The Oxford Farming Conference

# THE BEST BRITISH FARMERS

## What gives them the edge?

Oxford Farming Conference Report
researched and written by:

ANDERSONS
THE ANDERSONS CENTRE

Sponsored by:

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BURGES SALMON

HSBC

#OFC15

# SPONSORS' MESSAGE

syngenta

Syngenta is again delighted to support the Oxford Farming Conference research paper. With volatile commodity pricing, shifts in the subsidy structures and increasing regulatory pressures on key inputs, the current environment for farm businesses is highly challenging. Accordingly, it is welcome that this research sets out and examines some of the actions that will enable farmers to build and maintain success in the current environment. As one of the world's leading agricultural input companies, Syngenta provides key technologies to underpin productive and sustainable agriculture in competitive markets. Research like this helps us to understand and respond accurately to the needs of our customers.

BURGES SALMON

In this paper Oxford is challenging UK farming to wake up to the reality that we are falling behind the competition. The paper is clear that in order to raise performance the present real terms decline in R&D has to be reversed. The paper makes practical suggestions about how this should be done. Burges Salmon strongly supports the primary recommendation of the paper which is that we need more public and private research. Hopefully this paper will contribute to making that happen.

HSBC

HSBC Agriculture is delighted to be involved in the 2015 Conference by sponsoring this year's Conference Report 'The Best British Farmers - What gives them the edge?'

HSBC remains staunchly committed to the long term good of the sector as, in turn, it plays its part in the production of the nation's food and contributes an increasingly significant part in the nation's economy. We see our part as two fold - to obviously fund progressive businesses in each facet of the food chain and also contribute to the thought leadership which moves the whole into a stronger more vibrant position.

Recent trends in commodity prices provide an immediate challenge to the well-rehearsed opinion for optimism longer term. Volatility is here to stay in today's global market place and, as such, businesses will have to be at their very best. Achieving lower costs of production with technical efficiency, benchmarking and a close understanding of the customer are all accepted traits in these enterprises.

These are extremely exciting times for the well run business and we hope this report gives much confidence and direction to farmers that they are on the right track.

Agriculture remains a preferred sector for HSBC. We commend this report to you and we wish you well going forward in adapting its conclusions.

THE OXFORD FARMING CONFERENCE

# What gives them the edge?

# FOREWORD

I have worked in the agri-food sector all my career and am a firm advocate for everything that is positive and progressive in our great industry. British and world farming have many challenges to face, but with opportunity and professionalism, I believe we can all fulfil our ambitions.

Our Report title "The Best British Farmers, What Gives Them The Edge?" sets out to identify some of the differences between the UK's best farmers and those not at the top of their game. It also compares us with some overseas competitors. In this sense, agriculture is no different to any other industry, we have to compete on price, quality and performance to ensure we thrive in an increasingly demanding society. However, farming is unlike many other industries, because its factory floor is part of our diverse countryside that is seen by some as a wildlife reserve or open-space playground, managed by nature and occupied by quaint folk. Despite these inaccurate opinions, Britain has its fair share of very successful agricultural entrepreneurs, with a considerable number building their businesses from modest beginnings and others even starting from scratch.

The report correctly identifies that lifestyle farmers or some agricultural sectors are willing to accept a lower level of performance. However, not facing the reality of poor performance and assuming that someone else will provide a solution is foolhardy. The author rightly identifies that success frequently depends upon

the individual. This is particularly so in today's cost cutting and free-market society.

From my perspective, the key takeaway points from this report are:

- British farming is no longer the world leader it might think it is
- Success is often down to the individual
- Good farming results come from attention to detail
- Performance benchmarking is a route to better business practice
- Potential farming executives could firstly seek employment experience in a non-farming, commercial workplace
- Review successional planning in the farming business
- British farmers need access to the best science, unencumbered by policy making myths and misconceptions

The OFC vision "To Inform, Challenge, Inspire" is again an appropriate summary of our aspirations reflected in this Report.

My sincere thanks go to our sponsors – Syngenta, Burges Salmon and HSBC – and to The Andersons Centre, the report's researcher and writer. I fully appreciate their support on the content and style of this report and, at times their critical feedback.

**Richard Whitlock**
**Oxford Farming Conference**
**Chairman 2015**

# C.1 EXECUTIVE SUMMARY

The UK has some world-class farmers, but the industry as a whole is lagging behind other countries. The efficiency of UK farming has only progressed by an average of 1.4% per year since the 1960's. This is considerably lower than other comparable countries. The return on some resources like labour is good, but on others it is poorer.

Cost saving is a major opportunity for farming businesses either through reducing business expenditure or ensuring output matches resources more precisely. Saving costs is the right commercial thing to do when it saves more cost than income it foregoes. Within the UK, the main reason the best farmers make more money than the worst is because they spend less per unit of output. Higher output accounts for only about 10 to 30% higher profits, lower costs contributing 65 to 90%. All sectors and all countries have high levels of performance variation from the top to the bottom performers. Top performers are often marginally better at everything rather than significantly better at anything. Marginal progress on all aspects of the business makes a considerable improvement to the overall figures.

Non-essential expenditure decreases and replacement policies are extended when profitability is low. Reinvestment is necessary to build the future business though, whether lime on fields, staff training, or buildings etc. Investing involves short term cost and long term ambition.

Young farmers are often more eager to build their businesses than older managers. They are generally more open to new ideas and are prepared to take greater risks (including higher business gearing). A good education is always beneficial and time spent in a non-farming commercial environment can also be commercially valuable. Larger farms tend to achieve better results than smaller ones as they can be more efficient with resources.

Improving efficiency at industry level is directly related to expenditure in research and development (R&D). In the UK this has fallen by about 6% per year in real terms over the last 20 years and is budgeted to continue falling for the next decade. To raise the performance of UK farming, this decline has to stop.

> **The highest form of success comes... to the man who does not shrink from risk, from hardship, from bitter toil, and who out of these wins the splendid ultimate triumph.**
>
> Theodore Roosevelt 'The Strenuous Life' Speech 1899

More of the R&D funds should be focussed towards near-market study, taking the strategic research and applying it to industry. This could also attract greater amounts of private funding too.

Improved knowledge exchange is a big opportunity for UK farms, by facilitating the transfer of information to those who can use it. UK levy bodies are comparatively small but effective at this. Yet there is an opportunity to augment their role here, despite possibly incurring higher levy rates. The public and private sectors both have obligations and key roles to play.

It is rarely disputed that direct subsidies compromise competitiveness, but farming without them in an otherwise supported industry would not be prudent. However, there is much to learn from unsupported countries and sectors.

The barriers to changes of land occupation should be lowered. Wider use of joint venture arrangements should be promoted. Whilst lifestyle farmers are free to make a choice, policies should be put in place to ease the exit of those who only continue farming because they feel they have no alternatives. Parts of the red meat sector in particular are held back by lifestyle farmers more than most other sectors. Some operators who have left dairying, or have a few acres of land, keep a small herd of cattle or flock of sheep. In contrast, few enter intensive pig farming.

> **A greater proportion of research funds should be spent on near-market research to best put the findings to commercial use.**

The UK (and EU) farming industry, compared with other countries, is also hampered by having technologies held back or withdrawn from use. Genetically modified plant seeds are the obvious example, with more recently the loss of plant protection products. The UK (and EU) is increasingly operating with fewer tools than non-EU counterparts, putting farming under sustained pressure from ideological and political preferences.

Key recommendations identified as necessary to improve competitiveness:

- To raise agricultural productivity, the decline in public research expenditure on agriculture needs to be halted and research investments increase.
- A greater proportion of research funds should be spent on near-market research to best put the findings to commercial use. This should also attract more private funds for research too.
- Benefits from improved exchange of knowledge will be twofold, benefiting the research community whilst also helping to get information to those who can use it. It will help top performers move the productive frontier forward and those following to catch up.
- Focus should be centred on the top and middle sectors of farmer operators. Those that do not seek information will always be very difficult to influence.
- Opportunities for restructuring UK agriculture through facilitated young farmer access should be improved. Younger farmers are often more strategic and visionary operators than their elders. They are also more frequently prepared to use loan, venture or external shareholder capital to expand the business.
- Farmers as with all businesspeople should help themselves by seeking greater (non-agricultural) business acumen.

As an industry, we can all look for opportunities to enhance the commerciality of the sector, either through tools like benchmarking and long term planning, or through culture change. Ultimately though, the success or failure of any business comes down to one variable, the entrepreneur at its helm. Regardless of the support, subsidy, information emails, loans, trade events or research, the talent and drive of the individual to be the "best in class" is the key determinant that turns ordinary into extraordinary. The hungry entrepreneur knows that she will take the spoils of a successful business just as she will feel the pain of failure. Only one person can be responsible for that and the rewards only come from extreme effort.


Driven
Top 25%
Business Skills
Bottom 25%
Benchmarking
Lever Capital
Encourage Youth
Educate
Vision
Research
Entry Exit Strategy
Knowledge Transfer
Knowledge Exchange
Cutting Edge
Aspire
Opportunity
Innovate Tax Benefits
Improve Performance
Conditional APR
Own or Rent?

# C.2 UK AGRICULTURAL COMPETITIVENESS

## 2.1 INTRODUCTION

At 6 am in a tidy office in Lübeck, in the German Lander of Mecklenburg-Vorpommern, Jan Meyer-Struthoff sits at his desk and plans his day in his diary. His staff know their tasks but appear at the office door when they arrive for work, more for team spirit than to collect instructions. Jan has built a 1,100 hectare farm business from a tiny smallholding in 12 years. He is a highly productive farmer and knows exactly what he wants to achieve with his business.

At the same time, about 13,000 miles away, Greg Nelson, a New Zealand dairy farmer is finishing his working day. Before turning off his phone, he checks the key performance indicators he's set up for his seven dairy farms to see all are operating well and very profitably. Greg too, has achieved far more than most. At thirty something, he has made tens of millions of NZ dollars from turning grass into milk on a very simple and highly commercial model.

These two individuals are not ordinary farmers, they are extraordinary. They are not alone, indeed there are such operators in the UK and around the globe. But what sets them apart from the others?

The Oxford Farming Conference Council set out to identify key pointers to improve the competitiveness of UK agriculture from both self-examination and by comparing its performance with agricultural industries in other countries. The aim was to identify changes the UK agricultural industry should make to improve its competitive performance.

## 2.2 COMPETITIVENESS

Competitiveness is a relative measure used to compare businesses and sectors. It is challenging to measure and a difficult concept to grasp. However, measurements of production costs, profitability, productivity and efficiency are a great start which will be considered at farm level in this study. It is also a topic that links closely to several other areas that our industry has been grappling with over the last 12 months or more; commerciality, business growth, sustainability, professionalism, resilience and so on. The report has followed these pragmatic lines.

## 2.3 WHERE WE STAND

First, we work on the premise that groups of people in different parts of the world are on average born with similar innate abilities and commercial eagerness. Thus, the differentiation in farming performances is not because of genetically inherited ability, but how surrounding environments shape the individual and resources. This includes the natural environment but also the industry, education, neighbours and commercial influencers.

1 (A Bragg, 2005)

Our industry can be compared with the performance of agricultural industries in other countries and also with itself; the best versus the rest. As part of this study, we have done both. Agriculture can also be compared against other industries and that could be the next investigative task. Indeed, one way of learning about new techniques in business is to look at other businesses. Not just other farmers, but other sectors. This is called 'process benchmarking'. [1]

Most of us use **profit** as a measure of performance. We could use this to compare the UK farming industry with other countries' farming industries. But as environmental conditions are different, it becomes meaningless. France for example is twice the size of the UK, and the climate is different, meaning much of the country is filled with crops unusual in the UK including grape vines, combinable maize and sunflowers, all non-comparable crops. We return to profit in section 2.6 but first, what we can compare is how fast the UK is improving its productivity versus other countries.

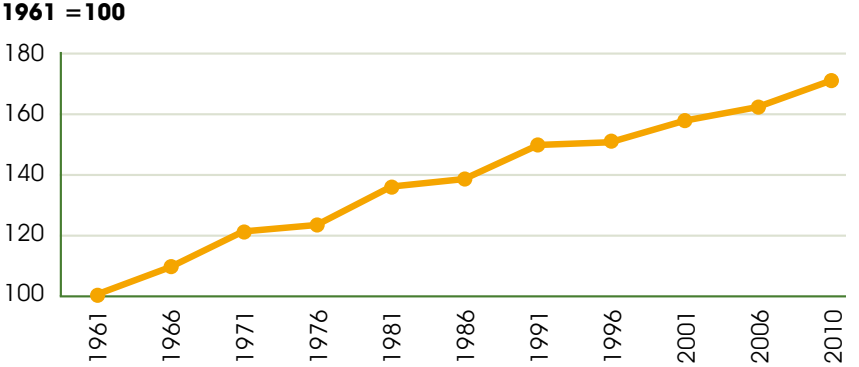
In its 'Agriculture in the UK 2013' publication, Defra states "UK agricultural income … has risen by 46% between 2005 and 2013 compared with 29% for the rest of the EU". It mentions currency movements but does not highlight that the pound had weakened by 19% in that time, more than offsetting the 17% advantage. In other words, all the additional income made over EU farming was because the pound shifted against the euro, so we have actually fallen behind over the period.

> **South West Airlines, the pioneer of low-cost air travel, when they compared their turnaround time at airports with other flight operators and finding themselves the fastest, instead of complacently sitting back, went on to examine what Formula One pit-stop crew did, and reduced their non-flying time further as a result. That is competitiveness.**

## 2.3.1 TOTAL FACTOR PRODUCTIVITY

To compare the rate of improvement in agriculture, economists often use **Total Factor Productivity** (TFP). It is a measure of how well the industry turns inputs into outputs. It ignores price changes, just comparing the changing ratio of aggregate inputs against aggregate outputs. It is measured as a factor. TFP can increase by using fewer inputs to create the same outputs, or by using the same inputs and creating more outputs. TFP is not a perfect measure of productivity (it cannot identify if the right thing is being produced, just how efficiently it is being done). It does though measure the change of output from all inputs, which is ultimately more meaningful than singularly such as tonnes per hectare or per worker, as this can vary by using more of another input. Figure 1 shows the UK Agriculture's TFP since the early 1960's. The data available is not fully up to date, the next publication is apparently imminent, although the long-term trends are the most important to observe.

**FIGURE 1**
**UK AGRICULTURAL TOTAL FACTOR PRODUCTIVITY**
*Source: DEFRA*




It shows that the industry has become 71% more efficient at turning inputs into outputs since 1961. It sounds good but is actually only 1.4% per year. Other comparable countries, as shown in Figure 2, have a TFP that is rising much more quickly, some more than double this rate. They have been more successful at turning inputs into outputs (a proxy for sustainable intensification as explained by Sir John Beddington in his Foresight Report).[2]

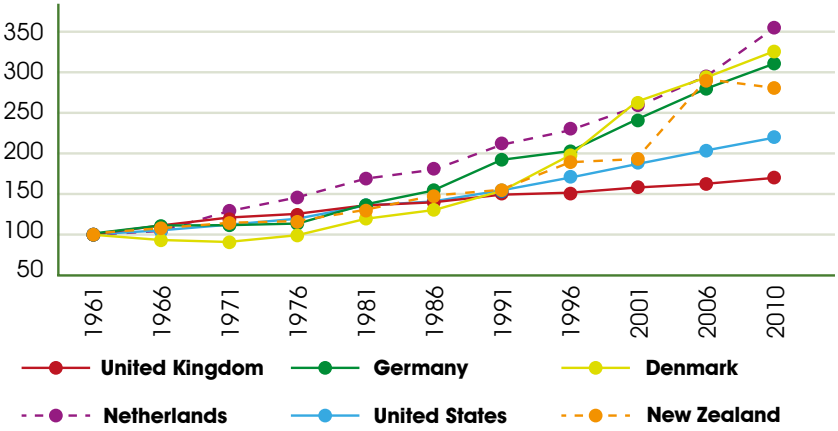
The EU Commission has datasets on member state's TFPs but the data has a low level of reliability so we have not used it. Instead, we used the USDA[3] data taking figures primarily from the Food and Agriculture Organisation (FAO) and supplemented in some cases by national statistics. This is the data represented here.

Data for many other countries are also available and generally exceed the UK's growth. TFP in undeveloped farming industries is relatively simple to increase with

[2] (Beddington, 2011)
[3] International Agricultural Productivity database (underlying the Harvest Initiatives annual GAP® report)

FIGURE 2
**AGRICULTURAL TOTAL FACTOR PRODUCTIVITY**
*Source: USDA/FAO*

**1961 =100**



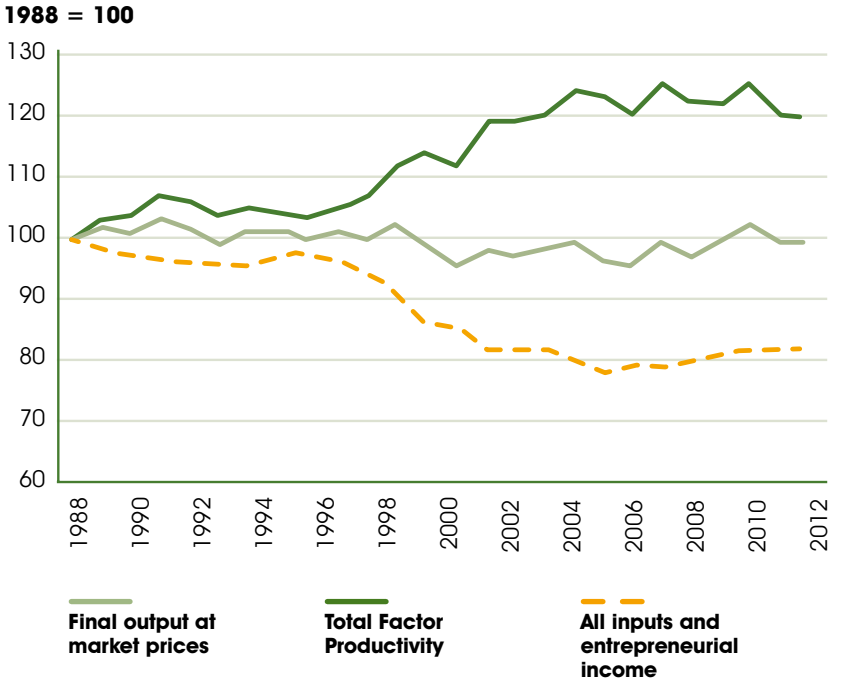

**The UK has lost most competitiveness since 1991.**

easier gains to be had from a lower start point. TFP for India or Brazil therefore ought to be increasing rapidly but is of limited use when comparing with UK agriculture. TFP does not identify where the countries start from, so we cannot tell from this whether the other 5 countries' industries are now far ahead of ours or have simply been playing catch-up for 40 years. The five other countries shown here have a message for the UK; why are their farm industries improving faster than ours?

The selection of countries here puts the UK into a laggard's category. The UK's TFP line has been flattest since 1991, a period when the other countries' lines have been steepest indicating the UK has lost most competitiveness since then.

Weather conditions and other shocks such as disease outbreaks cause short term fluctuations in productivity, but it is the long term developments in productivity that drive agricultural income and competitiveness. Figure 3 breaks the TFP figure shown earlier for the UK into its constituent parts of outputs and inputs. It shows that the volume of final output has remained largely unchanged in the UK between 1988 and 2013 while all inputs (including entrepreneurial labour) fell by 18%, leading to TFP increasing by 20% by 2004. TFP stayed relatively unchanged during the mid-80s to mid-90s, increased by 18% between 1997 and 2005 and has since remained level with year to year variations because of weather changes. The increase during 1997-2005 was due to a fall in labour, equipment, energy use, fertilisers and seeds, whilst output decreased only slightly.

**FIGURE 3**
## UK AGRICULTURAL TOTAL FACTOR PRODUCTIVITY
*Source: Defra, 2014*




A number of studies have analysed the developments in agricultural TFP and aimed to identify individual productivity drivers[4]. In their analysis of agricultural productivity they identified the key factors of agricultural productivity growth as:

- national investment in R&D
- capturing technology spill-overs[5] through adaptive research[6]
- extension services
- strengthening rural education
- institutional support
- policies providing economic incentives to producers
- structural change
- profitability and reinvestment

These drivers of competitiveness are discussed in the rest of the report, together with the reasons underlying the large range in performance of the main UK farming sectors.

[4] Fuglie, et al., 2012; OECD, 2011 and Pease & Thirtle, 2010
[5] Technology spill-overs are the beneficial effects of new technological knowledge on the productivity and innovative ability of other firms and countries.
[6] Adaptive research is defined by the FAO as "research in enhancing productivity or solving problems."

## 2.3.2 NET FARM INCOME PER WORKER

TFP is one way to consider the efficiency of utilisation of all resources at once. Some resources might be well utilised at the expense of others. Net Farm Income per worker for example, demonstrates a distinctly different set of conclusions. It is not the only measure, as return per hectare is equally relevant on many farms.

Figure 4 demonstrates the Net Farm Income per worker in some of the EU member states. It takes account of all people working in farming, employed and family labour. The UK has a large average farm size, allowing a better allocation of labour. Curiously, Belgium and Luxembourg are also optimising labour utilisation but with far smaller farm units. They have high cost labour and so it is more valuable, meaning better use is made of it. It would also be useful to compare UK figures with other more competitive countries such as the US, Australia, New Zealand and Brazil, although comparable data is not easily available.

After a period of low incomes from 1997 to 2005, the Net Farm Income per worker for the UK rose by 46% between 2005 and 2013 compared with 29% for the EU. This is a big win for UK businesses but in fact, over that period of 17% efficiency gain greater than the total EU, the pound / euro exchange rate moved in the UK farmers favour by about 19%.

**FIGURE 4**
**NET FARM INCOME PER WORKER (2007-11 AVERAGE)**
*Source: FADN*

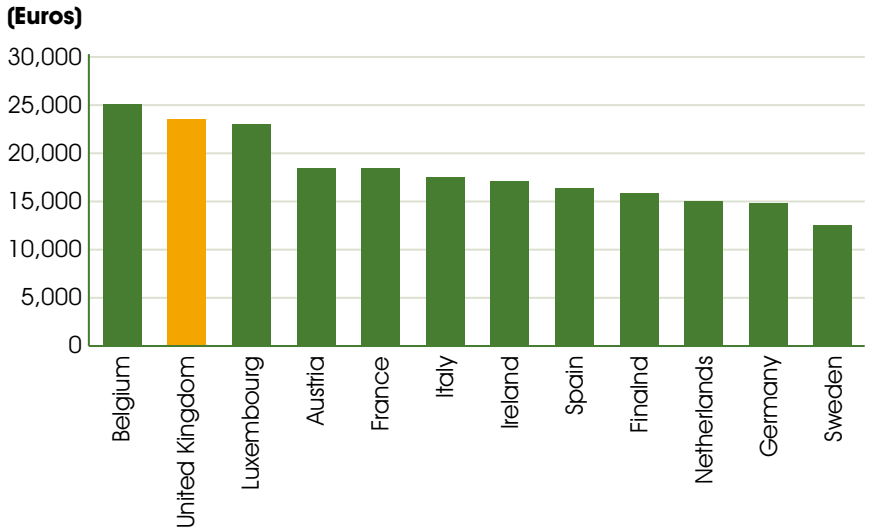


**FIGURE 5**
**INDEX OF INCOME PER ANNUAL WORK UNIT IN UK AND SELECTED COUNTRIES**
*Source: Andersons interpretation of DEFRA data*

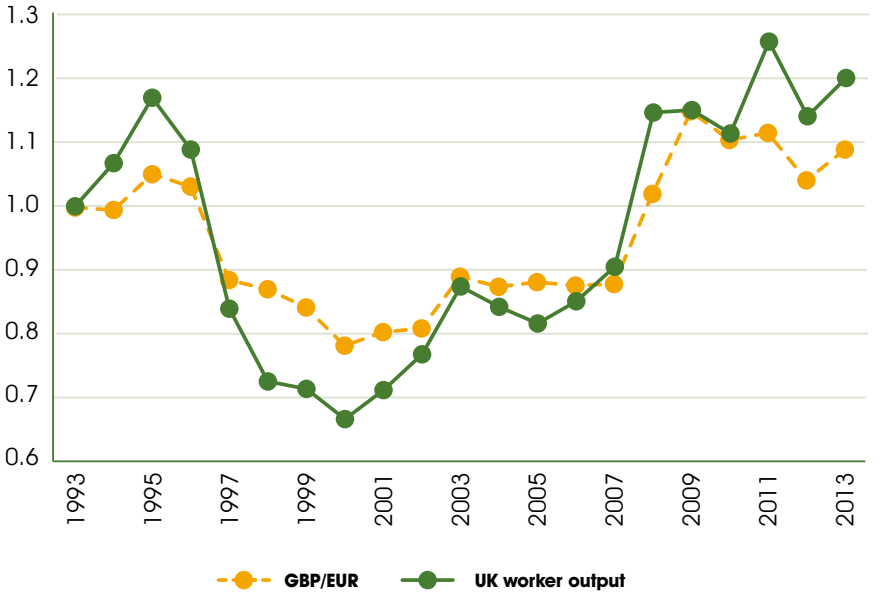



Figure 5 clearly demonstrates the relationship between the exchange rate and income per worker.

## 2.4 COST OF PRODUCTION

Total Costs of Production (COP) is another way to compare performance. This considers costs per unit of output. This is the main basis of most effective physical key performance indicators (KPIs). The global nature of traded commodities and the gradual removal of market support, increases the exposure of UK agricultural producers to world markets. In order to achieve and sustain growth in agricultural production, UK producers need to be competitive, not just with one another but also with key producers from the EU and globally, so matching price for price of commodity production is very important. However, when using COP for comparative analysis between farms, it is soon complicated as all farms have different outputs and cost structures. More complications are created when comparing figures internationally by the timings of exchange rate corrections.

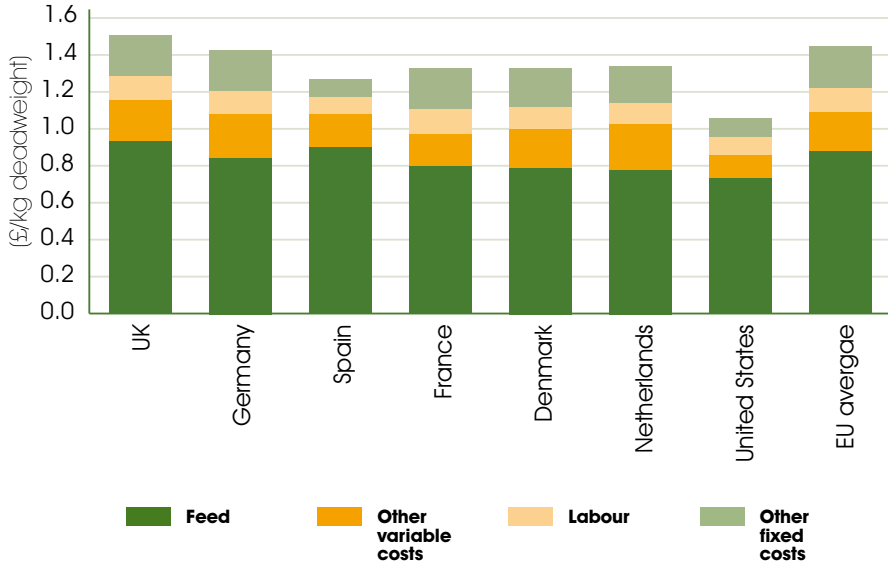
## 2.4.1 PIGS

Figure 6 shows the costs of pig production in the UK and elsewhere. The UK pig industry incurs the greatest costs of production. However, 40% of UK pigs are reared outdoors, involving higher costs which is unique to the UK pig herd, but also attracts premium prices. This means that their profitability might not be affected by the higher costs. Figure 7 demonstrates that the UK consistently captures greater additional value from its pigs than other EU countries.

**FIGURE 6**

**COST OF PIG PRODUCTION FOR KEY PRODUCERS (2010-12 AVERAGE)**

*Source: BPEX, 2013*

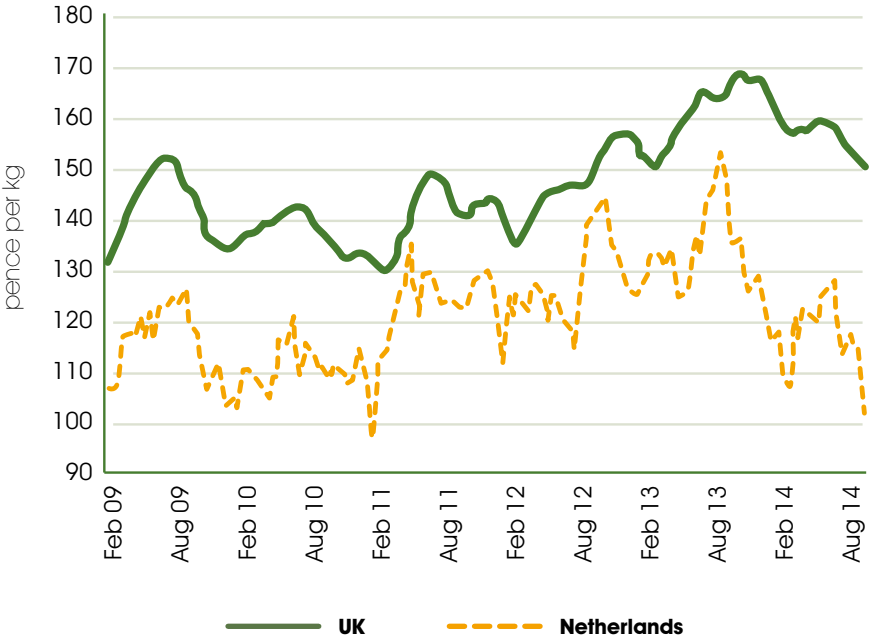


**40% of UK pigs are reared outdoors involving higher costs but also attracts premium prices.**

**FIGURE 7**

## UK AND DUTCH PIG PRICE COMPARISON

*Source: BPEX*




Indeed, comparing the two charts demonstrates that the costs of UK production are about 14p/kg more expensive than say the Netherlands, yet of late the price premium UK farmers have received over their Dutch counterparts is in excess of 40p/kg. Over the 2010-2012 period, when the COP chart was calculated, the average price premium was 22p/kg, suggesting the UK system is in fact more profitable. This demonstrates that simply considering the costs of production can be rather misleading, even for commodity production like pig-meat.

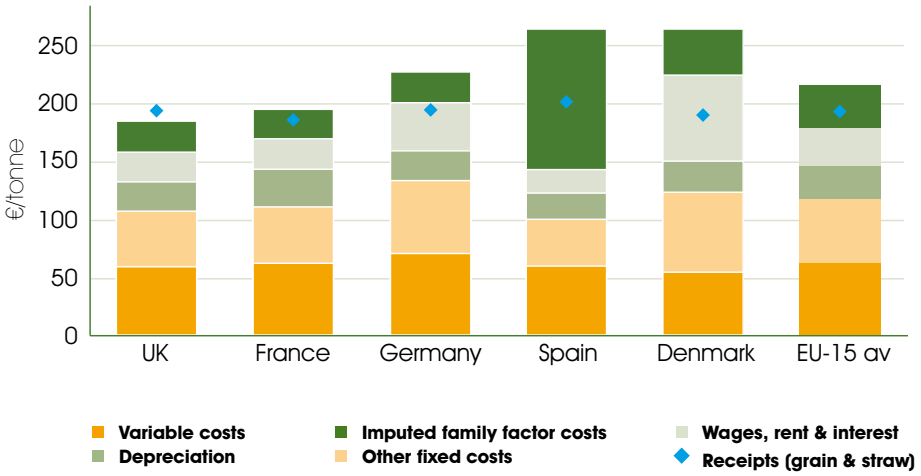
## 2.4.2 ARABLE

The UK's costs of production for feed wheat demonstrate we are a lower cost industry than several other EU member states. If taking all the imputed costs into account, the UK comes out as the lowest cost producer. Again 'common wheat' has different meanings in various countries and costs after the farm gate vary too, such as storage and distribution etc. which varies prices. In contrast to the relationship between pig price and costs of production, UK wheat tends to trade at a lower price to that of many other EU locations even though this is not evident from the chart, this is usually due to slightly different wheat quality standards. Whilst 2011 might seem a little distant to demonstrate, it is the last year when extreme weather issues did not affect EU countries in a major way, so is probably more useful than more recent years.

**FIGURE 8**

**COMMON WHEAT RETURNS & COSTS FOR THE KEY EU PRODUCERS IN 2011**

*Source FADN, The Farm Accounting Data Network is an EU organisation so only collects figures from EU member states.*



**In the global comparison, New Zealand and the large units in the USA achieve significantly lower costs.**

## 2.4.3 DAIRY

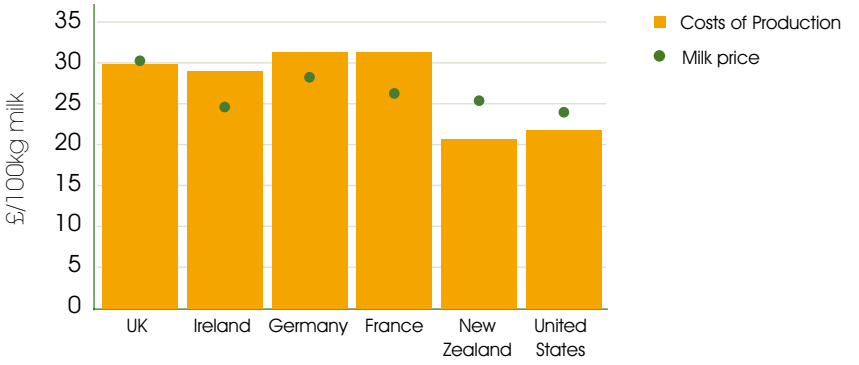
The international dairy benchmarking networks including the European Dairy Farmers (EDF) and the International Farm Comparison Network (IFCN) show the UK as one of the lowest cost producers in the EU. According to the EDF, UK dairy producers achieve lower animal losses, higher labour and capital productivity, compared with the EU average[7]. However, in the global comparison, New Zealand dairies and the large units in the US achieve significantly lower costs.

In comparison, with its relatively low fixed costs, the UK is showing higher direct costs, specifically feed. The UK has an ideal climate for growing high quality forage, both conserved and grazed grass. Increasing the proportion of high quality forage in cows' diets decreases feed cost and helps to insulate the dairy business against increased volatility in both output and input prices.

Figure 9 represents cost of production for the 'typical' average sized farm in the UK and elsewhere. Agriculture in New Zealand has seen the complete removal of production support and has a lower regulation burden, which forced unproductive farms to leave the industry and efficient farms to increase production and concentrate on the commercial side of farming. In the US, large farms are able to exploit economies of scale resulting in high capital and labour productivity. It is notable that the Irish milk price is lower than that of the UK. This is because a greater proportion of Irish milk is exported. Indeed, the majority of UK milk product exports are from Northern Ireland. The Irish milk price matches those of New Zealand and the US, the other two major exporters.

**FIGURE 9**

**COST OF MILK PRODUCTION IN 2012, INTERNATIONAL FARM COMPARISON NETWORK (IFCN)**




7 (EDF 2011)
8 AHDB?Agri-Benchmark

> The red meat sector as a whole is held back by lifestyle farmers more than most other sectors.

> The UK is competitive in dairy and cereal production, whilst it lags behind in grazing livestock production.

## 2.4.4 GRAZING LIVESTOCK

Grazing livestock accounts for around 20% of UK agricultural output. On average though, UK beef and sheep producers are not able to cover their costs with income from agriculture alone and most years rely on subsidies or non-farming income for profit. The UK is a high cost beef production country[8].

The red meat sector as a whole is held back by lifestyle farmers more than most other sectors. Many operators who have left dairying, or have a small piece of land, keep a small herd of cattle or flock of sheep. Indeed, arable farmers with uncultivable meadows might agree that cattle are not their chief business focus. Red meat farming evidently has the lowest barriers to entry as well. Most people who 'retire to farming' are likely to enter this sector. Few lifestyle farmers become intensive poultry farmers for example. This category of producer will make rational but uneconomic decisions, as farming is primarily for leisure, not commerce.

## 2.4.5 CONCLUSION OF COSTS OF PRODUCTION

The international comparison of cost of production shows the UK is competitive in dairy and cereal production, whilst it lags behind in grazing livestock production. The pig sector has on average higher production costs than EU competitors, however has differentiated its product and attracts a price premium which compensates for this.

The current downturn in arable prices is a signal to crop producers to consider reviewing their yield-chasing strategy and asses the viability of low-cost strategies, alternative crops and spring cropping options in order to decrease costs and achieve long term sustainability. Volatility is the norm in any commodity production and always has been. Lowest cost or highest added value producers will survive any downturns.

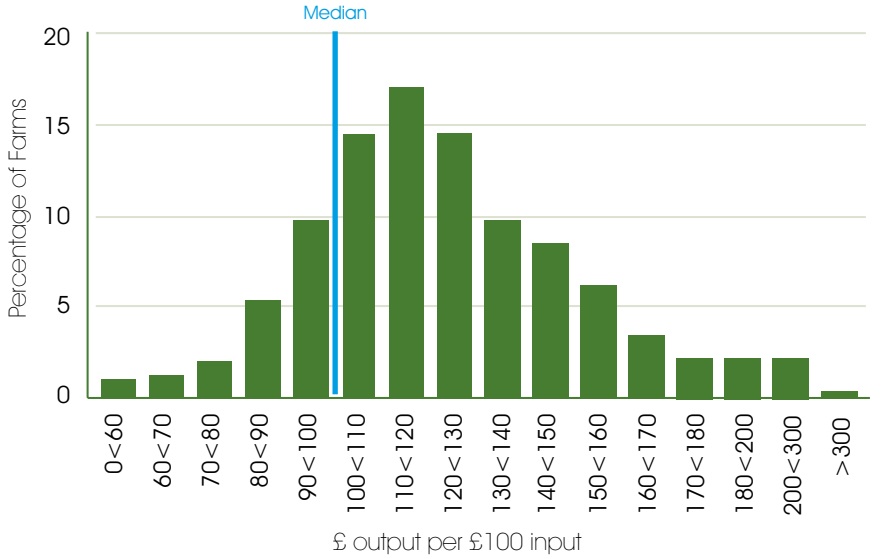
The dairy sector, although competitive at EU level, has an opportunity to improve the utilisation of resources available to it, especially grazed grass and high quality forage, by learning from the top competitive countries in the world.

The red meat sector has an opportunity to achieve significant efficiency gains by learning from other UK agricultural sectors including dairy (grass utilisation and management), pigs (product differentiation), poultry (integration across supply chain, product specification). Furthermore, there are some important lessons to be learned from the world's top beef producers in both production systems as well as supply chain management and product differentiation.

Market prices of commodities, in the absence of supply and demand fundamentals, tend towards their global costs of production. This means that the marketplace is global. Those who gain advantage through either lower costs of production or by adding value through smarter marketing will win, especially in volatile years. Agricultural commodities are more volatile than any other asset class. Marketing and cost savings are two critical processes.

International sector-specific comparison of costs of production data provides an important insight into which countries have competitive advantages in each sector. This in turn allows appropriate research and knowledge transfer activities to be targeted towards obtaining relevant knowledge and expertise from countries. There are a number of international benchmarking initiatives including the Agri benchmark, International Farm Comparison Network (IFCN) and European Dairy Farmers (EDF). Unfortunately, the information obtained from these benchmarking activities is restricted and not freely available.

FIGURE 10
**DISTRIBUTION OF PERFORMANCE ACROSS FARMS 2012/13 (DEFRA)**




Notes: Output includes subsidies and diversification. Inputs are the costs used in the production process. There are a couple of technicalities to this chart but overall it demonstrates a powerful point.

## 2.5 RANGE OF PERFORMANCE

Each figure in this entire paper represents an average for a whole sector, region, farm type etc. The range within each is considerable, both in the UK and elsewhere. Figure 10 demonstrates the enormous range of farm performance in England (in 2012/13), from losing considerable sums of money to making an excellent return on capital and time invested. It shows the return per farm per £100 input (spent in a year to produce the output). The vertical line represents the point where output equals inputs.

The considerable range of performance in the UK can be demonstrated in all sectors. In the following sub-sections that examine individual sectors, data is taken from the Farm Business Survey or DairyCo's Milk-Bench to demonstrate the point.

## 2.5.1 PIGS

There is insufficient information available on the bottom 25% of performers' financial performance in the pig industry for 2012/13 so 2011/12 information has been used. Table 1 presents costs and income information per farm and as a percentage of output to enable more meaningful comparison.

**TABLE 1**
**RANGE IN PERFORMANCE OF PIG FARMS (ENGLAND) IN 2011/12**

| Financial Performance (£ Total) | Bottom 25%* | % of Output | Top 25% | % of Output | Difference Between Top & Bottom |
|---|---|---|---|---|---|
| Total Output from Agriculture | 397,062 | | 1,027,477 | | |
| Variable Cost | 293,904 | 74 | 555,308 | 54 | -20% |
| Gross Margin | 103,158 | 26 | 472,169 | 46 | 20% |
| Fixed Cost | 154,583 | 39 | 349,912 | 34 | -5% |
| Total Cost | 448,487 | 113 | 905,220 | 88 | -25% |
| **Farm Business Income** | **-51,425** | **-13** | **122,257** | **12** | **25%** |

Notes: Top and bottom 25% ranked on the ratio between economic output and input.
(Source: Farm Business Survey 2011/12)

- The top 25% of producers managed to retain 25% more output as profit, compared with the bottom 25%.
- The majority of the difference in total cost is accounted for by variable cost, with the bottom 25% of producers spending 20% more of their output as variable cost, mainly feed.
- Compared with the other sectors, fixed costs account for only 20% of the difference in the proportion of income retained.
- It is difficult to draw any more conclusions without being able to relate the financial data to production type and level (outdoor or indoor).

## 2.5.2 ARABLE

In the arable sector, the top 25% of cereal producers achieved £524/ha higher net margin per hectare than the bottom 25% of producers.

**TABLE 2**
**RANGE IN PERFORMANCE OF CEREAL FARMS (ENGLAND) IN 2012/13**

| | Bottom 25%* | Top 25* | Difference |
|---|---|---|---|
| Agriculture Productivity (£ output / £ input) | 0.74 | 1.21 | 0.5 |
| Labour Productivity – (£ output/Average Worker Unit) | 145,867 | 240,442 | 94,575 |
| **Financial Performance (£/ha)** | | | |
| Total Farm Output | 1,127 | 1,292 | 165 |
| Variable Costs | 579 | 538 | -41 |
| Gross Margin | 548 | 754 | 206 |
| Fixed Costs | 771 | 454 | -317 |
| Total Costs | 1,350 | 992 | -358 |
| **Farm Business Income** | **-223** | **301** | **524** |

Notes: Top and bottom 25% ranked on the ratio between economic output and input. (Source: Farm Business Survey 2012/13). The largest factor is highlighted.

- The top performers achieved higher output per hectare at lower costs.
- Output accounted for 32% and variable costs, 8% of the difference.
- The variation in output could arguably be attributed to variable quality soils, but fixed cost variation accounted for 60% of the difference in profit.
- Controlling fixed costs, those associated with machinery, labour and land occupation (finance is comparatively small) account for over half the difference. This is where the cereals farmer should focus a large proportion of his time.

## 2.5.3 DAIRY

Table 3 shows that the range in financial performance of dairy farms between the top and bottom 25% of farms is considerable. The last Milkbench+ report, analysing data for 322 farms identified a £1670/ha range in net margin between the top and bottom 25% of dairy enterprises.

**TABLE 3**
**RANGE IN PERFORMANCE ON DAIRY FARMS (ENGLAND) IN 2012/13**

| Pence per Litre | Bottom 25%* | Top 25% | Difference |
|---|---|---|---|
| Herd Size | 130 | 250 | 120 |
| Milk Yield (l/cow/year) | 6,921 | 7,014 | 93 |
| Labour (hours/cow/year) | 49 | 27 | -22 |
| Financial Comparison (p/l) | | | |
| Revenue | 30.5 | 32.5 | 2.0 |
| Herd Replacement Cost | 3.9 | 2.9 | -1.0 |
| Total Variable Costs | 15.4 | 11.2 | -4.2 |
| Total Fixed Costs | 19.8 | 13.1 | -6.7 |
| Total Cost of Production | 39.2 | 27.2 | -12.0 |
| **Net Margin p/l** | **-8.7** | **5.3** | **14.0** |
| Net Margin (£/hectare) | -942 | 729 | 1,671 |

Notes: Top and bottom 25% ranked according to net margin p/l.
(Source: (DairyCo, 2014)) The largest factor is highlighted.

- There is minimal difference in average yield per cow between the top and bottom 25% of farms, but the top 25% of farms are able to achieve it with significantly lower costs.
- Crucially, the vast majority (86%) of the range in profitability is down to the difference in total cost. Top performers spent less on resources, which resulted in lower production costs and a higher net margin.
- The report also showed that just three factors account for 65% of the difference in cost of production between the top and bottom 25% (DairyCo, 2014). These key factors are: feed cost, labour cost, machinery depreciation.
- All are costs rather than output. One might conclude that 65% of a dairy farmer's management time could arguably be spent on these three variables to make the greatest impact on farm profitability.

## 2.5.4 GRAZING LIVESTOCK

The range in financial performance of grazing livestock farms, presented in Table 4 is the same, with the top 25% of farms making a profit of £316/ha compared with the bottom 25% making a loss equal to £145/ha.

**TABLE 4**
**RANGE IN PERFORMANCE OF LOWLAND GRAZING LIVESTOCK FARMS (ENGLAND) IN 2012/13**

| £/Hectare | Bottom 25% | Top 25% | Difference |
|---|---|---|---|
| Agriculture Productivity (£ output / £ input) | 0.42 | 0.88 | 0.46 |
| Labour Productivity (£ output / AWU) | 27,374 | 88,669 | 61,295 |
| **Financial Performance (£/ha)** | | | |
| Total Farm Output | 818 | 975 | 157 |
| Variable Costs | 283 | 262 | -21 |
| Gross Margin | 535 | 713 | 178 |
| Fixed Costs | 680 | 397 | -283 |
| Total Costs | 963 | 659 | -304 |
| **Farm Business Income** | **-145** | **316** | **461** |

Notes: Top and bottom 25% ranked on the ratio between economic output and input. (Source: Farm Business Survey 2012/13). The largest factor is highlighted.

- The top 25% farms achieved £157/ha higher output.
- Similar to the dairy and arable sectors, the majority (66%) of the difference in profit is achieved through lower costs, especially fixed costs.
- Grazing livestock incorporates both beef and sheep enterprises of many different types. This makes the interpretation of the information in Table 4 difficult. Nonethless, it is clear that there is scope for the industry to improve overall performance by restructuring the 'high-overhead' systems. How this might be achieved on farms that are not accustomed to making considerable business changes is a necessary discussion to have and is picked up in Chapter 3.

## 2.5.5 CONCLUSIONS TO RANGE IN UK PERFORMANCE

Other than the Farm Business Survey data, which is not widely used by farmers, there is other information available on the actual range and top performance in agriculture. Other references include Cropbench, and EBLEX's Better Returns. The four main sectors of the UK agriculture industry have a wide range in performance between the top and bottom quartiles of producers. This range cannot be entirely explained by differences in climate and land quality.

**FIGURE 11**

**CHART HIGHLIGHTING WHERE THE VARIATION IN PROFIT OCCURS BETWEEN TOP AND BOTTOM QUARTILE FARMS**

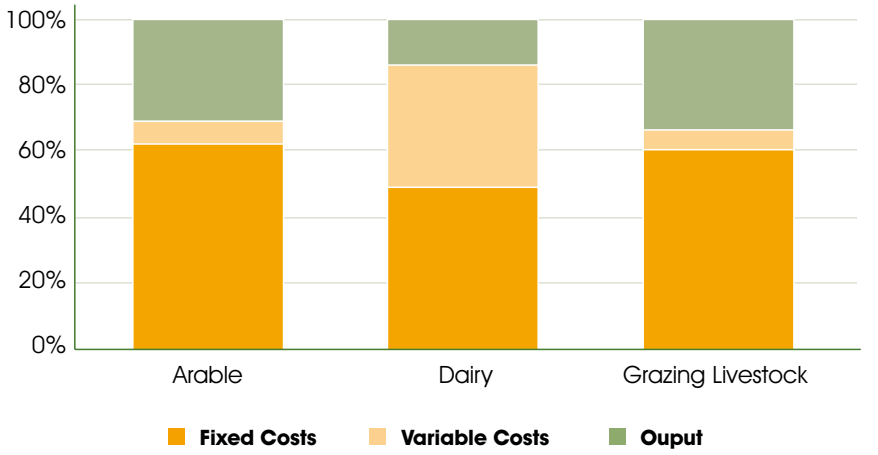



Figure 11 summarises what differentiates the best and the poorest farmers in each of the categories. It highlights the fact that well over half of the difference between the two extremes in each sector is due to differences in costs. Income variation is smaller for all classes. Saving costs is the right commercial thing to do when it saves more cost than income it foregoes. Indeed, we conclude that the overheads account for at least half the variation and as much as 60%, reminding us it is well worth keeping tight control of the 'fixed' costs in any business.

Individuals and organisations quickly become accustomed to doing the same things in a cyclical manner. New processes present opportunities for progress but change can be daunting for some people, especially those used to working by themselves. Some might not even realise there are better or more efficient ways of doing things.

Looking at data with more detail such as EBLEX's Better Returns, we see that the top performers are often marginally better at everything rather than significantly better at anything. Attention to each part of the business costs is necessary to push the business into a globally outstanding category. This is exemplified by the 'marginal gains' policy used by the UK Olympic Cycling campaign which won 7 out of a possible 10 gold medals in the track cycling category in 2012. Each possible opportunity to improve was scrutinised by its director of marginal gain, Matt Parker, who went to extreme lengths to shave milliseconds off each race. Some races were won by milliseconds.

Top producers across all sectors achieve lower costs per unit of output for all areas of operation. There emerges here a large potential for improving both the understanding and monitoring of costs on UK farms. Management tools including benchmarking, use of costings books, and well-focussed discussion groups could make a massive difference. These are key tools for shaving costs off current systems rather than helping to fundamentally change systems.

> **The main reason for the range in financial performance between farms is cost of production and not output.**

> **The top performers are often marginally better at everything rather than significantly better at anything.**

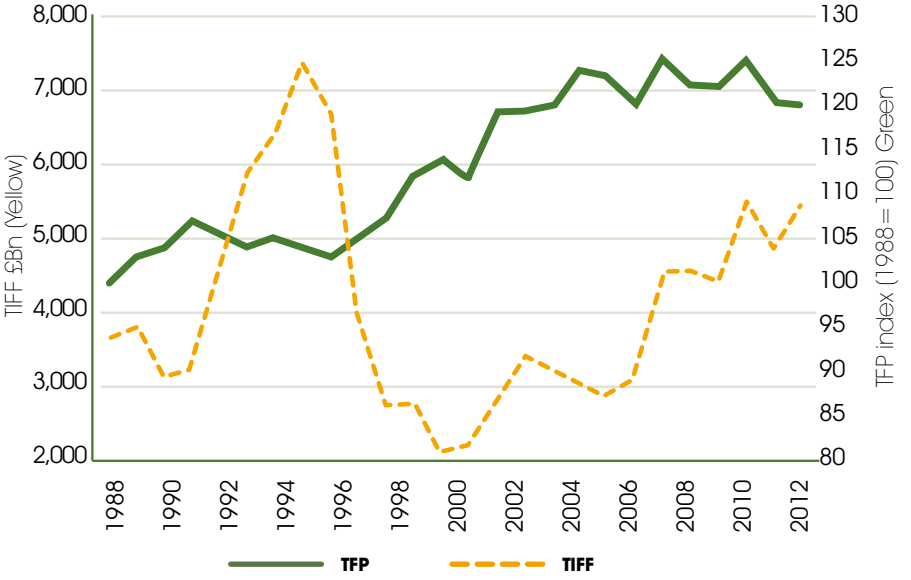
> **Many farmers operating in lower quartiles might not even realise they are in that position, suggesting the benefits of benchmarking could be tremendous on some farms.**

## 2.6 PROFITABILITY

Total Income from Farming (TIFF) is a measure of profitability for UK agriculture. It includes subsidies and is before drawings, so therefore represents profits and remuneration of unpaid labour and return on capital. TIFF together with changes in TFP are presented in Figure 12. The period of low levels of profitability which followed a spike in profits in 1995 is associated with the only period of sustained growth in TFP in the past 30 years. This suggests that the increase in TFP between 1997 and 2005 was at least partly on the back of a period of low profitability associated with cuts in expenditure on inputs and investments, resulting in a growth of the TFP.

When profitability is tight, expenditure is reigned in. This is demonstrable by comparing farm profit with expenditure on machinery for example, which are directly linked[9]. This demonstrates that the industry is good at saving large expenditure for when the cash is available to cope with it. If profits were subdued for a sustained period, this pattern might be broken, but the period from 1998 to 2008 was probably long enough to demonstrate that non-essential cost savings were made.

**FIGURE 12**
**TIFF (REAL TERMS) AND TFP**




**Investing in the future takes short-term cost and long-term ambition.**

[9] http://www.thepocketbook.biz/images/stories/2014-07_Tractor_Sales.pdf
[10] (Defra, 2014) Balance Sheet Analysis and Farming Performance Report

## 2.7 REINVESTMENT

Training staff, repairing buildings and liming fields are all investments for future benefit. Investing in new technologies, another investment, also often incurs greater risk. The successful adoption of new technology and innovation to increase on-farm productivity is therefore largely reliant on farms having ambition to implement them.

The average gearing ratio across all farms was 11% in 2012[10]. This is a low level of industry gearing and suggests there is capacity to invest more capital in new technologies and infrastructure to increase productivity and raise return on capital. Examples include precision farming technologies, grazing infrastructure (cow tracks, fencing etc.) new buildings (such as pig and poultry sheds) and so on. However, any investment must be carefully considered and aimed at decreasing unit cost of production and providing adequate return on capital. Increasing debt levels is not a guaranteed pathway to success, more a method of increasing the working size of a balance sheet. For a successful business, it's a powerful way to increase business size and profit; for a failing business, it's a fast way to multiply losses.

It is understood the UK has lower gearing than many other countries' farming, including New Zealand, the US, Denmark and the Netherlands, possibly because few UK farmers buy their farms. Clever use of borrowed money through geared balance sheets can substantially increase the size of a farm business. Whilst there is a borrowing cost associated with this, if an investment can generate a long-term return greater than the cost of borrowing the money then it is a sound investment.

The lack of investment in the dairy sector is often quoted as a key threat to the industry. However, whilst investment is necessary to ensure long term production capacity, countries that do exhibit high levels of capital investment including the Netherlands also tend to have high costs of production. Investment in increased efficiency and decreased costs of production is key.

**Richard is a medium size farmer in the Midlands. He knows he is capable of achieving more with his resources so has taken on the risk and exposure of intensifying the farm business with a poultry enterprise, something he has experience in. If successful, it could double the profitability of his farm. He knows the risks are substantially greater, but without it his balance sheet will not grow.**

## 2.8 INTERNATIONAL COMPARISON OF AGRICULTURAL PERFORMANCE

An OECD report in 2013[11] analysed farm performance data contributed through the Network for Farm-level Analysis[12]. The UK data is represented by the Farm Business Survey for England. The study compares the distribution of four economic performance measures[13] and the characteristics of high and low performing groups across nine countries for selected farm types. It also identifies key characteristics of high performance farms across countries. The US farms were the most productive, achieving the largest output per dollar of cash input and the highest income per labour unit across all farm types. England is shown as lagging behind the other countries in the economic performance comparison across all farm types, but especially beef and sheep.

**In the report, England is shown as lagging behind the other countries in the economic performance comparison across all farm types, but especially beef and sheep.**

[11] *The Kimura & Le Thi, 2013*

[12] *The EU countries (Belgium (Flanders), Germany, Netherlands, Estonia and England) data is sourced from the FADN database and Australia, Canada and USA data from national statistics.*

[13] *The performance indicators were averaged across 5 years (2004-2009) to mitigate a year-specific effects. Market price support and subsidies were excluded from the calculation of gross agricultural output. Financial values were converted into US dollars.*

## THE STUDY FOUND:

- Large differences within as well as across all countries.
- Distinctive differences between high and low performers in all regions.
- Across all countries and farm types, low performers rely much more on support as a source of farm income.
- There is no single factor that makes farms better than others. This sits comfortably with evidence from UK comparisons that better farms are usually simply slightly better at everything.
- A good education never impedes an entrepreneur. The vast majority of qualified farmers outperformed the unqualified. A high quality education is better for reliable business progress.
- Larger farms tend to outcompete the smaller ones as they benefit overall from economies of scale and have grasped how to extend their net worth by using well calculated debt to stretch their balance sheets through leverage to get more out of their capital (which is ultimately the first limiting resource). For example, farmers that build their businesses through intensification are just as likely to outperform the average as those who purchase additional land.

## KEY CONCLUSIONS THAT ARE RELEVANT TO THE UK WERE:

- The performance of a sector is improved by the advancement of the 'productivity frontier' by the top performers through R&D and new technology.
- The dissemination of existing technology, best practice and resource reallocation to the non-pioneers can lead to significant improvements in the overall sector performance.
- The importance of removing 'impediments to structural adjustment' and implementing measures to facilitate adjustment, including regulations and taxations to facilitate land transfer. Turning the obstacles restricting structural reform into opportunities such as agricultural tax reliefs and barriers to land sales.
- Direct subsidy payments that support low performers retards structural change. However it recognises the objective of some payments is to support economically low performing farms for social reasons.
- The age difference of the high performing farm operators relative to the rest indicates the importance of promoting exit and entry to the sector. Young innovative farmers, who make use of financial leverage, are driving best performance of some types of farms particularly in the US and the Netherlands.

## 2.9 FARMER AND OBSERVER COMMENTS AND EXPERIENCES

We spoke with several outstanding farmers from both the UK and abroad, especially those with experience of UK and overseas farming, we also had discussions with international observers of agriculture and gathered some highly valuable thoughts. Brief notes on the participants are summarised in the Appendix on page 68.

Their comments are included throughout the report, but others not included are summarised here:

### 2.9.1 SUMMARY OF FARMER INTERVIEWS

- Many high achieving farmers spent time before their farming career took off working in a commercial non-farming situation. All, without exception, found it an illuminating way to generate business skills and could link into academic 'gap' years.
- Most have further education qualifications. All have found them useful.
- The majority of these farmers started farming on their own, from purchase of a farm or a new tenancy. Most began with little personal resources, making money through hard and effective work and learning that success is down to them and nobody owes them a living.
- Business inheritance is non-beneficial to the wider industry. Recipients of inheritance are less likely to have 'felt' the value of the business as an investment.
- Institutional support and communication between producers, research bodies, levy boards and Government could be reinforced, especially the extension between research and growers.
- The use of management tools is widespread in top sectors around the world and by top UK farmers. This includes budgeting, forward planning, benchmarking, labour profiles, capital investment plans and so on.
- Benchmarking has provided substantial cost cutting support for farms in Germany, New Zealand, the US and elsewhere. A large centralised benchmarking database with good distribution of data and other supporting materials allows detailed differentiation of specific information. It helps businesses achieve marginal gain, not fundamental change.
- Direct subsidies, everybody agrees, inhibit competitiveness. Their removal would not present major problems to UK farming if it was multilateral and some regulatory burden was also removed. However, this is highly unlikely to happen.

- The common use of business and profitability orientated performance measurements and the physical KPI's should focus on the cost per unit output sold. In other words, the cost per tonne of wheat, the cost per kilogram of milk solids, debt service charge per unit of production or the input cost per carcass. Input costs per unit of other input costs (£/ha, £/cow etc.) are of limited use unless the ultimate resource (capital) is used; return per pound invested.

**There is no clearly defined career path in agriculture. It is difficult to imagine how it could be generated but openings for young farmers could be made more apparent...**

- There is no clearly defined career path in agriculture. It is difficult to imagine how it could be generated but openings for young farmers could be made more apparent, encouraging new blood into our industry.
- In some countries, new entrant, non-inheriting young farmers often request high borrowing without much track record. Very high levels of governance are therefore required by banks, with budgets and monitoring of actual performance against budget the norm in some countries. Debt should be for appreciating or earning assets like land and animals resulting in net worth growth and more profit.

## 2.9.2 SUMMARY OF NON-FARMING AGRICULTURALIST INTERVIEWS

Interviewees included agricultural ambassadors to the UK from Governments of other countries, EU crop analysts, and agricultural investment firms. Some consultants who operate in more than one country have also been included. Key points from these discussions are as follows:

- Knowledge exchange systems in different countries are structured differently, but most have a substantially clearer, more organised system in place than the UK.
- Throughout Europe, there are several other organisations that undertake similar work to the AHDB. Most appear to be substantially bigger than the AHDB that we have in the UK and probably better resourced. However, the information provision in MI (Market Intelligence) is thought to provide amongst the best information of its kind in Europe and their website is highly regarded.
- Most agricultural levies around the world are substantially higher per unit of output than the AHDB levies.
- The US has a series of co-operator organisations and associations that are part funded by the USDA. These are rarely national organisations and so there are numerous organisations trying to do the same and in fact indirectly competing with each other. Whilst the US export initiatives might appear organised and coordinated from here, they are often not. The co-operator system is disorganised but it does understand and champion the sector or regional farmers well, ensuring the right research is done and everybody knows about the outcomes at the end.
- The Japanese Government is working hard to develop its food exports through developing western tastes for Japanese foods. The appearance of Sushi bars in London stations is no coincidence.
- Whilst nearly half of UK farmers are 50 or over (nearly as high as in the US), 90% of Japanese farmers are 50 or over. Japan also has issues regarding farmland inheritance and therefore structural change is a big challenge. The Government has recently implemented a scheme to encourage old farmers to retire. This demonstrates that an ageing farming population is not itself a problem, it's just the delay in succession and therefore restructuring that holds the industry back. Furthermore, this data reflects the registered farmer per farm rather than the active decision maker per unit of output which is very likely to be considerably younger.

## 2.9.3 CONCLUDING REMARKS FOR THE UK

The conclusions for the UK, from our case studies, can be summarized as follows:

- There could be more of a business focus applied to agricultural education both at universities and colleges. This could be away from the farm environment.
- Top flight agricultural universities should encourage students to enter non-farming business placements, especially if they come from a farming background and plan to take over the family farm.
- More visible routes into farming for new entrants need to be set up, for example share farming arrangements, contract milking and share-capital arrangements.
- Farmers should be encouraged to sell their business to their next generation, rather than just pass it on. However, industry support is needed for such a change of attitude to happen. A better understanding is required about the trade-off between farm inheritance and unpaid family labour as some farms might consider one as payment for the other.
- The farming media could do more business orientated coverage to encourage young business minds.
- The uptake of business skills needs to be actively encouraged. It is appreciated that much of this is already available through small business support services, but many farmers don't engage with these.
- There could be a clearer focus on profit related key production indicators, driven by all stakeholders in the industry creating a cultural shift to a more "commercial mind set".
- A greater exchange of information, knowledge and experience should be encouraged amongst farmers.
- Knowledge exchange is insufficiently organised in the UK. Automated data gathering, intelligent analysis and redistribution of conclusions and recommendations is where the future, with the advent of big-data, might be. There is lots of knowledge available to improve many businesses that is not being taken up. This could be better circulated.

> **An ageing farming population is not itself a problem, it's just the delay in succession and therefore restructuring that holds the industry back.**

# C.3 WHY THE DIFFERENCE AND WHAT CAN WE LEARN?

We have seen some clear differences between the UK farming industry and other countries, and also between the 'best and the rest'. There are several reasons for the differences which have been categorised into subheadings as follows:

## 3.1 BUSINESS ISSUES

Commercially, profit is the first measure of sustainability. Agriculture has a special place in every nation's economy. It feeds the nation, cares for the environment, provides many other public goods and in many countries is a significant contributor to GDP. However, farming is also a business like any other with the need for profit and sustainable business growth. By treating farming differently to the rest of the economy, focusing on the provision of environmental services and other public benefits, the attention has been taken away from the commerciality of farming. Many non-farmers see farming as little more than an old fashioned industry for 'country-folk'. The opposite has been happening in the US, New Zealand and the Netherlands. In these countries farming is seen as a serious business, with success indicators related to business performance including unit cost of production, return on investment, net worth growth and debt service charge per production unit, and this attitude is required here.

For many, KPIs are being used incorrectly, not as KPIs but as proxies for success. Proper benchmarking considers the farm business in detail in association with discussion as to the reasons for the variance. Organised groups make a big impact in countries like Germany and New Zealand. Technical efficiency is an important aspect and requires good quality data, but efficiency alone does not always equate to highest profits. Physical measurements (such as yields) do not necessarily lead to higher financial returns, but can highlight where problems might be, for example, if a high yielding cow's yield falls, it might indicate a problem such as poor health.

DairyNZ has a close relationship with the New Zealand dairy farmer. The provision of support goes beyond dairy farming and into the business. This point of difference is possibly because the commercial consultancy sector is more mature in the UK with considerable choice. However, the proportion of farmers explicitly paying for regular advice is low. There is an opportunity for low-cost solutions to be offered by the commercial sector, although it is not clear what the uptake would be.

Larger farming companies feed off the connections a large business has, benefiting from technical managers and others who can focus on specific business issues. Smaller businesses are less exposed to this resource. But they still operate within teams; family or farm staff or other people interacting with the farm such as professionals who could be used to discuss ideas. It is important for all

business managers to have exposure with others to share experiences and expectations. Business clubs could be particularly helpful here.

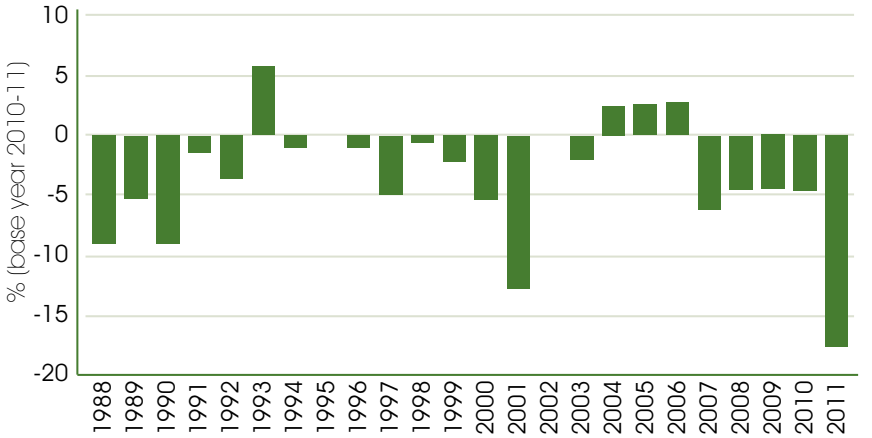
The expectation of financial governance by bankers lending money to farms is the sole motivation for many in compiling budgets and other financial schedules. Some countries have made a commercial farming attitude into standard practice. The financial exploration of farm businesses is almost a tradition. This is true in many UK farm businesses and so the seeds are in place to grow it.

**Mike is a first generation beef farmer in the Home Counties. He went to Agricultural College, then worked for 4 years with a major national accountant, for a PR company in London (generating considerable work from the agricultural sector) and the marketing department of an agricultural bank. This exposure to business outside farming was absolutely critical for Mike to realise the sharp realities of high risk commercial situations.**

## 3.2 AGRICULTURAL RESEARCH

In 2010, Piesse & Thirtle[14] proved that the key driver of TFP is well targeted R&D, which brings about new knowledge and technologies that increase productivity through higher output and/or lower input use. Data from Defra on Government spend for agricultural R&D shows it decreasing between 2002 and 2011 by an average of 3.5% in real terms per year as demonstrated in Figure 13. Over this period there has also been a significant re-targeting of R&D funding into the areas of environmental efficiency, and away from productivity and economic performance. Furthermore, a 2013 EU Commission report on research and innovation showed the UK Government budget for public R&D has been frozen for the 10 years from 2012, which will result in an estimated 2.5% annual reduction in real terms across all Government departments. Agricultural R&D funding is likely to be fully impacted by this reduction as it is a sector unprotected from Government cuts.

**FIGURE 13**
**ANNUAL CHANGE IN GOVERNMENT EXPENDITURE (REAL TERMS) ON AGRICULTURAL R&D BY DEFRA**




There is a lag between the change in R&D expenditure and the impact on productivity which Thirtle & Holding, in 2003[15], estimated peaked in effect at around 10 years. Therefore the reduction in public funding of agricultural R&D described above, of around 6% annually, is yet to fully take effect on the industry. The reduction in public R&D impacts the industry mainly through the slower generation of new knowledge from basic research as well as the lower generation of new technologies.

[14] Piesse & Thirtle, 2010
[15] Thirtle & Holding, 2003
[16] Piesse & Thirtle, 2010
[17] Phillips-McDougall, 2013
[18] Alston, 2013

> **The UK has moved from the position of world leader in agricultural research to a follower.[18]**

Public R&D is also a complement to private R&D[16]. It is therefore extremely important that the potential future impact of the current cuts in R&D are carefully evaluated by the industry, together with a comprehensive review of the UK's system for agricultural innovation to make sure that it is fit for purpose and able to utilise the global stock of research and knowledge.

It is likely that recent declines in R&D spend will negatively impact the competitiveness of UK (and EU) agriculture, especially when coupled with increasing regulatory burdens (restrictions on agrochemicals, animal health and welfare etc. for the UK and EU) and other threats (climate change, disease etc.) leading to a decrease in agricultural competitiveness compared with other nations. It is also noted that the costs of R&D have recently been increasing rapidly, for example, between 1995 and 2005, the cost of bringing an agrochemical active ingredient to market rose from $152 million to $256 million and will have risen further since then[17]. The UK has moved from the position of world leader in agricultural research to a follower[18].

## THE AGRI-TECH STRATEGY COMMENTS THAT:

**The UK has a highly-regarded basic research base but there has been a lack of funding for applied and translational research. We have not found adequate substitutes for some of the publicly funded research institutions that existed 20 or 30 years ago… At least partly as a result, the UK's competitiveness in agriculture has been in decline for a number of years. Where the UK was once comparable to other western European countries, it now lags significantly behind our major competitors in productivity growth, which has stalled. Where the UK was once a member of the 'high productivity growth club', it is now towards the lower end... There is no clear path to attract, retain or recruit talent into the sector.**

## 3.3 STRATEGIC TO APPLIED RESEARCH

The Strategy goes on to conclude that because of the lack of a strategic plan, there has been a dearth of foreign companies wanting to invest in UK research and British agriculture.

The UK is no longer a leader in the provision of agricultural R&D. "Approximately three-quarters of all agri-science inventions are filed by Chinese, US and Japanese applicants, with UK applicants accounting for just 2.3%"[19]. Professor David Leaver in his report[20] on agricultural R&D summarizing the conclusions from meetings of the All-Party Parliamentary Group on Science & Technology in Agriculture, urges the government to "…recognise that funding applied-research in agriculture is a public sector as well as a private sector responsibility...".

As in the UK, land and labour are expensive in the Netherlands. It does not present itself as a problem until it is noted that the economics of these 2 inputs are cheaper elsewhere. This is an issue Dutch scientists, Government and businesses have worked closely on to tackle. Their collaboration has led to accelerated productivity and the development of high-value outputs. Work between State-funded research and private investment from companies such as Incotec (a seed technology company) have created high value exports of seeds and traits[21].

This is the primary area that attracts private investment in research as well, it is nearer to the marketplace and closer to the point of commercialisation thereby offering a swifter return on its investment. By this point of research, the work has a greater chance of reaching commercialisation too, with primary research

[19] *UK Intellectual Property Office Informatics , 2014*
[20] *Leaver, 2010*
[21] *Economist, 23 August 2014*
[22] *Proger & Thomson, 2014*

seeking broader opportunities. The modern technologies and innovations needed to support agriculture mean the research skills required are also changing; technological and data management skills are new requirements in the field of near market research.

## 3.4 EXTENSION AND KNOWLEDGE EXCHANGE

Knowledge is of no benefit if it is not acted upon. There is no use doing research if it doesn't change somebody's decisions. Thus, the communication of information is critical to the ultimate success of the research.

Knowledge exchange is taken as a two-way flow of information, normally from researchers to advisors then on to farmers and vice versa. This is necessary, particularly with cutting edge and pioneering farmers, it helps reference research and also feeds back information from industry to the research community. Knowledge transfer is more a one-way flow of information, helping the less advanced operator to catch up the ground already made by the pioneers. There is much research that has been undertaken and information available that has not reached a large proportion of people who could make good use of it.

Unlike some other countries including the US and France, the UK does not have an explicit publicly funded extension service. The AHDB, whilst a Non-Departmental Public Body is funded through statutory levy. A Pro-AKIS report (agricultural knowledge and information service) published last year reported "public policy on agricultural advice is fragmented, with no overarching national policy".[22] It pointed out that the advisory system for the UK was increasingly separated between devolved countries, partly because of advice policy but also agricultural policy differences. The report also concluded that commercial advice was good but very often farmers most in need of advice do not access it.

The UK has the levy bodies that include the AHDB, PGRO (Pulse Growers Research Organisation) and BBRO (British Beet Research Organisation). All main agricultural countries throughout the EU and world have organisations providing similar roles, albeit arranged through differing business structures (e.g. co-op, government funded, levy bodies, combination). Whilst exhaustive research has not been undertaken, cursory examination (numbers of staff), suggests most are substantially larger than UK levy bodies and often represent an industry of less or equal size to

> **Research and Development together with an efficient knowledge transfer and exchange system, is a major engine of agricultural productivity and competitiveness.**

the UK. Examples include the Danish Agricultural Advisory Service with in excess of 3,500 staff, the French series of information bureaux, such as Arvalis (a crop research organisation), Institut de l'Eleveage (livestock institute) and France-AgriMer (the national organisation of agricultural products). Other large agricultural countries such as Germany and Spain also have similar organisations, some in a co-operative style. Details of their entire roles and financing have not been fully examined but conversations have indicated that these are better resourced than the UK equivalent levy body.

It is clear that for the funds made available, the UK levy bodies all punch well above their weight, but there is opportunity for an expansion of the role these crucial bodies play in UK agriculture. Levy bodies are sometimes resented by levy payers because of the cost (but possibly then complain of a lack of R&D). Some farmers also begrudge levy bodies 'telling them how to farm'. Some farmers found it difficult accepting Milkbench advice when it found efficiencies for example.

## 3.5 ADVICE

Work undertaken by Defra[23] identified five attitudinal groups of farmers. Whilst some groups were not profit orientated (custodians of the landscape, lifestyle choice farmers and challenged enterprises), others (pragmatists who are identified as primarily profit orientated business and family farmers) were and profits are comparable between both groups. The study also noted a high reliance on free advice (as the report referred to it) by farmers in each category.

This could be from an independent organisation (levy board, public extension service) or subsidised independent consultancy or from a private organisation with a personal profit-making objective. Here the advice supplier will provide something of value to the farmer and share the financial benefit by taking a margin. 'Free' advice is thus built into the price of the product associated with it. The report suggests that commercial objectives of the advice provider could be in contrast with the farm objectives. However, one would like to think this is rarely the case as farming is built on long-term relationships and 'win;win' outcomes build relationships, but it highlights a potential issue that a considerable proportion of information is provided to the farmer with a secondary objective.

Earlier in this chapter we identified business management as a key driver of improved performance. This provides opportunities for those who use paid advice from good professionals to gain competitive advantage. The UK farm business consultancy sector is healthy and effective providing support to all sectors of UK farming. Higher levels of standards though, could be provided by advisor associations as better demonstrations of professional competence. There are also improvements that the commercial advice sector could make to move closer to all farmers. For example, providing low cost opportunities for small farmers which reflect the fact they cannot justify the cost of consultants. Partially funded schemes such as the Farm Advice Service have provided such opportunities that many farmers not accustomed to paid advice have been using.

[23] Defra 2008, Defra 2011
[24] Defra 2014

> **The UK average farm size nearly doubled between 2005 and 2010 and is now the second largest in the EU suggesting that structural change is alive and well.**

There are inevitably roles that the farm consultancy sector could take on to tackle some of the recommendations of this study. Indeed, one would expect them to be doing many of these things privately with their own clients.

## 3.6 PLANNING AND STRUCTURAL DEVELOPMENT

Structural change in terms of changes in farm size, resource mix and number of farms are important underlying factors affecting productivity. According to Eurostat, the UK average farm size nearly doubled between 2005 and 2010 and is now the second largest in the EU suggesting that structural change is alive and well in the UK. However the growth in farm size seems to have slowed down more recently[24]. There are restrictive planning regulations which hinder the development of large farming units. This is a small, densely populated island and it is important to protect our landscape, heritage and environment, but it is also recognised that entrepreneurs in other countries see planning consent as less of a barrier to growth.

It is difficult to find truly comparative information on this because each situation of planning consent is anecdotal, each country and regions therein has a different set of environmental constraints and whilst it is possible to compare planning guidelines or criteria they could be set for differing reasons. Often, when an initiative fails to gain regulatory approval in the UK, possibly for environmental reasons, it migrates to another country. This doesn't solve any problems but exports them with the opportunity. Planners and regulatory auditors should be reminded that business size and good husbandry need not be linked. Large farms can be the cleanest and most professionally run.

## 3.7 STRENGTH IN NUMBERS

Communication, sharing data across the industry and closer institutional arrangements increase the rate of return to agricultural R&D. They increase the dissemination and adoption of new technologies, allow targeting of R&D efforts based on the needs of the industry and support innovation. In the UK there is ample scope to build closer links between Government, research providers, educational institutions, the levy boards and private companies from across the supply chain including farmers.

## EXAMPLE FROM THE NETHERLANDS: FOOD VALLEY

**Michel De Hann, project leader into livestock research proudly highlights Wageningen University as the main provider of agricultural R&D in the Netherlands. It cooperates closely with the business community and Government as well as other stakeholders to ensure that its research is driven by practice and has a business focus. Close to the University is the 'hot spot' area for agri-food science and innovation known as "Food Valley", which 'promotes the innovativeness of Dutch companies by fostering cooperative links between business, knowledge institutions and government'. It has an annual show-case trade show event. Its main benefit is bringing like-minded companies within a sector together in a similar way to Silicon Valley for IT and the City of London for the financial sector; it brings businesses together. Organisations do benefit from working in proximity, facilitators and competitors alike. Expertise is shared, enthusiasm is generated and confidence in the activities is generated.**

There is an opportunity to develop such a centre of excellence in the UK. Its location is not obvious though. Stoneleigh Park has a large number of agricultural organisations huddled together but no university or research institute, and the Park does not always feel like a buzzing 'Food Valley' hot spot. Other such hubs are arguably emerging, Rothamstead, NIAB and the John Innes Centre in Norwich are potential examples.

> **Agricultural subsidies are market distorting and do not encourage capacity building, competitiveness or resilience amongst EU farmers.[25]**

[25] Defra 2013
[26] Reference, Economist 2014

## 3.8 SUBSIDIES AND POLICY

The Common Agricultural Policy (CAP) has evolved over more than 50 years. Its current level of 40% of EU funds reflects a generous aid programme supporting farming. The objectives of the CAP have not changed since the Treaty of Rome was signed in 1957 being sufficiently broad to allow interpretation by individual Commissioners to tackle different policy matters such as environmental, or social issues. Thus the funding emphasis of the CAP has changed. The CAP has only once been used to encourage efficient food production though, with the Mansholt Plan in 1968. Notably this failed because of an uprising of anger amongst the agricultural community! The concept has never been re-tested since.

Most economists and business people (including efficient farmers) agree that direct subsidy reduces the competitiveness and commercial focus of the manager. Indeed, the Agri-tech strategy notes: (Agricultural) subsidies are market distorting and do not encourage capacity building, competitiveness or resilience amongst EU farmers.[25]

Industrial subsidies encourage lower efficiencies. Additional cash injections can encourage more investments but ironically many consider UK farming to be struggling from under-investment. Heavy subsidisation gives more cash to firms, increasing local wages, reducing the competitiveness of the sector and making employability less viable in other local non-subsidised businesses. This erodes entrepreneurialism, blurring the focus on sound investments and innovation. It also encourages multiple objectives as the first (profitability) is easier to achieve[26]. It lowers the market exposure of that sector, making it inherently more profitable and a safer risk.

Agricultural subsidies are attacked from several angles (tax payers seek a return on their expenditure, economists identify inefficiencies, trade negotiators struggle with trade deals and other businesses see costs being pushed up as a result), and it is for these reasons that the largest changes to CAP reform have come about, including Greening, Degressivity and External Convergence. Budget justification is a process that EU Commissioners go through to retain their department's payments. However, many farmers (possibly a majority) would be happy to see subsidies reduce or disappear, as long as it was multilaterally implemented, and the red tape and regulatory burden was removed simultaneously and proportionately.

One small part of the Second Pillar of the agricultural policy is focussed on competitiveness. This fund will be worth £141 million per year in England and will be for training, the EU Innovation Partnership, grants on new innovations and supporting co-operation. Whilst it is probably difficult to make something competitive by giving it grants, these are the areas that support can be used for to aid the efficiency of an industry.

## 3.8.1 GLOBAL TRADE AGREEMENTS

As a basic principle, free markets are good for trade, they open opportunities for outstanding businesses with unique or well-priced goods and provide access to greater marketplace for easier exchange of goods and services (including information and therefore fuelling innovation). Open markets also provide greater choice to the consumer, providing more ideas and also keeping prices low through greater competition. However, some see open markets as a threat to their market space. Better businesses or those with competitive advantage can compete for the custom and therefore challenge poorer performers or those slower to respond to change. Some areas of trade do benefit from regulation and controls. For examples, regulations to ensure the cost of a product reflects its environmental impact and the manufacturer maintains minimum environmental maintenance, or the protection of gene banks in the face of extensive areas of few crop varieties or animal species currently dominating global agriculture.

The Transatlantic Trade and Investment Partnership (TTIP) is the name for the ongoing negotiations to remove trade barriers between the EU and the US to open the marketplace further for more liberal trade.  Many consumers put a high value on the 'localness' of food, and therefore the value of the products designated as such because of their location of production. Scotch Whisky, Melton Mowbray Pork Pies, or Parma Hams etc. are such examples. Trade negotiations struggle to recognise such identifications. The TTIP negotiations cover all trade, not just agriculture so there are a huge number of issues to be negotiated. The final impact on UK agriculture is as yet not clear. Indeed, this is not the only trade negotiation taking place, Mercosur negotiations between the EU and some South American countries could potentially have a greater impact on liberalising some agricultural sectors with large agricultural producers such as Brazil and Argentina included. International trade negotiations through the World Trade Organisation have ground to a halt and are unlikely to achieve anything for anybody.

[27] Hill 2007
[28] Khan 2001
[29] OECD 2006
[30] http://charlescowap.wordpress.com/2012/09/19/inheritance-tax-agricultural-property-relief-should-look-ahead-not-behind/

## 3.9 TAX CONCESSIONS IN AGRICULTURE

Preferential tax concessions favouring specific sectors of industry are a form of support (income or capital protection). Tax regimes therefore impact decisions made by affected parties including those in agriculture[27]. There is evidence that preferential taxation concessions in agriculture have reduced agricultural growth in the past (albeit not demonstrated in the UK)[28]. Land ownership receives tax concessions greater than most other assets, which makes the tax regime a determinant for entry into land acquisition. Some people and institutions therefore enter land ownership for asset protection and tax reduction purposes. This group of investors are fully rational decision-makers but, if they retain occupation of the land, might not be as agriculturally motivated as they are to preserve wealth or benefit from tax advantages. Those in this category make the farming industry less efficient even though they are achieving their objectives. Others who let the land to commercially motivated farmers contribute to the industry by providing land to rent. For this reason, the tax advantages in agriculture can withhold resources in the farming sector, preventing their investment in other industries. This both restricts investments in other industries but also gives agriculture a lower return on its asset base. So does this put the UK at an overall disadvantage against other countries?

In fact, almost all (developed) countries maintain a favourable taxation system for agriculture and farming. Whether with VAT concessions, income averaging, rollover reliefs, capital gains and inheritance tax reliefs, the majority of countries have something. Because of the political sensitivity surrounding tax, little quantitative work has been undertaken to compare systems globally. However, work by the OECD[29] has demonstrated that agriculture is used as an asset protector in many countries, which illustrates that the UK is not isolated in this way.

There might be a case to suggest tax reliefs have benefits for the individual but not the industry. Agricultural Property Relief (APR) for inheritance tax is identified by several experts an imperfect tax relief for agricultural progress[30]. This report does not suggest that agriculture should be disadvantaged over other industries but there might be opportunities to make better use of the tax benefits of land ownership. For example, if a land owner makes the land available to young, new farmers, to provide an opportunity for the industry to develop, then this could be a trigger to enable (inheritance) tax reliefs to be awarded. It is not clear though how this sort of condition might be policed.. In this situation encouraging non-farmers to own land would be a benefit to the sector; their APR would be protected if the land was managed in certain ways. Encouraging a land owner to take a closer commercial interest in the financial operation of the farm business operating it might help build a commercial relationship rather than simply a regular rental payment.

## 3.10 TECHNOLOGY LOSS

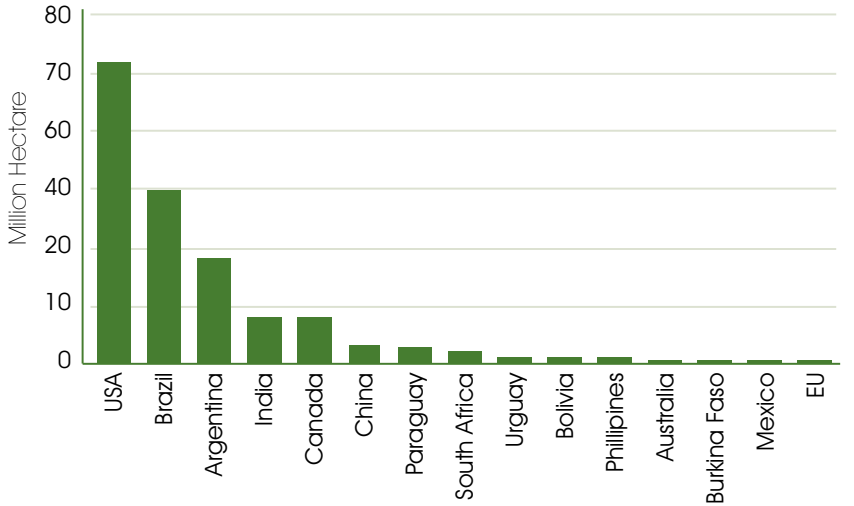
It is not just genetically modified (GM) materials that the UK/EU farmer misses out on. Indeed, this is no longer a novel technique, but is a major part of global agriculture that is proven to be safe that the EU has missed. Extensive research recently published[31] which studied farm profitability for those using GM crops (herbicide tolerant and insect resistance) found using GM technology raised profitability by on average 69%. The benefit is even greater in poor countries, many of which ignore the technology for fear of losing exports to the GM-fearing EU. A loss to EU and emerging economies. Figure 14 demonstrates that the EU does not even feature on the chart of which countries are benefitting from GM materials.

Other technologies are being withheld or removed from the industry's hands for political, emotional or ideological reasons without sound scientific backing. For example, the list of agrochemicals available to the farmer is being reduced

**FIG 14**

**GLOBAL CULTIVATION AREAS OF GENETICALLY MODIFIED CROPS**

*Source: ISAAA Brief No 46-2013*




**The annual number of deaths attributed to hunger is 7.6 million and the total deaths attributed to GM technology, is nil.**

[31] Klümper & Qaim, 2014

on a regular basis. A recent report highlights the implications for the control of weeds, disease and pests in key UK crops would also have an impact on the Gross Value Added (GVA) of UK agriculture, including horticulture, which would fall by £1.6 billion a year . No deaths or serious injuries have been caused by any of the banned products in recent years, but about 5 to 7 people in the UK die from peanut allergy each year . The following highlights the peculiarity of some of the extreme thinking by people who are anti-technology. The annual number of deaths attributed to hunger is 7.6 million and the total deaths attributed to GM technology, is nil.

Not only for the benefit of the farmer, but also as a major contribution to supporting the challenges of feeding the burgeoning world population and therefore also potentially releasing land at the margins of agricultural productivity to environmental gain, the consumer should at least have the choice. The GM debate is over 15 years old so everybody interested is now sufficiently informed. The supermarket could now offer the consumer the choice of whether to buy the goods or not.

## 3.11 CONCLUSIONS ON WHY THE DIFFERENCE

Returning to the point identified in section 2.3.1, we can see now that the 5 countries with a higher TFP exhibit many of the points just discussed. Here is a summary:

- Denmark, Netherlands, the US and New Zealand (possibly Germany) all have more coordinated research and development infrastructure. Whilst resources were not available to identify exact budgets, the feedback from several sources are that the other countries are doing more.
- All countries, have larger knowledge exchange programmes in place. The UK's is led by the levy bodies. Other countries, such as Denmark or New Zealand appear to have closer relationships between their farmers and their levy body/development agencies having greater resources with which to achieve this.
- Benchmarking is a key activity in Germany and New Zealand, both also have a high utilisation of costings books and other data.
- Three of the top four lines in Figure 2 on page 6 (Denmark, Netherlands and New Zealand) don't have inheritance tax reliefs without conditions, meaning the turnover of land ownership is much greater and the average age of farmer is considerably younger.
- Clearly the policy environment is similar throughout the EU, but New Zealand and the US have less burdensome regulations allowing farmers more scope to make their own decisions. Very large farms are allowed in these countries for example, and costs are really pushed down to very low levels as a consequence.

# C.4 UNLOCKING POTENTIAL; HOW UK FARMERS CAN BE MORE COMPETITIVE

The previous chapter identified the main reasons for the differences in the performance between countries and between individuals. So what should we, as a national industry, be doing differently to improve ourselves?

## 4.1 UNLOCKING THE BUSINESS FOCUS OF UK FARMING

There is a role for everybody to seek ways in which we can shift the industry towards a more commercial attitude, with more attention being paid to financial measures as well as physical performance. Most awards in the industry for example seem to be based on measures of physical performance which have little or no bearing on profitability or competitiveness. Growth and financial yield measures should be the main focus of the industry.

The culture seen by some of a stagnating industry relying on support payments, needs to change to a vibrant business-orientated customer-focussed competitive sector which better utilises its assets and resources. This is what so much of the industry is doing so it should be better recognised as such. Some farmers need to become more capable of using management tools such as capital appraisals, long term business strategies and, critically, time-use plans. Are some people too busy doing the wrong thing, not prioritising their time as well as they could? We could probably all be accused of that.

External shareholders, through share-capital schemes, instead of conventional farm tenancies would strengthen the commercial relationship between the landowner and farmer, with a more demanding business partner rather than creditor.

A boarded up high street shop-front barely causes a reaction these days. However the unjustness of a farmer going out of business is sometimes seen as a failure of humanity to protect them from the vagaries of commodity markets or 'big business'. Perhaps this attitude should change. Farmers will always have the choice of staying in business as long as they want or can, even if they are 'uncompetitive'; it's a personal choice. But, they could be helped to have a better understanding of their position, possibly being better off not farming. It is not society's role to subsidise farmers in their lifestyle choice through support and tax etc. but farmers must recognise that it is their choice to farm and the world does not owe them a living. It is still seen by many as 'noble' in some quarters to struggle on in farming, possibly making excuses for their losses, but it is in fact more 'noble' to get out and

do something else. A personal tragedy yes, but it represents an opportunity for others to develop their businesses with the newly released resources and the fastest way for our industry to move forward, strengthen and raise its game. Farms have a resilience way beyond most other businesses.

A farm-sector specific international benchmarking organisation should be established in the UK with an easy data download, in order to enable farmers to compare their performance with those from other regions and countries, understand the differences and adjust their businesses accordingly. This is a great opportunity for the private sector, as it ought to attract a subscription fee, and a paid-for service often commands greater attention and respect from the user. There are issues with ratification of figures but this is a detail that can be resolved if there is sufficient interest.

There should be a joint effort to better understand the position of individual sectors of UK agriculture in terms of international competitiveness, compiling a set of indicators to measure and feedback on a regular basis to the rest of the industry.

The establishment of the Centre of Excellence in Agri-Informatics and Sustainability Metrics which will be happening in 2015 could become a hub of financial and technical comparison data for the UK or the agricultural costings organisations might become more pro-active in providing such data. It will presumably host the largest amount of high quality costing and comparative analysis data.

## 4.2 NATIONAL INVESTMENT IN R&D AND BASIC/APPLIED BALANCE

Total factor productivity is directly related to the level of public research! This has been known for a decade, yet investment in R&D has both shrunk in that time and been redirected to environmental objectives. It has led to an exodus of private investment in UK R&D as the two are linked. It is no surprise then that TFP has not shifted. The conclusion is simple; maintain the investment in public R&D and redress the focus towards applied research.

There needs to be a refocus of the UK agricultural R&D towards more applied and adaptive research in order to help the translation of basic knowledge into new technology and practical on-farm solutions. This is widespread opinion shared in the Agri-Tech Strategy. This paper cannot be clearer than to quote Professor Leaver in his conclusions from his 2010 review of agricultural Research and Development:

**While funding for basic research (with no particular application or use in view) has remained substantial, and the UK is recognised as a world leader at this level – the progressive withdrawal of public sector funding for applied agricultural research (directed primarily towards a specific practical aim or objective) has significantly reduced the UK's capacity to innovate and to translate relevant basic research into practice. This report calls for this situation to be reversed as a matter of urgency to ensure public sector R&D investment directly addresses emerging global and national policy objectives. The focus must shift from the UK being a 'world leader in basic research' to the UK becoming a 'world leader in basic research and its translation into practice'.**

- Professor Leaver 2010

The UK needs to re-asses the agricultural R&D investment strategy. More work needs to be done to understand how improvements in productivity were achieved between 1997 and 2005 and what drove it. From this we might learn how TFP could move up again. As TFP encompasses all inputs and considers the sustainability of resource use, growth in TFP should be a policy priority, correctly compiled on a Pan-European basis and given more attention as a national performance indicator. The Government strategy of providing the scientific base, which is increasingly off-farm orientated, and relying on the private sector for product developments, near-market and productivity-enhancing research, needs to be re-addressed.

The UK is increasingly reliant on R&D spill overs from other countries. This is not necessarily a problem and could be seen as a low cost way of gaining knowledge. However, the industry needs to have an efficient system of adapting it for UK conditions and disseminating it throughout the industry.

There is opportunity for us all, Government, the levy boards, private firms and others to learn from countries that have even more successful agricultural sectors. There is also much to be learnt from other countries' agricultural failures. The globe is small and international collaboration will help everybody. Adaptive research using knowledge from other countries and applying it to areas of greatest potential in the UK, would be considerably faster and cheaper than starting from basic research or possibly not even having the idea in the first place.

## 4.3 KNOWLEDGE EXCHANGE AND CO-OPERATION AT FARM LEVEL

It is essential to have a good communication infrastructure between the farming community, research institutions and Government through effective knowledge exchange (both ways) in order that R&D efforts are targeted in the areas of greatest need/benefit and can be effectively translated on-farm. Some call for greater interaction between the public and private sectors, including, Defra, research bodies, academics, supply industry, professional sector and farmers. We already have stakeholder forum events, especially associated with policy reform, but this could be augmented to a greater level. This might give some policy setters a greater empathy and understanding of farming.

A closer relationship between locations of research and primary information distribution is required in a manner similar to the way in which the Danish agricultural advisory service operates. This link would be likely to strengthen if the previous point on translational research was achieved. Indeed, more effort could be made to obtain knowledge from the relevant countries that are successfully operating competitive production systems, adapting it to suit UK conditions.

The AHDB represents good value for money but could play a more active role in supporting and coordinating the exchange of knowledge and information in the industry more efficiently. There is merit in reassessing the balance between research and extension, even if it warrants raising levy rates.

The AHDB or another organisation should be encouraged to increase the non-sector business input into farming, with much greater attention paid to business and management skills. The uptake of these needs to be actively encouraged. It is appreciated that much of this is already available through small business support services, but many farmers don't engage with these.

It is not the role of a study like this to suggest methods of information exchange, and dedicated professionals are more adept than the author. Indeed, most farmers are less likely to learn directly from the events like Oxford, but from peers, and activities closer to the farm level. However, the statement from philosopher Confucius is worthy of note when considering methods of knowledge transfer.

> **I hear and I forget.**
> **I see and I remember.**
> **I do and I understand.**
> **Confucius**

## 4.3.1 FARMING AS A WAY OF LIFE OR SERIOUS BUSINESS?

With limited resources, as should always be the case, there is a limit to how many people can be easily engaged with and how effective each interaction is. Should organisations focus on the lowest performing farms looking for the greatest gains, or the better performing farms and look for impact across greater areas?

Every individual has multiple objectives. Therefore every business also has multiple jobs. Farming is certainly a way of life as well as a commercial activity. It is clear that many farmers are in the fortunate position to place lifestyle alongside (or above) commercialism because of comfortable asset and cash positions, possibly from non-farming sources of income, or inheritance. Non-commercial decision making is rational in this situation.

It might therefore be a safe assumption that the lower performing farmers in the range of commercial performances are those with less focus on financial and commercial achievements. A change in these attitudes and lifestyles might be difficult. So it is consequently the middle-performing farmers, those who would prefer to be doing better, that the knowledge transfer industry should be focussing on. It is also fair to assume there are more agricultural resources in this group of farming businesses and so the response could be somewhat greater on the productivity of farming too.

## 4.3.2 EDUCATION

The farming colleges and universities will know that a qualification hinders nobody. Taking part in commercial environments is often more important than being in farming for a proportion of the young managers 'training'. Colleges should consider this as part of their careers advice, or the student's sandwich years. Either way, time out of the industry could open the eyes of the young farmer to commercial opportunities, the consumer and other ways of doing things.

## 4.4 SUBSIDIES

Notwithstanding the comments on direct subsidies already made, eligible claimants should always ensure their grant money is claimed correctly. However, to park the money, try to ignore it, and farm without it is good practice to minimise its impact on decision making. However, it is noted that this is difficult, as subsidies affect the prices of inputs too and farming without subsidies in a subsidy-based industry is very difficult indeed and may indirectly make the business less competitive.

As the pig, poultry and horticulture sectors are excluded from agricultural subsidies, it is likely that stronger markets and commercial orientation of these businesses have followed, facilitating faster structural change. The developments in these sectors need closer research to help other sectors learn from their success.

## 4.5 SUCCESSION AND RESTRUCTURING

Previous research into the range in farm performance discussed in Chapter 2.8 identified youthfulness as a driver of improved performance. The UK farming industry needs to implement its Future of Farming Strategy to get more young people into farming and encourage the younger generation to take roles of responsibility and decision making earlier. Applying conditions to tax benefits of agricultural land ownership and rethinking the costs associated with change of ownership of land will facilitate this structural change.

There are ways round these barriers. Contract and other forms of joint venture farming is one which has been growing strongly in recent years and now accounts for a considerable minority of arable land. There are a number of different types of contract agreements under joint ventures to suit different situations. They offer an ideal entry route into a farming business for young individuals and are a win-win solution for both high performance new entrants and farmers with no successor.

Joint ventures could also be suitable for formalising the succession of the next generation, allowing them to take on responsibility earlier with profit share incentives, which allow them to buy into the business at an earlier age rather than inherit it when they are 60 and past their most productive and innovative years. However, for the next generation to be ready to take on a position of responsibility in the family farming business, they need to have acquired the necessary skills in both practical farming as well as business management. The culture of using the next generation as 'unpaid' or low paid family labour hinders the development of these young individuals.

Young farmers starting from nothing, are excused for being daunted by the same level of regulations that face an existing 1,000 hectare or 500 cow unit. The level of bureaucracy for new entrepreneurs is discouraging at best and perhaps occasionally preventative. A service to support the young farmer with this burden (and possibly even risk) in the early years would provide considerable confidence to new entrants.

Support for retraining exiting farmers could be provided. So often, farmers and farm workers do not realise just how useful their skill-sets are in other working environments and in many cases potentially more valuable than working on a farm. It is a useful exercise for a farmer or farm worker to compile a list of areas of expertise he or she is expected to have, it can be revealing.

At the same time, there could be more effort in equipping the next generation of farmers with appropriate skills and experience so they are ready to take on the opportunities to make their own mark on our industry. The small offering within the CAP Reform package is simply a financial help and of little long term consequence. Sandwich years for agricultural degree courses needn't be solely on farm, they could be more focussed on general management and commercial roles especially those who have a farm to inherit. This would expose them to different farming techniques, people and business management and allow them to acquire skills required to build a business of their own.

The industry should reconsider its position as a low level borrower. Whilst keeping business risks very low, it also slows growth and profit potential for the right businesses. Earlier succession coupled with the opportunity to restructure a business might provide the opportunity to grow a business and borrowed funds might be one way to accelerate this process. Other forms of financial support such as external shareholders should be explored.

Should we consider inheritance tax relief as a tool to encourage more investors interested in the future of the industry or as a constant that will not change? A debate on its merits might be useful. Many think that after the general election in May, regardless of the political bias of Government, such tax reliefs will come under increasing scrutiny.

## 4.6 MAKING AND AFFECTING CHANGE DECISIONS ON FARM

Whilst the majority of this paper is focussed on the structure of the industry and how to create the environment for greater competitiveness in UK farming, there is one factor that can influence individual farms more than any other; the farmer himself. It is down to the individual to make business improvements, through dedication, detail and decision making.

The skills in the UK farming community are broad, diverse and unique. The skills required to run any farm are multiple. But one thing that separates the best from the rest is willingness to change.

Most of this paper has focussed on improving the infrastructure and organisational support surrounding the farmer. But ultimately, it is down to the business manager to make the decision to change, invest, take risks, pay for top advice and grow. Nobody else. Farming has more support than most sectors, both financial and other, but nobody can expect a living or success based on their assets or historic performance. Hungry businesspeople will succeed through an overwhelming ambition, dedication beyond most others and hard work alone. This paper has multiple suggestions to improve the competitiveness of the UK farm industry, many of which could be implemented by the farmer himself. But the eagerness to win, focus to be the best and determination to be an outstanding farmer is down to you. Succeed on this basis and the world is your 'oyster'.


Changes take you out of your comfort zone, but then, nothing great was ever achieved within one.

# C.5 CONCLUSIONS AND RECOMMENDATIONS

The previous sections have highlighted the drivers of what is holding UK farming back at industry level compared with other countries and what puts the best at a difference to the rest. Key themes identified as necessary to improve competitiveness are:

- **Research and development is directly proportional to increased productivity in agriculture. To raise productivity in the UK we need more focussed public and private research.**
- **Spending a greater proportion of research funds on near-market or translational research will provide the support to apply the research to industrial requirements. This will also help attract more private funds for research too.**

"Field Scripts" an advancement at the forefront of corn and soya bean yield improvements in in the US are a result of the combination of scientific research in genetics, climate and machinery technology coupled with historic yield performance and soil analysis data arising from farm.

- **A greater focus on the improved exchange of knowledge will be twofold, benefiting the research community whilst also helping to get messages to those who can implement them. It will help top performers move the productive frontier forward and those following to catch up.**

DairyNZ's various initiatives for farm performance measurement such as Dairy Base are very successful with significant farmer participation. This provides a mechanism and forum for farmers to compare information and a conduit for information passage into the research community.

- **Focus should be centred on the top and middle sectors of farmer operators. Those that don't take notice of current information will no doubt always be very difficult to contact.**
- **Non-farming investors should be encouraged into land ownership, by not removing tax reliefs as some suggest but by having conditions on the claimant's eligibility including letting it to young, new entrant farmers. This idea should be explored.**

New entrants contract milking and then share milking for farms owned by syndicates of investors in South Island NZ, has been a major development pathway in the NZ dairy-farming sector for aspirational entrepreneurs.

- **Direct subsidies don't help competitiveness, but the subsidised sectors should look to learn more from unsupported sectors in and out of agriculture. Be aware that subsidies will reduce through to 2019.**

The 2019 Basic Payment is likely to be 25% smaller than the Single Payment was in 2013 in real terms. Farmers should consider now what the impact will be on their business and take remedial action for when commodity prices are low in that condition.

- **All businesspeople from any sector should help themselves by seeking greater business acumen and bolder decision making skills; many farmers are outstanding businesspeople.**

Opportunities for post graduate study and distance learning at any age should be encouraged with a mind-set that farming is a business activity like any other. A prerequisite of agribusiness accomplishment is acumen equal to any other successful business activity.

- **Ultimately, the success or growth of a farm business is down to individual entrepreneurs. Whilst support is available in various guises, they should focus on making their own decisions for their own improvement, whilst optimising external support.**
- **Recognise that despite this report identifying opportunities for improvements in UK farming, we have many outstanding operators to match the global best.**

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# SUMMARY OF CONTRIBUTORS TO THE INTERVIEW SECTION

This is a brief description of all the contributors to the formal interviews in this report. Each generously helped, some preferring to remain anonymous contributors.

- Progressive first generation tenant livestock farmer in Home Counties with farming interests also in Brazil and other commercial non-farming enterprises
- Very large farming company in the UK, operating largely in Eastern Counties. Multiple staff with clearly differentiated disciplines.
- Progressive young dairy farmer, building contract farming operations to expand business beyond the family's 'home farm'
- Midlands mixed farmer keen to expand balance sheet into intensive unsubsidised enterprise to increase viability of business and raise profitability. Expansion being achieved through gearing assets and taking on additional risks.
- Very large UK national farming organisation, farming other people's land.
- Very large UK farming organisation farming shareholder's land with a highly commercial relationship and also some other land owner's farms in contract farming arrangement
- Arable farmer in northern Germany, having built up a large farm business from a very small balance sheet and smart acquisition and excellent staff management. Highly focussed on marginal gain, so uses tools like benchmarking to a high level.
- Impressive New Zealand dairy entrepreneur, focussed on investment purchase with a reliable return on investment of 25% through extremely efficient model of making milk from grass at absolute minimum cost per unit.
- Young New Zealand dairy farmer who has successfully built up a considerable business focussing on structure, process and outstanding governance.
- Dairy farming based entrepreneur. Having built his first dairy farm through very high gearing and commitment to fast rates of return to lower risk and focus on exceptional quality, then developed several other revenues in the sector by spotting opportunities and making them profitable.
- French export, who turned down an opportunity to inherit a Normandy small holding and lifestyle and went to New Zealand to farm instead, seeing greater opportunity. Now Chief executive of a 6,500 dairy business in Otago. Describes himself as a workaholic and perfectionist.
- Young New Zealand livestock farmer who found himself managing a family farm at 17 through unplanned events. Missed some education to take on the mantle and is successfully farming unirrigated steep land
- Chief research officer in top food research institution in Netherlands,
- US Department of Agriculture, with observations of support organisation in a very large agricultural country, and what might translate to the UK system.
- Agricultural advisor to Japanese Embassy. Excellent insight to a country with extreme issues of very old farmers, very small farms and how they are tackling low levels of commerciality in their country.
- Pan European agricultural analyst providing crop forecasting and interpretation to international traders.
- Informal discussions with farm management consultant colleagues.

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