



Annual Report 2007
and Financial Statements









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Introduction

The 2007 Annual Report is built around the goals outlined in the Teagasc Statement of Strategy 2005-2007. Key achievements and developments for the Agriculture Research, Food Research, Training and Development, Advisory, Corporate and Management Services, and Administration Directorates are described in the context of these goals.

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Highlights 2007

Teagasc has reorganised and invested to position itself to provide the best services to the agriculture and food industries into the future. The organisation continues to underpin the development of a competitive, innovative and consumer focused agriculture sector.

European Association of Animal Production visit Grange

The European Association of Animal Production (EAAP) visited Teagasc Beef Research Centre at Grange on 29 August.

The visit took place after the group's 58th annual meeting held in Dublin. Some 80 scientists were given an outline of the research programme at the centre.

Staff updated the world-renowned scientists on quality beef production, beef carcass assessment, suckler and dairy calf-to-beef systems, residual feed intake, beef index validation studies, forage conservation, grassland, animal welfare and health, labour use, and animal accommodation and slurry treatment.



Advisory Service Launch

The new Teagasc advisory service, which was rolled out across the country after launch at the National Ploughing Championships, concentrates on four programme areas - Business and Technology, Good Farm Practice, Rural Development and Adult Training. The Business and Technology Programme will deliver cutting-edge technology to commercial farmers.

Pat Boyle, head of Teagasc advisory service, said: "We received a very positive response to the new Teagasc advisory service 'For Better Farming' from our customers it is clear that there is confidence in the dairy and tillage sectors, but both the beef and sheep sectors face significant challenges. Our new service, with greater emphasis on the Business and Technology Programme, is tailored to help our clients meet these challenges."





Moorepark Open Day

Occasional showers failed to dampen the enthusiasm of the 10,000 visitors to the Moorepark open day in June. Steps to improve profit and further increase the competitiveness of Irish milk production through innovation, productivity gain and increased scale were outlined by Teagasc research and advisory staff.

"A successful dairy farm must marry the objectives of profitability, a good lifestyle and the opportunity for personal development for all participants," concluded Dr Pat Dillon, Teagasc head of Dairy Production Research.

New Director

The Teagasc Authority appointed Professor Gerry Boyle as the new Director of Teagasc in August. The Authority approved the appointment, with the consent of the then Minister for Agriculture, Fisheries and Food, Mary Coughlan TD.

Professor Boyle has been an international consultant on agricultural policy with the World Bank, has worked on projects in Eastern Europe and Central Asia and took over from the Acting Director Tom Kirley, on 1 October, 2007.

Professor Boyle is Emeritus Professor of Economics at the National University of Ireland and was head of the Economics Department at NUI Maynooth until June 2006. He was

subsequently a senior associate at Farrell Grant Sparks Consulting Ltd.



Education

2007 saw a 25% increase in enrolments in colleges, a welcome reversal of recent trends. Further training programmes were delivered at eight colleges and at a number of local centres in agriculture, horticulture, horse breeding and training and forestry. Specialised Advanced Courses were also provided in Dairy Herd Management, Machinery and Crop Management, Drystock Management and Agricultural Mechanisation. A total of 531 students enrolled in 2007 in further training programmes in colleges while the total overall number participating in these programmes was 3,384.



Chairman's Statement



Dr. Tom O'Dwyer,
Chairman

Two thousand and seven was a positive year for Teagasc, with the appointment of a new Director, the launch of a new advisory service; agreement to reinvest €27 million in new capital projects to modernise our research facilities, more students interested in agriculture and horticulture courses and successful open days and conferences held for our farmer clients.

2007 was marked by the appointment of a new Director of Teagasc, with Professor Gerry Boyle taking up the position in October. The Director brings an important set of skills and has already re-energised the organisation, provided leadership and communicated his strategic direction for Teagasc. The years ahead provide many challenges for all involved in agriculture, the food industry and the wider rural community, and as Director, Professor Boyle will ensure that Teagasc not only plays an important role in meeting those challenges but in preparing those involved in industry to create a viable and sustainable future.

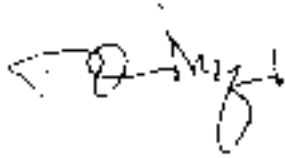
The senior management team, led by the Acting Director Tom Kirley ably steered and guided the organisation in the interim period. I know the management team have been greatly assisted by all the staff during the year who continuously strive to make Teagasc a stronger and better organisation, to lead the development of the agriculture and food sectors.

I want to thank the Minister for Agriculture, Fisheries and Food, Mary Coughlan TD for her support for the agriculture and food sectors and for Teagasc. Her backing for the Teagasc Vision programme with its investment in new modern facilities and in new professional staff provides Teagasc with the capital and human resources to make the vision a reality. During 2007 Teagasc worked with a number of Ministers of State at the Department of Agriculture, Fisheries and Food. I want to acknowledge the contribution of Brendan Smith TD, Trevor Sargent TD and Mary Wallace TD, in the year under review, and

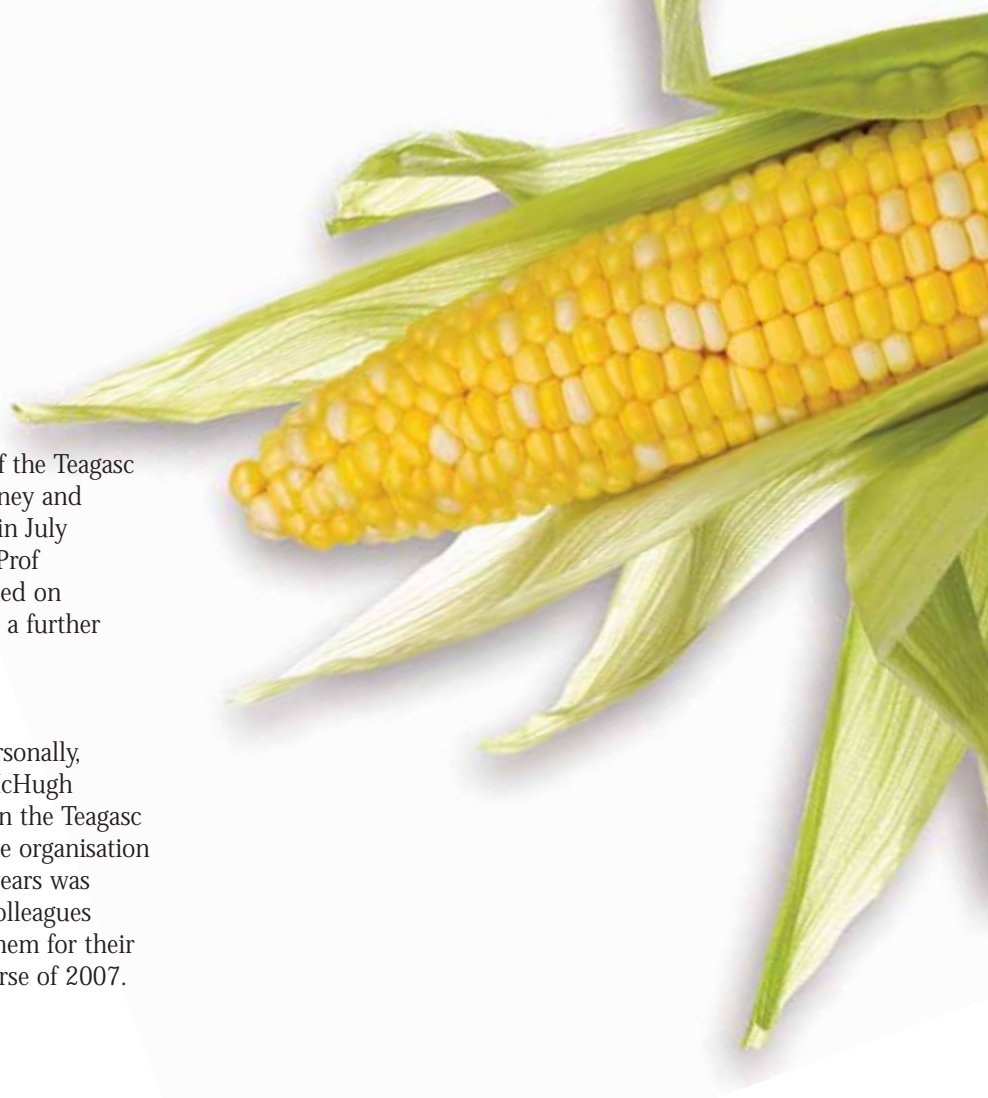
I look forward to continuing our close working relation with Minister Smith in his position as Minister for Agriculture, Fisheries and Food. Teagasc works effectively with a number of public bodies, organisations, individuals and companies in the agriculture and food industries. This interaction with our stakeholders is central to the successful delivery of our programmes to clients. The key relationship with the Department of Agriculture, Fisheries and Food, at all levels but especially with the Secretary General of the Department of Agriculture, Fisheries and Food, Tom Moran is invaluable in achieving our objectives. Relations with co-operatives and companies through joint programmes, and our linkages with the universities and research institutions are critical to increasing the knowledge base and transferring that knowledge to our customers.

During the year the composition of the Teagasc Authority changed. Margaret Sweeney and Martin Heraghty joined the board in July and November respectively, while Prof Patrick Fottrell is to be congratulated on his reappointment to the board for a further five year term.

On behalf of the Authority and personally, I would like to thank Anna May McHugh and Jim Beecher for their service on the Teagasc Authority. Their commitment to the organisation and their valuable input over the years was greatly appreciated. To my other colleagues on the Authority I wish to thank them for their guidance and assistance in the course of 2007.



Dr Tom O Dwyer
Chairman



Report of the Director



Professor Gerry Boyle
Director

Since joining Teagasc I have made a point of visiting all the education, research and advisory centres and meeting as many staff as possible, to see the activities, programmes and hard work being undertaken. I have been impressed by the calibre of the people, the quality of some of our facilities and by the level of service provided by the organisation to its wide and varied group of clients and stakeholders.

There were a number of positive developments at farm level in 2007. Prices for many farm commodities, particularly milk and grain rose to higher levels although beef and sheep prices did not follow. Input prices remained stable leaving a welcome increase in profit for dairy and cereal producers in 2007.

Moorepark '07, a major dairy open day held on June 21, successfully delivered technical messages on the latest research to over 10,000 dairy farmers. This was one of many front-of-house events held by the advisory, research and education directorates during the year.

Advisory

The numbers of farmer clients, 45,000 in 2007, demonstrates the continued need for a focused advisory service. The new advisory service, launched in each area unit, has greater emphasis on Business and Technology advice. Meanwhile, 40,000 farmers were supported with their area aid applications, while in addition, 15,500 farmers were assisted with other schemes including the Farm Waste Management Scheme and the Farm Investment Scheme.

The REPS planning service supported 24,300 farmers to avail of an estimated €160 million in REPS payments. Average payments exceeded €6,000 and represented in excess of 35% of Family Farm Income for participating farmers.

Attendance at technically focused Teagasc events reached record levels, with more than 55,000 farmers attending 317 farm walks in dairy, cattle, sheep and tillage. Discussion group meetings increased by 30% to 1,621 during the year and the number of seminars in the four main enterprises increased almost three-fold.

The National Farm Survey showed that the national average Family Farm Income in 2006 declined by 25.7 % to €16,680. This is down by €5,779 on the previous year, when direct subsidy payments were artificially high. When the figures for the two years are combined, Family Farm Income increased by 7.2% from 2004 to 2006.

Research

Agricultural research continues to investigate improvements in animal breeding and in grass production and utilisation. Preliminary data from a cross breeding trial at the Moorepark Dairy Production Research centre shows that crossing with the Norwegian Red or Jersey breeds has the potential to improve herd profitability.

EXPLOITING THE FREEDOM TO MILK



Work on reducing the maintenance requirement of the cow could improve profitability in suckler herds. Current research is examining if selecting replacements from cows with low residual feed intake, which is a measure of feed efficiency, could lead to more energy efficient and cost effective beef suckler cows.

A new study has started aimed at developing an economic selection index for grass varieties. The national recommended lists in most countries are based on silage cutting regimes, but this study will place a greater focus on grass varieties for grazing.

At the Grange Beef Research centre a grazing legumes project is looking at the role of clover in beef grazing system. Yield and resistance of four red clover cultivars under cutting and grazing management regimes is being evaluated. The data will provide useful sward establishment and management guidelines, and will be particularly important, given the price increase of fertilizer nitrogen.

The potato breeding programme at the Crops Research centre at Oak Park released two new varieties in 2007. Romeo is a red skinned white fleshed high dry matter variety and is moderately resistant to late blight and has good resistance to black Scurf and gangrene. Electra is yellow skinned table potato with a waxy texture. It has good resistance to potato blight, gangrene and Black Scurf and is extremely high yielding.

Agreement on a new Agricultural Mini-Catchments programme was reached in 2007. The Department of Agriculture, Fisheries and Food in consultation with the Department of Environment, Heritage and Local Government approved a Teagasc action programme for an Agricultural Mini-Catchment Programme. This research initiative is vitally important in terms of the Nitrates and Water Framework Directives.

Food

The national Food Imaging Centre based at the Moorepark Food Research Centre is the first of its kind in Ireland and is now fully operational. This equipment is available to support both the research community and the R&D activities of the Irish Food industry.

A concept called New Cheese Technology Platform has been developed by Teagasc which taps into the potential of developing new protein based ingredients. A new generation of ingredient cheeses should now be possible as further research pursues the combination of these innovative ingredients and process technology.

A new research area has been established at Moorepark. Glycobiology, the study of complex carbohydrate molecules, is seen as an area with great potential. A joint research programme on milk oligosaccharides between MFRC and the University of California, Davis in the USA, global leaders in this area, was agreed. This will provide an opportunity for MFRC scientists to quickly establish expertise in milk oligosaccharides at Moorepark.

Seventy five food training courses were delivered to 1,209 participants from approximately 100 companies during 2007. Training courses are aimed at management level and attendees are typically regulatory inspectors and industry technologists and managers. Operator level training is now a very small component of training delivered.

Research to find health promoting characteristics in beef has been undertaken. Short peptides, inactive within the sequence of the parent proteins become active when released during protein breakdown. Once released, these bioactive peptides have been shown to have activity against high blood pressure, anti-oxidant properties (potentially reducing cancer risk), antibacterial properties, as well as activity on the immune system and blood clot prevention.



Education

Enrolments in colleges increased by 25% in 2007 a welcome reversal of recent trends. At the same time, a review of the agriculture and horticulture colleges and their future resourcing was carried out by consultants Farrell Grant Sparks. It recommended that a “business as usual approach” was not a viable option. Based on this report, it was decided to concentrate future major capital investments in four colleges. However the entire college network will be needed to deliver the increased workload arising from the 25% increase in enrolments and the workload involved in delivering the skills component of the advanced certificate in agriculture.

The Education and Development Directorate, in conjunction with the Advisory Directorate delivered a comprehensive Adult Farmer Training programme. In total, 11,738 adult farmers completed training programmes and, of these, 2,215 were awarded FETAC certificates. The largest category was the REPS training courses with a total of 4,617 participants. A training programme for the greyhound industry was developed during 2007 in conjunction with Greyhound Skillnets and was validated by FETAC.



The larger projects include extending laboratory facilities at Moorepark, an Animal Bioscience centre in Grange, nutraceutical laboratories at Ashtown, a biofuel laboratory at Oak Park, new student facilities at Kildalton and facilities at the Head Office in Oak Park.

I would like to commend all those working in Teagasc for their commitment and dedication during the year. I will be working tirelessly to provide direction and leadership where Teagasc employs its capital, assets and human resources. My priority is to energise the excellent people in the organisation to deliver what is in the best long term interest of Irish agriculture, the food industry and rural communities.

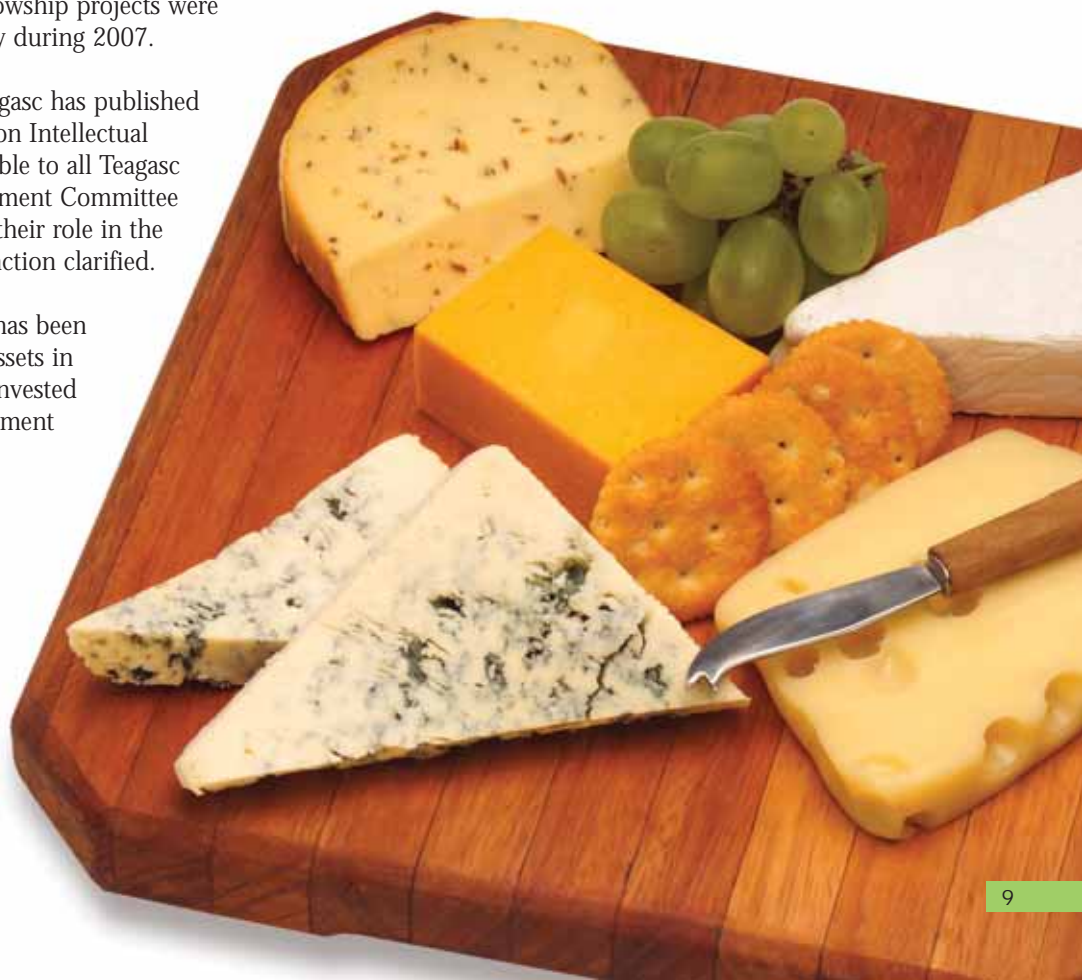
Professor Gerry Boyle
Director of Teagasc

Organisational development

The Walsh Fellowship scheme supports postgraduate students to undertake research on Teagasc projects. In 2007, 209 fellowships were funded of which 39 commenced during the year. Sixty five new Walsh Fellowship projects were approved by the Authority during 2007.

For the first time ever Teagasc has published a "Policy and Procedures on Intellectual Property". It is now available to all Teagasc employees. An IP Management Committee has been established and their role in the development of the IP function clarified.

In excess of €40 million has been realised from the sale of assets in 2007 and this is being reinvested in a major capital development programme across the organisation.



Board of the Authority



Dr. Tom O'Dwyer,
Chairman



Mr. Martin Heraghty
Minister's Appointee



Mr. James J. Brett
Minister's Appointee



Mr. Stephen Flynn
Staff Representative



Mr. Derek Deane
IFA Nominee



Ms. Margaret Sweeney
Minister's Appointee



Mr. Joe Fitzgerald
ICMSA Nominee



Professor Patrick Fottrell
Minister's Appointee



Mr. Michael O'Dwyer
ICOS Nominee



Mr. Patrick J. Kelly
Macra Na Feirme
Nominee



Mr. Jerry Henchy
Minister's Appointee

Teagasc Authority Committees

Remuneration Committee

Dr. Tom O'Dwyer (Chairman)
Mr. Martin Heraghty
Mr. Michael O'Dwyer
Ms. Margaret Sweeney

Advisory and Training Committee

Mr. Patrick J. Kelly (Chairman)
Mr. Derek Deane
Mr. Stephen Flynn
Mr. Joe Fitzgerald
Mr. Michael O'Dwyer

Finance Committee

Mr. Martin Heraghty (Chairman)
Dr. Tom O'Dwyer
Mr. Stephen Flynn
Mr. James Brett
Mr. Joe Fitzgerald

Research Committee

Professor Patrick Fottrell (Chairman)
Mr. Derek Deane
Mr. Patrick J. Kelly
Mr. Stephen Flynn
Mr. Jerry Henchy

Audit Committee

Mr. James Brett (Chairman)
Mr. Patrick Kelly
Dr. Tom O'Dwyer
Mr. Martin Heraghty



Teagasc Senior Management



Professor Gerry Boyle
Director



Mr. Pat Boyle
Head of Advisory
Services Directorate



Mr. Donal Carey
Head of Education
and Development
Directorate



Dr. Seamus Crosse
Head of Agriculture
Research Directorate



Professor Liam Donnelly
Head of Food Research
Directorate

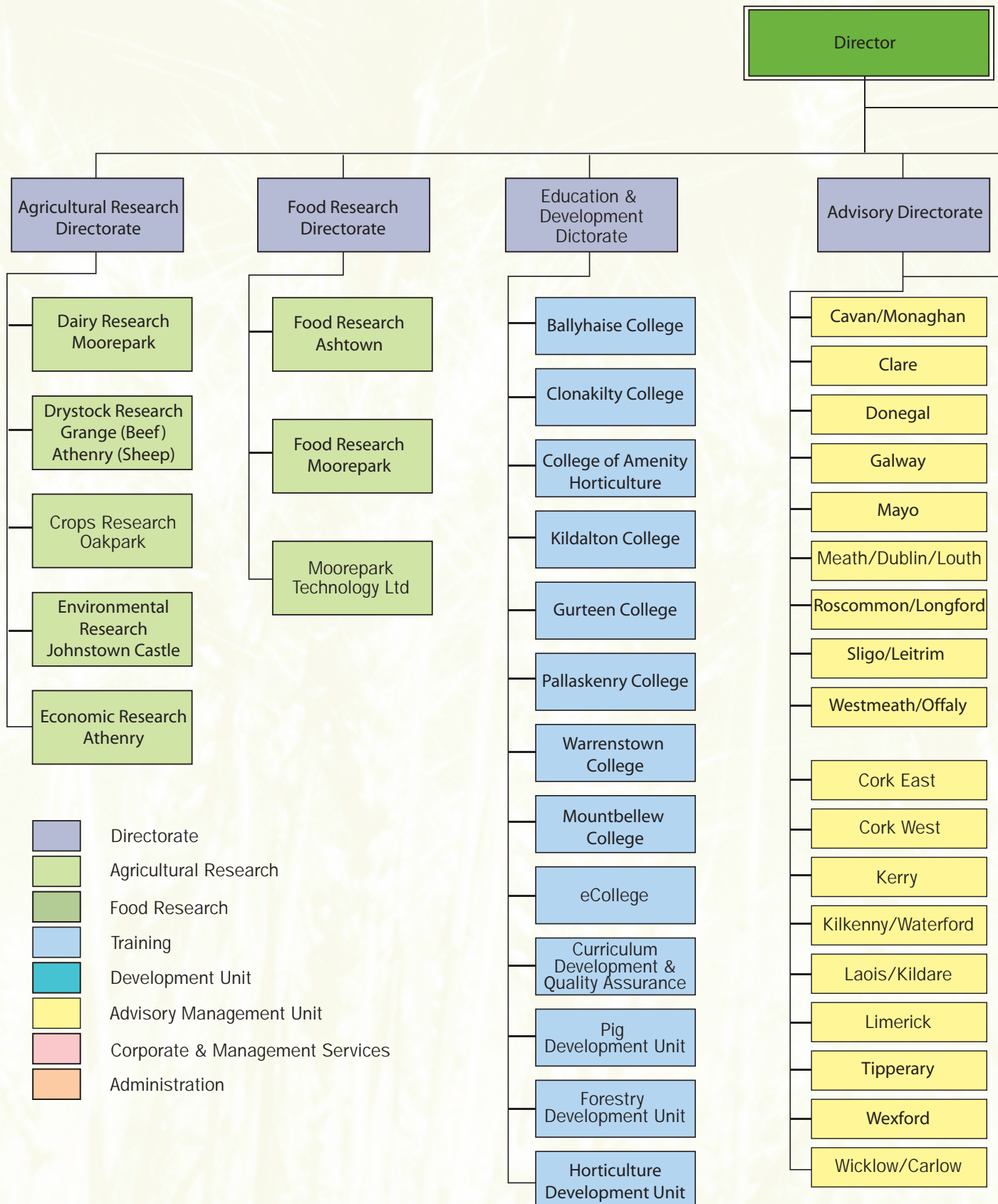


Mr. Tom Kirley
Head of Administration
Directorate



Mr. Tom Collins
Head of Corporate and
Management Services
Directorate

Teagasc Organisation Chart



Public Relations
& Customer
Communication

Corporate &
Management
Services Directorate

Administration
Directorate

Scientific Services
RMIS, Walsh
Fellowships, Post Docs,
Library, Science Writing,
Intellectual Property

Change Management
Evaluation, Quality
Customer Service,
Business Planning,
Risk Management

Health & Safety

Property Services

HR

Finance

Staff Development

ICT

Internal Audit

B & T Dairy
Programme

B & T Drystock
Programme

B & T Tillage
Programme

Environment
& GFP
Programme

Rural
Development
Programme

Education &
Adult Training
Programme

Farm
Management
& Techology
Programme





To underpin the development of a competitive, innovative and consumer focused agriculture sector, Teagasc will implement research, advisory, education and training strategies for the development of primary agriculture, including horticulture and forestry.



Goal 1

Competitiveness and Innovation in Agriculture

AGRICULTURE RESEARCH

DAIRYING

Animal Breeding

Moorepark is evaluating the potential of crossbreeding to produce a robust, 'easy care' cow capable of producing high milk solids, the majority from grazed grass. One study is evaluating Norwegian Red and Norwegian Red X Holstein Friesian cows across 46 commercial dairy herds, while a second trial is evaluating Jersey and Jersey crossbreds at Ballydague farm. In both studies the cows have completed two lactations.

Results show that Norwegian Red cross cows produce similar milk yields and milk protein content but slightly lower milk fat content than Holstein-Friesian cows. Crossbred cows displayed similar live weight to the Holstein-Friesians but had higher body condition score at all stages of lactation.

Fertility performance and udder health has proven significantly better with both the pure Norwegian Reds and the crossbred cows compared to the Holstein-Friesian.

Higher milk constituents for Jersey and Jersey crossbreds compared to the Holstein-Friesian resulted in a similar yield of solids for all three breed groups. Jersey and Jersey crossbred cows were lighter than Holstein-Friesian cows but maintained higher body condition score at all stages of lactation. Fertility performance was in favour of the Jersey crossbred cows. Norwegian Red and Jersey calves are easily born and early maturing. This preliminary data suggests that crossbreeding with the Norwegian Red or Jersey has the potential to improve herd profitability.

Dairy Cow Reproduction

Four heat detection aids were compared on Teagasc and commercial farms in 2007: *Tail paint Checkmate*, *Estroprotect* and *Paint Stick* were tested on Teagasc and commercial farms. Pregnancy rate to 1st service was similar for *Tail paint*, *Paint Stick* and *Estroprotect* (51%) but significantly lower for the *Checkmate* (39%). Overall preference was highest for the Tail paint followed by *Estroprotect*, *Paint stick* and lastly *Checkmate*.

Cows generally become more active when in heat, and this can be monitored. A new accelerometer device being developed by Dairymaster was tested in Moorepark's Ballydague farm. During the test period, the device correctly identified >80% of cows in heat, and had an error rate of less than 7%.

Grass Supply and Utilisation/Nutritive Value

A new study started at Moorepark in 2007 aims to develop an economic selection index for grass varieties. National recommended lists in most countries are based on silage cutting regimes with little focus on grazing. The project will assign economic weightings to cultivars based on spring, autumn, total DM production, quality and persistency. A number of new Irish cultivars of perennial ryegrass as well as a new New Zealand cultivar Bealey were tested under simulated grazing. The new New Zealand cultivar produced the highest total Dry Matter.

Animal Nutrition and Product Quality

A 2007 study evaluated four diets for cull dairy cows aimed at achieving the carcass criteria desired by meat factories. In all dietary treatments the total feed budget was 1.45 t DM/cow. Results show that where housing costs are high the faster finishing treatments should be considered but where housing costs are minimal; the slowest finishing treatment is the most economical.

Sustainable Production Systems and System Analysis

Telephone surveys were carried out in 2007 on over 1,430 dairy farmers supplying Glanbia, Connacht Gold, Lakeland and Donegal. The results indicate that significant increases in dairy cow numbers could be accommodated on the existing land base. Further increases in productivity are possible through improved animal genetics, compact calving, lengthened lactations and increased quantities of higher quality feed.

The potential expansion in production based on the current land areas of surveyed farms and incorporating an optimum stocking rate (2.7 cows/ha) and level of milk production (15,000l/ha) in a no-quota scenario – and accounting for those planning to exit milk production - could be 60 to 70 percent on the surveyed farms.



Regional Milk Production

The potential of Irish soils to grow grass throughout the year and success in utilization the grass are key factors in determining output and profitability of dairy production. In northern regions the grazing season is shortened by impeded drainage, topography, high rainfall and northerly aspects. The main focus of the Ballyhaise research programme is to develop sustainable production systems suitable to the limitations of the region.

Results show that where the milking platform is limited, a higher level of concentrate supplementation may result in increased farm profit. This is dependent on concentrate to milk price ratio, maintaining high grass utilisation and that the increased milk production per cow is achieved without additional labour.





BEEF

Animal Genetics

The potential human health promoting effects of nutraceuticals: polyunsaturated fatty acids (PUFA) and ruminant derived forms of conjugated linoleic acid (CLA) have been well publicised. Ruminants produce CLAs in their muscles in a complex chain of events determined by the animal's genes. Teagasc Grange recently developed a novel bovine intramuscular adipocyte (fat) cell line and are using this resource to examine the influence of PUFA supplementation (PUFA is found at low levels in grass and high levels in fish oils and soya oil) at various levels on these genes and on CLA accumulation. The in vitro approach avoids possible confounding effects due to variation between animals.

Animal Nutrition

Reducing the maintenance requirement of the cow would improve profitability in suckler herds. The effect of residual feed energy intake (RFI), a measure of feed efficiency, on intake, growth, body and ultrasound measurements, blood physiology and behaviour was determined in growing purebred Simmental and Simmental Cross Friesian-Holstein heifers.

RFI is defined as the difference between an animal's actual intake and its predicted intake based on measured performance. Heifers with low RFI (indicating better-than-average efficiency) consumed 14% less feed during the indoor winter feeding period but performed as well as those with higher RFI. Current research is examining if selecting replacements from low RFI animals could lead to more energy efficient and cost-effective beef suckler cows.

Production Efficiency

As animals get fatter, more feed energy is required per unit of additional gain. Taking animals to fat class 4, rather than to fat class 3, increases kill-out percentage and improves carcass conformation but the additional financial returns are not sufficient to offset the extra cost. Subdividing fat class 4 into three sub-divisions has provided farmers with feedback on their production systems. This has resulted in 55% of the national steer kill grading in fat class 3 (the % in the less economic fat class 4 having been reduced). This represents an important increase in the efficiency of beef production systems.



Noel Coakley, Irish Dairy Board; Thia Hennessy and Trevor Donnellan, Teagasc Rural Economy Research; Professor Gerry Boyle, Director of Teagasc and Aaron Forde, CEO Connacht Gold pictured at the Teagasc National Dairy Conference 2007 on 'Exploiting the Freedom of Milk.'



Forage Maize

Previous field plot data has indicated that when cobs are maturing in the autumn the nutritive value of the stem and leaves (stover) - which make up approximately half of the crop dry matter - can deteriorate rapidly. Forage maize was harvested at fortnightly intervals between mid-September and late-October and offered to finishing steers in comparison with a diet based on ad lib concentrates.

Carcass gains were similar across the various harvest dates, indicating that the increase in crop starch content associated with cob ripening was offset by the simultaneous decline in stover quality. However, there was a trend for the cattle offered the later harvested, higher starch, maize to produce less methane per unit of carcass gain. Since methane is an important greenhouse gas; later harvested maize silage could make a contribution to reducing agricultural emissions.

Legumes

A grazing legumes project at Grange aims to enhance the role of clover in beef grazing systems. We investigated how the total and clover yields of new swards are affected by changing the proportions of two grass and two clover species in a seed mixture at different sites in Ireland. Mixtures of grasses and clovers proved more productive than monocultures of either species.

Changing the relative proportions of the species in the seed mix affected species' yields. We are evaluating the yield and persistence of four contrasting red clover cultivars under cutting and grazing management regimes. This data will provide useful sward establishment and management guidelines at a time when fertiliser nitrogen prices are increasing rapidly.



Wintering Young Cattle on Pasture

Allowing weanling cattle to graze winter pasture which has accumulated since the last grazing in the previous late summer/autumn offers the potential to reduce the need for conserved forage. We examined the grazing of permanent pasture during winter by continental weanlings. Herbage allowance affected liveweight gain and herbage intake during winter but any differences in liveweight gain was gone by the following summer. There is therefore no performance advantage in winter grazing.

Meat Quality

Live animal scores of carcass conformation and fat and scanned muscle and fat measurements were shown to be good indicators of carcass meat yield and value when recorded close to slaughter but were not good when recorded at nine months of age. This information can be used to help identify animals with desired production traits in animal breeding programmes.

SHEEP

Winter Shearing

Winter in Ireland is characterised as being relatively mild. Consequently ewes housed unshorn may suffer from heat stress. Ewes were either housed either shorn or unshorn or were extended grazed unshorn for the duration of pregnancy. Shearing the ewes at housing increased lamb birth weight and weaning weights similar to those for ewes which were extended grazed. The increased weaning weight (2.5 kg) of lambs from housed shorn ewes is equivalent to a reduction in the age at slaughter by 2 to 3 weeks. Shearing management had no effect on the periparturient rise in nematode egg counts.

Extended Grazing

Recent studies have shown that extended grazing ewes either in mid, late or throughout pregnancy increased subsequent lamb birth and weaning weights relative to housed unshorn ewes. Swards were extended grazed on four dates each at different stocking rates and residency periods. Delaying grazing date from early December to late January decreased herbage yield the subsequent spring, but the impact of extended grazing date was influenced by subsequent grazing date. Increasing stocking rate at grazing increased the proportion of bare ground, which impacts sward composition the following spring. Frequency of herbage allocation during extended grazing did not influence subsequent dry matter yield or the proportion of bare ground.

Biological Control of Parasites

Gastrointestinal parasites have a negative impact on lamb health and production. With increasing evidence for anthelmintic resistance alternative approaches to chemotherapeutic dominated control of nematodes in sheep are required. The use of nematophagous fungi in particular *Duddingtonia flagrans* has shown potential as a biological control agent of ovine nematodes. Conventionally the detection and identification of *D. flagrans* has relied on morphological methods which are labour intensive, time consuming and error prone.

A PCR diagnostic assay was developed for the accurate and rapid identification of *D. flagrans*. This assay was subsequently used to test a range of samples (faecal, soil and leaf litter) collected from sheep pasture on Irish farms. The PCR assay detected *D. flagrans* in 80% of the farms and confirms the sensitivity of the assay whereby conventional methods detected *D. flagrans* in only 30% of the same farms. This is the first evidence that *D. flagrans* is indigenous.

Hill Environment

The hill environment occupies about 20% of the land area in Ireland. It is a complex and fragile landscape consisting of a variety of habitats on rugged, often steep, slope gradients. The soils are mainly peaty and susceptible to erosion.

The impact of sheep grazing on the semi-natural hill vegetation was assessed on the basis of detailed plant frequency counts, permanent exclosures, controlled grazing plots and habitat preferences. An annual stocking rate of 0.8 ewes per hectare resulted in a decrease in bare ground and an increase in the general vegetation groups – (grasses, sedges, bryophytes (mosses and lichens), heathers and other herbs). Managed grazing resulted in an increase in species richness while the shrubs, heathers and bog myrtle, increased in the summer and winter grazing exclosures. Remote sensing techniques (GPS collars on selected sheep) indicated a grazing preference for the habitat acid grassland followed by wet heath at the detailed selection level. Small mammals (wood-mice and pigmy shrews) which are important elements in the food chain are present in wet heath and acid grassland habitats.

Micro-topographic pin profilers, splash cups and marker pins were used to measure surface deformation and changes due to micro-erosion. Soil removal and deposition were significantly associated with high sheep activity and location. Continuous risk assessment is vital to maintain well managed habitats in this environment.



CROPS

Minimum Tillage

In 2007, a study of minimum tillage on spring barley was established to determine whether this system has a role with our most widely cultivated cereal crop. Min-till establishment systems for oilseed rape have also shown promise, producing similar yields to plough-based systems. While 2007 proved a difficult year for min-till established winter wheat, the long-term trend is for similar yields, which, when coupled with labour and machinery cost advantages, makes the system worthy of serious consideration.

Decision Support Systems for Cereals

Septoria is the most significant yield-reducing cereal disease in Ireland. Current practice is to apply three or four fungicides to the crop to protect against this disease. Decision support systems which use weather and crop parameters to determine the need for fungicide applications have been assessed at Oak Park. The *Thies Septoria Timer* instrument records the occurrence of conditions, within the wheat crop, conducive to the spread of *Septoria*. It indicates precisely when a fungicide spray to control this disease is required. In trials over three years, use of the *Septoria Timer* reduced fungicide inputs while maintaining similar yields to a standard three-spray programme.

Disease Resistance

Populations of the wheat leaf pathogen *Mycosphaerella graminicola* (*Septoria tritici*) were tested for sensitivity to fungicides in 2007. Resistance to strobilurins remains high, averaging 94% for the crops sampled. *M. graminicola* remains sensitive to the triazole fungicides epoxiconazole and prothioconazole but is less sensitive to tebuconazole.

A number of mutations were identified in the gene encoding the target site of the triazoles, one of these was associated with reduced sensitivity to tebuconazole this mutation was found in 25% of over 400 isolates screened in 2007.



Bioenergy

A low cost method of drying willow chips on farms has been developed at Oak Park. Willows are harvested at moisture contents in excess of 50%. If piled in that condition they rapidly self-heat and develop noxious moulds, combustion at such high moisture contents is difficult. Purpose-built drying facilities have high capital and running costs and are unlikely to be available to most farmers indicating a need to develop a low-cost outdoor drying system suitable for farm use.

At Oak Park, wooden pallets were used to construct a pile for willow chips 7m long, 5.5m wide and 2m high. The pile was covered with a woven polypropylene cover. The chips were ventilated for 12 hours a day using a 375mm fan blowing into a 375mm perforated drainage tube. The moisture content of the chips reduced from 53% on 10 April to 16% on 23 August, temperatures in the pile were monitored continuously and no self-heating was observed. The dry matter loss during storage was less than 5%. Research is continuing to obtain further reductions in the energy needed to dry willow chips.

Potential of Oilseed Rape in Ireland

Work on winter oilseed rape indicated that yields comparable to most other European countries could be obtained under experimental conditions in Ireland. Experiments showed that the optimum seed rate may be higher under Irish conditions than has been reported for other European countries. Evaluation of a range of cultivars indicated when sown at the optimum sowing time into good soil conditions hybrid cultivars do not show any consistent benefit over conventional cultivars.

ADVISORY

In 2007 client numbers reached a record level of 45,000 demonstrating the continued need for a client focused advisory service. The Advisory Service supported more than 40,000 farmers with their area aid applications. In addition, 15,500 farmers were supported in other Department of Agriculture, Fisheries and Food schemes including the Farm Waste Management Scheme and the Farm Investment Scheme. 25,000 REPS Clients were served by Teagasc during the year.

Attendance at technically focused Teagasc events reached record levels in 2007, with more than 55,000 farmers attending 317 farm walks in dairy, cattle, sheep and tillage. Discussion group meetings increased by 30% to 1,621. During the year and the number of seminars in the four main enterprises increased almost three-fold.

DAIRYING

Dairy Review 2007

In excess of 1,200 farmers attended the National Dairy Conferences held in Kilkenny and Castlebar, Co Mayo.

The organisation was involved in joint programmes with the dairy industry in 2007. Partners included Arrabawn, Centenary, Connacht Gold, Dairygold, Glanbia, Kerry, Lakeland/Town of Monaghan, Tipperary, West Cork and Wexford Co-Ops. A new joint venture with Germinal Seeds has been established to promote Grass Budgeting and Measurement on 200 dairy farms.



Our joint programme with ICBF continues to increase the EBI of the national herd by over 5 points per year. Our 'Profit with AI Partnership' with the AI stations has increased the number of AI replacements in the national dairy herd from 36 to 42 %.

The 100 dairy monitor farms across the country were used extensively for farm walks, discussion group meetings, in-service training of advisors, the evaluation of technical and financial performance achievable and evaluation of future options for dairy farmers. Over 6,000 farmers have signed up to have their ICBF (Irish Cattle Breeding Federation) data released to their Teagasc advisor; this has enabled the advisor to give more specific fertility/breeding advice to individual farmers.

The milk price increase from 25.6 (2006) to an estimated price of 32.6 (2007) cents per litre – a 27% rise greatly increased farmer confidence. Even though most costs rose by 3 to 20 %, net margin per litre increased from 7 to 13 c/l, an 85 % increase. As a result Net Margin per hectare increased from €615 to €1158 (estimate). This was influenced by the higher milk price and lower expenditure on input costs.





DRYSTOCK

Beef

Teagasc clients who have completed profit monitors have increased profit by 9% per annum since 2003, through improved technical efficiency and better marketing as premia receipts per hectare actually declined over the period.

Over 30% of Suckler farmers and 62% of non-breeding farms, with profit monitors, achieved a gross margin exceeding €500 per hectare with approximately 40% achieving a profit excluding all premia. Beef output per hectare is an important physical measure that influences cattle profitability and is determined by the interaction of stocking rate and individual animal performance. An excellent standard is to achieve or exceed 750 kg beef liveweight per hectare – 23% of suckler farms and 16% of non-breeding farms exceeded 750 kg beef liveweight per hectare.

Two major national farm walks were conducted in 2007 on the winning farms in the Quality Beef Producer and Quality Weanling Producer with a combined attendance of circa 3,500.

Sheep

Output per hectare on sheep farms with profit monitors increased by 10% on the previous year but due to a 14% increase in variable costs gross margin only increased by 4% over the same 12 month period. The top third of sheep farms with profit monitor have an advantage of €33 per lamb over the bottom third due to better selling price, lower production costs and lower replacement costs per lamb.

This amounts to over €20,000 for a 40 hectare (100 ac) sheep farm, showing the huge scope that exists for income improvement on the majority of sheep farms through improved technical performance. Lamb output per hectare has a huge influence on sheep profitability and Teagasc set a target of 12.5 lambs or higher for commercial producers. 46 % of sheep farmers with profit monitors exceeded sales of 12.5 lambs per hectare.

TILLAGE AND ENERGY CROPS

In 2007 grain prices reached close to €200 per tonne for feed wheat at 20% moisture at harvest – an increase of over 70% on 2006. The consequent increase in profitability of cereal growing resulted in record high sowings of winter cereals for 2008.

Implementing the nitrate and cross compliance regulations attracted a lot of interest at the spring Tillage Crops Seminars (over 1,300 attended) and the Tillage Crops Roadshow (300 attended) early in the year.

National events attracted increased numbers including the National Tillage Conference, National Potato Conference and Crops Open Day in Oak Park as well as the Bioenergy Conference and Bioenergy Open Day in Oak Park.

The Business and Technology Tillage Crops advisory service was formally established with 17 advisers located nationally. They were given intensive training on business/financial appraisal including Tillage Profit Monitor. Three new potato advisers were given intensive training including a four day course on potato agronomy in Scotland. Crops specialists investigated developments in crop husbandry, renewable energy, use of pig manure in crops and group advice abroad. There was a lot of interest in two new courses. The Basis 10 day Plant Protection Course for advisers in the commercial trade and Teagasc attracted 40 applicants. The advanced course in Tillage Crops Management (24 days) attracted 28 adult commercial tillage growers. Both courses are progressing well and are FETAC approved.

Best practice in technology and financial appraisal was demonstrated on monitor farms and promoted via advisory visits, events, crop reports and numerous articles and publications.



FARM MANAGEMENT AND FARM (ICT) DEVELOPMENT AND SUPPORT

A new online training course for farmers was developed and launched in September. The course was offered in response to a detailed study which highlighted the vital role of Teagasc in enabling farmers achieve efficiency gains through the use of information and communication technologies and the significant digital divide that exists between farmers and the general public.

The e-Profit monitor was modified to allow students both within and outside Teagasc access to this important efficiency benchmarking tool. Over 1,200 farmers completed an analysis of their physical and financial performance.

2007 was a pilot year for the new online SPS application developed by the Department of Agriculture, Fisheries and Food, Teagasc staff and advisers in particular participated in this important e-government development. Approximately 2,000 were submitted on line out of a total of 39,000 completed on behalf of clients.

The Cost Control Planner excel recording programme for farmers was updated to include the facility for livestock farmers to track the purchase & usage of the two major inputs – feed & fertiliser. Dairy farmers can also use data entered in the Cost Control Planner to compare herd milk solids production against targets throughout the year. New excel based software was also developed to assist advisers and farmers meet the Cross Compliance requirement for fertiliser plans and records.

Twenty financial investment courses were held, these were targeted at clients engaged in significant investment in the Farm Waste Management and Farm Improvement schemes.

A comprehensive range of detailed farm building drawings and a buildings cost calculator were further developed and updated in 2007. These were widely used by advisers delivering farm buildings advice to their clients.

EDUCATION AND DEVELOPMENT

Young Entrant Training

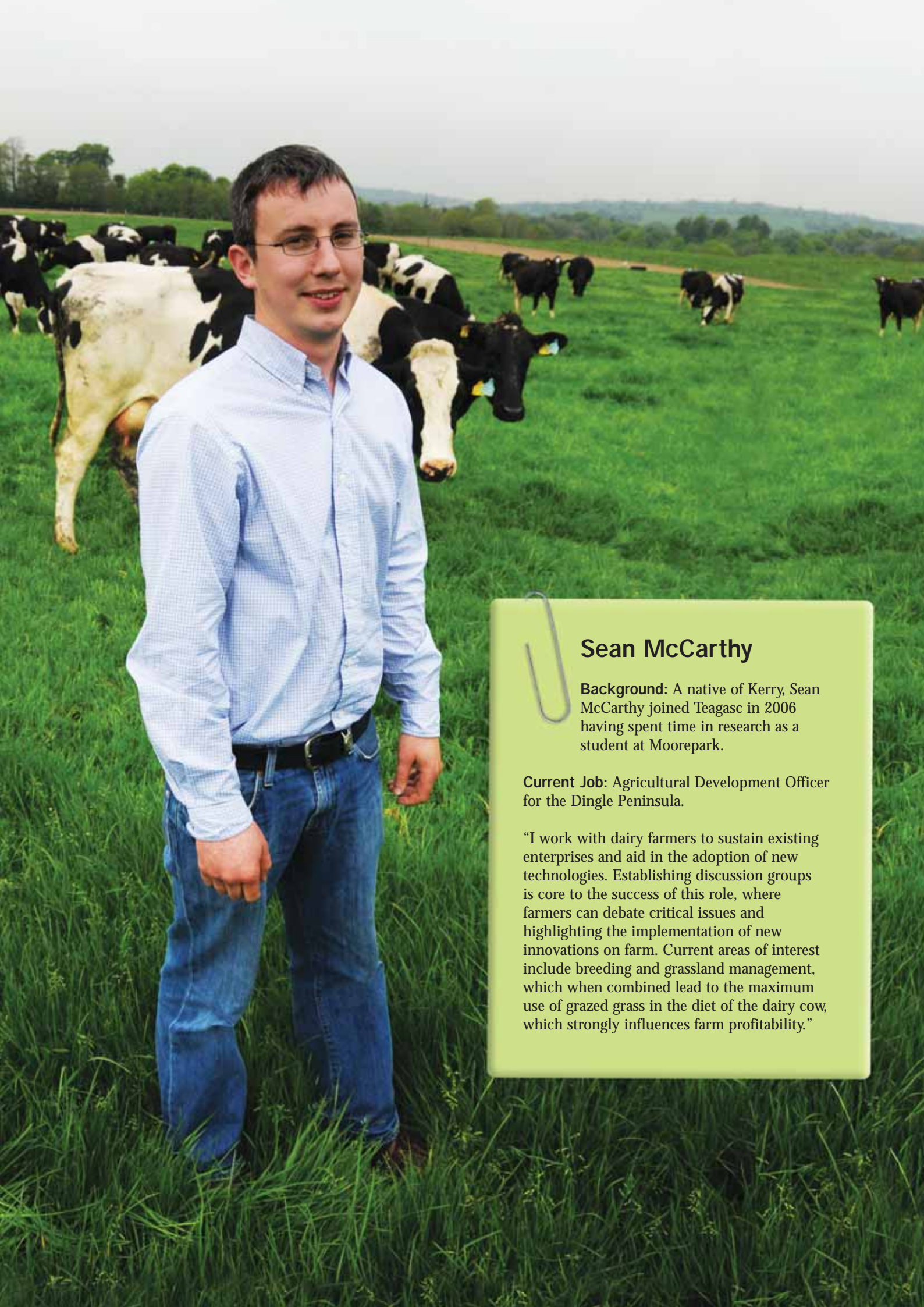
2007 saw a 25% increase in enrolments in colleges, a welcome reversal of recent trends. Further training programmes in agriculture, horticulture, horse breeding and training and forestry were delivered at eight colleges and at a number of local centres. Specialised Advanced Courses were also provided in Dairy Herd Management, Machinery and Crop Management, Drystock Management and Agricultural Mechanisation. A total of 531 students enrolled in further training programmes in colleges while the total participating in these programmes was 3,384.

Teagasc also deliver eleven higher level training programmes in conjunction with various Institutes of Technology. These programmes cover areas such as agriculture, horticulture, agricultural science, agribusiness, equine students and agricultural mechanisation. In 2007, 243 students enrolled in higher level training programmes and the total currently participating in these programmes reached 636.

Adult Farmer Training

The Education and Development Directorate, in conjunction with the Advisory, Directorate delivered a comprehensive Adult Farmer Training programme during 2007. In total, 11,738 adult farmers completed training programmes and, of these, 2,215 were awarded FETAC certificates. The largest category was the REPs training courses with a total of 4,617 participants.

In addition to the above, adult modules were also delivered in the following areas: Business and Technology, Rural Viability, Health and Safety, Forestry, Alternative Enterprises, Hedge Cutting, Livestock Haulage, Information Technology and Pesticides. The Advanced Certificate in Agriculture for Part-time farmers was delivered at 14 centres; 559 farmers participated. These programmes were done largely at night and weekends to facilitate part-time farmers.



Sean McCarthy

Background: A native of Kerry, Sean McCarthy joined Teagasc in 2006 having spent time in research as a student at Moorepark.

Current Job: Agricultural Development Officer for the Dingle Peninsula.

“I work with dairy farmers to sustain existing enterprises and aid in the adoption of new technologies. Establishing discussion groups is core to the success of this role, where farmers can debate critical issues and highlighting the implementation of new innovations on farm. Current areas of interest include breeding and grassland management, which when combined lead to the maximum use of grazed grass in the diet of the dairy cow, which strongly influences farm profitability.”

2007 was the final year for 100 hour and 80 hour courses. 1,369 participants completed the 100 hour Certificate in Agriculture programme with a further 1,145 completing the 80 hour Certificate in Farm Management Programme. Of these, 450 participants completed the programme online through the Teagasc eCollege.

Following the Forum Review of Education and Training the 100 hour and 80 hour courses are being replaced with a Level 6 Advanced Certificate in Agriculture in 2008.

This programme was developed during 2007 and incorporates a number of new features, including six month home farm involvement, 12 months of management practice on the home farm, eight discussion group meetings using benchmarking farms, enhanced skills training and proficiency testing and a major home farm project using the ICBF *Herd Plus* programme.

A training programme for the greyhound industry was developed during 2007 in conjunction with Greyhound Skillnets and was validated by FETAC. In addition a work based training programme for mushroom harvesters was delivered in conjunction with Commercial Mushroom Producers who Teagasc assisted in achieving a Quality Assurance agreement with FETAC. Training materials were delivered and translated into a number of eastern European languages.

Review of Colleges

During 2007 the Teagasc Authority engaged Farrell Grant Sparks to carry out a consultancy entitled “Strategy for the Future Resourcing of Agricultural and Horticultural Colleges”. The purpose of the consultancy was to assist the Teagasc Authority in making decisions on major capital investment in agricultural and horticultural colleges in the future. The report was presented to the Teagasc Authority in February 2008. The Authority accepted that a “Business as Usual” approach was not a viable option and decided to concentrate future major capital investment at four colleges:

Ballyhaise
Botanic Gardens
Kildalton
Mountbellew

The Authority also recognised a significant increase in workload arising from the 25% increase in enrolments and the projected increased workload involved in the delivery of the Skills components of the Advanced Certificate in Agriculture (180 Hour Replacement Course). The entire college network will be needed to deliver this increased workload and that ongoing capital will be required to maintain the infrastructure in the four remaining colleges. It is now planned to carry out an in-depth evaluation of the capital requirements of the four colleges above and based on this evaluation the Authority will decide on future capital investments.





Sectoral Roadmaps

During 2007 a process was begun to develop sectoral roadmaps for all of the principal agricultural and horticultural enterprises. The aim is to provide leadership and direction to clients, staff and the industry. The exercise was led by the Education and Development Directorate and roadmaps were developed for horticulture, pigs and forestry as well as all the main farming enterprises.

Teagasc eCollege

In 2007, 450 students participated in the online delivery of the FETAC Level 5 Specific Purpose Certificate in Animal and Crop Production (100 hours) and the FETAC Level 6 Specific Purpose Certificate in Farm Business (80 hours). The courses are delivered using a Virtual Learning Environment which facilitates student administration and provides course materials and online discussion fora. All Teagasc agricultural colleges and private colleges are involved in the provision of practical skills training online. There are now 60 eTutors trained to deliver programmes with the eCollege.

The Advanced Hygiene Management and Food Safety Course at Ashtown Food Research Centre was also delivered online in 2007 and the new online training programme for Free Range Poultry Producers was developed and delivered during 2007.

HORTICULTURAL DEVELOPMENT UNIT

The total number of growers is 930 with a farm gate output of €297m. Teagasc has advisory contact with 80% of growers. Advisors completed 207 business plans with a total planned investment of €26m under the Scheme of Investment Aid for the development of the Commercial Horticulture Sector.

Fruit

Output from the soft fruit sector is currently €30m and expanding rapidly. There is potential to double the value by 2018. Soft fruit is a highly viable sector of Irish commercial horticulture and generates employment and investment in urban and rural areas. Growers are now overwhelmingly large scale commercial producers who are investing heavily in their enterprises.

Strawberry Modules

Strawberry modules/module plants are fast replacing traditional bare-root transplants for fruit production, particularly in protected crop production. The commercial production of module plants is expected to increase significantly over the next few years by replacing imports.

This project will establish a specific tray plant production protocol for existing and new Irish propagators. Researchers are investigating the factors that influence the production, fruit yield and quality of tray plants. Timing of taking tip cuttings, the effect of different nutrient and substrate treatments on flower initiation and subsequent fruit yield are all being studied.

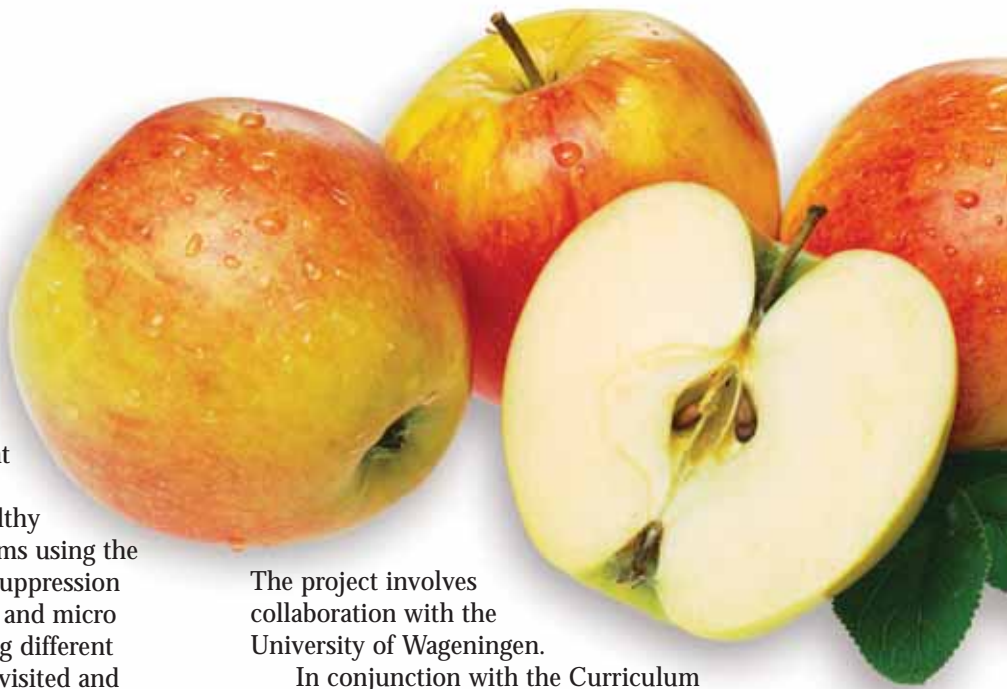
Nursery Stock

A new research project to improve propagation efficiency and provide new lines of healthy plant material for the nursery stock sector was begun in 2007. The project will make collections of clonal varieties of specified ornamentals and sort them for conformity to the registered variety based on their morphology as well as their growth performance and disease tolerance.

Mushrooms

Two disease control research projects are underway. The first is concerned with the “Environmental and genetic control of brown colour development in mushrooms infected with mushroom virus X” and has been in place for just over a year. Progress has been made in identifying gene products that occur, or are absent, in diseased mushrooms compared with healthy and non-symptomatic mushrooms using the gene expression technologies “suppression subtractive hybridization (SSH) and micro arrays. Eight farms, experiencing different levels of the disease, have been visited and samples taken for gene expression testing. Progress has also been made in identifying genes associated with brown cap colour.

A second project on “Measuring and managing dry bubble disease pressure on mushroom farms” was begun in Oct 2007. Verticillium continues to be a significant disease problem for the industry. A number of farms have been visited and samples collected for use during the project. Molecular diagnostic methods are being developed in conjunction with bioassay tests and farm assessments in order to quantify the level of disease pressure on a given farm.



The project involves collaboration with the University of Wageningen.

In conjunction with the Curriculum Development Unit, a FETAC accredited course was devised for the sector, trainers from grower holdings identified and trained and the training programme for operatives commenced.

Vegetable Crops

In cultivar evaluation trials at Kinsealy the new Cauliflower Flamenco proved an outstanding second early hybrid in two trials under very adverse growing conditions. Two other late maturing hybrids Clarify and Clapton which are the first Cauliflowers to have Club root resistance performed satisfactorily, for summer and autumn production.

Green broccoli cultivars did not perform as well in these conditions but Beaumont had the best quality. Three new purple sprouting broccoli hybrids maturing from November to February were particularly promising. Quality and uniformity were superior to standard open pollinated varieties.



Minister of State at the Department of Agriculture, Fisheries and Food Trevor Sargent, T.D., with Harry O'Brien and Bernard Flood studying the Kildalton apple crop.



FORESTRY DEVELOPMENT UNIT

Research Programme

Broadleaf Tree Improvement

Research on two of our main broadleaf species, ash and sycamore, was carried out in collaboration with colleagues in the UK. An international provenance trial of ash was established consisting of source material from 25 European locations. Progress in 2007 included the identification of new alder-plus trees for inclusion in an alder tree-breeding programme and the identification of the best performing birch trees in an existing programme as the basis of the second round of improvement in that species.

Further progress was made in the conservation of the genetic resource of rare veteran trees of oak, ash, sycamore and elm.

Forest Productivity and Thinning and Harvesting in Farm Forestry

The farm forest areas in the country have been characterised and described. A representative sample survey of farm forest sites is completed and the farm forest resource has been quantified and site conditions have been analysed. New and existing data was incorporated into the wind throw hazard assessment models.





Advisory and Training Programme

The Teagasc forestry advisory and training programme is a joint programme with the Forest Service of the Department of Agriculture, Fisheries and Food. The programme promotes planting and management of sustainable farm forests and provides advice and training on the production of profitable timber and other products from farm forests.

Two national farm forestry demonstrations were held and information meetings were held nationwide in March and November which were attended by over 1,100 people with an interest in planting land.

Training was provided on seed collection, native woodland establishment, farm forest establishment, forest management, broadleaf shaping and wood energy. In addition 3,796 REPS participants were trained on the benefits of farm forestry.

National Wood Energy events were run in March and September in co-operation with COFORD.

PIG PRODUCTION DEVELOPMENT UNIT

Health and Welfare

A study to examine the most effective means of delivering manipulable material to sows was completed in 2007. Increasing dietary fibre was more effective in influencing behaviour and improving welfare than provision of straw.

Meat Quality

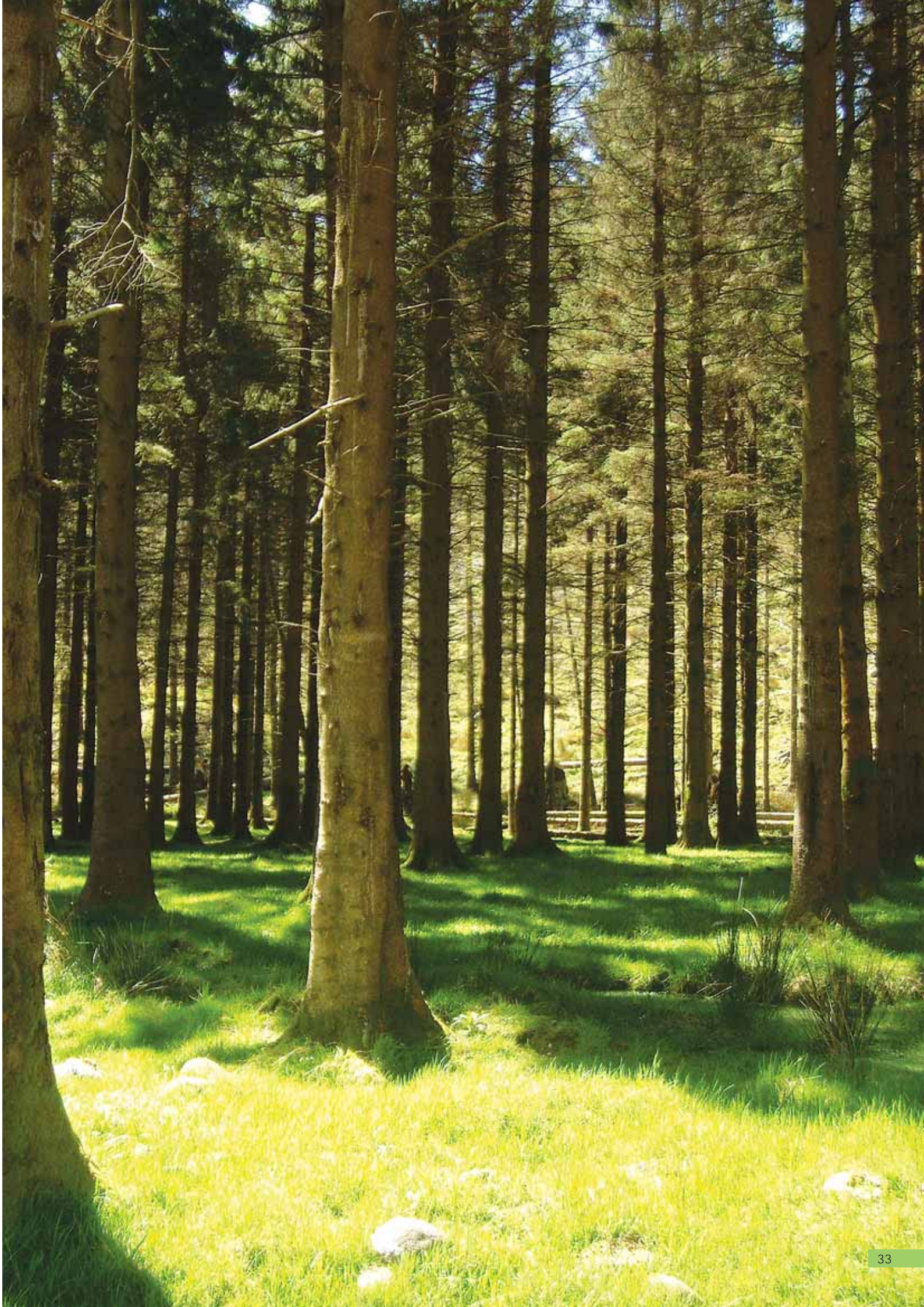
The study of pregnancy feeding and its effect on muscle development in the pre- and post-natal pig continued. This work has potential application for the study of developmental conditions such as obesity and diabetes in the human.

Advisory and Training Programme

Farm visits to contracted clients with the provision of a business and technology service continued to be the main advisory activity. The PIGSYS data processing system of performance monitoring is the basis of most business decisions and advisers continued to encourage producers to avail of the service. A workshop for banking staff involved as lenders to the pig industry was well received.

A series of two-day workshops on "manure management" proved very effective. Workshops on "An introduction to Irish Pig Production" were delivered in Polish to two groups of operatives.







Goal 2

Competitiveness, Innovation Safety and Quality in Food

FOOD RESEARCH

FOOD SAFETY

Salmonella in Pork:

In 2007, Ashtown Food Research Centre (AFRC) co-ordinated the development of a quantitative risk assessment (QRA) model to assess the public health risk from Salmonella contamination on pork produced in the Republic of Ireland and Northern Ireland where there are two different control programmes in operation. A cross jurisdictional stakeholder forum (industry and regulators) is using this research to decide whether changes in control programmes are needed. Tracking data suggests that slaughter and dressing operations have a more significant impact on the transmission of Salmonella than the Salmonella status of pig (caecal or rectal carriage) presented for slaughter.

Verocytotoxigenic E.coli (VTEC) in Beef:

AFRC continued to play a leading research role nationally and internationally on this group of highly virulent pathogens. An in-dept tracking study on emergent VTEC in bovine animals was undertaken. This is the first study of its type to be undertaken in Ireland and is one of the first worldwide.

Infant Milk Formula (IMF):

Ireland produces 70% of the world's infant milk formula and *Enterobacter sakazakii* is the single biggest food safety issue for this sector. Research carried out by the Food Directorate at Ashtown and Moorepark in 2007 indicates this organism is not transmitted in animal faeces nor omnipresent in the environment as was previously thought. The pathogen was shown to be mainly associated with very dry environments. Studies on the survival of the pathogen in soil and faeces, stored outside, indicate that it can survive for up to 119 days. This study indicates that the pathogen is not associated with cattle or contaminated milk.





New Method to Detect Illegal Growth Promoting Steroids in Bovine Animals:

The use of illegal growth promoting steroids is an important issue for the beef sector and regulators. It is difficult to distinguish between illegal steroids and steroids naturally present in the animal. Teagasc researchers have developed a new approach to testing for anabolic abuse agents based on testing blood for biomarkers and then bovine hair for steroid esters. This will allow regulators to test animals on a large scale and provide proof of the use of nature-identical steroids for growth promotion.

NUTRITION AND HEALTH

Glycobiology

Glycobiology, the study of complex carbohydrate molecules, and seen as an area with great potential, was recently established as a research area at Moorepark Food Research Centre. A joint research programme on milk oligosaccharides between MFRC and the University of California, Davis in the USA, global leaders in this area, was agreed. This will provide an opportunity for MFRC scientists to quickly establish expertise in milk oligosaccharides at Moorepark.

Health Promoting Beef

Short peptides, inactive within the sequence of the parent proteins become active when released during protein breakdown. Once released, these bioactive peptides have been shown to have activity against high blood pressure, antioxidant properties (potentially reducing cancer risk), antibacterial properties, as well as activity on the immune system and blood clot prevention.

Ashtown scientists are developing a protocol for the isolation and characterisation of bovine peptides/extracts. Three tissue types under consideration have been sampled and will act as the raw materials, from which the substrate proteins are being extracted.

PRODUCT QUALITY AND INNOVATION

Better Beef:

More than 1,000 consumers have tasted and scored beef samples for tenderness, juiciness, flavour and overall acceptability. These "Better Beef" consumer trials are being carried out to establish the applicability of the Meat Standards Australia (MSA) beef eating quality grading model to Irish beef and Irish consumers. Trials show that Irish consumers place more emphasis on flavour and less on tenderness compared to Australian consumers. The MSA model predicts the quality of individual cuts from each carcass based on a number of pre- and post- slaughter factors known to affect eating quality.



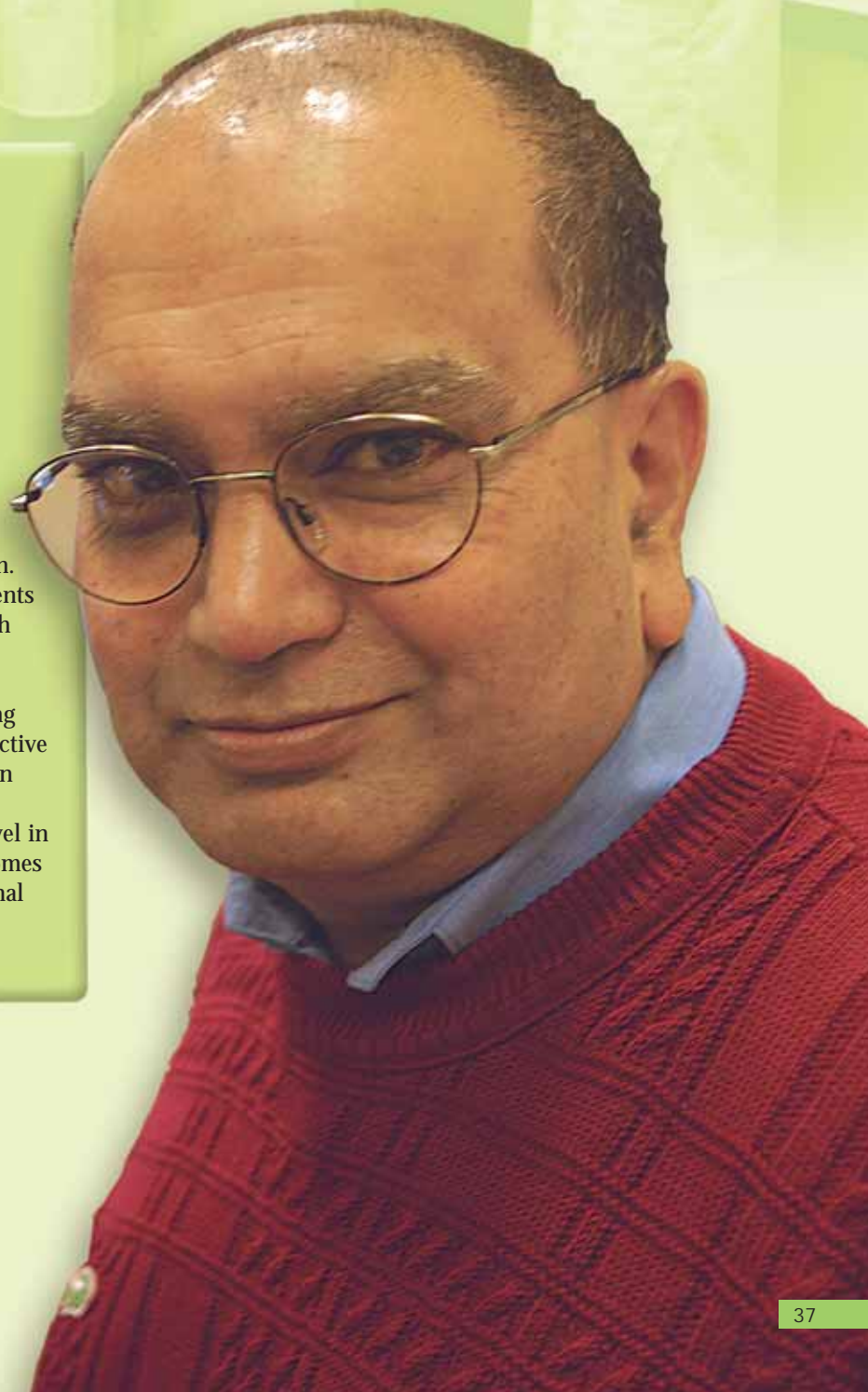
RAJ MEHRA

Background: Born in India, educated Nairobi, Kenya, Southampton, UK.

Joined Teagasc (AFT): 1985 as Research Officer in Moorepark Food Research Centre.

Current Job: Senior Research Officer MFRC. “My research programme focuses on the development of value-added whey ingredients based on protein and carbohydrate fractionation. The research has generated new whey components with unique functionality, nutritional and health promoting properties.

“The scientific expertise used to develop these components is based on new and emerging separation processes / technologies such as selective precipitation/centrifugation, membrane filtration and ion-exchange chromatography. The major findings have been translated to commercial level in the MTL pilot plant. The most successful outcomes have been exploited by national and international ingredient and infant formula companies.”





Engineering of High Quality Gluten-Free Cereal Products

Buckwheat, amaranth and quinoa are plants that do not belong to the grass family (like wheat) but still produce flours and seeds which can be used as a source of flour. These cereals, called pseudocereals, are naturally gluten-free, and are characterised by high protein, fibre and micronutrient contents. Their suitability as gluten-free bread ingredients was studied, as well as their nutritional contribution to the baked breads. An overall increase in the nutrient content of all pseudocereal breads was observed. In particular, the protein, fibre and magnesium levels were significantly increased.

New information on Irish Wheats:

Wheat varieties grown under the Department of Agriculture field trials are analysed annually under the testing program at AFRC. This work is now being underpinned with more rigorous science and has led to new fundamental information about these Irish varieties. Protein studies indicate which applications e.g. pizzas/biscuits/confectionary are most appropriate for individual varieties. All of the results have been correlated with baking tests, and some of the methods which were developed have now been adopted by industry. Development of reduced salt ready meals Using trained sensory panels at the AFRC have developed reformulated ethnic ready meals with sensory properties comparable to the conventional product but with substantially reduced salt levels. This has been achieved by using a range of salt replacers including potassium chloride, autolysed yeasts and amino acids resulting in a product with salt perception levels comparable to the control product.



Eating Quality of Irish Beef

A suite of DNA sequence variants have been tested in AFRC associations with meat quality traits of interest in Irish beef have been identified. Testing of multiple markers in 19 genes to date has resulted in the identification of five DNA markers with significant influence on intramuscular fat, tenderness and waterholding capacity in Irish crossbred beef populations. This is the first testing of these markers in Irish beef and show the potential for further testing in marker-assisted selection programmes.

Cheese Technology Platform

A concept called New Cheese Technology Platform has been developed by Moorepark researchers which taps into the potential of previous work undertaken on developing new protein-based ingredients. A new generation of ingredient cheeses should now be possible as further research pursues the combination of these innovative ingredients and process technology. The New Cheese Technology Platform concept is being protected by intellectual property and the draft patent is currently being finalized.

Animal Biotechnology

A DNA Bank has now been compiled for more than 5,000 animals to date. This will be an invaluable resource for Teagasc given the detailed phenotypic records on many of these animals. This biological bank will contribute to many future collaborative projects.





New Functional Food Initiatives

The Teagasc Food Research Directorate will lead the five-year Marine Functional Food Research Initiative (award €5.2m). This major initiative aims to exploit the natural bioactive components from marine sources for use as functional foods or ingredients. The Marine Functional Foods Research Initiative is a research programme funded by the Marine Institute and the Department of Agriculture, Fisheries and Food. The Consortium consists of Teagasc (Ashtown Food Research Centre (co-ordinator) and Moorepark Food Research Centre), University Colleges Cork and Dublin, NUI Galway, University of Limerick and the University of Ulster.

The Food Research Directorate will also play a major role in the Dairy Industry led Functional Food Research Centre funded by the industry and Enterprise Ireland (award €20m).



Building Capability in Food Research

The National Food Imaging Centre (NFIC), based at Moorepark Food Research Centre, is the first of its kind in Ireland and is now fully operational. It comprises a suite of imaging equipment including: a field emission cryo scanning electron microscope, a confocal scanning laser microscope, an atomic force microscope, various light microscopes and image analysis software. This equipment is available to support both the research community and the R&D activities of the Irish food industry.

Mary Coughlan, T.D., Minister for Agriculture, Fisheries and Food pictured at the official opening of the Teagasc Food Training Centre at Ashtown Food Research Centre with Declan Troy, Head of Centre, Ashtown and Tom Kirley, then Acting Director of Teagasc.



FOOD INDUSTRY TRAINING

75 courses were delivered to 1,209 participants from approximately 100 companies during 2007. Training courses are now primarily aimed at management level and attendees are typically regulatory inspectors and industry technologists and managers. Operator level training is now a very small component of training delivered with operative participant levels down from 40% in 2003 to less than 10% in 2007.

Training for agriculture officers in the Department of Agriculture, Fisheries and Food accounted for 17 courses and 334 participants.

We have been contracted by FÁS from 2002 to 2007 to develop and pilot a skills training programme for the beef, pork, sheep and lamb sector. This work has resulted in the development of a FETAC/FÁS National Skills Certificate for workers in the meat sector and is now being implemented by all the major meat processing companies.

Eight new training courses were delivered during the year as follows; Foods Standard Auditing, Microbiological Shelf Life of Foods, SME Training in BRC (specific modules), Feile Bia Standards Auditor Training, Duck Quality Assurance Standard, SME Production Management & Optimisation. Complete Guide to Product Development (AFRC/LFI). In addition a technical guide on interpretation of EC regulation on Microbiological Criteria in Food EC 2073/2007 is under preparation and will be used in training programmes on this topic.

An external evaluation of the Teagasc Food Training Programme was carried out by Circa Group Ireland Ltd. The report recommendations will form the basis of the coming year's business plan.





Goal 3

Sustainable Systems of Agriculture

AGRICULTURE RESEARCH

NUTRIENT EFFICIENCY

Nitrates Compliance

A user-friendly tool for performing the calculations required to comply with the Nitrates Directive (SI 378 of 2006) was developed by Teagasc Johnstown Castle with the Teagasc Advisory Service to help advisors and farmers.

Green House Gases/Climate Change/ Air Quality

In the light of new EU emission targets, i.e. 20% reduction of CO₂ emissions by 2020, agriculture will be under considerable pressure to reduce emissions which currently should be at 19.8 megatons CO₂ equivalent per year. Three new projects have been instigated by Johnstown Castle staff to meet this challenge. These include the use of nitrification inhibitors in pasture and tillage systems, the manipulation of animal diets to reduce urine nitrogen and novel delivery systems of these inhibitors. Research is also being conducted on the effects of land use change on total emissions, as well as assessing other abatement practices.

Carbon Sequestration

Carbon sequestration and carbon emissions are key elements of climate change. A trial was conducted in which the status of soil organic carbon in conventional tillage methods was compared to that in soils that were managed using non-inversion tillage

techniques. There was an increase in carbon pools in the soils which were subjected to non inversion tillage methods. This suggests that there is increased sequestration potential under these systems.

Ground Water Quality

This study, conducted in the Barrow Valley, compared the effect of two tillage systems (plough-based tillage and non inversion tillage) and two over-winter alternatives (no vegetative cover and a mustard cover crop) on soil solution NO₃ (nitrate) concentrations at 90 cm depth over two winter drainage seasons. Results from this study highlight the importance of drainage volume and winter temperatures on NO₃ concentrations in soil solution and the overall N load lost. It suggests that cover crops will be of particular value in reducing NO₃ loss in temperate regions with mild winters, where winter N mineralization is important and high winter temperatures favour a long growing season.

Lake Quality

In 2003 – 2005, just under 84% of Irish lakes were reported as having satisfactory water quality status (oligotrophic or mesotrophic). The remainder were classified as being unsatisfactory (eutrophic or hypertrophic). The growth of algal blooms indicates poor lake quality.





The use of barley straw to control algal blooms on shallow fresh water artificial lakes at Johnstown Castle was investigated.

The results showed that the presence of straw reduced the amount of algal bloom from 100% in 2006 to 35% in 2007. There was a corresponding improvement in dissolved oxygen. Turbidity was also improved. However, the reduction in algal bloom allowed the presence of pond weed to increase from 65% in 2006 to 90% in 2007. Thus, while the quality of the water was improved by the presence of the straw, there was a decline in the aesthetic appearance of the lake.

Agricultural Mini-Catchments

During 2007 the Department of Agriculture, Fisheries and Food (DAFF), in consultation with the Department of Environment, Heritage and Local Government approved the Teagasc proposal for an Operations Action Plan for an Agricultural Mini-Catchment Programme. Both departments consider the programme to be of vital importance in terms of the implementation of both the Nitrates and Water Framework Directives.

The programme, which is funded by DAFF will provide a comprehensive scientific and socio-economic evaluation of the measures as contained in the National Action Programme under the Nitrates Directive. During 2007 structures for the operation, management and reporting of the programme were put in place.

ANIMAL WELFARE

Teagasc, Grange Beef research centre, provided scientific advice to the Department of Agriculture, Fisheries and Food and the Beef Industry for the development of the suckler cow welfare and quality scheme. Scientific inputs were provided by researchers on castration (where appropriate), minimum calving age and appropriate weaning procedures including the introduction of meal feeding.

PLANT TECHNOLOGIES

Exploiting 'Omics' Technologies for Breeding Better Plants

One of the earliest successes of the breeding programme has been the development of genetic markers for resistance to potato cyst nematode (PCN) which are now being routinely used for Marker Assisted Selection in the potato breeding programme. Similar efforts are underway in the programme to develop markers to other diseases, such as late blight and viruses, and quality traits such as tuber dry matter content (which influences the texture of potatoes), and fry colour (an important characteristic in processing).

New Potato Varieties

Two new potato varieties were released in 2007. Romeo is a red skinned white fleshed high dry matter variety with excellent skin finish and uniformity. The variety is moderately resistant to late blight and has good resistance to black Scurf and gangrene.





The variety is aimed at fresh domestic and processing markets. Electra is yellow skinned table potato with a waxy texture suitable for the baker market. It has good resistance to potato blight, gangrene and Black Scurf. The variety is extremely high yielding and aimed at export markets

Risk Assessment of GM Plants

The risk assessment programme at Oak Park is currently focused on evaluating the potential impact of cultivating GM potato (modified for blight resistance) and GM oilseed rape (modified for herbicide tolerance) and what co-existence measures are required to ensure the genetic integrity of non-GM potato and oilseed rape crops.

In addition, blight-tolerant potato has been generated through the introduction of the Rb gene from the wild potato species *Solanum bulbocastanum*. Preliminary glasshouse tests have demonstrated the potential of this gene to restrict the development of Irish isolates of *P. infestans*.

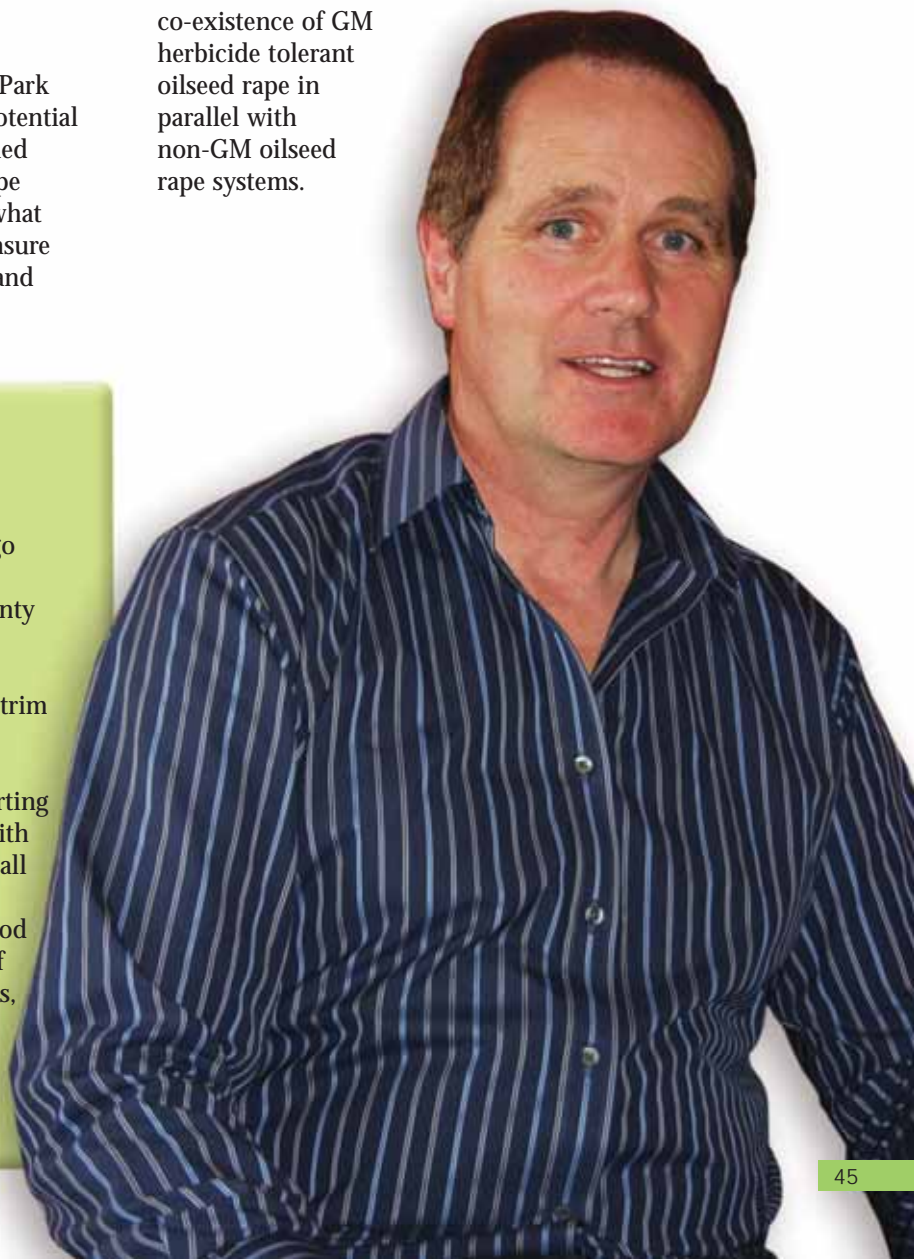
Research on oilseed rape is based on modelling the potential for gene flow from an herbicide tolerant winter oilseed rape site in both a temporal and spatial context. Employing the GeneSys™ modelling system, initial simulations indicated that novel management measures will be required to ensure the effective co-existence of GM herbicide tolerant oilseed rape in parallel with non-GM oilseed rape systems.

Ben Wilkinson

Background: A native of south Sligo Ben started work as an Agricultural Advisor in 1977 with the Sligo County Committee of Agriculture.

Current Job: REPS Mentor for the Sligo/Leitrim Area Management Unit.

“My duties as a REPS mentor involve supporting advisors and administration staff involved with REPS. This includes checking the quality of all REPS plans before they are submitted to the Department of Agriculture, Fisheries and Food organisation of REPS courses, distribution of files, forwarded planning of future workloads, and most importantly in-service training for staff. Providing a top notch service for clients is key.”





Organic Crop Production Systems

Some 35,000 ha of land are farmed organically in Ireland, representing 0.7% of agricultural land, compared with 9.7% in Austria. A total of 1,090 organic licenses are held by 978 producers. Organic farming here involves mainly livestock production. Approximately 750 ha of cereals are grown organically by 70 growers, but only 30 of those grow more than 10 ha, while some 30 growers produce organic potatoes. The organic retail market is valued at €66m. A project is ongoing at Oak Park to evaluate production systems designed to increase the yield and quality of cereal/protein crops grown in an organic rotation. The first full rotation of crops in the organic stockless rotation investigation at Oak Park was completed in 2007. The rotation comprised winter wheat, potatoes, oats, legume and spring barley followed by two years of fertility building using grass/clover. The mean crop yields recorded were: winter wheat 6.5 t/ha, winter oats 4.9 t/ha, spring barley 5.3 t/ha, lupins 2.5 t/ha and potatoes 32.7 t/ha.

Winter Cover Crops in Spring Barley.

Investigations into the effect of over winter covers on land destined for spring barley production indicated that natural regeneration could be as effective as a sown cover crop species (mustard) in terms of reducing nitrate loss. There was generally no beneficial effect of incorporating a cover crop on the yield of the succeeding barley crop indicating that use of a sown cover crop would be a net cost to Irish spring barley production systems

Imported Bumblebees

Due to their ease of use and ability to increase both quantity and quality of produce, sales in imported bumblebees for fruit and vegetable pollination are increasing, with ca. 1,350 colonies being imported into Ireland in 2007. The top five Irish fruit and vegetable crops have a farm-gate value of €35.7 m p.a., of which €11.5 m p.a. is due to bee pollination. A new study of the role and significance of the imported bumble bee commenced in 2007. The precise yield attributable to bumblebee pollination will be identified and the optimum density of bees calculated for Elsanta cv. strawberries. Ongoing assessment of the risks relating to imported bumblebees includes monitoring disease, hybridization and establishment of colonies in areas with a history of importation.



ADVISORY

REPS 4 was launched in October 2007 almost a year after the REPS 3 ended. In a major departure from previous REPS schemes intensive farmers could participate provided they applied for a nitrates derogation. This policy change has widened the scope of the scheme to include Teagasc Business and Technology clients. The indications to date suggest that 20-30% want to join REPS 4. This fits with the view that the requirements for commercial and sustainable farming are interconnected and progressive farming decisions should embrace both in a balanced and harmonious fashion.

Key Statistics

- Almost 40,000 of our clients availed of intensive environmental services.
- 24,300 Teagasc clients now participate in REPS, a slight decline on 2006 due to the closure of the scheme to new participants between October 2006 and October 2007.
- This level of participation still represents in excess of 50% of our clients.
- Teagasc completed applications for 24,400 applicants for the revised Farm Waste Management Scheme of which more than 10,500 were completed in the first six months of 2007 prior to the end of June deadline.
- Teagasc processed almost 7,000 applications under the new Farm Improvement Scheme prior to the closure of that scheme in October 2007.
- About 12,500 clients received specific services relating to fertiliser planning, formal nutrient management plans and the protection of natural heritage.
- 4,800 clients attended 160 REPS - 20 hour training courses.



FWMS & FIS

Providing support for the Farm Waste Management Scheme (FWMS) and the Farm Improvement Scheme (FIS) was a huge element of the environment programme activity in 2007. This was important work in the context of the requirements of the Nitrates and Water Framework Directives. The take up of these schemes exceeded all expectations. Teagasc completed a total of 24,400 applications for the revised Farm Waste Management since May 2006 of which 10,500 were completed in the first six months of 2007 prior to the end of June deadline. A further 7,000 applications were processed under the new Farm Improvement Scheme prior to the closure of that scheme in October 2007. Scheme applicants were provided with detailed advice on farmyard and building design, manure management and planning control. In addition, almost 1,000 nutrient management plans were prepared for clients to meet the requirements of agricultural bye-laws, local authority planning conditions and the Pollution Control Tax Break Scheme.

Regulatory Compliance

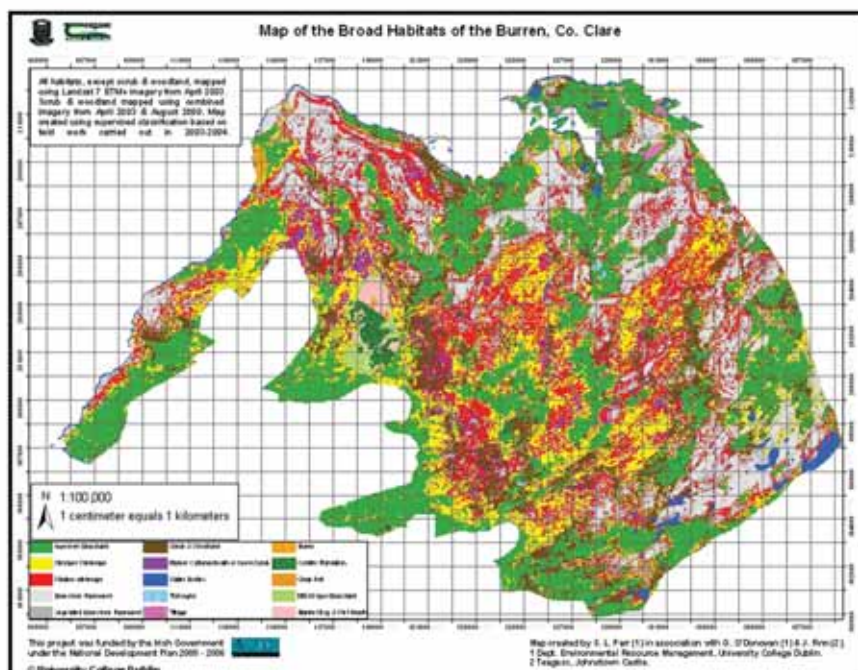
Cross compliance has implications for the great majority of farmers into the future. A major programme objective was to raise farmer awareness of the new environmental requirements and provide specific assistance. 120 advisors received training on these issues and provided advice at farm walks and other events across the country. This work will serve as a base for a more thorough programme planned for 2008. The dissemination of information on the fertiliser planning and recording aspect of the Nitrates Regulations received high priority. This involved a nationwide information campaign involving local group meetings and fertiliser clinics for clients. Nitrates fertiliser plans were prepared for up to 10,000 clients.

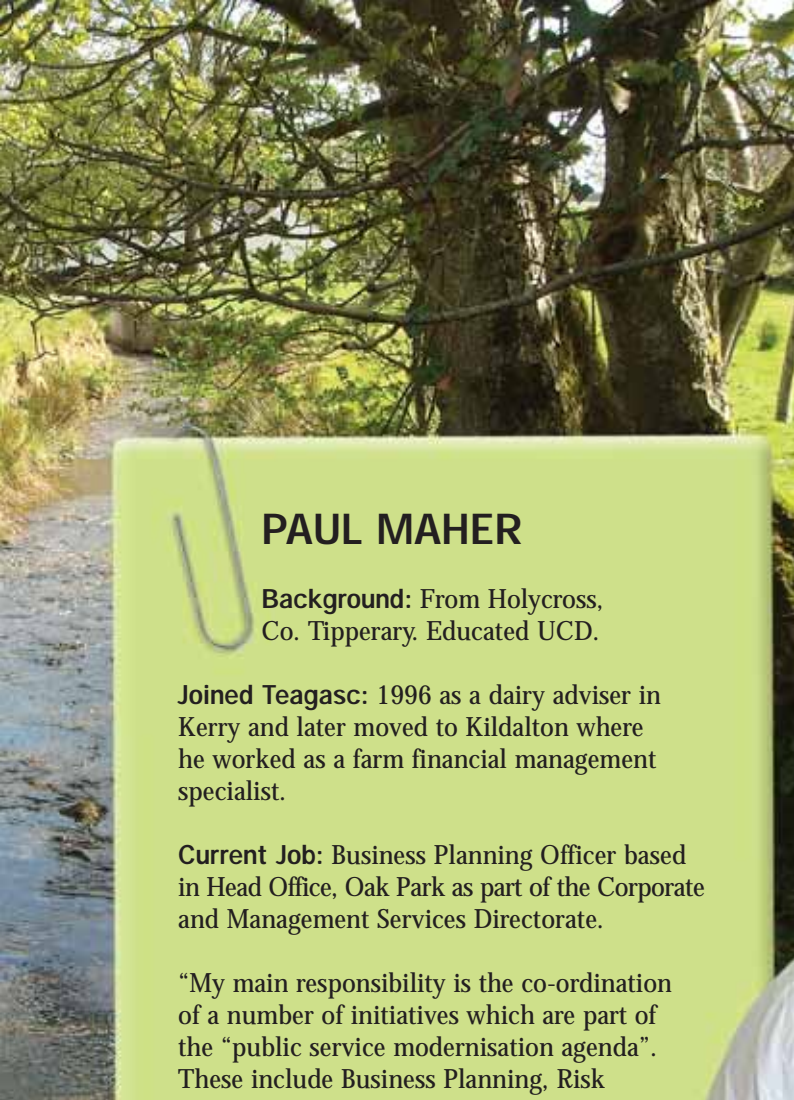
Countryside Management and Biodiversity

Teagasc supported the EU target of halting biodiversity loss by 2010 in its broadly based countryside management programme in 2007. The promotional work in support of the introduction of compulsory biodiversity options in REPS 4 demonstrates this in a practical way. 32 practical hedgerow planting and rejuvenation demonstrations were held nationally, covering every county. These events were attended by more than 5,000 mainly REPS farmers.



Teagasc has a major input as partner in the BurrenLIFE Project, 2007 was the third year of this major five-year environmental research and advisory project designed to map out alternative socio-economic models for sustainable farming in the Burren. Teagasc also provided its countryside management expertise to a wide range of governmental and non-governmental organisations.





PAUL MAHER

Background: From Holycross, Co. Tipperary. Educated UCD.

Joined Teagasc: 1996 as a dairy adviser in Kerry and later moved to Kildalton where he worked as a farm financial management specialist.

Current Job: Business Planning Officer based in Head Office, Oak Park as part of the Corporate and Management Services Directorate.

“My main responsibility is the co-ordination of a number of initiatives which are part of the “public service modernisation agenda”. These include Business Planning, Risk Management, Capital Appraisal and the Development of a Management Information Framework. I try to interpret these initiatives in a way that best suits Teagasc while ensuring that we are in line with government guidelines and industry best practice.”





Jim Lyons, Chairman,
Health & Safety Authority,
Padraig Walshe, IFA,
Billy Kelleher, T.D.,
Minister of State at the
Department of Enterprise, Trade
& Employment with special
responsibility for Labour affairs,
Tom Collins, Teagasc,
Dr. Juha Suutarinen of Agrifood
Research, Finland.



REPS Courses

About 4,800 clients attended over 160 REPS 20 hour training courses. The uptake of the REPS courses is considered to be of major importance. REPS courses have facilitated the knowledge transfer necessary to underpin the implementation of scheme measures at farm level. The annual Teagasc National REPS Conference was a major focal point for debate on REPS 4. The conference was held in November and was attended by 300 delegates.

HEALTH AND SAFETY

Teagasc and the Health and Safety Authority are engaged in a National Prevention Initiative to reduce the level of farm injuries and occupational ill health to the lowest level possible. The aims of the Initiative were to develop a Farm Safety Code of Practice, evaluate its use and assist farmers nationally to comply with its terms. The following progress was made in 2007: The Farm Safety Code of Practice was launched in January 2007 and was sent to all farmers nationally. This was accompanied by a national media campaign.

Teagasc supported the EU target of halting biodiversity loss by 2010 in its broadly based countryside management programme in 2007.

An evaluation of use of the code conducted by the Teagasc National Farm Survey (NFS) indicated that 42% of farmers completed it. Seventy three percent of those who used the code found it 'good' or 'excellent'. Further evaluations related to the provision of training and advice related to the Code also yielded positive results. The Code was profiled at major national farming events and a short half-day training course was made available to farmers in all counties.

A 40% reduction in the level of fatal farm accidents compared with the previous two years while a NFS survey indicated that farm accidents decreased by 31%. These data indicate that progress is being made nationally with farm safety.

The key achievements internally in H&S in Teagasc for 2007 were;

- The training courses provided to staff to incorporate of Risk Assessments into safety statements. This included the development of risk assessment templates. This was necessary to comply with the Safety, Health and Welfare at Work Act, 2005.
- The training of a Safety Officer for all Area Management Units. This completes the programme of training that ensures that a Safety Officer is available to every location manager, to support him in H&S issues.
- The conducting of a H&S audit of all laboratories by an outside consultant.
- Promotion of H&S in the farming media, at events and through the publication of advisory booklets.



Paul McCarthy, Teagasc, and Peter Young, IFJ with with Minister for Community, Rural, and Gaeltacht Affairs Éamon Ó'Cuív T.D., at the launch of '12 Steps to Success' at the Rural Tourism and Artisan Food Conference.



Goal 4

Rural Viability

ADVISORY

Rural Viability

In 2007, 1500 farmers participated in the Options Programme and 1150 received a Way Forward Action Plan. Approximately 60 percent of those farmers planned to change or improve their financial management and enterprise efficiency; two percent opted to develop a forestry enterprise while in excess of 30 percent will join REPS 4. Some ten percent of farmers expressed a strong interest in organic farming, six percent undertook to develop a specific supplementary farm enterprise and over 15 percent agreed to seek either full-time or part-time off-farm employment.

Business Planning

Over 120 families attended a total of five business start-up courses and 67 produced a business plan. Mentoring in starting up a business plan was provided as follow-on to the business course for those in the start-up phase.

Rural Innovation

The new Innovation Awards competition in conjunction with the Irish Farmers Journal

and JFC Manufacturing which was launched in 2006 announced the first winners in 2007. Over 70 different applications were received. All applicants received mentoring and 12 finalists were featured over a twelve week period. This competition, which covers the island of Ireland, offers a prize fund in excess of €30,000 equivalent which includes cash, advertising and mentoring. Teagasc produced a new booklet "The Twelve steps to starting your own Business" and over 5,000 copies were distributed nationally.

Organic Farming

In 2007, Teagasc increased its number of full time specialist advisory staff working in Organic production from one to four staff. Open Days were held on all 21 organic demonstration farms, representing cattle and sheep, dairying, tillage, and horticulture. In all, some 1,200 organic farmers or farmers interested in converting to organics attended these Open Days.

A very successful national organic conference was held in May which included international speakers. Over 200 people attended.





Rural Tourism and Artisan Food

During 2007, Teagasc expanded its activities in rural tourism and artisan food by appointing six advisers to work full time in these areas. A new Artisan food specialist adviser was also recruited. Five 25-hour courses were conducted for product providers attended by 125 participants and inputs were provided to many LEADER and County Enterprise teams. A very successful national rural tourism/food conference was held in October attended by over 250 people.

Sport Horse Production

The equine specialist team increased in number from two to four specialists during 2007. The team supports improvement in the quality of horses by promoting breeding programmes, improving management and husbandry of mares and young horses. The team delivered four regional seminars and ten 25-hour modules of training attended by over 1,200 farmers. A very successful national equine conference was held in October.


Deer Production

Nine deer discussion groups were supported during 2007. Approximately 200 deer farmers were supported in 2007; 25 completed the Options Programme and were supplied with Way Forward Plans.

Twenty-four farm visits were conducted and a very successful national conference was held in Dublin at Kildalton College. Two newsletters were supplied to producers and all venison producers are now registered in the Quality Assured Venison Scheme.

The team supports improvement in the quality of horses by promoting breeding programmes, improving management and husbandry of mares and young horses.





Sinéad Reilly

Background: Balbriggan, Co. Dublin. Educated Dublin.

Joined Teagasc (ACOT): Began in Mount Street as a school leaver in 1980.

Current Job: Admin Officer in the Education & Development Directorate with responsibility for managing the administration support service at national level in relation to the organisation's education and training programmes.

"I ensure that participants on further level courses and adult training programmes at colleges and local training centres are monitored from registration through to certification using the EMS & AMS computer programmes, also providing support for both systems. I also administer directorate payments which includes payments to private colleges, e.g. student maintenance grants, capitation grants, capital payments, staff training payments, etc."



NATIONAL FARM SURVEY

The 2006 National Farm Survey was completed and a report published in September 2007.

The national average Family Farm Income in 2006 declined by 25.7 % to €16,680 according to the National Farm Survey. This is down by €5,779 on the previous year, when direct subsidy payments were artificially high. Direct payments were down by €4,755 in 2006, but their importance to farmers' income actually increased and accounted for 98% of Family Farm Income. When the figures for the two years are combined, Family Farm Income increased by 7.2% from 2004 to 2006. The Survey conducted by the Teagasc Rural Economy Research Centre showed that on full time farms, the average Family Farm Income was €34,486, down by 15% on the previous year. Full time farms represent the more commercial sector and account for one third of the farms represented in the survey. Dairy farms account for 56% of full-time farms with tillage 8% and the remaining 36% in the drystock systems. Just one fifth of farms generate an income from farming greater than €25,000, while 12% of farms earned an income of over €40,000.

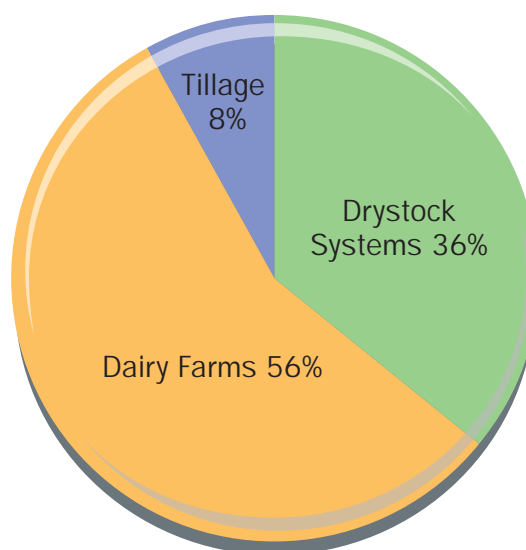
Free Range Poultry

A major initiative was undertaken in 2007 with the initiation of the first ever on-line free range poultry course through the TEAGASC eCollege. Some 15 students completed the course in 2007.

The poultry specialist provided enterprise development mentoring to 20 producers and work was carried out on the Bord Bia Quality Assurance Scheme. Information on Avian Flu was widely circulated.

Dairy Goat Production

Some 240 people attended a national conference on Dairy Goat Production in April. This conference attracted much media attention and conference proceedings were produced. A 25 law course was held at Fermoy attended by over 40 people and four farm walks were held attended by over 100 people. Some 50 farm visits were conducted.



Full-Time Farm Survey



Since subsidies were decoupled from production the focus is now on market based returns. Dairy and tillage are the only categories of farms which, on average, are generating a net farm income from the market place. On specialist dairy farms market income provided 48% of Family Farm Income in 2006 and 15% of FFI on specialist tillage farms. The average Family Farm Income for all part time farms was €7,899 in 2006 down from €11,372 in 2005.

Just under half of all farms surveyed were in the Rural Environment Protection Scheme and received REPS payment in 2006. These farms had a higher Family Farm Income than non REPS farms. In 2006 FFI on REPS farms was €17,713, 13% higher than the average income on non REPS farms. Over three quarters of the participants in this scheme were in the drystock sector. An interesting development was that income on specialist dairy farms participating in REPS was higher than on similar farms not in REPS.

The Good Farm Practice Programme

The Good Farm Practice Programme supports and develops commercially and environmentally sustainable systems of agriculture. Over half of Teagasc clients participate in REPS and Teagasc is committed to encouraging and supporting a further 10,000 clients to join REPS 4 in the period to 2013.

Sustainable farming poses a particular but not insurmountable challenge for commercial clients. We provide the best science and advice to reconcile the often conflicting demands of a competitive and profitable industry, and environmental regulation.

The Rural Development Programme delivers a specialised advisory service aimed at improving farm income through diversification and off-farm activity. Through this programme Teagasc provides training and advisory services to promote and sustain a broad range of enterprise development in rural areas. A team of specialist advisers provide start-up training for those establishing new enterprises and a continued training and advisory service for those who are already in business.

The Adult Training And Life Long Learning Programme meets the statutory and practical training requirements of adult Irish farmers. To meet this demand, Teagasc Advisory provides a comprehensive range of adult training programmes at local offices in each county. Courses cover a wide range of subject matter, from leading-edge technology and financial business training to forestry, environment management, food safety, animal welfare, occupational safety and equine management.



Goal 5

Operational Capabilities and Modernisation

CORPORATE AND MANAGEMENT SERVICES DIRECTORATE

RESEARCH SERVICES AND EVALUATION

Foresight

The Teagasc 2030 Foresight Project, which was launched in December 2006 is overseen by a Steering Committee, comprising national and international representatives from government institutions, industry and universities. The Steering Committee is being assisted in its work by a Foresight Panel, which is responsible for information gathering and analysis, scenario building, strategy development and reporting. This Panel comprises experts from within Teagasc and from a broad range of stakeholder organisations. A Foresight Secretariat, drawn from within Teagasc, provides overall project management. An external consultant provides ongoing advice and assistance in regard to foresight processes and methodologies.

During 2007, all of the key project milestones were met. The principal outcomes are five scenarios outlining different perspectives on the future agri-food sector and a Vision statement synthesising the key messages of the five scenarios. This Vision statement describes the 2030 agri-food sector and rural economy in terms of a Knowledge Based Bio-Economy. This view of the industry set the context for the development of the Teagasc response in terms of required organisational

vision, mission, objectives, strategies and structure.

Communication and consultation are critical features of a Foresight process, and during the year, the Foresight Team began a process of internal and external consultation to ensure full buy-in to the outcomes of the project. Plans were finalised for an international Foresight Conference in Dublin Castle on 30 May 2008 to formally launch the Foresight Report and provide further opportunity for stakeholders to respond.



Walsh Fellowships

The Walsh Fellowship Scheme provides grants to selected postgraduate students to work on projects relevant to the Teagasc Research Programme, while studying for a higher degree. These fellowships not only provide research training opportunities for young scientists, but facilitate liaison with third-level colleges, introduce new science into Teagasc and increase the organisation's research capacity.

In 2007 a total of 209 fellowships were funded, of which 39 commenced in 2007 and 170 were ongoing from previous years. 65 new Walsh Fellowship projects were approved by the Teagasc Authority during 2007. Plans were made for an on-line application system. A review process was introduced for the evaluation of student's annual progress reports.

A Walsh Fellowship Development committee was established to discuss the Walsh Fellowship action Plan derived from the Evaluation of the scheme and also to discuss new developments and issues in the postgraduate research field.

The 2007 Walsh Fellowship seminar was held during Science Week 2007 and Prof. Patrick Cunningham, Chief Science Advisor to the Irish Government attended as guest speaker.



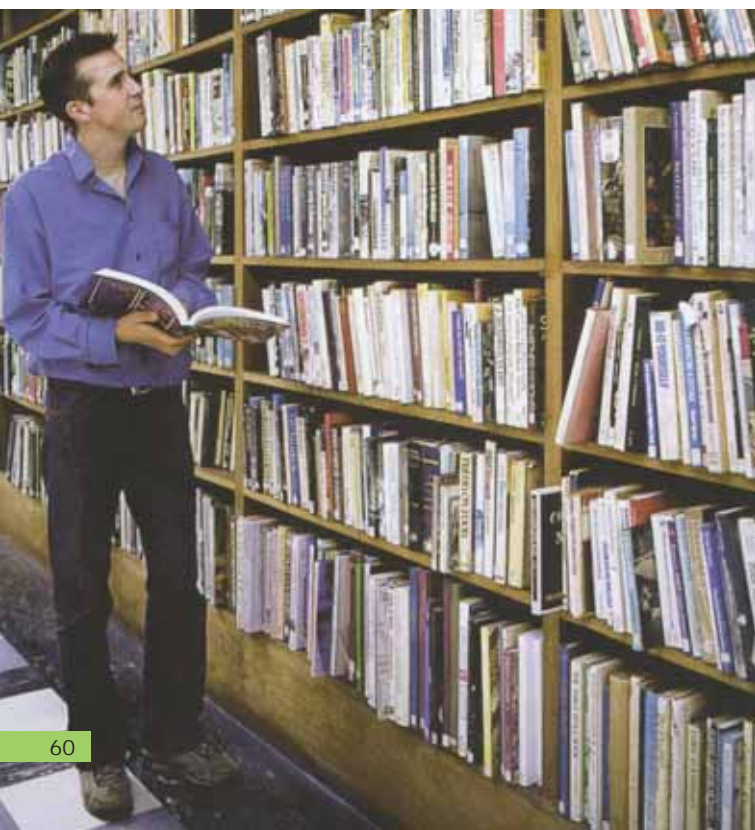
Intellectual Property

The first ever Teagasc "Policy and Procedures on Intellectual Property" was finalised and officially approved by the Authority in 2007, following a review by lawyers and is now available on TNet to all Teagasc employees. The IP Management Committee was established and their role in the development of the IP function clarified.

A Training programme was initiated with level 1 training in all research centres on the "basics of IP and intro to Teagasc IP Policy and Procedures" with high attendance levels and satisfaction levels overall.

A joint UCC-Teagasc initiative was established to facilitate the management of jointly owned IP from both institutes, and to facilitate and build on the existing excellent working relationship between both parties and a IP Commercialisation committee set up.

The implementation of the IP policy was highlighted through a number of invention reports received and patents in the food research area filed and maintained. Also a number of option/evaluation and license agreements are currently under negotiation with Irish Food industries.





Library and Information Services

The Library Service successfully transitioned the management of journal subscriptions to the Subscription Agency EBSCO Information Services. The Library Service also successfully implemented an Electronic Journals Service to provide staff with a single point of access to online full text scientific journal subscriptions. The Library Services Website was revamped and updated content was added to the site, as were links to the Electronic Journals Service, all other library services and useful websites. Training in the use of services, particularly searching techniques for scientific databases and optimum use of online services, were provided throughout the year.

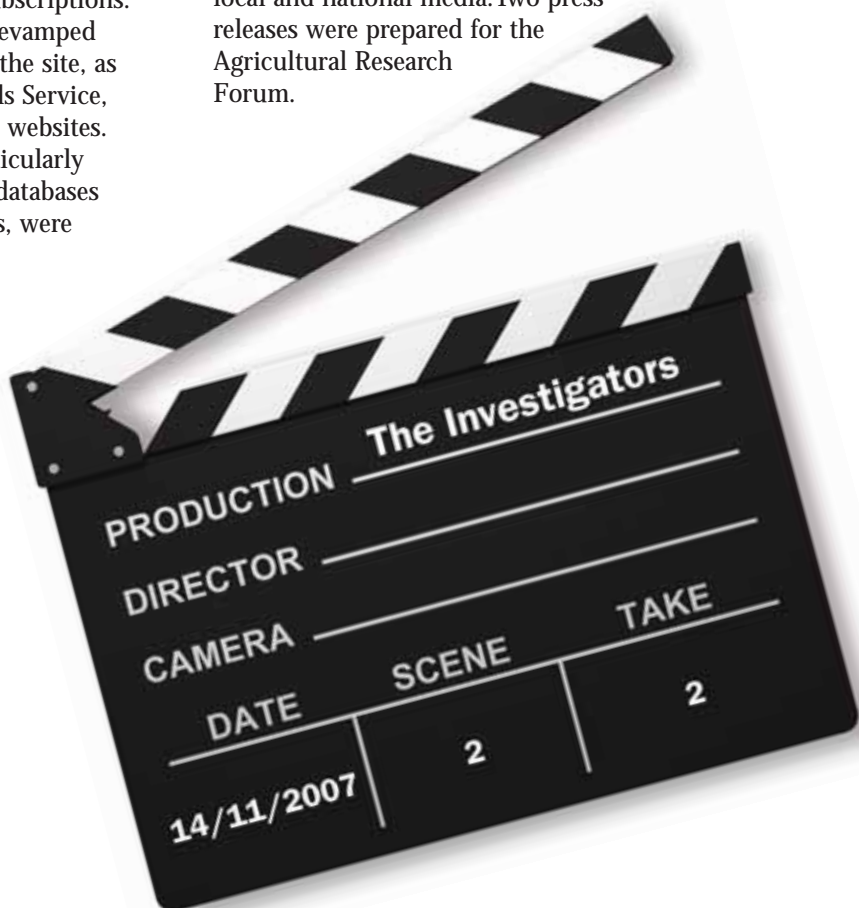
Science Writing / Editing

The mailing list of the popular science magazine, TResearch, was expanded and a press release for each issue was sent to local, national and international (via the AlphaGalileo news service) media. The magazine was made available freely online.

The Irish Journal of Agricultural and Food Research was placed online. Licensing agreements were initiated with EBSCO (digital ordering system for libraries/other subscribers to subscribe to the magazine) for both publications and JSTOR a scholarly journal archive - as part of a Queen's University of Belfast initiative 'A Digital Library of Core e-Resources on Ireland' for the Irish Journal of Agricultural and Food Research. Both these initiatives should expose the publications to a wider audience.

During Science week Grange, Athenry, Ashtown and Moorepark held Open Days for secondary school students. Oak Park held an Open Day for Carlow Institute of Technology students. The Walsh Fellowships seminar took place in the RDS. Two science week press releases were sent to local and national media.

Seven state agencies, including Teagasc, were involved in the production of a science TV show. Teagasc appeared in two out of six episodes, on climate change and functional foods, respectively. The Investigators show aired in the November - December period on RTÉ 1. One press release was sent to local and national media. Two press releases were prepared for the Agricultural Research Forum.





Evaluation Unit

In 2007, the Evaluation Unit completed six evaluation projects, five were completed internally and one externally. The internal reports included the completion of the evaluation of the National Farm Survey and the evaluation of the Certificate and Advanced Certificate in Horticulture. A short report on preparing Teagasc to manage crises effectively was completed and a peer review project plan and scoping document was completed in preparation for the series of peer reviews of all Teagasc Research Centres taking place in 2008 and 2009.

FGS Consulting carried out the evaluation of the Teagasc REPS service and consultants have been appointed to carry out the evaluation of the Teagasc ICT Strategy from 2002-2006, which will be completed in early 2008.

A number of activities by the Evaluation Unit this year have contributed to the development of an evaluation culture in Teagasc. At the beginning of the year a presentation was made to the Irish Evaluation Network outlining the role and establishment of the Teagasc Evaluation Unit, presentations were also made during the year to the Authority, advisory leadership team and new managers about the role and purpose of evaluation in Teagasc. An Evaluation Unit Handbook, outlining the policies and procedures for evaluation in Teagasc was developed and the evaluation unit website was revamped.

Ongoing projects included an evaluation of the effectiveness of the Teagasc Options Analysis Advisory Programme and a long-term project on the evaluation of the business and technology advisory programme got underway this year.



PROPERTY SERVICES

Property Services

2007 saw several long term projects come to fruition, the largest of which was the sale of land in Athenry to IDA and the compulsory purchase order of land in Athenry, Co Galway. These sales realised in excess of €40 million. Smaller capital projects at a range of locations throughout the country required total expenditure of €1.025 million.

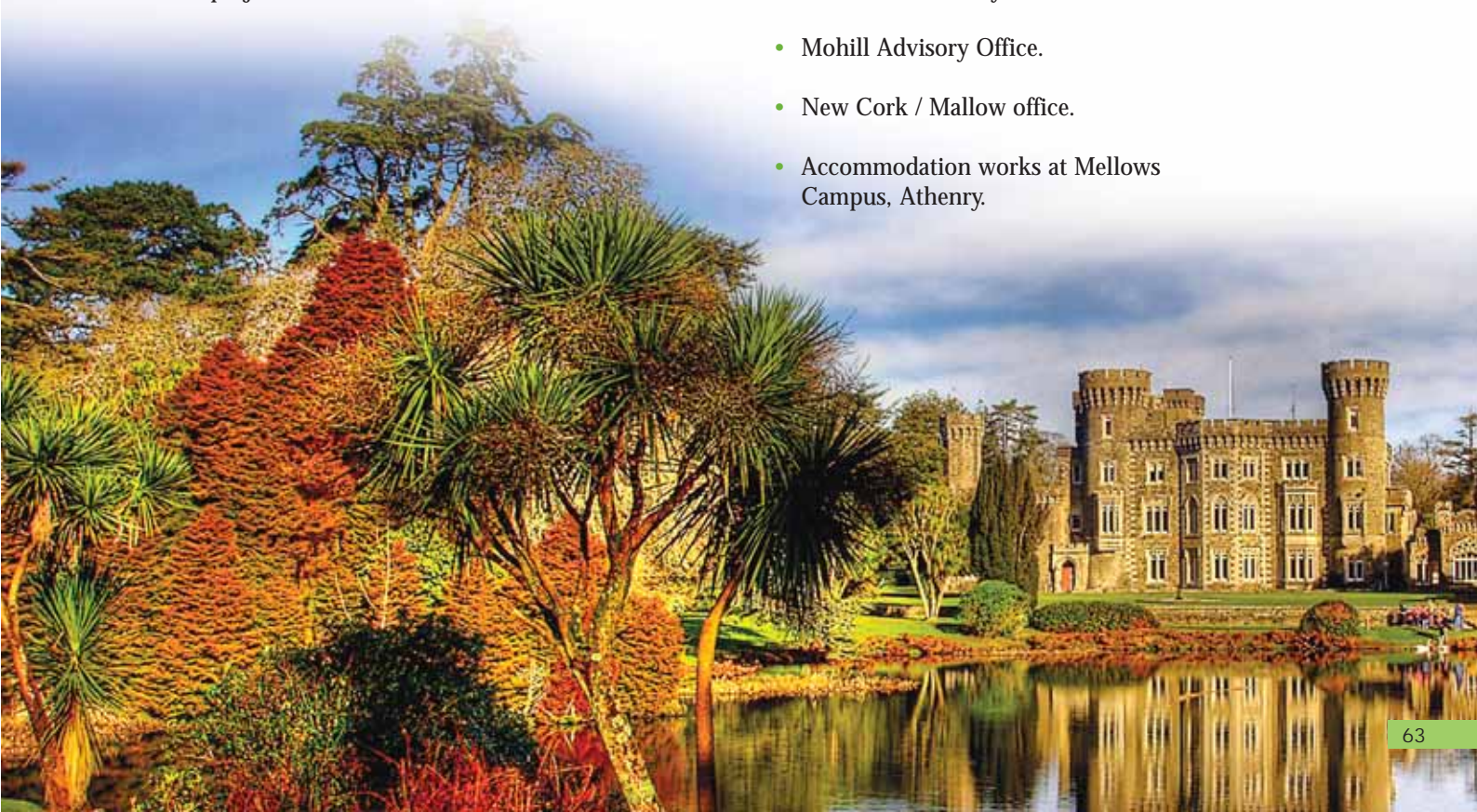
The Johnstown Castle Conservation Plan was finalised and brought to the Authority at their meeting in Johnstown Castle on 2 May 2007. Teagasc are working closely with the Department of Agriculture, Fisheries and Food and the Office of Public Works on introducing legislation to amend the existing Johnstown Castle legislation in order to widen the potential uses which the Castle may be put to in the future.

The Research Vision Programme was progressed in 2007 and development work was commenced on the projects identified in the Programme. Capital Project Guidelines were put in place in line with the Department of Finance guidelines and Steering Groups were established in relation to each of the projects.

The Code of Practice for the Governance of State Bodies outlines that systems and procedures should be continually reviewed and updated. An updated version of the Teagasc Procurement Regulations was drafted in conjunction with the Purchasing Group and Teagasc Finance department, to bring procedures in to line with current Department of Finance guidelines.

Teagasc has initiated a major capital development programme and a number of projects are either at the design/planning/tendering stages or have commenced construction. These large projects (> €750k) include:

- New Wing Oak Park House.
- Nutraceutical Laboratories at AFRC
- Laboratory Extension at Moorepark
- Building conversion at Mellows.
- Extension to the student facilities at Kildalton.
- Animal Bioscience Centre at Grange.
- Biofuels Laboratory at Oak Park.
- Mohill Advisory Office.
- New Cork / Mallow office.
- Accommodation works at Mellows Campus, Athenry.





In accordance with Teagasc procurement policy Building Officers adopted the e-Tender system in 2007 for advertising and selection of service providers (e.g. architects, consultant engineers, building contractors). In addition this year the Department of Finance have introduced new construction procurement regulations and the Building Officers are implementing these procedures on all new projects.

To ensure the effective management of works internal Teagasc Steering Committees for all large projects have been set up and are co-ordinated by the Building Officers.

In parallel with the Large Capital works the Building Officers provided specialist technical advice to assist budget holders in the management of the Teagasc property portfolio and to undertake the approved investment on the Small Capital Program implemented on a range of locations over the 82 Advisory locations, the seven Research Centres and the eight Third-Level Educational Facilities. Important initiatives to improve building accessibility (e.g. provision of wheelchair access ramps and toilet facilities) and energy efficiency (e.g. installation of a wood pellet boiler at Westport) have been undertaken. This programme of improvement will be expanded in future years.

Brendan Smith, T.D., then Minister of State at the Department of Agriculture, Fisheries and Food, at the Teagasc eCollege awards ceremony with lecturer Carmel Finlay, Alan Mooney who received a FETAC level 6 certificate in Farm Business and Lorcan O'Toole of Teagasc Kinsealy.





CHANGE MANAGEMENT

Quality Customer Service and Access

Quality Customer Service Actions are included in the business plans of all Teagasc business units address the twelve principles of customer service.

Teagasc continued to receive positive and constructive customer feedback in 2007 from a variety of forums – exit polls at major events, comment cards, focus groups and customer surveys.

In 2007 a telephone survey of 500 REPS clients and two focus groups with REPS clients was integrated into the overall evaluation of our REPS planning service.

Business Planning, Risk Management & Management Information Framework Development

The preparation of the “Teagasc Five Year Rolling Business Plan” (including Corporate Risk Register) and “Annual Teagasc Programme” were co-ordinated and submitted to the Department of Agriculture, Fisheries and Food as required. All internal business plans prepared for all directorates and management units were reviewed and assessed with senior managers.

Templates have been changed for 2008 and have been strengthened as follows:

- A new format that enables easier monthly review of the document.
- Simplification of the links between programmes and the Statement of Strategy.
- Improved clarity and consistency around work programme deliverables.
- Clear requirement to identify impact indicators for all programmes.

All Business Plans and Risk registers were stored on a shared folder on the network so that managers and other staff could have easy access to the documents. Training was provided for new managers in the preparation of business plans and the use of the new templates for both business planning and risk management. Mentoring was provided for all managers on the new templates as required. The timetable for the annual business cycle was brought forward and integrated with the annual reporting and PMDS cycles. Preliminary discussions around the area of Business Continuity Planning have also been advanced.



Minister of State at the Department of Agriculture, Fisheries and Food Mary Wallace, T.D., with Paul Dykes of SEI, Tom Kirley, Teagasc and Dr. Eugene Hendrick, COFORD.

ADMINISTRATION DIRECTORATE

Finance

Ongoing improvements in financial systems are essential in order to meet the more demanding standards required for accountability and good governance. Electronic payments now form the vast majority of our transactions with staff, suppliers and other customers, with less than 10% of our payments now being made by cheque.

A new payroll system was introduced in 2007 and now fully caters for the needs of over 1,600 staff and 1,400 pensioners. With the introduction of the new system all the associated business processes were updated and redefined as necessary.

Human Resources

Teagasc held 120 recruitment competitions in 2007 with over 2,000 applications and 122 positions were filled. The HR Strategy 2003-2007 was concluded during the year. Partnership is now embedded within Teagasc and, in addition to the National Partnership Committee, Directorate Partnerships have been established to deal with the change management issues within the major work areas of Teagasc and to improve communications. Recruitments are now based on the Competency Framework and an ICT platform is being developed to facilitate the operation of the framework.

Phase 1 of Core HR IT system was implemented which facilitates much better management of the staff establishment numbers. Two modules of an overall management development programme were delivered during the year – these modules dealt with Communications and People Management.

Information and Communications Technology (ICT)

The ICT Infrastructure Project which involved the replacement/updating of Teagasc's ICT infrastructure (PC's, servers, communications and security equipment) was completed in 2007 and Teagasc now has a modern centrally managed ICT infrastructure in place. Significant progress was made in the rollout of a modern Laboratory Information Management System and this will be completed in 2008. A consistent level of support is now available to all users from an externally sourced Service Desk facility. Progress is being made with the upgrading of the Teagasc website and with the introduction of a document management system, on a pilot basis initially. An external evaluation of the ICT Strategy 2002-2006 was initiated as well as an independent audit of ICT security.

Staff Training & Development

PMDS (Performance Management and Development System) is in operation throughout the organisation and over 1,100 staff had their training requirements referred from PMDS on to the staff training and development plan for the year. The number and range of training options have been extended and a total of 2,300 people participated in 300 different types of training courses/activities. The first "Return on Investment" evaluation of a Teagasc staff training programme was completed. A major review of the operation of PMDS in Teagasc was completed and PMDS is being enhanced in line with commitments arising from Towards 2016.

Internal Audit

The programme of Internal Audit is agreed annually by the Audit Committee as part of an overall three year audit plan. While the majority of audits are carried out by the Internal Auditor a number of audits are contracted out and in 2007 the areas contracted out were ICT security and the audit of a major research centre. The Internal Auditor contributes to the assessment of the effectiveness of the systems of internal financial control carried out each year by the Head of Finance.

Vanessa Bailey

Background: From Ballacolla, Co Laois.

Joined Teagasc: 2001 in Advisory Services Department in Head Office, Sandymount.

Current Job: Human Resources Services Officer

"My role is to provide HR administrative services to the organisation. This involves the management of internal and external recruitment competitions, the administration of HR services like promotions, transfers, increments, annual leave, and the operation of HR policies including career breaks, work sharing, maternity and parental leave schemes.

"As a member of the HR Department my customers are both internal and external. Internal customers include hiring managers, senior management, interview board members, administrative officers and all employees in the organisation. External customers include job applicants, personnel from the Departments of Agriculture, Fisheries and Food, and Finance, and external interview board members".





Below: Mary Coughlan, T.D., then Minister for Agriculture, Fisheries and Food pictured at the official opening of the Teagasc Food Training Centre at Ashtown Food Research Centre.



Freedom of Information

A total of thirteen requests were dealt with under the Freedom of Information Acts in 2007. The majority of these dealt with personal issues concerning the person making the request. Teagasc was notified that the remit of the Ombudsman's office is likely to be extended to cover the organisation in 2008.



Financial Statements

Year Ended 31ST December 2007



Financial Statements

Year Ended 31ST December 2007

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Report of the Comptroller & Auditor General

for Presentation to the Houses of the Oireachtas

I have audited the financial statements of Teagasc for the year ended 31 December 2007 under the Agriculture (Research, Training and Advice) Act, 1988. The financial statements, which have been prepared under the accounting policies set out therein, comprise the Accounting Policies, the Income and Expenditure Account, the Statement of Total Recognised Gains and Losses, the Balance Sheet, the Cash Flow Statement, and the related notes.

Respective Responsibilities of the Members of the Authority and the Comptroller and Auditor General

The Authority is responsible for preparing the financial statements in accordance with the Agriculture (Research, Training and Advice) Act, 1988, and for ensuring the regularity of transactions. The Authority prepares the financial statements in accordance with Generally Accepted Accounting Practice in Ireland. The accounting responsibilities of the Members of the Authority are set out in the Statement of Responsibilities of the Authority.

My responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements and International Standards on Auditing (UK and Ireland).

I report my opinion as to whether the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland. I also report whether in my opinion proper books of account have been kept. In addition, I state whether the financial statements are in agreement with the books of account.

I report any material instance where moneys have not been applied for the purposes intended or where the transactions do not conform to the authorities governing them.

I also report if I have not obtained all the information and explanations necessary for the purposes of my audit.

I review whether the Statement on Internal Financial Control reflects the Authority's compliance with the Code of Practice for the Governance of State Bodies and report any material instance where it does not do so, or if the statement is misleading or inconsistent with other information of which I am aware from my audit of the financial statements. I am not required to consider whether the Statement on Internal Financial Control covers all financial risks and controls, or to form an opinion on the effectiveness of the risk and control procedures.

I read other information contained in the Annual Report, and consider whether it is consistent with the audited financial statements. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements.

Basis of Audit Opinion

In the exercise of my function as Comptroller and Auditor General, I conducted my audit of the financial statements in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board and by reference to the special considerations which attach to State bodies in relation to their management and operation. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures and regularity of the financial transactions included in the financial statements. It also includes an assessment of the significant estimates and judgments made in the preparation of the financial statements, and of whether the accounting policies are appropriate to the Authority's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations that I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In my opinion, the financial statements give a true and fair view, in accordance with Generally Accepted Accounting Practice in Ireland, of the state of the Authority's affairs at 31 December 2007 and of its income and expenditure for the year then ended.

In my opinion, proper books of account have been kept by the Authority. The financial statements are in agreement with the books of account.

John Buckley

Comptroller and Auditor General

20 June 2008

Statement on Internal Financial Control

On behalf of the Authority of Teagasc I acknowledge our responsibility for ensuring that an effective system of internal financial control is maintained and operated.

Any system of internal financial control can provide only reasonable and not absolute assurance against material error, misstatement or loss. In considering the effectiveness of internal financial controls, the Authority and its Audit Committee have regard, among other things, to the requirements of the Code of Practice for the Governance of State Bodies.

The Authority has taken steps to ensure that an appropriate control environment is in place by:

- clearly defining management responsibilities, authority and accountability;
- establishing formal procedures for monitoring the activities and safeguarding the assets of Teagasc;
- developing a culture of accountability across all levels of the organisation.

The Authority has established procedures to identify business risks within Teagasc by:

- identifying the nature, extent and financial implication of risks facing Teagasc including the extent and categories which it regards as acceptable;
- assessing the likelihood of identified risks occurring;
- assessing Teagasc's ability to manage and mitigate the risks that do occur;
- assessing the costs of operating particular controls relative to the benefit obtained.

The system of internal financial control is based on a framework of regular management reporting, administration procedures including segregation of duties and a system of delegation and accountability including:

- a comprehensive annual budgeting and financial reporting system which is reviewed and approved by the Authority;
- regular reviews by the Authority of overall strategy, business and financial plans and variances against operating and capital budgets.

Teagasc has an internal audit function, which operates in accordance with the requirements of the Code of Practice for the Governance of State Bodies and with the effectiveness criteria set out in the Teagasc Statement of Strategy published in 2007. The work of internal audit is informed by analysis of the risks to which Teagasc is exposed and annual internal audit plans are based on this analysis. The internal audit plans are approved by the Audit Committee. In 2007 the Authority retained an external expert to advise the Audit Committee.

The Authority's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal auditor, the Audit Committee which oversees the work of the internal auditor, the executive managers within Teagasc responsible for the development and maintenance of the financial control framework and comments made by the Comptroller and Auditor General in his management letter.

I confirm that the Authority conducted a review of the effectiveness of the systems of internal financial control in 2007.

The detailed report on 'Review of Effectiveness of System of Internal Financial Control' was approved by the Audit Committee on 7 November 2007, with a summary of that report approved by the Authority at its meeting of 5 December 2007.

Dr Tom O'Dwyer
Chairman
11 June 2008

Statement of Responsibilities of the Authority

Under Section 12(1) of the Agriculture (Research, Training and Advice) Act, 1988, the Authority is required to prepare financial statements in such form as may be approved by the Minister for Agriculture, Fisheries and Food with the concurrence of the Minister for Finance. In preparing those financial statements, the Authority is required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable and prudent;
- prepare the financial statements on the going concern basis unless it is inappropriate to presume that Teagasc will continue in operation;
- disclose and explain any material departures from applicable accounting standards.

The Authority is responsible for keeping proper books of account which disclose with reasonable accuracy at any time the financial position of Teagasc and which enable it to ensure that the financial statements comply with statutory requirements. The books of account are kept at the Authority's headquarters at Oak Park, Carlow. The Authority is also responsible for safeguarding the assets of Teagasc and for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Dr Tom O'Dwyer
Chairman
11 June 2008

James Brett
Member of the Authority

Accounting Policies

The significant accounting policies adopted by Teagasc are as follows:

Basis of accounting

The Financial Statements have been prepared in accordance with the historical cost convention, subject to certain assets being included at a valuation (see below), and in a form approved by the Minister for Agriculture, Fisheries and Food with the consent of the Minister for Finance under the Agriculture (Research, Training and Advice) Act, 1988. The Financial Statements have been prepared using the accruals method of accounting except as stated below and in accordance with generally accepted accounting practices. Financial Reporting Standards recommended by the recognised accountancy bodies are adopted as they become applicable.

State funding

State funding for research in the Food sector and for the Stimulus collaborative research programme is accounted for on an accruals basis. All other State funding is accounted for on a cash receipts basis.

Research and other projects

Grants in respect of research and other projects are included as income in the year in which the related expenditure is incurred.

Tangible fixed assets and depreciation

Assets were taken over from An Chomhairle Oiliúna Talmhaíochta and An Foras Talúntais on 8 September 1988 at the closing values in the Balance Sheets of those bodies. Additions are stated at cost.

Land is not depreciated. The cost or valuation of other owned fixed assets is written off by equal instalments over their expected useful lives as follows:

Farm Buildings	20 years
Other Buildings	50 years
Plant and Vehicles	5 years
Computer Equipment	3 years
Laboratory and Office Equipment	10 years

Assets held under finance leases are depreciated over the lease term, where this is shorter than their expected useful lives.

A half year's depreciation is charged in the years of acquisition and disposal of assets.

Leases

Fixed assets acquired under finance leases are treated in accordance with the policy noted above under fixed assets. The capital element of related rental obligations is included under liabilities, while the interest element is charged to expenditure over the term of the primary lease period.

Rentals on operating leases are charged to expenditure as incurred.

Capital account

The balance on this account represents the unamortised value of funds used to purchase fixed assets.

Stocks

Stocks have been valued by Teagasc officials. Livestock and own farm produce are valued at estimated net realisable value. Net realisable value is determined on the basis that animals are sold for slaughter. Gains and losses, which arise from these valuations, are reflected in full in operational income. All other stocks are valued at the lower of cost and net realisable value.

Debtors

Known bad debts are written off as they arise and specific provision is made where recovery is considered doubtful.

Accounting Policies

Pensions

Teagasc operates defined benefit pension schemes which are funded annually on a pay as you go basis from monies available to it, including monies provided by the Department of Agriculture, Fisheries and Food, and from contributions deducted from staff salaries.

Pension costs reflect pension benefits earned by employees in the period and are shown net of staff pension contributions which are retained by Teagasc. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Total Recognised Gains and Losses and a corresponding adjustment is recognised in the amount recoverable from the Department of Agriculture, Fisheries and Food.

Pension liabilities represent the present value of future pension payments earned by staff to date. Deferred pension funding represents the corresponding asset to be recovered in future periods from the Department of Agriculture, Fisheries and Food.

Moorepark Technology Limited

Moorepark Technology Limited is a joint venture between Teagasc and various agriculture co-operatives. Teagasc has a 57% holding in the paid up share capital of the company. Separate audited financial statements have been prepared in respect of Moorepark Technology Limited. It was not considered appropriate to consolidate the results of the company (Note 14).

Foreign currency

Transactions denominated in foreign currencies are translated into Euro and recorded at the rates of exchange ruling at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated into Euro at the rates of exchange ruling at the balance sheet date.

Income and Expenditure Account

Year ended 31 December 2007

	Notes	31 December 2007 €'000	31 December 2006 €'000
Income			
State funding	2	149,802	138,228
EU funding	3	1,361	1,314
Operational income	4	30,413	30,610
Deferred funding for pensions	9	26,162	18,593
Surplus on disposal of fixed assets	24	36,878	329
Other grants, donations and voluntary levies		3,320	1,898
		247,936	190,972
Expenditure			
	5	205,106	187,917
		42,830	3,055
Transfer to Capital Account	12	(3,594)	(191)
Transfer to Exchequer	24	(9,400)	0
Surplus for the financial year		29,836	2,864
Balance at beginning of year		1,201	(1,663)
Balance at end of year		31,037	1,201

Statement of Total Recognised Gains and Losses

	Notes	31 December 2007 €'000	31 December 2006 €'000
Surplus for the financial year		29,836	2,864
Experience losses on pension scheme liabilities	9	(17,031)	(26,362)
Changes in assumptions underlying the present value of pension liabilities	9	169,389	14,999
Actuarial gain/(loss) on pension liabilities		152,358	(11,363)
Deferred pension funding		(152,358)	11,363
Total Recognised Gain for the year		29,836	2,864

The above amounts relate entirely to continuing operations. The Statement of Accounting Policies and notes 1 to 26 form part of these Financial Statements.

Dr. Tom O'Dwyer
Chairman

Professor Gerry Boyle
Director

Balance Sheet

Year ended 31 December 2007

	Notes	31 December 2007 €'000	31 December 2006 €'000
Fixed assets			
Tangible assets	13	83,402	79,812
Financial assets	14	2	2
		83,404	79,814
Current assets			
Stocks	16	5,145	4,964
Debtors	17	7,603	5,219
Bank balances		41,992	8,952
Short term deposits		677	1,314
		55,417	20,449
Creditors - Amounts falling due within one year			
Creditors and accruals	18	15,294	14,874
Deferred income	19	9,088	4,370
Obligations under finance leases	20	0	0
		24,382	19,244
Net current assets		31,035	1,205
Total assets less current liabilities before pensions		114,439	81,019
Deferred pension funding	9	835,898	962,094
Pension liabilities	9	(835,898)	(962,094)
		0	0
Total assets less current liabilities		114,439	81,019
Less			
Creditors - Amounts falling due after more than one year			
Obligations under finance leases	20	0	0
Other long-term liabilities		0	10
		0	10
Net assets		114,439	81,009
Represented by			
Capital account	12	83,402	79,808
Income and Expenditure account		31,037	1,201
		114,439	81,009

The Statement of Accounting Policies and notes 1 to 26 form part of these Financial Statements.

Dr. Tom O'Dwyer
Chairman

Professor Gerry Boyle
Director

Cash Flow Statement

Year ended 31 December 2007

		31 December	31 December
		2007	2006
	Notes	€'000	€'000
Reconciliation of operating surplus to net cash inflow from operating activities			
Operating surplus		29,836	2,864
Depreciation	13	6,748	6,578
Transfer to capital account	12	3,594	191
Interest received		(839)	(256)
Profit on sale of fixed assets		(36,878)	(329)
(Increase) in stocks		(181)	(489)
(Increase) / Decrease in debtors		(2,383)	3,143
Increase / (Decrease) in creditors and long term liabilities		413	(1,871)
Increase in deferred income		4,718	3,483
		<u>5,028</u>	<u>13,314</u>
Net cash inflow from operating activities		<u>5,028</u>	<u>13,314</u>

Cash Flow Statement

Net cash inflow from operating activities		<u>5,028</u>	<u>13,314</u>
Return on investment and servicing of finance			
Interest received		<u>839</u>	<u>256</u>
Net cash inflow from returns on investment and servicing of finance		<u>839</u>	<u>256</u>
Investing activities			
Payments to acquire tangible fixed assets	13	<u>(10,586)</u>	(6,986)
Receipts from disposals of tangible fixed assets		<u>37,126</u>	552
Net cash outflow from investing activities		<u>26,540</u>	<u>(6,434)</u>
Financing			
Property loan repayments		<u>(4)</u>	(2)
Capital element of finance lease payments	20	<u>0</u>	(4)
Net cash outflow from financing		<u>(4)</u>	<u>(6)</u>
Increase in cash	23	<u>32,403</u>	<u>7,130</u>
Reconciliation of net cashflow to movement in net funds			
Increase in cash	23	<u>32,403</u>	7,130
Net funds at 1 January		<u>10,266</u>	<u>3,136</u>
Net funds at 31 December		<u>42,669</u>	<u>10,266</u>

The Statement of Accounting Policies and notes 1 to 26 form part of these Financial Statements.

Dr. Tom O'Dwyer
Chairman

Professor Gerry Boyle
Director

Notes to the Financial Statements

1 Teagasc (the Agriculture and Food Development Authority)

Teagasc (the Agriculture and Food Development Authority) was established under the Agriculture (Research, Training and Advice) Act, 1988. Under Section 21 of the Act, the assets and liabilities of An Chomhairle Oiliúna Talmhaíochta and An Foras Talúntais were transferred to Teagasc upon its establishment.

Section 12 of the Act requires that Accounts shall be kept in such form as may be approved by the Minister for Agriculture, Fisheries and Food with the concurrence of the Minister for Finance. This approval was given on 14 August 1998.

2 State funding	2007	2006
	€'000	€'000
The amount shown under this heading comprises:		
Vote 31: Agriculture, Fisheries and Food		
Grant-in-aid for general expenses (including Grant for capital purposes, €5m 2006 - €5m)	102,509	100,299
Grant-in-aid for superannuation purposes	25,541	21,719
Grant-in-aid for human resource purposes	12,400	12,010
Grant-in-aid for food research	6,442	3,156
Grant for Stimulus collaborative research programme	2,080	300
Grant for forestry publicity and awareness	795	574
Grant for forestry training	35	170
	149,802	138,228
	<hr/>	<hr/>
	2007	2006
	€'000	€'000
Framework Programme V	233	571
Framework Programme VI	1,128	743
	<hr/>	<hr/>
	1,361	1,314
	<hr/>	<hr/>

Framework Programmes have been the main financial tools through which the European Union supports research and development activities covering almost all scientific disciplines. Framework Programmes cover a period of five years with the last year of one Framework Programme and the first year of the following Framework Programme overlapping. Framework Programme VI ran up to the end of 2006. Framework Programme VII started on 1 January 2007 and runs to the end of 2013.

Teagasc carries out EU funded research through the Framework Programmes. Grants in respect of such research are taken into account as income when the corresponding expenditure has been incurred.

Notes to the Financial Statements - continued

4 Operational income

	Authority, Headquarters and National €'000	Advisory Service €'000	Training and Development €'000	Agricultural Production Research €'000	Food Research €'000	2007 €'000	2006 €'000
Advisory service fees	0	15,268	1	0	0	15,269	17,464
Other fees	13	1,400	1,471	2,311	2,292	7,487	7,010
Livestock trading (Note 7)	0	0	1,062	1,479	0	2,541	2,744
Other farming operations	0	0	709	1,941	11	2,661	2,123
Canteen receipts	0	0	158	173	49	380	413
Publications and miscellaneous	1,240	104	491	132	108	2,075	856
	<u>1,253</u>	<u>16,772</u>	<u>3,892</u>	<u>6,036</u>	<u>2,460</u>	<u>30,413</u>	<u>30,610</u>

5 Expenditure

	Authority, Headquarters and National €'000	Advisory Service €'000	Training and Development €'000	Agricultural Production Research €'000	Food Research €'000	2007 €'000	2006 €'000
Pay (Note 8)	5,396	38,442	13,175	22,618	10,824	90,455	87,023
Pensions (Note 9)	57,631	0	0	0	0	57,631	50,632
Travelling and subsistence	812	3,996	911	1,340	558	7,617	7,027
General operating expenses (Note 6)	7,828	5,271	5,103	9,560	5,953	33,715	29,750
Interest and lease charges	18	0	0	0	0	18	19
Depreciation (Note 13)	873	810	920	2,549	1,596	6,748	6,578
Grants to private colleges (Note 15)	0	0	4,697	0	0	4,697	4,434
Other grants	68	15	634	2,040	1,468	4,225	2,454
	<u>72,626</u>	<u>48,534</u>	<u>25,440</u>	<u>38,107</u>	<u>20,399</u>	<u>205,106</u>	<u>187,917</u>

Notes to the Financial Statements - continued

6 Analysis of general operating expenses

	Authority, Headquarters and National	Advisory Service	Training and Development	Agricultural Production Research	Food Research	2007 €'000	2006 €'000
Farming supplies / services	0	33	1,165	1,880	9	3,087	3,003
Maintenance / repairs	389	1,073	1,445	1,952	1,516	6,375	5,389
Rents / rates / insurances	22	645	397	826	480	2,370	2,322
Postage / telephones	668	1,215	182	224	128	2,417	2,524
Power / fuel / petrol	77	339	481	877	411	2,185	2,307
Laboratory supplies	621	2	26	1,790	1,648	4,087	4,031
Printing / stationery / publicity	1,894	967	378	297	232	3,768	3,023
Seminar / classroom / library supplies	170	323	215	160	383	1,251	1,086
Services of external agencies	0	254	6	162	32	454	453
Student and staff canteen supplies	0	1	403	165	99	668	699
ICT supplies / services	2,817	195	38	62	57	3,169	2,208
Legal / professional fees (Note 10)	1,160	59	110	476	148	1,953	1,103
Miscellaneous programme costs	2	46	235	661	793	1,737	1,404
Miscellaneous	8	119	22	28	17	194	198
	<u>7,828</u>	<u>5,271</u>	<u>5,103</u>	<u>9,560</u>	<u>5,953</u>	<u>33,715</u>	<u>29,750</u>

Notes to the Financial Statements - continued

7 Livestock trading surplus	2007	2006
	€'000	€'000
Sales	2,675	2,677
Grants and subsidies	699	559
	<hr/>	<hr/>
Total livestock trading revenue	3,374	3,236
	<hr/>	<hr/>
Opening stock	4,167	3,666
Purchases	853	993
	<hr/>	<hr/>
	5,020	4,659
Less: Closing stock	(4,187)	(4,167)
	<hr/>	<hr/>
Total cost of livestock sales	833	492
	<hr/>	<hr/>
Surplus to Income and Expenditure account (Note 4)	2,541	2,744
	<hr/>	<hr/>
 8 Staff	 2007	 2006
The average number of staff employed during the year was as follows:		
Professional	796	790
Technical	210	208
Administrative/clerical	288	290
Farm/domestic	302	310
	<hr/>	<hr/>
	1,596	1,598
	<hr/>	<hr/>

9 Superannuation

Section 9 of the Agriculture (Research, Training and Advice) Act, 1988 provides for the establishment of schemes for the granting of superannuation benefits in respect of staff appointed by Teagasc and staff transferred to Teagasc from An Chomhairle Oiliúna Talmhaíochta and from An Foras Talúntais.

Pending the approval of draft superannuation schemes by the Minister for Agriculture, Fisheries and Food, the Minister for Finance and the Oireachtas, Teagasc operates superannuation schemes on an administrative basis.

Teagasc also administers two superannuation schemes (the Agricultural Colleges Staff Superannuation Scheme 1985 and the Agricultural Colleges Spouses' and Children's Contributory Pension Scheme 1985) in respect of certain staff employed by privately-owned Colleges of Agriculture and Horticulture, the cost of whose salaries is borne by the Exchequer through the agency of Teagasc.

The above schemes are defined benefit superannuation schemes. No separate fund is maintained, and no assets are held, to finance the payment of pensions and gratuities. The actuarial estimate of future liabilities accruing in regard to future benefits is shown on the Balance Sheet.

Superannuation costs

The average number of monthly pensions paid during the year was 1,425 (2006 – 1,382).

Superannuation benefits

The valuation used for FRS17 disclosures has been based on an actuarial valuation by a qualified independent actuary to take account of the requirements of FRS17 in order to assess the scheme liabilities at 31 December 2007.

Notes to the Financial Statements - continued

The financial assumptions used to calculate liabilities under FRS17 are as follows:

	2007	2006
	% per annum	% per annum
Inflation rate increase	2.50	2.25
Salary rate increase	4.00	3.50
Pension rate increase	3.50	3.50
Scheme liabilities discount rate	5.50	4.60

On the basis of these and other assumptions and applying the projected unit method prescribed in FRS17, the present value of pension scheme liabilities is as follows:

	2007	2006
	€'000	€'000
Accumulated liabilities in respect of active scheme members	344,604	405,492
Liabilities in respect of existing pensioners and deferred pensions	491,294	556,602
Total accrued pension liability	<u>835,898</u>	<u>962,094</u>
Net deferred funding for pensions in the year		
	2007	2006
	€'000	€'000
Funding recoverable in respect of current years pensions	62,259	54,994
Resources applied to pay pensions	(36,097)	(36,401)
	<u>26,162</u>	<u>18,593</u>
Analysis of total pension costs charged to income and expenditure account		
	2007	2006
	€'000	€'000
Current service cost	18,410	17,017
Interest on scheme liabilities	43,849	37,977
Staff contributions	(4,628)	(4,362)
	<u>57,631</u>	<u>50,632</u>
Movement in net pension liability during the financial year		
	2007	2006
	€'000	€'000
Net pension liability at 1 January	962,094	932,138
Current service cost	18,410	17,017
Benefits paid	(36,097)	(36,401)
Interest on scheme liabilities	43,849	37,977
Actuarial (gain)/loss	(152,358)	11,363
Net pension liability at 31 December	<u>835,898</u>	<u>962,094</u>

Notes to the Financial Statements - continued

Analysis of the history of experience gains and losses	2007 €'000	2006 €'000	2005 €'000
Experience gains and losses	(17,031)	(26,362)	(24,203)
Percentage of present value of scheme liabilities	2.0%	2.7%	2.6%
Changes in Assumptions	169,389	14,999	(138,630)
Percentage of present value of scheme liabilities	20.3%	2.6%	14.9%
Actuarial gain/(loss) recognised in the STRGL	152,358	(11,363)	(162,833)

Deferred funding asset for pensions

Teagasc recognises as an asset an amount corresponding to the unfunded deferred liability for pensions on the basis of the set of assumptions described above and a number of past events. These events include the statutory basis for the establishment of the superannuation schemes, and the policy and practice currently in place in relation to funding public service pensions including contributions by employees and the annual estimates process. While there is no formal agreement regarding these specific amounts with the Department of Agriculture, Fisheries and Food, Teagasc has no evidence that this funding policy will not continue to meet such sums in accordance with current practice. The deferred funding asset for pensions as at 31 December 2007 was €836 million (2006 - €962 million).

10 Audit fee

A provision of €50,500 has been included in expenditure in respect of auditor's remuneration for 2007 (2006 - €49,500).

11 Authority fees and emoluments

The following emoluments were paid to members of the Authority:	2007 €'000	2006 €'000
Chairman	24	25
Other Authority members	124	131
	148	156

These amounts are included in the total pay expenditure included under Note 5 above.

12 Capital account

	2007 €'000	2006 €'000
Balance at 1 January	79,808	79,617
Transfers from income and expenditure account		
Amount capitalised in respect of purchased assets	10,586	6,986
Net amount released on disposals	(248)	(223)
Property loan repayments	4	2
Capital element of payments in respect of leased assets	0	4
	10,342	6,769
Less: Amortised in line with asset depreciation	(6,748)	(6,578)
	3,594	191
Balance at 31 December	83,402	79,808

Notes to the Financial Statements - continued

13 Tangible fixed assets

	Land	Buildings	Plant & equipment	Total
	€'000	€'000	€'000	€'000
Cost or valuation				
At beginning of year	5,810	84,460	54,976	145,246
Additions	0	2,537	8,049	10,586
Disposals	0	0	(870)	(870)
At end of year	<u>5,810</u>	<u>86,997</u>	<u>62,155</u>	<u>154,962</u>
Accumulated depreciation				
At beginning of year	0	28,050	37,384	65,434
Charge for year	0	2,057	4,691	6,748
Disposals	0	0	(622)	(622)
At end of year	<u>0</u>	<u>30,107</u>	<u>41,453</u>	<u>71,560</u>
Net book amounts				
At beginning of year	<u>5,810</u>	<u>56,410</u>	<u>17,592</u>	<u>79,812</u>
At end of year	<u>5,810</u>	<u>56,890</u>	<u>20,702</u>	<u>83,402</u>

Included in the opening balances is land totalling 522.8 ha (1,291.3 acres) transferred by the Department of Agriculture, Fisheries and Food at nominal values, and certain other assets which were revalued at 31 December 1975 or 1 July 1980. Land totalling 89.5ha (221 acres), transferred from the Department of Agriculture, Fisheries and Food, was disposed of by Teagasc in 2007.

Teagasc has the use of 38.0 ha (94 acres) of land owned by the Department of Agriculture, Fisheries and Food, while the Department has the use of 27.1 ha (67 acres) owned by Teagasc. There is no charge to either party arising from these arrangements.

Certain fixed assets entrusted to Teagasc are protected by statute, and may not be sold.

14 Financial assets

Teagasc has a 57% holding in the paid up share capital of Moorepark Technology Limited (5,100 shares at €0.127). The Company, which was incorporated on 18 January 1991, is a joint venture between Teagasc and various agriculture co-operatives.

Separate audited financial statements have been prepared in respect of the Company and its results for the year ended 31 December 2007 were as follows:

	2007	2006
	€'000	€'000
Turnover	<u>1,184</u>	<u>1,204</u>
Operating profit before depreciation, interest and tax	199	220
Depreciation (net of grants amortised)	(199)	(182)
Interest receipts	6	8
Tax	0	0
Profit after taxation	<u>6</u>	<u>46</u>
Accumulated profits to 31 December	<u>27</u>	<u>21</u>

Notes to the Financial Statements - continued

The Company's Memorandum of Association provides that shareholders are entitled to avail of the Company's services at preferential rates.

The 2006 comparative figures have been adjusted from those shown in the published financial statements for that year due to a reclassification of insurance compensation funds in excess of expenditure.

Trading transactions between Teagasc and Moorepark Technology Limited (which consists of consultancy, analyses and use of technical and other facilities) were as follows:

	2007 €'000	2006 €'000
Moorepark Technology Limited sales to Teagasc (included in turnover)	251	269
Other recoupments from Teagasc (deducted from cost of sales)	0	4
Total	251	273
Amounts owed to Moorepark Technology Limited	35	0
Teagasc sales to Moorepark Technology Limited	163	116
Amounts owed to Teagasc at 31 December	47	22

Under the terms of the Moorepark Technology Limited Promoters' Agreement, Teagasc has undertaken to provide from its own resources specified staff requirements in Moorepark Technology Limited, as well as underwriting the Company's utility, stores, accounts and effluent overheads. These costs were as follows:

	2007 €'000	2006 €'000
Staff	177	162
Other	162	105

These totals are included in Teagasc expenditure under Food Research (Notes 5 and 6).

Moorepark Technology Limited utilises assets owned by Teagasc as follows:

	2007 €'000	2006 €'000
Original Costs	1,196	1,196
Net Book Value at 31 December	97	161

These amounts are included under Plant and Equipment (see Note 13 above).

In accordance with the Promoters' Agreement, Teagasc has also leased to Moorepark Technology Limited at a nominal rent of €127 per annum its existing processing hall at Moorepark Dairy Products Centre together with an adjoining site on which the Company has constructed additional facilities.

It was not considered appropriate to consolidate the results of the Company.

Teagasc has three small investments in agricultural co-operatives costing €1,243 in total (2006 - €1,243).

Notes to the Financial Statements - continued

15 Private Colleges

Teagasc provides support to four private agricultural colleges as follows:

	2007	2006
	€'000	€'000
Grants to private colleges	4,697	4,434
Staff seconded to private colleges (included in the total pay expenditure in Note 5 above)	514	535
	<u>5,211</u>	<u>4,969</u>

16 Stocks

	2007	2006
	€'000	€'000
Livestock	4,187	4,167
Farm produce, fertilisers and feeding stocks	695	547
General supplies	263	250
	<u>5,145</u>	<u>4,964</u>

17 Debtors and prepayments

	2007	2006
	€'000	€'000
Trade debtors	4,357	2,860
Other debtors, prepayments and accrued income	3,246	2,359
	<u>7,603</u>	<u>5,219</u>

All amounts included above fall due within one year.

18 Creditors - Amounts falling due within one year

	2007	2006
	€'000	€'000
Trade creditors	2,987	2,757
Income tax deducted under PAYE	1,658	1,504
Pay related social insurance	707	637
Value added tax	1,866	74
Withholding tax	166	157
Other creditors and accruals	7,910	9,745
	<u>15,294</u>	<u>14,874</u>
Creditors for taxation and social welfare included above	<u>4,397</u>	<u>2,372</u>

Notes to the Financial Statements - continued

19 Deferred income

Teagasc carries out public funded research in accordance with contracts with other State Institutions, principally the Department of Agriculture, Fisheries and Food. Grants in respect of such research are taken into account as income when the corresponding expenditure has been incurred under each contract.

At 31 December the source and amount of deferred income in respect of research and other projects was as follows:

	2007	2006
	€'000	€'000
Department of Agriculture, Fisheries and Food – advance for Firm projects	1,625	1,625
Department of Agriculture, Fisheries and Food – advance for Stimulus projects	4,197	2,255
European Science Foundation – Food Safety Promotion	429	401
Other research related deferrals	1,566	89
Amounts received in advance for work associated with the completion of sale of land at Athenny	1,271	0
	9,088	4,370

20 Finance leases

At 31 December 2007 Teagasc had no obligations under finance leases (2006 - Nil).

There were no finance charges incurred during the year under finance leases (2006 - €834).

21 Capital commitments

Capital commitments outstanding at 31 December 2007 amounted to €5.08 million (2006 - €1.68 million).

22 Operating leases

At 31 December 2007 Teagasc had annual commitments under non-cancellable operating leases as follows:

	Land and buildings €'000	Plant and machinery €'000	Total €'000
Leases which expire:			
Within one year	11	26	37
Between two and five years	247	77	324
After five years	85	0	85
	343	103	446

23 Analysis of changes in net funds during the year

	1 January 2007 €'000	Cashflows €'000	31 December 2007 €'000
Cash at bank and on hand	8,952	33,040	41,992
Bank overdraft	0	0	0
Short-term deposits	1,314	(637)	677
At end of year	10,266	32,403	42,669

Notes to the Financial Statements - continued

24 Disposal of fixed assets	Proceeds/ Costs €'000
Proceeds from sale of property	
240 acres at Athenry	36,315
14 acres at Ashtown	<u>1,120</u>
	37,435
Cost of sales	<u>(384)</u>
	37,051
Disposal of other fixed assets	<u>(173)</u>
	<u>36,878</u>

The written down value of the properties sold in Athenry and Ashtown at the start of the year was nil.
A transfer of €9,400,000 to the Exchequer was affected from the proceeds of the sale of properties in 2007.

25 Authority members – disclosure of transactions

The Authority has adopted procedures in accordance with the guidelines issued by the Department of Finance in relation to the disclosure of interest by Authority members and the Authority has adhered to these procedures. There were no transactions in the year in relation the Authority's activities in which board members had an interest.

26 Approval of the financial statements

The Authority approved the financial statements on 7 May 2008.

Notes



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