

BEEF 2020 REPORT



**A vision for the beef industry in
Scotland**

Chairman's Foreword

By Jim McLaren

At the request of the Cabinet Secretary for Rural Affairs, Food and the Environment, Richard Lochhead, the Beef 2020 short life industry group was created to develop recommendations to policy makers and others that will facilitate sustainable and long term growth in beef production levels within Scotland.

At the most basic level of analyses, our sectors challenge can be described as the production of the greatest number of live, healthy calves possible as a percentage of cows put to the bull, which go on to lead productive, healthy lives reaching their maximum potential for finishing or breeding in the timeframe and at the specification which the pre-identified market requires.

The recommendations within this report are designed to be owned and adopted by the Scottish Beef Industry to develop a culture of collaboration and cooperation, to encourage confidence and investment and to create an industry at the leading edge of world production technologies all in a manner which is sympathetic to the needs of consumers and the environment.

The report recommendations are not a reaction to short term events within the market place related to either price or volume of supply, nor are they a reaction to changes within the European Common Agricultural Policy (CAP). Changes within the CAP do, however, present the industry with both challenges and opportunities, and some of these will be explored within the document.

The UK beef sector is one of the few parts of our agricultural industry which still produces in a largely speculative way. In other words, the majority of producers will not list a specific market opportunity as the reason for having their beef enterprise on the farm. In Scotland we are no different, while most producers will say that they feel they know for whom they are producing their animals; the proportion of animals falling out with the preferred abattoir specification suggests that, at the very least, more focus on what the market really requires is an essential first step.

Producers are often reluctant to expand production through fear that any increase in supply will adversely affect the price of the entirety of their production. Similarly, processors can be reluctant to develop new demand or markets for beef through fear of increasing the cost of the entirety of their raw material supply.

If the sector is to truly grow, then a far greater degree of collaboration is required within the supply chain to allow the processing sector to confidently develop and expand into new markets and the producers to confidently deliver the required supply to meet that increased demand.

When the beef sector is compared to other sectors of livestock production, often described as the "intensive" sectors, we see some very stark differences. The poultry, pigs and dairy sectors continue to invest significantly at all levels of the production process, despite their own price challenges and with little or no CAP support in many cases. Producers tend to know exactly for which market they are producing, and consequently the specification and time of delivery of the required product. Genetic improvement is happening at a far greater pace and the "measuring" of key performance indicators is widespread best practice.

These may seem like simple prerequisites for any production process, but they are often sadly lacking in the beef sector.

Other challenges such as the agenda surrounding Climate Change further highlight the need to drive efficiency in production across all sectors of the Scottish economy. Agriculture is far from immune to these challenges and ruminant livestock production at the core of our industry, is firmly in the spotlight. We must take the initiative, and face up to the inescapable fact that whilst there may be arguments for reducing the amount of beef produced in some systems around the world, our very particular grass based Scottish system remains a sustainable one.

The conversion by ruminants of forage grown on rough grazing land which could be used for no other food production purpose, into edible protein for human consumption, is an excellent example of a natural and efficient production process. By enhancing the efficiency of this process still further, through the recommendations set out in this report, our beef industry has the opportunity to enhance both business profitability and environmental sustainability for the remainder of this decade and beyond.

Despite the challenges identified, the future of Scotland's beef industry is characterised by opportunity. A strong home market, growing demand for red meat and premium products around the world and a building national reputation for food and drink from Scotland all combine to create a foundation for future success.

The group and I are in no doubt that with a successful Scotch Beef Protected Geographical Indicator (PGI) brand already established and a renewed focus on the priorities identified in this report, we can secure a future marked by sustainable, profitable growth.

The report sets out ambitious but achievable targets and timelines with clear suggestions as to ownership and delivery mechanisms of the various recommendations.

I would like to take this early opportunity to thank the members of the Beef 2020 group for their invaluable input to this report.

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Executive Summary

The group's vision of the Scottish beef supply chain is:

"A confident market driven grass based cattle industry using leading edge technologies capable of delivering profitably to the home and world market high provenance, quality beef from sustainable production systems."

This vision will only be achievable if each link in the supply chain is profitable; and that comes from both production efficiencies and market development. Gains will also be delivered for the wider community not only from a secure high quality beef supply but also through environmental benefits gained through efficient resource use and waste reductions that will reduce the carbon footprint of each kilogram of beef produced in Scotland.

For the beef farmer this means;

- Developing a deadweight payment system that more accurately rewards the yield and value of the carcase.
- Improved animal performance that comes from better information delivered through:
 - A full EID system for cattle;
 - An integrated accessible database covering livestock traceability, farm assurance status, non-financial information collected at various points in the animals' life; including breeding information related to genetics and physical performance, carcase weight, grade and health status as well as downgrades.
 - Greater use of peer group benchmarking and knowledge exchange.
- Industry wide actions to improve animal health and wellbeing through tackling key diseases and parasites like Johne's and liver fluke along with increased use of health plans.
- Actions to improve access to land and capital for new entrants to beef cattle farming.

For the processor this means;

- Actions to support and encourage capital investment in new technologies that reduce or eliminate waste;
- Working with Scottish Government and the European Commission to reclassify by product so as to reduce waste and increase value from the wider fifth quarter.

For the beef farmer and processor this means;

- Working together to better communicate and understand the supply, demand and price drivers of the medium term market future;
- Working together to improve supply chain cooperation in respect of supply, product specifications, pricing basis and product development so as to manage risk in the supply chain;
- Having access to as wide a range of domestic and international markets as possible with commensurate in-market support structures;
- Having access to an education, training and advisory/consultancy structure that provides opportunities to develop and improve knowledge and skills relevant to each part of the supply chain;
- Having access to world leading research and development tailored to the conditions of the Scottish environment and farming systems.

Introduction

Beef production is at the heart of Scottish agriculture. With an output in 2013 of some £825m the beef industry alone make up 26% of Scottish agricultural output and is the biggest single sector of the Scottish agricultural industry. Almost 12,000 holdings draw some income from a beef enterprise.

While beef cattle farming has to be at the heart of a successful Scottish beef industry, the industry itself is a more diverse entity ranging from the agricultural supply sector and veterinarians, through primary producers and livestock hauliers to the auction companies and processing businesses and on to the retail market. Each link in this chain makes a vital contribution to a strong and sustainable industry.

Since 2009 the Scottish Government has recognised the strategic role of food and drink in the Scottish economy by adopting a Food and Drink Policy. In addition, the major sectors of the food and drink industry are now working together – and in partnership with government - through Scotland Food & Drink. The industry has set and surpassed its original growth targets with new ones set in 2013. The beef sector will continue to be a major contributor to the new 2017 turnover target for the sector of £16.5bn as well as being an iconic exemplar of high quality Scottish food.

Nevertheless, the beef sector's ability to meet these targets is compromised by a number of challenges not least of which are the steady declines in livestock numbers since the last reform of the CAP implemented in 2005 and Scottish abattoir throughput. The former has seen beef cow numbers fall some 50,000 head and the latter has seen a reduction in throughput of 15%. Both halves of the industry are plagued by low profitability.

Measurements of enterprise profitability recorded over many years, either at enterprise level by Quality Meat Scotland (QMS) or at farm level by Scottish Government show that, even before cuts in CAP support, very few beef enterprises are profitable at a level to reward the proprietors for their unpaid labour and risk capital invested in their business. Nevertheless, analysis of those businesses that are successful and growing identify a number of key success factors that underpin financial performance including ruthless cost control, high levels of technical performance and the appliance of science and technology.

European beef is amongst the most expensive in the world to produce and Scottish beef is at the top of that scale¹. For that reason, the Scottish beef industry has positioned itself in high value markets through its industry led brand protocols for "Scotch Beef" and the early adoption of the EU's Protected Geographical Indicator (PGI) scheme.

In this respect the growing agenda is sustainable beef production – as demonstrated by McDonald's² commitment to only use "sustainable beef" from 2016 and industry led global initiatives to develop sustainable beef protocols, for example the Sustainable Agricultural Initiative's beef working group³ and the Global Roundtable for Sustainable Beef Initiative⁴.

¹ See for example the work of the Agribenchmark network.

<http://www.agribenchmark.org/fileadmin/Dateiablage/B-Beef-and-Sheep/Working-Paper/bs-03-OECD.pdf> (accessed 3 June 2014)

²http://www.aboutmcdonalds.com/mcd/sustainability/signature_programs/beef-sustainability.html

³<http://www.saipatform.org/activities/working-groups/beef>

⁴<http://grsbeef.org/>

The Scottish beef industry is one of the few examples of any scale worldwide which are within striking distance of that status. It is vital that we respond to these challenges and build on our natural advantages of abundant rough grazing and ample rainfall.

The Scottish Government has ambitious targets with respect to climate change and the reduction of greenhouse gas emissions. Agriculture and ruminants in particular make a significant contribution to such emissions and the beef industry will be looked upon to make its fair contribution to these targets.

Grass and rough grazing makes up some 80% of Scotland's agricultural area. It is therefore important that this resource is fully utilised.

The only contribution which rough grazing land can make to the production of food for humans is through the grazing of ruminants. This valuable protein source can only be converted into human edible protein by a ruminant which in turn dictates that ruminant livestock will inevitably play a long term key role in Scottish agriculture.

Consequently, one guiding principle behind our proposals is the need to take serious steps to minimise the carbon footprint of every kilogram of meat produced. This can be achieved by managing animals more efficiently, essentially reducing death, disease and lack of productivity by paying yet more attention to breeding, nutrition and animal health. This in turn reduces waste, minimises carbon footprint per kilogram of meat produced and reduces the pressure to take more land into production.

It is also a key driver of business profitability, when one recognises that every loss through emissions within a production system is a loss of the valuable input which was required to generate the emission in the first place.

There are few if any measures which we can take to reduce harmful greenhouse gas emissions which will not at the same time benefit the profitability of the farm business.

Against this background, the Beef 2020 group is charged with creating a vision, and actions, for the Scottish beef industry that will deliver for 2020 and beyond a framework that allows the industry to adjust to the developing business environment and secure a sustainable and resilient position to allow it to thrive in the 21st century.



The Vision

The group's vision of the Scottish beef supply chain is of:

"A confident market driven grass based cattle industry using leading edge technologies capable of delivering profitably to the home and world market high provenance, quality beef from sustainable production systems."

In order to achieve this vision a number of targets or essential elements are required including:

A market led growth in production and sales from the Scottish beef industry increasing from 166,000 tonnes in 2013 to 185,000 tonnes by 2020 and achieved by:

An improvement in productivity (*measured as the ratio between beef calf scheme eligible calves and beef females over two years old with offspring*) from 87% in 2012 to 94% by 2020;

A growth in beef cow numbers of 5% within 5 years and 10% within 10 years; and

Market driven supply chain collaboration.

A Scottish processing sector that can successfully compete on global markets and with an ownership structure which encourages diversity of ownership to create competition at all levels of the supply chain.

A brand identity synonymous with integrity and traceability which will underpin the growth of international and domestic markets.

An industry supported by the infrastructure to produce, process, market and promote the product in existing markets and to develop new ones.

An industry that takes its role in meeting Scotland's climate change targets seriously by making a significant reduction in greenhouse gas emissions per kg of beef produced while at the same time securing a growth in cattle numbers.

A suitable industry infrastructure to deliver knowledge and technical support for innovation among producers and processors.

Delivering the vision

A variety of different actions by many different players including Government, Research Institutes, Knowledge Exchange agents and the entire Scottish beef supply chain will be required to deliver the vision.

The changes which the group believes should be promoted include the following:

- Improving market orientation among producers;
- Improving technical knowledge and skills among those working throughout the supply chain so as to, for example:
 - Drive out cost;
 - Maximise animal health;
 - Reduce climate change impacts;and hence improve resilience and sustainability;
- Growing cattle numbers to secure abattoir capacity in Scotland;
- Improving the age profile of those working in the industry.

However, fundamental to the delivery of the vision is a supply chain where each element in that chain has the opportunity to achieve a fair level of return for the risk capital invested in that business and the labour employed.

A foundation of trust requires to be engendered throughout the supply chain which can be built on a greater understanding of each links role in that supply chain, which in turn will deliver a greater transparency of market signals and customer requirements.

Building trust in the supply chain

Cattle production in Scotland is a fragmented industry, 7,400 businesses producing single suckled calves while only 22 abattoirs kill cattle.

While a number of these abattoirs work as wholesalers or contract slaughterers with the Scottish retail trade, the eight largest sites covering some 88% of the kill predominately work with the UK multiple retailers, who take the majority of the production from these sites, with some separate non UK export sales as well.

This structure of the supply chain creates challenges in respect of communication of market specifications, market signals and potential supply profiles along the supply chain. It is estimated that less than 10% of Scottish born cattle killed in Scottish abattoirs are purchased through the auction market ring. This leads to limited transparency over market price determination which can lead to a breakdown of trust between cattle producer and cattle buyer.

While many multiple retailers have initiated informal "producer groups" in an effort to secure supplies and offer some technical support, they have limited coverage. There is limited coverage of formally constituted producer organisations working in the cattle supply chain.

Improve market transparency

The rapid movement of farm gate prices for cattle, both up and down, between early 2013 and mid 2014 have encouraged a breakdown of trust within the supply chain. That trust can only be restored by greater sharing of information in respect of supply, demand and price drivers within the chain. While inevitably some demand changes, spurred for example by a food scare, take hold more quickly than the beef production cycle can react, greater understanding throughout the supply chain of both the production profile, demand behaviour and patterns will help to improve understanding and trust.

Recommendation 1

Industry representative bodies should establish a roundtable that meets every quarter to discuss the developing market situation and agrees common actions to communicate messages to the wider production base in respect of product specifications and market requirements.

Once established this group, by drawing together representatives from across the beef supply chain, should take on a wider remit for reviewing, developing and guiding the delivery of a long term strategy for the Scottish Beef Industry.

Supply chain cooperation and producer organisations

Building understanding throughout the supply chain will not in itself deliver improved margins. With over 7,000 farm businesses producing cattle for sale either as stores to other farmers or finished stock into 22 Scottish beef abattoirs most do not have the negotiating strength that comes from having a significant volume of stock to trade. That will only come through greater cooperation within the supply chain.

Collaborative supply chains have developed in many industries over the last 50 years. Collaboration has been proven to increase competitiveness by creating value chains and networks that are:

- Capable of offering security of market for producers;
- Capable of delivering a secure supply for processors that is in specification, on time and in the volumes required;
- More responsive to changes in the market, and faster to develop and introduce new and premium products;
- More effective and efficient in their information flows and processes, becoming leaner and lower cost;
- More innovative and faster to adopt new technologies;
- More resilient and sustainable, and effective in managing carbon reduction.

Collaboration may take many forms as it becomes more comprehensive, but it is always about achieving commercial objectives and returns, while responding to market needs and opportunities. At the simplest level (process level), collaboration is concerned with improving performance in producing to customers' specifications and performing to their service needs. At higher levels, it is concerned with joint planning and investment decisions across links in the chain, based on long term shared commitment to common business objectives.

As sophistication increases, trust, transparency, risk sharing, and reward sharing assume much higher priority.

Achieving commercial benefit from collaboration does not necessarily have to involve the entire chain. Considerable commercial benefit can be realised from improved business practices and relationships amongst chain partners, especially where there was limited collaboration in the past. Establishing initial building blocks of collaboration between chain partners often leads to more comprehensive and more ambitious collaboration in the chain at a later stage.

Recommendation 2

The Scottish Rural Development Programme (SRDP) should make specific provision to support the development of supply chain cooperation through producer organisations that:

- Agree specification and volumes;
- Formulate pricing frameworks and payment terms;
- Enable chain product and process improvement and innovation;
- Participate in new product and new market development; and
- Reduce unknowns, reduce risk and help justify capital investment.

Development of pilot collaborative supply chains to develop new markets

It is recognised within the industry that many processors fail to fully exploit new market opportunities which may arise either at home or abroad because they are fully committed to the “day job” of supplying their current customers. They also recognise that by increasing demand, even marginally, they may increase the price they have to pay for all their requirements. This can occur even in plants with excess capacity which could be usefully utilised. Similarly, producers of cattle are hesitant to increase supply when economics dictate that in a market of a set size, prices will fall if production increases. To balance these two competing issues, a collaborative approach where a producer dedicates a proportion of extra production at the required specification with no fixed price, to a processor who is able to then exploit a new opportunity in the knowledge that they have a secure supply has the potential to grow our industry in a balanced and fair manner.

To meet the requirements of newly emerging markets will require clear alignment of the objectives of all in the supply chain requiring clear communication and commitment between links in the chain resulting in a growth of dedicated supply chains.

Recommendation 3

Develop and pilot integrated collaborative supply chain protocols to meet specific new market opportunities.



Development of a pricing system for beef cattle which more accurately rewards their value

Although the EUROP pricing grid does provide a means of comparing the level and direction of movement in cattle prices across Europe, the current price reporting mechanism, either auction sales or deadweight quotes, provides little feedback to producers as to the yield and value of the carcass. The price reporting is based on visual assessment of conformation and fat cover.

The development of assessment techniques for carcass evaluation has progressed rapidly over the past decade. The most developed option is Video Image Analysis (VIA) but other options exist⁵. These non-destructive means of carcass evaluation offer the

potential for producers to be more accurately paid for carcass yield and to gain better feedback of the market value of their cattle.

Price reporting systems in other parts of the world are similarly based on visual assessment. However, they offer some interesting insights into how this visual assessment can better reflect the commercial value of a carcass. Price reporting in the United States, for example, is based around the voluntary grading programme run by the United States Department of Agriculture (USDA). Based largely on visual inspection, it incorporates a system of assessments for marbling and maturity which are then used to define a carcass as Prime, Choice, Select or Standard. The USDA can also make an assessment of yield grade based on hot carcass weight, the thickness of fat over the rib eye, rib eye area and an adjustment for kidney, pelvic and heart fat. In Australia, prices are similarly based on visual assessment of muscle and fat.

Recommendation 4

Develop a system of deadweight payment which more accurately rewards the yield and value of the carcass.

⁵ "Recent trends in carcass evaluation techniques -a review" S. Gupat, A.Kumar, S.Kumar, Z.F. Bhat, H.R. Hakeem and A.P.S. Abrol (2013) Journal of Meat Science and Technology Vol 1. Issue 2 pp50-55

Maximise market access and brand awareness among target consumers internationally

It is generally acknowledged that global demand for food will increase as the global population grows to 8 billion by 2030⁶ but also because of growing urbanisation, higher incomes and changing diets. However, it is equally recognised that most of this growth will occur in developing countries. If Scotland is to be able to benefit from these opportunities it first has to have access to these markets through the establishment of the necessary agreements, protocols and certifications with these countries.

Recommendation 5

The Scottish Government must work closely with UK and global partners to facilitate maximum access to international markets.

Maximise in-market presence

Within the global context Scotland is a small player; so to maximise the benefits of these international opportunities actions will need to be focused on affluent consumers where the values of grass-fed beef of high quality and provenance is valued. To promote these messages in our target markets will require considerable in-market presence.

Having an in-market presence will also provide feedback not only of market opportunities but also information on market channels and barriers to market entry so as to be better able to provide support for exporting companies. Through these in-market activities Scotch Beef will create a strong brand position and through co-ordinating export activity grow target markets.

Recommendation 6

QMS, Scotland Food and Drink, Scottish Development International and other agencies pool resources to maximise in-market presence to build global markets for Scotch Beef and co-products.

⁶ See for example "Foresight - The future of food and farming 2011 Final report" The Government Office of Science, London and "OECD-FAO Agricultural Outlook 2013-2022" OECD/FAO 2013

Strengthen product provenance

The Scottish farm assurance scheme was introduced to the beef supply chain in 1991 and was a core element of the protocols that led to Scotch Beef being awarded Protected Geographical Indication (PGI) status by the European Commission in 1996. Since that time many competitor countries have introduced similar product assurance schemes as consumer's interest in product provenance and animal health and wellbeing have increased.

Over time, the accreditation provided by farm assurance schemes has become a given for many multiple retailers and other retail outlets across the globe. However, the demands of the market place are continually changing and the growing agenda is one of sustainability in respect of both enterprise viability and environmental protection.

Increasingly, global initiatives are emerging in this respect. Examples include the International Dairy Federations "Dairy Sustainability Framework"⁷, The Roundtable on Responsible Soya Association⁸ and the Global Round Table for Sustainable Beef⁹. While these examples are sector specific some countries are addressing the challenge on a national basis, for example the Irish Republic initiative "Origin Green"¹⁰.

In the retail and foodservice markets demands for sustainability criteria are increasing. At the forefront is MacDonalD's Restaurants who have made a commitment to only use sustainable beef from 2016¹¹. Most UK retailers have also made commitments to improving their sustainability with many also making reference to sustainable supply chains. For example Marks and Spencer in their latest Plan A report make reference to sustainable farming systems¹² while Aldi are introducing similar considerations but do not yet include beef.¹³

For the Scottish beef industry to remain a market leader and maximise market opportunity and return, it needs to be at the forefront of this developing agenda.

Recommendation 7

The industry establishes a robust mechanism to demonstrate supply chain sustainability credentials that builds on and supports PGI and the quality assurance schemes.

⁷<http://www.dairy-sustainability-initiative.org/Public/TextFlowPage.php?ID=3397> accessed 26 June 2014

⁸<http://www.responsiblesoy.org/quienes-somos/mision-y-vision/> accessed 26 June 2014

⁹<http://grsbeef.org/> accessed 26 June 2014

¹⁰<http://www.origingreen.ie/> accessed 26 June 2014

¹¹http://www.aboutmcdonalds.com/mcd/sustainability/signature_programs/beef-sustainability.html accessed 26 June 2014

¹²<http://planareport.marksandspencer.com/downloads/M&S-PlanA-2014.pdf> accessed 26 June 2014 see page 21

¹³<https://corporate.aldi.co.uk/en/responsibility/resources-for-our-products/> accessed 26 June 2014

Integrated easily accessible database

Scotland, through the use of the British Cattle Movement Service has a comprehensive cattle traceability database. However, this database offers little or no direct added value to the producer.

A fully integrated database could form the basis for the feedback of key performance indicators subject to the collection of some additional information (See Recommendation 9) and the integration of information already collected and held separately.

Producers will also benefit from being able to assess the performance outcomes of different breeding decisions and feeding regimes as well as the effectiveness of disease prevention measures all of which will lead to a more sustainable and productive industry. The wider community gains through the reduction in greenhouse gas emissions per kilogram of beef produced.

The Scottish pig industry, through the cooperative venture Wholesome Pigs, is an exemplar of how feedback of clinical and sub clinical animal health indicators can lead to significant economic benefit to producers. By collecting evidence at time of slaughter of subclinical disease the pig industry has been able to take prompt action to prevent health issues gaining ground among pig herds and through that improve market returns.

To best facilitate this vision the database would need to be managed in Scotland with the data owned by the whole industry. Added value for producers could be gained by ensuring this database can link to the GB national livestock traceability database thus providing one data entry point for all statutory livestock movement recording requirements.

The data held on individual animals would be accessible by all those who have owned the animal at any point. This will allow calf producers to monitor how their animals finally grade and finish and help to inform their breeding decisions.

Experience from the Republic of Ireland demonstrates the value to producers of such a database. As the database matures, producers can see that the value of the data increases with the quantity and accuracy of the input data. Producers receive an annual report outlining each animals performance measured against their herd, the breed and all breeds¹⁴¹⁵.

Recommendation 8

Develop an integrated and accessible database containing livestock traceability data, farm assurance status and non-financial information collected at various points in the animal's life including breeding information related to physical performance, carcass weight, grade and health status as well as downgrades.

¹⁴

<http://agriculture.gov.ie/farmerschemespayments/singlepaymentschemedisadvantagedareasschemebefdataprogrammebdp/2014beefgenomicsscheme2014beefdataprogrammebdp/> accessed 25 July 2014

¹⁵ http://www.icbf.com/?page_id=162 accessed 25 July 2014 see also links through to example reports

Use of the Database to improve genetic potential of the Scottish beef herd



The Scottish beef herd is extremely diverse in respect of the breeds of cattle used and the genetic diversity both within and between breeds. Some genetic lines are more suited to maternal traits and some to beef yield. Pedigree cattle farmers have collected genetic data for many years so as to establish Estimated Breeding Values (EBVs). In turn EBV's are increasingly being used by commercial beef farmers in making decisions over beef bull

selection. However, considerable potential exists to widen the pool of data if more information is provided from commercial herds. By supporting producers to contribute data and information to the database described in Recommendation 8, the industry would have a valuable resource to access in order to improve breeding selection criteria.

Examples of data that could be collected and integrated would crucially include sire and dam identity of calves as well as physical information collected at the time of birth including calving ease and dam temperament, often referred to as "docility", as well as a measure of "calf quality".

At slaughter, the carcass weight, carcass grade, any condemnations due to animal health issues and evidence of sub clinical disease presence can be added. Simple analysis would, for example, allow a lifetime daily live weight gain to be calculated.

At the national and regional level cattle farmers will gain from the reporting of trends in reasons for carcass downgrades and sub clinical disease presence by being able to take more informed management decisions.

Genetics are generally accepted to have value in improving carcass quality, quantity, yield and palatability, fertility and reproductive efficiency, maternal ability, growth rates and birth weights. By improving the quantity and quality of data held, the Scottish beef industry will be well placed to maximise its potential.

Going further, the use of Genomics to predict susceptibility of certain genetic strains to different diseases has shown great results in The Republic of Ireland. Through the automatic collection of an ear tissue biopsy at the time of tagging the calf, it is possible to use genotyping to further inform breeding decisions to the benefit of the whole industry.

Work by the Limousin Cattle Society and Anglo Beef Processors (ABP) sponsored by the UK Government's Technology Strategy Board has demonstrated the potential revenue gain to be had from using genotypes most suited to maximise carcass yield¹⁶.

¹⁶http://limousin.co.uk/wp-content/uploads/2011/04/BLCS_Project_Factsheets.pdf accessed 30 June 2014

The USDA sponsors a national programme for genetic improvement in feed efficiency¹⁷ as well as a similar programme seeking to use genomics and management approaches to reduce the incidence of pneumonia in beef and dairy cattle¹⁸.

In addition to the financial gains to the producer as demonstrated by the Limousin Cattle Society et.al, improved feed efficiency and animal health will also contribute to reduced greenhouse gas emissions per kilogram of beef produced.

Recommendation 8 highlighted the need to develop a database of basic animal information. This database would also form the framework for voluntary recording of additional information, for example genetic profile through tissue sampling at time of tagging. This dataset should be owned by the industry for the benefit of the industry.

Recommendation 9

Encourage producers through financial incentives, to collect data to populate and develop a national integrated and accessible livestock breeding database incorporating genetic and productivity information.

Adoption of full bovine electronic identification (EID)

Although the building blocks of an integrated database exist, the efficiency of data recording and sharing would be improved by the use of an Electronic Identification (EID) system. Such a system would speed up and simplify data collection and transmission.



Recommendation 10

Adopt a full bovine EID system at the earliest possible opportunity.

¹⁷<http://www.beefefficiency.org/> accessed 30 June 2014

¹⁸<http://brdcomplex.org/files/summary.pdf> accessed 30 June 2014

Improve knowledge and skills base



The results of the QMS intentions survey carried out in Autumn 2013 showed the confidence among Scottish beef producers to have been at its lowest level since 2008.

This survey was carried out at a time when the industry was recovering from an extended period of poor weather leading producers to require greater quantities of inputs and contributed to them identifying input costs rather than just policy uncertainty as one of their key

concerns over their future prospects.

The majority of farmers are labouring under production systems with high compliance and production costs relying heavily on labour, power, machinery and buildings to produce cattle. As margins come under pressure more and more of these farmers are becoming interested in reviewing the entirety of their cattle operation looking to strip out cost and increase output.

QMS enterprise costing surveys have for many years identified the benefits of high levels of technical performance and associated skill levels in delivering the best margins. The challenge for the industry is to maintain, enhance and deepen the skills levels in the industry as the results of research and technology advance the knowledge base to be able to meet the objective of improving profitability.

One solution to such a challenge is self-help, however, whilst farmers acknowledge the need for such activities, they generally have very little spare time in which to develop themselves, pick up new information or learn new techniques which could benefit their business.

There are a number of proven solutions available which will improve efficiencies and farmers only need an opportunity to see them in action before adopting them.

Creating a network of initiatives based around group working, usually with a professional facilitator and/or consultant, is a proven method of farmers picking up relevant information of new techniques and implementing them.

Farmers learn best from other farmers so another method is to use 'champion' farmers to divulge the relevant information on the physical or financial performance of their business to a group of fellow farmers. Use of such case studies from top performing businesses is a good way of highlighting best practice whilst always being aware of the need to deliver the message in an empathetic manner and ensure such targets are attainable for the majority.

The scope and coverage of such knowledge exchange work could be widened and deepened by developing a knowledge exchange programme where by producers receive financial support for attending a programme of events and contribute data to the programme.

The financial performance of cattle farms will improve as a result of improved efficiencies and greater confidence leading to investment in the future of these businesses. By establishing a network of knowledge transfer and knowledge exchange initiatives group working will become a habit for an increasing number of farmers and the initiative will drive itself over time.

Recommendation 11

Increase access to, and financial support for those attending and contributing information to, industry led knowledge transfer groups through the continuation and development of existing community led initiatives such as the highly successful Monitor Farm Programme, the Planning for Profit Initiative, the Business Improvement Groups and the QMS Grazing Groups.

Improvement in tertiary education provision

A key element of a successful and sustainable Scottish beef supply chain is having a skilled and educated workforce. That workforce also needs to have access to short courses that allow those working in the industry to refresh their skills base and knowledge of innovative science over their career in the industry.

A report produced by LANTRA for the UK Commission on Employment Skills concluded that "There is an inherent miss-match between the skills required to perform roles in the sector and the qualification requirements for entry into the sector."¹⁹

The report also concluded that "Our analysis of skills needs emphasises the requirement for business and management skills such as business planning, project management and risk management.

Knowledge and appreciation of the sciences and application of Information Communications Technology (ICT) are key future skills needed to deliver sustainable intensification and precision farming, particularly in the face of issues around food security and growing global populations."

The recent restructuring of, and continuing debate over, the provision of agricultural education within Scotland provides an opportune time to carry out a review of the structure and content of tertiary agricultural education courses, from apprenticeships to post graduate training, available within Scotland so as to be sure they are aligned with the current and future requirements of the industry.

Any review should also consider the provision of skills training in food science, food safety and meat technology as well as primary agriculture.

¹⁹ Agriculture, Forestry and Fishing; Sector Skills Assessment Report 2012 Z Breuer (2012) UK Commission on Employment Skills

While it is important that provision is in place to provide effective and relevant training and education it is also important that the content of courses incorporate the latest science and research.

Recommendation 12

Review the provision of tertiary education for those entering or working in the red meat supply chain from farm to fork.

Scottish Government Research Strategy



It is generally recognised that successful industries have the benefit of significant research and development budgets. Individual farm businesses do not have the resources to carry out research and development activities in their own right however, Scotland is fortunate to have a world leading livestock research community.

It is important for the future competitiveness of the Scottish beef industry that these resources continue to be available and that the results of relevant research are readily transferable to the Scottish beef industry.

Recommendation 13

The Scottish Government's rural affairs and the environment research strategy 2016 to 2020 must have the resource to maintain national and international capacity in ruminant livestock research.

The strategy should also contain sufficient resource to support work on animal health and welfare, sustainable intensification and strategies to optimise climate change mitigation and adaptation.

The research programme must be managed to maximise relevance and impact for the beef industry through comprehensive and effective knowledge exchange.

Maximising efficiency in the supply chain

Background discussion on improving the health status of the herd

The future shape of the Scottish red meat sector is dependent on security of and growth in cattle supply. Despite the continuation of a degree of decoupled support from the Common Agricultural Policy, the long term sustainability of the industry must be built on maximising efficiency and through that, margins.

Improving efficiency also brings benefits in terms of environmental sustainability, particularly reduced greenhouse gas emissions per kilogram of beef produced. Agriculture contributes significantly to greenhouse gas emissions and ruminants in particular account for around 20% of global methane emissions.

These emissions can be reduced by managing animals more efficiently, essentially reducing death, disease and lack of productivity. Areas that have been identified where significant improvements in livestock management can be made include breeding, nutrition and reducing endemic (or production) diseases in particular.

This is best achieved by "sustainable intensification". This means producing more food for humans from fewer natural resources, with less waste. It does not imply factory farming or solely large scale farming, and thus is applicable to all or most farming sectors – intensive indoor, outdoor breeding, mixed farming, crofting etc. It relies on the use of the most appropriate technologies and farmers being aware of the information available to best improve their efficiency.

Ruminants are generally less efficient than pigs and poultry when it comes to feed conversion, but they do turn an inedible matrix, grass, into a protein that humans can consume. The fact that 80% of Scotland's land is upland or hill grazing's means this valuable resource for food production can only be effectively utilised by the grazing of ruminants.

Infectious disease accounts for around a 17% loss in production in UK terms. Generally disease is preventable and it is therefore a good target for improvements - more food as outputs and less waste in inputs of time and costs.

There are a number of economically significant diseases and infections present in the Scottish beef herd the control of which would have immediate economic benefit to the industry.

Johne's Disease

Johne's disease is an infectious wasting condition of cattle which is closely related to the organism causing TB. Infection results in weight loss, reduced milk yield, infertility and early culling.

The disease is known world-wide and the incidence in the UK is increasing as herds become larger and stocking densities increase.

In 2002 the cost to the UK cattle industry was put at £13m per year or £16 per cow in a suckler herd with the presence of Johne's disease.

A survey of beef cattle in the United States showed beef cows infected with Johne's disease weaned calves 50 pounds (c.22Kg) lighter than normal herd mates.²⁰ Losses through Johne's disease were estimated by ADAS in 2012 to be over £4,000 per year for a suckler herd of 100 cows²¹.

Recommendation 14

Adopt an industry wide initiative to reduce and control Johne's disease.

Liver Fluke

Fluke infestation has escalated significantly in recent years, aided by prolonged wet weather in 2012 and 2013. Economic losses to the industry come through the downgrading or condemnation of livers, but also through poor animal performance, particularly growth rates.

Work by Sanchez-Vazquez and Lewis²² estimated the loss of carcase value through reduced weight, carcase fatness and confirmation as 0.3% but this did not account for the increase in time, and hence feed cost, taken to reach slaughter weight. The 2013 ADAS²³ report quotes work by Harbro Ltd. which showed liver fluke infestation can reduce growth rates extending the finishing period by some 27 days to achieve the same sale weight as non-affected cattle, or reducing carcase weights at sale. This resulted in an estimated loss of £90 per affected animal.

Fluke infestation also has a direct economic consequence on the meat processing link of the supply chain. The Food Standards Agency reported that during 2013 one-third of cattle killed in Scottish abattoirs had liver fluke. Condemnation of livers reduces their market value considerably such that at the current level of condemnations the slaughter industry is losing in excess of £0.25m per year from this loss in value of livers. There is therefore considerable economic gain to be achieved by reducing the level of liver fluke infestation among the Scottish beef industry.

Recommendation 15

Adopt an industry wide initiative for the reduction and control of liver fluke.

²⁰ <http://www.beefresearch.ca/research-topic.cfm/johnes-disease-51> Accessed 3 July 2014

²¹ <http://www.eblex.org.uk/wp/wp-content/uploads/2013/04/Economic-Impact-of-Health-Welfare-Final-Rpt-170413.pdf> Accessed 3 July 2014

²² Sanchez-Vazquez, M. J. & Lewis F. I. (2013) Investigating the impact of fasciolosis on cattle carcase performance. *Veterinary Parasitology* 193 307-311

²³ <http://www.eblex.org.uk/wp/wp-content/uploads/2013/04/Economic-Impact-of-Health-Welfare-Final-Rpt-170413.pdf> Accessed 3 July 2014

Herd Health Plans

Other significant diseases, including respiratory diseases and scours, also impact on the physical and financial performance for the primary producer. By working closely with the veterinary profession to develop and apply herd health and animal bio security plans the health status of the Scottish cattle herd can be improved.

The 2007-2013 SRDP plan included support for animal welfare by encouraging the preparation of animal health and welfare plans. However the real driver for change has to be the application of those plans on farm. To improve the use of, and demonstrate the value of, herd health plans will require short term support to encourage their uptake and provide evidence of implementation of the plan for the benefit of animal wellbeing and performance.

Recommendation 16

Develop a rewards programme for meeting objectives of herd welfare plans.

Support new entrants

Purchase of livestock and access to land

A thriving Scottish beef industry is one that is structured to allow entrepreneurial spirit to thrive. Establishing or expanding a beef enterprise is a capital intensive exercise. In recent discussions with new entrants and others, access to working capital for livestock purchase was identified as a constraint on business development as was assured medium term access to land. To overcome some of these constraints requires a new way of thinking with respect to facilitating business opportunities for enthusiastic individuals, young or old, who would like to enter the industry.

Access to Finance

Establishing or expanding a suckler cow enterprise is, as a consequence of the biological process of cattle breeding, a medium term venture. It requires considerable working capital to facilitate herd establishment or growth. Many new entrants, or young farmers taking over existing businesses, can find it hard to demonstrate a track record in support of their business plans. In these specific circumstances access to supported start up finance would be a welcome resource.

Recommendation 17

Provision should be made within the Scottish Rural Development Programme to allow investment support for livestock purchases made by new entrants to beef production.

While targeted assistance for livestock purchase is one mechanism, consideration should also be given to a dedicated medium term loan facility at preferential rates for new entrants to the industry to support the wider working capital requirements of a newly established business where more than two-thirds of the budgeted income of the business would come from a beef enterprise.

Access to land

Following from proposals contained in the latest reform of the CAP with respect to crop diversity, additional quantities of grassland may be required on some arable farm businesses. Consequently, with the loss of livestock husbandry skills in some of these situations, opportunities may develop for enthusiastic livestock farmers/new entrants to facilitate and manage a cattle enterprise on these holdings.

Recommendation 18

A consideration for the Industry working group identified in Recommendation 1 should be to devise a model agreement to facilitate share farming of beef cattle on arable holdings.

World leading producer technical efficiency

Benchmarking

Earlier in this report emphasis was placed on the need for an improved skills base and access to suitable knowledge transfer programmes. Comment was also made of the potential to collect animal information into a central database. To compliment these initiatives and maximise their benefit, the production sector would also benefit from easy access to benchmarking of individual technical and financial performance containing peer group averages with the objective of identifying the strengths and weaknesses of an individual business.

While selling price is important to determining enterprise financial viability so too are the costs of production. Consequently benchmarking tools should focus equally on maximising revenue from the market place and managing costs of production.

To maximise the benefit of a benchmarking initiative it is necessary for individual producers to have access to the resources to measure and capture the basic data need to support benchmarking.

Recommendation 19

Develop web based benchmarking tools for the beef industry.

Performance Monitoring

It is very difficult to meaningfully alter something, never mind improve it, if you cannot first accurately measure what you are looking to improve. Access to accurate weigh scale facilities for every beef farmer in Scotland should be the ambition of our sector.

These systems, once integrated into the normal cattle handling system coupled with EID tags and auto readers make for easy performance monitoring on many progressive Scottish beef farms.

The provision of mobile systems which could be operated by, for example, a new entrant as an extra income source, would deliver both the labour required to handle the animals and the facilities to carry out the weighing in one move. This would overcome the capital investment and labour provision barriers for smaller units.

Recommendation 20

Provide support for the infrastructure required to support data gathering and access to industry data and knowledge e.g. weigh crates, ICT, co-operative action.

World leading processor efficiencies

By product re-classification

Although the processing sector's largest challenge is the decline in livestock numbers over the past two decades, they have also faced additional costs in respect of regulatory requirements for the management of waste and specified risk materials in particular. This latter challenge has been slowly relaxed since 2006 but there remain a number of cattle by-products that face restricted sale or require costly disposal options.



Removing restrictions on these products, for example mesentery fat and bovine intestines, would offer immediate gains to the processing sector and reduce reliance on imports for example for haggis casings. Scottish industry estimates from 2012 put the loss of revenue due to the classification of mesentery fat as a specified risk material in the order of £1.5m per year and from bovine intestine in excess of £10m per year.

Recommendation 21

Work with the European commission to reclassify by product so as to reduce waste and increase value from the wider fifth quarter in the Scottish beef processing sector.

Improving the sustainability of the processing sector will also be dependent on minimising waste of all forms; for example, water, energy and refrigeration costs, and maximising the value of beef and its co-products, for example fifth quarter, hides, bones, blood etc.

Processors have recognised that cost savings or revenue gains can be made in respect of the above elements. However, notwithstanding the environmental gains that may arise and the wider benefits to efficiency the revenue gains are such that in many cases the payback period for the capital investment needed does not justify the level of expenditure required by businesses at the current time.

Recommendation 22

Provide investment support to encourage capital investment in new technologies that reduce or eliminate waste in the Scottish beef processing sector.

Improving access to technical knowledge

In developing this vision a wide range of measures to support and develop the supply chain have been identified. There is also a lot of work of both a research, advisory and consultancy nature currently being undertaken. One of the challenges identified for the producer is that this diversity of information is difficult to assimilate and access by many.

There is a role for an independent not- for- profit organisation to provide a single entry point for those seeking ideas and support to drive their business forward.

This organisation should act as a repository of information on a wide range of topics including details of all potential farm and industry support measures and recognised companies and individuals who have the relevant skills to support businesses through their development. The organisation would have at its core the objective of directing businesses to the best source of advice to improve planning and technical efficiency.

Recommendation 23

Establish a portal providing a single point contact to create a tailored business support package drawing on relevant technical expertise and funding.

Annex 1

Beef 2020 group response to Scottish Government consultation on the Scotland Rural Development Programme (SRDP) 2014-2020 Stage 2: Final Proposals

The potential for SRDP to support the development of a sustainable and resilient Scottish beef industry

SRDP options

The 2014 SRDP Consultation document lists 13 schemes for consideration. Some have only minimal potential to be of value to the beef industry, for example the Forestry Grant Scheme and LEADER. Some have overarching value, for example, Less Favoured Area Support, Broadband and Advice. Others have the potential to allow targeted assistance for the beef industry, for example, Food and Drink Support, Knowledge Transfer and Innovation Fund, New Entrants Scheme, Support for Co-operative action and Agri-Environment-Climate Scheme.

Although the SRDP budget is limited, the Beef 2020 group is clear that the proportion of the budgeting going to agriculture must not diminish and that the contribution to targeted measures for the beef industry must reflect, first, the sector's contribution to the wider agricultural and food economy and, second, the uncertainty it now faces.

Targeted assistance for the beef sector

Our priority has been to explore how the funds allocated within the SRDP to the areas of most interest to the beef sector can best be used to further the changes we are seeking.

Developing a resilient and sustainable beef sector will require businesses to achieve the highest levels of technical performance but also to deliver against market expectation. These gains can be achieved from a number of areas or actions including:

- Access to industry benchmark performance indicators;
- Use of high quality genetics;
- Reduction of on farm losses through high health standards and bio-security;
- Grassland maintenance and improvement;
- Crop and animal nutrition;
- Provision of equipment for example weigh crates and digital technology;
- Increased horizontal and/or vertical co-operation in the supply chain.

However, because of the low levels of return from the enterprises and the time taken for actions to deliver through the biological process of cattle breeding and rearing many businesses find it difficult to access the physical and intellectual capital needed to kick start a development programme incorporating the elements listed above. The group believe that three schemes within the SRDP offer potential to target support to encourage business advancement by offering seed corn funding namely:

- **Knowledge Transfer and Innovation Fund (KTIF)**
- **Agri-Environment-Climate Scheme**
- **Co-operative Action**

The key starting point for any business seeking to develop is to have access to key performance indicators at business and sector level to allow benchmarking of a business.

The Beef 2020 group believes that ScotEID can offer the basic infrastructure for a number of benchmarking databases to be established and accessed.

Consequently the group considers that the **Agri-Environment-Climate Scheme** could be used to develop innovative recording packages and provide incentives for beef farmers to deliver information to these physical benchmarking packages. Annex 2 describes one vision of what such a database should include. Such a package would have the objective of establishing industry benchmarks for physical performance which individual businesses could then access to better inform their decision making in relation to, for example, genetic selection.

While necessary actions can be identified from the databases and the knowledge exchange required to interpret and plan required actions could be supported by the KTIF fund described below, delivery of the actions could also be supported through the **Agri-Environment-Climate Scheme**. High levels of technical performance should also deliver not only against improved profitability and hence economic sustainability and resilience but also, in association with carcass and market feedback, improved market orientation.

The group considers that a suite of support designed to encourage genetic improvement, the use of animal health monitoring programmes, grassland renewal incorporating high sugar grasses and legumes, and capital investment could be provided under the **Agri-Environment-Climate Scheme**. We believe that support of this kind, along with an industry database will not only deliver against improved business profitability and hence economic sustainability and resilience but also help the beef industry to make a meaningful contribution towards the Scottish Government's climate change targets and obligations.

Although the group recognises the need for support to be paid on the evidence of action and outcomes, it would also urge a proportion of the support being made as seed capital. For example, staged payments could be used to support the use of improved genetics, some when the genetics are purchased and some when the product of that genetic is born or integrated into the herd.

To gain maximum benefit from the database would require knowledge exchange in respect of the science and technology of actions needed to improve performance. The **KTIF** could again play a significant part in this by supporting business improvement through help to facilitate groups of farmers working together to gain knowledge through, for example, the Monitor Farm model.

Physical benchmarking provides a significant starting point for business improvement; a second stage is to consider financial benchmarking. Levy bodies and government have limited resources to expand the coverage they currently have. However, suitably designed **knowledge exchange programmes**, for example of a monitor farm style, could be used to enhance the impact of financial benchmarking and depth of data available. We consider an indicative annual budget of £0.75m should be provided to support a beef sector development knowledge exchange programme with 1000 beneficiaries.

Other measures

The group has identified a further challenge of the beef supply chain as that of encouraging new entrants; both new farmers and new beef enterprises. In this regard the group supports the **New Entrants Scheme**, provided that a proportion of the funding available can be used to purchase livestock.

Much of Beef 2020's vision of the future is built on rapid access to information, advice and databases. This will be maximised by access to high speed digital communications and the group strongly supports the commitment of the SRDP to support high speed **broadband** access across the whole of the rural economy. Equally the group recognises the value of access to good quality **Advice**.

The success of a whole beef supply chain will also be influenced by innovation, efficiency and product development among the abattoir and processing sector. While several of the larger processors may not be eligible for support under the **Small Rural Business Scheme** on the grounds of scale, the group recognises that **Food and Drink Support** for processing, marketing and co-operation for food and drink can play a significant part in supporting innovation among meat businesses and help secure demand for beef animals and is supportive of the indicative budget allocation in the consultation document.

Co-operative action by groups of farmers, or innovation by farming accountants/consultants to benchmark groups of clients could also play a role in our vision. The Beef 2020 group therefore find it disappointing that the scheme identified in the SRDP consultation as **Support for Co-operative Action** appears to be targeted purely at "landscape scale projects" as we believe co-operative actions in support of business efficiency should also be recognised. Support for co-operative action would also be valuable seed corn funding to develop improved horizontal and/or vertical integration in the supply chain.

The Scottish beef industry is driven by production from suckler herds. Over 80% of suckler cows are found in the Less Favoured Areas and the group is fully supportive of the continuance of the **LFASS** programme and the budget proposed.

If these targeted and more general measures are to have maximum effect in achieving the transformational changes required they will need to be pulled together into a coherent and persuasive scheme for the sector. It will need to combine sufficiently attractive rates of support – ideally including both ring-fenced elements of the SRDP scheme listed above and additional support for the establishment of the crucial database – and a very clear understanding that we are looking to secure transformational change not a status quo.

The latter could mean two things; first, farmers will need to go beyond understanding their performance to taking tangible steps to improve it and second this support will only be available to those farmers – of whatever size – who by meeting some entry level requirements show they are committed to change. Other indispensable factors for the success of the package would be sufficient skilled facilitators/advisers to drive the change and the alignment behind the process of other funds such as Food Processing Marketing and Cooperation, Resource Efficient Scotland, European Structural Investment Funds. The group will report by June on these wider points.

Conclusion

In respect of the SRDP, the group:

- Notes the opportunity to introduce measures with help to both stem the decline in the herd and take the sector's performance to the next level in terms of resilience and sustainability;
- Believes that a key measure will be to make effective, carefully designed use in the beef sector of the Knowledge Transfer and Innovation Fund, the Agri-Environment_Climate scheme and the support for co-operative action;
- Recommends that Scottish Government indicates that of these schemes the beef sector will benefit from a proportion of the funds which reflects the sector's contribution to the wider agricultural and food economy;
- Believes that a beef improvement database along the lines of annex 2 is a necessary first step;
- Recommends that the new entrants scheme should allow funding for the purchase of livestock.

Annex 2

A potential beef industry resilience and development support package

Scottish beef improvement database

The central point for the entire program would be the establishment of a national cattle database and the ability to feedback information to farmers and their advisors. A suitable framework for integrating data from several sources e.g. Farmers, Markets, Abattoirs, Veterinary Surgeons, is required and ScotEID may be one such resource.

The farmer would receive a payment per animal registered with the database. The goal is to be able to start collecting information on the entire life cycle of animals. An entry level and advanced level scheme could be envisaged.

An entry level scheme would require producers to enter a basic level of information beyond the statutory requirement when a calf's birth is registered with the national cattle database. This extra data should at a minimum include information on the sire, dam temperament and calving ease. Further payments could be made at key times during the animal's life by providing for example 200 day weight, 400 day weight and slaughter weights and grades to whomsoever owns the animal at these key times. An enhanced level scheme could incorporate genetic (DNA) data and animal health data.

Beef Improvement Development Programme (KTIF)

A development programme could be envisaged where by producers come together into a knowledge exchange group. A necessary qualifying criterion would be enhanced level data recording and the package would include 4 days per year for three years of off farm knowledge exchange and planning based on the use of data from the national database at industry and business level and the latest scientific/technical developments.

Agri-Environment-Climate Measure for Productive Agriculture and the Environment

Complementary measures to support actions to improve business and environmental sustainability could include:

- Support for animal health monitoring including blood testing and disease eradication programmes with results submitted to the national database. This would improve animal health and animal efficiency leading to reduced carbon impact per kilogramme of beef produced.
- Support for capital investment in monitoring infrastructure, e.g. weigh crates, digital technology provided the information collected is shared with the national database or incorporated into business development plans.

Annex 3:

Delivering the Vision– An outline action plan

Concept needed to deliver vision	Action needed	Recommendation	Time frame	Leader	Funding
Improve market transparency	Encourage better market transparency from retailers and processors as to requirements and specifications	1. Industry representative bodies should establish a roundtable that meets every quarter to discuss the developing market situation and agrees common actions to communicate messages to the wider production base in respect of product specifications and market requirements. Once established this group, by drawing together representatives from across the beef supply chain, should take on a wider remit for reviewing, developing and guiding the delivery of a long term strategy for the Scottish Beef Industry.	January 2015	QMS	Market Driven Supply Chain Initiative
	Increase co-operation to establish market driven supply chains	2. SRDP should make provision to support the development of supply chain cooperation through producer organisations.	January 2015	Scottish Government	
	Improve producer pricing to better reward carcass value	3. Develop and pilot integrated collaborative supply chain protocols to meet specific new market opportunities.	December 2016	SAOS	SRDP
		4. Develop a system of deadweight payment which more accurately rewards the yield and value of the carcass.	December 2016	QMS	Industry resources

Concept needed to deliver vision	Action needed	Recommendation	Time frame	Leader	Funding
Maximise market access and brand awareness among target consumers internationally	Increase markets open to Scotch Beef	5. The Scottish Government must work closely with UK and global partners to facilitate maximum access to international markets.	Ongoing	Scottish Government	Scottish Government
	Market promotion and in market champions	6. QMS, Scotland Food and Drink, Scottish Development International and other agencies pool resources to maximise in-market presence to build global markets for Scotch beef and co-products.	Ongoing	QMS	Industry resources/Scot. Gov./European Commission
Strengthen product provenance	Develop niche market orientated supply chains for conquest markets ²⁴	(see also recommendation 3)			
	Establish a sustainability index	7. The Industry establishes a robust mechanism to demonstrate supply chain sustainability credentials that builds on and supports PGI and the quality assurance schemes.	December 2017	QMS	Industry resources
Integrated easily accessible database	Maintain PGI status				
	Product design	8. Develop an integrated and accessible ²⁵ database containing livestock traceability data, farm assurance status and non-financial information collected at various points in the animal's life including breeding information related to physical performance, carcass weight, grade and health status as well as downgrades.	December 2016	QMS	EU via Digital Scotland
	Adequate and appropriate computer hardware				

²⁴ Conquest market is a market in which Scotch beef has had no presence in the past

²⁵ Accessible means that all information associated with an animal should be accessible to all those who have owned that animal

Concept needed to deliver vision	Action needed	Recommendation	Time frame	Leader	Funding
Improve genetic potential of Scottish beef herd	Genomics database design with adequate and appropriate computer hardware	9. Encourage producers through financial incentives, to collect data to populate and develop a national integrated and accessible livestock breeding database incorporating genetic and productivity information.	December 2016	QMS	SRDP
Adopt full bovine electronic identification		10. Adopt a full Bovine EID system at the earliest possible opportunity	December 2016	Scottish Government	Scottish Government
Improve knowledge and skills base	Business improvement groups/discussion forums.	11. Increase access to, and financial support for those attending and contributing information to industry led knowledge transfer groups through the continuation and development of existing community led initiatives.	On going	QMS	SRDP
	Structured tertiary education including short courses	12. Review the provision of tertiary education for those entering or working in the red meat supply chain from farm to fork.	December 2016	Scottish Government	Scottish Government
	Demonstration units Maintain R&D base	13. The Scottish Government's rural affairs and the environment research strategy 2016 to 2021 must have the resource to maintain national and international capacity in ruminant livestock research. The strategy should also contain sufficient resource to support work on animal health and welfare, sustainable intensification and strategies to optimise climate change mitigation and adaptation. The research programme must be managed to maximise relevance and impact for the beef industry through comprehensive and effective knowledge exchange.	December 2015	Scottish Government	Scottish Government Research Councils European Commission Industry resources

Concept needed to deliver vision	Action needed	Recommendation	Time frame	Leader	Funding
Improve health status of herd	<p>Feedback health status information at slaughter</p> <p>Develop disease eradication plans</p> <p>Improve use and quality of herd health plans</p> <p>Knowledge exchange to engender willingness to improve health status</p>	<p>14. Adopt an industry wide initiative to reduce and control Johne's disease.</p> <p>15. Adopt an industry wide initiative for the reduction and control of liver fluke.</p> <p>(See also recommendations 9 and 19)</p> <p>16. Develop a rewards programme for meeting objectives of herd welfare plans.</p>	<p>December 2015</p> <p>December 2015</p> <p>May 2015</p>	<p>QMS and Veterinary profession</p> <p>Scottish Government</p>	<p>SRDP/Industry resources</p> <p>SRDP</p>
Support new entrants	<p>Improve access to medium term loan facilities</p> <p>Develop share farmer options</p> <p>Improve assured access to land</p>	<p>17. Provision should be made within SRDP to allow investment in livestock purchases made by new entrants to beef production. While targeted assistance for livestock purchase is one mechanism, consideration should also be given to a dedicated medium term loan facility at preferential rates for new entrants to the industry to support the wider working capital requirements of a newly established business where more than two-thirds of the budgeted income of the business would come from a beef enterprise.</p> <p>18. Devise a model agreement to facilitate share farming of livestock on arable holdings.</p>	<p>May 2015</p> <p>December 2015</p>	<p>Scottish Government</p> <p>QMS</p>	<p>SRDP</p>

Concept needed to deliver vision	Action needed	Recommendation	Time frame	Leader	Funding
World leading producer technical efficiency	Engender desire for producers to make greater use of industry physical and financial benchmarking	19. Develop web based benchmarking tools for the beef industry.	December 2016	QMS	Industry resources
	Knowledge exchange to encourage uptake of R&D and industry best practice Technology investment support Innovative research and development	20. Provide support for the infrastructure required to support data gathering and access to industry data and knowledge e.g. weigh crates, ICT, co-operative action. (See also recommendations 11 and 13)	December 2016	QMS	SRDP
World leading processor efficiencies	Technology investment support	21. Work with European Commission to reclassify by product so as to reduce waste and increase value from the wider fifth quarter in the Scottish beef processing sector	December 2016	SAMW	Resource efficient Scotland
	Innovative research and development Integrated supply chains	22. Provide investment support to encourage capital investment in new technologies that reduce or eliminate waste in the Scottish beef processing sector.	December 2015	Scottish Government	Scottish Government
Improved access to technical knowledge		23. Establish a portal providing a single point contact to create a tailored business support package drawing on relevant technical expertise and funding	December 2015	QMS	Scottish Government



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