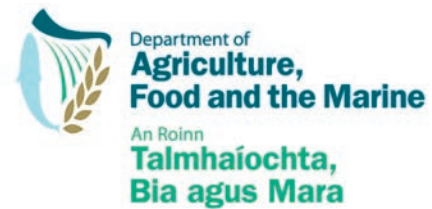


Food Harvest 2020

Milestones for Success 2014



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Food Harvest 2020

Foreword



I am very pleased to introduce the 4th annual progress report on the implementation of Food Harvest 2020. *Milestones for Success 2014* has been produced by my Department in collaboration with many stakeholders, but with significant involvement from Bord Bia, Teagasc, Enterprise Ireland, Bord Iascaigh Mhara and the Environmental Protection Agency.

Agri-food exports continue to perform very strongly and the medium to long-term outlook for agricultural commodities and market growth remains generally positive. I am aware that favourable global commodity prices certainly assisted exports reach €10.3 billion in 2013, but equally I recognise that

it is the capacity, skill and determination of the industry itself to win sales against strong international competition that, to a large extent, has helped the sector to achieve a 24% increase in the value of exports since Food Harvest 2020 was published. Clearly challenges remain – not least in the beef sector following recent price reductions – but our agri-food sector has frequently demonstrated its ability to surmount such challenges with determination and imagination.

This entrepreneurial drive is also reflected in the 30% share of the ISEQ held by food and beverage companies and in their growing revenue stream, which in 2013 amounted to a combined revenue of €13.6 billion. This gives me great confidence in the ability of these companies to achieve substantial returns from the major capital investment programmes which they, assisted by state bodies, have initiated. It is this combination of investment in facilities allied to management energy and commitment which is helping to drive national economic recovery and will achieve growth in exports and employment.

By end 2013, primary output had also shown strong growth and had virtually achieved the Food Harvest 33% target due primarily to strong commodity prices on global markets. The increases in the value of output varied depending on the product, but all sectors showed some improvement. Cereals, pigmeat, dairy and beef did particularly well as their output value increased by 62%, 54%, 42% and 39% respectively on the Food Harvest 2020 baseline. The situation changed in the past few months when the impact of falling prices, changing market requirements and market volatility affected producer prices, particularly for meat producers.

Price fluctuations are a constant challenge for the primary sector. Single Farm Payments of around €1.2 billion agreed for Irish farmers in the context reformed CAP in 2013, provide a measure of income stability for farmers against a background of volatile market dynamics, but direct payments alone will not ensure that primary producers have the confidence and capacity to build sustainable long term profitability. Other critical elements include more positive and collaborative engagement between producers, processors and retailers to achieve a better match between market and income requirements, as well as appropriate risk management solutions, longer term financial planning, the application of best practice based on research and technology at farm level and targeted efficiency measures at all levels of the supply chain. The experiences of the dairy sector illustrate the value and effectiveness of these mechanisms in hedging products against price volatility.

Looking back over the last four years since Food Harvest 2020 was published, what has struck me most forcibly has been the growth in value, confidence and capability of the sector as well as its absolute determination to succeed. We are now on the cusp of a step change for the agri-food industry, but there will be challenges ahead. Against this background the qualities I have referred to are those that will ensure future success as we tackle the changed policy environment for agriculture and fisheries, enter the era of a quota free milk market and succeed in expanding our market and product reach.

As I mentioned earlier, this report is an inter-agency collaboration and I particularly want to thank my colleagues on the Food Harvest 2020 Implementation Committee (HLIC) for their unstinting dedication and commitment to achieving the targets set by the Food Harvest 2020 report. This latest progress report gives a broad overview of what has been achieved by the agri-food sector over the past four years and I believe it is a fitting testimony to the efforts of the HLIC as well as to the sustained commitment, engagement and focus of all stakeholders to realising the Food Harvest 2020 vision and to driving national economic recovery.

Simon Coveney, TD

Minister for Agriculture, Food and the Marine.

Food Harvest 2020

Review



Food Harvest 2020, the strategic vision for the agriculture, food and fishing sector, was developed during 2009 and 2010 at a time of a deep recession which the OECD described as the deepest and most synchronised recession since the post war period. This weakening of the global economy impacted disproportionately on Ireland due to our heavy reliance on international trade and foreign investment. The issue was further compounded by the sharp deterioration in national economic activity and the serious budgetary and financial situation pertaining at the time. While there were some tentative signs in 2010 that prospects for the international community were beginning to brighten, the domestic outlook was less positive due to the underlying structural problems and the decline in consumer and business confidence.

2014

2012

2011

2010

2009

The effect of these global and national issues was reflected in the poor outturns for the agri-food sector in 2009. In addition to falling world commodity prices, exports were also impacted by challenging currency fluctuations, particularly the drop in the value of sterling. As a result food and beverage exports only reached €7.11 billion in 2009, a decrease of almost one billion on the 2008 figures. Consequently, the overall contribution of the agri-food and fishing sector to national economic development in 2009 amounted to around 6% of national GVA, 7.5% of national employment figures and 9% of exports. In addition, average farm incomes (excluding off-farm income) decreased by 30% on 2008 levels to €11,968, ranging from €24,214 for full time farmers to €6,611 for those farming on a part-time basis.

In the context of this challenging environment, in February 2010, the then Minister appointed a 30 member committee to develop a strategy for the sector and to identify the necessary key actions to maximise the contribution of the sector to national economic recovery and to the smart economy. Drawing on prior detailed analytical papers produced by the Department and state agencies, and submissions from a public consultation process, the Food Harvest 2020 report was published in July 2010. It provided a cohesive, industry based roadmap, with specific development actions and targets as well as an integrated message around the three themes of Smart, Green, Growth.

A focused, ministerial-led, implementation process, involving state and industry teams, has delivered excellent progress on promoting the national importance and economic value of the sector as well as on achieving the headline targets set in 2010.

Food Harvest 2020

Review

Current

Exports have been the main engine of growth for Irish food companies over the past few years. Overall, food and beverage exports have achieved remarkable success and were valued at €10.3 billion in 2013, a 24% increase vis a vis the 42% growth target set for 2020. In addition the value of primary production has risen by 33% to €6.18 billion, just slightly below the 2020 target of €6.275 billion, while value-added has reached €7.45 billion (2012 data) an improvement of 23% compared to its 40% target.

Also significant has been the higher economic profile achieved by the sector and the wider recognition that this indigenous manufacturing industry is providing a major stimulus for economic recovery. The latest key indicators for the sector are that its gross turnover is €26 billion, it contributes 7.2% of national GVA, 8.8% of national employment levels and 12.3% of overall merchandise export values, while the family farm income range for full and part time farmers in 2013 was €9,460 to €64,371 with an average farm income of €25,639.

These figures illustrate the very significant progress which has been made but experience has shown that there is no room for complacency within the sector. This industry operates in a challenging and rapidly changing global environment and it is essential to periodically take stock and review the assumptions underlying this strategy to assess their continuing validity.

More detailed analyses is needed but broadly speaking, it appears that the Food Harvest report correctly recognised both the impact of global population growth, affluence and urbanisation for the agri-food sector and its ability to meet this demand with safe, sustainably produced food. On the other hand, it may have overestimated the market shift away from the UK towards the Eurozone, while underestimating the level of global commodity price rises, in that cattle and milk prices rose by 39% and 27% respectively over the 2010-2013 period. Also, in hindsight, insufficient attention was given to the growing confidence and optimism of stakeholders and their ability to respond both to market demands and State initiatives.

It is also clear that not all sectors have achieved the same level of success; beef and cereals prices are experiencing volatility while aquaculture production has not yet increased at the rate foreseen in 2010.

- While, overall beef prices have risen by about 39% from the Food Harvest baseline, the more recent sharp fall in global beef commodity prices with the simultaneous rise in input costs, have significantly affected profit margins. This cost-price squeeze has accentuated the vulnerability of this sector, which historically has had lower profit margins than other areas. To help resolve the current difficulties, high-level engagement is taking place with all stakeholders to start putting in place steps to improve returns to producers.
- The cereal industry has benefited greatly from the strong international grain prices and up to end 2013, had shown a 62% increase in value. However, in 2014, international grain prices fell back significantly due to a bumper international crop. This had a knock-on effect on income levels of Irish cereal growers who perversely experienced a drop in national yields due to poor weather. Into the longer term, the OECD-FAO forecast is for price levels to remain above the pre-2008 period, but below recent very high price peaks. Efforts must be redoubled to ensure Irish growers maximise the benefits from global prices.
- Food Harvest anticipated a 78% increase in aquaculture production and a 43% increase in value by 2020. However, while the value of aquaculture increased by over 27.5% (€104.2m to €113m) by 2012 the volume of production actually fell by 26%. By end 2013, the situation had disimproved further due to a combination of an outbreak of amoebic gill disease in salmon, issues with licences and poor weather conditions affecting seed mussel development. Based on the streamlined regulatory licensing regime, recent initiatives on the development and marketing of new fish species, the restocking of salmon farms and more favourable weather conditions, there is every expectation that the sector can increase the volume and value of produce and meet its targets on both counts.

Food Harvest 2020

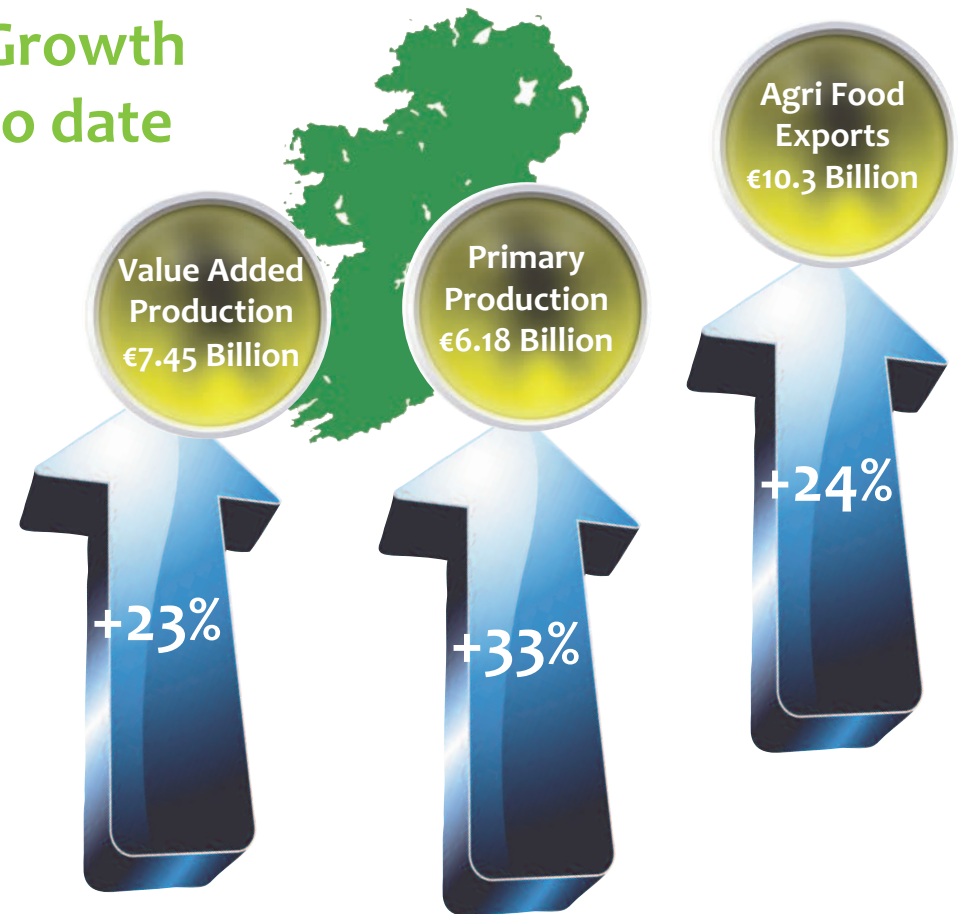
Review

There have also been changes to our operating environment that need to be taken into account.

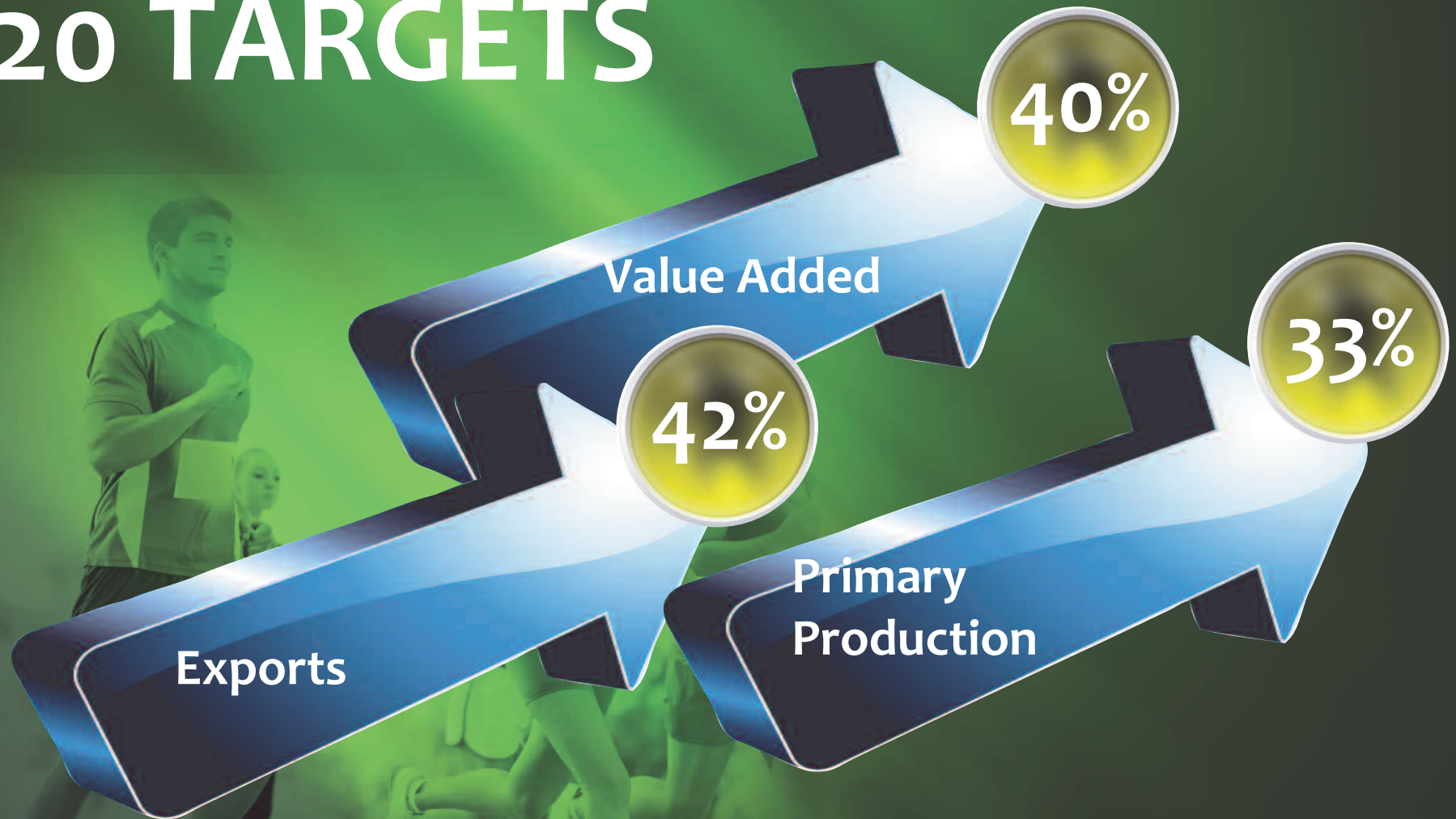
These include the development of the new Rural Development Programme, the design and implementation of new systems under the reformed CAP and CFP agreements, the proposed new forestry strategy and programme and the recent assignment of a Minister of State with responsibility for the implementation of the report of the Commission for the Economic Development of Rural Areas (CEDRA). In addition, more stringent environmental statutory obligations are currently being proposed, and while the Department and its agencies currently implement a wide range of initiatives and programmes to help address environmental challenges, it is clear that the more rigorous obligations will require a more cohesive governmental approach to tackle the global challenges of climate change and food, energy and water security. Furthermore, improved responses will be needed to deal with long standing issues such as market and price volatility and job creation

There are also new opportunities to be explored on achieving better synergies with adjacent sectors such as food-pharma, food-health- nutrition, agriculture-renewable energy development, marine-biotechnology, as well as collaborating both within and across sectors on big ticket issues such as data analytics.

Growth to date

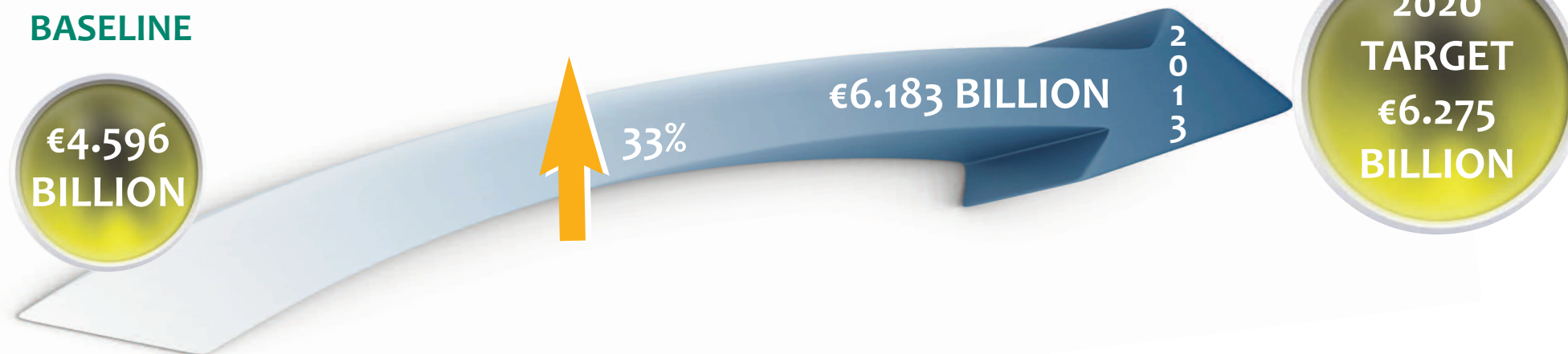


2020 TARGETS



Targets

Primary Sector



The primary agriculture sector is a key driver of the rural economy. It provides the raw materials that drive agri-food exports and helps underpin the Irish food industry. It is a major source of employment with the CSO National Quarterly Household Survey data for Q2 2014 estimating that 110,000 persons were employed in the primary agriculture, forestry and fisheries sector.

The primary agricultural sector has essentially met its Food Harvest 2020 target of 33% growth. The main components of primary output are beef and milk production which both exceeded €2 billion in value terms in 2013 and when combined accounted for over two-thirds of the total €6.18 billion value of primary output. The outstanding performance in output value has of course been mainly driven by rising agricultural commodity prices in world markets where much of the output is sold. It should be noted that this rise in primary output value since the launch of Food Harvest has also been accompanied by a significant rise in agricultural input costs. These have increased on average by 17.7% up to the end of 2013 with sharp rises in selected variables such as a 34% increase in energy costs. Thus the quantum of the output gains has not all translated into income gains for primary producers

Into the future, challenges will arise for the primary sector due to volatile commodity price environment and unpredictable weather events. Given such a volatile trading environment, vigilance and focus by all stakeholders in the agricultural sector will be necessary to ensure that the sector remains on track in sustaining the Food Harvest output target.

“The primary agricultural sector has essentially met its 33% growth target”

Targets

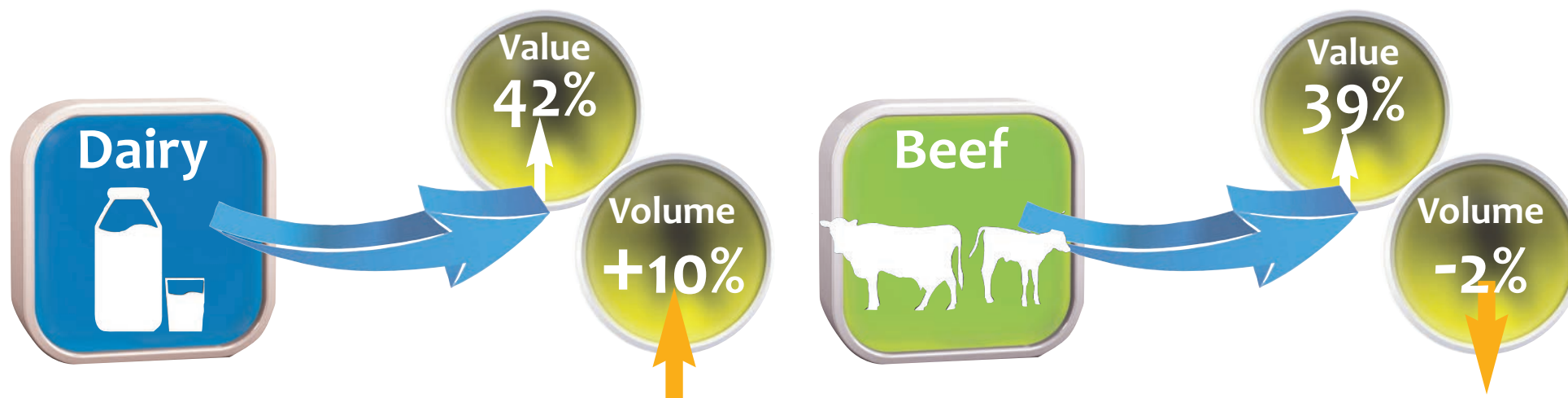
Primary Sector

Growth from Food Harvest Baseline



Targets

Primary Sector



There has been an increase of 42% in the output value of the milk sector to €2.05 billion, resulting from an increase of just 10% in volume terms. The recent trend of growth in the value of milk output continued in 2013 driven by global dairy market demand outpacing supply and commodity prices rising accordingly. The strong dairy market situation was reflected at farmgate, with an average milk price paid to producers in 2013 of 39.5 cent per litre. Dairy is the main sector with a specific volume target (50% growth) set by Food Harvest. Despite the presence of EU milk quota until March 2015 some volume growth has been possible up to 2013 due minor annual increases in milk quota and butterfat adjustments allowed by the EU as part of its “soft landing strategy” in the lead in period to the eventual abolition of milk quotas. It is anticipated that from 2015 onwards the Irish dairy sector can achieve its full potential when the shackles of the quota regime are removed. Significant inroads can be made towards the 50% volume target in Food Harvest, buoyed by favourable medium term prospects in future global dairy product consumption growth and the comparatively low cost base profile of Irish milk producers.

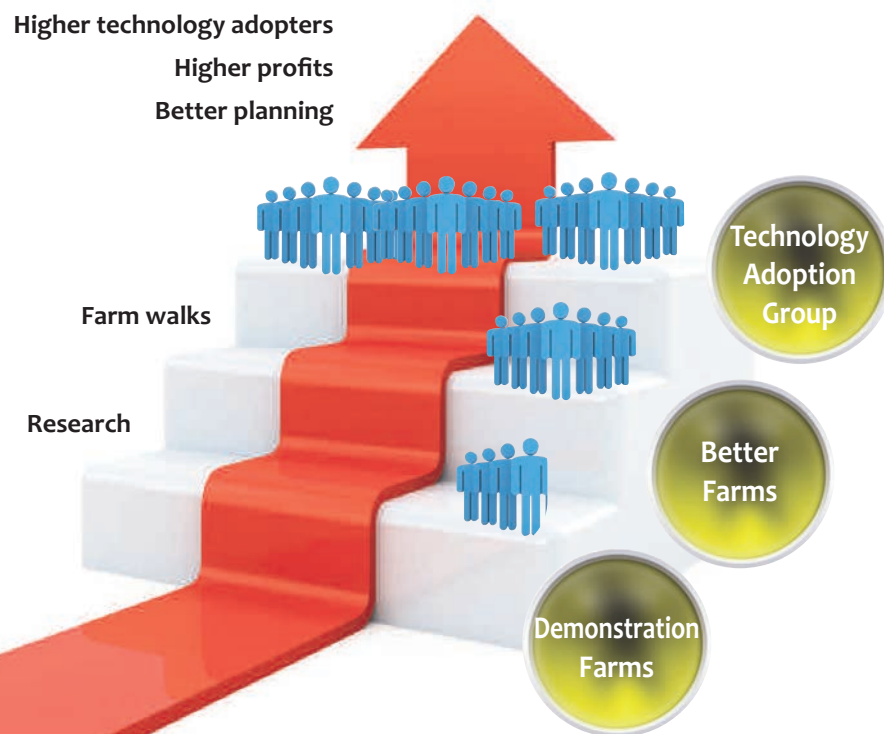
The beef sector is a major component of the agri-food sector. Ireland is the 5th largest net exporter of beef in the world with 85% of our beef exported. Notwithstanding the headline 39% value growth figure up to the end of 2013, which is well in excess of the 20% Food Harvest target, the sector continues to face a number of challenges. These include the current decline in beef prices that has occurred from the all-time price highs achieved in 2013 and strong prospects of increasing low cost global competition. It is essential that the reputation and competitiveness of the beef sector is maintained and enhanced in future to allow it to benefit from forecasts of increasing global demand and rising affluence.

Beef farmers are amongst the most vulnerable in the farming sector in terms of their lower farm incomes and their higher dependence on direct payments to sustain incomes and output. The stakeholders in the beef sector have been encouraged to use the Dowling Report which was produced following the two Beef Forum meetings chaired by Minister Coveney in April/June 2014 as a framework for engaging in the kind of productive dialogue that will help to restore confidence in the beef sector. It is hoped that the sector can move forward with optimism beyond the current challenges, and consolidate and build on the excellent growth figures seen up to 2013 given the favourable medium term global prospects on the demand side for the sector.

Targets

Primary Sector

Increased Output and Profits



Knowledge Transfer at Farm Level

Improving the skillset and adoption of new technology at farm level is essential to increase output, achieve productivity gains, meet market demands and improve farm incomes.

Over the years, Teagasc has developed a series of knowledge transfer mechanisms which bring best practice outcomes to the notice of farmers in a variety of practical ways. A large part of their success has been to use whole farm models to demonstrate how usable research knowledge can transfer smoothly to commercial farms.

The first step in this process involves applying research knowledge at demonstration farms where the benefits are measured, evaluated and demonstrated in a controlled environment. The optimal research results are then applied to selected commercial BETTER farms, the results of which are then benchmarked against other BETTER Farms and farms in the National Farm Survey and are finally published and highlighted publicly during farm walks and demonstration days. Technology Adoption Groups, as a knowledge transfer method, have increased considerably in recent years, benefitting from targeted DAFM support. These are where likeminded farmers, who wish to develop their enterprises, use the support of peer networks and experienced advisers to adopt these research based commercial technologies on their own farms.

These groups currently involve about 15,000 farmers in dairy, beef, sheep and tillage enterprises. An independent evaluation of Teagasc dairy discussion groups carried out in 2012 has shown them to be most effective in transferring the results of research and commercial information to end users and in achieving higher rate of technology adoption and profit. A higher percentage of these groups are reaching the Teagasc Roadmap technical performance targets. The same study showed that established dairy discussion group members on average achieve additional returns of 2-3 cent per litre or €241 per hectare more than non-members.

Dairy Technology Group

An example of a technology adoption group in the dairy sector shows that, despite curtailed milk production due to current quota limits, the group increased their net profits from 4.06 cents per litre (c/l) in 2009 to 16.59c/l in 2013, notwithstanding significant increases in their input costs (8.88 to 13.95 c/l).

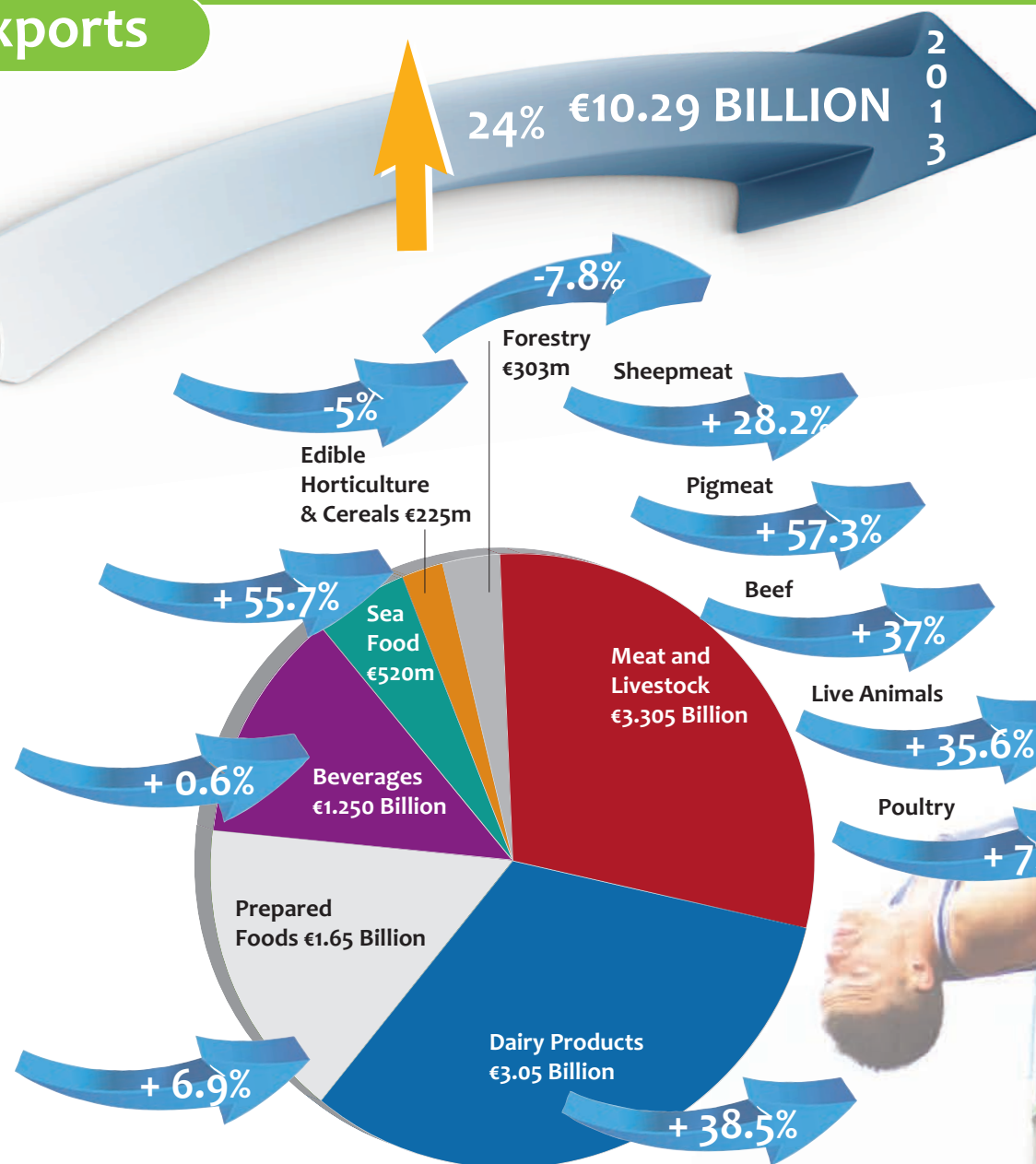
These results were achieved through targeted efficiency measures such as improvements in herd EBI (€70 to €142), reproductive efficiency (optimal calving rate achieved increased from 51% to 78%) and milk solids output per cow (342 to 392). The focus on better breeding through usage of high merit bulls, adaption of new technologies and a detailed programme of measures to be implemented in 2014 has set these farmers up for a smooth transition to expanded production in the post quota period.

Targets

Exports

BASELINE

€8.298
BILLION



2020
TARGET
€12 BILLION

Targets

Exports

Market Sentiment

Because of our small domestic market, we export over 85% of what we produce. This means that the agri-food sector primarily competes on the international food market, and the ability to fulfil consumer and market needs at competitive costs is paramount. To a large extent these conditions have been met in recent years, as the overall performance of food and drink exports during the lifetime of Food Harvest 2020 has been outstanding.

Using the Food Harvest 2007-2009 average baseline, overall agri-food export values have increased by 24% from €8.3 billion to €10.29 billion in 2013. However, a year on year comparison between 2009 (€7.34bn) and 2013 will give a 40% increase, while a comparison between the Food Harvest 3-year baseline and a current 3-year baseline (€9.654bn) gives a 16% increase. Regardless of which comparative figure is used, in 2013, agri-food exports outperformed overall manufacturing exports and delivered more than half of total indigenous exports of €18.6 billion. If this progress continues, the Food Harvest export target of €12 billion by 2020 is well within reach and could even be exceeded.

The pointers for success remain positive as increased food production is needed to feed a rapidly growing and urbanised global population. Global population is growing by 80 million annually- the equivalent to the population of Germany every year - and by 2030, more than 50% of the world's population will live in large conurbations and will experience average incomes which are multiples of current levels. Ireland's food producers are well placed to take advantage of this demand as they have built a strong reputation for safe, high quality, sustainable goods and increasingly have been investing in technology and knowledge to deliver the necessary customised higher value-added product needed to capture market share.

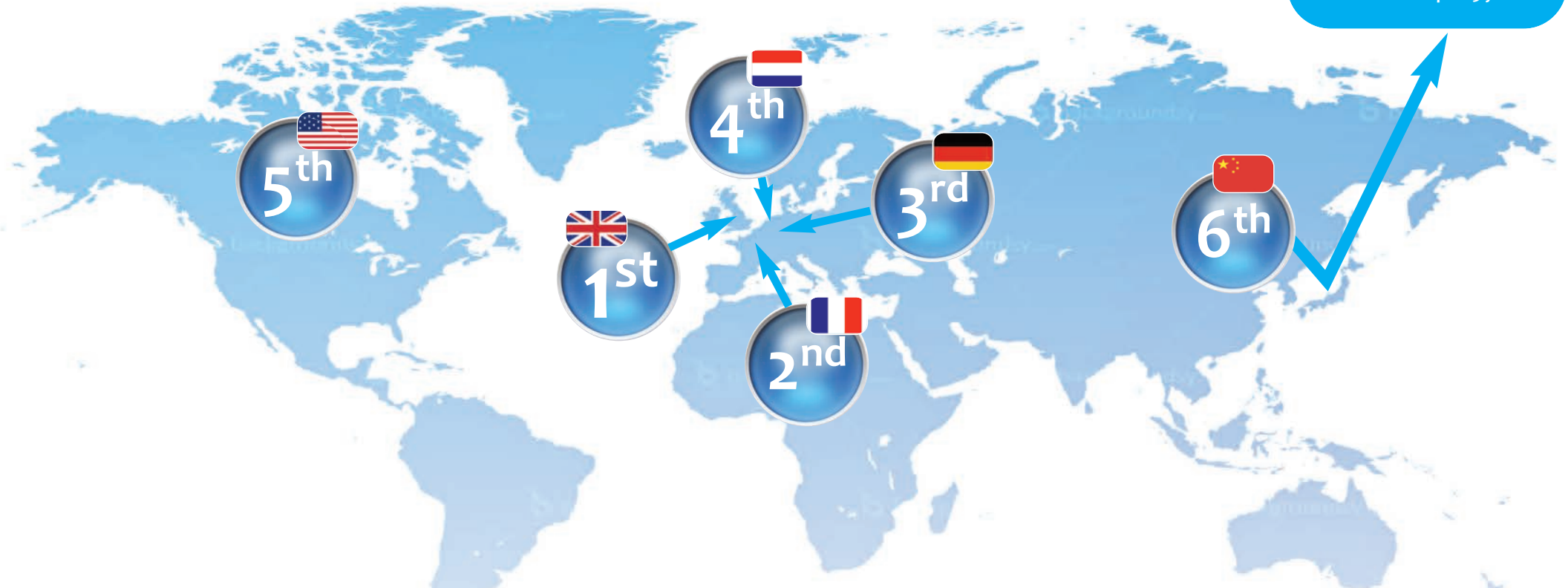
Over the lifetime of Food Harvest, export trade was certainly boosted by strong global prices but was also driven by higher volumes in key sectors. The big performers in value terms were dairy/ingredients, (+ €847 m), beef (+€564m), pigmeat (+ €191m) and seafood (+ €186m) while volume increases were most noticeable in seafood, pigmeat and whiskey with more modest increases in butter, cheese and milk powder.



Targets

Exports

Key Export Markets



The most obvious trend on export destinations over this period has been the broadening of market perspectives and the enhanced share of international markets achieved. In terms of export destinations, the UK market, at 42% remains our largest market. Its importance should not be underestimated. We are uniquely positioned to capitalise on the fact that the UK does not produce enough food to meet its own need and that this deficit will grow, if as projected, its population increases by 10 million in the next 25 years. Continental EU market share stands at around 32% with France, Germany and the Netherlands being the strong performers.

The greatest percentage gains have been made on the international markets which overall have risen from 20% to 26%. Asia has shown the greatest growth but the Middle East and Africa at 4% and 6% respectively of total exports have also risen. Specifically, agri-food exports to China have increased significantly in the past two years, from €254m to €415m in 2013 and grew from €80m in 2008. This makes China our sixth largest market overall for agri-food exports and our second largest market for dairy products of which infant formula sales are a major component. Strong growth has also been achieved for pork and seafood exports.

Targets

Exports



Main Exports to China

China with a population of 1.3 billion is the largest and most populous economy in the world. As mentioned above, this is a fast growing market for Irish goods with the value of agri-food exports trebling over the past 3 years. The scale of potential opportunities is huge but the complexities of that market, the distances and difficulties involved in servicing it, should not be underestimated. A primary requirement is that companies realise that a long-term approach is needed. Building a strong network of contacts, selecting the right partner, tailoring product to meet cultural differences and achieving a presence in China takes time. The success of the dairy, seafood and the pork industry has been a culmination of several years of market research, trade missions and business development to build traction and confidence.

Different strategies have been adapted to achieve a viable route to market.

Infant Formula (Government and business relationships)

Overall infant formula sales accounted for around 26% of total value of Irish dairy exports in 2013. In the case of China however, they constitute a far higher proportion, almost 80% -of sales and have been steadily growing over the past five years. This expansion has resulted from continuous and strenuous efforts over a decade to build strong relationships at company and Government level with leading dairy and infant formula companies in China. The growth which has been achieved is significant, as European suppliers face competitive challenges entering this market due to distance, costs, regulatory constraints, differing consumer requirements as well as existing bilateral agreements with advantageous tariff terms for nearer suppliers.

Inspiring confidence in food safety is critical for all trade in food products but particularly so for infant formula. Following on past experiences, new more stringent food safety regulations and registrations were imposed in 2014 on food imports by CNCA- the Chinese Certification and Accreditation Authority. This involved an inspection audit of all Irish infant formula exporting plants prior to registration. Ireland achieved 100% compliance with these requirements, which was a positive signal to other key dairy markets as the overall number of international infant formula companies which received certification by the Chinese was reduced from 133 to 82.

Government relationships play a key role in securing trade links with China and strengthening these bilateral connections is an important tool in developing further business opportunities. Visits headed by an Taoiseach and senior Ministers have already resulted in Memoranda of Agreement, the essential first step in commercialising relationships. Enterprise Ireland has also been active in helping to build strategic relationships between leading Chinese dairy and infant formula companies and Irish processors by leveraging Ireland's growing collaborative infrastructure between Teagasc Moorepark, the universities and processors. Irelands dairy companies have built on these links and many of our major companies now have a presence in China and are developing strong business relationships with key Chinese players.

Kerry Group has entered into a partnership agreement with Beingmate of China, for the production in Ireland of infant nutrition products for sale by Beingmate in the Chinese market. Wyeth produces its own high-end infant formula brand (Illuma) in Ireland which it then sells directly in China. Glanbia is working with Shanghai Bright, while the Irish Dairy Board and Dairygold have also developed close partnerships with leading Chinese dairy and infant formula companies and are planning to launch a UHT product in China. As the Chinese domestic infant formula companies are consolidating and becoming more efficient, future Irish success in this field will be based on achieving and consolidating strategic bilateral relationships.

Targets

Exports

Seafood (Industry Co-opetition)

Overall seafood exports to China have risen from the Food Harvest baseline of €3.3million to €16.3m.in 2013. However, Irish seafood companies are small global players and individually they do not have the necessary scale, capacity or expertise to successfully target the Chinese market. So, assisted by BIM, four Irish seafood companies took a more collaborative approach, pooled their resources and in 2012 launched a joint venture company 'Ocean Jade', in Shanghai, to be run as a separate venture to their Irish operations. Their combined resources offered a wider portfolio of products, provided one focal point of contact for importers and retailers and allowed them place an agent on the ground in Shanghai. Their aim was to service both the food service and retail market with a range of quality seafish and shell fish products which in time could position Irish seafood as a leading premium brand.

Ocean Jade used the Bord Bia hub in Shanghai to help establish a presence in China and it found that Bord Bia's contacts helped them identify channels for business and key domestic players. The extensive market research already undertaken guided their investment in specific market development such as recipe development and packaging to match local tastes. Ocean Jade was very aware that State backed supports such as Ministerial-led trade mission, Government contacts, reciprocal visits and contacts from high ranking Chinese officials are central elements to building relationships and achieving contracts. The presence of State Agencies and attachés provide this essential link to Government supports.

Since its launch, Ocean Jade has developed strong long term relationships with importers in Shanghai and Beijing and has participated in the China Fisheries and Seafood Expo. As a result, it now supplies Spar -Beijing and has achieved a 74% value increase in exports to the Chinese market.

Pigmeat (Business to Business)

As the world's largest consumer of pigmeat but also the largest producer, Chinese annual import requirements can vary significantly depending on domestic production. Import levels are also affected by the strategic focus of the Chinese government to maintain the price of their primary protein source at affordable levels. The underlying trend, however, is upwards due to increasing affluence and population growth.

Irish processors have targeted this major market using domestic pork processors. They sell their product to large Chinese domestic pork processors who incorporate these cuts into their own products. These are then sold on to Chinese retail outlets or in some cases re-exported to Japan, Korea and other Asian markets. This provides a sustainable route to market, as no branding is required, Chinese processors enjoy easier access to these and other Asian markets and are competitive due to their lower labour and energy costs.

Irish pigmeat exports to China have grown remarkably in volume terms with the 2013 tonnage achieving nine times the level recorded in 2008. There are six main companies and a larger number of secondary processors involved in this success. Key to their achievements has been a presence in China to manage the business on a day to day basis, travel to meet customers and build a rapport and the requisite level of trust with clients. Also critical is a competitive pricing structure and specifically an adequate number of approved and responsive production facilities in Ireland which effectively adjusts the specification of the product supplied to align with the needs of the customer.

Contact with Chinese business is also facilitated through Government and state agency support including Bord Bia's engagement with the China Meat Association and company participation at trade events such as SIAL China and the China International Meat Industry Exhibition.

Targets

Value Added

BASELINE

€6.05
BILLION

20% ↑

€7.45 BILLION

2012

2020
TARGET
€8.57
BILLION

Value-Added Sector

Gross value added (GVA) is a way of measuring the contribution of an industry to the economy. The GVA of the agri-food industry is the value of output from the processing industry, less the cost of all inputs, including the primary agricultural products.

Value added principally results from taking a raw commodity and changing it to produce an enhanced product which meets the tastes or preferences of consumers. To succeed, a company operating in this field must first determine or anticipate future consumer needs and then through research and new product development (NPD) provide the consumer with the enhanced value product at a reasonable price. This sector is the direct interface between consumers and producers and is in the front line when it comes to changing consumer tastes or retail demands. The ability to identify trends and stay ahead of the curve is critical for success.

Currently value added food & beverage products are worth over €7.5 billion. They are also particularly valuable as they command a higher price premium, broaden the customer base and have the facility to provide substantial benefits to the producer and to the domestic economy when produced here.

Investment

Enterprise Ireland has invested in over 70 significant projects with large companies that produce value added food exports. This investment of around €150m leveraged a total investment of some €700m and a commitment of over 2,000 new jobs over the medium term.

“Value-added goods are the interface between consumers and producers”



Targets

Value Added

Consumer Sentiment

Understanding the demands and desires of consumers is an important element of innovation and market success is achieved when this insight is translated quickly and effectively into new products. A large element of Bord Bia's remit is to track and predict consumer trends and then help enterprises amend products or systems to reflect these changes. The following trends were highlighted as part of the Bord Bia Consumer Lifestyle Trends surveys,

**back to basics,
the environment,**

**health and wellness,
use of technology.**

The back to basics trend is underpinned by a desire for value and good food. These sentiments have a strong basis in the current budgetary constraints under which consumers are operating. There is a growing realisation that these needs can be met by a greater emphasis on home cooking and producing meals with minimal processed ingredients. Related to the desire for good food is a need to know more about the content, quality and provenance of food.

The health and wellness trend reflects the growing desire of consumers to manage and improve their health by making healthy food choices. Producers have reacted to this trend in many ways; by adding bioactive, vitamin and mineral elements in food, reducing salt, sugar, allergens and saturated fats and by the elimination of artificial flavours and colours in food.

The lifestyle trends continues to demonstrate the desire of consumers for sustainably produced food. However, due to their continuing financial pressure, to a large extent, consumers expect companies to deal with these social and environmental issues without passing on the costs to the end user.

Part of the consumer reaction to reduced spending levels has been to shop around and avail of promotional offers and own labels to a greater degree. The increased use and access to mobile technology such as smart phones, apps, social media, etc. by consumers, means that retailers and producers must exploit this trend to provide information, to drive offers and particularly when developing new products and promoting new brands.



Targets

Value Added

Prepared Consumer Foods (PCF)

The maxim 'what cannot be measured cannot be managed' has a particular resonance with the prepared consumer foods segment of the value-added sector. Up to now there have been differing views on the exact composition of the PCF category. When determining the PCF sector, Food Harvest 2020 included it within the value added sector and used the CSO Census of Industrial Production (CIP) product range to determine its contents. Bord Bia used different products to differentiate their Prepared Foods segment while the industry itself used yet another categorisation. Another issue, in terms of management and measurement, was the delay in getting up to date data on the sector, as frequently there was an 18-month time lag before CIP data became available. Industry felt that the lack of an agreed definition, a coherent sense of its value as well as the unavailability of timely and accurate data might have contributed to a perceived neglect of this indigenous manufacturing sector.

To deal with these issues, this year the industry and a number of state organisations worked together and arrived at a grouping of 15 categories to define the scope and complexity of the PCF sector, i.e Biscuits; Breads; Cereal/Chocolate/Sugar/Fruit & Vegetable-based products; Dairy/Meat/Other Food-Preparations; Extracts-Sauces-Soups; Frozen Confectionary; Fruit based Confectionary; Piza-Quiche; Savoury Snacks; Waters/juices/Soft Drinks. Up to date trade data is readily available for these categories.

This sector is emerging from a difficult period arising from reduced consumer demand. Domestic and international recovery is beginning to create opportunities for growth. So, to take full advantage of the upturn, industry leaders developed, and presented to the HLIC, a strategy with 16 recommendations which in their view provides the basis for securing future growth and delivering quality products directly to consumers. Achieving the desired 40% increase will require a continuing focus on enhancing productivity, innovation, brand and new product development as illustrated by the following examples.



Green Isle Foods

Supported by Enterprise Ireland, Green Isle Foods is making a significant investment of €30m in its Irish operations. This leading Irish frozen foods company, is part of the 2 Sisters Food Group that has a total turnover of £3billion with approximately 24,000 employees worldwide.

The company operates in some of the most dynamic and fast moving categories of the food industry and represents household names such as Green Isle, Donegal Catch and Goodfella's. This investment will create an additional 50 jobs at the company's pizza production facility in Longford, a further 65 jobs in its pastry production plant in Portumna and will help secure the jobs of the 700 people currently employed by Green Isle.

Targets

Value Added



Keelings

Keelings started from a small base in north County Dublin in 1896 with a limited range of horticultural produce. Over time it has significantly expanded its product range in response to consumer demand but more strategically in recent years it has successfully worked to subtly influence consumer taste to their advantage.

Its mission is to work in partnership with suppliers and customers to deliver quality fresh produce to the consumer and currently this family firm works across nine business units. In recent years, to improve its viability it upgraded its production and technological capability to extend the Irish growing season from May to December. This allowed it expand the volume and variety of product grown at home. At the same time, it dramatically increased its overall product range through sourcing fresh produce through a world-wide network of growers and suppliers.

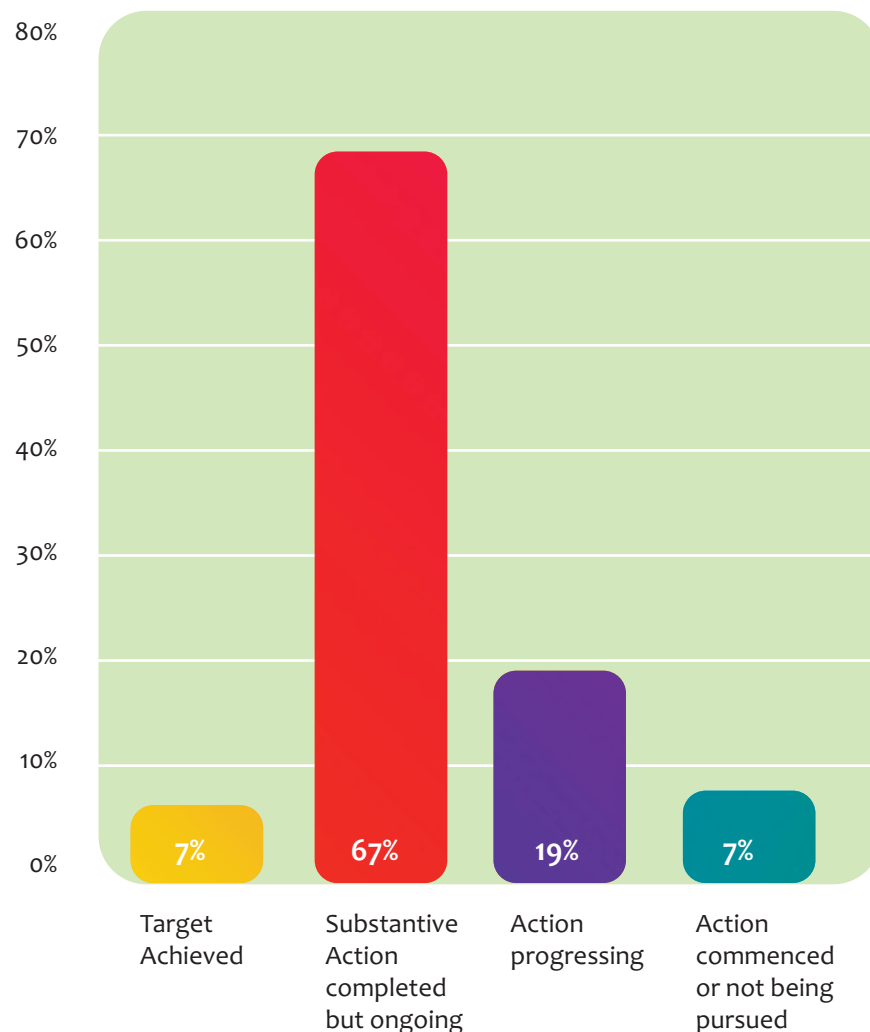
In addition, to identify and showcase its superior product offering, it invested heavily in marketing, packaging and brand identity. Its quality brand has become the most recognised consumer brand for fruit and vegetables in Irish supermarkets. It also exports its branded fruit and berries as far afield as China and Hong Kong and uses customised packaging to target purchases for local festival days as well as for the general market.



Mr Good's Fabulous Fish

This is another family run business which traditionally ran fresh seafood retail outlets and supplied other retailers and food services outlets with non-branded products. The company has now moved up the product value chain by developing, with the assistance of the BIM's Seafood Development Centre, a new branded product range- Cajun spiced salmon fillet, lemon marinated hake fillets and garlic and herb marinated cod fillets. This new and appealing taste range is sold in an innovative multi cook pouch which can be used in the microwave, oven or on the hob and is unique to the market. These new products ensure that odour is minimised and that all of the nutrients and flavours are preserved. The products are currently on sale through a major retail outlet and are also used by the food service market. The company is working to diversify its product offering by including haddock/salmon goujons and white fish nuggets in the new brand and to expand its business into new markets.

Recommendations



“Good progress on FH2020 recommendations”

Substantial progress or full implementation has been achieved on 74% of these recommendations, up from 55% in 2013. A low level of achievement still applies to 16 (7%) of the 215 recommendations. These encompass a small number of issues and the current position on these is as follows.

- ✓ **2 issues -not deemed priority and not being pursued,**
i.e. development of conservation grade food and marketing, Ireland as major European source for basic or semi-basic seed,
- ✓ **2 issues - DAFM and its agencies not lead agents with minimal influence to progress,**
i.e. bioenergy connections to electricity grid and installation of renewable energy generators on farms
- ✓ **1 issue - State Aid rules implications,**
i.e. new horticultural programmes,
- ✓ **5 issues -primarily commercial decisions for industry,**
i.e. rationalisation of production facilities, doubling of research funding, forward selling, sheep classification and development of CHP.

Areas which have shown improvement on last year's performance would include

- ✓ CAP and CFP outcomes with measures improving competitiveness and sustainability at producer level
- ✓ Improving credit facilities
- ✓ Enhanced support for SMEs
- ✓ Sustainable agricultural and fishing practices
- ✓ Reduced animal disease levels
- ✓ Broader market access
- ✓ Strengthened collaboration between industry, HEI and state agencies on research and innovation

A detailed account of progress achieved on each action is set out in the attached link:

<http://www.agriculture.gov.ie/media/migration/agri-foodindustry/foodharvest2020/foodharvest2020/FH2020August2014040914.pdf>

A woman is shown in profile, running from left to right. She is wearing a dark tank top and shorts. The image is overlaid with a green gradient that fades from left to right. The word "smart" is written in white lowercase letters on the right side of the image.

smart

Introduction

Ireland has developed a significant agri-food industry that generates annual exports in excess of €10 billion and employs tens of thousands. It is an industry that has been built on the continuous application of 'Smart' thinking which requires the application of research and innovation, the targeting of new markets and capitalising on our natural advantage in food production. It also demands that all stakeholders place a major focus on improving management capabilities, product development and a willingness to embrace new ideas and technology. This smart thinking was central to the Food Harvest 2020 vision which recognised that achieving the stretch targets set by the report would require all stakeholders to embrace as wide a range of capability enhancing techniques and technologies as possible.

Since the report's publication, the skill level and managerial capability of many in the agri-food sector has been enhanced. This has resulted from using the techniques and skills learned from Technology Adoption Groups, Better farms, the suite of EI leadership and management development programmes, Skillnets, Skills for Work as well as from the Bord Bia educational programmes which were developed to attract high calibre graduates with international sales and commercial marketing skills into the industry.

“Ireland's Agrifood Industry
has grown through...



Introduction

Research and innovation are the ingredients which keep the sector growing. They lead to new ideas, new processes and more efficiency. They can also open up new markets, keep growth on the agenda and sustain companies. The State has invested significantly in primary agri-food research, the outcomes of which are reflected in the recent UCD study which found that Ireland had the 5th most innovative agri-food sector in the EU, with indices virtually similar to those of the Netherlands and Germany, which were placed 3rd and 4th respectively.

An even more telling output, in terms of commercial outcomes, has been the significantly increased collaboration between the State, industry and higher education institutes on R & D projects. Major collaborative initiatives on food research would include the Food Innovation Alliance between Teagasc, UCD and UCC as well as Teagasc's significant involvement in the Alimentary Pharmabiotic Centre which explores the commercial opportunities for the pharma and functional food sectors which can flow from this gastrointestinal research. The Enterprise Ireland led Food for Health Technology Centre and the new emerging technology centres for dairy and meat processing with industry involvement are all geared at leveraging maximum gains from the expanding agri-food sector. Food Works is another successful collaborative programme between Bord Bia, Enterprise Ireland and Teagasc which identifies and develops a new group of entrepreneurs capable of bringing new food products to global markets.

Also exciting are public-private commercial initiatives such as the joint venture between Teagasc Moorepark Technology Ltd and dairy industry stakeholders to provide commercial research and pilot plant services for food industry customers such as the Irish Dairy Board, Glanbia and Dairygold. Another example is provided by IMERC Innovation Hub (Irish Maritime and Energy Resource Cluster) where the Naval Service, UCC, Cork Institute of Technology and National Maritime College Ireland have partnered to unlock Ireland's maritime and energy potential in a research, start-up and enterprise facility.

In addition to emphasising research, innovation and skills development, successful organisations are continually looking at improving their practices and keeping abreast of global and national developments. They also have a heightened awareness of the spectrum of creative practices, techniques and technological advances available and have developed a willingness to use and adapt them to best advantage. Examples are provided in the following pages which illustrate where this outward looking focus is facilitating best practice on farm and factory floor and is helping to maintain competitiveness and relevance in a changing world.

Improving Skill Levels

Achieving the growth targets set in Food Harvest will not be possible unless the necessary skillset is developed and maintained. This is an ongoing task which is being tackled right across the food chain from primary producer to processors and through upstream and downstream ancillary services.

Primary

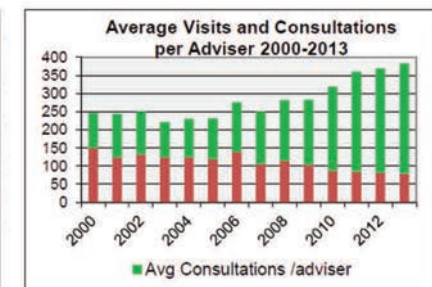
Since 2008, enrolments have almost doubled in the further education courses provided by Teagasc. This gives a strong signal that the need for further training and upskilling has been actively taken on board by the farming community. Currently there are in the region of 1,900 new annual enrolments with over 3,500 students in all participating in a variety of education programmes up to postgraduate training at Masters and PhD level.

The range and quality of courses has also expanded with all now within the FETAC or HTEAC award framework and are being delivered through agriculture and horticulture colleges, regional education centres or by using the online distance learning option. Besides providing scientific, technical, environmental and practical training across the agricultural science field, many courses incorporate financial, management and technology modules as standard. These developments now have an increased relevance, as on foot of recommendations in the Food Harvest report, the new CAP programme and the draft Rural Development Programme specifically limits some direct payment provisions to young farmers with additional educational qualifications and skills.

At the forefront of change has been the education and development of young dairy professionals, as recommended by Food Harvest 2020. Demand for young trained dairy farm managers is increasing and the new Dairy Business degree and Professional Diploma in Dairy Farm Management provide the technical, financial and managerial business skills which will improve profitability and resilience in the longer term. The first Professional Diploma class will graduate in Autumn 2014 with more than 50% of these graduates already having secured employment in advance of course completion.

Earlier in this report, a case study was featured on the Technology Adoption Groups. This is only one of a range of knowledge transfer delivery methods which also include farm walks, seminars, visits, open days, office consultation, newsletters, press articles, courses and the today's farm magazine.

Despite a significant reduction in advisors, Teagasc has maintained service to over 120,000 farmers, of which over 40,000 are fee paying. This has been possible through increased productivity and a reduction in farm visits combined with an increase in office consultations and discussion groups. At the end of 2013 there were 814 technology adoption groups, up from 306 in 2008.



Teagasc expects to face increased demand for its advisory services in the coming years including clients targeting sustainable improvements to achieve FH2020 targets, and the demand for information and advice on the new schemes and programmes arising from CAP Reform, the Rural Development Programme, and the Sustainable Use Directive. To combat the fall in advisory services staff, Teagasc plans to further develop relationships with other rural professionals, and, where necessary, outsource services to provide the level of service farmers require.

Improving Skill Levels

Industry

The 2010 Forfas report on *Future Skills requirements of the Food and Beverage Sector* identified the main industry skills gaps as operative upskilling, specialised craft training, supply chain management, graduate in-house marketing & management development, capacity building programmes for middle and senior managers on leadership, management and commercial acumen. All of these areas have been tackled through differing mechanisms, as described in the following paragraphs.

Management & Leadership Development

Enterprise Ireland's leadership and management development programmes are important in enhancing the capability of business leaders to scale up their enterprises nationally and internationally. Food businesses have been particularly active on these programmes and over 100 companies at various levels of development have been supported by the Enterprise Ireland's suite of programmes, which include Leadership 4 Growth (L4G), Management 4Growth, Strategic Leadership 4 Chief Financial Officers (SL4CFOs) and International Selling.

The L4G programme is funded by this Department for participating agri-food companies. The programme specifically targets company leaders, trains them to think strategically and supports new ways of thinking about products and processes to deal with the specific challenges and opportunities facing their company. It is delivered by a globally rated international business school, on behalf of Enterprise Ireland. Uniquely it involves engagement, learning and mentoring from other globally successful entrepreneurs while individual Business Advisor Coaches assist with the follow-through execution of this learning to leadership and strategic issues in their own company. Feedback from participants is particularly positive about the strategic and outward looking approach taken, the immediate impact on upskilling and performance and the ongoing networking support provided.

Strategic Leadership 4 Chief Financial Officers focuses on building the financial, strategic and leadership capabilities required by CFOs who want to become critical players in the successful growth of their companies while Enterprise Ireland's **International Selling Programme** is targeted exclusively at maximising export sales for Irish companies. Over 300 CEOs, managing directors, sales directors and business development executives, many in the agri-food sector, have successfully completed the International Selling Programme.

Finally the **Management 4 Growth Programme** supports the development of management teams, particularly in SMEs to specifically improve operational and people management skills and practices to drive sales and export growth.

A new Enterprise Ireland **Innovation 4 Growth** Programme has been developed in 2014 and the first cohort of participants will start in September.



Improving Skill Levels

Skills Programme

Skillnet, a more hands-on, enterprise centered approach to improving skills has also been successful. IBEC's food and drink business group, Food and Drink Industry Ireland (FDII), developed the FDII Skillnet to purchase, design and deliver a bespoke training programme which met the training and competitiveness needs of that sector. This network initiative which is led, managed and partially funded by the enterprises themselves, has operational advantages. It is cost effective as it secures discounted training from suppliers and frees up company procurement time but is also flexible as training is tailored to essential company needs and delivered at times that suit the company. It has encouraged many employees, who previously had not availed of training, to participate in this more relevant training.

In under one year of operation, over 280 employees from 30 companies operating in the meat, dairy, consumer foods and beverages sectors have availed of its training programme which has included IT, Negotiation, Management, Team Leadership, Financial and Lean modules and most specifically a seminar involving two experts from the US Department of Agriculture on the requirements for exporting meat to the US, if access is achieved.

Skillnet through two other food networks, Taste4Success Skillnet and Rural Food Skillnet provided training to around 3,700 employed and unemployed trainees, while Skillnet and QQI are working on a programme for supervisors in the manufacturing sector, including the food and drink industry.

Under the **Skills for Work** programme, 51 courses were delivered to 356 participants in the food, drink and catering sector, while the Springboard and Momentum labour market initiatives, aimed at unemployed individuals, provide training courses on a range of options including a Diploma in Agri-Food Business Excellence, Diploma in Food Supply Chain Management, Certificate in Culinary Skills and a Certificate in Artisan Food Development.

Food Marketing

The central focus of Bord Bia's education initiatives has been to increase the availability of high calibre talent while improving sales and developing commercial marketing skills in the food, drink and horticulture industry. The four elements of their educational offering have achieved considerable success and cachet since they were first initiated in 2009.

The centrepiece is the Marketing Fellowship where annually between 20-25 graduates with foreign language skills complete a range of commercial assignments for Irish companies as part of their MSc in Marketing. The Fellows of the 2012/2013 academic year completed commercial assignments which have achieved potential sales to date of over €34million. Over 80% of these graduates were retained in the wider food sector signalling the increasing industry regard for the calibre of the programme and the potential value of its graduates.

The Food Marketing Graduate Programme is an 18-month course, run in conjunction with IBEC, placing up to 20 graduates in Irish companies. Unlike the Fellows, who handle multiple clients, this programme offers a full-time resource to one company in their market of choice. It has a particular appeal to companies with a broad export focus as it puts marketing graduates on the ground in export markets, to assess opportunities and to develop markets, contacts and sales. Again the level of retention by companies is high as is the level of uptake of the programme among industry and graduates.

The third element, the Strategic Growth programme concentrates on modular training for existing industry professionals and is directed at developing senior leadership capacity in the industry. Many participants were former Fellows and this programme has helped underpin the 70% talent retention. This course has now been broadened to strengthen its appeal and to develop strategic projects that benefit company requirements.

A new programme for 2014 sees the placement of 10 Origin Green Ambassadors with some of the world's leading food and drink companies. This is to allow them develop extensive commercial knowledge around the issues of food business sustainability while gaining an MSc in Business Sustainability. Their complementary role will be to develop trade awareness and globally promote Origin Green during their 23-month course. The value of this programme is commercially recognised as the majority of these ambassadors have industry sponsors who fund their participation on the course.

Prioritising Research and Innovation



There is an ever increasing recognition of the critical role that research and innovation has to play in dealing with the grand societal challenges of the 21st century particularly in terms of feeding a rapidly growing global population and in developing sustainable agriculture systems.

¹ Innovation in the Irish Agrifood Sector

Research

As a country, Ireland is very supportive of R&D and the agri-food sector is strategically involved in this area. A recent report conducted by UCD¹, with support from Bank of Ireland, assessed the innovation capacity in the Irish agri-food field compared to other European countries. The parameters used were scale of private and public investment in R&D, number of patents and publications as well as innovation outcomes based on firm and farm performance. Overall, the study found that Ireland has the 5th most innovative agri-food sector in the EU, lying behind Denmark, Finland, the Netherlands and Germany. The overall scores for the Netherlands, Ireland and Germany were very similar indicating that, to all intents and purposes, they were broadly equal in terms of the indices used.

DAFM operates three competitive research funding programmes, FIRM, Stimulus and CoFoRD. Under the last three Research Calls in 2010, 2011, 2013, some €75m has been invested in agri-food, marine and forestry research and the Department is currently processing applications under the 2014 Call.

Over the past 18 months EI has supported 35 R&D projects in food, committing over €15m and leveraging in excess of €60m in total R&D investment – this on the basis of new product and process development and enhancement.

Teagasc is the leading organisation in the fields of agriculture and food research in Ireland. It undertakes innovative research on food, animals, grassland, crops, environment, land use and rural economy and development. Its research portfolio comprises some 300 research projects annually, some of which are industry directed. It collaborates extensively with other Higher Education Institutes and has a post-graduate fellowship programme, which supports more than 100 MSc and PhD students. In addition, it participates in EU research programmes and has developed bilateral agreements with research organisations in Europe, the USA and New Zealand. The agri-food sector has benefited substantially from these research outcomes which include technological developments and new information on such diverse topics as genomics, cattle breeding, a new cheese technology platform, carbon navigator, greenhouse gas emissions, gluten free products, new potato varieties and economic and sociological analysis on CAP reform.

Prioritising Research and Innovation

Agri-food research features significantly in the Government's National Research Prioritisation Exercise. This identified 14 priority publicly funded research areas which warranted investment funding, 5 of which relate to agri-food and the marine. This Department has led an inter-agency and stakeholder consultation process aimed at developing a Strategic Research and Innovation Agenda for two of these areas, namely 'Food for Health' and 'Sustainable food production and processing' which, when completed later this year, will help guide future research funding investment decisions by the Department and other funders over the medium term.

The State also actively engages with Research Performing Organisations (RPO) to secure international research contracts and this Department is the national Delegate and national Contact Point for relevant agri-food and marine research programmes under the EU FP7 and Horizon 2020 frameworks. It has been successful in encouraging and assisting inter-agency and industry participation in these international research projects. In 2012 and 2013, Irish institutes secured 2.12% and 2.96% respectively of the available funding under FP7, exceeding the 2% target set. Over the lifetime of the EU FP7 programme, research funding in excess of €38million was secured. Further research engagement is envisaged under the next Rural Development Programme (RDP) which currently includes funding for European Innovation Partnerships (EIPs) which are specifically directed at increasing links between research outcomes and practice in the field.

Some of the results of these primary research efforts underpin the commercial successes illustrated in the following pages but would also include work done on developing gluten free bread, progressing genomic advantage and climate change initiatives.

Growing the gluten-free market



The increased incidence of coeliac disease in Ireland, coupled with consumers following a gluten-free diet for other health reasons, have resulted in a significant rise in the demand for high quality gluten-free products. Bord Bia research showed that the UK gluten free market is exceptionally strong, growing by an extra £48m (or 37%) in the 12 months to February 2013 while the Irish gluten free bakery market is valued at €9.2m with purchases

up from 6% in 2010 to 26% in 2014. This escalating demand has been paralleled by the improved selection and quality of gluten-free products on the market. Teagasc developed an expertise in this area, and throughout 2013 has collaborated closely with a number of bakeries to contribute to the development and launch of new ranges of high-quality products on the Irish, European and international marketplaces. In particular, novel gluten-free breads, with good texture and flavour, and other confectionery-type products, have been developed. This has been achieved through collaborative baking trials between Ashtown and a number of small and medium-sized bakeries. In the year since the UK research was undertaken, Irish suppliers have made inroads into the UK market, with some half a dozen companies at varying stages of investigating/supplying into the market. Customers of Irish gluten free product now include Ocado (and the Ocado Irish Shop), ASDA, Tesco and Selfridges.

Other outcomes

- the development by Teagasc and ICBF of a new genotyping chip for use in dairy and beef cattle breeding will help to position Ireland at the forefront of global efforts in implementing genomic selection in our herds;
- the findings of the research study comparing the welfare attributes of Irish grass-based beef production systems and intensive beef production system in Belgium showed the competitive advantage, on animal welfare grounds to our beef production systems. This outcome has been used to marketing effect by Bord Bia;
- the science-based submission by Teagasc suggesting changes to Ireland's Nitrates Action Programme (NAP) on phosphorus and nitrogen allowances, soiled water and application of herbicides. The suggestions were subsequently incorporated into the new NAP;
- the halving of tri-chloromethane (TCM) levels in Irish butter. This research outcome meant that Kerrygold continues to achieve the very high standard set by the German market;
- Teagasc's work on the marginal abatement cost curve is shaping climate change policy in Ireland, the European Union and also in the UNFCCC as part of the global negotiations on a successor to the Kyoto Agreement post 2020.

Prioritising Research and Innovation

“Farmers use technology to increase profits,”

Innovation

Innovation is everybody's business and must be the primary way of thinking if we are to remain relevant in today's world. The initial tendency can be to see innovation exclusively as a high-technology offering with scientists, researchers and engineers creating brand new products and services which are desirable, technically possible and commercially viable. This can be a limiting view of innovation as the broader and more commercially focused perspective will also include the full range of non-technological advances.

In that broader sense, innovation will also include incremental product change involving reformulation, redesign or rebranding, process improvements, developing new ways of addressing old needs as well as generating and marketing 'new' needs which can be met by adapting existing technology. This innovation 'sweet spot' happens at many levels and across all disciplines. It encompasses all improvements which the State, industry, farmers, researchers, and other stakeholders can bring to enhance capability, add value to product and connect with consumer needs.

Farm organisations and farmers themselves are increasingly recognising the importance of technology for development and the ease with which it can be accessed. To further encourage this trend, Enterprise Ireland is sponsoring a new Innovation Arena at this year's Ploughing Championship.

The following are examples of bright ideas which illustrate the growing importance and relevance of smart technology in increasing productivity and profits on the farm.



Prioritising Research and Innovation

Food Industry R & D

At the company level, over the past 18 months Enterprise Ireland has supported over 35 R&D projects in food, in addition to its involvement in FoodWorks, the food HPSU entrepreneurial programme. It has committed over €15m which has leveraged in excess of €60m in new R&D investment. This has been primarily directed to new product, process development and enhancement. Through a mix of funding, advice and expertise, companies have increased the amount of innovation in their business with good commercial impact. Lir Chocolates is a good example to illustrate how development, sourcing and licensing of new technologies can transform product.



Lir Chocolates

As a company Lir Chocolates has grown from a kitchen concept to a business with a multi-million turnover with leading retailers. It has invested extensively in product development, consumer insights and cutting edge packaging to convert basic raw material into a quality value added product attracting a premium price.

Having won several Great Taste Awards in recent years, in 2013 it planned to be the first to develop and market in Europe a sprayed chocolate production line. Supported by Enterprise Ireland, the company set up a multi skilled team of internal and external people to develop natural colours along with bespoke processing equipment. These chocolates were successfully launched on UK market and sold over €1m in their first year. The UK Telegraph voted the chocolates "Best of the bunch" in their best chocolates boxes for Christmas 2013.

Collaborative research

In addition, through its innovation partnership programme Enterprise Ireland has supported a number of strategic research projects. It has been instrumental in driving the research collaboration from which both the Food for Health Ireland and the Dairy Technology Processing Centre have emerged. It is now working with the meat sector to effect a further round of collaboration. While these technology centres are dedicated to the food industry and highlight the growing collaborations within that sector, there are 14 other technology centres, ranging from energy to data analytics, which also have food company participation.

Innovation Leadership

In recognition of the central part played by innovation in developing a truly global footprint, Enterprise Ireland is introducing a new Innovation4Growth programme in 2014. Recruitment for this new programme has started with the first cohort scheduled to get underway in September.

Prioritising Research and Innovation

foresight4food

Bord Bia's foresight4food programme is branded as a simple path to innovation success. It uses their newly developed Insight & Innovation Workbooks to direct companies through a 7-step pathway from groundwork research through refining and building a brand to product launch and review. The advantage is that the Bord Bia team can focus their insight on one or all of these steps depending on company requirements.



Glenilen Farm already a producer of quality yoghurts and deserts wanted to be ready for the chilled individually portioned deserts which retailers had identified as a area of growth. The particular focus for the Bord Bia Consumer Insight & Innovation team was to help determine whether this was an area of potential for Glenilen, and if so, how might it be tackled.

This involved reviewing a range of market reports to gauge the single serve opportunity, conducting qualitative focus groups with consumers to assess their reaction on taste, size and presentation. In-store visits were also undertaken to understand shoppers actual behaviour. The result was that the company produced a range of single serve occasion deserts which secured retail listings and were incorporated in the Tesco Finest meal deal.



Dee Wholefoods wished to extend their product range from 100% organic and vegan burger products to a wider vegetable meal pot idea. The Bord Bia team concentrated on consumer research to assess need and potential demand for a vegetarian pot meal range and then worked with the company on markets, pricing and selling techniques. Once the products had been launched, they assessed the brand fit between the two ranges. The outcome was a successful launch and listings achieved with all main retailers of a new range of meal pots in various flavours. Due to the growth achieved, a fourth product, based on quinoa, followed.



Flahavan's long establish porridge oats currently enjoy over 50% of the Irish hot cereal category and their main concern was to maintain or improve this position in the face of global competition. Bord Bia's innovation work for this company primarily revolved around brand building, i.e understanding Flahavan's customers, developing better brand engagement and assessing what sort of innovation would appeal to these and new consumers.

Following extensive background research on developments in the breakfast cereal market, Bord Bia engaged directly with Flahaven's own consumers as well as shoppers generally to understand the drivers for breakfast cereals purchases and to measure quantitatively consumer loyalty to the brand. They discovered that the key drivers for brand loyalty for this product were local, heritage and health. So, the decision was made to incorporate these core values into the revamped product using contemporary packaging. The outcome was that Flahaven's consolidated its leadership position and held its price premium with its relaunched products.

Collaboration



Throughout the sector, there is a growing realisation that collaborative working and more strategic engagement with industry is a more effective use of resources. These type of engagements introduce new knowledge and expertise to research projects, result in a faster transfer of knowledge to the end user and the focused development of products and systems which have immediate commercial potential. In addition when properly structured it results in an inclusive environment that energises teams, releases creativity and increase productivity.

Teagasc-Irish Dairy Board

A few years ago, Teagasc initiated a Public Private Partnership with the Irish Dairy Board (IDB) to create a pipeline of consumer products and value added ingredients. It has now developed over 300 different cheese variants with 4 of these now ready for market launch. One is a specially developed white cheese catering for middle-eastern tastes. Its creation combined IDB's market intelligence, access and contact networks with Teagasc's technological skills. Teagasc pioneering technology allowed innovative milk protein ingredients to be recombined for fresh white cheese production. The result was the development in 2013 of a new cheese with an orientation directed at a specific market and taste. This cheese will use Irish produce, Irish patented technology but will be manufactured in Saudi Arabia in IDB's €20m, investment. The local production facility will increase competitiveness but will also provide a strong marketing and distribution base for the wider middle eastern and north African (MENA) region which is being targeted by Irish exporters.

A second continental cheese has been commercialised with an Irish company and will be launched later this year in Germany, while two more cheeses are highly progressed and are planned for launch in 2015. These new products build on the previous success by Teagasc in this area, when its collaboration with Carbery resulted in Dubliners Cheese and an earlier venture with IDB produced Pilgrims Cheese.

Food for Health Ireland & Technology Centres

Supported by Enterprise Ireland, Food for Health Ireland (FHI) links the expertise of researchers (Teagasc, UCC, UCD, NUIM, NUIG, UL, DCU) with the marketing and commercial expertise of industry partners (IDB, Carbery, Dairygold, Glanbia, Kerry) to develop, manufacture and market new functional food ingredients which improve people's health and wellness. Functional foods, sometimes termed nutraceuticals, fit into the health and wellbeing food market and are estimated to be worth €158 billion globally. However, it is a challenging and long term market as it is based on developing market orientated consumer products with scientifically based and proven health enhancing capabilities.

FHI is primarily but not exclusively dairy based. During its first phase, it completed research into "mining" milk for active ingredients that could help in the areas of infant nutrition, appetite modulation, performance nutrition, healthy ageing, metabolic health, infection and immunity. It identified 75 ingredients with potential to be used in functional foods. Applications would include glycemic management and the prevention of age-related muscle loss.

The aim for the second phase, which is backed by an investment of €21m, is to commercialise this research and to assist food and beverage manufacturers create products with really strong and compelling nutritional attributes. Currently, 5 Invention Disclosure Forms (IDF's) have been submitted to the Technology Transfer Offices, 3 patent applications have been lodged, 7 research projects with current industry partners, 2 projects with global food companies have been completed and other projects are in the pipeline.

Collaboration

In addition a second technology centre focussed on the food industry is at an advanced stage of development with a third in the scoping stage. This trend towards cross sector collaboration is expected to accelerate in the coming years and to have a positive impact for all participants.

Bord Bia - Dairy Co-operatives

The Sustainable Dairy Assurance Scheme (SDAS) was developed by Bord Bia during 2012 and 2013 following a request from the Irish dairy industry and feedback from international customers. Prior to this, Bord Bia had undertaken extensive research amongst current and prospective customers of Irish dairy products in Europe, China and the Kingdom of Saudi Arabia which highlighted the need for a certified sustainable dairy scheme. Industry also saw the benefits and promotional opportunities and were active collaborators with Bord Bia, the farm organisations, Teagasc and FSAI in developing a scheme which met market needs. The dairy industry funds the scheme and also provides a further €1 million to assist Bord Bia's promotion of dairy products under Origin Green.

The end result is the first national dairy scheme of its type anywhere in the world. It is a rigorous, independently verified and internationally accredited programme that not only sets out the requirements for best practice in Irish dairy farms but provides a means of measuring and improving the performance of every participating farmer. The auditing of Ireland's 18,000 plus dairy farmers is well underway and the goal is for all dairy farms in Ireland to be signed up and participating in the SDAS by 2016.

Blue Whiting

BIM operates a three hub seafood partnership programme through the Seafood Development Centre (SDC) in the south west, Teagasc Ashtown on the east coast, and the Letterkenny Institute of Technology in the North West. Over the past few years, around 400 companies have been involved in this partnership programme which has resulted in 40 new seafood products from 18 companies.

Last year significant progress was made at the SDC on developing consumer value added products from blue whiting, a fish which was previously disregarded or used as fishmeal. BIM and industry undertook successful primary and secondary processing trials to establish whether or not the blue whiting species was suitable for processing, as well as technical engineering work to align machines for the new products. Both ambitions were realised. The processing involved reformatting the product into bulk frozen form, then into deli cuts or fillets. This was followed by an assessment of various options for consumer ready formats involving kitchen and sensory trials and finally through to commercial product development.

Currently, meat recovery at an economically viable level has been achieved and work is commencing with a seafood company to develop a range of commercial products. This is an important development given that there is a national shortage of processing material and this new product has the potential to provide 35,000-40,000 tonnes of additional raw material.

An increased level of activity is evident in the entrepreneurship/new starts space. From an average of 3-4 new high potential startups funded by Enterprise Ireland annually some years ago, the average of 7-8 good high quality, high potential start-ups (HPSUs) now emerge every year. The Food Works programme, a collaboration between Bord Bia, Teagasc and Enterprise Ireland has become an important feeder for this pipeline but the wider promotion of the start-up space via Enterprise Ireland's Competitive Start Funds is also a key factor.

FoodWorks

The Food Works focus is to identify, nurture, support and develop new potential food and drink HPSUs to help them maintain their potential and capability to scale up to medium sized enterprises. It was developed to address the recognised lack of new medium sized food enterprises in Ireland due to the high capital costs involved, relatively low and slow investment returns and the legal prohibitions on State investment in this area.

The selected potential HPSU entrepreneurs engage in a twelve month programme to develop their product from concept to investor ready business plans. Support is provided through consumer research, a feasibility grant, technical product development assistance, business and financial mentoring. Access to the experiences and insights of established food entrepreneurs is a further core element of the programme. This hands-on innovative support is facilitating a small cohort of food entrepreneurs to launch new products on the domestic market and ultimately to move into exports. Over 100 applicants applied to programme 1 with 48 applicants for programme 2 and out of these, it is hoped that 5-6 new enterprises will develop annually. Some of the potential entrepreneurs in the pipeline would include the following:

“A pipeline of new food high potential start-ups”



Entrepreneurship



FRUCHEE by Dairy Concepts Ireland (DCI)

The focus here was on developing an innovative healthy cheese snack which appeals to children based on a revolutionary new cheese-making technology, developed by Teagasc. DCI then took this technology and developed a product which incorporated the nutritional benefits of cheese with the taste appeal of fromage frais. The end product is packaged to resemble individual bite size confectionary pieces which appeal to children. Using consumer focus groups and workshops conducted as part of the Food Works programme, DCI have created a brand positioning that represents a superior permissible sweet snack that appeals to both parents and children. Further in-market research is planned for 2014 with launch anticipated in 2015.



Orpens Cider

The international and national market for craft beers and cider is growing and domestically almost half of the 37 independent breweries and cider makers have been set up since 2009. Conscious of this expanding market, two former wine industry professionals started Orpens Cider and approached Food Works for direction and support in developing a craft cider company. The programme assisted them to assess market trends, carry out sensory tasting and product standardisation and to improve their labelling and supplier networks. The outcome was that Orpens developed a crisper cider targeted at the female market, made a successful application to Enterprise Ireland's Competitive Start Fund and achieved HPSU status.

Following a successful initial trial, in February this year, Orpens secured a listing with 65 Tesco stores nationwide, growing their presence in the Irish market. They have recently secured a distributor in the UK and the export market is now the key priority for them.



Atlantic Seafood
Company of Ireland

IASC Atlantic Seafood

This company has developed a seafood butter, branded as a first Umami butter, which combines Irish butter with organic shellfish and wild foraged dilisk seaweed. It used the incubation unit at Teagasc Ashtown to develop the product and their food scientists also assisted with issues such as food allergens, cross-contamination and sensory analysis. The Food Works programme facilitated formal introductions to Mr Crumb which enabled greater access to the specialist food service market by partnering with an existing accredited food supplier. In addition to listings with 30 Musgrave's outlets nationwide, the product is currently being used by more than 300 foodservice outlets and restaurants across the UK and Ireland. IASC has received Enterprise Ireland HPSU investment and are current participants on Bord Bia's Foodservice Market Development Programme.



SynerChi Kombucha

SynerChi is a kombucha tea drink containing live cultures and is positioned as a naturally carbonated healthy alternative to soft drinks. During the 12 month Food Works programme, the company moved production from Stoneybatter in Dublin to Gweedore, Co. Donegal and underwent a total brand overhaul and re-design. This brand activity was supported by Bord Bia and included brand workshops and consumer focus group sessions in both the Irish and UK markets. Laura Murphy is the innovator behind the Synerchi Kombucha brand and she has recently secured investment from Raymond Coyle of Largo Foods. While final distribution planning is underway, the key outlets will be retail, pharmacies, wholesalers and health shops. The company is projecting a sales turnover of €8 million within the next three years, predominantly focusing on the UK and Ireland markets.

Creativity and Best Practice



A more innovative and creative outlook is also evident in the state agencies operating in the agri-foods sphere. A significant feature, illustrated by the following examples, is the extent to which these organisations have assessed scientific, technological and global best practices and, where relevant, have adapted them to meet current industry requirements. This outward looking and creative perspective ensures that these bodies keep abreast of advances and are open to new developments which will assist the advancement of the sector.

Genomics

State bodies and farmers have been to the forefront in adopting genomic technology which can accurately determine the breeding value and performance of young animals and lead to increased profitability at farm level. Irish dairy farmers have been among the top adopters and implementers of the ICBF economic breeding index (EBI) and genomic technology. As well as selecting genetically for better milk production traits, the EBI further increases milk production by longer lactation periods and greater cow longevity. The EBI of dairy females has increased by over 50% in the past five years and currently 52 of the top 75 bulls on the ICBF active bull list are genomically selected. The end result is that over the 2009-2013 period, the value of the genetic gain in the dairy herd has increased by €363m of which €211m relates to genomics. This high uptake has been facilitated by strong public funding support for applied genomics research and the short path between research and implementation.

Building on this success, steps have been taken to replicate this performance in the more challenging beef sector. An excellent start has been made on genomic selection in the beef herd as under the Beef Genomics Scheme (BGS), all stock bulls and a selection of highly related suckler cows in each herd were tissue sampled and a subsequent genomic evaluation established in 2014. This was done using a new genotyping platform (SNP chip) developed in collaboration between Illumina, ICBF, Teagasc and Weatherbys. This provided, at a low cost, several types of useful DNA-based information to aid cattle breeding, the generation of genomic proofs, parentage verification and screening for lethal recessives, congenital disorders, and major genes. Parallel with collecting this DNA data has been the collection of performance data on animals, gathered from over 34,000 farmers under the Beef Data Programme.

These initiatives are helping to place Irish farmers as first movers in transferring parentage testing from microsatellite to SNP technology, to put Ireland firmly to the forefront globally in beef genetics and are providing the facility to use this genetic data to develop a genetic traceability system, which if successful, would be a global first.

Sexed semen heralds a revolution on Irish farms

Sexed bull semen allows farmers to control the sex of calves born to their cows. Until 2012, its use in Ireland was low, at approximately 10,000 straws per year, primarily due to the lower fertility rate of sexed semen. In 2013, Teagasc conducted a field research trial using 15,000 new frozen straws, possibly the largest such trial ever conducted in the world and found positive results for both the sex ratio (+90%) and conception rate (85% of the conception rate from conventional AI). Based on these favourable results, it is estimated that the usage of sexed semen in 2014 will exceed 50,000 straws. This represents a 500% increase within one year. As a result of strong farmer demand, it is likely that a permanent sexed semen laboratory will be established. Greater usage of sexed semen has benefits for both the dairy industry (allowing faster expansion post quota), and the beef industry (fewer low value male dairy calves). This has the potential to be one of the most important technologies introduced on Irish farms in recent years.

Animal Diseases

Animal disease levels impact on profitability, reduce competitiveness and have animal welfare implications, so Animal Health Ireland (AHI), an industry-led, not-for-profit organisation, was established to educate farmers on the control of non-regulated diseases such as BVD and Johnes Disease. Continued awareness building systems, such as farmer workshops, meetings, attendance at shows, regular articles in farming press, etc are having an impact and strides have been made on building knowledge at farm level about the economic impact of these diseases and how they can be controlled.

The first year of the BVD programme has been completed and compliance has been very high with results recorded for 99.5% of the 2.1m registered calves born in 2013. In 2013, 0.67% of these calves were considered to be persistently infected (PI) with BVD virus, while to date in 2014, the level has been reduced to 0.42%.

AHI launched a voluntary pilot programme for Johnes disease in October 2013. Around 1900 herd owners had applied to join by end March assisted by the Department's agreement that the test samples taken under Brucellosis round test could be used as a screening tool. Delivery of the CellCheck programme has also started with the intention of establishing a complete national SCC dataset by end 2014 and of achieving a national average SCC rate at or below 200,000 by 2020.

Creativity and Best Practice



Online shopping

The Bord Bia report “*Tomorrow’s Shopper*” points to the increasing role mobile technologies can play in consume decision. The Rabobank report “*Food Processors Challenged by Online Growth Dynamics*” gives a similar message to processors and predicts that online food retail could be a game changer similar to the impact of self service supermarkets in the 20th century. Overall European online sales are set to double to €323bn by 2018 with Irish online sales expected to account for €11.5 bn of that total. Food and drink companies with the capability to leverage customer demands using digital technology will clearly be best positioned to deliver benefits to shoppers. Having identified advice and training as key to successful online trading, Bord Bia has now joined forces with Google to train 21 Irish food companies on best practice on maximising online sales in a Digital Food Hub programme. In addition, many of these firms have now been listed on the Irish Shop page of Ocado, UK’s only dedicated online supermarket and the largest online food retailer in the world. Over 40 Irish brands will be available on this site including a dedicated Irish breakfast section. This is an area which is expected to grow quite significantly and will require a new approach to marketing to make products stand out but can also offer scale and a quicker route to market, and for some, their first UK listing.

Supplier Development

Bord Bia and Enterprise Ireland have developed programmes, which operate at different levels, to assist smaller suppliers gain an entree with retailers. Small and speciality food producers face a number of challenges getting their product listed by retailers and in scaling up to meet the increased demand. They frequently have a knowledge deficit on what retailers require, experience significant difficulty in accessing buyers and getting a listing and having secured an order, building and maintaining their capacity to sustainably grow the trade.

To assist pre start-ups and start-ups looking to develop at local and regional level, Bord Bia, has developed the Food Academy which is run by newly established Local Enterprise Offices (LEOs) with support from Musgraves. In this programme, participants are mentored with one to one training on finance, regulation and marketing and successful participants can then progress to an in-store trial with SuperValu. In its first six months of operation, 200 companies completed the Food Academy Start programme.

Bord Bia also partnered with Tesco in 2012 to help participants with the necessary skills to secure, grow and maintain a listing with this key supplier. Tesco is a major international buyer of Irish food exports, around 10% of total, so knowledge of their requirements offers suppliers a unique insight into global food retail standards and requirements. The 17 selected companies in the first Bord Bia Tesco Supplier Development Programme attended workshops, received structured mentoring, had access to consumer data and insights and gained knowledge of Tesco’s processes and requirements. Bord Bia has tracked €16m in sales since this programme started with at least three of the participants (BFree, Chia Bia and Lily O’Brien’s) going on to secure listings in the UK as well.

The Enterprise Ireland’s Supervalu Supplier Development programme, which has been going for six years, has a focused export agenda and its programme provides structured access to key retail buyers, market visits organised by the Supplier Programme and practical mentoring from other companies who have already moved into the international arena. Suppliers also benefit from the wide range of Enterprise Ireland financial supports, such as feasibility grants, Going Global fund, equity and private investment funds, to help them expand and build capacity. Enterprise Ireland estimate that the programme generates around €20m in new business for indigenous companies.

Technological improvements

DAFM has been at the forefront in availing of technological advances to streamline systems. Farmers and other clients are encouraged to use IT and technology to reduce errors and maximise their entitlements. Over 600,000 text information and reminder messages are sent annually to farmers on a range of issues to keep them up to date with developments. To speed up processing time and standardise information gathering, staff use hand held device to input data during field inspections and many external users, meat plants, veterinary inspectors and other users, can view and /or input animal movement data direct on the system. Farmers and clients now file 56% of all SPS applications and 47% of calf registrations online. They also have the online facility to edit maps, view their nitrogen and phosphorus statement as well as accessing their financial data, current and historic.

The overall experience has been that systems and technology which facilitate the needs of clients and simplify processes are welcomed and are increasingly being used by clients.



Sustainable Food Systems Ireland

Ireland's government agencies play a fundamental role in the development of the agri-food sector. In doing so, they have acquired wide-ranging expertise in many areas including food safety, marketing, education, advisory services, animal health and research. The Food Harvest 2020 Implementation Committee recognised the value of these skills and their potential use by other countries who are seeking to develop their own agriculture and food sectors.

In late 2013, the HLIC initiated a pilot project, "Sustainable Food Systems Ireland" (SFSI), to market and commercialise these Irish government and near to government agri-food expertise and services internationally. Its objective is to develop, on a commercial basis, solutions and projects using Irish expertise and services, which address relevant requests for assistance from international customers whether they be government agencies, international organisations or international private sector companies. SFSI will also be a vehicle to promote Ireland's global image as a place in which the production of high quality food is underpinned by world class science, research and food safety standards.

A Project Director has now been appointed and SFSI should be fully operational later this year.

Africa Agri Food Development Fund (AADF)

African agricultural output is predicted to rise from \$280bn today to \$900bn by 2030 and as such represents significant potential opportunities for the Irish agri-food sector. With a view to encouraging Irish companies to engage with Africa and explore these opportunities, AADF was established in 2012 as a joint initiative between the Departments of Agriculture, Food and the Marine and Foreign Affairs and Trade.

AADF represents a coming together of different but complementary government strategies in particular the Africa Strategy and Food Harvest 2020. It also is a strategic recognition that a number of the skills developed and much of the experience gained in the establishment of the Irish industry could potentially be transferred to assist in the development of the agriculture and food sectors in African countries while assisting Irish companies to establish themselves in Africa. AADF's core objectives are to develop partnerships between the Irish agri-food Sector and African countries to support sustainable growth of the local food industries, build markets for local produce and support mutual trade between Ireland and Africa.

**Africa Agri-Food
Development Fund**

Coiste Forbartha Agraibhia don Aifric



Creativity and Best Practice

Lean Competitiveness Programmes

Enterprise Ireland's suite of Lean business programmes have been in operation since 2010 and during that time 160 Lean projects have been supported in the food sector through DAFM funding. These programmes work with clients companies to develop tools, people skills, processes and practices which deliver savings and improved competitiveness. The programme works through three ascending levels of capability- Lean Start, Lean Plus and Lean Transform – with each level providing savings depending on the scale and depth of lean practices it has been possible to adopt. It is estimated that this suite of programmes deliver average annual cost savings ranging from €69k from Lean Start, €169k from Lean Plus to Lean Transform delivering between €200k and €10m. Lean Transform, which focuses on large scale, extensive and holistic company transformations, achieve the greatest savings but by their nature are fewer in number and involve more complex, deep rooted change.

The impact and relevance of these programmes is well documented.



A man in a white long-sleeved shirt and dark shorts is running on a dirt path in a rugged, mountainous landscape. The entire image is overlaid with a green gradient. The word "green" is written in large, white, lowercase letters across the center of the image.

green

Introduction

“The environment, its value and protection, is key to Food Harvest vision.”

The UN predicts that the world population will grow to over 9.5 billion by 2050 requiring food production to grow by about 60% over the same period. The OECD has indicated that this growth will include a more urbanised and affluent middle class growing at about 150 million a year. This creates a market, in buying power terms, the size of the EU every three years.

The current rate of population growth, urbanisation and affluence is putting unprecedented pressure on world resource in terms of water, land and energy availability and also raises growing concerns for future global food security. While food security is not of major national significance, per se, Ireland as a major food exporting country with comparatively abundant natural resources is well placed to grow food production and exports to meet this growing demand.

Ireland's agricultural economy is based on extensive, rain-fed, fertile and low-input grass based production system, while its marine environment is extensive with exclusive rights over 220 million miles of seabed. In the changing world of rising global population and shortage of water and fertile soil, these environmental attributes are invaluable.

Food Harvest 2020 recognised the value of this resource and in its “Think Green” theme, set out the necessary steps to capitalise on these advantages while also minimising the environmental impact. These included

- capitalise on natural advantages
- prioritise environmental protection and conserve biodiversity
- build environmental credibility
- align sustainability across the supply chain
- satisfy consumer requirements
- develop an umbrella “Brand Ireland”

Over the past three years, Bord Bia has used this FH2020 template to develop Origin Green which is Ireland's path to becoming a recognised world leader in the delivery of sustainable high quality food and drink products. This pathway, in effect, ticks all the above boxes and is becoming a very powerful tool in demonstrating the extent to which Ireland's agri-food stakeholders have embraced sustainability concerns. More detailed case studies are set out in the following pages.

Notwithstanding the work being undertaken as part of the Origin Green and other initiatives, achieving long term environmental sustainability is a complex and long term project. The central issue still remains that agricultural and fishing activities have potential impacts on emissions levels, on biodiversity and on air, water and soil quality. It is accepted that it will be challenging to meet the ambitious growth targets set in FH2020, particularly the 50% volume increase in dairy output and the 80% expansion in aquaculture production, while simultaneously minimising impacts on the environment and fulfilling environmental commitments under national, EU and global legislation and agreements.

These issues were examined in detail in the Environmental Analysis of Food Harvest 2020 report, published in early 2014. Following consideration of this report, the HLIC agreed that its conclusions would be mainstreamed into their work programme, that Milestones for Success 2014 and future annual reports would specifically report on environmental actions and that actions of public bodies would take this report into account.

Introduction

The issues surrounding national GHG emissions illustrate the complex inter-relationships involved in environmental decision making.

Because of the relative importance of agriculture and livestock in the Irish economy, agriculture is responsible for 32% of national GHG emissions, whereas average agricultural emissions in the EU are of the order of 9%. Irish agriculture has greatly increased its efficiency of production since 1990 which has led to a significant reduction in the carbon footprint of Irish produce. This fact has been verified by international research which shows that the carbon footprint for Irish milk and beef is now amongst the lowest in the EU. Notwithstanding these ongoing gains in efficiency, in the absence of mitigation actions, Teagasc– FAPRI analysis projects a 12% increase in agricultural GHG emissions by 2020. Mitigation measures have been identified which could allow the growth targets of Food Harvest 2020 to be achieved without an associated increase in GHG emissions. These have been collated in a Marginal Abatement Cost Curve and many of these measures underpin the measures in the draft Rural Development Programme and are also being promoted to farmers using the Farm Carbon Navigator. The Sectoral Roadmap for the Agriculture Sector, is currently being drafted, to meet the requirements under the Climate Action and Low Carbon Development Bill 2013 which, in turn, reflects the EU policy objective of making Europe a low-carbon economy by 2050.

Besides GHG emissions reduction, other environmental issues of significance to the agriculture sector relate to achieving good water quality under the Water Framework Directive, limiting ammonia emissions under the Gothenburg Protocol and protecting biodiversity. These multiple demands, arising from a variety of national, EU and global policy instruments, require a comprehensive approach to environmental sustainability

This task is being advanced through the stronger environmental focus in the CAP and CFP outcomes, in the draft RDP recently produced and through the implementation of the recommendations of the recently published Environmental Analysis on the Food Harvest 2020 report itself.

Achieving the necessary balance will neither be simple nor short term. At a minimum, it will require sustained application of new management practices which are underpinned by credible research findings, improved knowledge transfer and implementation of more carbon effective adaption and mitigation measures.



Independent verification of sustainability credentials

EU research² has verified Ireland's low carbon footprint. In a 2010 comparison with the other EU 27 Member States, Ireland had the lowest emissions per kg of pork, (4.8kg/kg vis a vis an EU average of 7.5kg/kg) and for milk production, (1kg per kg of product compared to EU average of 1.4kg/kg), while Ireland's emissions per kg of beef were the 5th lowest at 18.4kg/kg compared to the EU average of 22.2kg/kg).

In a study of the world's main dairy and beef producers, the UN confirmed the sustainability of water usage by Irish cattle farmers, with a 0% stress rating. This result is similar to the research findings of Cranfield University which showed that both in terms of absolute quantity of water used and its water stress impact, that the water footprint for Irish beef and dairy production outperforms other beef producing nations.

Ireland is also working in collaboration with other partners on developing agreed methodologies for the quantification of a range of sustainability parameters. DAFM is the main contributor to the FAO partnership on Livestock Environmental Assessment and Performance (LEAP), which aims to develop a harmonised global approach to quantifying the environmental impact of livestock production systems. As part of this partnership, Teagasc has assumed responsibility for developing methods for defining Nutrient Use Efficiency. To date guidelines have been published for animal feed, poultry and small ruminants, see link, (<http://www.fao.org/partnerships/leap/public-review/en/>) The partnership is currently working on guidelines for large ruminants.

At EU level, Ireland is engaging with DG Agriculture under the Agricultural Sustainability and Climate Change Working Group and with DG Climate Action on the working group on Land use, land-use change and forestry (LULUCF) which is working on the development of the revised inventory requirements and parameters on GHG emissions.

² EC Joint Research Centre: Evaluation of the livestock sector's contribution to the EU GHG emissions (GGELS), 2010 (pages 171, 29, 29-30 respectively)

³ Cranfield University (Dept. of Environmental Science and Technology) Water Footprint of Irish Meat and Dairy Productstx

Research collaborations on climate change initiatives

Research is ongoing on the development of further measures and technologies to reduce emissions from the agriculture sector. There is a particular emphasis on potential advancements from activities such as animal husbandry, health, feeding and nutrient management which could be adopted relatively easily at farm level. In 2013, the Department committed around €9 million to climate change & cross cutting research projects under the Research Stimulus Fund. This brings the total funding committed since 2005 to almost €30 million. There is close co-operation between the EPA and the Department in ensuring that their respective environmental research programmes are complimentary, this collaboration is facilitated by the EPA membership on the FH 2020 HLIC.

The Department and its research agencies collaborate with other bodies, nationally and internationally, in an effort to find suitable mitigation technologies and approaches. One of the larger projects funded in recent years is the 'Gaseous Emissions and Land Use Network – GHG Ireland', a network that brings together all principal investigators working in the field of agricultural climate change research on a 4 year networking initiative. Its main focus is to improve our understanding of carbon stock changes in agricultural soils in order to contribute to the development of a more robust inventory and accounting system for GHG emissions.

It is also actively involved in the Joint Programming Initiative on Agriculture, Food Security and Climate Change which brings together 21 European countries who are actively involved in five core research themes addressing the interconnected challenges of sustainable agriculture, food security and impacts of climate change.

At an international level, Teagasc's research on GHG's, particularly the Marginal Abatement Cost Curve and their recent report on "Carbon Neutrality as a Horizon Point for 2050, has been instrumental in shaping the direction of policies on agriculture and climate change in the European Union. In addition, Ireland is a founder member of the 31 country international research alliance on agricultural greenhouse research. This international body pools resources and knowledge on GHG emissions reduction and focuses on practical mitigation technologies at farm level. Due to the importance of agriculture to this economy, Ireland is on the Governance Group and is one of the countries leading on GHG research.

Best Practice

National Sustainability Initiatives

Teagasc has undertaken in depth analytical research on mitigation measures which, if implemented, could reduce GHG emissions from the agricultural sector by 1.1MtCO₂ equiv. per annum, which would result in a ‘flat-lining’ of emissions in the context of Food Harvest 2020 growth. Ten main measures are highlighted in their Marginal Abatement Cost Curve for Irish Agriculture (MACC) based on both Life Cycle Analysis (LCA) and inventory methodologies (IPCC) and their respective costs and benefits determined. Five of these measures are cost beneficial and should be regarded as win-win options as besides reducing the carbon footprint they also help reduce costs. Three are cost neutral but require change of land use while the remaining two require technological intervention and their associated cost might inhibit implementation. The five cost efficiency measures are

- improving genetic gain,
- increasing daily animal weight gain,
- extended grazing season (dairy),
- extended grazing season (beef) and
- improving nitrogen efficiency

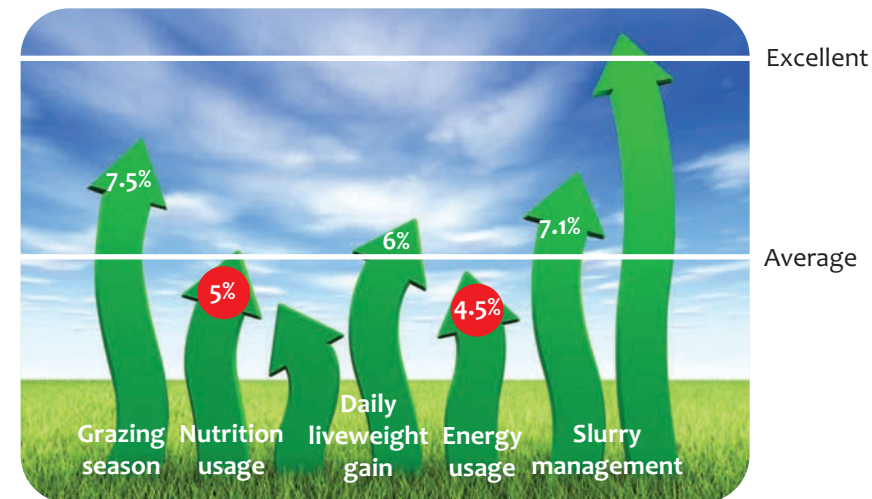
As part of its broader knowledge transfer strategy, Teagasc is working with producers on advancing the implementation of these competitiveness- enhancing technologies. These underpin initiative such as Origin Green, the beef genomics scheme, Carbery Greener Farm project, the EPA Smart Farming initiative. The EU wide Flagship Farms project, developed by McDonald’s to encourage sharing of sustainable agricultural practices, is another knowledge transfer example and the selection by them of a Kerry dairy farm as one of their Flagship Farms is a further indication of Ireland’s best-in-class approach to sustainable milk production.

Carbon Navigator

The Farm Carbon Navigator has been developed as a joint initiative between Teagasc and Bord Bia to allow individual farmers achieve greenhouse gas reductions and increase their efficiency. It helps farmers develop an individualised plan to reduce their carbon footprint on either their dairy or beef farm. The carbon navigator works to increase awareness, at farm level, of the potential for GHG mitigation, helps farmers to determine their own status and to establish targets to increase efficiency and reduce GHG emissions.

In 2013, it has been used on 450 farms under the Beef Quality Assurance Scheme and Beef Technology Adoption Programme discussion groups. It will be fully rolled out through Dairy and Beef technology adoption groups in 2014. The approach taken is already having an impact in the industry by helping to move the focus away from carbon counting to practical steps to mitigate GHG.

Carbon Navigator - Rate your farm



“Increase your performance by 1 point where you score >5, to boost your finances by €1,500 and reduce the GHG emissions from your beef farm by 3%.”

Best Practice

Carbery Greener Dairy Farms



The Greener Dairy Farms project developed by the Carbery Group is an innovative and practical example of farmers and industry working together to improve their environmental and economic performance. The 20 west Cork dairy farms involved have developed their sustainability plans using the Teagasc MACC as a broad template and then avail of Teagasc feedback and expertise as well as the Carbon Navigator to assess progress.

Using 2012 as a base year, by 2016 these farmers intend to have increased the grazing season by an average of 8 days, reduced their meal feed and chemical fertilizer inputs by 9.5% and 4.5% respectively, have improved their genetic EBI by 15 points, increased cow numbers by 5.6%, raised milk solids by 33kgs and effected more targeted slurry application. The research and scientific data underpinning the project and the initial outputs to date indicate that the potential GHG savings of 8.5% are achievable and that average savings of €5,000 are a realistic projection. The extent of actual savings will not be known until end 2015 but even if the cost and environmental savings are not as high as projected, at a minimum the findings from the project will improve the cost base and environmental performance of suppliers in the region in a real and measurable way.

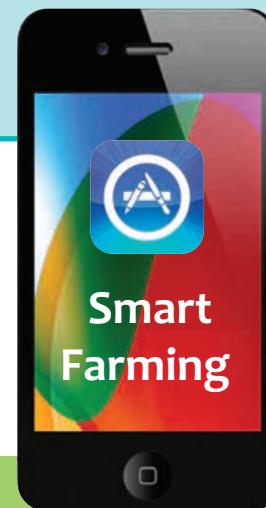
"This project is truly innovative, it shows that Carbery and their suppliers are committed to environmentally sustainably farming methods which will give Ireland a huge advantage internationally"

Smart Farming



In 2013 the EPA launched a **Smart Farming** initiative with the IFA as a lead implementing partner. This is an industry led initiative with a focus on achieving improved farm returns through better resource management and a reduced carbon footprint. Over nine bodies contributed to the Smart Farming guide and produced a user friendly smart app which analysed resource use on all farms. It highlighted "top tips" on animal nutrition, fertiliser management, land and machinery management, energy efficiency, water conservation, inputs managements and waste minimisation. The launch included the results of 6 on-farm resource efficiency assessments (REAs) with the participating farmers presenting their experience which identified average cost saving of €5,000 on feed, fertiliser, energy and waste.

Already in 2014, 30 farms have been involved in REAs across various farm types with similar cost savings achieved. The findings have been uploaded to the IFA website and apps, discussed at farm technology adoption groups and linked to the Teagasc MACC (Life cycle Analysis). Regional seminars are being scheduled for September. It is envisaged that the **Smart Farming** guide will be expanded in the future, in collaboration with AHI, to include animal health modules.



Best Practice

Pilot Farm Hazardous Waste Bring Centres Project

In November 2013, the EPA in collaboration with DAFM, Teagasc, six local authorities, Rilta Environmental limited (a hazardous waste contractor), WEEE Ireland and the European Recycling Platform, operated a pilot project to analyse on-farm hazardous waste. Six bring-centres for farm hazardous waste were operated to determine the nature of the waste and its extent, to facilitate its correct disposal and to make recommendations on how best to deliver a national scheme.

864 farmers availed of the service and contributed financially to the disposal cost of the 94,472 kg of farm hazardous waste and the 22,228 kg of batteries, electronic and electrical equipment collected at the six centres. The main hazardous waste types by weight were waste oils at 62 tonnes, through pesticides, waste paints, veterinary medicines down to 3 tonnes of oil filters.

The pilot was a success due in large part the active engagement of the farmers and their desire to ensure that the waste was removed from farms and disposed of in a safe and environmentally sound manner. It also demonstrated how effective the pooling of resources and collective expertise can be in achieving real environmental protection.

The EPA has been approached by a major dairy co-operative to assist them in offering this collection service for its farm members. The collection service will be supported by guidance notes on the management of both farm chemical containers and farm waste collection, which have been prepared by the EPA, and the Departments of Agriculture and the Environment. A further ten pilot bring centres will be operated in 2014 and the exercise will assist the sector meet its obligations articulated in the National Hazardous Waste Management Plan 2014 - 2020.



Ag Catchments Programme (ACP)

The Agricultural Catchments Programme, which has the backing of the farming organisations, was set up in 2008. It had two objectives. To evaluate at farm level the environmental and economic effects from the measures implemented under Nitrates Action Plan (NAP) to help tackle the challenges involved in achieving water quality targets. There are over 100 equipment or water sampling sites at locations on farms in the catchments and over the years, an enormous level of data on water quality and flow, weather data, soil samples, fertiliser, manure, production and financial records has been collected and analysed. This programme provides a good barometer on the effectiveness of the NAP, even in intensive dairy areas, and has facilitated a greatly improved understanding of how farming activity interacts with the environment.

The ACP depends for its success on the continued support of over 300 farmers in the six catchments as these participants play a key role in assisting the collection and dissemination of its findings. Through group visits and farm walks, large numbers of scientists, students, farmers, regulators, policy makers and others, from home and abroad, have seen for themselves the operation and outcomes of the work. This access to farms and open sharing of information has done much to advance the cause of sustainable farming.

An ACP study on Sreenty Lough Co. Monaghan, has revealed improving water quality against a background of increasing farming intensity. Analysis of lake sediment cores revealed signs of phosphorus enrichment of the lake water from the 1950 onwards, leading to a water quality decline similar to that in comparable lakes in the region. However since the late 1990s and especially post-2007, sedimentary evidence suggests a decrease in enrichment despite increasing agricultural intensification in the locality. The recovery in water quality despite increased phosphorus pressure from farming coincided with implementation of agri-environmental measures locally (e.g. REPS, NAP, Group Water Schemes) which has reduced the risk of phosphorus from farms getting into water.

Origin Green - Farm

bio-diversity

soil +
fertiliser

water

Pesticides &
herbicides

Social
sustainability

Economic
sustainability

ORIGIN GREEN

Origin Green sets out Ireland's ambition to become a world leader in the delivery of sustainable high quality food and drink products. This national aspiration was a central plank of the Food Harvest 2020 report and had evolved from the Harvard – Bord Bia initiative 'Pathways for Growth' which set out succinctly how Ireland's natural 'green' reputation, its enviable agricultural situation in terms of abundant fertile land, water and coastline, were custom made for an environmental sustainability platform.

Following the launch of FH 2020 in 2010, Bord Bia has worked with independent experts to build up a sustainable vision for farm and industry which was verifiable and built on a solid and credible foundation. By 2012 it had developed Origin Green which in terms of its national, multi-faceted and coherent structure, operating at farm and industry level, is a world's first.

Origin Green - Farm

A major element of the initial groundwork at farm level revolved around developing a methodology for measuring the carbon footprint of cattle farms. Bord Bia and Teagasc ran a pilot project in 2010 to assess all the inputs and outputs on 200 pilot farms. It developed a comprehensive livestock profile on each farm involving twelve parameters. These ranged from animal births, deaths, sales, calving intensity, level of beef produced, grazing profile, manure management, housing type, to fertiliser- chemical- medicine usage, forage-feed production and consumption, land use change and animal transport costs.

The pilot project results highlighted that a small number of factors had the greatest influence on farm level carbon footprint, particularly average daily weight gain, grassland and manure management, herd productivity, fertiliser use and diet composition. It also highlighted the level of variation across farms, showing that the carbon footprint on the best performing beef farms can be half that of the average.

Data collection on farms needed to be simplified and become more rigorous to achieve a coherent indicative carbon footprint performance and one which could be effectively translated into an advice and feedback module which would suit all farms. The solution lay in using both the computerised data already available under the Department's AIMS system (all data related to births, death, sales, movements) and the extensive production data held by ICBF such as calving intervals and dates, daily weight gain. The remainder of the key data needed would come from the farm including information on grazing season length, manure management, animal diets and fertiliser use. Once farmer agreement had been gained to use this computerised data, the system and data collection process became simpler and more cohesive.

In 2011, the UK Carbon Trust accredited the methodology and model to PAS 2050. The way was then open to include the carbon footprint element in the Beef Quality Assurance System (BQAS), building on the positive marketplace perception of Irish farming and the BQAS. In addition, steps were taken to capture a wider sustainability ambit in the programme.

CARBON FOOTPRINT METHODOLOGY

Water	<ul style="list-style-type: none"> ✓ Water usage ✓ Conservation ✓ Exclusion of animals from watercourse
Biodiversity	<ul style="list-style-type: none"> ✓ Involvement in environmental schemes ✓ Biodiversity measures undertaken
Soil & Fertiliser	<ul style="list-style-type: none"> ✓ Soil quality ✓ Use of clover and crop cover ✓ Correct fertiliser application
Pesticides & Herbicides	<ul style="list-style-type: none"> ✓ Minimised chemical use ✓ Contamination avoidance
Social sustainability	<ul style="list-style-type: none"> ✓ Work-life balance ✓ Interaction with local community ✓ Training
Economic sustainability	<ul style="list-style-type: none"> ✓ Use of up to date information and advice ✓ Use of professionals ✓ Profit monitor & economic reviews ✓ Succession planning



Origin Green - Farm

As a consequence, by the time Origin Green was launched in 2012, the BQAS scheme had been comprehensively expanded. This included the carbon footprint element, data on other sustainability components such as water usage, conservation measures, biodiversity, inputs, social and economic sustainability, as well as sustainability audits and a feedback and advice programme. Advice and support was considered essential to continuing success and once farmers engaged with the process they were advised on how they compared to similar type farms and also alerted to the full range of knowledge transfer mechanisms. The peer technology adoption groups and the Carbon Navigator, developed by Teagasc, are particularly relevant.

The Carbon Navigator, which was specifically developed as an advice and feedback tool for this scheme, shows clearly where a farm falls on an environmental scale of 1-10, highlights the areas to be improved, the economic impact of change and provides advice and practical steps to improve performance.

The comprehensive and integrated approach being adopted at farm level has been recognised by the Carbon Trust who in August 2013 certified the beef programme, including the measurement and advice elements. This is the first time that The Carbon Trust has issued such a certification.

Since the programme started in 2011, over 65,000 sustainability assessments, which have been accredited by the Carbon Trust, have been undertaken by beef and sheep farmers. The launch in December 2013 of the complementary national Sustainable Dairy Assurance Scheme, which is industry approved, will bring all dairy farms into the programmes over the coming 18 months. Finally, it is anticipated that accredited footprinting methodologies and models for the pig, poultry, grain and horticulture sectors will be completed and rolled out by end 2014.

In mid 2015, Bord Bia will publish its first Origin Green sustainability report. This report will highlight the scope of the programme at farm and food manufacturing level, the intensity of accreditation and verification within the programme and highlight the progress made. At farm level, the report will focus on GHG emissions, water efficiency, biodiversity changes and animal welfare. Given the presence of national inventory data collated by the EPA, Bord Bia is proposing to look at groups of farmers and the trends across these farms rather than developing one overall measure for all farms.

Carbon Footprinting Programme planned for other sectors



Origin Green - Industry

- Raw Material Sourcing
- Manufacturing Process
- Social Sustainability

Decide
on target
areas

Energy

Waste

Water

Emissions

Biodiversity

Animal welfare

Social sustainability

Report
progress
annually

Set
timelines
and targets

Agree
baseline
period

Independent verification

Independent verification

Independent verification

Independent verification

Independent verification



Working
with nature

Hon. Bin
and Food Council

Origin Green - Industry

The vision from Food Harvest 2020 was to improve export performance by showcasing Irish food and drink exports as products with a strong and credible sustainability provenance. Following extensive trade, industry and consumer research between 2010 and 2012, Bord Bia launched Origin Green to implement this vision.

At the heart of company activities is a Sustainability Charter which provides verifiable evidence of sustainability performance designed to give Irish food exporters a valuable point of differentiation in the marketplace. Participating manufacturers develop multi-annual action plans under any of 3 framework areas- Raw Material Sourcing, Manufacturing Process or Social Sustainability. Within the selected area (s), companies agree measurable targets under one or all of the following areas -emissions, waste, water, energy, biodiversity, animal welfare and social sustainability. Progress in key areas is reported on annually. These plans and progress reports are approved by the SGS group, one of the world's leading, independent verification and certification inspection companies.

By mid 2014, 340 companies had registered to participate in Origin Green which would roughly encompass about 85% of Ireland's food and drink exports. Of these, 110 have plans submitted, 228 are at workshop/plan development phase with 55 companies now fully verified members. It is estimated that verified members account for almost 65% of food and drink exports. The programme has a target of having 75% of exports covered by verified members by the end of 2014.

Specific steps have been taken to strategically make the international food community aware of the scope and intensity of the programme. The Global Sustainability Conference in September 2013 was attended by over 800 delegates of whom about 300 were overseas visitors. 3-day customised itineraries to see the Origin Green programme operating at plant level were organised for 80 delegates who were recognised as operating sustainability agendas.

Another important step has been the appointment of Origin Green Ambassadors. These 10 ambassadors have been assigned to leading global food and drink companies as part of their MSc in Business Sustainability with a complementary function of building trade awareness of Origin Green and promoting the programme internationally. Recently, Bord Bia has started an integrated online communication plan with Guardian Sustainable Business whose communication platform reaches 300,000 targeted monthly users while a French and German version of Origin Green was launched in June.

The Bord Bia's first Origin Green sustainability report in 2015 will deal with the scope and impact of the programme at food manufacturing level. It will cover issues such as sourcing of raw materials, resource efficiency particularly emissions, energy, water and waste, biodiversity, health & nutrition, community initiative and employee wellbeing as well as highlighting the progress made.

Examples of the type of programmes being implemented by Origin Green verified member can be seen in the following examples.

“**Very significant enthusiasm,
buy-in and support from industry.**”

Origin Green - Industry



Country Crest, a major vegetable and processed foods supplier, employs around 170 people in North County Dublin. A clean and healthy environment is central to their philosophy and business making decisions. In addition to generating their electricity from a wind turbine, for many years they have operated an integrated crop management system which uses greener fuel, recyclable packaging, recycled water and extensive composting as part of their sustainability strategy. This made them an ideal partner in the Origin Green pilot programme.

Their Origin Green targets are in energy, waste, water and biodiversity.

Energy self sufficiency will be achieved by 2015 through a combination of energy management, a sustainable procurement policy, their 800KW wind turbine and a planned anaerobic digester. Waste is based on the principle of reduce, reuse and recycle and they will further reduce their waste by 10% and use the anaerobic digester for the reuse of organic waste material and production of fertiliser for the farm. Implementing a water conservation strategy, a waste water management plan and regular leak testing will reduce water usage while the establishment of an onsite wildlife sanctuary and a biodiversity register is expected to achieve a 10% increase in biodiversity for the site.



Bewley's is a recognised Irish tea and coffee brand and this company employs over 170 people in their tea and coffee manufacturing facility in Dublin. As a company, its business principle of acting fairly and achieving excellence through high quality, is reflected in its policy of importing Fairtrade coffee and implementing an ISO based environmental management system, which has achieved recognition as the first certified carbon neutral coffee company in Ireland. Before joining Origin Green, Bewley's had already reduced its carbon footprint by 30% and were purchasing both coffee and carbon offsets from a Peruvian cooperative who were planting trees around their coffee farms.

Bewley's Origin Green sustainability plan is based on social sustainability and energy usage.

Social sustainability involves purchasing an increased percentage of certified coffee, from 49% to 70% by 2017 and implementing a formalised sustainable procurement system. Another major element in this field is their continued sponsorship, through intensified marketing and increased volume of coffee donations, until 2017, of Ireland's Coffee Morning for the Hospice Foundation. On energy usage, they plan to reduce, by 2017, their energy levels by 10% relative to 2012 levels through an upgrade programme targeted at specific steps within the production line and administration. Measurement of their carbon footprint is continuing and they plan to reduce its global impact by the purchase of certified carbon –reducing initiatives.

Origin Green - Industry



Dawn Farm Foods, which supplies cooked and salami type ingredients to the foodservice sector, was one of the pilot companies under Origin Green and has now achieved full membership. Its sustainability plan covers environment, health & nutrition and social sustainability.

Under environment they concentrated on reducing energy, waste and water levels and achieved a 40% reduction in energy usage based on a bespoke heat recovery system and a 10% fall in waste to landfill by an improved waste segregation process. They have set themselves a stretch target of a further 70% diversion of waste from landfill to recycling and recovery by 2015. On water consumption, the company has halved its water requirement on its stringent clean down process by more efficient hoses, new valves and staff training. Targets have been set for a further 15% reduction in water usage in 2014 and 2015 relative to product produced. Since joining Origin Green in 2012, this company has reduced its salt levels, has eliminated nuts, hydrogenated fats, artificial colours and also minimised allergens in its products. Finally Dawn Farms is actively involved in sponsoring local initiatives including landscaping projects under the Tidy Towns, a local fashion and gourmet festival and a workplace wellbeing campaign.



Riverview Eggs, which employs about 20 people directly, played an integral role in the development of the Bord Bia's Egg Quality Assurance Scheme. This Cork based, family run, egg production and selling enterprise is using the Origin Green scheme to document their existing track record on sustainability and show verifiable progress into the future. Riverview has already invested in animal welfare systems such as enriched cages and better ventilation in their poultry units. Efficiencies in new shrink-wrapping machines have achieved savings of 50% in energy and waste while the poultry manure produced is reused to reduce artificial fertiliser usage on local farms.

Their 5-year Origin Green plans set targets for energy use, waste, water and social responsibility. These include a reduction in energy from 3 to 2 watts and waste from 0.67 to 0.57 grammes per egg packed, to investigate the potential of wind powered electricity and to enhance water supply with a new well, a new UV filtration system and twice yearly water quality testing. It will also continue and expand their support to local groups such as sports organisations, Vincent de Paul, Cork Penny Dinners and Cork Outreach-a drug and alcohol rehabilitation programme.

Origin Green - Industry

Green Business



Green Business is one of the key programmes operated by the EPA, under their National Waste Prevention Programme, to help business become more resource efficient and save money. Resource efficiency is essentially about changing behaviour so that products are manufactured or services provided while using less water, energy and raw materials. This changed behaviour will in a sustained way enhance competitiveness and reduce costs.

Green Business involves an on-site Resource Efficiency Assessments (REAs) carried out by professional process engineers and scientists who then prepare a report giving company specific cost saving measures. Around €2 million in annual business cost savings were identified by the EPA in 2013, while in the food and drink sector, savings of €60,000 on average for companies visited were highlighted in areas such as water, waste and energy management. €20,000 of the savings identified, were associated with low and no cost actions.

Savings Achieved per Annum

Ballon Meats-	40% reduction on energy costs through heat exchanger & improved insulation
Island Seafoods-	€31,000 on refrigeration optimisation and €10,000 on lighting with aim of becoming electrically self sufficient
Wexford Creamery-	€26,000 on waste reduction and reuse
Food Processing Companies	<ul style="list-style-type: none"> • €170,000 by using reusable boxes • €12,000 from generating electricity with a turbine from effluent outflow • €10,500 by replacing mechanical aeration with air diffusers • €10,000 through repairing and fitting insulation on steam pipework



Assisting Industry's Environmental Sustainability

The dairy sector is facing a transformational growth opportunity and the industry- led, newly developed Dairy Processing Technology Centre, is a major project underpinning the sustainable expansion of the dairy processors in response to Harvest 2020. Supported by Enterprise Ireland, this project will establish an internationally leading centre of excellence for dairy processing research and innovation, which will fuel growth in the Irish dairy sector by driving down costs, by facilitating a step-change in environmental sustainability and by creating, validating and commercialising a pipeline of science and technology based manufacturing platforms for dairy ingredients. The environmentally sustainable element of this project is particularly significant.

To maximise company awareness that investment in sustainability measures can increase efficiency, in 2013, Enterprise Ireland developed a guidebook on First Steps to Green Competitiveness to be used by their LeanStart consultants working with client companies on environmental management systems and policies. Following which technical feasibility funding has been made available to improve environmental efficiencies and sustainability or to develop environmentally superior products, services or processes. During 2013, over 700 environmental reviews were carried out and 67 green business projects undertaken.

In addition, food companies have been aware for some time that a 'green' focus can be a valuable differentiator in some international markets. As a consequence over the past decade, they have shown a strong interest in availing of energy saving and environment protection initiatives. A more recent development has been the corporate interest in investing in environmental standards which go beyond the legal requirements as these are being seen as a valuable product both in terms of significantly improved efficiency and as a reflection of a corporate value system.

In this context Enterprise Ireland, with support from SEAI, has been active in supporting a number of significant energy and environment enhancing investments by food clients where major capacity building expansion projects are planned and where there is scope for building in higher-than-required environmental or energy standards. Due to their potential to contribute substantially to the sustainability agenda, the expectation is that this trend will accelerate over the coming years and that there will be a greater call for support in this sphere.

National Developments

Environmental Analysis of FH 2020

One of the recommendations of the FH2020 report was that a Strategic Environmental Analysis (SEA) should be undertaken on the report's proposals so as to inform policy makers of the likely environmental consequences of its implementation on biodiversity, flora and fauna, water quality, air quality, landscape and climate change including greenhouse gases.

This analysis was conducted last year by independent consultants. Using a range of scenarios and differing agricultural intensities, they identified the key environmental pressures from agricultural practices, assessed the likely impacts and proposed suitable mitigation measures. Overall, the report concluded that implementation of FH2020 could have an overall slight negative impact on the environment, with the strong proviso that localised or regional impacts could be greater. Negative environmental impacts could be neutralised by mitigation measures.

The HLIC agreed that the report's conclusions would be mainstreamed into their work programme and the first indication of this resolve would be in the new provisions for the reform of the CAP and CFP, then in negotiation, and in the terms of the 2014-2020 Rural Development Programme (RDP), yet to be agreed and drafted.

Common Agricultural Policy Reform 2014-2020

From 2005 onwards, the Common Agricultural Policy (CAP) has provided a coherent framework for sustainable management of the natural environment as it relates to agricultural activity. This focus on environmental protection has been accentuated under the new 2014-2020 CAP by the inclusion in its provisions of a compulsory green direct payment. Significantly, this accounts for 30% of each individual's direct payment and is contingent on compliance with three obligatory greening provisions, maintenance of permanent grassland, crop diversification and maintenance of areas of ecological focus.

These targeted environmental initiatives are in addition to the range of long standing EU environmental requirements, compliance with which has determined, over the past decade, the level of direct payments received by farmers. Cross compliance requirements ensure that farmers comply with 18 Statutory Management Requirements (SMRs) on the environment, public good, animal and plant health and animal welfare, maintaining the land in good agricultural condition. They must also follow the specific environmental conditions required under schemes such as REPS, AEOS and TAMS.

An analysis of the 2012 National Farm Survey (NFS) revealed that on the 315 REPS/AEOS farms surveyed, their chemical nitrogen usage was less than that on the 607 non-REPS/AEOS farms, 76.3 kg/ha compared to 85.9kg/ha. While the use of organic nitrogen on REPS/AEOS farms was also higher, 106.0kg/ha, vis a vis 101.2 kg/ha.

These checks and ensuing financial penalties for non-compliance are an effective way of protecting the environment, ensuring that farmers are aware of the consequences of their actions and also influencing them to adjust their land management practices to achieve more positive sustainability outcomes.

Draft RDP 2014-2020

The EU vision for the 2014-2020 RDP is that it will provide a coherent framework to advance cross-cutting themes of innovation, climate change and environment across the European Union and that these themes will be embedded in national policies. Even a cursory examination of the six priority areas for rural development will highlight a very clear and direct relationship between these priority areas and the three Food Harvest themes of Smart, Green, Growth. In this context, the Green theme is strongly embedded in the two RDP priority areas which require measures which will 'restore, preserve and enhance ecosystems' and 'promote resource efficiency and support the shift towards a low carbon and climate resilient economy'.

National Developments

Ireland submitted its draft RDP programme to the European Commission for approval in July. These proposals have yet to be agreed but the overall programme as presently devised has a focused and integrated approach to improving environmental sustainability and to fostering the necessary knowledge transfer to embed these farming systems. Two of the major funding initiatives in the programme are the proposed GLAS and GLAS + schemes and the measures under Areas of Natural Constraint (ANC) including islands. GLAS has been specifically designed to address climate change, water quality and biodiversity objectives while ANC supports the conservation of high nature value farmed environments and achieving the environmental benefits that low intensity farming can contribute to the diversity of landscapes and habitats. The incorporation of core mandatory requirements and the focus on the farmer delivering actions that will provide the most environmental benefit on his/her farm will ensure that the optimum environmental impact is achieved.

In addition, the draft RDP has enhanced capital investment measures for environmental facilities, slurry storage, trailing shoe, bio-energy, etc and has a very specific focus on knowledge transfer mechanisms which improve competitiveness and have positive climate change effects.

Agriculture roadmap for Climate Change Mitigation

Following the publication of the Climate Action and Low Carbon Development Bill, a roadmap for the agriculture sector is being drafted specifying measures to be adopted which will achieve sectoral emissions reductions and/or enable the sector adapt to the effects of climate change. The Department has facilitated an initial eight week public consultation on the roadmap which is expected to be finalised and submitted to Government towards the end of the year or early in 2015. This, the first such roadmap, will examine and outline coherent and cost-effective measures which will seek to achieve sectoral emissions reduction in the period to 2020, within the parameters mentioned in the Bill. These parameters include meeting national obligations under international agreements, promoting sustainable development, assessing the impact of such measures on national and

sectoral economic development, competitiveness and cost effectiveness as well as highlighting scientific and research findings which support effective implementation and or adaption and mitigation measures.

Demonstration Sustainability Farm

The agri-food sector is challenged to profitably deliver more food of excellent quality with limited resources while protecting our water, climate and wildlife. To help farmers meet these challenges, Teagasc is establishing a demonstration farm at Kildalton where best practice in sustainable farming will be implemented, evaluated and disseminated. The vision is for all the stakeholders in the sector – farmers, advisers, industry, rural professionals, regulators – to participate directly in this initiative thus maximising its impact. Planning and data collection has begun and the project will be rolled out on a phased basis over the next five years.

Renewable Energy

Under the National Horticultural Grant Scheme and the EU Producer Organisation Scheme, DAFM is funding a number of projects involving green energy. These include biomass boilers, combined heat and power (CHP) systems along with other green technologies such as water recycling, use of automated thermal screens as well as biological controls in glasshouses. Similarly, Teagasc, as part of its Green Policy, is also investing in a number of demonstration projects on biomass-based renewable energy. It has installed a boiler capable of burning miscanthus and other feedstocks at Johnstown Castle and it has recently installed a CHP plant based on biomass at its Oak Park campus. This is the first of its kind in Ireland and is being used as a demonstration facility. Teagasc invited an expert from the US Department of Agriculture to review its research and innovation programmes in this area and this report, including recommendations, are being considered. Finally, Teagasc plans to develop an anaerobic digestion plant at Grange which would include a grid connection. Work should commence in 2014, be completed and commissioned by the end of 2015.



growth

Introduction

Over the last few years the emphasis has been on achieving growth for the agri-food sector through capital and human investment in areas of strategic growth potential. Particular areas of note are the dairy and seafood sectors which Food Harvest 2020 had signalled as having potential but the drinks sector, particularly whiskey and craft beers, has also risen to the challenge. Both industry leaders and Enterprise Ireland have been making strategic capital investments in these high growth areas to ensure that these have the production, technological and enterprise capabilities which best fits the evolving global demand.

In tandem with developing capacity, there has been an extensive programme of ministerial- led trade missions to open markets, to build export growth and increase export opportunities and collaborative business ventures in existing and new high growth markets. These trade and investment missions have been developed and coordinated by the Department's Trade Team in conjunction with Enterprise Ireland, Bord Bia and industry leaders. They have achieved considerable success in terms of new markets, trade, inward investments and valuable commercial and trade contacts.

Enterprise Ireland's remit is to stimulate the growth and capability of Irish enterprises with export potential. Over €203 million was spent in 2013 on a range of capacity and capability measures, on commercialising research and innovation and on equity and venture capital investments. These allow Irish companies to develop and innovate, to become more robust and agile and secure export sales on global markets. Besides supporting large companies and SMEs, Enterprise

Ireland has also been active in building strategic multi-national relationships and has been successful in securing foreign direct investment in the food sector. These supports and activities have resulted in over 5,400 new jobs being generated in 2013 of which almost 1,000 were in the food and drink industry.

Fit for purpose funding mechanism are an essential element of enterprise growth. The 2014 OECD international scoreboard on SME and Entrepreneurship Finance illustrated the weak or negative growth in lending to Irish SMEs in the 2010-2012 period while the SMEs credit surveys highlighted that demand for their services/products was a major factor in this reduced demand.

A number of fiscal measures, such as the reduced VAT rate for the hospitality sector and the Late Payment Directive, were taken to encourage demand. Simultaneously the Government through its agencies broadened the range of bank and non-bank finance mechanisms to meet enterprise needs in a manner which supported growth and jobs. These ranged from imposed SME lending targets for the commercial banks, the establishment of MicroFinance Ireland for small loans and the Strategic Banking Corporation of Ireland (SBCI) for larger loans at lower costs. Also the Seed and Venture Capital Scheme and Development Capital Funds attempts to use public funds to leverage private investment. These measures will take some time to maximise their potential but even at this stage, there are positive signs that there are sufficient and appropriate lending mechanisms to continue to drive progress in the agri-food sector.



In preparation for the anticipated major increase in milk output, following the abolition of milk quotas in 2015, virtually all the major players in the sector have been ramping up their capital and human investment. At industry level, Enterprise Ireland has supported capacity and capability development to cater for increased volumes and also to move dairy exports up the product value chain.

Industry is also investing in research, either alone or in conjunction with others, leading to new technology platforms and new or enhanced products. Similar preparatory work has been initiated at farm level and a number of programmes and collaborations are being rolled out to ensure that sustainable expansion is achieved through an emphasis on increasing technical efficiency and cost control.

A strong indication of the positive outlook for the Irish dairy sector is demonstrated by the level of capital investments either underway or in the pipeline from key players in the industry supported by Enterprise Ireland:

- Glanbia Ingredients Ireland Limited (GIIL) has committed itself to a €150m capital investment in a new major dairy processing centre on the Kilkenny/Waterford border,
- Dairygold Co-Operative Society Limited announced a €33 million investment to expand and upgrade its milk processing facilities at Mitchelstown, and is proposing a €90m investment for a new dryer in Mallow,
- Kerry Foods decision to locate its Global Research and Innovation Centre in Naas involving an investment of up to €100m is testament to a growing confidence in the Irish food industry,
- Other milk processors are advanced in their planning for growth and the Irish Dairy Board has announced a €20m investment in a Saudi dairy company and Kerry Foods has opened a new development centre in UAE to cater for specific consumer tastes in the Middle East, North Africa and Turkish markets. Both of these projects will lead to the importation of substantial amounts of Irish milk powders for production in these middle eastern regions.

While the imminent abolition of EU milk quotas will provide dairy farmers with significant opportunity for expansion, this expansion will also put significant additional pressures on existing dairy farm businesses. In that context, it is widely accepted that expansion may not be the correct path for all. The Department, in conjunction with Teagasc, has been providing a range of supports to assist farmers assess their expansion capacity and to help them, where appropriate, to fully exploit their potential for expansion and development. Supports include the New Entrants to Dairying Scheme and the Dairy Efficiency and Development Programmes. Both of these are designed to encourage the adoption of best practice management and production methods on farms.

Teagasc has initiated a number of additional programmes, activities and collaborations with industry partners to ensure that farmers have the financial, management and technical capabilities to successfully avail of the opportunities presented. Since 2010, Teagasc has operated the Greenfield Programme to demonstrate, using a working commercial farm, the practical real-time challenges and opportunities faced by farmers who decide to embark on a dairy expansion programme. This project highlighted the importance of adequate soil fertility, realistic financial plans, budgets and investment prioritisation. In addition, the programme showed that it was very likely that farm performance would be reduced in the initial years as farmers managed the challenges and complexities of expansion. Teagasc also ran a heavy soils programme to improve the productivity and profitability of dairy farms on heavy soils and highlighted the drainage and land improvement strategies required to make a grass-based dairy system on these farms profitable. On an ongoing basis, Teagasc actively promotes their Profit Monitor financial benchmarking system and in 2013 they launched a strategic planning workbook 'Your Farm, Your Plan', which forms a central element of the Departments 2014 knowledge transfer programme referred to as 'Cash Plan 2014'.

Other knowledge transfer options are the Dairy Expansion Seminar Series, the first of which took place in March 2013 with a further six seminars planned during the remainder of 2014 and 2015. These seminars are for 'thought leaders' in the industry and will discuss the key issues at farm and industry level that will be critical to sustainable expansion. Teagasc also plans to launch two new initiatives to support dairy growth. The first is a 'Technology Outreach Service' that will be targeted at the growing numbers of rural professionals that will provide an increasing level of services to the agri-food sector. The second will be an intensive 'one-to-one' advisory service – the 'BETTER Dairy Farm (Expansion) Service' – to provide an expert planning service for rapidly expanding farmers.

There has also been active collaboration with industry partners. Joint Farm Development Programmes are in place with GILL, Dairygold, Kerry Agribusiness, Aurivo, Lakeland Dairies, Carbery and Tipperary Co-op. The focus of all these joint initiatives is sustainable expansion achieved through technical efficiency and cost control. Details of the Carbery Greener Dairy farms initiative have been highlighted earlier, while others, GILL for example, are working with suppliers on a range of programmes to prepare for expansion including index-linked milk pricing, volatility management tools, sustainability programmes and financial training.

There is no doubt that the ending of restrictive milk quotas offers tremendous opportunities to the dairy sector. Equally, there are major challenges involved in developing the capabilities, capacity and markets needed to maximise these opportunities. The steps, structures, training and investments already in place would indicate that the dairy industry, at all levels, is strategically positioning itself to take advantage of the opportunity presented.

Whiskey



The re-emergence of the Irish Whiskey category is a real and growing success story. This sector has grown by almost 200% in the past ten years and the Irish whiskey brands represent the fastest growing premium spirit globally. This is generating considerable business optimism with over 15 new projects, involving planned capital investment of €1billion over ten years, currently in the pipeline.

The establishment of the Irish Whiskey Association (IWA) and the development in 2014 of an industry-led all-island strategy – A Vision for Irish Whiskey -are critical drivers for success. The strategy envisages, by 2025, that the number of distilleries will increase from the current 4 to over 16, sales volumes will rise from 6.5m to 16m cases annually, direct employment should grow from 750 to 1,000 and the number of visitors will reach 850,000.

The focus is on ensuring sustainable, well resourced growth to make Irish whiskey a prioritised industry with a strong tourist offering. Significant capital investment plans have already been made by the drinks sector supported by Enterprise Ireland including the Pernod Ricard/Jameson distillery in Midleton and Dungourney (€200m) and the Walsh Whiskey Distillery in Royal Oak Carlow (€25m). Other investments at the Grants/ Tullamore Dew plant in Tullamore and the Teeling Whiskey Company distillery in the Dublin Liberties will also boost capacity and export growth.

In addition to these capital investments, the sector through the IWA is heavily involved in encouraging and mentoring new entrants, in funding global brand ambassadors and in supporting Origin Green to demonstrate the commitment of drinks companies to sustainable growth. A strong example of the latter area is illustrated by the targets set by Irish Distillers (IDG) at their new Midleton plant, where 20% of the €100m investment is directly related to improving sustainability through reduced environmental impacts on energy and water. Overall targets for the new processes and designs are a 30% water and 35% energy reduction, 98% waste recycling and the incorporation of biodiversity features in the new complex. These sustainability savings, supported by Enterprise Ireland, are on top of the existing environmental management programme initiated by IDG in 1996.

Much of the international success of the Irish spirits industry is the result of the quality and strong reputation of the products and the international brand recognition that Irish producers have developed. Maintaining product integrity and reputation as a premium product is another of the key areas covered in the IWA strategy. As a recognised EU Geographical Indication (GI), Irish Whiskey is included among the prestigious GIs in a series of EU bilateral agreements with other countries. The association is working with this Department, Enterprise Ireland and Bord Bia to ensure compliance throughout the industry with the strict rules on spirit definitions and on GIs, on brand development and image as well as on innovation to drive sales and facilitate expansion. Further important elements to enhance reputation and integrity revolve around responsible promotion and advertising and attracting global spirits marketing expertise into the Irish drinks industry. Domestically, educating hospitality staff and building a strong sense of national pride and ownership of this quality product is also critically important.

Finally, the development of a vibrant all-island tourist offering is integral to the future success and economic contribution of the industry. Distilleries, in particular, are a major tourist attraction. Every year, over 600,000 visitors pass through visitor centres in towns and cities where the distilleries are situated or where famous brands originated, creating revenue of over €12 million and employing over 170 people in cities and rural communities. The IWA is working to increase the number of visitors to over 850,000 through a programme of new and refurbished visitor centres, investment in brands and an inclusive all-island tourist whiskey trail with an emphasis on the wider historical, cultural and overall tourism experience.

Seafood



Growth in the seafood sector is currently being energised by the increased availability of raw material from sources, which were not envisaged when the Food Harvest report was being developed. These include the development of new fish species for human consumption and the increased processing in Ireland of fish caught by foreign vessels.

By 2014, up to four foreign vessels a week land their catch in Ireland for processing and onward sale. The underlying driver for this change has been increased fuel costs but the Castletownbere Fishermens' Co-Op. has capitalised on this opportunity. Over the past three years, they have been developing a strategic partnership with a major Spanish retail chain, which has 1,500 retail outlets and a 28% market share. In 2014, they secured a contract to supply 2,000 tonnes of whitefish annually to this supermarket chain. The Co-Op sources the fish from both Irish and Spanish vessels and processes, packs and despatches it in consumer ready formats to Spain. The deal is worth around €10 million, has created 36 new jobs and resulted in significant capital investment in the company.

Earlier this report described the development work being undertaken to produce blue whiting consumer products, but the potential value of developing boarfish is even more significant as Ireland hold almost 70% of the EU quota for this species. Having noticed an increase in boarfish in the Celtic Sea shelf over a number of years, Irish fishermen decided to target it to ascertain its commercial potential. Largely pioneered by these Irish fishermen, overall landing volumes for this species increased, peaking at 140,000t in 2010.

Based on past experience, fishermen were very conscious of the need to sustainably manage this developing resource, so an interim management plan was proposed by Ireland in 2010. This followed industry sustainability measures and analysis over a period including a closed season, collection of robust scientific data and an annual summer acoustic survey. In 2012, a full management plan was submitted to ICES (International Council for the Exploration of the Seas) which was accepted in 2014. In recognition of our strong sustainability track record on this species, in 2014 Ireland was awarded 69% of the total TAC (Total Allowable Catch) of 27,500 tonnes.

After mackerel, boarfish is Ireland's largest seafood resource in volume terms but commercially it had only been used as a lower value industrial raw material for fishmeal. In 2011, BIM began to focus on its human consumption potential. This was not without challenges as the fish is small, spiny and its unusual shape means conventional processing equipment cannot process it. Also, as it never been sold for human consumption, Ireland would have to pioneer its development and marketing

The first task was to establish its taste and nutritional profiles. Taste trials were positive and revealed the added benefit of being high in heart healthy Omega 3. A variety of concepts were produced and distributed to interested customers for market testing, with the rapidly developing Asian market showing most promise. As a consequence around 60 tonnes was sold in 2012, 120 in 2013 and close to 500 tonnes in 2014 due to a contract to source and distribute boarfish in China. In tandem with market engagement, the development of bespoke processing technology has proceeded well and is facilitating access to the ingredients and other markets.

In May this year, a Biomarine joint venture between Killybegs Fishermen's Organisation and Norwegian Biomarine Science Ltd was announced. This €35 million investment for Killybegs will primarily utilise boarfish and blue whiting to produce high quality proteins, oils and calcium for the infant formula, health food supplements and food ingredients markets. The completion date for this plant is 2016 and 70 jobs with further spin-off are anticipated.

There is little doubt that this small quirky fish has the potential to establish itself as an important food source and the collaboration between industry and various state agencies is developing sustainable growth opportunities, which will particularly benefit the rural Irish economy.

Market Access

This Department is very active in seeking to increase market access and in developing relationships in new and expanding markets. Its dedicated Trade Team and Meat Market Access Unit, working particularly with Enterprise Ireland, Bord Bia and Teagasc and supported by diplomatic efforts, implement a range of initiatives to facilitate trade and improve market access for food and beverages as well as for services and livestock. Their strategic approach involves the identification and prioritisation of key markets, the organisation of incoming and outgoing trade visits, development of strategic trade and commercial networks and the cataloguing of offensive and defensive trade interests.

Ministerial –led trade and investment missions are an essential element of this process and over the past few years the level of missions undertaken has increased. Specific outcomes were achieved from the 4 major trade mission in 2012 to Algeria, China, Russia and the US. These included market access for agri-food and seafood products, horse feed, genomics and direct access for horses to the Chinese market. The strategic and commercial relationships which developed with the Irish dairy industry resulted in Chinese customers sourcing product in Ireland. Following the US mission, Glanbia Agribusiness announced the development of a new, state-of-the-art oats mill to help fulfil its exclusive milling supply contract with US based Sturms Foods.

Ongoing work on market access in 2012 resulted in agreement on certificates for the export of Irish sheepmeat with Singapore, South Africa and the UAE; export certificates agreed for poultry meat and poultry meat products to the UAE and Morocco; boarfish to China; lifting of the Iranian ban on beef exports from Ireland, the removal of the age restriction on beef exported from Ireland to the UAE and agreement with Serbia on export of fresh and frozen pigmeat.

In 2013, the ministerial led food and drink trade promotion and inward investment visits to the Gulf States, Japan the United States and Switzerland, also achieved significant commercial outcomes. The visit to the Gulf Cooperation Council (GCC) countries of Qatar, Saudi Arabia and United Arab Emirates led to the announcement by the Irish Dairy Board (IDB) of a €20m investment in a Saudi Dairy company AL Wazeen. In addition, Kerry Foods opened a new development centre in UAE to cater for the specific consumer demands and tastes in the Middle East, North Africa and Turkish markets while Bord Bia has opened a new offices in Dubai to support Irish food companies exporting to UAE. The bloodstock sector was another winner, in that €2.3 million was spend by Qatari and UAE purchasers on thoroughbred horses in Ireland and a joint race with the Jabel Ali race course will follow. Other areas to benefit include a €5m contract signed by Biotector Analytical Systems for water analysis equipment while a number of Irish suppliers including Keogh's and Donnelly's obtained product listings in a leading retailer in UAE.

In addition to immediate trade outcomes, valuable networks and contacts are established in State, commercial and investment circles which are used to further inward investment opportunities. Specifically, the ministerial trade mission in 2013 has allowed Enterprise Ireland engage in discussions with multinational target investors on further investment in the infant nutrition, dairy ingredients and functional foods space.

An extensive series of new market and trade outlets were gained in 2013 on foot of these trade missions and inter-agency technical and diplomatic activities. These include

- Initial positive steps taken to open the US to EU beef
- The opening of the prestigious Japanese market, worth some €12 to €15 million annually, to Irish beef
- UAE opened for sheep-meat
- Libya opened for livestock
- Australia opened for pigmeat
- Iran opened for beef
- GCC ban lifted for beef and sheep-meat
- Canada market opened for Sheep-meat.
- China opened for Salmon
- Access to the Russian market permitted for meat products previously excluded.

Significant positive developments in 2014 to date include:

- The approval of individual beef plants to export to Japan
- Lebanese market opened for exports of beef, sheepmeat and cooked meat products
- Hong Kong market opened for sheepmeat
- Namibian market opened for beef and sheepmeat
- Philippines market opened for beef, sheepmeat and pigmeat with the accreditation of particular Irish meat plants to export to the Filipino market until August 2015.

Trade promotion efforts have continued apace in 2014 with incoming visits at Ministerial or official level from USA, China, Russia, Palestine, Ethiopia, Nigeria, Philippines and Mozambique. In the case of China, the visit of Mr Liu Yunshan of the Chinese Politburo was a significant step forward in efforts to increase access to the Chinese market for agri-food products while the required audit of Irish dairy processing plants by the Chinese authorities resulted in approved for all Irish plants involved. In relation to the USA, the ministerial trade mission followed the visit in June of the US Secretary of Agriculture. The progress achieved in securing access for Irish beef to the US from these contacts was followed up by an audit of plants and systems by a US inspection team in early July and market opening is anticipated for later this year.

Employment



Employment Growth

When Food Harvest 2020 was published in 2010, it was realised that action was needed to stem the previous decade's net job losses of around 1,500 from the sector but also to leverage the growth envisaged in output and exports to protect existing jobs and to create new ones. At the time, it was felt that between 7,000-7,500 additional new jobs was a realistic figure.

As part of the implementation of FH2020, the Food Harvest HLIC commissioned a study in January 2013 to analyse the potential direct and indirect employment impacts which could follow from the achievement of the projected growth targets. Depending on the assumptions used in that exercise, the projected additional jobs varied between 19,000 or 38,000. An intermediate figure of 25,000 was accepted as a reasonable estimate, at the time. This projection would comprise around 6,000 jobs at primary level (mainly on dairy farms), 5,000 in the food industry, and a further 14,000 in indirect employment in other sectors such as the supply chain, distribution, transportation and other business services areas.⁴ The intermediate figure of 25,000 was included in the 2014-2016 Statement of Government Priorities.

Some success has been achieved on employment levels. The CSO's Quarterly National Household Survey shows encouraging employment growth trends with employment figures in primary agriculture, forestry and fishing sector at 110,000 in Q2 2014 compared to 94,247 in the 2011 Census of population. However, as the CSO figures are based on a survey sample, it is accepted that their employment figures for agriculture, forestry and fishing should be treated with a degree of caution. In relation to direct employment in the food sector, comprehensive client surveys on employment levels are conducted by both Enterprise Ireland and BIM and these provide an accurate assessment of company employment trends since 2009. These show that employment levels in Enterprise Ireland's food and beverage client companies rose from 38,784 at end 2009 to 42,212 in 2013, an increase of 3,428 while employment levels for BIM seafood processing clients also rose by 450 in the same period.

While positive steps have been achieved to date, the overall figure remain very challenging but the major expansion planned for the dairy sector following the abolition of milk quotas in 2015 and the projected 78% increase in aquaculture output by 2020 should generate significant direct and indirect employment gains.

⁴ Miller et al, *The economy impact of Food Harvest 2020 on employment in Ireland*, 2012

Investment

Foreign Direct Investment

In line with the overall investment trend, Foreign Direct investment (FDI) in food projects has accelerated in the last 18-24 months. 15 projects have been approved by Enterprise Ireland for funding support, over this time, which are expected to leverage almost €200m in investment and to deliver over 500 jobs.

Delivering new FDI projects is strongly underpinned by Ministerial overseas programme of events. Over the last 18 months there has been a strategic programme of well resourced Ministerial Trade missions, as described overleaf, as well as a series of incoming and outgoing trade visits and market access delegations from China, USA, Australia, Japan, Palestine, Ethiopia, Nigeria, Philippines and Mozambique. These initiatives are proving very impactful, are helping to build a solid pipeline and to securing new projects.

Building Scale

Supporting larger scale enterprises to achieve the competitive critical mass to survive and thrive in the international marketplace is vitally important as frequently these are large scale employers in areas where alternative employment opportunities is limited. EI has invested strategically in this area over the past two years. This intensive investment phase, is reflected in the 70+ significant projects in the agri-food arena, where support of around €150m leveraged a total investment of some €700m and a commitment of over 2,000 new jobs over the medium term. An indication of the agri-food projects involved is highlighted by companies such as Green Isle and Monaghan Mushrooms.

- Monaghan Mushrooms, Europe's largest producer of mushrooms and one of the world's largest producers of mushrooms, has created 20 new jobs for graduates. Since it was founded in 1981, this business has developed into an international business with a workforce of over 3,500, 900 of which are employed in Co. Monaghan. It makes a significant contribution to the local economy and owns the largest mushroom farms in Ireland, the UK and Canada. Customers include ASDA, Tesco, the UK's leading retailer, Lidl, Sainsburys, Morrisons, Marks & Spencer, Waitrose, Campbell's and Loblaw's, Canada's number one food retailer.

It first launched its Graduate Programme in 2011 and now offers career progression to graduate employees across a range of sectors. These include Agricultural Science, Agribusiness Management, Distribution, Data Analysis, Engineering, Food, Finance, General Management, HR, Logistics, Marketing, R&D, Sales, Supply Chain and Training. This programme plays its part in retaining talent in Ireland and in developing the next generation of business leaders.

Supporting SMEs

Building scale in SMEs, through innovation and greater competitiveness, is an important factor in agri food growth. In the last 18 months over 80 such projects have been approved funding support by Enterprise Ireland, between them accounting for over 900 new jobs and leveraging almost €100m in new investment, across a range of businesses as illustrated by the following companies:

- Green Farm Foods, a producer of premium cooked meat products based in Rathowen, Co Westmeath, will create 30 jobs over the next three years as part of a €2.8 million investment;
- O'Brien Fine Foods, a company based in Timahoe, Co Kildare, and specialising in premium cooked hams, sausages, rashers and puddings, will create 51 new jobs over the next three years as part of a €3 million investment;
- Swift Fine Foods, located in Castleblayney, Co Monaghan, produces premium quality chilled and frozen ready meals for the retail trade and foodservice markets, and is creating 53 jobs over the next three years as part of a €3 million investment;
- Under the seafood processing business investment scheme, an investment programme of €10.6 million, involving grants of €2.65 million was approved by BIM in 2014. The 38 seafood companies which are a particular focus of BIM's business development effort have been performing very well with combined sales revenue increasing by €146 million over the last four years. This investment created 100 jobs in 2014 but will generate 157 new jobs by 2016.

Improving the Funding Environment

The Government has made particular efforts to ensure that the range of credit facilities from private and public funds matches the growth demands of the sector and has taken specific action to deal with market failure, where this seems to apply. It also has ongoing discussions with stakeholders on improving the credit supply for food companies and the agriculture sector in the post-quota dairy expansion. In addition, the series of Action Plans for Jobs contains an integrated suite of actions designed to enhance access to finance for micro, small and medium sized enterprises. These include new sources of funding and increased awareness of financial and other supports for all enterprises. Recent Government driven credit and finance initiatives would include:

- **Microfinance Ireland** – This is a Micro-Enterprise Loan Fund providing small (€2-25,000) unsecured loans to viable businesses that have been declined credit facilities by their bank,
- **SME Credit Guarantee Scheme** – If viable SMEs are refused credit by their banks due to perceived high risk or insufficient collateral, under the Credit Guarantee Scheme, the State may, for a fee, guarantees 70% of the credit facility advanced to industrial SMEs by participating banks,
- **Credit Review Office (CRO)**. If a farmer or food SME has had an application for credit refused or reduced and feels that the bank's decision is unjustified, they can seek to have the issue reviewed by the CRO. Currently 55 % of appeals have been found in favour of borrowers, resulting in €21.6M credit being made available to SMEs and farms,
- **Ireland Strategic Investment Fund (ISIF)**- The National Pensions Reserve Fund (NPRF) will be transformed into ISIF by end 2014. This will provide a portfolio valued at €6.8 billion for investment in Ireland. These investments must show a commercial return, but must also support economic activity and employment,

- **SBCI (Strategic Banking Corporation of Ireland)**- This body will be a significant additional source of funding for Irish SMEs at lower cost and with improved terms and conditions. It has been designed in a manner that will assist in improving both the supply and demand side elements of SME access to finance and will be financed initially by the German Promotional Bank KfW, the EIB and the directed portfolio of ISIF. In its first phase it will make over €500 million available for investment in Irish SMEs.

Development Capital Scheme

In addition to the above, Enterprise Ireland has made a total of €75 million in funding available under the new **Development Capital Scheme**. This scheme, forms part of the suite of new finance measures put in place through the Action Plan for Jobs to provide funding for the mid-sized, export-oriented businesses in traditional sectors including engineering, food, life sciences, services, and electronics. The aim is to leveraging from these State funds a minimum of €150 million in additional funding from the private sector.

Three schemes have been established to date, BDO Development Capital Fund, MML Development Capital Fund and Cardinal Carlyle Ireland.

Funding

BDO Development Capital Fund.

This new €75m fund will focus on investing in Irish SMEs. Enterprise Ireland has made a €25m commitment to the first and final close of the fund under the Government's Development Capital Scheme. The balance of the funding has come from private sector investors including Bank of Ireland, CRH plc, Glanbia plc and Glen Dimplex.

The Fund is a generalist fund that will focus on investing in established companies seeking expansion funding. Based on the current growth opportunities it is likely that the majority of investments will be in the agri-food, life sciences and clean tech, ICT/software and industrial/engineering sectors. The Fund will invest between €2m and €10m in up to fifteen companies. It is the intention to make these investments over the next three years.

An Advisory Board comprising individuals with significant experience in managing Irish companies across a number of sectors has been established, to provide additional insight and expertise to help their investee reach their maximum growth potential.

MML Development Capital Fund

The €125million fund managed by MML Growth Capital Partners Ireland will also focus on investing in Irish SMEs. EI has made a €25million commitment, under the Government's Development Capital Scheme, to the first and final close of the fund. The balance of the funding has been committed by Allied Irish Banks, the European Investment Fund, GoldPoint Partners, and two United States subsidiaries of the Cigna Corporation.

MML Capital Partners are a well established development capital fund, over 25 years in operation and has established funds in Western Europe, the United States and in Central and Eastern Europe. They create bespoke deals for each unique opportunity and will target those manufacturing and technology companies in traditional sectors including engineering, food, life sciences, services and electronics.

Carlyle Cardinal Ireland

Carlyle Cardinal Ireland (CCI), the Irish private equity fund founded by The Carlyle Group (NASDAQ: CG) and Cardinal Capital Group is a new fund that invests in small and medium-sized businesses across Ireland. It has made a significant investment in Lily O'Brien's, the Irish manufacturer of premium chocolates and desserts sold in 16 countries. Robert Easton, Managing Director of CCI said: "Lily O'Brien's is a great example of an Irish business with a world-class reputation. We are delighted to join the founder and management team to continue to grow the business. The company's growth has accelerated in recent years, thanks to their unique recipes delivering award-winning products fuelling increasing demand in the domestic and international marketplace" Founder Mary Ann O'Brien said "the investment from CCI, along with CCI's global network should ensure Lily O'Brien's continues to grow to the next level. The CCI team has a proven track record of working with businesses such as ours and we are excited about what we can achieve in the coming years".

As is illustrated from the above, there are a wide variety of funding avenues available to micro enterprises, SMEs and larger companies, many of which have been developed in the past year or two. Currently, the widely held view is that the range of funding mechanisms is reasonably fit for purpose whereas a more pressing issue is that demand for credit, at 35%, remains at a low level due primarily to sluggish trading conditions, a low level of business confidence and a more risk averse banking system than previously applied.

Under the 2014 Action Plan for Jobs, specific steps are being taken to raise awareness of these initiatives and supports to integrate them more fully into broader policies for supporting enterprises and overall achieve the objective of improving business confidence and retail demand to support national economic recovery.

