discounted Lifetime Graduate Premium from SAC Graduates

Qualification	Average annual graduates	Lifetime discounted wage premium	Total Annual Lifetime Graduate Premium
PhD	12	£208,771	£2,505,252
MSc	83.75	£198,771	£16,647,071
Postgraduate Diploma	11.50	£178,771	£2,055,867
Degree	125	£120,000	£15,000,000
HND	63.75	£45,000	£2,868,750
HNC	82.75	£35,000	£2,896,250
Diploma/Certificate	3.50	£10,000	£35,000
Total	382.25		£42,008,190

Total GVA Inputs of SAC Students' Experience

Scottish GVA impact	Aberdeen	Edinburgh	Ayr
Housing	£230,016	£613,698	£300,958
Food	£113,711	£163,904	£149,690
Entertainment	£173,605	£250,235	£228,534
Other Expenses	£250,368	£360,882	£329,586
<i>Campus Total</i>	<i>£767,700</i>	<i>£1,388,719</i>	<i>£1,008,769</i>
Total SAC impact	£3,165,188		

Total FTE Impacts of SAC Students' Expenditure

	Aberdeen	Edinburgh	Ayr
Housing	14.5	38.6	18.9
Food	5.0	7.1	6.5
Entertainment	7.6	10.9	10.0
Other Expenses	9.5	13.7	12.5
<i>Campus Total</i>	<i>36.6</i>	<i>70.3</i>	<i>47.9</i>
Total SAC impact	154.8 FTEs		

SAC Learning

- Graduate Premium - £42m per annum

- Progression

Entry to:	Students Entering	Highest Award (exit 2009)				
		Diploma	HNC	HND	Degree	Degree (hons)
Diploma	7	0%	86%	14%	0%	0%
HNC	132		83%	9%	8%	1%
HND	67			48%	21%	33%
Degree	67				45%	55%
Graduates	273	0%	42%	16%	20%	22%

- Impact of students on local economies - £7m & 337 FTEs per annum

- Case studies

SAC Impact Summary

Impact	SAC
Turnover	£45.5
Direct FTEs	791
Direct GVA created	£29.1m
Direct GVA created / FTE	£36,832
Total GVA Impact in Scotland	£145.51m
Total FTE Impact in Scotland	1,640
Total GVA Impact : Turnover	3.2 : 1
Total FTE Impact : FTEs	2.1 : 1

Conference Closing and Launch of Programmes

Professor Gerry Boyle
Director, Teagasc

Distinguished guests, Ladies and Gentlemen, it gives me great pleasure to close today's conference and to summarise the important messages coming out of today.

Before doing that, I would like to mark the occasion by reflecting on the very valuable partnerships we have developed with six Institutes of technology and two Universities, namely:

- University College Dublin
- Dublin City University
- Waterford Institute of Technology
- Cork Institute of Technology
- Limerick Institute of Technology
- Galway Mayo Institute of Technology
- Athlone Institute of Technology and
- Dundalk Institute of Technology

The joint programmes run jointly between ourselves and these institutions have proven to be a major step forward for our overall agricultural and horticultural education offerings by raising the profile of our courses and providing vital progression routes for all our students.

Today I want to mention the most recent additions to Teagasc's involvement in Higher Level education.

The B Agr Sc (hons) in Dairy Business at UCD is an exciting new development and very timely given the potential for a 50% expansion in milk production by 2020 as set out in the Food Harvest 2020 report. The programme is designed to provide students entering the dairy industry with a high level of scientific, technical and business skills and was developed following extensive consultation with relevant stakeholders. Years 1, 2 and 4 are being delivered at UCD while in year three students will undertake 'Technical Management of a Dairy Farm' at Kildalton College prior to commencing professional Work Experience Placement, preferably in New Zealand. Modules such as Grassland Management and Applied Dairy Cow Nutrition, Applied Animal Breeding and Reproduction, Dairy Systems and Herd Health will be undertaken at Teagasc Moorepark in Semester 2.

Another exciting development is the new Level 8 B Sc in Horticulture developed by DCU in conjunction with ourselves. This programme has been developed to incorporate the theoretical and practical aspects of horticulture to provide participants with the knowledge and expertise needed for a career at the highest professional level. The course will be of interest to students who enjoy and appreciate the natural environment and created landscapes such as gardens, sports turf facilities and the production of fruit and vegetables. The programme will combine the best of science at DCU with the best of horticulture at the Teagasc college at National Botanic Gardens. The two campuses are almost adjacent and provide world-class campus facilities with gardens of international renown.

Today I would also like to launch the new Level 8 B Sc in Sustainable Agriculture at Dundalk Institute of Technology in conjunction with the agricultural college at Ballyhaise, Co Cavan. This course will focus on economically and environmentally sustainable agricultural technologies and systems. The course is aimed at commercial farmers and farm managers as well as professionals servicing the food and agri-sector.

All these exciting new developments as well as our existing offerings are dependent on the availability of top-class staff and facilities in our colleges and regional offices as well in our partner institutions. We have invested in our colleges in recent years and while there is still a lot to do, we are gradually bringing

Agricultural Education: Supporting Economic Recovery

our facilities up to a par with those at our partner institutions. Our education staff have exhibited outstanding professionalism and dedication particularly in recent years in dealing with the dramatic increase in enrolments. However, this year we had to turn away 230 applicants. Since the beginning of the moratorium on recruitment in the public service we have lost 17 front-line teaching staff across our seven colleges. Some gaps have been filled by redeploying advisory staff but given the loss of advisory staff through retirement and the huge work demands in that area, this is very limited. If the education section of Teagasc were treated the same as other state education providers, we would have been able to replace these staff and been in a position to take in all applicants.

I would like to finish by acknowledging the role played by the Education and Training Forum in championing and advising on Teagasc's education programme since its inception in 2002. This role has been vital in maintaining the relevance and focus of the programme and Professor John Coolahan, Chairman of the Forum has been absolutely central in this regard.

We greatly appreciate this and would like to recognise his outstanding contribution by giving him a small token of our gratitude.

I hope you all enjoyed the conference. Thank you for your attendance and your contribution. I want also to thank all our speakers for their very interesting and stimulating papers.

I will now hand you over to Dr Noel Cawley, Chairman of Teagasc who will present the awards to the winners of the 2010 Student of the Year, again generously sponsored by FBD.

Presentation of FBD Sponsored Teagasc National Student of the Year Award 2010

Dr Noel Cawley
Chairman Teagasc Authority

I am very pleased to be here this afternoon at Teagasc's invitation for this very important event in the agricultural calendar, the presentation of the Teagasc Student of the Year Awards sponsored by FBD.

The agri-food sector accounts for over half of Ireland's indigenous exports and represents one-tenth of the Irish economy. The agri-food and wider bio-economy contributes an estimated 30% of total national net exports. The sector is also central to the economic and social vitality of rural communities. Ireland has a high rate of self-sufficiency in most of its agricultural produce with, for example, over 80% of its beef and dairy products exported. As such the country is highly dependent on export markets.

Unlike many other sectors of the economy, the long-term outlook for agricultural commodity markets is positive and Ireland is ideally placed to exploit these market opportunities. In particular in relation to milk production, Ireland is leading Europe in terms of the cost competitiveness and major capacity exists to increase production once quotas have been removed. The dairy sector could play a key role in re-invigorating the Irish economy. The recent Food Harvest 2020 report published by my department sets out a roadmap to increase milk production in this country by 50% by 2020. In addition, Ireland could build new economic activities in newly emerging sectors such as bioenergy, bio-fibre and biopharma. Another dynamic element will be high-value-added processing in areas such as infant foods, functional foods and nutraceuticals.

As well as this, farmers, in return for direct payments, will be expected to take account of the public good by farming in an environmentally friendly fashion, producing safe, high quality food and having regard to animal welfare and occupational safety.

Due to these changing requirements there is a greater need than ever for a highly educated and highly skilled agricultural work force.

Upgrading of Teagasc Programmes

Teagasc have completed a comprehensive review of its Education and Training programme and these programmes continue to be upgraded to the highest standards.

The accreditation of the education and training programmes by the National Qualifications Authority of Ireland incorporating HETAC and FETAC has raised the standing of the qualifications both nationally and internationally. All courses delivered by Teagasc are placed on the National Qualifications Framework and this will further facilitate national and international recognition of these awards.

This process is in line with developments at European level to develop a European Qualifications Framework. The aim is to further integrate and harmonise the delivery of further and higher level training across the member states so as to raise overall standards and increase transnational mobility for learners and workers. The overall aim is for the EU to make its education and training systems a world quality reference.

Twelve higher level programmes with recruitment through the Central Applications Office (CAO) system are provided jointly by Teagasc with various Institutes of Technology and Universities

Further level courses incorporate six months practical learning on approved farms along with one years practical learning on the home farm and skills training to a high level of proficiency.

Training for Part-time Farmers

Meeting the education and training needs of part-time farmers is a significant challenge now, given the ever increasing number of farmers who are choosing to combine farming with off-farm employment. Part-time farmers require the same high standard of training as full-time farmers but need this training to be delivered in a flexible manner because of their other commitments. I am pleased to see that Teagasc are delivering the Advanced Certificate in Agriculture at a number of locations around the country at night and weekends so as to facilitate part-time farmers.

The main business of the day:

The students we are honouring today have been chosen from almost 800 who have completed Further level training programmes with Teagasc in 2010. I welcome the eight finalists:

Jeremy Jennings representing Clonakilty College,
Michael Sexton from the Ennis course,
Darragh Hunt representing the Roscommon course,
David O’Kelly from Pallaskenry College,
Mark Trenier from Ballyhaise College,
William Keane from Kildalton College,
Christopher Gethings representing Gurteen College,
and last but by no means least, John Donnellan from Mountbellew College.

I would like to congratulate you on your magnificent achievement. You are a credit to yourselves, your parents and to your teachers who have guided you through your education. I wish you well in your future careers, and now that you have been placed at the top of your class, I hope that you will become leaders of your industry in the years ahead.

Finally I must thank FBD for their continued generous support for this event. It is a very worthy sponsorship as it is aimed at excellence in the training programme for the country’s biggest indigenous industry.