

AGRI MATTERS

AIB SUPPORTING THE IRISH AGRICULTURAL INDUSTRY

SPRING 2016





WELCOME TO OUR SPRING EDITION OF AGRI MATTERS

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As we look back on 2015, economic data highlights a very positive year for the wider Irish economy with a substantial increase in GDP over the past 12 months. However, 2015 was a mixed year for Irish farmers with both dairy and pig farmers experiencing significant reductions in commodity prices, and in turn, income.

While the short-term outlook for many of our commodities is less favourable, we still maintain a positive medium-to-long term outlook for the sector overall. It should be noted that the sector is in a very strong position and has demonstrated a strong track record of paying debt down over time. Outstanding balances to the sector have reduced from a peak in 2009 by over 35% to €3.2bn at the end of 2015 as reported by the Central Bank of Ireland.

Looking ahead for the year, we recognise that this year is going to be a more difficult year for some sectors and we expect farmers will have two distinct farm finance requirements. On the one hand we are meeting customers who are seeking finance to support farm investment driven by available grant aid under the TAMS II scheme and we expect this to continue throughout

the year. On the other hand we are conscious that some of our customers have started to experience some cashflow pressure and more are likely to do so over the coming months. I want to reassure you of our commitment to the sector and I would encourage you to approach AIB at an early stage to see how we can assist you and your family, if support is required.

I would like to thank our external contributors to this edition of Agri Matters. Joe Burke from Bord Bia provides an overview of the Irish and European beef markets, Dr John McNamara of Teagasc discusses the importance of health and safety at this busy period on Irish farms while Dr Carsten Gutzler and Professor Rogier Schulte, also of Teagasc explain COP 21 and examine the possible implications for Irish farmers. Finally, Barry Hyland, one of our Agri Advisors has an interview with two progressive farmers, Gary Pepper and Noel O'Toole, in which they discuss their plans to cope with expected low output prices in 2016.

Patrick O'Meara
Agri Advisor



Speakers at the 'Prospects for Irish Agriculture – 2016 and beyond' seminar organised by AIB in association with Kerry Macra na Feirme, were (back row L to R) Frank Hayes, Kerry Group; Donal Whelton, AIB Agri Advisor; Liam Woulfe, Grassland Agro; Padraig Sayers, Kerry Group (front row L to R) Paul Nolan, Dawn Meats; Alan Jagoe, President CEJA and Sean Healy, AIB Regional Director South West.

ECONOMIC OUTLOOK

The Irish economy picked up further momentum in 2015. Official National Accounts data from the CSO for the full year show that the economy grew by 7.8%. This follows the rise of 5.2% recorded for Irish GDP in 2014. GNP grew by 5.7% in 2015, which is probably a better indication of the economy's performance last year. In any event, these are all exceptionally strong growth rates.

A cornerstone of this impressive performance has been the strong growth in exports. This reflects the recovery in activity in our main export markets, the significant gains made in Irish competitiveness, as well as the expansion in the export base due to the large inflow of FDI into Ireland in recent years.

The weaker tone to the euro against sterling and the dollar also provided a boost, increasing the attractiveness of Irish exports. The euro finished last year below \$1.09 against the dollar and near 73p against sterling. While the euro has strengthened somewhat this year, it still remains at levels conducive to maintain the competitiveness of Irish exports.

The domestic sector of the Irish economy is also recovering strongly. Domestic spending, excluding some elements associated with the multi-national sector, rose by 4.3% in 2015, broadly maintaining the strong rate of growth seen in 2014.

Consumer spending grew by 3.5% in 2015. Retail sales data for the first two months of this year have pointed to further strong growth in household spending. Furthermore, the ESRI/KBC measure of consumer sentiment is up around a 15 year high.

However, the housing sector continues to be characterised by low supply, which has kept upward pressure on rents and property prices. House building remains at very depressed levels, with completions totalling just 12,666 last year.

Meanwhile, there has been a particularly strong rebound in business investment, albeit from a very low base. It grew by 23% in 2015, following a rise of 33% in 2014. Government spending though declined by around 1% in 2015.

Strong economic growth is being reflected in various labour market metrics. Employment rose by 44,000 over the course of last year, an increase of 2.3%. Furthermore, the bulk of the job growth was in full-time employment, which rose by over 39,000, with a gain of 5,000 in part-time employment.

Another positive sign is that the job gains in 2015 were broad-based, with employment rising in eleven of the fourteen sectors in the CSO survey. Construction saw the largest gain, with jobs growth of 10,000, or 9.3%, in the year. Meantime, the unemployment rate continued to fall, declining to 8.8% by February 2016, to a seven year low.

The sustained increase in economic activity and increased numbers of people at work is also evident in the public finances. Tax receipts rose by over 10% last year and the Exchequer recorded only a very small budget deficit in 2015. Receipts for the first two months of this year have continued the strong trend.

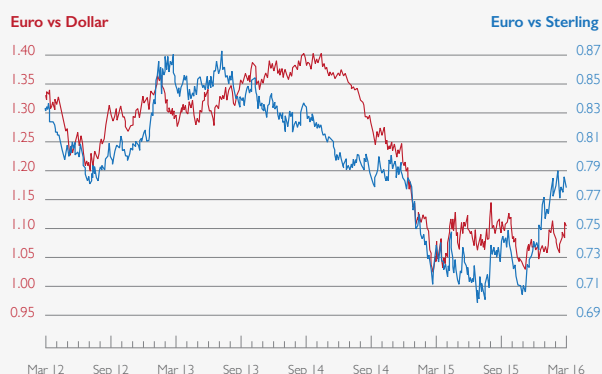
The key question in 2016 is whether the economy can sustain its strong growth performance going forward. The omens are generally favourable. Both the IMF and the OECD are forecasting that the global economy will continue to expand at a modest pace in the next couple of years. Although, there are downside risks to this outlook, especially in emerging markets.

Meanwhile, Eurozone interest rates are expected to remain at exceptionally low levels for a number of years. Irish fiscal policy is anticipated to be slightly expansionary, supporting growth. Inflation should remain very low. Wage inflation is picking up, which combined with tax cuts, points to good growth in real disposable income. The sharp fall in oil prices should also provide a boost to Irish consumers and businesses in the form of lower fuel costs.

Construction may also emerge from the doldrums, helped by a recovery in property prices. There have been some signs of a strengthening in private non-residential building activity this year.

Therefore, while we may not see a repeat of last year's very strong GDP growth, the economy could expand by around 4-5% in the next couple of years, assuming the global economy can continue to grow at a moderate pace.

FIGURE 1: RELATIVE PERFORMANCE OF EURO VS DOLLAR AND STERLING



Source: Thomson Datastream

TABLE 1: ECONOMIC FORECASTS – IRELAND

ANNUAL % CHANGE UNLESS OTHERWISE STATED	2014	2015	2016 (f)	2017 (f)
Real GDP	5.2	7.8	5.0	4.5
Real GNP	6.9	5.7	4.5	4.0
Consumer Spending	2.0	3.5	3.5	3.0
Government Spending	4.6	-0.8	1.0	2.0
Fixed Investment	14.3	28.2	10.0	7.5
Exports	12.1	13.8	10.0	8.0
Imports	14.7	16.4	10.0	8.0
HICP Inflation (%)	0.3	0.0	0.1	1.2
Unemployment (%)	11.3	9.5	8.3	7.5
General Govt. Deficit (as % of GDP)	-4.1	-1.5	-0.5	0.5

(f) = forecast

Source: CSO, AIB Economic Research Unit Forecasts

INSIGHTS FROM NORTHERN IRELAND STUDY TOUR



The Agricultural Science Association (ASA), supported by AIB, hosted a study tour to a number of farms in Northern

Ireland in 2015. Eamonn O'Reilly AIB Agri Advisor and current secretary of the Agricultural Science Association draws on some of the insights to emerge.

1. Ensure extra output increases your bottom line

Dairy farmers in Northern Ireland have not been constrained by quota since 1995. Since that time milk output has increased by almost 40%. The increase was driven primarily from an increase in cow yields of almost 2,000 litres per cow (to an average 7,000 litres per cow). This dramatic increase while also influenced by other factors such as genetics, was achieved by doubling the level of concentrates fed to 2,400 kg per cow, as the national herd remained relatively static over the period.

However net profit in 2014 on farms visited was somewhat lower than that returned in the Republic on a per cow and a per litre basis for the same period as per the average farm reported in the 2014 Teagasc Profit Monitor even after accounting for the differential in average output price.

While certainly offering potential benefit for the more cost and technical efficient operators, caution should be exerted when planning expansion. Farm profitability is as dependent on cost control and technical management as it is on scale.

2. Can you add value to your core product offering?

Following sustained periods of disappointing market returns, one of the beef farms we visited had undertaken a review of their existing operation, resources, farming practices and their

Some key facts about agriculture in Northern Ireland (NI):

- Similar to ROI, the agri-food sector is the largest indigenous industry in NI
- Primary agriculture accounts c.74% of total land area (998,000ha)
- c. 14,500 beef herds, with an average herd size of 18 cows
- c. 3,750 breeding sheep herds, average 215 breeding ewes
- c. 2,700 dairy herds, average 82 cows producing c.2bn litres of milk
- c.600 poultry farms (growing annually) – 13.6m broilers and 3m laying birds
- c.170 pig farms – 30,000 sows producing 1m pigs for slaughter
- Dairy contributed 33% of gross output followed by cattle 23%, poultry & eggs 17%, pigs 7%, sheep 3% and cereals 2%

core product offering, with an objective of identifying how best they could add to their bottom line.

The average profitability from suckler to beef systems in Northern Ireland is similar to that in the Republic – dependent on Direct Payment in a lot of cases.

The farm began the conversion of their 90 suckler cow herd to an Organic suckler beef operation in 2006 (yielding a 10% price bonus) while also maximising output from grazed grass, thus reducing their dependency on inputs. All progeny on the farm were reared to beef and early turnout to grass was a key component of the business model. By reviewing their existing operations the family had identified ways to add value to their output by modifying their existing operation.

“Farm profitability is as dependent on cost control and technical management as it is on scale.”

3. Don't underestimate the cost of investment and expansion

A major consideration with any farm expansion, and often an underestimated component, is the capital expenditure required to allow the farm achieve the proposed expansion. One of the farms we visited, had increased their dairy herd from 120 cows in 2000 to 600 cows in 2015. This involved significant capital expenditure in cubicle housing and investment in a new rotary parlour. As a result the farm was carrying a high level of fixed costs and this was a concern as milk price dropped.

The individual cost of expansion will depend very much on existing facilities; the speed and scale of expansion, along with the type of infrastructure required. However it is important to understand the effect, if any, that any planned investment may have on the farms' cash flow and profit.

4. Prepare for a downturn

Some of the bigger dairy farmers in Northern Ireland had generated significant cash surpluses when milk price was high and while some of this surplus was reinvested, there was a large portion of profits also set aside as a "rainy day fund" from the anticipated future reduction in milk price.

This reserve, is very important on farms as it is enabling farmers to get through this period of reduced prices.

Other farms, as a result of recent investments have eaten into their reserves and are now more exposed to the downturn in price.

REVIEW & OUTLOOK

2015 was a landmark year for the Irish agri sector in many respects, with the dairy sector entering the first year of the post quota era, and the Basic Farm Payment Scheme replacing the Single Farm Payment Scheme.

As in years previous, and outlined below, it was a somewhat mixed year for the sector. Favourable summer and autumn weather conditions boosted livestock performance and crop growth in many parts of the country, helping reduce costs of production and negate to some extent reduced output prices.

At an aggregate level, the drystock sectors reported more favourable returns than 2014. The pig and dairy sectors, both experienced reduced margins despite increased output, while incomes on tillage farms remained similar to 2014. All in all, aggregate farm income is estimated to have declined by 9% to an estimated €24,000 in 2015.



2015 was a positive year for the beef sector. At farm level, incomes were boosted by relatively strong beef prices (+8% vs. 2014) and moderate input expenditure due to good grass growth and reduced input prices, in particular feed and fertiliser.

Continuing the trend that started at the end of 2014, prices continued to strengthen in the first half of 2015, peaking at €4.40/kg at the end of July, as a consequence of tighter national supplies. From August onwards prices started to decline, but stabilised, and remain, at or around €4/kg since early October, underpinned by continued import demand from the UK, due to favourable exchange rate movements and the differential between UK and Irish steer prices (Figure 2). Throughput for 2015 was back 4% on 2014 levels, with notable

reductions among young bulls (-18%) and cows (-15%).

The outlook for the cattle sector is for a less favourable year in 2016. Increased supplies from the dairy herd, both nationally and internationally, are likely to put downward pressure on beef price through the second half of 2016 and into 2017. It is estimated that up to 80,000 extra finished cattle will come on the Irish market in 2016.

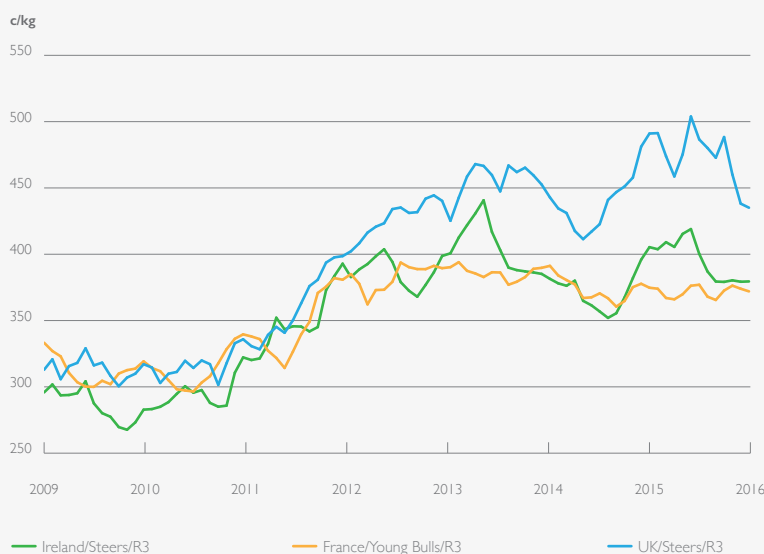
A relatively weak euro will help maintain to some extent Irish beef exports competitiveness to non-Eurozone destinations, however in the absence of increased international market access (similar to the Turkish market) and live exports resuming to levels similar to 2014 it is likely market incomes on cattle farms will be below that of 2015. Finishers who purchased weanlings at record prices during 2014/15 will be particularly exposed to the vagaries of market dynamics. (See Joe Burke's article on page 7 & 8 for further insights on the European and Irish beef sector).



The sheep sector has enjoyed increased returns each year since 2013, with net margin per hectare (excluding direct payments) in 2015 estimated at €154/ha, some 69% above 2014 levels. Prices, which began to increase in Q4 2014 peaked at €5.96/kg at the end of March, and although declining as increased supplies came to market, averaged 2% ahead of 2014 levels for the year as a whole. Slaughtering's were nearly 30,000 head up on 2014 levels, driven by increased lamb supplies.

Reduced global supplies should help bolster sheep prices through 2016, which, when combined with potentially reduced input expenditure (feed and fertiliser), should lead to further improvements in incomes on sheep farms in 2016, assuming continued favourable weather conditions.

FIGURE 2: IRISH, FRENCH AND UK CATTLE PRICES (EXCL VAT)



Source: Bord Bia 2016



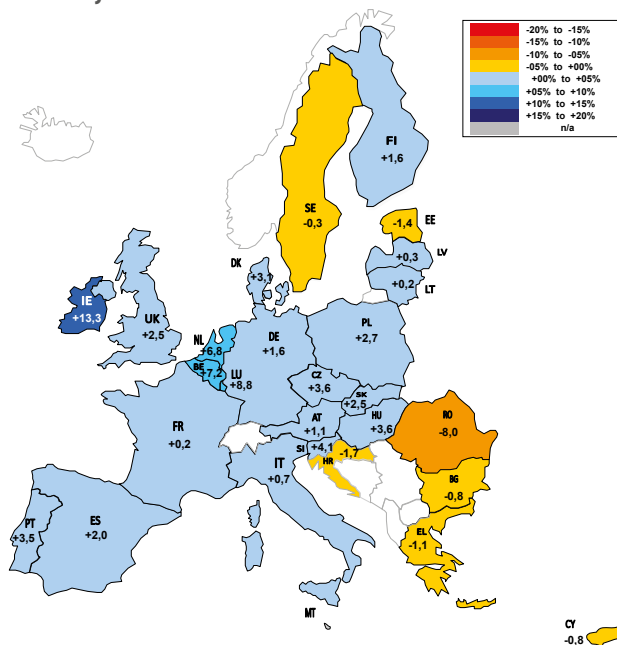
Increased milk supplies and reduced commodity prices were a feature of many of the world's dairying regions, including Ireland, through 2015. Nationally, milk supplies were up over 13% on 2014 levels, the highest annual growth rate in Europe (Figure 3) and this trend continued into the first quarter of this year. Entering 2016, commodity prices were some 7.5% below that recorded at the start of 2015 and almost half the peak prices reported at the end of 2013.

Average net margins on dairy farms declined to an estimated average of €770 per hectare in 2015, significantly lower than 2013 and 2014 levels but similar to margins achieved in 2012. Increased volumes, particularly from April onwards, combined with increased milk solids and a reduced cost of production (23.5c/litre vs. 25.9c/litre in 2014) helped sustain farm incomes and underpin dairy cashflow, despite the relatively low annual average milk price of 30c/litre in 2015 (actual fat and protein) – the lowest since 2009.

While the latest global dairy trade auction (beginning of April) was positive (up 2.1%), the market remains in a weak position. At this stage, the outlook for 2016 is somewhat discouraging, as a result of elevated intervention stocks and reduced import demand from China, Russia and some of the key dairy importers as a consequence of low crude oil prices. Consequently, despite further increases in on-farm production and moderate input expenditure, aggregate incomes on dairy farms will likely be below recent annual returns.

FIGURE 3: EU MILK DELIVERIES 2015 COMPARED TO 2014 IN %

Jan–Dec 2015 / Jan–Dec 2014



Source: MS' Communications to Eurostat, FEGA, AGEA, Reg.479/2010.1(a)1



Notwithstanding increased slaughtering's, increased output and increased efficiencies at farm level, the absence of the Russian market, when combined with increased US and European supplies, meant 2015 was a very difficult year for the pig sector:

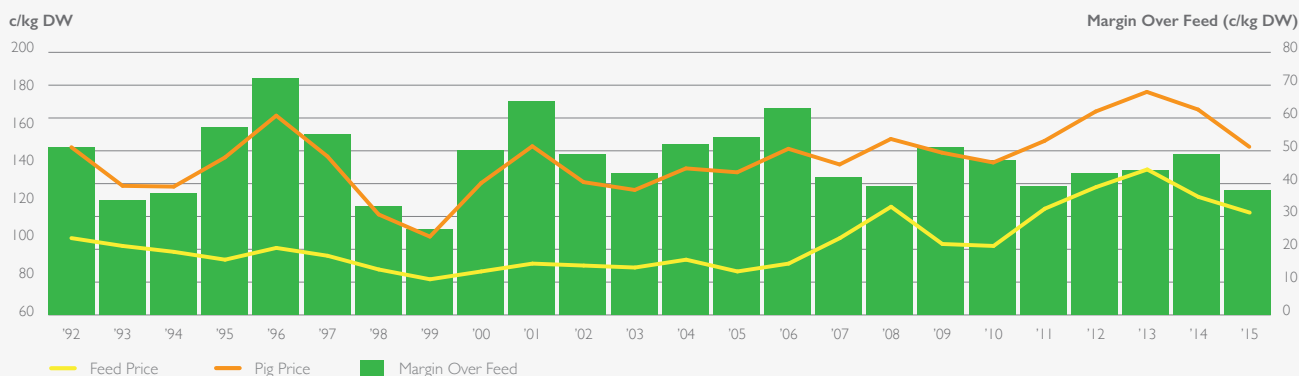
After sustaining a difficult 2014 where prices averaged €1.67/kg, prices declined a further 11% in 2015 – averaging €1.48/kg for the year as a whole, the lowest annual average price since 2009/2010 (Figure 4). Lower feed prices were insufficient to offset the reduction in output prices, with margin over feed averaging only 38c/kg in 2015, 4c/kg below the five year average (Teagasc feed cost and price monitor). As a result only the

most efficient producers were likely to be in profit in 2015.

Unfortunately, the outlook isn't much better in the short-term, although prices did rise by 4c/kg in early April. Global supplies are predicted to grow further in 2016 keeping downward pressure on price. National supplies at the beginning of March were running over 8% above 2015 levels, with a similar scenario (up 5%) reported in Northern Ireland.

The opening of the aid to private storage scheme offered a potential interim solution to existing weak market conditions without delivering any uplift in price. Failing increased demand, most notably from China whose national herd declined 23% since 2013, or dissolution of the Russian embargo, any significant uplift in pig price is unlikely in the short-term.

FIGURE 4: AVERAGE ANNUAL PIG PRICE, FEED PRICE AND MARGIN OVER FEED 1992 – 2015



Source: Teagasc feed cost and price monitor



Traditionally one of the more profitable farm sectors, but in recent year's margins have been under pressure on tillage farms due to reduced prices and higher costs. As a result tillage farmers are becoming increasingly dependent on Direct Payments to sustain farm operations.

2015 was another difficult year for tillage farmers, where, as in 2013 and 2014, the benefits of increased yields and production were negated by continued weak output prices as a consequence of increased production globally and a replenishment of international grain stocks. Prices in 2015 remained at similar levels to 2014. Given similar overall costs of production (reduced fuel costs negated by increased conacre costs), incomes on tillage farms were also similar to 2014.

Although the area under crops is forecast to decline nationally in 2016, global stocks, unless impacted by weather or political influence, may expand further. The predicted increase in EU area under crops and reduced competition for utilisation as biofuels will likely keep downward pressure on prices. Assuming a return to more normal yields, despite potential gains from reduced input expenditure, 2016 could be

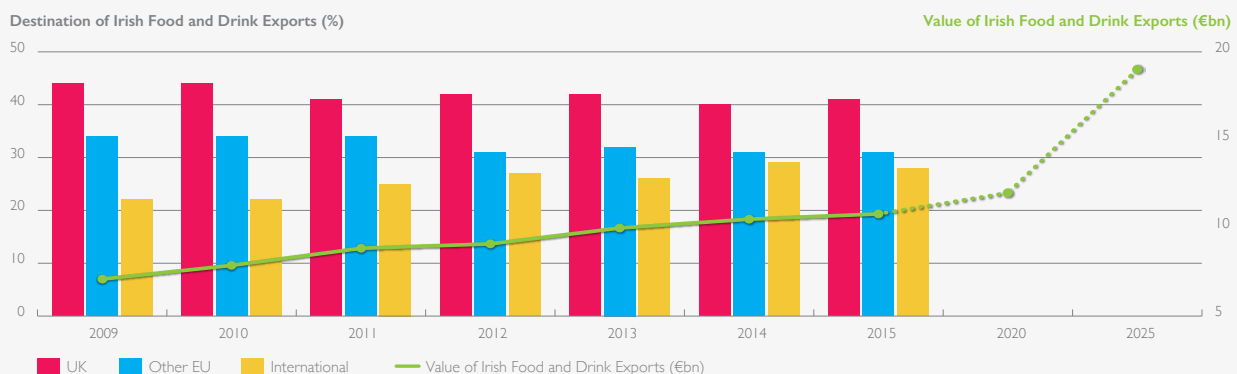
another challenging year for grain farmers.

Overall, the outlook for 2016 is less favourable, with income volatility again to the fore. Assuming normal weather conditions, lower input prices (feed, fertiliser and energy) should help reduce cost of production on many farms, however the outlook for output prices, with the exception of sheep, is discouraging. The impact at individual farm level will be heavily influenced by underlying levels of competitiveness, on-farm efficiency and how commodity prices develop throughout 2016.

Continuing the positive trend of recent years, the value of Irish food and drink exports rose by over 3% in 2015 to just over €10.8 billion (Figure 5), a 51% or €3.6bn increase on 2009 levels. The increase in 2015 was aided by favourable exchange rate developments and better returns for beef, seafood and beverages.

Increased volumes helped offset to some extent considerable weakening in dairy and pig prices. The UK remains our main trading partner; with 41% of food and beverage exports, valued at €4.4bn going to the UK. In excess of thirty per cent went to other EU countries (€3.4bn), while continuing the trend of recent years, increased proportions (28%) went to international markets (€3bn). With a continuation of the Russian trade embargo, increased exports were recorded for North America (+19%), China (+16%) and the Middle East (+12%) in 2015.

FIGURE 5: ANNUAL VALUE AND DESTINATION OF IRISH FOOD AND DRINK EXPORTS



Source: Bord Bia

MARKET OUTLOOK FOR IRISH BEEF



Joe Burke, Sector Manager for Beef and Livestock in Bord Bia reviews the market outlook for Irish beef.

Ireland's livestock sector plays a key role in the national economy, with over 100,000 farms involved in cattle production. From a supply base of over 1 million sucklers

and 1.3 million dairy cows, the industry produces over 550,000 tonnes of beef annually, of which almost 90% is exported. As a result, Ireland is the largest net exporter of beef in the northern hemisphere and the 4th largest in the world. Irish beef exports were valued at more than €2.4 billion last year.

At farm level, the beef market experienced a considerable recovery in 2015, having experienced difficult market conditions the previous year. On average, prices received for R grade steers increased by 8% or 30 c/kg deadweight, which reflected tighter Irish supplies (5%, or 83,000 head lower), combined with stronger returns from the UK market.

Following an initial rise in early 2015, cattle prices held stable throughout the spring, before peaking during June and July. At that time, steers and heifers achieved base prices of up to €4.30 and €4.40 per kg, respectively (Figure 6). However, over the autumn months prices declined steadily.

Following a difficult back-end for cattle prices, market indications since the beginning of 2016 have again followed a similar trend. The New Year period can often coincide with slower demand for beef both from foodservice and retail customers. Many consumers are less likely to dine-out in restaurants after the holiday season, or to purchase premium beef products in the supermarket. As the market settles down, there are a number of factors which are likely to impact on producer prices over the coming months.

Recent analysis of the Department of Agriculture's Animal Identification and Movement database suggests that during the first half of 2016 prime cattle availability will remain similar to last year. However, a recovery in supplies is expected to materialise as we move into the latter half of 2016 and overall slaughtering's for the year are likely to be 50,000 to 80,000 head higher.

EUROPEAN LEVEL

It is worth noting that the European cow herd has increased by half a million cows since 2012 (to 32 million overall). This increase reflects an expansion of 750,000 head in the EU dairy herd, along with a 250,000 head decline in suckler cow numbers over the same period (Figure 7). This growth contributed to a 3% increase in the volume of beef produced in Europe in 2015. For 2016, a further increase of 0.8% in European beef production has been forecast.

On the demand side, consumption of beef within Europe is estimated to have recovered by 0.4% for the second consecutive year, having previously dropped by more than 5% over the period from 2011 to 2013.

In Britain, R3 steer prices are currently averaging £3.37 sterling per kilogramme (early March), equivalent to €4.30/kg. This represents a decline of 60p/kg on the equivalent period in 2015. The Euro is valued at 77p sterling presently, having strengthened from an average of 72.6p throughout last year. A weaker Euro, as we had during 2015, makes the UK market more favourable for Irish beef. In 2015, the UK accounted for 54% of Irish beef exports.

Elsewhere around Europe, producer prices are holding reasonably steady, or as strong as they have been over the past 12 months, with R grade young bulls ranging from €3.79/kg (ex VAT) in Spain to €3.88/kg in Germany.

In recent years, the European beef market has become more discerning, especially where the higher-value steak cuts are concerned. Our major retail and foodservice customers have defined buying criteria with regard to weight range, class of animal (heifer, steer or young bull), age at slaughter, fat cover and conformation.

FIGURE 6: IRISH R3 STEER CATTLE PRICES 2014 & 2015

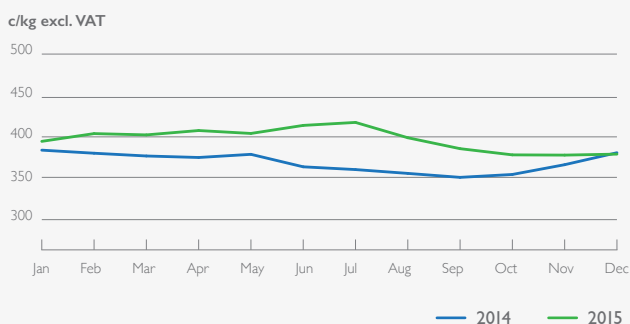
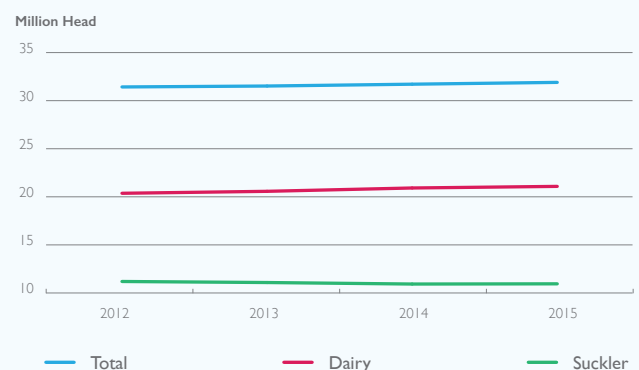


FIGURE 7: EU BREEDING COW NUMBERS (2012 – 2015)



ORIGIN GREEN



Feedback from Bord Bia's regular meetings with buyers (Figure 8) confirms that Irish beef enjoys an excellent reputation, which is a testament to Ireland's provenance as an unspoilt natural environment: ideal for grass-based beef production. Bord Bia's Quality Assurance scheme, which includes more than 45,000 Irish beef farms, is further evidence of a

major commitment to food safety, traceability, animal welfare and environmental management.

Most recently, under the Origin Green sustainability programme, the Irish food industry is further capitalising on its natural advantages. A sustainability survey is conducted at the time of the farm Quality Assurance audit. Each farm is benchmarked with regard to carbon footprint, water quality and biodiversity,

and given advice on how further improvement may be achieved. Improving daily live-weight gain and breeding performance, extending the grazing season and achieving more effective use of slurry and manure are all shown to have a beneficial effect.

Origin Green is an example of one of the ways the sector needs to continue to work together to produce and market a premium product in order to achieve the highest possible returns from the marketplace. As a small country, in global terms, it is difficult for Ireland to compete solely on the volume of beef we produce. Instead, themes like eating quality, sustainability and efficiency must remain at the forefront of our focus, both in terms of production and marketing.

Origin Green is the national sustainability programme for the Irish agri-food industry. The overall ambition is that every farm and food manufacturing business will be on the journey towards sustainable production by the end of 2016.

FIGURE 8: IRISH BEEF CUSTOMERS



WORLD CLIMATE SUMMIT 2015: WHAT THE PARIS AGREEMENT MEANS FOR IRISH AGRICULTURE



Dr Carsten Gutzler and Prof Rogier Schulte

Last December, world leaders met for the World Climate Summit (COP21) in Paris. The meeting ended with widespread optimism over a new collective approach to combat climate change. But now that the grand speeches are over and the many acronyms have faded from memory, what are the actual implications of the agreement? Specifically: will it change agriculture worldwide and indeed in Ireland? Dr Carsten Gutzler and Prof Rogier Schulte of Teagasc explain.

What was the COP21?

COP stands for 'Conference of the Parties' to the 1992 United Nations Framework Convention on Climate Change. It is an annual meeting organized by the United Nations where policy makers from around the world search for global approaches to combatting climate change. Discussions are informed by facts and figures provided by the IPCC (Intergovernmental Panel on Climate Change). Each year, a different country hosts the COP; last year's COP, the 21st of its kind, took place in Paris.

Why was this one so important?

The world's first legal agreement on how to combat ('mitigate') climate change, known as the Kyoto Protocol: runs until 2020. Notably, many of the world's biggest emitters either did not commit to emission reductions in the protocol or did not ratify it. Leaders worldwide have struggled since to find a new agreement that brings all major players on board. However, there was agreement on one thing: in Paris, they would come up with a 'post-Kyoto plan' (post 2020 plan), in order to give countries a five-year grace period to get their economies ready. In that respect, Paris was the 'last-chance saloon'.

So what was agreed?

After several days of intense negotiations, the Paris Agreement was unanimously adopted. While it formally won't come into force until it has been ratified by at least 55 countries, jointly responsible for at least 55 per cent of manmade greenhouse gas emissions, the overwhelming international support for the agreement makes ratification very likely.

The Paris Agreement is more ambitious than its predecessor, in that it now seeks to keep the global temperature rise "well below 2 degrees Celsius" and "ideally

below 1.5 degrees". Previous negotiations had sought to limit global warming to a 2 degree temperature rise (compared to preindustrial temperatures). However, low lying island nations and other countries most vulnerable to climate change had argued that a two-degree increase and the associated sea level rise would be devastating to their economies and to the livelihoods of their people: they pushed for a more ambitious target of 1.5 degrees.

How will this be achieved?

The Agreement aims to achieve climate change mitigation through so called INDCs (Intended Nationally Determined Contributions). Basically, this means that each country pledges how far it intends to reduce emissions. These pledges and their implementation will be reviewed and commented upon by other countries. However, countries face no formal consequences if their targets show low ambition or even if they fail to meet their commitments. By October 2015, INDCs had been submitted by 147 parties, including China, the US, the European Union and Russia. Together, these parties are responsible for about 86% of global greenhouse gas emissions.

The major part of global warming is a result of historic and present greenhouse gas emissions of industrialised countries. However, emissions from deforestation and inefficient emission-intensive technologies in developing economies also play an important role. Those countries must contribute as well if global warming is to be limited to less than 2 degrees and ideally less than 1.5 degrees. However, without financial and technical support developing economies would be unable to efficiently reduce emissions or to adapt to the negative effects of climate change. Therefore, the plan is to set up

a climate fund, financed by contributions of developed countries, that supports mitigation and adaption measures with a minimum of 100 billion USD per year.

Will this be sufficient to achieve climate change targets?

No, but the current commitments will result in lower temperature rises than a 'business-as-usual' scenario. The European Joint Research Centre estimates that the current pledges will likely result in a temperature increase of about 3 degrees by 2100, well above the 2 degree target.

Therefore, there is unanimous consent that ambitions must be stepped up in the future. For this reason, the INDCs will be reviewed regularly, starting in 2023. As a general rule, commitments can always be increased, but not lowered.

What does this mean for agriculture?

Like the 1992 convention before, the Paris Agreement recognises the priority of food security and eradicating hunger. It sees agriculture as particularly vulnerable to climate change.

As an EU Member State, Ireland will be bound to the INDC of the European Union. Europe, as the world's third largest emitter of greenhouse gases, has committed the targets of its climate and energy policy, namely reducing Europe's 2030 greenhouse gas emissions by at least 40% relative to 1990 levels.

The joint emissions from sectors that are not part of the Emissions Trading Scheme, including agriculture, will have to be reduced by a total of 30% relative to emissions in 2005. How this burden will be distributed among the Member States is yet to be discussed at European level, but national mitigation targets will be set

to between 0 and minus 40% relative to emissions in 2005. Allocation of targets will be based on two criteria:

1. On the economic strength of Member States (defined as GDP per head), and
2. On the availability of options for cost effective climate change mitigation in each Member State. Agriculture generally has fewer cost-effective options to reduce emissions than other sectors ("there's no such thing as an electric cow").

Member States themselves then decide through what action and in what sector they can best meet their respective mitigation targets. It is also possible to achieve targets through financing mitigation projects in other countries.

So what are the implications for Irish agriculture?

In Ireland, emissions from agriculture are getting a lot of attention, because agriculture is responsible for about one third of Ireland's total emissions. That means that agriculture has to be part of the national solution on reducing greenhouse gases. Does it also mean that Irish farming is inefficient? No, in fact, the carbon footprint of Irish produce is low compared to the same produce from other countries. But since Ireland produces and exports a lot of beef and milk and has a relatively small population, agricultural emissions make up a large proportion of total emissions.

While the emission reduction targets for Ireland are yet to be assigned, one thing is clear: it would be unrealistic to assume that the 2030 target for Ireland will be less ambitious than the current 20% reduction target set for the year 2020. The Environmental Protection Agency (EPA) projects that Ireland is likely to fail this 20% reduction unless additional measures for climate change mitigation are taken, particularly in the context of a growth in agricultural output and increasing emissions from traffic.

For this reason, Ireland has proposed an integrated approach to the land sector. Currently, greenhouse gas inventories only consider the 'bad emissions' from agriculture. Ireland has successfully



Pictured at the Carrigaline Macra na Feirme 'Developing your Farm for the Future' seminar; supported by AIB, were (back row L to R) Jim Woulfe, CEO Dairygold; John O'Doherty, AIB Regional Director; Joe Burke, Bord Bia; Sgt Ian O'Callaghan, West Cork Crime Prevention Officer; (front row L to R) Tadhg Buckley, AIB Agri Advisor and Alan Jagoe, President CEJA.

"Europe, as the world's third largest emitter of greenhouse gases, has committed the targets of its climate and energy policy, namely reducing Europe's 2030 greenhouse gas emissions by at least 40% relative to 1990 levels."

proposed to the European Commission to also include 'positive aspects' of agriculture that reduce global greenhouse gas emissions like farm afforestation. These aspects will be considered for European targets after 2020. Forestry has the ability to sequester carbon in soil and wood, effectively offsetting emissions. Alternatively, reducing the emissions from drained peatland soils could provide significant emission reductions at relatively low costs.

How are we helping farmers address the climate change challenge?

Over the last seven years, Teagasc's Greenhouse Gas Working Group has been working hard to develop solutions for both farmers and policy makers: we have researched the most cost-effective ways to reduce greenhouse gas emissions from farming. Put simply: which farm practices are good for the climate and also the bottom line? The answer lies in farm efficiency: if we can produce food with

fewer inputs, then this reduces emissions to the atmosphere and costs to the farmer. Efficiency means more productive animals, extending the grazing season, informed nutrient management (e.g. NMP online). We are now turning our attention to emerging technologies that promise to reduce greenhouse gas emissions even further. Examples include the development of sexed semen and the development of novel, low-emission fertilizers.

How can farmers decide which of these options work for them?

To help with this decision making, Teagasc has developed the Carbon Navigator, together with Bord Bia. The Carbon Navigator is a simple tool, free of jargon, to help farmers decide what will work on their farm. It is currently being rolled out as part of Bord Bia's Quality Assurance Scheme, and in the Teagasc discussion groups. For more information, contact your Teagasc advisor.

FARM SAFETY AND HEALTH – THE BUSINESS CASE



Dr John McNamara, Health and Safety Specialist, Teagasc discusses farm health and safety and encourages all to be vigilant at this busy time of the year on Irish farms.

Nationally, and indeed internationally, farming is one of the most hazardous

occupations one can be involved in, accounting for numerous work-related fatalities and accidents annually. In 2015, 18 people lost their lives on Irish farms, which follows 30 farm deaths in 2014. Farm fatalities, while each tragic, are but the tip of the iceberg, as an estimated 2,500 serious farm accidents occur annually.

Although farm health and safety has received greater recognition and focus in recent years, with advances achieved, zero must be the industry target, both in terms of farm accidents and fatalities.

Improving farm health and safety is the responsibility of all within the industry. It should be a constant feature of our daily farm plans and activities, if not purely for our own personal safety but that of our families, employees and visitors to the farm.

Causes of farm accidents

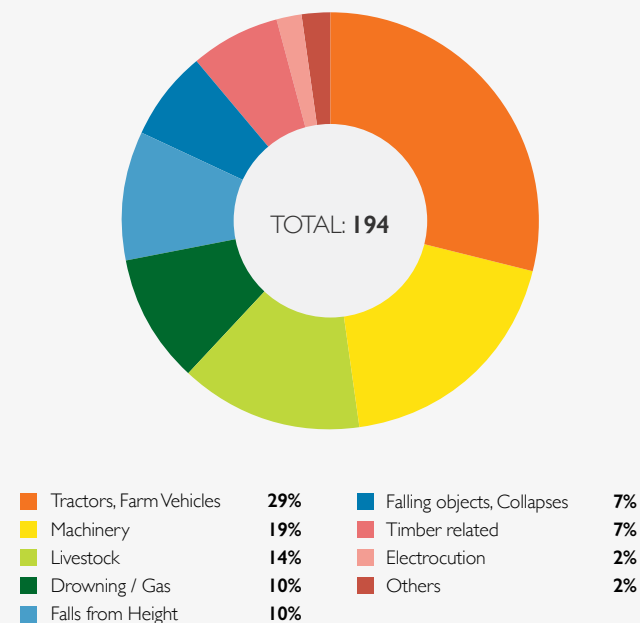
The diversity and complexity of farm environments mean that there is not one universal cause of farm-related fatality or injury but instead a myriad of potential injury agents. While each accident has individual factors, in the last decade fatal farm accidents have been predominantly associated with tractors and machinery (48%), livestock (14%), drowning in slurry/water (10%), falls from heights (10%), falling objects / collapses (7%), timber related (7%) and electrocution (2%) (Figure 9).

The number of power drive entanglements have reduced substantially in recent years while being struck or crushed by vehicles has increased. Fatalities caused by cow attacks have surpassed numbers caused by bulls, while fatal accidents associated with chain-sawing and tree felling have increased substantially.

The safety of bystanders particularly children and older farmers should be given high priority. The majority of childhood and older farmer farm deaths are due to tractor and machinery movement in farmyards.

“The input of each farmer in managing farm safety is the vital ingredient to prevent accidents.”

FIGURE 9: MAIN CAUSES OF FARM DEATHS ON IRISH FARMS 2006-2015



Source: H.S.A.

Prevention Strategies

Identifying hazards and taking remedial action, combined with adopting safe behaviour, are proven ways of cutting farm accident risk.

There are some straightforward strategies that can be implemented to improving safety on your farm, including; planning and scheduling your work activities; working at a steady pace; gaining adequate rest, and using contactors and additional workers where needed.

In ever changing and stressful farm environments, where demands are elevated (particularly at this time of year with cows calving and ewes lambing) and activities frequently completed within tight timeframes, it is not always easy or practical to implement all the above. It is however important to be aware that straightforward adjustments to daily activity and personal behaviour can bring about significant advances. The input of each farmer in managing farm safety is the vital ingredient to prevent accidents.

Legal Requirement

A key legal requirement related to managing safety under the Safety, Health and Welfare at Work Act 2005 is to complete and update a Risk Assessment document. Doing this fulfils the requirement to prepare a Safety Statement for farms with 3 or less employees. When completing the Risk Assessment document, the key questions regarding safety and health are asked. Information on the causes of accidents along with pictures of key controls are provided. Safety and health actions needing attention need to be listed on the Action List and acted upon. Research by Teagasc/H.S.A. indicates that farmers who implement the controls they specify have satisfactory safety standards.

Teagasc provides half-day training courses to farmers on completion of the Risk Assessment Document. The feedback from half-day training courses is very positive. Ninety nine per cent of farmers agreed that it would be worthwhile to offer the course to all farmers, 97% of farmers agreed that the course motivated them to implement health and safety measures while 100% stated that they planned to make health and safety improvements on their farms.

Targeted Agricultural Modernisation Scheme

The Targeted Agricultural Modernisation Scheme (TAMS 2) operated by the Department of Agriculture, Food and the Marine will provide funding (€395million) up to the end of 2019 for farm infrastructure investment. A considerable number of measures are included which support making farms both safer and more efficient workplaces. These include slurry aeration and slat replacement, modernising electrical installations and lighting, installation of fixed and mobile livestock handling facilities, and safety specific items such as guard rails and sliding doors. Each farmer should examine ways to utilise the funding available in the context of improving the efficiency and the operating environment of their own farms.

Completion of a Half-day Risk Assessment training course (or the Green Cert) within the previous 5 years is a mandatory requirement to obtain TAMS grant drawdown. Teagasc plan to hold these courses throughout the country on an on-going basis and booking a place can be made at any Teagasc advisory office.

Health

Farmers need to give more attention to safeguarding their health. This statement often comes as a surprise to farmers as 'farming is perceived as a healthy outdoor occupation'. However a study of mortality data in the Irish population (Smyth et al., 2013) has indicated that of all occupational groupings, farmers and agricultural workers have the highest all-cause mortality rate and should be considered a high risk group. In the study the highest standardised mortality ratios for farmers were reported for the behaviour-related chronic cardiovascular and cancer diseases.

Health promotion strategies such as getting a regular health check, maintaining a healthy weight by diet and taking exercise, quitting smoking and limiting alcohol intake are particularly relevant.

Musculoskeletal diseases including back, hip and joint injuries are the major occupational conditions among farmers. These can be prevented by eliminating or reducing heavy lifting and carrying and using safe lifting techniques.

A Health Booklet for Farmers entitled 'Staying Fit for Farming' is available at www.teagasc.ie

“Of all occupational groupings, farmers and agricultural workers have the highest all-cause mortality rate and should be considered a high risk group.”

COPING WITH LOW OUTPUT PRICES



2016 is going to be another difficult year in both the pig and dairy sectors. Barry Hyland, AIB Agri Advisor spoke

to Gary Pepper, pig farmer and Noel O'Toole, dairy farmer to understand what they plan to do, to get through 2016.

Gary is farming a 500 sow unit, finishing all pigs on site in Cootehill, Co. Cavan. The farm is very efficient, with excellent performance figures in terms of numbers born alive, feed efficiency levels and average daily gains. Similarly, Noel runs an efficient dairy farm near Ballinasloe, Co. Galway, and he will be milking 180 cows this year on a milking platform of 45 hectares, producing high levels of milk solids per hectare.

Manage the Short-term Cash-flow

Both farmers recognise the importance of managing cashflow and have prepared budgets for 2016 to help identify periods of potential cashflow deficits during the year. Gary can accurately predict sales and expenses based on sow inseminations, but his one uncertainty is pig price, which he has to estimate for the year. In Gary's case, due to the cyclical nature of pig farming and the tight margins experienced in the sector over the past five years, similar to other pig farmers, he has stripped costs back to a minimum.

While the lower milk price will have a big impact on cashflow on Noel's farm, his biggest unknown is the weather. Noel says 'this will ultimately determine grass growth, grass utilisations and the amount of feed I have to purchase'. He is operating a low cost grass based system and similarly, he says he would find it difficult to pull any further costs out from the system. Noel has coped well with previous downturns in 2009 and 2012, which have convinced him to focus on grass production and low cost milk production. His key focus is to get cows out to grass early and maximise days at grass.



Maeve Carty, AIB Ballinasloe, Noel O'Toole dairy farmer and Eamonn O'Reilly, AIB Agri Advisor.

"Gary's experience from previous downturn is 'not to allow efficiency to be affected by cost cutting'."

Beware of False Savings

While no capital expenditure is planned on either farm in 2016, as a consequence of the reduced output price, both farmers are very wary of the temptation to reduce costs in the short term which could affect output and farm performance in the long term.

Gary's experience from previous downturn is 'not to allow efficiency to be affected by cost cutting'. He advises that he could reduce his costs overnight by changing to a cheaper supplier for his artificial inseminations. However, the effects of this could be seen in six months when output from the farm may be reduced.

Noel advises that his priority is to get through 2016 without compromising cow health, maintaining soil fertility, while simultaneously minimising meal feeding and maximising grass grown. He is confident that

his system and his budget will deliver this in 2016. Similar to Gary, Noel recognises that 'short term gains such as deferring reseeding will impact on profitability in the long term'. This year, Noel will continue to reseed a proportion of the farm and will stick to his fertiliser plan to maximise grass growth.

Culture of Continual Improvement

Gary also advises that he will focus on efficiency and trying to do things better while also trying to further minimise spending around the unit. One area where Gary sees capacity for further cost saving is through improved stockmanship by both himself and his staff. This could allow him to further reduce his medicine and vet bills. Gary recognises the importance of keeping staff involved in the business and the importance of everyone working towards a common goal. For this reason Gary meets his staff regularly to share pig performance data with them.

With feed accounting for almost 70% of the production costs on pig farms, Gary is continually looking at his options of how he can reduce his feed bill. He is investigating the option of home milling his fattener feed, which could offer savings of up to €10/tonne. Gary advises that he will defer any investment until the market is more favourable.

“Noel recognises that ‘short term gains such as deferring reseeding will impact on profitability in the long term’.”

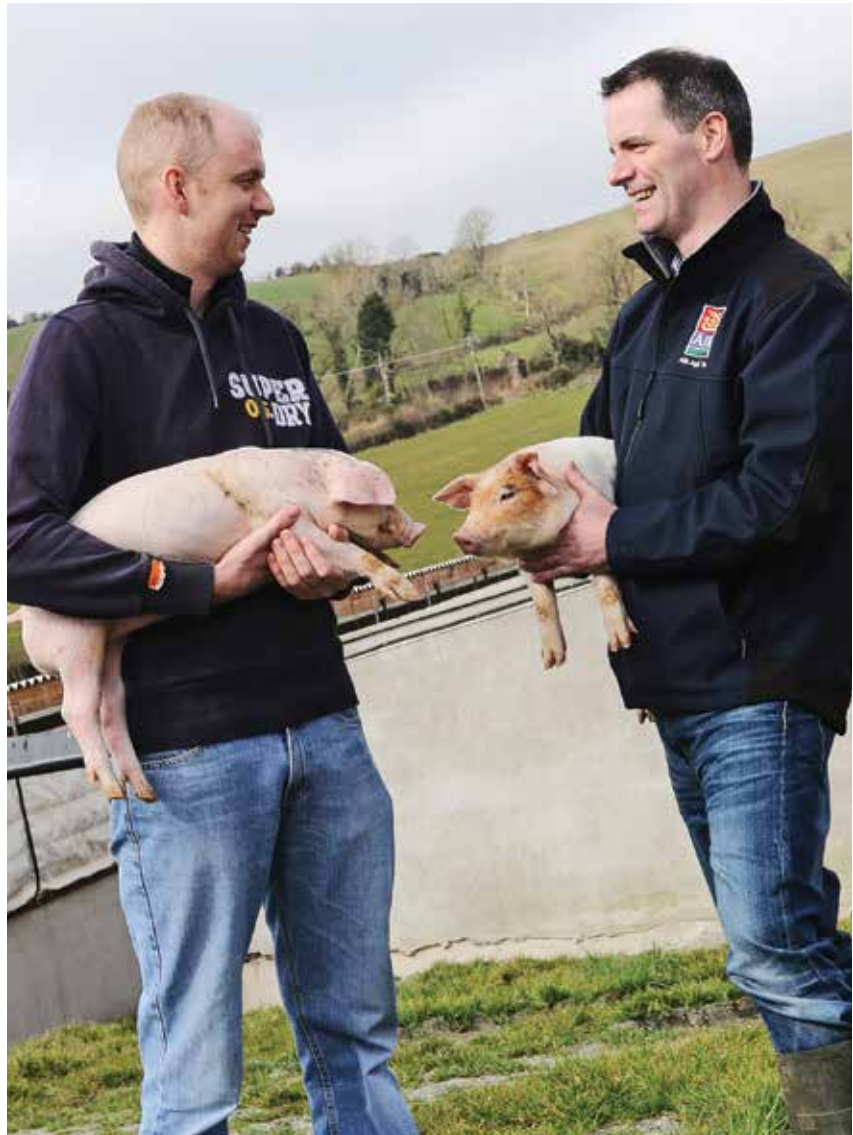
Noel's long term plan is to grow and utilise more grass by improving soil fertility and maximising his farm stocking rate. He believes that the Teagasc Profit Monitor and grass measurement are very important tools that give him excellent insights into his business on an ongoing basis. He advises all farmers to compare their performance with their discussion group members as they are a valuable source of knowledge transfer and information sharing.

Maintain Good Relationships

In a more difficult year, both Noel and Gary emphasised the importance of having a good relationship with all stakeholders involved in the business such as feed suppliers, sales reps, bank manager, Teagasc/Agricultural advisor and accountant. It takes time for a farmer to build a relationship of trust with stakeholders and it is something that needs to be worked upon constantly. The importance of good technical advice, quality products and reliable service should not be underestimated and are key components of operating any successful business.

Noel's final words of advice were:

“Mind yourself and stay healthy.”



Gary Pepper, pig farmer with Barry Hyland AIB Agri Advisor.

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