Identifying opportunities to maximise value and reduce waste in red meat processing in Wales

Hybu Cig Cymru
Meat Promotion Wales

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About WRAP

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This document provides the supporting evidence and analysis:
Identifying opportunities to maximise value and reduce waste in red meat processing in Wales.

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Executive summary

This project 'Identifying opportunities to maximise value and reduce waste in red meat processing in Wales' was conducted by Waste and Resources Action Programme (WRAP) Cymru, Hybu Cig Cymru / Meat Promotion Wales and Paul Bache Consultancy Ltd.

Reducing waste and making better use of by-products within the meat supply chain can reduce the sector's environmental impact and benefit business efficiency practices. Reviewing meat processing and waste management on a site by site basis could identify opportunities that can enhance on site efficiencies, reduce waste and assist with business margins. This includes maximising carcase utilisation and possibly identifying areas for new product development.

Four small and medium sized abattoirs were selected to participate in this project. A review in the form of a questionnaire was undertaken of the current destinations (and volumes) of red meat products and by-products and of wastes from those processors.

Key findings

- The SME abattoirs questioned were well established, small family businesses. The four abattoirs although located in different areas had similar challenges.
- The majority of meat products produced at the four selected abattoirs in Wales, were destined for the UK market.
- All Category 1 animal by-products were rendered by two major companies.
- Category 2 waste was either put in the Category 1 bin or used as fertiliser.
- Some valorisation of Category 3 animal by-products was observed within the group by using pet food companies, or further processing products through anaerobic digestion.
- Two abattoirs were adding value to the carcase by using sub-contractors to extract edible co-products (sausage casings) from material that would have been going into Category 3 waste.

Future development opportunities

Opportunities to reduce waste/ improve efficiency within the industry include:

- Recording and reviewing on-site waste management (by carrying out an internal cost based exercise);
- Developing ways to decrease the amount of material being sent off site as Category 1 or Category 3 waste;
- Training staff to understand the importance of waste and the associated cost to the business with waste disposal;
- Researching other (novel) animal by-product markets;
- Collaborating with animal by-product companies (e.g. pet food), or collaborating with other SME abattoirs in the region to add to the economies of scale of the business. By creating a larger resource, this could attract other larger companies to tender for work.

The results of this project are based on a small cohort of abattoirs and more research could be carried out to fully understand current practices of abattoir waste on a wider scale. However the project has also identified further research opportunities to valorise/ process animal by-products and edible co-products and develop markets in this area.

Glossary

Acronyms	Explanation
APHA	Animal and Plant Health Agency
ABPs	Animal By-Products
ECoPs	Edible co-Products
EC	European Commission
EU	European Union
FBO	Food Business Operator
FSA	Food Standards Agency
HACCP	Hazard Analysis and Critical Control Point
SMEs	Small and Medium Enterprises
OTM	Over Thirty Month
PAP	Processed Animal Proteins
SOP	Standard Operating Procedure
TSE	Transmissible Spongiform Encephalopathy
UTM	Under Thirty Month
UK	United Kingdom
YBIF	Your Business is Food

Acknowledgements

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Contents

1.0 Introduction

Reducing/processing waste within the supply chain can reduce the industry's environmental impact and benefit business efficiency practices. It is estimated that approximately 10 million tonnes of food is wasted in the UK annually, which equates to a value of over £17 billion a year and is is responsible for 20 million tonnes of greenhouse gas (GHG) emissions (WRAP, 2017). Little research has previously been carried out in the area of meat plant resource and waste management especially in small and medium enterprises (SME). Reviewing meat processing and waste management on a site by site basis could identify opportunities that can enhance abattoir efficiencies, reduce waste and assist with business margins. This includes maximising carcase utilisation and new product development.

This project therefore seeks to explore the potential to further reduce food waste and valorise unavoidable waste in red meat processing in Wales.

1.1 Objectives

This study aimed to:

- Understand the current destinations for red meat products and by-products from micro small and medium sized abattoirs located across Wales;
- Identify short and longer term opportunities to improve efficiency, maximise carcase use and reduce the disposal of by-products;
- Highlight opportunities that warrant further investigation for the potential valorisation of unavoidable wastes;
- Provide recommendations to adapt the Your Business is Food materials and tools so that they are fit for purpose for the red meat processing sector.

1.2 Methodology

A questionnaire was undertaken at four abattoirs to review the current destinations (and volumes) of red meat products and by-products and of unavoidable wastes from those processors. This questionnaire was designed to better understand the barriers that currently exist which prevent these businesses from being able to further maximise carcase use.

2.0 Current destinations for red meat products and animal by-products (ABPs)

The process of slaughtering animals is strictly regulated and controlled. This is to ensure that animals are protected prior to and during slaughter and that all meat produced is safe for human consumption. Animal by-products are products of animal origin that are not intended for human consumption (DEFRA, 2014). In addition any animal by-products are dealt with safely and comply with current legislation.

This project **'Identifying opportunities to maximise value and reduce waste in red meat processing in Wales'** was carried out to identify the current waste controls in typical Welsh abattoirs and to assess the potential of further valorisation which could be introduced to reduce waste.

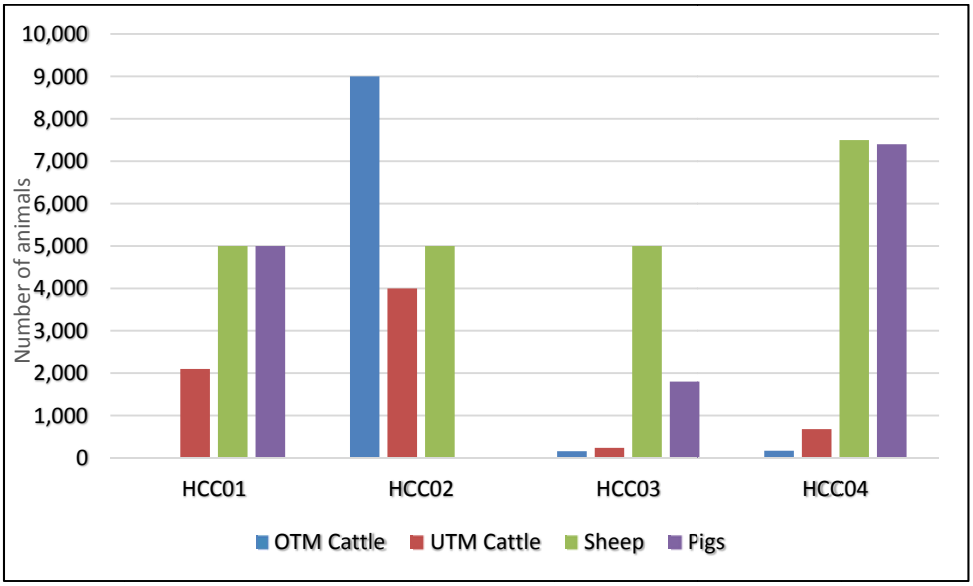
There are 16 plants operating in Wales (Table 1), of which four participated in this project. Each of the participating meat plants slaughter cattle [including Over Thirty Month (OTM) and Under Thirty Month (UTM) cattle] and sheep. Three abattoirs also slaughtered pigs. All abattoirs listed in Table 1. are categorised as Small and Medium Enterprises (SMEs; see definition of SME in the Appendix 2.0). Throughput figures for the four selected plants are presented in Figure 1. These plants are anonymised for the project due to confidentiality reasons. In addition to the 16 plants listed below there are currently three abattoirs operating in Wales which would be classified as Large Enterprises.

Table 1. Small and Medium Enterprises (SMEs) of red meat abattoirs in Wales (Food Standards Agency data, January 2018)

Trading Name	Town	County	Activity
Cig Calon Cymru	Cross Hands	Carmarthenshire	SH CP
Cig Oen Caron	Tregaron	Ceredigion	SH CP
Conwy Valley Meats Ltd	Llanrwst	Gwynedd	SH CP
D & J Thomas	Wrexham	Clwyd	SH
D. T. Havard	Caerphilly	Mid Glamorgan	SH CP
E Roberts And Sons	Blaenau Ffestiniog	Gwynedd	SH CP
E. T. Jones Sons & Daughter	Holyhead	Gwynedd	SH
Fairfield Meat Company Limited	Wrexham	Clwyd	SH CP
G. R. Evans & Co	Corwen	Denbighshire	SH CP
Hugh Phillips Gower Butcher	Swansea	West Glamorgan	SH CP
J Williams & Co	Denbigh	Clwyd	SH CP
Jones Brothers	Wrexham	Clwyd	SH CP
Maddock Kembery Meats	Maesteg	Mid Glamorgan	SH CP
W. A. James Butchers	Raglan	Monmouthshire	SH CP
W. J. George (Butchers) Limited	Brecon	Powys	SH
William Lloyd Williams And Son	Machynlleth	Powys	SH CP

Plants listed in alphabetical order. Key: SH – Slaughter House, CP – Cutting Plant

Figure 1. Approximate annual throughput of project plants



2.1 Destination of edible meat products

The participating meat plants have a variety of customers including:

- Contract slaughter (these are contracted kills for wholesalers or butchers etc.)
- Wholesale raw meat; (selling whole carcases or primal cuts that have been subject to ante and post-mortem inspection),
- Private slaughter; (selling meat for the producer's own supply)
- Co-located Approved Cutting Plant / Retail Shop (an approved slaughterhouse, cutting plant co-located with a meat establishment near/on site).

The majority of meat products produced at the four selected SMEs in Wales, were destined for the United Kingdom (UK) market. The largest of the participating meat plants also exported fresh meat to the European Union (EU); mainly Ireland and Holland which would then be further processed. Meat yield was measured as carcase weights at all abattoirs.

2.2 Waste

All participating abattoirs were measuring waste by volume (number of bins). The largest sized abattoir of the group kept waste records on a per animal basis. Staff training and clear identification of waste streams were key procedures at all abattoirs for waste segregation. There were very few rejected animals and this was mainly due to health reasons.

All the meat plants recorded small amounts of inorganic waste such as plastic and non-hazardous waste such as cardboard; on average 2 x 400 litre bins a week per business.

The abattoirs questioned did not wrap whole carcase meat, however meat products are boxed and covered in re-usable plastic trays when transported which are returned to the abattoir. Thus, the amount of plastic waste generated by a meat plant SME was low.

The main waste in a slaughterhouse is the handling and disposal of animal by-products, which are regulated by a number of pieces of legislation including:

- (EC) 1069/2009
- (EC) 142/2011
- The Animal By-Products (Enforcement) (England) Regulations 2013 SI No 2952/2013
- The Animal By-Products (Enforcement) (Wales) Regulations 2014 SI No 2014/517 (W60)
- Regulation (EC) 852/2004
- Regulation (EC) 854/2004
- Regulation (EC) 853/2004

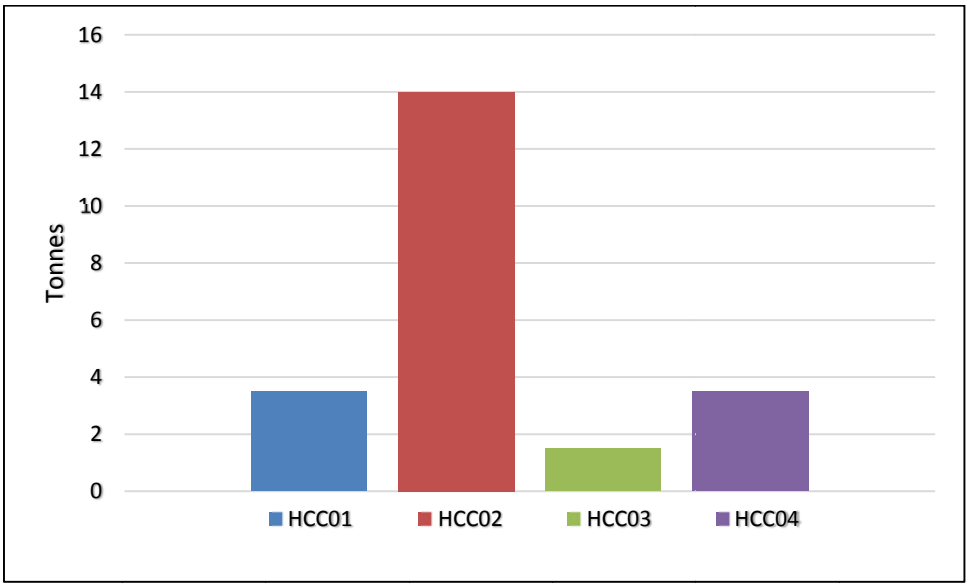
These animal by-products (ABPs) are separated into Category 1, Category 2 and Category 3.

Category 1 ABPs are classed as high risk. They include:

- carcasses and all body parts of animals which are suspected of being infected with transmissible Spongiform encephalopathy (TSE);
- Specified Risk Material (SRM), are body parts that pose a particular disease risk, *e.g.* cows' spinal cords.

Abattoir HCC02, had a low amount of Category 1 waste. HCC03 and HCC04 were unable to determine the amount of Category 1 waste as Category 2 waste was added to the same bins to be collected as Category 1 waste.

Figure 2. Annual amount of Category 1 ABP generated by project plants



Category 2 ABPs are classed as medium risk. They include:

- animals rejected from abattoirs due to having infectious diseases
- carcasses containing residues from authorised treatments
- carcasses of animals killed for disease control purposes
- carcasses of dead livestock
- manure
- digestive tract content

HCC03 and HCC04 put Category 2 ABP into the Category 1 waste bins, as the staff/time cost to separate was not viewed as cost-effective. In one of the project abattoirs Category 2 manure and gut content was spread on the owner's farm land as fertiliser. One abattoir was sending their Category 2 waste to an anaerobic digestion (AD) plant.

Rejects or any waste problems were communicated to the main waste advisor (often in the small abattoirs it was the main business owner). The main reasons outlined by the four abattoirs for rejects or waste include livestock being fully fed at slaughter (this can lead to gut spillage during evisceration and so parts of the carcase needing to be disposed of) and occasionally anaemic or arthritic livestock. Livers were sometimes rejected due to liver fluke problems.

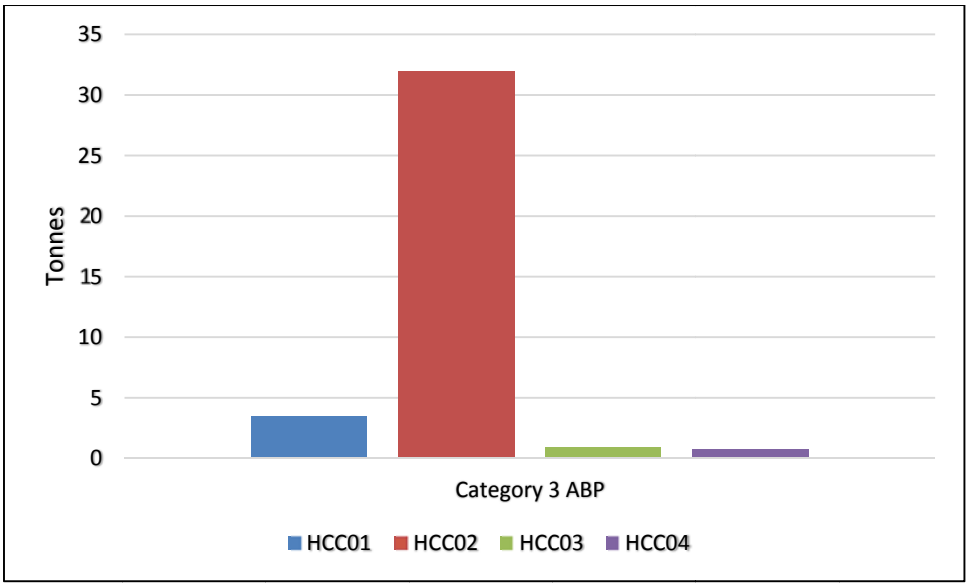
All abattoirs said that not many animals needed additional cleaning or clipping and two abattoirs said that if they do need clipping then they ask the farmer to do it or charge the farmer £25/sheep for this service.

Category 3 ABPs are classed as low risk. They include:

- carcasses or body parts not passed fit for humans to eat, at a slaughterhouse
- products or foods of animal origin originally meant for human consumption but withdrawn for commercial reasons, (not because it is unfit to eat)
- animal hides, skins, hooves, feathers, wool, horns, and hair that had no signs of infectious disease at death
- processed animal proteins (PAP)

All abattoirs in the study commented that the selling price for hides and skins has reduced significantly, consequently in some meat plants these are collected as Category 3 waste. E.g. HCC01 used to receive £5 to £6 per skin but are now paying £0.70 for skin removal. Blood was collected by all abattoirs and was sent off as Category 3 waste. Figure 3 shows the annual amount of Category 3 waste was high for HCC02. This highlights the different activities, volume and species across these abattoirs.

Figure 3. Annual amount of Category 3 ABP generated by project plants



2.3 Destination of ABPs

Ewe/cow skulls, mesenteric products, SRM, pig hair, waste from the floor were products that the abattoirs put in the Category 1 waste stream. Other items listed as being placed in the Category 1 bin included blood, gut content and hides. The abattoirs questioned said that the following products were placed in the Category 3 bins, bones, trim, fat, cow jaws, pig intestines, feet, lamb heads and paunches.

In the four project meat plants:

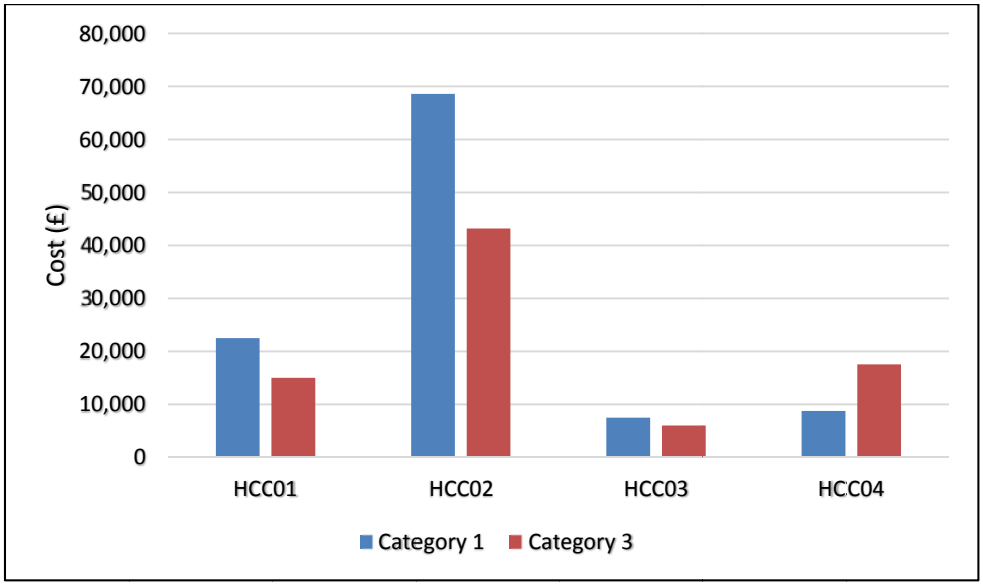
- Category 1 ABP was collected by two large rendering companies, SecAnim (Widnes) and John Pointon & Sons (Staffordshire).
- Category 3 ABP was collected by the same companies that collected Category 1. These categories would be processed differently.
- Two participating meat plants supplied pet food companies with Category 3 ABP (e.g. lungs may be used as pet food).
- One of the abattoirs did export Category 3 to Ireland and Holland, however this export may be affected when the UK leaves the EU. This waste export market is not practical for the majority of Welsh SMEs due to business economies of scale.

2.4 Cost of ABP collection in the project meat plants

The annual cost of Category 1 and 3 waste varied depending on throughput and location (Figure 4). The average cost for Category 1 collection across the group was £130/tonne.

The average cost for Category 3 collection across the group was £55/tonne, although there was a high variation in price from £10/tonne and £135/tonne.

Figure 4. Annual cost of Category 1 and Category 3 waste collection



2.5 Training for segregation into Categories

At each abattoir, staff were given training on how to segregate the categories of waste; and bins were clearly labelled and colour coded. At abattoir HCC02, waste KPIs were incentivised throughout the abattoir and were communicated as being an important business issue. HCC02 mentioned that waste volume and costs had been reduced overtime since measuring waste KPIs.

2.6 Edible Co-Products (ECoPs)

ECoPs are parts of an animal that can be processed for use in human food, e.g. hides and skins processed into gelatine and collagen, sheep intestines processed into sausage casings, and stomach (omental) fat processed into lard (FSA, 2018).

ECoPs are categorised as:

1. Rendered animal fats and greaves;
2. Treated stomachs, bladders and intestines;
3. Gelatine;
4. Collagen.

The business case to add value to the carcase is often determined by the volume of products produced, allowing for economies of scale within the business and also having dedicated, trained staff and Regulation Approval to process edible co-products.

The majority of abattoirs in Wales are SMEs and will not have dedicated staff, or time to process their fifth quarter product, however two of the meat plants (HCC03 and HCC04) employed a third-party/sub-contractor to arrange for the cleaning and use of ECoPs which may be further processed e.g. using intestines as sausage casings. This third-party company which manages the gut room on the abattoir site, separates the higher value ECoPs from the Category 3 ABP and sells these to

ABP processors. Currently there are no independently approved businesses to further process ECoPs in Wales, therefore all ECoPs are transported and processed in England.

3.0 Short and longer term opportunities to improve efficiency, maximise carcase use and reduce the disposal of by-products

There are many opportunities for SME Welsh abattoirs to improve their business through their management of animal by-products.

3.1 Training in small family business - Most of the SME abattoirs questioned were well established, small family businesses and as such there are training opportunities that can be added to techniques and business information that are usually passed down the generations. There are opportunities to develop a best practice approach with industry guidance.

There is an opportunity train staff about techniques to reduce waste e.g. abattoir HCC01 identified that training by a highly skilled butcher may improve techniques to reduce meat/fat waste. Training on the guidelines for which products can go into each category bin would also be beneficial to the industry and assist in the reducing food waste. The benefit with training members of staff is that there is not a high turn-around and when practices are adopted they can have a long term impact.

3.2 Well established businesses linked within the community - Three of the selected businesses were well established (often being on site for decades) and all were located in built up areas. This can lead to the abattoir infrastructure being difficult to modernise/scale up. Often neighbouring residents/businesses have to be considered alongside business management decisions (e.g. frequent collection of waste due to potential odour problems). These close neighbour relationships could be utilised and promoted further and could be developed into providing additional local custom, services or even the creation of business contacts or networks e.g. abattoirs collaborating with local pet food businesses.

3.3 Collaboration - Due to the small size of the businesses within this study there are some challenges around economies of scale. Sometimes due to the low number of animals slaughtered by an SME, it often is more cost effective to process Category 2 as Category 1 and for edible co-products to be disposed of as waste There are opportunities for smaller businesses to collaborate together and manage animal by-products, edible co-products or waste as a regional collective group in order to achieve some business advantages.

3.4 Rendering companies - There were few Category 1 waste companies in the industry, potentially leading to less competitiveness in this sector. This is due to high legislation compliance required in this area (due to food safety risk). Category 1 waste has to be processed by an approved waste contractor. Waste disposal costs have increased over the years. Every Welsh SME abattoir in the study was concerned that the cost of waste disposal has increased. The

location of the Category 1 waste companies used by the group were based in central/ North England, this means that there were higher transport costs depending on the location of the SME abattoir. There is an opportunity identified for a collective of abattoirs to form a rendering company based in Wales.

3.5 Equipment for ECoPs - There is an option to process ABPs on-site but the processing technology can be expensive to install and the sale price for these ECoPs is low. Currently the practice of separating ECoPs (casings) from Category 3 waste was carried out by two SMEs, using a third party. This appeared to be a cost effective, however the availability of these services was based on location and business contacts. This highlighted an opportunity for smaller businesses to collaborate as regional cluster groups to process ECoPs.

3.6 Benchmarking on-site waste - Every participating site had records of waste removal and were measuring waste by volume (based on number of bins), however these records were only reviewed on a weekly basis rather than a monthly or annual basis. Recording and reviewing the volume and cost of waste/animal by-products removal would determine the baseline, the costs associated with waste disposal and identify any key areas for business improvement. Three abattoirs were recording the number of bins by paper invoices. There is an opportunity for waste records to be electronically recorded (possibly by the rendering companies) and waste volume records could be fed back to the abattoirs rather than using a paper format.

One challenge to be aware of is when a site is slaughtering multiple species this waste is combined, and so individual species data is not currently available. A suggestion would be for industry representatives to work with the waste companies and abattoirs to develop a programme where waste records are easily recorded, are accessible and can be reviewed more frequently to highlight areas for business waste reduction and better categorisation. These benchmarks need to be on a per animal basis and could be compared against reference benchmarks year on year to observe trends and improvements. The largest sized abattoir of the group kept waste records on a per animal basis. It was suggested that monitoring waste was a priority for those abattoirs that supply the larger retailers or export market rather than wholesale or on-site small scale retail. These key performance indicators (KPI's) were an effective way to monitor waste as demonstrated at HCC02.

3.7 Tools for communicating waste issues

Waste KPI's could be used as a communication tool throughout the whole business, thus offering a way to engage the staff in waste reduction and a way for everyone to input their ideas on how to reduce waste and add economic value to the carcase. Other quick win ideas include communicating waste issues on site via walkie talkies, reviewing what and why items are put into

the waste bins and researching if there are other ways this waste could be used. This could be done in the form of a one-off exercise using Your Business Is Food materials.

3.8 Valorisation of animal by-products - There is the opportunity to work with local businesses to further utilise food waste and animal by-products in the industry. As demonstrated in this study, two abattoirs were processing Category 3 waste for pet food (HCC01 and HCC03), or Category 2 and 3 waste for energy production via anaerobic digestion (HCC02). This process would create long term benefits for developing local/regional business links and animal by-product markets and potentially create additional revenue for abattoirs rather than paying for waste removal.

Possible methods of animal by-products valorisation being explored were:

1) **Pet Food**

Category 3 waste may be further processed by using animal organs or meat and fat deemed not for human consumption, however pet food processing should be carried out off site and/or by a separate company:

- Raw pet-food production is regulated by the European Animal By-Products regulation (EC1069/2009) with detailed rules in an implementing Regulation (EC 142/2011) and which sets out strict production and monitoring standards.
- Raw pet food producers are subject to strict controls and are approved and inspected by the Animal and Plant Health Agency (APHA) under the above regulations.
- There is a requirement for regular microbiological testing for Salmonella and Enterobacteriaceae. When findings demonstrate microbial levels above those stipulated in the regulation, rapid action is taken to address this non-compliance including recall of product where appropriate.
- The Food Business Operator will require written Standard Operating Protocols (SOPs), staff and time to process pet food. This process would pose an additional problem for SMEs. Therefore, unless large quantities are going to be processed it is unlikely that it will be a viable option.

2) **Anaerobic Digestion (AD) waste plants**

Abattoirs could use local AD plants for some waste streams once waste minimisation has been implemented and rendering options have been exhausted. While this would divert the category 2/3 waste from disposal routes there are some challenges which include:

- the Food Business Operator (FBO) may need to arrange for collection which may be cost prohibitive;
- timing and regulation of waste collection could be challenging
- AD plants are only permitted to process Category 2 and 3. consequently Category 1 will still need collection from a waste processing business.

3) **Novel products**

   There is on-going research into novel products that could be made from ABPs. This includes extracting proteins/peptides from blood, extracting volatile fatty acids or producing chemicals for the pharmaceutical industry.

3.9 Animal By-Product export market - There could be future opportunities to collaborate Welsh SMEs for animal by-product export through improved economies of scale. If products were regionally grouped it may create a better market position, thus a better price could be pursued. Additionally, if the price for animal by-products was higher it would justify further promotion of best practices to get high quality animal by-products and reduce the volume of waste generated.

It should be noted that the competitive nature of SMEs may be a challenge to overcome in this sector. Some abattoirs might be concerned that sharing information could be detrimental to their business. It is important to build confidence in this sector and demonstrate that sharing knowledge and collaborating in a pre-competitive space is achievable and could help businesses to grow and thrive. The business advantage that comes from working together is often mutual and can help to create new jobs, develop skillsets and even create new start up companies. There are currently numerous funding streams in Wales to help businesses collaborate more and to improve their efficiency.

3.10 Increased industry awareness of preventative health issues and cleanliness – it was noted that animals with health issues led to increased waste and condemnations within the supply chain (e.g. liver fluke). Some of these diseases are preventable and not only does this have an economic impact on the farmer (where decreased growth rate can mean reduced efficiency and increased costs) but also at the abattoir as they have to pay for the disposal of diseased/unclean materials. The red meat industry aims to promote a clean livestock policy which helps to increase shelf life due to limited microbial contamination and therefore reduce waste.

4.0 Your Business is Food resources

During the project the Your Business is Food resources were shared with participating abattoirs with a view to assess their potential usefulness. Suggestions on possible improvements that could be incorporated to ensure the materials' relevance to SME red meat abattoirs were also sought. Two of the plants were interested in the Your Business is Food documents and stated that they may be used for staff training purposes and also using the materials as a one off internal project to review current performance. It was also stated at three sites that simple, clear documents are best suited for the meat food industry.

It was stated that some larger abattoirs will have the framework in place to complete the Your Business is Food resources and it may be used to demonstrate an awareness of waste management to a third-party auditor and/or customer. An SME however will not have the same incentive to complete additional documentation which is not a legal requirement.

It would perhaps help the industry to develop some simplified Your Business is Food resources and incorporate this into a diary record that is either paper based or on-line. Feedback has been provided to WRAP separately to this report.

5.0 Conclusion

Over half of an animal's liveweight is considered to be animal by-product (MLC Service Ltd), thus emphasizing the importance of industry wide development in this area. The aim of the project was to establish current destinations for red meat products and by-products from four micro small and medium sized abattoirs located across Wales. The majority of meat products were destined for the UK market. All participating abattoirs measured waste by volume (number of bins). The largest sized abattoir recorded waste volumes on a per animal basis.

All Category 1 animal by-products were rendered by two major companies. Category 2 waste was either put in the Category 1 bin, used as fertiliser or sent to an AD Plant. Some valorisation of Category 3 animal by-products was observed within the group by using pet food companies. Two abattoirs were adding value to the carcase by using sub-contractors to extract edible co-products (sausage casings) from material that would have been going into Category 3 waste.

The Your Business is Food resources were assessed and it was deemed that if a simple tool was used, it could help to determine inefficiencies within the abattoir and lead to implementation of changes within the business to reduce waste and costs.

The four abattoirs used in this study demonstrated some good industry practrice with a range of different methods being used to enable them to maximize carcase value. Opportunities within the industry include:

- Understanding on-site waste volumes and developing ways to decrease the amount being sent off as Category 1 or Category 3 waste.
- Training staff to understand the importance of waste and the associated cost of waste disposal (including training on which products belong in each category).
- Researching other (novel) animal by-product markets.
- Collaborating with other SME abattoirs, or animal by-product companies, and promoting best industry practice in order to reduce waste and add value to the supply chain.

The four abattoirs although located in different regions in Wales had similar challenges. Some key food industry recommendations are to:

- Provide training on food waste prevention and training for the agricultural industry on animal health issues.
- Benchmark on-site waste and communicate findings throughout the abattoir to ensure buy in from all staff.
- Establish business collaboration links (with other abattoirs and/or companies linked to waste valorisation e.g. pet food valorisation).
- Potentially employ an external contractor to process Edible Co-Products to add value to the carcase.

Another recommendation is to explore funding streams to support opportunities identified within this study, especially for developing SME business growth. It is recommended that businesses explore and develop regional opportunities for valorisation of animal by-products and edible co-products and markets. This study has identified the current opportunities to reduce waste, maximise carcase value and strengthen the red meat supply chains.

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Appendix 1

7.1 SME Waste Abattoir Review

IDENTIFYING OPPORTUNITIES TO MAXIMISE VALUE AND REDUCE WASTE IN RED MEAT PROCESSING IN WALES

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PILOT STUDY OVERVIEW

The Small and medium-sized enterprises (SME) Meat Plant Waste Review consists of:

Overview of SME – including overview of business type, throughput, customers etc.

Q1: Abattoir Throughput

1.1 Number and species of animals slaughtered

1.2 Quantity of meat sold

1.3 Meat yield measures

Q2: Animal By-Products (ABP)

2.1 Quantity of ABP collected in the previous month

2.2 Associated cost of ABP disposal

2.3 What products do you put in the following categories?

2.4 Waste procedures

2.5 Waste measures

2.6 Reasons for rejects/waste

2.7 Current ABP controls to reduce waste

Q3: New Product Development (NPD) and valorisation

3.1 Does the Food Business Operator (FBO) dispose of waste that could be further processed? e.g. rendering/pet food processes.

3.2 Is FBO willing to investigate NPD to optimise product use?

Q4: External barriers

4.1 To what extent does the location of the business impact on waste removal cost e.g. distance and frequency of waste collection?

4.2 What percentage of animals received require cleaning/clipping? (CLP)

4.3 Can this be improved/reduced e.g. local processing?

Q5: Inorganic waste disposal

5.1 Annual quantity/type of inorganic waste e.g. plastic

5.2 How is inorganic waste disposed of?

Q6: General non-hazardous waste disposal

6.1 Annual quantity/type of non-hazardous waste e.g. cardboard/paper

6.2 How is non-hazardous waste disposed of?

Q7: Future

7.1 What actions are you going to implement to reduce food waste/cost in the short term/long term?

7.2 What further information on waste would benefit the meat plant in the future?

WASTE REVIEW						
DATE OF VISIT:						
BUSINESS NAME:						
ACCREDITATION (Protected Geographical Indication - PGI, British Retail Consortium - BRC etc):						
BUSINESS TYPE:						
APPROVAL NUMBER:						
PRODUCT PROCESSED:	**BEEF**		**LAMB**		**PORK**	
OTHER:						

PROCESSES CARRIED OUT ON SITE			
WHOLE SALE		**RETAIL**	
SLAUGHTER		**REMOVING BONE**	
COOKING		**BURGER/ SAUSAGE MANUFACTURING**	
VACUUM PACKING (Temp)			
OTHER:		**MINCING**	

CUSTOMER SECTOR	**YES**
RETAIL BUTCHERS	
LOCAL STORE	
MANUFACTURER	
SCHOOL	
HOSPITAL	
CARE HOME	
MAJOR RETAILER/ SUPERMARKET	
OTHER?	

MANAGEMENT RESPONSIBILTY	
Who has overall responsibility for the day to day running of the business?	
Position	
Who is responsible for waste handling/removal?	
Position	

WASTE ADVISOR		
Name: Contact Phone: Contact E-mail:		

No	Subject	
Q1	**Abattoir throughput:**	
	Applicable? Yes/No	1.1 Number and species of animals slaughtered annually Cattle: _____ Age: _____ Lamb/Sheep: _____ Pig _____ Other: _____
		1.2 Quantity of meat sold (kg/tonnes) including Time Period (e.g. monthly/annually) Mince <2 tonnes: _____ Period _____ Mince >2 tonnes: _____ Period _____ Beef: _____ Period _____ Lamb/sheep: _____ Period _____ Pork: _____ Period _____ Co-Product/ Offal (please specify): _____ Period _____
		1.3 How do you track meat yield in your business? What is tracked and how often (e.g. carcase weight/primal weight)? Do you have any Key Performance Indicators on yield?
Q2	**Animal by-products**	
		2.1 Quantity of ABP collected in the previous month: Cat.1 (including residual material caught in drains) Collected by: Destination:
		Cat.2. Collected by: Destination:
		Cat.3. Collected by: Destination:

		2.2 Annual associated cost of ABP disposal: Cat.1: _____ Cat.2: _____ Cat.3:
		2.3 What products do you put in the following categories?: (write down any information/ estimates on volume)
		Cat 1:
		Cat 2:
		Cat 3:
		2.4 Do you have any review/control procedures to ensure the correct waste is in the correct bin? (verbal instruction/signage etc.)
		2.5 How do you track waste in your business? What is tracked and how often (e.g. number of bins, bin weight, material weight etc)? Do you have any Key Performance Indicators on waste?
		2.6 Identified reasons for rejects/waste, including whole carcases and animal by-product.
		2.7 Current ABP controls to reduce waste: Present controls can include e.g. processing 'runners', processing Cat. 3 as pet food, etc.

Q3	**New Product Development (NPD) and valorisation**	
		3.1 Does the FBO dispose of material that could be further processed? e.g. rendering/pet food processes.
		3.2 Is the FBO interested in investigating NPD options to optimise product use? If Yes, what options have been researched?
Q4	**External barriers**	
		4.1 To what extent does the location of the business impact on waste removal cost e.g. distance and frequency of waste collection?
		4.2 What percentage of animals received require cleaning/ clipping? (CLP)
		4.3 Are there any other external barriers to reducing waste i.e. staff training etc?
Q5	**Inorganic waste disposal**	
		5.1 Annual quantity/type of inorganic waste e.g. plastic
		5.2 How is inorganic waste disposed of? Please state what company is used and how often are they removed?

Q6	General non-hazardous waste disposal	
		6.1 Annual quantity/type of non-hazardous waste e.g. cardboard/paper
		6.2 How is non-hazardous waste disposed of? Please state what company is used and how often are they removed?
Q7	**Future**	
		7.1 What actions are you going to implement to reduce food waste/cost in the short term/long term?
		7.2 What further information on meat plant waste would benefit your business?

Confidentiality:

This project has been funded via WRAP Cymru (http://www.wrapcymru.org.uk/). A copy of this report will be submitted to WRAP for feedback only. It will not be passed on to any third party without the express permission of the plant owner.

Any external information produced through this work will be shared with the company for approval before being published.

Signed on behalf of the company _____ Name (please print) _____

Signed on behalf of HCC _____ Name (please print) _____

Date: _____

Appendix 2

7.2 Definition of Small and medium-sized enterprises

Small and medium-sized enterprises (SMEs) represent 99% of all businesses in the EU. The definition of an SME is important for access to finance and EU support programmes targeted specifically at these enterprises.
Small and medium-sized enterprises (SMEs) are defined in the EU recommendation 2003/361. The main factors determining whether an enterprise is an SME are:

1. **staff headcount**
2. either **turnover** or **balance sheet total**

Company category	**Staff headcount**	**Turnover**	or	**Balance sheet total**
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

These ceilings apply to the figures for individual firms only. A firm that is part of a larger group may need to include staff headcount/turnover/balance sheet data from that group too.

WRAP's vision is a world in which resources are used sustainably.

Our mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling.

Find out more at www.wrapcymru.org.uk

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recycle