



Sustainable Food Trust
A global voice for sustainable food and health

A
GOOD LIFE
— **AND A** —
GOOD DEATH
Re-localising farm animal slaughter



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Abbreviations used in this report:

AIMS	Association of Independent Meat Suppliers
AHDB	Agricultural and Horticultural Development Board
DAERA	Department of Agriculture, Environment and Rural Affairs (in Northern Ireland)
FiBL	Research Institute of Organic Agriculture
FSA	Food Standards Agency
FSA Scotland	Food Standards Agency Scotland
HCC	Hybu Cig Cymru (Meat Promotion Wales)
NSA	National Sheep Association
LMCNI	Livestock and Meat Commission (Northern Ireland Beef and Sheep Meat)
LSU	Livestock Unit (1 dairy cow = 1 LSU, 10 sheep = 1 LSU)
MHI	Meat Hygiene Inspector
NSA	National Sheep Association
NFMFT	National Federation of Meat and Food Traders
OV	Official Veterinarian
PFLA	Pasture Fed Livestock Association
Private Kill	Slaughtering animals and returning carcasses to the producer
QMS	Quality Meat Scotland
SIF	Single Investment Fund

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FOREWARD

Phil Stocker, Chief Executive, National Sheep Association

We live in interesting times, full of uncertainty, and with the future direction of UK food and farming at the centre of many of these unknowns. It feels clear to me that now, more than ever, that we in the livestock farming sector need to expand our options and broaden our markets, local and global, by producing food with great credentials. Increasingly we will have no option but to strive to deliver the best quality, trustworthy traceability, and an honest and responsible story, and we should welcome this rather than feel threatened by it. The growth of the local food market and interest in 'single farm provenance' will be an increasingly important part of what promises to be an exciting future for the UK livestock sector. In particular, it could provide a valuable lifeline for our hard-pressed upland livestock farmers producing some of the best grass-fed beef, lamb and mutton anywhere in the world.

Consumer habits and influences continue to change, with many more looking for variety and diversity in their food and wanting to know the story behind it. Trust is the key, and local food that hasn't travelled far, traceable in part by a direct relationship, and with transparent credentials, is now high on the consumer's agenda, particularly in regard to meat.

This is good for all concerned, but we face a major problem. Just as interest in provenance and food quality increases, so this valuable and multi-choice world of localised food is under threat as never before.

The infrastructure required to deliver local traceable meat consists of specialist smaller local abattoirs, which enable farmers to slaughter their animals relatively close to the point of production, stipulate how they want things done, and be sure about getting their own products back. Yet these small independent abattoirs, proportionate to the scale of farms in their vicinity, are in the process of disappearing without trace. Indeed, within the past month or so (in early 2018), two important small abattoirs in Scotland have closed, on the island of Orkney and in Dunblane, meaning that for many farmers and their customers, the choice of markets has suddenly diminished and consumer choice is being denied.



A Welsh Hogget. Rosa Kennard

I welcome this timely report which draws attention to the rapidly changing and complex crisis facing smaller local abattoirs and those who depend on them. Fortunately, it reveals that there are some practical solutions, although these will only be achieved by innovative thinking and political will. I truly hope that government and industry will grasp the opportunities that lie ahead with some urgency, and work together to offer a long-term future for our diminishing network of local abattoirs before it is too late.

FOREWARD

Peter Stevenson, Chief Policy Advisor, Compassion in World Farming



Ewe and lambs. Bob Kennard

This report addresses a problem of great importance. For several decades we have witnessed the gradual erosion of the UK's network of small local abattoirs. Farmers who want to minimise travelling times have been unable to prevent their animals being taken on longer journeys to distant slaughterhouses as local facilities disappear. Farmers who want to market locally produced meat, from animals they have reared themselves, are finding it difficult to find nearby abattoirs that are prepared to slaughter small numbers of animals and then return the carcasses to the farmer. Eating food produced locally and supporting local farmers and businesses are rightly viewed as important aspects of sustainability.

The Sustainable Food Trust's new report analyses the factors that have undermined the economic viability of low throughput local abattoirs. It helpfully sets out with great

clarity the steps that are needed if we are to re-establish a network of small local abattoirs throughout the UK. Governments in England, Scotland, Northern Ireland and Wales must now act on the report's cogent recommendations which will help revitalise rural economies and greatly benefit animal welfare in reducing journey lengths.

The report also recommends the use of mobile abattoirs. These have been talked about for thirty years or more. Governments must now introduce the legislation and funding support that are needed to make it feasible to operate mobile abattoirs as these too would produce important animal welfare benefits in cutting out the journey to slaughter altogether.

I congratulate the Sustainable Food Trust on its report and urge all concerned to work together to make a reality of its recommendations

PREFACE

Richard Young, Policy Director, Sustainable Food Trust

It may be unusual for the co-author of a report to write a Preface to it as well, but it's only right that I declare a commercial interest in the issues we cover. While I have tried to evaluate the evidence as impartially as I can, I'm aware that I may bring some subliminal bias to it. As a cattle and sheep farmer producing and butchering beef, lamb and mutton from animals which are exclusively fed on organically grown grass, being able to get the animals slaughtered locally so we can sell the meat direct to customers who specifically seek out such meat, is essential to the financial success of our whole farm.

Since we started our farm butcher's shop in 1984 we have had to change abattoirs nine times, as seven of them have closed and two became unsuitable for other reasons. Each change forced us to transport our animals further afield, from just five miles in 1984 and six miles until 1989, to almost 40 miles today. Each change forced us to build, or attempt to build, a good relationship with a new abattoir owner or manager, something which isn't achieved over night and which is not easy for smaller producers at the best of times due to the pressure under which slaughter staff invariably have to work, and the relative unimportance of a producer who has only a limited number of animals that need slaughtering. This can be even more difficult for producers like us, who want our animals killed without significant delay and need the offal from our own animals returned to us as well as their carcasses.

All this has caused a huge increase in our costs, both in relation to the abattoirs' charges to return carcasses to us over considerable distances, and in terms of the cost of transporting the live animals so much further, which in addition to fuel and maintenance costs has included the repeated scaling-up of our 4-wheel drive vehicle and livestock trailer so that it is now suitable for the speeds and stress of motorways and rush hour traffic, as well as larger loads to help reduce the cost per animal. The contrast with the old Land Rover and second-hand trailer that was more than adequate to take animals a few miles down a quite country road when we started is significant.



Suckler cow and calf. Richard Young

My co-author, Bob Kennard, set up and for many years ran the award-winning Graig Farm Organics, which retails a wide range of organic meat. But he sold the business several years ago, so no longer has a commercial interest in the issues, only a personal one.

In 1999, he and I wrote a report for the Soil Association, *The Threat to Organic Meat from Increased Inspection Charges* (a copy of which can be downloaded from the SFT website [here](#)) and ran a campaign, spearheaded by Bob, for which he justly won an award. The campaign was eventually supported by over 200 NGOs and rural organisations. This was successful in changing government policy, and slowing the rate of small abattoir closure significantly.

In researching this report, we have come across a significant number of really excellent abattoirs which serve their local communities well and which are highly valued by them. The concern, however, is that smaller abattoirs are still closing at an alarming rate and we are very, very close to a crisis point which if not forestalled will see the supermarkets gain almost total control of the UK meat market. Should this happen we will all be the poorer since it will force many more small and medium-sized farms out of business and greatly reduce the diversity of meats available to the general public both in terms of breeds and methods of production.

EXECUTIVE SUMMARY

This report looks at the abattoir sector in the UK, in particular the availability of slaughtering facilities for producer-retailers selling or wanting to sell meat locally, from animals they have reared. Not all abattoirs undertake 'private kill', that is killing animals for individual producers and returning the carcasses to them. Those that do, tend to be the smaller abattoirs. This report has three central aims to:

1. Highlight the impact of the disappearance of smaller abattoirs offering private kill, and establish why this is happening.
2. Explore the potential for regulatory and other changes which would reduce the likelihood of further small abattoirs closing, and improve viability for the sector so new ones could be built where none currently exist.
3. Re-examine the case for the use of mobile abattoirs in the UK, consider whether a simplified design is feasible and might make it possible to construct and run these economically, and what, if any, changes to legislation might be needed to facilitate this?

The scale of the problem

Over the last decade one in three small abattoirs in the UK has closed. This comes on top of previous decades which saw many areas reduced to just one or two abattoirs. For producer-retailers in some parts of the country this is already causing logistical and financial problems.

There are now just 249 red meat abattoirs in the UK, down from 320 in 2003 and 1,890 in 1971. But even where an alternative abattoir is not too far away it is not always suitable for producer-retailers. Many of them are Halal slaughterhouses, some of which use non-stun

“From the outset, I must emphasise the fact that the Government recognise the importance of small and specialist abattoirs to the rural economy.”

Parliamentary Under-Secretary of State for Health Yvette Cooper, Hansard, June 2000

slaughtering methods. Also, some larger abattoirs are either unable or unwilling to slaughter animals for small producer-retailers and return carcasses to them economically; while others do not have organic certification so are not suitable for organic animals.

Impact

Large parts of the UK are predominantly pastoral in nature with a high proportion of the land under grass. As such, grassland farming predominates in many regions. Readily accessible slaughtering facilities are therefore essential for basic economic reasons and for occasional casualty slaughter. When local abattoirs close, producers are forced to take or send their animals on longer journeys to slaughter, and local butchers, no longer able to source locally-produced meat find it more difficult to compete with supermarkets. Skilled slaughtermen and butchers lose their jobs in rural areas, where good jobs are hard to find, while the largest slaughterhouses, which depend heavily on unskilled labour cannot find these locally, and need to recruit staff from outside the UK. Overall, 75% of meat industry workers are now from outside the UK.

Large slaughterhouses can kill very large numbers of animals and often have spare capacity. They could potentially replace most, if not all, small and medium-sized abattoirs in the UK, if it is left to market forces alone.

Economies of scale allow large abattoirs to charge less for slaughter than small ones, further taking trade from local slaughterhouses and indirectly from local butchers. While this is largely a result of market forces, consideration needs to be given to the wide range of ways in which this results in hidden costs for society.

The loss of local abattoirs is:

1. A major impediment to the expansion of farm shops and independent butchers and other forms of local meat marketing, such as farmers' markets and box meat schemes, despite the growing public demand for such produce at the present time;
2. A cause of concern for the many producers who care deeply about their animals and believe longer journeys have welfare

consequences, but also are increasingly left with no option other than to send their animals to abattoirs many miles away;

3. A cause of environmental pollution, in the form of greenhouse gas emissions and air pollution in relation to longer journeys;
4. A negative impact on the economy and viability of rural communities and consumer choice.

Some producers are also concerned that even when they can get their animals slaughtered at a larger abattoir, they are not able to get the edible offal back from their own animals, because the systems are not designed to maintain the provenance of offal.

This is a problem for those consumers who recognise that offal is highly nutritious, especially when the animals have been reared on high forage diets and minimal medication.

Reasons for the loss of smaller abattoirs

The trend in the closure of smaller abattoirs over the last 40 years has coincided with the rise of multiple-retailing. This has had similar consequences for other sectors too, such as doorstep milk deliveries and small bakeries, but the extent to which the supermarkets have come to dominate the slaughtering sector raises the question of whether the dominance has been achieved by entirely fair competition or whether they, or the abattoirs that supply them, are subtly using their power to stifle competition? The demise of the small abattoir sector has also coincided with the construction, and sometimes further expansion, of a small number of exceptionally large slaughterhouses which predominantly supply supermarkets.

The 2 Sisters slaughterhouse at Merthyr Tydfil, for example, the main abattoir supplying Tesco, is not the only very large slaughterhouse in Wales, but it is one of the largest in the UK. It was opened in 1999, and built and equipped with the help of grants worth over £13 million in today's money. The slaughterhouse is open 24 hours a day, has the capacity to kill and butcher 2,400 cattle and 24,000 lambs a week, and draws these from England and Scotland, as well as Wales. Due to the construction of mega-slaughter houses there is significant over-capacity in Welsh abattoirs of 24,000 cattle

“[I use] a small abattoir that teeters on the brink of closure and the closest then that does private kills is around 60 miles away.”

Farmer selling his own native breed sheep – Heritage Sheep Project Survey, NSA

“Nobody helps, we're fighting bureaucracy all the time. They just don't want us.”

Small abattoir owner, 2017 – personal communication, SFT telephone survey

and over 1.2 million extra sheep annually, could be slaughtered. This puts price pressure on the industry and is one of several factors that has been driving smaller abattoirs out of business.

Local politicians tend to welcome the creation of new jobs by large slaughterhouses but seem to overlook that for every new job at least one job will be lost elsewhere in the country, as there are only a limited number of animals to slaughter. As such we question whether the very large amounts of grant aid provided for large abattoirs was justified or whether it has created over-capacity and unfair competition?

This becomes particularly significant when it is noted that the small abattoir locals have been trying to establish since 2004 on the Isle of Skye, for which there is a great local need, was denied adequate grant funding to make it viable on the grounds of unfair competition.

A further reason for the closure of many small abattoirs has been the huge increase in regulation in the meat industry since the BSE crisis began in 1996. The problem for small abattoirs is that the burden falls far more heavily on a small business than on a larger one. Often the owner of a small abattoir will be the main point of contact, the principal slaughterman and butcher, as well as the person responsible for dealing with all forms of regulation, much of which is inappropriate as it was drafted with large plants in mind.

Another factor is that smaller abattoirs are often located on what have become prime sites in towns, and the land can be worth far more for development than for continuing use as an abattoir. Due to the low profitability of the sector, few small abattoir owners have family successors and, even where they have, there is

an air of pessimism in much of the small abattoir sector which is discouraging major investment.

Conclusions

1. Slaughtering farm animals close to the point of production has major animal welfare, environmental and economic benefits. But over recent decades, the UK's once comprehensive network of smaller abattoirs has been progressively eroded. We are now at a critical point where it is in danger of collapse.
2. The problem has multiple causes, but key drivers have been the increasing dominance of supermarkets, and mergers and acquisitions within the meat industry. These have allowed a small number of very large abattoirs to prosper at the expense of smaller abattoirs.
3. Smaller abattoirs provide a wide range of social, environmental and economic benefits for rural communities and are essential for the renaissance of local food cultures.

4. Recommendations

We call upon national and local government bodies to:

1. Recognise the benefits of slaughtering livestock as close to the point of production as possible, express positive support for the provision of local slaughtering facilities, and make this a matter of practical policy across all government levels.
2. Take a constructive approach to the development of regulations for the introduction and use of mobile and small static on-farm red meat abattoirs, to enable on-farm slaughtering in an economically viable way.
3. Establish an independently-chaired task force to undertake an urgent in-depth review of the UK's smaller abattoir sector and make recommendations.

The task force should be asked to consider:

- a. The overall situation; identify the main causes for the continuing closure of smaller abattoirs, where blackspots exist, and how these can best be remedied, and make recommendations to the Government on ways in which the sector's future could be secured;
- b. How the burden of regulation on smaller abattoirs could be reduced;

- c. Whether regulatory provision could be made for small on-farm red meat slaughtering operations, in the way it is for small on-farm poultry slaughtering?
- d. Whether there is a case for introducing a low throughput stamp for small abattoirs exclusively supplying local meat markets, similar to the square stamp previously used?
- e. Whether ante-mortem and other veterinary inspection costs for small abattoirs could be reduced through the use of live-streamed CCTV footage to regulators located off-site?
- f. Whether the high cost of waste disposal could be reduced by permitting some waste products, such as rumen content, blood and unwanted fat to be composted on farms?
- g. Whether, in view of the public good produced by small abattoirs, business rates for these businesses could be reduced further or eliminated?
- h. Whether it is fair and reasonable for grants for the construction or expansion of very large abattoirs to be at the same rate as for small abattoirs, or whether these should be tiered?
- i. How various bodies charged with gathering data on the meat industry could do so in a more coordinated way, to provide a clearer picture at local, regional and national levels?
- j. Whether a Parliamentary committee should be asked to look into the issue of acquisitions, vertical integration and mergers between large meat companies in the slaughtering, rendering, hides and skins and associated industries; and why, in a recent merger case, the Competition and Markets Authority chose to accept evidence from large abattoir companies unquestioningly, failed to recognise that just because 8-hour journeys for live animals are permitted, this is not always a practical option for farmers, and did not more actively seek evidence from small abattoir owners on the potential impact for them?

For a more detailed analysis of the recommendations see Chapter 10 on pages 37 and 38.

1. INTRODUCTION

Over the last two decades considerable changes in the UK red meat sector have resulted in falling profitability. Many of these are well known: harmonisation of regulations EU-wide, the BSE crisis, the Foot and Mouth Outbreak in 2001 and declining sales of carcass red meat, especially in recent years. Large companies have bought up smaller ones, sometimes selling off their facilities to reduce competition, sometimes building new larger facilities. Large companies have also merged to create super-large companies. The trend is little different to that in many other food sectors and has been ongoing for many decades, largely due to the rise of multiple-retailers' meat sales and the disappearance of many independent butchers. In 1990 there were 15,000 butchers in the UK, by 2015 there were just 6,000.¹

Linked to this, a small number of extremely large slaughterhouses have been built. These use continuous chain processing, where each operative performs the same, relatively simple, task as the carcasses pass by them. As a result, a very large number of animals can be killed in a short period of time, but there is little if any job satisfaction for employees.

There has also been consolidation and vertical integration in the animal offal and rendering sector, with some large meat companies also acquiring the companies which buy and process animal skins, bones, and other inedible offal. All this means that animals can generally be slaughtered at a lower price in a large modern slaughterhouse than in smaller abattoirs, using more traditional 'artisanal' methods.

Farmers contracted to supply the main supermarkets can rarely choose where their animals are slaughtered. These generally have to travel longer distances, but the lower slaughtering costs at large abattoirs more than compensates for the additional transport costs, which are relatively low per animal, due to the numbers transported per load, and often covered by the buyer.

But this trend has progressively created problems for a high proportion of smaller abattoirs. Without a sufficient number of local butchers'

shops to supply, their businesses struggle to remain solvent. A partial exception is where the surviving abattoir is owned by a butchers' shop or shops. The problem has been compounded by increased costs for inspection and the disposal of waste material, requirements to make structural changes to comply with EU regulations, and significantly lower returns from the sale of hides and skins. As a result, the number of red meat abattoirs in the UK has fallen dramatically over the last thirty years, a third of all small abattoirs (34%) have closed in the last decade alone, and at least two more have closed since work on this report started in the Autumn of 2017.

Where small abattoirs close this can then have a serious negative impact on any remaining independent butchers and on producer-retailers. Producer-retailers are farmers who raise livestock and market the meat themselves, usually locally through farm shops or box schemes. For many years the UK Government has used grant aid to encourage farmers to diversify and to add value to their produce, realising that in an increasingly globalised market many would not be able to make a living just producing commodity food.

Farm shops and on-farm meat processing have been amongst the approaches encouraged under various schemes. Many of these producers operate high welfare systems and are personally concerned about the additional stress long journeys can cause their animals. A high proportion of these animals will be home-reared and the day they go for slaughter is the only day they leave the farm. For such animals, this combines the emotional stress of being separated from the animals with which they have been raised and the physical discomfort of transport, fasting for an extended period of time and sometimes also a long wait at the abattoir.

Affected producer-retailers either have to take their animals further afield or going out of business. Some producers could potentially sell to supermarkets but the breeds they keep are not always suitable for supermarkets and the loss of retailing income can make the business unprofitable. But even where the meat can be slaughtered economically at an abattoir many miles away, the additional transport involved works against the concept of local food, upon which the success of such businesses is often based. In some cases, due to the closure of so

¹ EBLEX (2015) Securing the future of our independent butchers' sector. Available at <http://beefandlamb.ahdb.org.uk/wp-content/uploads/2016/01/Independent-Butchers-Report-230315.pdf>

many small abattoirs, the next nearest abattoir will be a large one which may not undertake private kill.

While some large abattoirs will slaughter animals for producer-retailers; for many this is more of an inconvenience than a commercial venture. Large abattoirs are busy and impersonal places and for producers who have done everything they can to give their animals as good a life on the farm as possible, having to use such abattoirs and lose all control over their slaughter can be very stressful for them too.

Some producer-retailers also complain that it is not possible to get back the liver, kidneys and other edible offal from their own animals because large abattoirs treat all offal as the same once it has been inspected for disease. This can represent a significant loss for those producers marketing their meat on the basis of the way the animals have been raised and fed.

Producer-retailers will often also only need a few animals slaughtered at any one time. As such the cost of transporting live animals to an abattoir far away and returning the chilled carcasses becomes prohibitively expensive. The additional costs can make the meat uncompetitive, even though there is strong growth in consumer demand for meat from local farms they can get to know and come to trust.

Locally-produced meat

The demand for locally-produced, traceable food has been growing strongly, largely due to continuing food scandals, increasing consumer desire to reduce food miles for environmental reasons and increasing demand for meat from high welfare systems. In 2000, there were 250 farmers' markets in the UK; by 2012 there were around 500.² In addition, the number of farm shops has increased from 1,200 in 2004 to approximately 3,500 today. A poll of 2,000 shoppers by AHDB found that four out of ten (39%) had visited a farm shop in the last 12 months and almost half (47%) planned to do so.³

By retailing their meat, farmers increase their income and keep more of this within the local economy. This helps to keep small farms in

business and also helps to maintain rural communities. Locally sold, traceable meat also helps to encourage tourism and enables the remaining local shops to offer an alternative to the supermarkets.

Local meat processing creates jobs and offers opportunities for enterprising people, particularly the young. In addition to the organic sector, the formation of the Pasture Fed Livestock Association (PFLA) in 2011 has provided another important production system designation particularly suited to local meat sales. Further to this, there is also a developing local market for meat from Heritage sheep breeds and other producers with specific breeds or production methods.

Nationally, the UK has a significant 'over capacity' for slaughtering livestock, due to a decline in cattle and sheep numbers and the construction of some very large slaughterhouses. These already slaughter a very high proportion of farm animals and they purchase slaughter stock from a wide catchment area. It has been estimated that Welsh abattoirs alone could slaughter another 24,000 cattle and up to 2.4 million more sheep annually.⁴

Despite derogations from some aspects of EU regulations for the smallest abattoirs⁵ the general assumption has long been that many more small and medium-sized abattoirs will be driven out of business.⁶

The situation varies across the UK. Devon, for example, still has six smaller abattoirs. But in some parts of the country, producer-retailers have to use abattoirs as far away as 65 miles in England and Wales and still further in Scotland.

In response to a recent questionnaire from the NSA one Scottish farmer wrote, "If we sell direct to Morrisons we go to Turriff about 32 miles, but to do private kill we would have to go to Dingwall which is about 150 miles! So, we no longer are able to market our meat direct to the consumer as it is not feasible financially even

² Defra (2017) Farmers Markets. Available at <https://www.gov.uk/guidance/farm-shops-and-farmers-markets#farmers-markets>

³ Morley, K. (2017) Middle-class shoppers turning to farm shops amid supermarket scandals. The Telegraph 1 October. Available at, <http://www.telegraph.co.uk/news/2017/10/01/middle-class-shoppers-turning-farm-shops-amid-supermarket-scandals/>

⁴ HCC (Meat Promotion Wales) (2016) Assessment of Capacity in the Welsh Red Meat Slaughtering Industry. Available at, http://hccmpw.org.uk/about_hcc/corporate_publications/capacity_in_the_welsh_red_meat_slaughtering_industry

⁵ Food Standards Agency (undated) Small and low throughput establishments: examples of EU hygiene regulations flexibilities. Available at <https://www.food.gov.uk/business-industry/guidancenotes/hygguid/euhygieneregulationsflexibilities>

⁶ Palmer, C.M. (2008) The Future for Abattoirs – Note by AHDB for the FSA. Available at <http://webarchive.nationalarchives.gov.uk/20120414053640/http://www.food.gov.uk/multimedia/pdfs/board/fsa080504a2.pdf>

though we have a ready and willing market for our produce.”

There are also very few abattoirs for slaughtering pigs in Eastern England. This means that of the many pigs produced in the area undergo long journeys; it also stifles the reintroduction of more diverse and ecologically valuable crop rotations which include grass with grazing livestock – something which even some conventionally-minded farmers now recognise is needed to help restore soil quality.⁷

“Why has the Government provided such extensive grant schemes for farm diversification when they have failed to address the problem of viable small abattoirs that link the meat from the local farm to the local customers plate?”

John Mettrick, butcher and small abattoir owner in Derbyshire

In even starker contrast, the Isle of Wight and the Isle of Skye have no abattoirs, meaning that all livestock have to be transported by boat in order to be slaughtered.

Campaigns against red meat

Many people are turning away from meat. A Mintel survey published in August 2017⁸ found that in the previous six months, 28% of the British public had reduced or limited their meat consumption. Almost one in every ten people (9%) now eat no meat or poultry, but this rises to one in five (19%) for those under 25 and one in four (25%) for women in this age group. The trend applies especially to red meat, per capita consumption of which has been declining for many years, in contrast to chicken consumption which has increased for most of this period.

Between 1980 and 2015 average per capita consumption of carcass sheep meat fell from 127.5 to 34.6g per week.⁹ Including processed sheep meat, British consumers eat just 4.6kg

annually compared with 30kg of poultry meat and 26kg of pork.¹⁰ On current trends the outlook is even more alarming. Data compiled by the NSA¹¹ shows that while those over 65 consume almost 60g of carcass lamb a week, younger age groups consume progressively less, down to an average of just 15g a week for those under 30 (see Table).

If these trends continue the UK will soon have a massive over-supply of meat from sheep which are reared naturally on grass, but a greatly increased need for imported grain, proteins and fats for both human and animal consumption.

Lamb consumption by age group (grams per week)

Age	Lamb	Age	Lamb
75+	57g	40 - 49	29g
65 - 74	58g	30 - 39	23g
50 - 64	45g	< 30s	15g

Source: NSA, unpublished data

This poses a major food security and sustainability problem for the UK. If we include both rough grazing and common land, 71% of UK farmland is under grass, most of this for sound agronomic and environmental reasons in that it is either too steep, poorly drained, acid or stony for crop production, or is required by Natural England and similar bodies in the devolved regions to be kept as permanent pasture due to its botanical diversity and benefits for pollinators, birds and small mammals. If this land is not grazed by sheep and cattle most of it will not produce food in future.

This report assesses the current abattoir situation in the UK, examines recent trends and related factors, considers changes that might help to improve the viability of existing small abattoirs and looks at two key issues:

- What can be done to prevent yet more small abattoirs closing and enable new local abattoirs to be established in areas where they are needed?
- What potential is there for mobile and small static abattoirs to slaughter animals on the farm of production?

⁷ Richardson, D. (2017) Seed-bed struggles warrant return to the ‘golden hoof’, Farmers Weekly, 8 September, p31.

⁸ Mintel (2017) Brits carve their meat intake. Available at <https://tinyurl.com/y8cs5yqn>

⁹ Defra (2015) Family Food 2015. Annual report on household purchases of food and drink. Available at <https://www.gov.uk/government/statistics/family-food-2015>

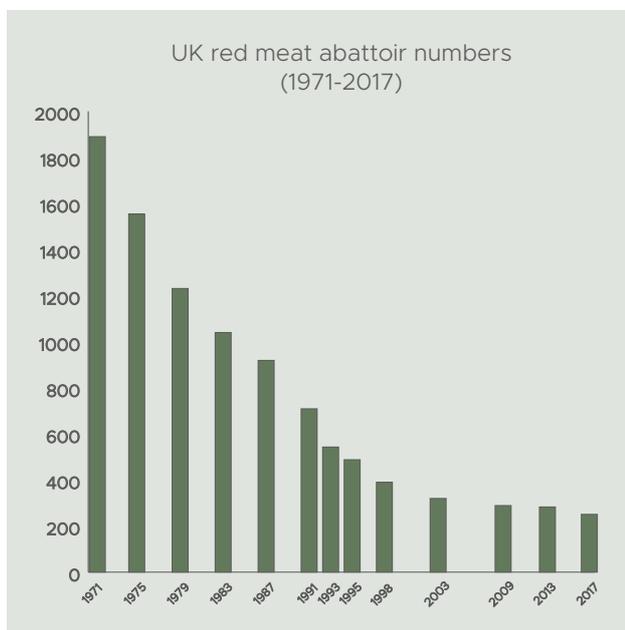
¹⁰ AHDB (2017) UK Yearbook 2017 cattle. Available at <http://beefandlamb.ahdb.org.uk/wp-content/uploads/2017/07/UK-Yearbook-2017-Cattle.pdf>

¹¹ Phil Stocker Chief Executive NSA, personal communication

2. THE DECLINE OF SMALLER ABATTOIRS

UK abattoir numbers

In the 1930s there were said to be around 30,000 red meat abattoirs in the UK. By 1971 this had dwindled to 1,890, and by 2003 there were just 320. By July 2017, this had further eroded to 251. As this report goes to press that had fallen to 249. One of the difficulties in establishing a clear UK-wide picture of the slaughtering industry is that statistics for England, Scotland, Wales and Northern Ireland come in different forms and levels of completeness. Some sources are also overlapping and can appear contradictory. Those with a legal mandate to produce data on the sector include AHDB, HCC, GMS, LMCNI, DAERA,



Sources: MAFF, AHDB, FSA, DEFRA, FSA, FSA Scotland and DEFRA (see Glossary).

Even the AHDB's 2017 UK Yearbooks on cattle and sheep, which provide some UK-wide data, only provide statistics for abattoirs in England. This is a problem for policy makers and all those with an interest in food and agricultural policy, because there is free and significant movement of live animals and carcass meat between the four UK regions. However, figures for England alone illustrate the extent to which a few very large slaughterhouses have come to dominate the sector. Thirty-two abattoirs in England slaughter 88% of all slaughtered sheep, while just 19 abattoirs slaughter 73% of all slaughtered cattle.¹²

¹² AHDB (2017) UK Yearbook 2017 Sheep. Available at <http://beefandlamb.ahdb.org.uk/wp-content/uploads/2017/07/UK-Yearbook-2017-Sheep.pdf>

UK abattoir sector

The UK meat industry consists of businesses with a wide range of functions and sizes. Abattoirs vary from village or small town meat plants, slaughtering just a handful of local animals each week, to those serving the supermarkets, food services and exporters, processing thousands of animals per day. Each type of meat plant has its own function within the overall meat supply chain, which will determine its size and location.

Size of abattoir is normally measured in annual throughput Livestock Units (LSUs). This takes account of the relative sizes of various classes and species of livestock. Under this system, male cattle and cows over 2 years constitute 1.0 LSU, and a sheep 0.1 LSU (See **Appendix II** for detailed data on abattoir throughput).

'Private Kill' facilities

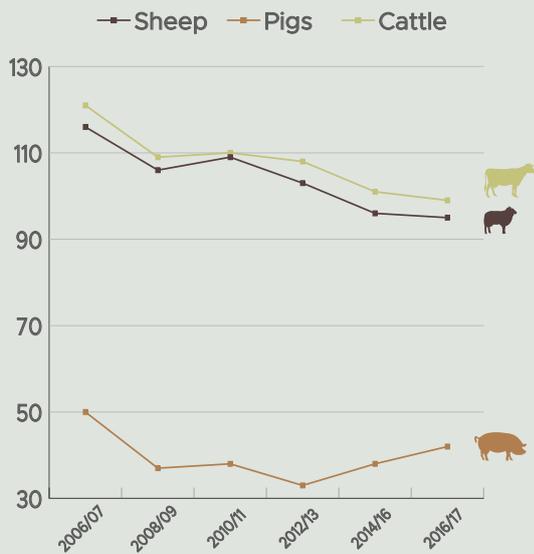
In determining how close we are to a breakdown in the UK slaughtering infrastructure, it would be useful to know which abattoirs offer 'private kill' (where farmers can bring their animals to be slaughtered and the carcass or meat is then returned to them or their butcher).

Generally, it is the smaller abattoirs which offer this service, as larger plants are unable or unwilling to do so. No information about private kill availability is recorded by any of the public bodies involved in abattoir data. Therefore, we have made a rather arbitrary decision to count those abattoirs or combined abattoirs and cutting plants which have throughputs of up to 5,000 Livestock Units (LSUs) per annum. For the purposes of this exercise we are calling these the 'smaller abattoirs'.

According to the AHDB, there are 112 such registered abattoirs across England, Wales and Scotland at present (2017); 10 years ago there were 144. The abattoirs are not evenly spread: some farmers are still next door to a small abattoir, but many others are very significant distances from one.

An additional issue which somewhat clouds the picture is the number of smaller abattoirs which practice ritual slaughter without pre-stunning. Although many Halal and Kosher abattoirs also offer stunned slaughter some do not and many

GB Numbers of Smaller Abattoirs (up to 5,000 LSUs/annum) 2007-2017



farmers and their customers wish to be certain their animals are stunned before slaughter and feel reluctant to use such facilities.

It has not been possible to ascertain how many abattoirs in the UK carry out only strict ritual slaughter without stunning.

Decline in smaller abattoir numbers

Over recent decades, numbers of smaller abattoirs (up to 5,000 LSUs/annum) have declined more steeply than the larger ones, as the average size of meat plants has increased. These smaller-sized abattoirs now account for only 1.2% of sheep and 6.1% of cattle slaughtered in England.

Even in the last 10 years (2007 to 2017), the number of the very smallest abattoirs in England (killing up to 1,000 LSUs/annum) which serve their local communities, has declined by 34% from 96 to 63, a much greater fall than any other size group.¹³

Breakdown by species

Data from the FSA and FSA (Scotland) provides the number of smaller abattoirs by species from 2007 to 2017. This shows a consistent drop in numbers across the main species of sheep, cattle and pigs. Between 2007 and 2017, according to AHDB, the number of abattoirs overall in GB fell by 53 (19%). The number of cattle and sheep slaughtered in Great Britain remained fairly static, but the numbers of pigs rose by 14%.¹⁴

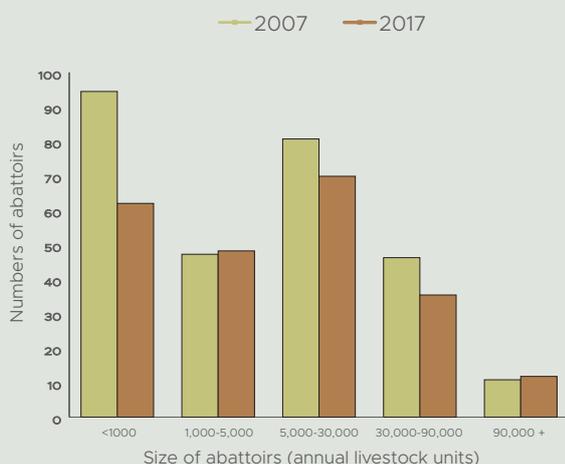
“Large convoluted supply chains with reams of paperwork will always have problems, horsemeat being the most recent example. So why are we making life so difficult for those of us who want to continue producing meat in such a simple manner?”

John Mettrick, butcher and small abattoir owner in Derbyshire

These factors (animal numbers and abattoir closures, particularly amongst smaller plants) have combined to increase the numbers of animals of each species slaughtered per abattoir by 24% in sheep, 30% in cattle and 45% in pigs.

This could be viewed as increased efficiency. However, it has undoubtedly also resulted in increased animal transport distances and therefore food miles, and removed the ability of many farmer-retailers to have their animals slaughtered and processed locally.

GB red meat abattoir decline (2007-2017)



¹³ AHDB (2017)

¹⁴ FSA Private Correspondence October 2017

3. REASONS FOR THE DECLINE OF SMALLER ABATTOIRS

If there is an official view about why small abattoirs have been closing, it is probably one related to the problems faced by most small businesses in the modern world – the problem of competing with larger businesses which benefit from economies of scale and more efficient ways of doing things, especially in relation to productivity per person employed, and the ability to cope at an administrative level with a high level of regulation.

However, to date no one has seriously explored the factors behind the decline of small abattoirs including the extent to which they have suffered from unfair competition.

The issues of profitability and over-regulation are certainly ones with which most, if not all, owners of small and medium-sized abattoirs, past and present, would associate, and we look at some of these below. However, the reasons for declining profitability cannot be established simply by looking at the operation and management of individual abattoirs.

As noted above, the decline of smaller abattoirs over the last decade, and in fact over several decades, has coincided with the creation of a number of very large slaughterhouses and meat processing companies which predominantly supply supermarkets. This in turn can be linked to a significant and ongoing process of acquisitions and mergers within the UK meat industry, as well as between companies in the UK and with those in other countries.

How fair is UK competition law?

UK law on fair competition is governed by the Competition Act 1998 and the Enterprise Act 2002. Its implementation is overseen by the Competition and Markets Authority (CMA). Collusion between two firms on the same level of a supply chain by, for example, price fixing, is prohibited, except that even here exemptions exist where a firm can show that the practices are in the interest of consumers through increasing efficiencies and advancing technical progress. But if a large company buys up one, or any number of smaller companies this appears to fall below the radar of regulatory scrutiny. When two companies merge, or when one large

company purchases another of a similar size, this can be referred to the CMA. In the meat slaughtering and processing sector multiple acquisitions over time have mounted up and dramatically altered the structure of the industry, with major impacts on certain sectors which have been entirely overlooked by regulators.

One example is the 2 Sisters Group, based in Birmingham, and owned by Ranjit Singh Boparan. This has grown rapidly, mostly through acquisitions and, according to Wikipedia, now has 36 manufacturing sites in the UK, six in the Netherlands, five in Ireland and one in Poland. Household names acquired by 2 Sisters include Bernard Matthews and Northern Foods.

Although 2 Sisters is now the largest meat company in the UK, the series of acquisitions it has undertaken is typical of the meat industry in the recent past. The CMA has investigated some acquisitions, but not prevented any, as far as we can establish. Yet, these have changed the face of the meat industry and allowed a few very large firms to dominate the sector.

Grants for new slaughterhouses

We have not had time to undertake a comprehensive review of this issue, but one example may help to explain another of the factors driving small abattoirs out of business.

The St Merryn slaughterhouse at Merthyr Tydfil, possibly the largest in the UK, was opened in 1999 and built with the help of a grant of over £6.5 million. In 2010, it received a further grant of £1.2 million. Adjusted for inflation this is equivalent in total to over £13 million today. The plant is owned by the 2 Sisters Group, the UK's largest food company and is one of 11 red meat and poultry plants in the UK that it bought from the large Dutch meat company VION in 2013.

The Merthyr Tydfil slaughterhouse employs more than 1,000 workers and has the capacity to slaughter and butcher 2,400 cattle and 24,000 lambs a week, more than it is actually able to obtain, despite drawing livestock from most of Wales and large parts of England and even Scotland.

A recent merger

Two very large meat companies, Dunbia and Dawn Meats merged in 2017. Dunbia was established in 1976 and has acquired at least 8 other companies. Dawn Meats was established in 1980 and has also grown to its current size largely by buying up smaller companies.

The merger was considered and approved by the Competition and Markets Authority (CMA), but not referred for a detailed inquiry. In its review the CMA accepted the statement from the two merging companies that ‘livestock can be transported long distances (up to 8 hours) without the need to be unloaded, so farmers can sell to abattoirs across GB,’ and that, ‘While farmers tend to sell cattle to nearby abattoirs for logistical reasons, there are no barriers to any livestock being sold further afield if prices are low.’ Based on this the CMA concluded that it, ‘Does not believe that post-Merger the Parties will have significantly greater buyer power in any region within the UK. Therefore, the CMA does not believe that the Merger will give rise to a realistic prospect of a substantial lessening of competition...’¹⁵

The CMA failed to recognise that while the law permits long journeys, they are not in the animals’ best interest and not a practical or commercial option for a significant number of farmers, especially those with less common sheep breeds, cattle or relatively small numbers of animals to be slaughtered each week.

In reaching this decision it rejected the evidence submitted by farming organisations and farmers. The Ulster Farmers’ Union, stated, ‘That the Merger would reduce options for farmers and greatly increase the buying power of the Parties in the UK and ROI, with the potential to have adverse consequences for farmers such as in the form of reduced prices for livestock or through the imposition of new specifications at short notice.’ These concerns were echoed by NFU Scotland and individual farmers.

In relation to the impact on retailers, consideration focused on the extent to which customers of the two companies could switch

to other suppliers if they used their greater marketing power to increase prices.

However, no consideration was given to the impact of the merger on small abattoirs, independent butchers shops or local producer-retailers who were not consulted. HM Treasury’s *The Green Book* is intended to guide all government departments and agencies in decision-making in relation to ‘The need to take account of the wider social costs and benefits of proposals.’ The CMA failed to follow these guidelines.

The merger was also considered by the Irish Competition and Consumer-Protection Commission (CCPC). Again, the focus was on whether the merger would reduce competition between slaughterhouses for farm animals and as such lead to lower prices for farmers.

The Commission accepted evidence from six beef processors that ‘switching between slaughterhouses is a feature of the industry,’ and rejected evidence submitted by the Irish Farmers Association (IFA) that, ‘...There is a strong body of evidence which points to weak competition for farmers selling cattle and sheep to meat factories in Ireland and further transactions in line with the Dawn Meats/Dunbia proposed merger is likely to weaken competition even further.’ This position was strongly supported by Irish Creamery and Milk Suppliers Association (ICMSA). The IFA also argued that switching between abattoirs is not a feature of the industry because ‘farmers have little or no alternatives in regard to switch in practice.’¹⁶

However, by concluding that the merger would not have ‘significant effects’, the CMA and the CCPC appear to accept that it may have a small effect. What they overlook, and what needs to be considered independently, is the cumulative impact of small changes over time, especially in an industry which now has exceptionally low profit margins, in significant part due to supermarket pricing policies. These put pressure on all sectors of the meat industry but the bigger players are better able to survive.

¹⁵ CMA (2017) Anticipated joint venture between Dawn Meats and Dunbia – Decision on relevant merger situation and substantial lessening of competition. Available at https://assets.publishing.service.gov.uk/media/59df27a440f0b61ab035cb2b/dawn_meats_dunbia_decision.pdf

¹⁶ CCPC (2017) Determination of merger notification M/17/035 - Dawn Meats/Dunbia, <https://www.cpc.ie/business/wp-content/uploads/sites/3/2017/06/M-17-035-Dawn-Meats-Dunbia-Public-1.pdf>



John Mettrick, who has a butchers shop and small abattoir in Derbyshire. Bob Kennard

This contributes significantly to the combined over-capacity in Welsh abattoirs of 24,000 additional cattle and up to 2.4 million extra sheep annually. This raises the question of whether the large grants made available to this and other slaughterhouses created the over-capacity and this has indirectly contributed to the problems of smaller abattoirs?

This raises a further question. Are some slaughterhouses, like some banks, too big to fail? In 2016, 2 Sisters received national media coverage when it blamed low profitability in the industry for having to close its retail packing facility near Merthyr Tydfil, with the loss of 350 workers.

Welsh politicians quickly expressed concern and entered into discussions with the company to see how the jobs could be saved. However, it has subsequently emerged that the closure was part of planned efficiency savings and restructuring by the group. The retail packing plant has been relocated to the company's facility at Bodmin in Cornwall and plans have now been announced to invest £1.4 million at the South Wales' plant to expand the cutting and deboning facility. It is not yet clear whether any of this money will be in the form of grant aid. But it is clear that these proposals will lead to a loss of jobs at other meat plants and a lot

of additional food miles for meat, with inevitable environmental consequences.

This is because there are only a limited number of cattle and sheep in the UK and numbers have been declining, so every time a large meat company expands a plant and creates more jobs, just as many, or more, jobs will be lost at smaller abattoirs and cutting plants elsewhere. Meat Promotion Wales has expressed its support for 2 Sisters' development plans, but in a report published in 2016 it pointed out that while most abattoirs in Wales are Welsh owned, three of the largest five, which together slaughter 95% of all sheep, are not. These were Dunbia (Wales), Randall Parker Food Ltd and 2 Sisters. The report said this was leading to uncertainty since a high proportion of 'slaughtering decisions' are now taken by companies based outside Wales. It also expressed concern that due to the current low profitability, few owners of smaller Welsh abattoirs had family members interested in taking on the business in future.¹⁷

Profitability

According to several sources, abattoirs alone are lucky to break even. It is the ancillary services, such as retail butchery and contract butchery and packing which enable the businesses to be profitable. A feasibility plan for a proposed abattoir on the Isle of Skye had shown that whilst the abattoir just broke even, it was storage, butchery and further processing which would make it financially viable.

One abattoir owner quoted the prices of skins. He said that historically, the sales of skins would have covered the cost of killing, but no longer. He had just received notification that skins prices had fallen to very low values, and in some cases, such as pelts, they would be charged 50p each to take them away. The larger plants, due to economies of scale could still get up to £40 for a hide, whereas this smaller plant owner was only able to receive £10. Removal of offal was costing one very small plant £200/week – a significant cost to that business. Hides and skin companies have been brought up by large meat companies. Consideration is needed into whether this is partly behind to very low prices paid to small abattoirs.

¹⁷ Hybu Cig Cymru (Meat Promotion Wales) (2016) Assessment of Capacity in the Welsh Red Meat Slaughtering Industry. Available at, http://hccmpw.org.uk/about_hcc/corporate_publications/capacity_in_the_welsh_red_meat_slaughtering_industry/

Burden of Regulation

In a telephone survey of a selection of smaller mobile abattoirs we heard some strong feelings. One owner stated, “Nobody helps: we’re fighting bureaucracy all the time. They just don’t want us”.

Another owner, having just had his third type of business inspection in three weeks, this time a fire risk assessment, said “I have been involved in running this business for 50 years, and we have survived despite the onslaught of regulations. Customers come to me because I sell the best quality meat. Why would I want to destroy that reputation by cutting corners, but the officials don’t understand that. On killing days, I start at 4.30am, and I think what are they going to find wrong today? I go to local markets to buy the best quality lambs, which cost me £85, so why would I be cruel to these animals, which would damage the carcass?”

Several industry experts suggested that small independent abattoirs are over-regulated, which is having a disproportionate impact on these smaller plants, in both cost and management time. Whereas larger plants have specific staff for various regulatory activities, most of these responsibilities fall on the owner in small abattoirs.

The current discussion on the installation of CCTV in abattoirs has split opinion among small abattoir owners. Some say that they have nothing to hide and therefore do not worry about installing it. Others are of the opinion that it is a sign that they are not trusted, and wonder why they are being singled out to spend what one owner said was £16,000, when elsewhere along the supply chain nobody else was being required to do so? This is particularly galling, to him because he feels most of the welfare problems occur during transport to the abattoir.

Age, staffing and development of abattoir sites

While there are no official statistics on the age of smaller abattoir owners, many are at or beyond retirement age. Unofficial figures put the average age at around 68. Whilst some sons or daughters are happy to take over the family business, most are not, according to an industry expert. Several owners said that running a small abattoir is very hard work, and not attractive to many young people.

Recruitment is also increasingly difficult, with Eastern European staff often being the only option. What will happen after Brexit is giving many owners pause for thought. The skills shortage is being addressed by Trailblazer apprenticeships, but take-up by the industry scheme is understood to be limited.

Often abattoirs are situated on prime development sites, and according to a number of industry insiders the temptation to cash in by selling the abattoir site to developers is becoming increasingly attractive, especially when the profits are so low.

Management

Good management is key to the success of a small abattoir as it is to any business. Finding key staff to operate in a sector which is both far from attractive to work in, and notoriously subject to low margins adds to the difficulties.

Sales

According to one representative body, the numbers of butchers’ shops continues to fall, and they expect more closures in 2018. There are some bright spots in the independent sector, such as an increase in farm shops, but the net effect is fewer independent outlets.

The Brighter Side

This rather negative outlook is not universally shared amongst all small abattoir owners, and some consider they are making a reasonable living. In a report on the abattoir sector in 2016, the Meat Trades Journal¹⁸ quoted Prys Morgan of the Welsh Levy Body HCC as saying, “Small abattoirs are still very important, with the contract kill sector selling direct to market doing very well.” This view though is disputed by some Welsh abattoir owners. The HCC’s own report on abattoirs in 2016¹⁹, stated, “Numbers are steadily declining and in the last two years, three abattoirs have closed or suspended operations in Wales. The cattle and sheep slaughtering sectors are dominated by large abattoirs whilst the pig slaughtering sector is dominated by small and medium sized abattoirs.”

¹⁸ http://meatinfo.co.uk/news/fullstory.php/aid/19808/Focus_on:_Abattoirs.html

¹⁹ Assessment of Capacity in the Welsh Red Meat Slaughtering Industry March 2016



Producer-retailers unloading animals at a small abattoir in South Gloucestershire. Ian Boyd

In the same Meat Trades Journal article, Norman Bagley of AIMS (Association of Independent Meat Suppliers) said, “Waste disposal costs have gone through the roof, and hides and skins are getting towards useless.” Another representative body, the National Federation of Meat and Food Traders, which includes abattoir owners and butchers amongst its members also paints a fairly negative picture. As far as can be ascertained, an in-depth report on the smaller abattoir sector has not been produced in recent years, and hard statistical data is difficult to come by. Overall, it is the closure rate of these plants which probably most closely reflects the state of the sector, and this closure rate shows no signs of abating.

The Profitability of the Wider Abattoir Sector

Reliable data on abattoir profitability is difficult to access. However, one source – Plimsoll Abattoir Analysis October 2017²⁰ – gives an analysis of “the performance, financial health and value of the UK’s 119 largest abattoir companies.”

The latest version of this report shows the financial state of the companies: Strong (49); Good (12); Mediocre (17); Caution (16). The report goes on to say, “34 Companies are making a loss. As a further sign of the intense competition within the UK industry, 16 companies continue

to sell at a loss for the 2nd year running. These serial loss makers are adding to the congestion in the market, often undercutting the rest of the market and driving down profit margins across the board.” The report goes on to state that the top performing companies (26% of the total) show a 5-year profit level of 4.1%, whereas the bottom companies (74%) have an average margin of 0.2%.

Overall, this confirms anecdotal evidence that the industry is generally working on very low margins, with the financial outlook poor for a significant number of even larger abattoirs.

Margins are also tight for the larger abattoirs supplying the supermarkets. Norman Bagley of AIMS says, “There’s been a five-year period of competition between the major retailers for survival, and who knows how it’s going to turn out with the big processors in the middle.”²¹

It is this downward pressure on profitability by the supermarkets and other large outlets which filters down to the smallest abattoirs. Without economies of scale, and with regular legislative requirements for new expenditure, together with relatively harsh working conditions, these factors have pushed many smaller abattoirs into closure, and as the latest data has shown, continue to do so.

²⁰ <https://www.plimsoll.co.uk/market-reports/abattoirs>

²¹ Meat Trades Journal, Focus on Abattoirs June 2016 https://meatinfo.co.uk/news/fullstory.php/aid/19808/Focus_on:_Abattoirs.html



An organic suckler herd on the Cotswolds. Richard Young



Traditional Hereford cow and calf enjoying the 'Good Life'! Bob Kennard

4. REASONS TO SAVE SMALL ABATTOIRS

Smaller abattoirs, offering private kill facilities, play a vitally important role in rural economies and serve a number of specific needs which cannot be met in other ways. They are catalysts for major contributions to animal welfare, the environment and the local economy. Perhaps most importantly, smaller local abattoirs are the only method of delivering traceable, locally-produced meat to consumers. Without such abattoirs, a renaissance in local meat will be impossible.

Local, Traceable Meat

Smaller, local abattoirs provide slaughtering facilities for farmers who need relatively small numbers of animals slaughtering. In many cases they are also the only abattoirs willing to slaughter animals for farmers and return the carcasses to them. Without this service, farm shops, farmers markets, local butchers and on-line farm-retailers could not operate their businesses, and consumer choice would be seriously diminished.

For these farmers, the economics and the practical problems of taking a few animals on long journeys to slaughter also creates huge

expense and practical challenges, as well as unnecessary stress for both the livestock and the farmers themselves. In some cases, where small local abattoirs have closed it is no longer economical for a small farmer (and this can even include those producing several hundred cattle, sheep or pigs a year) to stay in business, and this is one of the factors which forces them to sell up, and simultaneously one of the factors which is accelerating the demise of small farms generally and powering the continuing rapid expansion of larger ones.

Animal Welfare and the Environment

As abattoirs close, so animals must be transported ever greater distances to slaughter. This not only increased greenhouse gas emissions and air pollution, but it also causes greater discomfort and stress for the animals. This is due, in part, to the fact that the animals have to endure a longer journey, when they are in cramped conditions and unable to lie down; in part to the fact that they are generally fasted before transport and slaughter and may therefore be hungry or thirsty before the end



Ramps for loading animals onto lorries can be very steep. www.alamy.com



Ramps on livestock trailers are less steep than on lorries, making loading less stressful. Simon Cutter



Local abattoirs ensure employment for skilled local butchers. Bob Kennard

of a long journey, and in part because those animals which have never been taken off the farm before, will be anxious for longer. But there is also an issue with the stress of loading. Many farms cannot afford, or may not even have the space, to install concrete loading ramps. Loading animals onto lorries is often much more difficult than loading them into a livestock trailer behind a 4-wheel drive vehicle because the ramp is much steeper.

Food Hygiene

Longer travelling times also have an impact on meat hygiene, as noted by a report from the Parliamentary Office of Science and Technology in 1997,²² which stated, when analysing the impact of the EU meat hygiene regulations, “The tight [EU] hygiene standards may well have reduced the contamination of meat from animals by a factor of 2-5. But this would be cancelled out very quickly if even a few more animals arrived [at the abattoir] in a soiled condition, when levels of contamination can jump 1,000-fold. The latter appears very likely to have

been the case given the increased journeys and holding times required by the dramatic drop in the number of slaughterhouses.’

Local butchers’ shops

One of the few advantages independent butchers’ shops have over supermarkets is where they are able to source and slaughter livestock from local, known farms. This reduces food miles dramatically, which some consumers recognise as important and it re-enforces a sense of community. In many cases it can also result in meat of better quality and taste due to the use of more traditional breeds, less intensive production methods and/or lower levels of stress prior to slaughter. Where a local abattoir closes, remaining butcher’s shops become dependent on the larger abattoirs to supply them with anonymous meat from intensive producers. While they try to hang on one of the problems they encounter is that it is difficult to compete with the supermarkets on price and they no longer have the advantages that come from marketing locally produce meat.

²² Safer Eating – Microbiological Food Poisoning and its Prevention, October 1997

Employment and the Rural Economy

Local abattoirs also provide local jobs. While unskilled work in large throughput slaughterhouses is often seen as degrading and the labour is predominantly from outside the UK, smaller abattoirs train and retain fully qualified slaughtering staff. While the work is physically hard, the staff have the skills of craftsmen and take a pride in and gain satisfaction from it. Dependable skilled slaughtermen are also highly regarded within rural communities.

Without the facility of private kill at a local abattoir, the added value from processing and marketing local meat goes out of the local area. The opportunity to add this value locally for entrepreneurs or farmers' sons and daughters looking for a new enterprise in order to stay on the family farm is denied. It also reduces employment opportunities particularly for young people in these rural areas. By retailing their meat, farmers increase their income and keep more of this within the local economy. Research by the New Economics Foundation found that £1 spent in a local shop puts at least four times more back into the local community than £1 spent elsewhere. This helps to keep small farms in business and also helps to maintain rural communities. Locally sold, traceable meat also helps to encourage tourism and enables the remaining local shops to offer an alternative to the supermarkets.²³

Consumer Choice and Product Innovation

Consumer choice is an important issue. A world without smaller abattoirs, servicing producer-retailers, can be glimpsed by comparing the range of beef offered by one major supermarket on-line with three on-line producer-retailers, chosen at random.

The major retailer's on-line range of pure raw beef has a total of 56 products. However, taking different 'cuts', this reduces to 23, as many of the individual items are simply different pack sizes, or sub-brands. Analysing the range offered by three randomly chosen on-line producer-retailers, using local, private kill abattoirs, a different story emerges. These smaller enterprises offer 44, 65 and 31 distinct cuts

of beef. In bricks and mortar stores, few large retailers have anything like as many pre-packed cuts as the 23 offered on-line, with around 10 being the usual offering in most stores. For local farm shops and traditional independent butchers however, most have their own butchery attached, and skilled staff who can produce an almost endless range of cuts from the carcase.

'Innovation' in supermarket meat normally means a new sauce or other 'added value' product. Smaller butchery outlets offer greater real choice, and genuine innovation, such as Barette Steak. Far more choice of offal is also normally available through independent retailers, an important issue for hard-pressed consumers trying to save money but eat well.

Casualty slaughter

Small abattoirs also serve a very important need for all farmers, large or small. If, for example a cow slips and breaks a leg, or is physically injured in some other way, (something which happens on most farms occasionally in, for example, icy conditions), the animal can legally be slaughtered on the farm for human consumption if the animal is inspected by a veterinary surgeon and passed as fit for slaughter, a licensed slaughterman carries out the task and bleeds the animal and, most importantly, the animal can be transported to a local abattoir within one hour of the moment of slaughter, all times having to be recorded precisely. For some producers this is no longer possible while for others it is becoming increasingly problematic since heavy traffic, road works and the increasing distances involved can force drivers to exceed speed limits and even then sometimes not arrive in time. For the farmer this represents a huge loss because he's paid the vet, the slaughterman and the abattoir and yet the carcase then has to be condemned simply due to the time it has taken to get to the abattoir.

We've Been Here Before

When the threat of substantially increased meat inspection charges hung over most smaller abattoirs in 1999-2000, a campaign was launched to save the sector. One key action was a joint letter to the responsible government Minister, requesting that action be taken to avoid the mass closures of small abattoirs and cutting plants. In the previous ten years over 1,000 mostly small abattoirs had closed.

²³ 'The Money Trail', New Economics Foundation, December 2002

Part of the joint letter to the Minister stated: “The loss of small to medium-sized plants (often several generations old) will obviously be a disaster for those directly concerned, but ramifications will be felt well beyond the meat sector. For example, local sales of locally produced meat will become virtually impossible if local slaughtering and cutting plants close. There will also be serious detrimental effects across the rural community, on the environment, animal welfare, food quality, employment and consumer choice.” The letter concluded, “We hope the result of [avoiding further mass closures] will be that the British public can continue to enjoy the rich diversity which our meat industry has to offer.”

The letter was signed by over 200 organisations, reflecting the wide and varied impacts the closure of small abattoirs would have. These included conservation and wildlife bodies, the Church of England, farming unions, business organisations, meat industry bodies, village shops, organic and local marketing organisations. When the letter was raised with the Minister in the House of Commons,²⁴ one MP said, “Given that small abattoirs represent a tiny sector of a relatively small industry, that level of concern and support is unprecedented.” The Minister responsible, Parliamentary Under-Secretary of State for Health Yvette Cooper replied, “From the outset, I must emphasise the fact that the Government recognise the importance of small and specialist abattoirs to the rural economy.”

These comments made about smaller abattoirs almost 20 years ago remain just as valid today as they did then. What is different is that since then many of these smaller abattoirs have closed. It

has been described, rather appropriately, as the death of 1,000 cuts.

What is at Stake

If we allow small abattoirs to continue closing at their current rate and do nothing to turn the tide, we will be signing the death warrant for many livestock farms in the UK and killing off most of the growing trade in locally-produced meat, be it organic, grass-fed, heritage breed, rare breed or free-range.

We will be removing consumer choice, as the infrastructure needed for supplying traceable and local meat will be lost.

When a smaller abattoir closes, the economic impact on many rural communities is far greater than simply the loss of jobs at the abattoir, as many other businesses will rely on the meat produced at the abattoir as well as the maintenance, delivery and other associated work.

Both animal welfare and the environment suffer when a small abattoir closes, as animals will have to travel considerably further.

Smaller local abattoirs offering private kill are far more than a building where animals enter and meat leaves. The implications of their loss are hugely significant, and as far as we know, their many benefits have never been measured. Conversely, creating the right conditions to encourage the construction of new local abattoirs would add all these benefits to the local area.



St Merryn Food Group abattoir in south Wales, believed to be the UK's largest slaughterhouse

²⁴ Hansard, HC Deb 06 June 2000 vol 351 cc21-8WH

5. ABATTOIR DISTRIBUTION AND LIVESTOCK DENSITY MAPS

The maps given here must be viewed as a guide, rather than an accurate indication of plants which would offer stunned private kill, as it includes all abattoirs slaughtering up to 5,000 LSUs. Equally, some larger abattoirs over 5,000 LSUs may offer the service, but are not included here.

The distributions of low-medium throughput abattoirs for cattle, sheep and pigs is compared with livestock density maps for Great Britain. Data produced by AHDB shows UK regional livestock

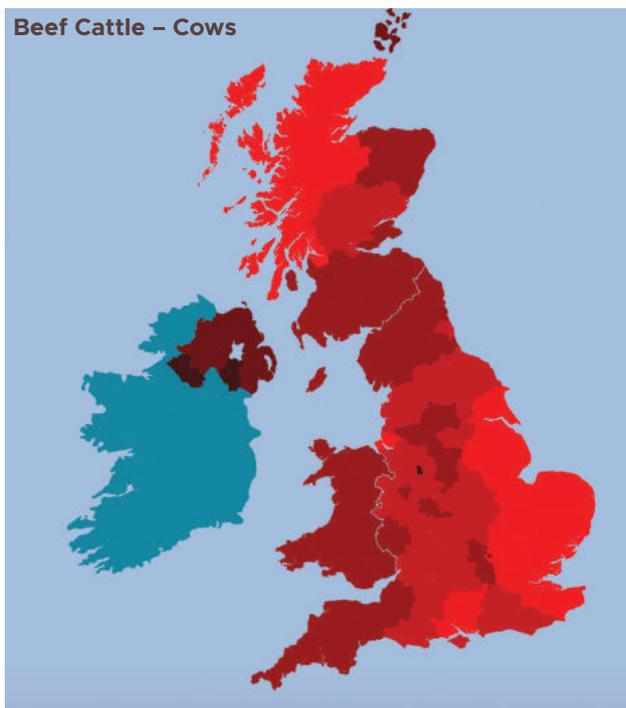
density by species (all data from October 2014). This is compared with smaller abattoirs for that species (no data for Northern Ireland).

It can be seen from the distribution maps that there are large areas of the UK without easy access to the smaller-sized abattoirs. One swathe stretches from the Isle of Wight through Oxford to Cambridge; Scotland is particularly badly served, with the Highlands virtually without facilities, as is north-east England.

Cattle

Correlation between cattle production and smaller abattoir capacity

This shows several areas particularly in Scotland, northern England and mid-southern England where no smaller abattoirs exist, yet cattle production is strong. Vast swathes of the country now have no smaller abattoirs able to slaughter cattle. Yet several of these blackspot areas are close to large urban populations, where demand for traceable local meat is growing.



Beef Cattle – Cows
Cows per 100 hectares of farmland. Oct 2014
■ No Data ■ <5 ■ 5-10 ■ 10-20 ■ 20-30 ■ >30

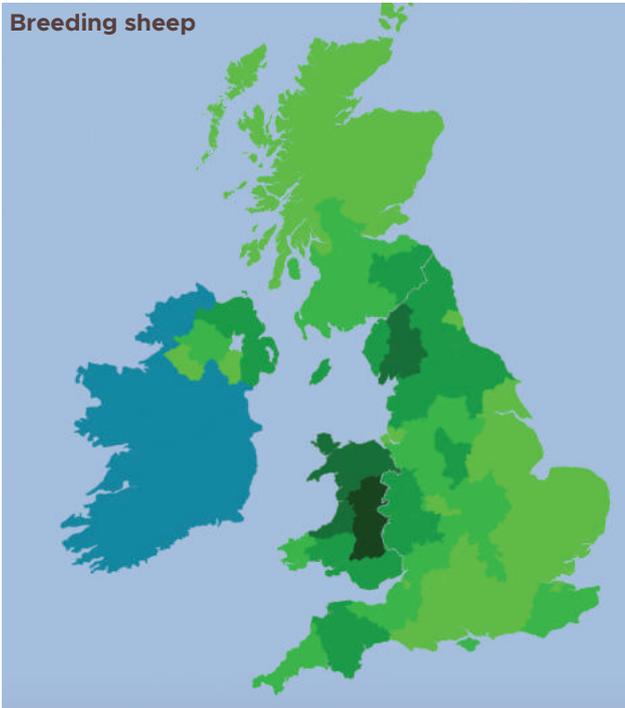


GB cattle abattoirs (up to 5,000 LSUs per year)
⬡ Abattoirs ⬡ Abattoirs with cutting plants

Sheep

Correlation between sheep production and smaller abattoir capacity

Southern Scotland, mid-Wales and parts of northern England have poor abattoir coverage yet high sheep density. Virtually the whole of northern Scotland is devoid of smaller abattoirs for cattle and sheep.



Ewes per 100 hectares of farmland. Oct 2014



Pigs

Correlation between pig production and smaller abattoir capacity

Unlike cattle and sheep production, pig production in the UK is overwhelmingly intensive, using larger abattoirs, although farmers retailing pork from their own pigs will normally be producing them extensively, and in relatively small numbers. The central southern England swathe, and much of Scotland and northern England are poorly served with private kill pig abattoirs. Even in areas with lower livestock densities and large populations, many people will want to buy local meat, yet the infrastructure to enable the development of a local meat culture has already disappeared.



Pigs per 100 hectares of farmland. Oct 2014



6. WHY ARE NEW SMALLER ABATTOIRS NOT BEING BUILT?

From the available evidence, it appears that proposals for new, smaller local abattoirs are produced quite often, as the idea of local meat becomes more mainstream, and local entrepreneurial farmers wish to add value to their livestock by retailing or wholesaling their meat. However, most of these proposed abattoirs have never been built.

We have followed up some proposals to find out whether or not they have been successful, and if not, why not?

Bishops Castle, Shropshire

There had been an abattoir at Bishops Castle in Shropshire for many years. However, the business owners closed the meat plants in 2007, to a great local outcry.

In 2009 a group of farmers and local people, including the local MP, funded the re-opening of the abattoir, aimed at processing livestock from the local area. The abattoir was called Daysdrove, as it intended to source animals which had been reared within a day's drive of the plant. The company also opened a butcher's shop nearby. Former district councillor Georgie Ellis, was quoted as saying, "This has been a great example of local producers rallying around together to re-establish a facility to meet local need. I hope it is able to establish itself in the market to ensure a vibrant future and become once more an important employer in Bishop's Castle. Having a quality abattoir in the centre of one of the country's main livestock areas not only makes sense in reducing travel time for farmers but also for their animals. The abattoir is going to aim for the top of the quality market; for the best meat animals ought to travel no further than ten miles to slaughter (the longer the travel the tougher the meat). The abattoir has a very good layout for the large area, which also minimises stress for the animals." However, by 2012 it had closed. Local reports said it had been, "too small to compete with major retailers," others said it had been unable to pay the going rate when livestock prices rose. Others quoted management problems.

In discussion with Matt Mellor, an ex-Director of Daysdrove, he said a number of lessons

had been learned. Firstly, they had insufficient working capital, and they took on butchery staff before they had sufficient orders, which meant they were immediately chasing volume to pay the staff. Then they were hit with two sudden external forces. They launched Daysdrove at a time of record highs in livestock prices. "In the first twelve months, beef prices went from £2.40/kg to £4.00/kg. We therefore had problems securing stock. Finally, the enterprise also hit the Great Recession. Selling premium meat at such a time was not easy," he said.

Overall Matt thinks the strategy was wrong. "We tried to act in the cut-throat wholesale and retail meat market. As new players we were at an initial disadvantage, and with the external financial storms, we could not remain afloat... I think if most of us involved had our time again, we would still embark on the venture, but we would have operated the business as a private kill strategy, and be simply a service abattoir without taking ownership of meat. There are enough people around who want their animals processed that we could have succeeded that way." Matt concluded by saying that running a meat business successfully is a very difficult and complicated job. If you can avoid buying and selling meat, and just provide a service, that has a lower risk route.

Skye

The project proposal²⁵ showed a positive return on investment for the Isle of Skye, and a very real need for such a facility, as otherwise livestock have to travel long distances off the island for slaughter.

When the feasibility study was completed in 2016 the report stated, "The abattoir could operate at a modest profit if the build was fully grant aided." The management group was told originally that they would have 80% of the total project cost covered by grants. However, the application was turned down and it will now only attract 40% funding, due to problems of State Aid and EU competition rules. This is where the project is currently stranded, despite some very

²⁵ Skye and Lochalsh Meat Supply Group (2016). Business Rationale for Micro Abattoir in Skye and Lochalsh

enthusiastic support from the local community, Council and organising committee.

Isle of Wight

The “Island Abattoir Feasibility Study” was approved by the Isle of Wight Council in 2008, again with strong local support. However, according to the council it has not progressed due to lack of local businesses willing to take it on. This means that all farm animals on the Isle of Wight have to undergo a sea crossing before they are slaughtered.

New Forest

A feasibility report from 2013 showed²⁶ that while there is demand for an abattoir in the New Forest from producers wanting private kill, the project would be too financially marginal for commercial funding. Grant funding was potentially available, but the project has not been taken further due to lack of, “local leadership willing to push hard enough for it.”



Small abattoirs have been the heart of the revival of interest in mutton. Bob Kennard

Orkney

The Hatston abattoir in Kirkwall, Orkney, shut abruptly in January 2018, following the Orkney Islands Council’s withdrawal of funding.

Orkney has limited resources, but boasts the highest density of beef cattle in the UK – currently some 26,000 head. The human population is 22,000. The trademark Orkney

Gold beef and lamb was established in 1995, with the view of selling Orkney beef and lamb as high quality premium products. Since 2007, Orkney beef and lamb has a Protected Designation of Origin status (PDO), but for this to be used the animals need to be slaughtered on the island.

In 2016, application was made for PDO protection for North Ronaldsay mutton, as well as Orkney Crab and Orkney Beremeal. This is part of the island’s strategy to produce high quality premium foods. The closure of the abattoir therefore has wide implications for the economy of the island.

In 1981 a new EU-standard abattoir was built at Kirkwall on Orkney, and was refurbished in 2003. However, it proved to be too optimistic in its anticipated throughput. Orkney Meats, the company which ran the abattoir ceased operations in 2012, and the Orkney Islands Council leased the premises to the Orkney Meat Processors Limited which was formed in 2012 by four local butchers. The abattoir was too large for the throughput, and although the council had spent £1m on refurbishing the building, it was very inefficient, expensive to run, and requires further substantial capital expenditure.

The abattoir at Hatston had been processing about 50 animals a month. These animals will now be shipped on a 10-hour boat journey and 4 hour road trip 150 miles south to Dingwall for slaughter, and will lose their PDO status.

In December 2017, the Orkney Islands Council launched the ‘Abattoir Challenge Fund’. This offered £50,000 to “encourage the private sector to become directly involved in developing a solution to the challenge of providing sustainable abattoir services in Orkney.” To date the fund remains untouched.

The problems of the Orkney abattoir are complex, but it seems clear that despite the islands’ PDO, and grass-fed products, it cannot operate as a commercial abattoir business, without public money supporting it.

Currently, discussions on the future of Orkney’s abattoir facilities continue between local officials, the Scottish Government, the Scottish NFU and other interested parties.

²⁶ New Forest Abattoir Feasibility for New Forest National Park Authority and New Forest Produce Ltd

7. HAVE WE REACHED A CRISIS POINT?

The key question which arises is how close are we from this point of no return for local meat?

The fact that the loss of many smaller abattoirs is being highlighted by farmers as a reason not to diversify into selling their own meat is one indication that things have already reached crisis point in some regions.

There is strong anecdotal evidence from both consumers and producers to suggest that there is already pent-up demand for local meat which is being blocked by a lack of abattoirs able to carry out private kill. In an on-line survey currently being conducted by the National Sheep Association, as part of its feasibility study on 'British Heritage Sheep – New Tastes from Old Traditions', views are being sought along the supply chain of UK native sheep breeds from producers to retailers.

“What price do you put on knowing the farm that your meat comes from, the humane and skilful process it has gone through, and the smiles of the satisfied customers whose families have shopped with us for generations? ”

John Mettrick, butcher and small abattoir owner in Derbyshire

The initial 51 farmer respondents to the survey produced heritage breed sheep both for sale as live breeding animals (78%) and for meat. Almost half (45%) sold at least some of their animals live into the mass meat market, and 65% sold butchered meat. When asked, 'Would you increase your Heritage Breed numbers if there was a better market for them?', 75% replied yes. When asked what were the main problems in selling their meat, two issues which featured strongly were slaughtering/processing costs and transport costs. The average round-trip distance to a suitable slaughterhouse for this group of farmers was 54 miles, but 8% had round trips of over 100 miles to get their animals slaughtered. For these worst affected producer retailers there was then a second 100 mile round trip to get the carcasses back.

Two producer-retailers in North Gloucestershire (one of them a co-author of this report) now have round trips to and from their nearest

suitable abattoir of approximately 80 miles. Both farmers take their animals themselves. Including unloading time the round trips average 2.5 hours in length. Allowing 75p per mile for travel and £12 per hour for the driver, this comes to £90. The carcasses have to be returned to the farm at a cost averaging £45, making a total of £135. This makes a very large hole in an already small profit margin. For reasons like this many farmers, butchers and others who want to market local meat are now unable to do so due to the distances involved in having animals slaughtered and processed. In Scotland the problem is particularly acute. One farmer commented, "If we sell direct to Morrisons we go to Turriff about 32 miles, but if we want to do private kill we would have to go to Dingwall which is about 150 miles! So we no longer are able to market our meat direct to the consumer as it is not feasible financially. If only there were slaughterhouses closer. How can we get more slaughterhouses to do private kill? We have a ready and willing market for our produce."

Elsewhere in the UK, similar problems are described about access to abattoirs in the NSA's Heritage Breed Project survey:

- "There is a lack of abattoir and cutting facilities for farmers in Northumberland National Park"
- "Lack of private kill slaughter houses is forcing small niche producers out of business. If we could have a mobile slaughterhouse, several small-scale producers would be able to continue. There is not a problem getting the meat butchered but just slaughtered."
- "Limitation is really abattoirs"
- "Closer [abattoir] would be better. This is a small abattoir that teeters on the brink of closure and the closest then that does private kills is around 60 miles away"
- "The demise and closure of local slaughter houses is a major issue."

But with three-quarters (74%) of all abattoirs currently making an average profit of just 0.2% and 34 actually losing money (see section 3, above), many within the industry are expecting further abattoirs to close before long, unless action is taken to save them.

8. ON-FARM ABATTOIRS – A POTENTIAL NEW DIRECTION FOR LOCAL MEAT PROCESSING



The UK's first mobile abattoir at work in the 1990s. Miriam Parker

Mobile Abattoirs

Background

Mobile abattoirs are complete slaughtering systems which can be moved between farms or other suitable locations, enabling on-farm slaughter of livestock. Prototypes of mobile abattoirs have been tested in Britain, France, Australia, and Canada,²⁷ and are currently used in Sweden for reindeer and 'spent' hens and in the US for cattle, poultry and other species.

There is strong feeling amongst a number of producers and consumers that the ideal system of slaughtering farm animals is on-farm. For animals that have spent their entire lives on one farm, the process of transporting them to an abattoir, often many miles away, has animal welfare issues because it causes stress, which can be entirely avoided when animals are

slaughtered on-farm. Loading and transporting can also adversely affect the quality of the meat.

EU regulations

Paragraph 40 of "Council Regulation (EC) No 1099/2009 of 24 September 2009 on the protection of animals at the time of killing"²⁸ states:

"Mobile slaughterhouses reduce the need for animals to be transported over long distances and therefore may contribute to safeguarding animal welfare. However, technical constraints for mobile slaughterhouses differ from fixed slaughterhouses and technical rules may need to be consequently adapted. Therefore, this Regulation should provide for the possibility to establish derogations exempting mobile slaughterhouses from the requirements on layout, construction and equipment of slaughterhouses. Pending the adoption of such derogations, it is appropriate to allow Member

²⁷ Babb, A. and Kennedy, E. (2012) Mobile Slaughter Unit Feasibility Study. Prepared for the Department of Natural Resources Forestry and Agrifoods Agency. Available at http://www.faa.gov.nl.ca/agrifoods/animals/livestock/pdf/slaughter_unit.pdf

²⁸ Official Journal of the European Union (2009) Council regulation (EC) No 1099/2009. Available at <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32009R1099>

States to establish or maintain national rules regarding mobile slaughterhouses.”

Annex II of this regulation makes specific provision for such derogations. An earlier paper from Scandinavia in 2005 on mobile abattoirs states, “According to the EU regulation on the hygiene of foodstuffs (EC) No 853/2004, mobile abattoirs are approved for all kinds of animals.”²⁹ This regulation sets out provisions for ensuring food safety and states, “It is appropriate for the structural and hygiene requirements laid down in this Regulation to apply these to all types of establishments, including small businesses and mobile slaughterhouses.” It is clear that the way is open for UK rules on the use of mobile abattoirs, and that the EU Regulations are not explicit about what the requirements should be.

The wider picture

The revival of interest in mobile abattoirs is a world-wide phenomenon, primarily because fewer larger abattoirs are supplying a mass meat market worldwide. This has been at the expense of more local abattoirs. Mobile abattoirs are seen as one of the possible solutions to this. Several countries are currently looking at the mobile abattoir concept, driven by consumer demand and the closure of static local abattoirs.

Mobile abattoirs in the UK

During the 1990s two mobile abattoirs were tried in the UK. One, established by the Humane Slaughter Association (HSA) was built to service several farms along the M4 corridor but ended up as a static abattoir on an organic farm at Castle Coombe in Wiltshire. This unit caught fire in 1999 and despite detailed plans being drawn up it was not actually replaced. The other operated in the Brecon Beacons. Sadly, neither lasted very long as a commercial operation. Two primary reasons for this were:

- Significant infrastructure costs required by the regulatory authorities at each farm involved in the scheme.
- Inspection costs, both ante- and post-mortem.

Miriam Parker, pioneered the development of mobile abattoirs in the UK and pushed the EU, on behalf of the HSA, which she worked for at the time, to enshrine them in legislation.

²⁹ Benefalk, C., et al. (2002) Mobila slakterier for notkreatur och svin (Mobile abattoirs for beef and pigs). Report no. 30, Swedish Institute of Agricultural and Environmental Engineering. Uppsala, Sweden.

She told us:

“It was the right idea but at the wrong time. In the wake of the BSE crisis regulators were particularly hard on farmers and all aspects of the slaughtering industry, but after the 2001 Foot and Mouth crisis attitudes started to change and conditions are far more conducive today.”

Recent interest in the concept of mobile abattoirs has developed in several parts of the UK, with a number of farmers and consumers considering that the time is right to look at them again, and see if it is possible to address the problems which arose in the past.

New UK initiative

A small producer group led by Fir Farm in Gloucestershire and coordinated by land agent Paddy Hoare, is currently looking at the practicalities, regulations and financial viability of establishing a mobile abattoir to operate in the North Cotswolds.

They have carried out an on-line survey amongst potential supportive groups. The survey resulted in 219 responses, including 66 farmers, and yielded very positive replies both amongst the farmers and consumers. Ninety-two percent of the latter said they would be prepared to pay a premium for animals slaughtered on the farm.

The Fir Farm objective is to create an on-farm slaughter system that is safe, and also achieves the highest standards of animal welfare and meat hygiene. The system will ensure that farmers using it can produce high quality meat that can be sold at a premium direct to local markets.

Current proposal

The proposal and associated costings are not yet finalised, but current plans are to have two trailers pulled by agricultural tractors, one being the slaughter trailer and the second being the processing trailer, with chiller unit.

The system aims to be adaptable to individual farmer’s needs, but would travel to designated farms where animals would be slaughtered and the carcasses dressed. Farms with their own cutting plants/butchers shops would only require the slaughter trailer, with hanging and butchery carried out on-farm. Where farmers do not have a cutting plant, the carcasses would be taken to a central cutting plant, hung and subsequently butchered to the farmer’s requirements.



Example of a mobile abattoir in use in Sweden (halsingestintan.se). Malin Hoelstad

It is currently envisaged to have a staff of two, one being a licensed slaughterman. Some administrative input and overall management will also be required.

On farm capital works

Each participating farmer would need to provide holding and killing pens, hard-standing and washing facilities, depending on the statutory requirements that could be agreed with the FSA. But it is hoped that UK regulators will not require such extensive and expensive static facilities on each farm as they did in the 1990s, as this was one of the major impediments to the use of mobile abattoirs by more farmers.

Examples of mobile abattoirs in other countries

Sweden and France

Mobile abattoirs had been manufactured and operated in Sweden, initially for use with deer, as early as the 1960s.

Britt-Marie Stegs, CEO and founder of Hälsingestintan, a Swedish engineering company, explains about their mobile abattoir system which has been used in Sweden since 2015, and is now being trialled in France:

“The mobile abattoir consists of two carriages that contain both an equipage with offices and changing rooms, a trailer containing the slaughterhouse, and an equipage with trailer

with a cold store for the meat. The abattoir goes directly to the farm where the breeder has animals and implements such as [sic] stress-free slaughter as possible. A veterinarian is on hand to ensure good animal welfare. Animals are led to the slaughter wagon by the farmer, who of course is very well known to the animal.”³⁰

Hälsingestintan is currently working with French firm SAS Boeuf Ethique³¹ to roll out a number of these abattoirs across France. The abattoir consists of two trailers which contain everything needed to carry out the operations of a slaughterhouse. Purpose-built in Finland, the system requires a basic staff of four people to slaughter up to thirty animals a day.

Australia

According to Chris Balazs there has been a fall of 75% in the number of abattoirs in Australia over a generation. Balazs is a founder of the company Farmgate MSU³² which is developing a mobile abattoir system in Australia, having looked at such systems elsewhere in the world. He says:

“There’s a lot of the small and medium scale

³⁰ Hälsingestintan (2017) The mobile abattoirs goes directly to the farm. Available at <https://www.halsingestintan.se/eng/halsingestintan/mobile-abattoir/>

³¹ Boeuf Ethique (2017) Abattoirs Mobile France. Available at <http://www.boeuf-ethique.com/p132-abattoir-mobile-france.html>

³² Farmgate MSU (2017) Farmgate MSU. Available at <http://www.farmgatemsu.com.au/>

*farmers who are having trouble getting their cattle either to abattoirs or getting booked in with the abattoirs. So there's very strong demand from farmers and consumers to have mobile slaughter units come into existence.”*³³

Balazs now has the backing of Meat and Livestock Australia to develop a mobile abattoir.

Mobile abattoirs have been long discussed in Australia, but according to grazier Annabelle Coppin who went to study Mobile Slaughter Units in the United States in 2009, the biggest problem is Australian meat hygiene regulations. Annabelle travelled to the US seeking a solution to the 2000 kilometres between her family's Pilbara, Western Australia, cattle station and the nearest abattoir, at Gingin near Perth.³⁴

New Zealand

There are a number of mobile abattoirs in New Zealand. One owner, Hayden Cleland, who has been operating for 10 years, said there had been a sharp increase in the number of orders for home-kill meat. He also attributed the increase in orders to a growing awareness of food standards and practices. “People want to know what they are eating,” he said,³⁵ “Stress changes the taste of meat and if an animal has been standing around in a stockyard before it's killed, it will taste a lot different when it gets to the dinner table.”

Another New Zealand mobile abattoir operator, Netherby meats, says “Our on-the-farm service truck is well equipped for sheep, cattle and pigs. We will slaughter on location and then provide transport back to the butchery chiller for further processing.”³⁶

United States

The US probably has more mobile abattoirs operating than any other country. There are currently nine red meat and ten poultry meat mobile abattoirs in the US. Of the red meat abattoirs, most slaughter cattle and other livestock species, whereas one in Alaska processes reindeer, and one in South Dakota is used for Bison. Capacities vary between 5 and

10 cattle (or equivalents) per day. Two other mobile abattoirs closed in 2015, one, at least, due to financial problems.

Six of the units are approved by the USDA, meaning their meat can be sold across State borders. The first such approved abattoir was developed by The Island Grown Farmers Cooperative (IGFC)³⁷ in Washington State, which embarked on designing a mobile abattoir in 2000. The abattoir was on the road in 2002. They then opened a cutting plant and further expanded into a retail store, operating under the name “Northwest Homegrown”, in 2003. Since then, the business has grown and is urgently looking for additional capacity due to high demand.

The company's website states that, “our product is becoming accepted and known as a locally grown, healthy and tasteful alternative to large corporation meats.”

Canada

In Canada, mobile abattoirs operate in British Columbia and Alberta, and are being investigated in Newfoundland³⁸ and Ontario.³⁹ The phenomenon of smaller abattoir closures has been seen in Canada as in so many other countries. The organisation Sustain Ontario records that, “Overall, the number of provincial abattoirs operating in Ontario has decreased by 40% since 1991. Not surprisingly, between 2004 and 2011 the number of cattle slaughtered each year at provincial plants went down from 189,806 to 95,346. So, given that demand for local meat seems to be on the rise, there does seem to be a growing and worrisome gap in processing infrastructure.

“One third of abattoirs in Eastern Ontario have closed over the past seven years and about half of those are likely to close over the next five years, as they have older owners who may not be interested in investing in upgrading their infrastructure since they would have only a limited time to recoup the investment.”⁴⁰

33 ABC News (2017) Start-up business set to disrupt industry with mobile slaughter unit. Available at <http://www.abc.net.au/news/rural/2017-07-17/mobile-abattoir-push-by-farmgate-msu/8716036>

34 Farm Online (2015) On the road with mobile abattoirs. Available at <http://www.farmonline.com.au/story/3379548/on-the-road-with-mobile-abattoirs/>

35 <http://www.stuff.co.nz/timaru-herald/news/2554175/Homekillbeats-freezing-works-for-taste>

36 <http://www.netherbymeats.co.nz/processing/mobile-abattoir>

37 IGFC (2017). Island Grown Farmers Coop. Available at <http://www.igfcmcats.com/2.html>

38 http://www.faa.gov.nl.ca/agrifoods/animals/livestock/pdf/slaughter_unit.pdf

39 <https://ojs.trentu.ca/ojs/index.php/just/article/view/85/91>

40 <https://sustainontario.com/2012/11/20/13363/news/ontario-meatbasics>

9. MEASURES TO REDUCE SMALL ABATTOIR COSTS AND INTRODUCE ON-FARM SLAUGHTER

The Value of Ante Mortem Veterinary Inspection

One area which caused unsustainable costs for the UK's first mobile abattoir in the 1990s was ante-mortem veterinary inspection. Data produced for William Lloyd-Williams of NFMFT shows the numbers of animals rejected at slaughter by OV's in low throughput slaughterhouses in the first 9 months of 2014 (Source: FSA).

Cattle

None rejected of the 22,679 animals inspected.

Sheep

48 rejected out of 314,814 inspected (0.015%)

Reasons given for rejection were:

- Lameness 23
- Joint lesion 6
- Eye condition 5
- Respiratory 4
- Suspect fever 3
- Trauma 2
- Foot lesion 2
- Dermatitis 1
- Orf 1
- Skin condition 1

Pigs

17 of the 160,668 inspected (0.011%). Reasons:

- Distress 5
- Abnormal respiratory signs 4
- Fight/bite wounds 2
- Other 2
- Hernia/rupture 1
- Lameness – joint/leg lesions 1
- Lameness – not defined 1
- Swelling/lumps 1

This raises the question of whether ante-mortem inspection could become the responsibility of those undertaking on-farm slaughter with CCTV cameras providing reassurance that the task was carried out professionally and a veterinarian called in on the rare occasions when a problem is identified. According to Jim Powell, a retired meat inspector from Worcestershire, this is very similar to the situation which existed in the UK prior to the introduction of EU regulations where abattoir staff and meat inspectors carried out ante-mortem inspections but called in Ministry vets when an animal was suspected of being unfit for slaughter.

Ante-Mortem Inspection Systems – French model

William Lloyd-Williams is an abattoir owner from mid-Wales, and National Federation of Meat and Food Traders (NFMFT) member. Bearing in mind the very low figures obtained from the FSA by the NFMFT, Lloyd-Williams questions the cost-effectiveness of a fully trained OV spending so much time in smaller abattoirs carrying out ante-mortem inspections.

He suggests that a system be adopted from France where the flexibilities made available in the EU Regulation 854/2004 be made use of. In this system, Official Auxiliaries (OAs) carry out the ante-mortem inspections, and the more expensive OV's are only needed to inspect again those animals set aside by the OAs. The system is set out in French Government document DGAL/SDSSA/N2010-8171.

Square Health Stamp

For many years, UK carcasses, passed fit for human consumption had one of two official approval stamps – the 'Oval' and the 'Square'. The Oval meant that the meat could be traded within the EU, whereas the Square stamp, from smaller plants, could only be traded within the UK. The requirements for obtaining a Square stamp were not as onerous as those for export plants requiring the Oval stamp.

There is a good case for reviving this system in order to reduce the disproportionate burden of regulation on smaller plants, without endangering public health. This would create a positive message for consumers that the meat is from an 'Artisanal Meat Plant' for local production of high welfare, safe meat.

Cold Inspection

Carcasses are inspected by FSA officials to ensure that they are fit for human consumption, and that items such as 'Specified Risk Material', which are deemed hazardous to human and animal health, are removed from the food chain.

In order to save the OV or Meat Hygiene Inspectors (MHIs) time waiting for carcasses to

be dressed ready for inspection after slaughter, particularly in smaller abattoirs, carcasses could be set aside in a cold room and inspected at a later time by the FSA officials.

This does require sufficient chiller space at the plant, but in some cases it is a practical way of saving time and costs for officials. It may be possible that these savings could be increased by changing current practices.

Ante-mortem inspection could, with FSA approval, potentially be undertaken remotely by an Official Veterinarian (OV) using a CCTV system via a live 4G or broadband link. This could cover the whole process of slaughter, dressing and presentation of the carcass for meat inspection.

The use of live-streamed CCTV footage and a qualified meat inspector as one of the operatives could potentially eliminate the need for OV and outside meat inspector attendance at the farm throughout the full duration of slaughtering and thereby reduce costs without compromising health or hygiene standards. However, it is currently a requirement that meat inspectors are employed by the FSA.

As detailed in section 10, the incidence of animals being rejected at ante-mortem inspection at small abattoirs is extremely low, so this is unlikely to cause delays in slaughtering very often.

Evaluations of Mobile Abattoirs

A number of studies have been carried out on the prototype systems to evaluate their methods of operation, animal handling, sanitation and food hygiene.⁴¹

These and other studies have shown some technical difficulties with mobile abattoirs compared to static ones, such as achieving sufficiently rapid and uniform cooling of carcasses and the provision of potable water supplies.⁴² The latter at least is unlikely to be a problem in the UK. In addition, pre-slaughter stunning, bleeding and scalding, especially of pigs, is also reported to be more problematic

⁴¹ Carlsson, F., Frykblom, P. and Johan, C. (2007) Consumer willingness to pay for farm animal welfare: mobile abattoirs versus transportation to slaughter' *European Review of Agricultural Economics* Vol 34 (3) pp. 321-344

⁴² Benefalk, C., et al. (2002) *Mobila slakterier for notkreatur och svin (Mobile abattoirs for beef and pigs)*. Report no. 30, Swedish Institute of Agricultural and Environmental Engineering. Uppsala, Sweden

in mobile abattoirs than in normal slaughterhouses.

The financial challenge for mobile abattoirs is to enable sufficient throughput to allow the recovery of both capital and operating costs. Transport between farms, setting up and cleaning of the vehicles and equipment are effectively non-productive down-time. Another financial issue has been that ante-mortem and carcass inspections have been mandatory, often for just a handful of animals at each location, making the costs per animal very high.

On-Farm Pasture Rifle Slaughter

Started in Switzerland, and undergoing trials in Germany, the in-pasture shooting of livestock is demonstrating a low stress system of slaughter for the animals and positive results in meat quality.

"Pasture slaughtering is finally allowed by law in Switzerland," said organic farmer Nils Müller in July 2016. *"We have achieved our goal of allowing our animals to die without suffering where they came into the world."*

The Swiss have developed a method for slaughtering cattle without stressing or transporting them over long distances. The on-the-spot slaughter with rifles was a result of a demand from animal welfare associations such as the Four Paws Switzerland (Vier Pfoten Schweiz) organisation which funded the research. The authorization obtained by the breeder Nils Müller is for his entire cattle herd. It runs until the end of 2018 and can then be renewed.

After the successful completion of the pilot phase with ten pasture slaughters, the eleventh cattle was slaughtered on pasture on 4 May 2016, with, for the first time, an authorization anchored in Swiss law.⁴³

In Germany, there have also been limited trials of the pasture shooting of cattle. The project was carried out on two farms in Northern Germany, both keeping free range Galloway and German Angus cattle. Blood samples were tested from both the slaughtered animals and their fellow herd members, who witnessed the shooting. The Research Institute of Organic Agriculture (FiBL) measured blood parameters during the pilot phase.

⁴³ <http://www.web-agri.fr/conduite-elevage/sante-animale/article/pour-eviter-le-stress-la-suisse-autorise-l-abattage-a-la-ferme-aufusil-1184-120803.html>

The report of the trials⁴⁴ stated:

“Cattle slaughtered in this way showed improved meat quality. Significant differences were found in tenderness (Lower Warner-Bratzler shear strength), water holding ability (lower drip loss), and meat colour (higher L -values). No cattle slaughtered via gunshot method showed final pH-values characteristic for DFD (dark, firm, dry) -meat. The minimisation of pre-mortal stress was even more distinctly revealed by significantly different lactate values. This refers to the animal shot but also to the herd members witnessing the shot and breakdown. Furthermore, transport-related bruises and lacerations can be excluded as a matter of principle when the gunshot method is employed.”*

After shooting in the field, the animals are bled, and then transported, using a special trailer, to the slaughterhouse to be processed in the normal way.

Of course, this system does not add to slaughtering capacity, as the animal must be processed in a local abattoir which is geared up for such a situation. Without local abattoirs, this is not possible.

State Support

Following the example of the Isle of Skye’s proposed abattoir which was refused financial support due to EU Competition rules, it would be useful to review the state support which has been given to the whole abattoir sector. Large abattoirs, such as the one at Merthyr Tydfil, which predominantly supplies Tesco (and when built was the largest area under one roof in Europe), received very large sums of State support. According to the Welsh Government, “The company was offered £6,581,000 Regional Selective Assistance (RSA) Grant in November 1996 for a project to expand meat processing facilities in Dowlais Top, Merthyr Tydfil.”⁴⁵

In 2010 the company received a further £1.2 million grant support via the Single Investment Fund (SIF) from the Welsh Assembly Government towards processing equipment.

⁴⁴ https://translate.googleusercontent.com/translate_c?depth=1&hl=en&prev=search&rurl=translate.google.co.uk&sl=fr&sp=nmt4&u=http://www.shaker.de/de/content/catalogue/index.asp%3Flang%3Dde%26ID%3D8%26ISBN%3D978-3-8440-3951-1%26search%3Dyes&usg=ALkJrhji3O4a06priM1BdQbdnccQu7Q2IQ

⁴⁵ Shipton, M. (2005) Criticised meat firm has had £6m grants <https://www.walesonline.co.uk/news/wales-news/criticised-meat-firm-6m-grants-2407437>



Unstressed pigs being unloaded at a small abattoir. Simon Cutter

This raises the question of why these grants for Merthyr Tydfil were possible, whilst support for the tiny Skye plant was not.

Mergers and acquisitions

The Competition and Markets Authority chose to accept evidence from large abattoir companies unquestioningly, yet failed to recognise that just because 8-hour journeys for live animals are permitted, this is not always a practical option for farmers, and did not more actively seek evidence from small abattoir owners on the potential impact for them.

Support and Information Network

With several groups currently attempting to establish new smaller abattoirs, both static and mobile, across various parts of the UK, there is an immediate need for an information exchange. Exchanging shared experiences would have benefits for all those involved. Such a network could be set up at least via email, and perhaps a website. With information on the sector hard to come by, this could also act as a source of information in a wider context.

This needs a simple piece of organisation, with a few interested parties involved.

10. RECOMMENDATIONS

The very real threat of a collapse in the infrastructure supporting supplies of local meat requires that some immediate action be taken before this vital national asset is irrevocably lost, together with the significant public good produced by them. The immediate target must be to help maintain the current network, and where possible avoid further closures.

The Sustainable Food Trust calls for immediate positive action primarily from government (Westminster and the Devolved Assemblies), to save the smaller abattoir sector, and makes three main recommendations regarding the current crisis.

A Government Policy Statement of Support

The SFT calls for a statement of support, recognising the importance of local meat processing plants offering private kill, particularly in rural areas, from the Government in Westminster and Devolved Assemblies, and for all levels of government including local government to support and develop such enterprises.

Mobile and other on-farm abattoirs

With increased interest both nationally and internationally, SFT calls on the government to take a constructive approach to the development of regulations for the introduction and use of mobile red meat abattoirs and small static red meat abattoirs, to enable on-farm slaughtering in an economically viable way. (See chapter 8 for more detailed information on mobile abattoirs and chapter 9 on-farm pasture rifle shooting of livestock).

A Task Force

The Sustainable Food Trust calls for the establishment of a Task Force jointly representing the government, the industry (including the smaller abattoir sector) and consumers, particularly those with an interest in local food. This should be formed with some urgency and asked to produce a strategic plan for smaller private kill abattoirs in the UK for at least the next five years, in order to pre-empt

further closures and secure the future of the sector. It should have an independent Chair and report as soon as possible.

The Task Force should be asked to establish why small abattoirs are going out of business at such an alarming rate and then propose imaginative and substantive measures to prevent unfair competition and reduce financial and bureaucratic burdens on smaller abattoirs, whilst maintaining high hygiene and welfare standards. This will include measures of support by the government to reflect the public good produced by smaller abattoirs serving local communities.

The final plan should include proposals to ensure the survival of existing plants and help to enable new ones to be established in areas where current demand for private kill is not being met.

Specifically, but not exclusively, the Task Force should:

- a. Assess the current state of the smaller abattoir sector and identify the main causes for the continuing closure of private kill abattoirs. This to include, but not be restricted to:
 - i. Identifying those abattoirs in the UK offering private kill services, including by animal species.
 - ii. Map these abattoirs, and identify blackspot areas with no private kill availability, including islands with significant numbers of livestock but no local slaughtering facilities.
 - iii. Undertake a survey of private kill abattoir owners to ascertain age profiles and succession plans.
 - iv. Interview a sample of private kill abattoir owners to understand the problems facing them, and assess their intention to continue with the business. Ask what actions could be taken to make their businesses more viable without endangering public health.
 - v. Complete an analysis of the profitability of smaller abattoirs, including the part played by private kill services.
 - vi. Examine labour and skills availability.
 - vii. Assess whether additional training and advice would help to improve the skills

- needed to manage small abattoirs.
- b. Determine measures which would significantly slow the rate of abattoir closures
- i. Propose how the burden of regulation on smaller abattoirs could be reduced without reducing hygiene or animal welfare standards, through the use of derogations and practical implementation of meat hygiene regulations. In particular, examine how paperwork systems, often designed with larger plants in mind, could be better tailored for smaller abattoirs.
 - ii. Consider whether regulatory provision could be made for small on-farm red meat slaughtering operations, in the way it is for small on-farm poultry slaughtering.
 - iii. Investigate and make recommendations on the case for introducing a Health Stamp for artisanal abattoirs supplying local meat markets, similar to the square stamp previously used.
 - iv. In view of the low rates of unfit animals found through ante-mortem inspections in smaller abattoirs, determine whether the burden of ante-mortem and other veterinary inspection costs for smaller abattoirs could be reduced. This to include possible use of live-streamed CCTV footage to regulators located off-site, and extended use of cold inspection post-mortem and giving abattoir owners responsibility for ante-mortem inspection to save OV's being tied up for long periods on this, instead of being called in to inspect a suspect animal as necessary.
 - v. Consider how the high cost of waste disposal can be reduced. Examine potential measures such as the on-farm (or elsewhere) composting of waste products such as rumen content, blood and unwanted fat.
 - vi. Consider whether in view of the public good produced by smaller abattoirs, business rates for these businesses could be reduced or eliminated.
- c. Where geographical blackspots exist in the UK, propose how these can best be remedied so that private kill services become available. Inter alia:
- i. Investigate why no private kill facilities currently exist in these areas.
 - ii. Conduct discussions with the farming and independent butchery sectors and assess likely future demand for private kill facilities.
 - iii. Consider whether legislation should be introduced to ensure, where possible, that public bodies use local meat sources.
 - iv. Investigate whether it is fair and reasonable for grants for the construction or expansion of very large abattoirs to be at the same rate as small abattoirs, or whether these should be tiered.
- d. Advise whether a Parliamentary committee should be asked to look into the way in which acquisitions, vertical integration and mergers between large meat companies in the slaughtering, rendering and associated industries have been assessed and approved without any consideration of the impact on the availability of private kill or animal welfare.
- e. Advise the industry and the government on the need for a single point of contact for information for those interested in establishing new smaller abattoirs, both static and mobile.
- f. Propose how the agencies and organisations charged with gathering data on the UK meat industry could do so in a more coordinated way, to reduce both overlap and contradictory statistics, and provide a clearer picture at local, regional and national levels?



Organic sheep in the Cotswolds. Steph French



Clun ewe and lambs. Local abattoirs are essential for the revival of heritage breeds of sheep in their traditional locality. Bob Kennard



Local butchers shop with locally sourced meat. Bob Kennard



Local butcher's shop emphasising local meat and low food miles

11. APPENDIX I – The importance of grazing animals

Edited extracts from ‘The importance of grazing livestock for soil and food system resilience by Richard Young, Chapter in, *The Meat Crisis – Developing more sustainable and ethical production and consumption* Second Edition Edited by Joyce D’Silva and John Webster, Earthscan, 2017.

Something close to a consensus has emerged amongst scientists and campaigners, that the best way to reduce greenhouse gas emissions from agriculture, make food production more sustainable and benign, and at the same time address the increasingly serious problem of diet-related disease, is for us all to eat less meat and dairy products.

Critical attention has focused on the problems associated with cattle and sheep, more than on those associated with pigs and poultry. Cattle, sheep and other grazing animals are identified as particularly significant contributors to global warming because they emit the potent greenhouse gas (GHG) methane (CH₄), the atmospheric concentration of which now stands at 1.8 ppm – more than 2.5 times pre-industrial levels. While the amount appears small compared with the 400 ppm of carbon dioxide (CO₂) in the atmosphere, CH₄ is a much more potent GHG than CO₂, now calculated to have a global warming potential at least 28 times greater than CO₂ over 100 years and 82 times greater over 20 years (IPCC 2014).

Uniquely amongst the three major GHGs, CH₄ only persists in the atmosphere for a about a decade before most of it is broken down to CO₂ and water. Unfortunately, the total amount of CH₄ produced most years, from natural and anthropogenic sources, slightly exceeds the capacity of the two major CH₄ sinks to break it down – 95 per cent, chemical reactions in the atmosphere, 5 per cent, the energy source of soil methanotrophic bacteria, a sink significantly reduced by the conversion of forests and grasslands to crop production and by ammonium-based nitrogenous fertilisers (Willison et al. 1995, Nazaries et al. 2013). As a result, the atmospheric CH₄ level keeps rising.

With methane in mind, Ripple et al. (2014) called for significant reductions in global ruminant numbers, based on the argument that because CH₄ has a much shorter life in the atmosphere

than the other major GHGs, reducing emissions today would lead to lower atmospheric levels within a decade or two, whereas they argue that much of the CO₂ already in the atmosphere will persist for a century or more, unless or until a technological solution is found to remove it. They justify their exclusive focus on ruminants by claiming they are the biggest human-induced source of methane, and explain that a rapid reduction in ruminant numbers globally might just be enough to prevent the planet exceeding fast-approaching climate change tipping points, at least in the short term.

However, ruminants only constitute the largest anthropogenic source of methane if one makes a sub-division between methane associated with oil and gas and methane from coal. Fossil fuels together are responsible for up to a third more methane than ruminants. Ruminants also only recycle carbon recently photosynthesised from the atmosphere by the plants they eat, whereas fossil fuels inevitably put additional carbon into the atmosphere, as both CO₂ and CH₄. This becomes particularly significant when one compares the use of forage legumes such as clover with fertiliser nitrogen as sources of nitrogen fertility in agriculture. While the clover needs to be grazed by methane-emitting ruminants to produce food, the production of nitrogen fertiliser is exclusively based on fossil fuel use. In addition, recent research, based on the different combinations of the carbon isotopes C₁₂ and C₁₄ found in methane from different sources, has established that the proportion of CH₄ in the atmosphere from fossil fuel extraction, transport and use, and from geological seepage, has been under-estimated by 60–110 per cent. The research also finds that the proportion that has come from microbial sources, such as wetlands, ruminants and rice production has been over-estimated by 25 per cent (Schweitzke et al. 2016). Reviewing similar studies, in combination with the latitudinal distribution of CH₄, Nisbet et al. (2016) conclude that recent increases in atmospheric CH₄ levels, averaging 6 ppb p.a., after a period between 1999 and 2006 when they rose by an average of less than 1 ppb p.a. (NOAA undated), has predominantly been caused by the expansion of wetlands in tropical regions.

The expansion of cattle farming in the Amazon has been responsible for one-eighth of all

forest destruction globally in recent times (Greenpeace 2009). But while this destruction is to be bitterly regretted, there were many factors behind it, including illegal logging, the Brazilian government's financial stake in the cattle industry and its determination to increase economic output rapidly (Greenpeace 2009). However, at least the grasslands on which cattle graze are less prone to ongoing soil degradation than the croplands, which have been created in the Amazon and the Cerrado. As a result, it seems probable that most of the 800 million tonnes of soil lost from Brazilian farmland annually (Merton and Minella 2013) will come from cropland, rather than grassland...

The vital importance of grass and grassland in producing food, storing carbon and restoring degraded soils

Grassland covers 70 per cent of agricultural land globally (Neely et al. 2010). It plays a uniquely important role in food system sustainability, in addition to its well-understood roles in relation to nature conservation, water quality and catchment management, and culture. Grass will grow on land that is too steep, too stony, too acidic, too wet and too poor for crop production. As such, grazed grasslands produce food from large areas of land that would otherwise be unproductive (Wilkinson 2011). Soils store four times more carbon than all trees and other life on the planet and three times more than the atmosphere (Lal 2004). Every time grassland is permanently converted to cropland, 40 per cent (Johnston et al. 2009) of the SOC and much of the reactive nitrogen (Vellinga et al. 2004) is lost to the atmosphere over time, in the form of the CO₂ and N₂O.

But grass also has another important role, one that has largely been overlooked during the last 60 years. Grass is capable of restoring degraded soils (Smith et al. 2007). Apart from food-bearing trees, grass is arguably the only crop capable of restoring degraded land while also producing food, albeit indirectly...The only solution is for grass and grazing animals to be reintroduced into arable crop rotations and ideally their manures, when housed, mixed with crop residues used for bedding, to be composted and returned to the land.

Comparative efficiency of ruminants compared with monogastric animals

It is often argued that because about one-third of cropland is used to grow grain for livestock and they are therefore implicated in the major losses of soil carbon that continue to occur, we should reduce livestock numbers globally, especially cattle and sheep, as they convert grain to protein less efficiently than pigs and poultry. In relation to cattle largely raised on grain, this would be prudent. However, as Wilkinson (2011) has shown, when assessed on the basis of human edible food consumption, ruminants can be more efficient than monogastric animals. In large part that is because they make far better use of grass; but in part it is also because even concentrate feed for cattle in the UK, at least, is 50 per cent less dependent on human-edible grain than feed for chickens and pigs – cattle being better suited to the consumption of arable by-products, such as Brewers' and Distillers' grains, sugar beet pulp and most oilseed by-products, except soybean meal, which is widely used in pig and poultry feed.

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12. APPENDIX II – GB abattoirs by throughput

GB Throughput of Animals by Size of Abattoir 2017

	>1,000 LSU	1,001-5,000	5,001 - 30,000	30,001 - 90,000+	90,000+	Totals
England	54	31	56	29	9	179
Wales	6	11	3	1	2	23
Scotland	3	7	12	6	1	29
GB Total	63	49	7	36	12	231

Source: AHDB Units: Livestock Units (LSUs)

Sheep Slaughterings England 2016

Abattoir size (LSU/annum)	Number of abattoirs	Total throughput (head)	Average throughput (head)	Share of throughput (%)
1 - 1,000	37	16,771	453	0.2
1,001 - 5,000	39	88,495	2,269	1
5,001 - 10,000	17	121,578	7,152	1.3
10,001, 20,000	13	179,796	13,830	1.9
20,001 - 30,000	6	150,844	25,141	1.6
30,001 - 50,000	11	458,127	41,648	4.9
51,000 - 100,000	12	812,344	67,695	8.7
>100,000	20	7,486,888	374,344	80.4
Total	155	9,314,843	60,096	100

Multiple AHDB Sources 2017

Cattle Slaughterings England 2016

Abattoir size (LSU/annum)	Number of abattoirs	Total throughput (head)	Average throughput (head)	Share of throughput (%)
1 - 1,000	82	20,457	249	1.3
1,001 - 5,000	31	78,596	2,535	4.8
5,001 - 10,000	18	119,290	6,627	7.4
10,001, 20,000	8	117,566	14,696	7.3
20,001 - 30,000	4	101,300	25,325	6.2
30,001 - 50,000	8	342,439	42,805	21.1
>50,000	11	841,683	76,517	51.9
Total	162	1,621,331	10,008	100

Multiple AHDB Sources 2017



Sustainable Food Trust

A global voice for sustainable food and health

The Sustainable Food Trust is a UK based charity working internationally to accelerate the transition to more sustainable food systems.

We believe radical changes are needed to address the problems of farm-related environmental degradation and biodiversity loss, food security and diet-related disease, but this will only be possible when leaders and organisations are empowered to act through a combination of sound evidence and enabling policy measures, supported by pressure from informed public opinion.

We are committed to facilitating a transition away from the current industrialised food model, to food systems which are more diverse and integrated, minimise depletion of natural resources, and promote public health, social justice and human wellbeing.

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