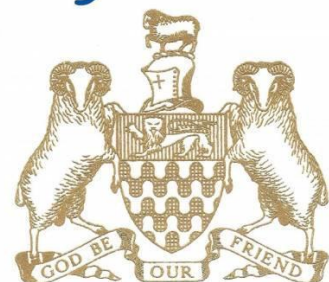


**A Study for the National Sheep Association Samuel Wharry
Memorial Award for the Next Generation,**

**Kindly sponsored by The Company of Merchants of the
Staple of England**

***Practical Considerations for
Best Practice during Shearing
in the UK***

By Marie Prebble



1. Abstract

This study aims to define what is meant by 'best practice' in the shearing industry, with reference to working conditions in the Northern Hemisphere and particular relevance to the UK. In order to gather information about shearing in the UK, two questionnaires were formulated. These were circulated amongst the UK sheep farming and shearing communities with the kind assistance of the National Sheep Association (NSA), the National Association of Agricultural Contractors (NAAC) and British Wool. Over one hundred and eighty responses to the farmer survey and more than ninety responses to the shearer survey were compiled and examined, and the survey data provide supporting evidence for the work of this report. It is acknowledged that these sample data by no means represent the industry as a whole but provide a useful starting point for discussing best practice at shearing in the UK. This report aims to summarise the key findings of a National Sheep Association (NSA) Samuel Wharry Memorial Award for the Next Generation. In order to augment a working knowledge of current practice in the shearing industry in the Northern Hemisphere, first-hand experience of shearing in France, Scotland, Iceland and Norway was kindly financed by this travel bursary. A range of practical and perceived barriers to implementing best practice at shearing are understood. This study aims to examine some of these factors. The report is divided into chapters, each exploring a different topic within the overarching theme of best practice at shearing, discussed throughout. The report first introduces current practice on UK farms at shearing time. It then describes, provides evidence and makes practical suggestions for best practice. The study discusses implications of current and best practice for the UK sheep industry and concludes with suggestions of further work and makes recommendations for UK sheep farmers and shearers, industry bodies and Government.

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4. Introduction

Shearing sheep to remove their fleece has been common practice for centuries and is a necessary and routine part of the sheep farming calendar. Shearing is essential for animal welfare; without it sheep are susceptible to flystrike and can become stuck on their backs. The main UK shearing season is during the summer months, generally starting at the beginning of May and, depending on the weather and the region, most ewes will usually be shorn before August. In addition, some farmers will shear their lambs, such as ewe lambs or in some cases all of them. This practice varies according to the type of farming system (e.g. ewe lambs sold or kept as replacements or lambs produced for the store trade) and by location in the UK. The UK by its nature is home to a multitude of sheep systems and farm types, and different regions experience different physical constraints of weather and land type (hill or lowland). For the purpose of this study, the UK regions will be defined by NSA regions of Scotland, Northern Ireland, Wales, Northern England, Eastern England, South East and South West regions (Appendix 1).

Across the UK the task of sheep shearing is often done by shearing contractors. These contractors employ a 'gang' of shearers and usually have a collection of farms (known as a 'run') that they shear for every year. A proportion of shearing in the UK is also done by smaller groups or individual shearers who shear for a few farms or smaller flocks each year. Some farmers will shear their own sheep and perhaps help with the neighbouring flock.

If we look back a few decades the job of shearing in the UK was more often done by farmers themselves with a more collaborative approach to farm shearing. For example, in the vicinity of their holding, neighbours might help each other out with livestock jobs, which includes shearing. Nowadays more sheep are shorn by professional shearers than by farmers, as evidenced by the sheep farmer survey circulated as part of this study. Less than 14% of respondents claimed to shear their own sheep or have an employed shepherd who shears them. *Author's edit: It would be interesting to recirculate the survey after the 2020 season to track the changes in use of professional shearers versus farmers shearing their own sheep, in a year where the wool cheque will certainly not pay for shearing.*

The National Association of Agricultural Contractors (NAAC) estimates that ten years ago there may have been around five hundred overseas shearers coming to the UK. In 2019, the NAAC assisted just over fifty shearers entering the UK to work for shearing contractors, which suggests a decrease of overseas shearers. However, it is thought that there may be another hundred who come over to work for contractors who are not NAAC members and the results of this survey are limited to those that voluntarily took part. With most respondents contracting their shearing to professionals and fewer coming in from overseas, it must be the case that there are more skilled British shearers than ever before working throughout the UK in the summer months to complete the job of shearing the national flock.

For the 2020 shearing season, owing to the unprecedented practical implications of the Covid-19 virus, restrictions have impeded most overseas shearers from travelling to the UK. The industry therefore faces working with a largely home grown workforce. This could have impacted the duration of the season, and the timings of shearing for farmers. Both farmers and shearers have needed to be adaptable during this time in order to safely continue working, for the welfare of sheep and the wellbeing of people. In light of the rapidly evolving Covid-19 situation and as a result of consultation between British Wool, NAAC, NSA, DEFRA and this author, guidance was carefully considered and published in April 2020 (Appendix 2) ahead of the shearing season. NSA and British Wool released a shearing list to help tackle the potential reduction in workforce due to Covid-19 travel restrictions by facilitating communication between UK based shearers, contractors and farmers. In addition, practical

measures were taken to ensure the safety of all involved on farms during shearing. As close contact between farm staff, shearers and wool handlers is usually required, additional safety precautions were considered.

Author's edit: It should be noted that due to travel restrictions in place because of the Covid-19 pandemic very few overseas shearers came to the UK for the 2020 season and the job was completed almost entirely by UK based shearers without complication, confirming our strong position in the number of shearers living and working here.

There is currently no professional qualification required to become a sheep shearer anywhere in the world. Individuals learning to shear in the UK are encouraged to attend a British Wool training course, led by a team of registered, experienced instructors. Over 800 people attended a British Wool shearing course in 2019 (Jones, 2019) and each of those may have received a certificate of attendance in the form of a blue, bronze, silver or gold British Wool award. Shearing competency is only judged by the skill of the individual working in the industry, and is not currently monitored by any regulatory body. However, British Wool are in conversation with City & Guilds to get a formal qualification in sheep shearing and also woolhandling recognised (Schofield, 2020). Standards are driven internally by an individual's desire to improve their skill level and carry out a high standard of work, and encouraged by the team-working ethic of the shearing industry.

Day-to-day shearing on farms ideally operates around a standard eight hour shearing day, consisting of four two-hour 'runs'. In the UK most shearing is carried out on custom-built trailers that are mobile and can be set up in a field or in a shed to suit the farmer (Figure 1). Multiple moves in a day are not uncommon, either across one farm or between farms for multiple smaller flocks in one day. As a result, these optimum timings cannot always be maintained. Farmers generally provide the handling system for gathering their sheep, which can be a permanent or mobile yard set up in a shed or simply a set of hurdles in a field to hold their flock ready to be shorn. These kind of shearing set-ups are in particular contrast with New Zealand and Australia, where big farms usually have on site one or more custom-built permanent shearing sheds designated for the task of shearing (Figure2). Flock sizes and farm management systems vary between hemispheres. Practical and perceived barriers to best practice may therefore differ. This study focuses on those practical considerations deemed most important at shearing time in the Northern Hemisphere, and particularly in the UK.

Figure 1: Typical shearing trailers being used in England



Figure 2: Twelve stand Shearing shed in Southland, New Zealand



5. CHAPTER ONE: FASTING SHEEP PRIOR TO SHEARING

Research suggests that a full ewe's gut content can make up over 20% of its body weight (Kirton, 1964). It is well-understood from industry experience that physical strains and injuries to shearers can be reduced by the correct presentation of sheep for shearing. This study defines 'correct presentation' as fasted, crutched (free of dags), dry sheep that are held in a suitable yard designed to minimise stress to the animals. The handling set up should also allow improved efficiency of loading the shearing trailer for the welfare of shearers and sheep. It is understood that there are numerous perceived and practical barriers making it harder for farmers to present sheep correctly for shearing, which are further discussed in this report. An example of this would be bad weather; if a farm has no sheds it is harder for that farmer to gather their sheep on a dry day for crutching and shearing. This chapter discusses the specific issue of fasting sheep prior to shearing. Evidence is drawn mainly from WorkSafe New Zealand good practice guidelines. It is recognised that UK farm management systems are different from those in New Zealand and therefore comparison is drawn cautiously. The data summarised in Figure 3 are relevant and useful, although it would be preferable to reference UK trials. However, research for this report did not find any similar trials having been carried out in the UK. **This would be a suitable area for further work.**

Figure 3: WorkSafe New Zealand good practice guidelines on fasting times for all categories of sheep

Recommended minimum and maximum hours without feed and water prior to shearing				
	Min. hours without feed	Max. hours without feed	Min. hours without water	Max. hours without water
Ewes non-pregnant & non-lactating	20	32	12	24
Ewes mid pregnancy	18	30	12	24
Ewes late pregnancy	12	24	8	20
Hoggets non-pregnant & non-lactating	18	30	12	24
Hoggets during pregnancy	12	24	8	20
Lambs pre-weaning	6	24	6	20
Weaned lambs	12	24	8	20

Evidence summarised in Figure 3 found that fasting ewes with lambs at foot for 24-30 hours has no impact on lamb growth rates or weaning weights. Fasting ewes during mid-pregnancy for 24-30 hours has no detrimental effect on ewe performance, lamb birth weight, or newborn lamb survival. These trials also showed that 12-24 hours off feed for weaned lambs eliminates gut fill but has no negative impact on growth rates or carcass weight, which is an important consideration if shearing lambs.

Feed type affects gut fill, in that poor-quality fibrous feeds have reduced intakes but empty out slowly because they are slow to digest. Lush, highly digestible grass has high intakes but empty quickly, although more likely to cause pen stain (Boyne *et al.*, 1956). Boyne *et al.* also recorded that 75% of gut contents are emptied in the first 12 hours, **so it is here recommended that future guidance documents relating to best practice at shearing incorporate this 12 hour figure as the suggested minimum time off food and water prior to shearing.** In practical terms, this means farmers ought to gather their ewes the night before shearing and pen them with their lambs in a suitable holding area. If this is before weaning, ewes would be gathered with their lambs. Lambs at foot should then be drafted from the ewes the following morning ahead of the shearers' arrival, so that just a group of fasted ewes is presented to the shearers and the job can be carried out according to best practice. Of course the shearing industry may choose to align with the UK's transportation of livestock legislation which allows a maximum of eight hours without food and water for sheep. **More research and knowledge transfer would be required to standardise guidance across the sheep sector.** It is suggested that the joint industry guidance document published in 2019 (Appendix 3) by NAAC, NSA,

British Wool and the devolved National Farmers Unions (NFU) stating *“penning without feed for at least 4 hours before shearing, or housing/yarding overnight with access to dry food and water”* requires updating. As already stated, dry food is more slowly digested and therefore takes longer to empty out gut contents from sheep fed hay overnight than sheep penned tightly in a bare paddock with minimal grass cover. Four hours is not long enough to adequately fast ewes ahead of shearing, as it would not eliminate the problems outlined below.

It is widely acknowledged amongst the shearing community that fasted ewes sit more comfortably and thus struggle less whilst being shorn. **It would be sensible to conduct trials in the UK in order provide more than just anecdotal evidence to support this point.** The amount a sheep struggles during shearing has huge implications for animal welfare and exerts extra physical loading on the shearer. The job of shearing should be done as efficiently as possible to minimise stress on the sheep. There will always be a small element of stress by the very nature of gathering and handling animals, but most sheep in the UK are well-used to this sort of routine task. Provided the facilities for yarding/penning are adequate then sheep should enter the shearer’s trailer with relative ease. It is thereafter the shearer’s responsibility as a hired professional to conduct themselves in a way that minimises stress on the animal and allows the sheep to be shorn as quickly and efficiently as possible. It is this author’s firm belief that undue criticism of fast shearing is misdirected, because, in fact ease and speed only comes with an incredible amount of dedication to improving shearing technique and ability.

The second important reason for emptying sheep out prior to shearing is for improved health and safety for shearers. Without fasting, sheep are more likely to defecate during handling and shearing. If sheep are defecating in the shearing trailer and on the boards, conditions can become slippery, increasing the risk of injury to both human and animal. The risk of contamination and infection also increases for example from leptospirosis, campylobacteriosis and other zoonotic diseases. Other than increased faeces, there is an increased chance of physical injury, which can be reduced through fasting. As previously stated, a full ewe’s gut content can make up over 20% of its body weight. If sheep are fasted that is 20% less weight per sheep for a shearer to catch and drag repeatedly throughout long summer days. This reduces the physical load on the shearer and reduces the chance of heat exhaustion. Farmers should take as many practical steps as possible to make a physically demanding job, easier where possible.

Other than human health, another implication if sheep are presented full for shearing is that of staining and contamination of the fleeces. Contaminated wool clip reduces the overall value of each fleece to the farmer. In other countries, innovative structures have been used to reduce wool contamination both during handling and the shearing process. For example, in New Zealand and Australia, purpose built shearing sheds have slatted floors raised above the ground to allow defecation to fall through keeping wool clean ahead of shearing. Similarly, in Norway and Iceland (both visited as part of this study), the sheep are housed between September and May in sheds with plastic slatted flooring. Shearing occurs during this time and as a consequence, the wool remains free of contamination. This type of infrastructure is available in the UK, and slatted sheds were observed in the geographically distant areas of Orkney and Cornwall during this study (Figure 4).

Figure 4: slatted sheep shed in Cornwall, UK



Figure 4. Images shows sheep housed before shearing on slatted floor. This allows defecation to fall through keeping wool clean ahead of shearing. Observed in Norway, Iceland and some parts of the UK.

Survey results suggest that many farmers do yard (and consequently fast) their sheep before shearing as 51% of farmer respondents answered 'yes' to the question: 'do you always yard your sheep off all food before shearing'. However, understanding and application of how long this fasting time should be varies (Figure 5). As explained earlier in this report, the time sheep should be off food and water is longer than many farmers are achieving. This has to do with a mixture of perceived and practical barriers, as illustrated by Figure 6.

Figure 5: Survey results showing the length of time farmers in the UK currently fast sheep for prior to shearing (108 respondents)

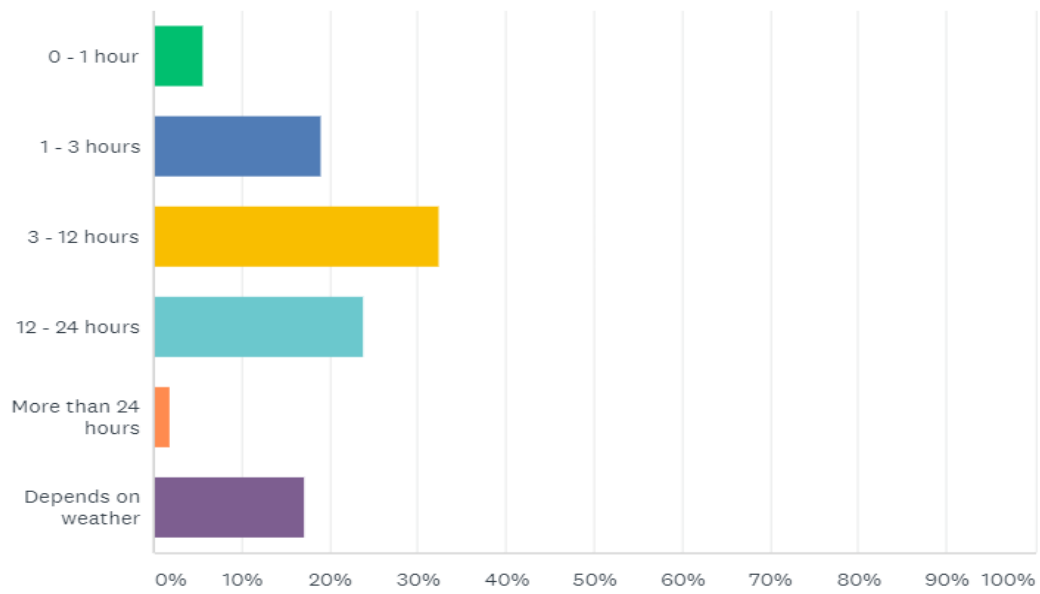
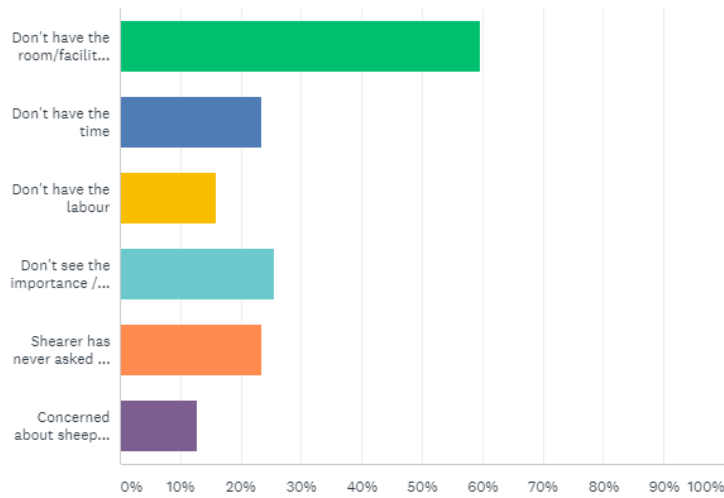


Figure 5. Demonstrates that that majority of farmers fast their sheep between 3-24hr before shearing.

Figure 6: Survey results of UK farmers' perceived and practical barriers to fasting sheep (94 respondents)



ANSWER CHOICES	RESPONSES
Don't have the room/facilities	59.57% 56
Don't have the time	23.40% 22
Don't have the labour	15.96% 15
Don't see the importance / never occurred to me	25.53% 24
Shearer has never asked me to	23.40% 22
Concerned about sheep being without food for any length of time	12.77% 12
Total Respondents: 94	

Figure 6. Demonstrates that many farmers do not have the room and/or facilities to fast sheep before shearing.

The predominant response to the survey question of why a farmer does not empty sheep out before shearing is that they 'do not have the room/facilities'. In the UK, it is recommended that if sheep are yarded prior to shearing without slatted flooring it should be on a dirt or chalk floor, or free-draining hard standing to reduce contamination risk. If the timing of shearing coincides with an indoor lambing shed being available still with some straw bedding, then this is preferable to not bringing them inside, although farmers should be mindful of vegetable matter contaminating fleeces. This is not always possible as in some cases, farmers do not have access to sheds. When this situation occurs, it is suggested that the corner of a field with minimal pasture cover (from timely prior grazing) is sufficient for yarding sheep ahead of shearing. **It is here suggested that the infrastructure required to fast sheep from food and water for the optimum time before shearing is simply a bare paddock or pen in a corner of a field, if no covered yard is available.** Figure 6 also illustrates that over 25% of farmers responded that they 'do not see the importance or it never occurred to [them]' to empty sheep prior to shearing. This highlights another hugely important issue of increased communication and knowledge transfer in the sheep industry. It is accepted that this report will not be the first of its kind in pointing out key areas of best practice, which most shearers would understand from their working knowledge of the industry. Translating that into practical action on farms is a chronic issue that is all too familiar for many shearing contractors. Understanding the issues from farmers' perspective is crucial. Every effort should be made to improve communication between shearers and farmers.

Industry bodies need to continue to play a role in providing a very useful mouthpiece for knowledge transfer.

CHAPTER ONE SUMMARY:

In summary, the multiple benefits of emptying sheep out are as follows. Sheep sit more comfortably and struggle less, reducing the risk of injury during shearing and vastly improving animal welfare. There will be improved health and safety for shearers by less risk of slipping and reduced chance of infection. 20% less weight for shearers to drag out means less physical load, which reduces the chance of injury. There will also be less staining of the wool so improved clip quality and increased financial returns to the farmer. However, there are several perceived and practical barriers to farmers emptying sheep prior to shearing that need addressing, including understanding the need for it and having appropriate facilities on farm. It is hoped this report contributes to overall understanding of best practice, and in highlights the need for fasting sheep.

6. CHAPTER TWO: BIOSECURITY

An important and sometimes overlooked issue at shearing time is that of biosecurity on and between farms. As stated previously most shearing in the UK is carried out on mobile trailers and most shearers will move between multiple farms in one day, depending on the flock size. Results show that 84% of shearing contractors do not disinfect their equipment (handpiece and trailer) between farms and most do not change their moccasins. Equally, nearly 70% of farmers responded that they do not provide disinfectant for shearers to use on their farm. During the foot and mouth outbreaks in 2001, shearing contractors were obliged to disinfect their trailer and all equipment on arrival and before leaving each farm using the approved disinfectant Fam30. One contractor reports carrying a tank of ready mixed disinfectant and a pressure washer with them in the shearing trailer and being particularly stringent with biosecurity, changing clothes and moccasins without fail between farms. The question remains whether such stringent protocol should or could be adhered to during a standard shearing season.

It is hoped that in light of the Covid-19 pandemic that much stricter controls will be adhered to by both parties, in the interests of human health and preventing the spread of the Covid-19 virus in the rural community.

When considering best practice for biosecurity at shearing time we are concerned with the potential spread of disease or infection within or between farm premises. One particularly notable and easily transmissible external parasite is sheep scab, caused by a parasitic mite called *Psoroptes ovis*. Sheep scab is highly contagious and sheep scab mites can survive off-host for 16-19 days (Moredun, 2020). Sheep scab can be contracted via contact with live mites in tags of wool, or scabs attached to surfaces such as fences, barbed wire, vegetation etc. The usual mode of transmission is sheep-to-sheep contact, especially in livestock markets and trailers. Shearing equipment and clothing can also contribute to transmission (Bates, 2007). **It is unclear how many outbreaks of sheep scab could be directly attributed to shearing, which could provide other area for further research in the UK.** Infestation with *P. ovis* can often be asymptomatic (Moredun, 2020) and thus it is careless to assume sheep are free of scab just because they are not showing sign of infection. Another contagious disease that could be spread between premises by shearers is Caseous lymphadenitis (CLA), although it could be said that shearing equipment and other handling facilities, such as mobile plunge dippers and feeders are much less important as vectors for this particular disease than purchased animals (Scott, 2017). Many infectious diseases for livestock and humans could be controlled and transmission prevented through better biosecurity on and between farms. Particularly costly to the UK sheep industry, amounting to £28 million per year (Simcock, E. 2019) are foot diseases such as footrot and CODD that can be controlled adequately by disinfection of handling equipment alongside sound flock health management practices (Francis, E. 2020).

Farmers and shearers alike have a shared responsibility to facilitate disinfecting of equipment between flocks or farm. In order to protect the reputation of professional contractors and all shearers and prevent huge financial implications for sheep farmers, due diligence and best biosecurity practice should be adhered to. Fairly straightforward practical measures such as farmers providing disinfectant and a pressure washer (to clean the shearing trailer before and after use) could significantly reduce the likelihood of shearers transferring sheep scab and other contagious diseases between farms. Some responsibility also lies with the shearer, as it is possible to change clothing and moccasins between farms, if several sets are kept at hand and those at the end of each day are then disinfected. An alternative suggestion would be for each farmer to buy a pair of moccasins for the shearers and retain them on farm for subsequent seasons. The same shearer would need to be used in order for this method to work, but most farmers continue to use the same shearer, should they be happy with the

end result. The additional cost to the farmer in equipment and/or disinfectant is outweighed by the cost of potential treatment for any disease brought into the flock. Treatment for an outbreak of sheep scab for example far outweighs the relative cost of taking a few precautionary measures on farm. **It would be pertinent to conduct a full cost benefit analysis of these measures to aid decision making.**

BIOSECURITY CASE STUDY: ICELAND

An example of strict biosecurity controls adhered to on an everyday basis in the sheep industry can be understood from examining the Icelandic model. Here the country is divided into twenty four surveillance/movement restriction zones to control contagious diseases, including those endemic in the UK, such as footrot (Kaler and Green, 2008). The zones are categorized according to the status of the most important infectious diseases and transport of livestock between zones is prohibited or strictly controlled, reducing and preventing transmission across zones. Some zones are categorised as specific disease free and movement of sheep into these zones is prohibited. For example, some restriction zones are considered free of scrapie and paratuberculosis, and buying live sheep is only allowed from these zones and must be approved by the veterinary authority. To further control biosecurity, they have strict laws on importing live animals. All sheep in the country are the Icelandic breed (Figure 7), and there is a strict law in Iceland that bans most imports of live animals. Imports can only be allowed with a special permission from the Minister for Agriculture after careful evaluation and recommendation by the Chief Veterinary Officer. Previous imports of live animals have in many cases brought diseases with them, such as sheep scab, Scrapie, Maedi/Visna, Jaagsiekte and paratuberculosis. There are no livestock markets in Iceland and instead artificial insemination of sheep is used to successfully improve sheep breeding. One potential disease transmission route is through shearers and their equipment (Willeberg Consulting, 2013). However, from first-hand experience shearing in Iceland it is recognised that shearing is done largely by the farmers themselves, with very few shearing contractors working and moving around the country further enhancing biosecurity. When shearing in Iceland all shearing equipment, including machine, dropper and handpiece, was disinfected between farms and one Icelandic shearer even wore rubber boots instead of moccasins as they are easier to clean.

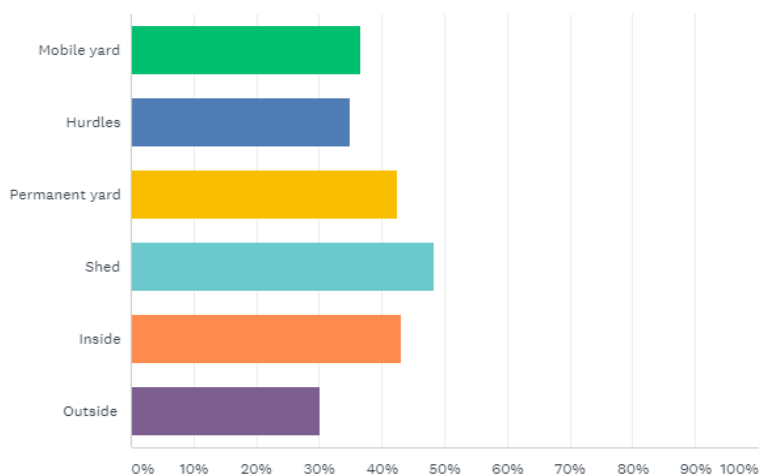
Figure 7: Icelandic Sheep in handling pen



7. CHAPTER THREE: INFRASTRUCTURE FOR SHEARING - HANDLING SYSTEMS FOR SHEARING IN THE UK

As part of this study, farmers were asked what type of handling facility they use to gather and hold sheep for shearing. Almost 50% of respondents use a shed and over 40% have a permanent yard (Figure 8).

Figure 8: Survey results showing the different types of handling facilities for shearing on farms in the UK (186 respondents)



ANSWER CHOICES	RESPONSES
Mobile yard	36.56% 68
Hurdles	34.95% 65
Permanent yard	42.47% 79
Shed	48.39% 90
Inside	43.01% 80
Outside	30.11% 56
Total Respondents: 186	

As mentioned previously in this report infrastructure varies between regions and on a farm by farm basis. Nevertheless, handling systems should be optimised for efficiency and to minimise stress, contributing to best practice during shearing. Some examples of English shearing sheds are displayed in Figures 9 and 10. These were built by farmers who have been shearing contractors and appreciate the value of suitable infrastructure for the technical and demanding job of shearing.

Figure 9: An old but still used shearing shed in Kent, UK



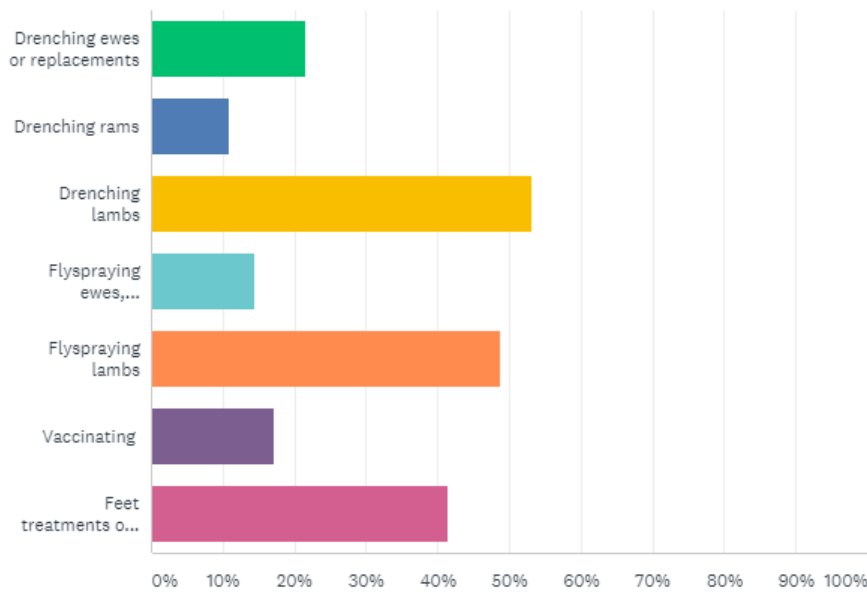
Figure 10: A modern, purpose-built shearing shed in Cornwall, UK



It is not expected that every sheep farmer in the UK will be in a position to build a shearing shed, but even small improvements to individual infrastructure and handling can have a big impact on the welfare of sheep and shearers alike. Shearing is a very physically demanding job, made harder without adequate shade from the summer sun, potentially compromising the health of shearers across the UK. Equally, housing sheep means less chance of being rained off, allowing for a more efficient working season and the task of shearing to be completed in a timely manner across farms. It is recognised that shearing and crutching are unnatural activities for sheep and can compromise overall performance if managed badly. Up to 40% of the time taken to perform a procedure can be spent moving sheep through yards and races. Well-designed systems and methods can speed flock movement and reduce this 'wasted' time (Brian, 2015). It is here suggested that **a valuable addition to existing grant funding for capital works on livestock farms in the UK, such as through the Rural Development Programme for England (RDPE), would be to include part-funding mechanisms for some of the infrastructure discussed in this report. For example covered yards, slatted flooring or shearing stands. If these sorts of capital works were financially incentivised then it is possible farmers would choose to invest in the long-term efficiency, welfare and biosecurity of their sheep handling system and thus their flock.**

A separate issue addressed here is what can be described as 'task-loading' on the day(s) of shearing. It is understood that some farmers, particularly in hill settings tend to only gather their sheep infrequently due to the practical constraints of their farm type, and therefore choose to combine shearing with other routine work such as weaning or marking lambs. As a general rule, however, it is here recommended that on the day(s) of shearing it should be just the shearing and wool gathering operation taking place.

Figure 11: Survey results for whether farmers 'Task-load' on the day(s) of shearing in the UK (111 respondents)



ANSWER CHOICES	RESPONSES	
Drenching ewes or replacements	21.62%	24
Drenching rams	10.81%	12
Drenching lambs	53.15%	59
Flyspraying ewes, replacements or rams	14.41%	16
Flyspraying lambs	48.65%	54
Vaccinating	17.12%	19
Feet treatments of ewes, replacements or rams	41.44%	46
Total Respondents: 111		

Results show that many respondents tend to task-load on the day(s) of shearing (Figure 11), which has been noticed through personal experience working in the UK shearing industry. For example, drenching and flyspraying lambs on the day of shearing. Appendix 4 illustrates the usual flyspray application routines of farmer respondents to this report's survey. It is suggested that for the health of shearers that flyspray treatments should be avoided in the vicinity of shearing as the ingestion into the lungs and through the skin of these chemical particulates is particularly harmful for shearers who will likely be sweating and breathing more rapidly. Covid-19 guidance reinforces guidance on not task-loading, as it places due consideration on improving the efficiency of the shearing operation by focusing only on shearing and no other concurrent tasks. Again, any measures to make a difficult job less stressful for all concerned should be implemented. If this means farmers must hold or regather their sheep separately from shearing to carry out treatments such as flyspraying or drenching, then this should be planned in advance.

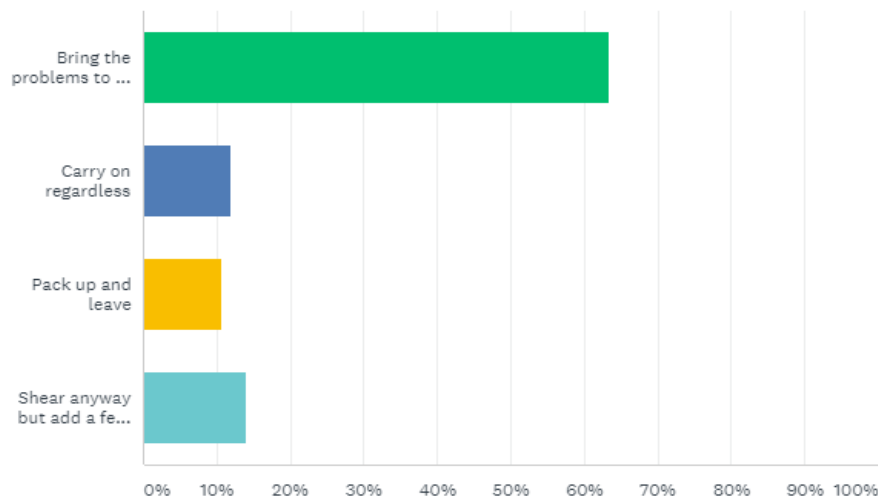
The summary table below (Figure 12) shows the common conditions shearers experience on farms in the UK regarding presentation of sheep and facilities for shearing.

Figure 12: Unsatisfactory conditions experienced at shearing in the UK

	NEVER	VERY RARELY	RARELY	OCCASIONALLY	FREQUENTLY	VERY FREQUENTLY	TOTAL
Daggy sheep	0.00% 0	2.17% 2	5.43% 5	42.39% 39	42.39% 39	7.61% 7	92
Maggots	0.00% 0	8.70% 8	10.87% 10	53.26% 49	22.83% 21	4.35% 4	92
Chemicals recently applied to fleece	11.83% 11	30.11% 28	19.35% 18	33.33% 31	4.30% 4	1.08% 1	93
Visible signs of disease in the flock such as orf, scab or lice	2.15% 2	37.63% 35	21.51% 20	26.88% 25	11.83% 11	0.00% 0	93
Inadequate labour or penning	0.00% 0	6.45% 6	6.45% 6	38.71% 36	36.56% 34	11.83% 11	93
Wet sheep	2.15% 2	22.58% 21	19.35% 18	35.48% 33	15.05% 14	5.38% 5	93
Full sheep	0.00% 0	1.09% 1	1.09% 1	18.48% 17	35.87% 33	43.48% 40	92
Lack of shelter/shade	1.08% 1	3.23% 3	5.38% 5	27.96% 26	34.41% 32	27.96% 26	93
Uneven/uneven ground	1.08% 1	1.08% 1	1.08% 1	32.26% 30	36.56% 34	27.96% 26	93
sticky sheep not ready to shear	1.08% 1	2.15% 2	8.60% 8	47.31% 44	33.33% 31	7.53% 7	93
Vegetable matter in the fleeces from straw/bedding	1.08% 1	9.68% 9	22.58% 21	35.48% 33	22.58% 21	8.60% 8	93
Vegetable matter in the fleeces from burrs, brambles, thistles etc.	0.00% 0	9.68% 9	22.58% 21	32.26% 30	25.81% 24	9.68% 9	93

The results show that frequently sheep are presented at shearing time with daggy wool, on occasion have maggots and sometimes have vegetable matter in the fleeces (both straw/bedding and brambles etc.). Occasionally sheep are presented wet which must not be tolerated at shearing time. Due to the unpredictability of our climate and the lack of facilities for housing sheep highlighted earlier, this is not always straightforward. However, wet sheep are a danger to slips and fall on the shearing board, increased risk of health implications for the shearer, and if packed, wet wool will rot in the bag and be unusable. The majority of sheep in the UK are presented full and the negative effects of this on the welfare of both sheep and shearers have previously been discussed in Chapter one. Figure 12 shows that there is sometimes inadequate labour and penning to assist with shearing. Sometimes shearing takes place on uneven ground, and depending on the type of shearing trailer (set up at ground level or on raised boards) this can be less than ideal for shearing. Providing shade or shelter, ideally under the cover of trees if not under a roof, benefits the health of shearers in the height of summer, and shearing out of the breeze or wind is paramount for the health and safety of shearers to prevent sore backs.

Figure 13: Survey results of shearers response if unsatisfactory conditions occur when they turn up to shear (93 respondents)



ANSWER CHOICES	RESPONSES	
Bring the problems to the farmer's attention and discuss solutions but still shear	63.44%	59
Carry on regardless	11.83%	11
Pack up and leave	10.75%	10
Shear anyway but add a fee to the bill	13.98%	13
TOTAL		93

Figure 13 shows how shearers choose to respond if unsatisfactory conditions are experienced on farm. Most choose to bring the issues to the farmer's attention but continue to shear. Others carry on regardless; only a few will pack up and leave. In practical terms, shearing is a very busy time with the schedule often pre-planned weeks in advanced, so once a shearer has travelled to a farm it would be a difficult decision to pack up and leave without shearing to lose out on work for that day. Adding a fee to the bill, for example for daggy sheep (commonly occurs – see figure 12), should be standard practice. Farmers ought to appreciate how much longer it takes to shear sheep that have not been sufficiently crutched, never mind the extra use of shearing gear when wool is not clean, and the associated health hazards of shearing daggy sheep, from slipping on the board to potential infections, as well as contamination of their wool clip with dags. Sheep should never be shorn wet, as the risk of slips and falls is high when catching wet sheep, as well as the increased risk of health issues to shearers from shearing wet sheep. Of course, wet wool can rot and is significantly devalued, becoming a waste product. It is extremely difficult for some farmers, particularly in hill regions of the UK to rely on good weather for shearing. Sometimes a shearing trailer will be set up outside as there is no shed associated with a block of land, and if rain starts before shearing is finished, it is a logistical compromise to have to pack up and return another day, adding pressure to an already busy season.

Another practical consideration is the timing of shearing, with many shearers reporting shearing sticky sheep early in the season before they are 'ready' to shear (Figure 12). Timing of shearing in relation to flock management is particularly pertinent this year (2020) due to the likely impacts of Covid-19 meaning the shearing season could be prolonged. Farmers may have to consider changing their flock management with this in mind. For example, flyspraying earlier and being prepared to wait for

shearers until later than usual in the summer. It could be more challenging this season (2020) for farmers and shearers to agree the best course of action for the welfare of their flock, due to the extra pressure on shearing schedules, but adequate time between these chemical applications and shearing must be observed for health of shearers.

Author's edit: The NAAC are conducting a survey amongst shearer contractors to evaluate the 2020 shearing season. The general feeling from conversations within the shearing community is that the season progressed largely unhindered by lack of overseas shearers or other restrictions in place due to Covid-19. The progress made through the shearing season across the UK has showed us that there are a huge number of very capable and talented shearers here on home soil, which is something to be proud of.

CASE STUDY: SHEARING FACILITIES IN FRANCE, NORWAY AND ICELAND

FRANCE:

On display at the 2019 sheep shearing and woolhandling World Championships in Le Dorat, France, was a modular shearing stand. It was made of timber that could be built to specification for any number of shearers allowing custom built designs suitable for both professional shearers and on farm facilities (Figure 14). It was designed so that it could be used in conjunction with standard sheep hurdles to form a yard. These purpose-built stands are movable and adaptable according to the requirements of the farmer, and whilst available across France it is thought only thirty or so farmers use them.

Figure 14: French modular shearing stand



The majority of these facilities are used in the Limousin region where their use is promoted by the 'Chambre d'agriculture', and where flock sizes are usually less than five or six hundred (Grancher, 2020). It was explained to me by a French woolhandler that on farms with bigger flocks (over a thousand ewes), the farmers want shearing to be completed in as few days as possible, and would not wish to build a permanent shearing stand suitable for perhaps five shearers as it would be both costly and take up valuable room in the shed. As a result, the majority of shearing set-ups seen in France are multiple free-standing shearing units (Figure 15).

Figure 15: Common shearing set-up in France



In these scenarios, farm staff catch the sheep and bring them to the shearer, making it much more labour-intensive than the modular design shown in Figure 14.

NORWAY:

Similar to Figure 15, this sort of system, of hanging a shearing machine on a bracket fixed to a movable stand, was also common on farms in Norway. These handling systems were improved through the addition of slatted floor, the benefits of which are discussed in Chapter one (Figure 16 and Figure 17).

Figure 16: Shearing on a slatted floor in Norway



Figure 17: Typical modern Norwegian sheep house



Many of the sheds in Norway are not purpose built for shearing but are in fact designed for feeding and housing for long periods of time. They are very well designed for feeding and housing the ewes for around six to eight months, depending on the weather. They are subdivided into pens with drinkers and access to a feed passageway, which can be loaded with an automatic silage feeder to reduce labour. In some instances, these passageways double as space for shearing in, although they are often too narrow to work in effectively. Sheep may be brought some distance from a pen or race by the farmer or farm staff to where the shearer is working. Considering in particular that the Norwegian

White ewe, which represents 75% of the national flock (The Norwegian Association of Sheep and Goat Breeders/NSG, 2015) can weigh up to 120kg, this is excessive manual handling and exertion. If these sheep are not fasted before shearing, welfare can be compromised (see Chapter one).

Iceland:

Similar working conditions can be experienced in Iceland, although sheds tend to represent less financial investment and a more basic facility, whilst providing the same key function of winter housing shorn ewes (Figure 18). This Norwegian model is discussed in more detail in Chapter four, with particular reference to woolhandling.

Figure 18: Typical traditional Icelandic sheep house



8. CHAPTER FOUR: WOOLHANDLING, MAXIMISING CLIP VALUE, AND PROMOTING THE USE OF WOOL

Wool was the most important export commodity from England in the Middle Ages and the wool trade became the backbone and driving force of the medieval English economy between the late thirteenth century and late fifteenth century. The seat of the Lord High Chancellor in the House of Lords is a large square bag of wool called the 'woolsack', a reminder of the principal source of English wealth in the Middle Ages. However, today wool represents only 1% of the World's fibre production due to the dominant usage of synthetics in clothing and interiors (Textile Exchange, 2019). Wool produced in Britain represents only 2% of the global wool market, with Australia, China, the USA and New Zealand, dominating (World Atlas, 2017).

The historical context within which British Wool operates is that the 1950 Act of Parliament protects the Board's existence and thus they are obliged to take wool from even the smallest producers. In 1992 the guaranteed price of £1.25 per kilo was dropped, resulting in the sudden collapse of the wool price to just 33 pence per kilo in 1993. (*Author's edit: this is similar to what some producers will receive for their 2020 wool clip, with the average payment currently at 32 pence per kilo, according to British Wool*). A lot of work is being done on driving demand for British Wool both in the UK and overseas particularly in China by generating end-user interest and through new-product development. However, the Covid-19 pandemic has highlighted problems with the wool supply chain and perhaps an over-reliance on China with producers facing a huge price crash and their wool payments not covering their shearing costs. There has been very little new demand for crossbred wool for carpets, with the tourism and retail sectors abruptly halted globally. British Wool have fortunately continued trading throughout the pandemic using online auctions which have been effective in selling wool remaining in store from the 2019 clip. Wool prices now however reflect a very difficult global picture.

As part of the survey for this study farmers were asked what breed of sheep they keep and what the size of their flock is, and this can be related to whether their wool clip usually covers their shearing cost, which varies widely. For example, one farmer in Northern Ireland with 501-1000 Texels and Suffolk mules pays £1 per sheep for shearing but the clip does not normally cover shearing costs. Conversely a farmer in the South West region with over 3000 Highlander and Romney crosses pays £1.40 per sheep for shearing and costs are covered by the wool produced (*edit: before 2020*). It is not just breed/wool type that affects whether wool producers cover their shearing costs. Factors such as additional costs of paying staff for the day of shearing and potential haulage costs of transport wool to depot also play a part. With such a range of contractor charges across the UK (reportedly from the survey ranging between 95pence in Wales to £1.70 including a woolhandler in the South West) and numerous variables such as wool presentation and quality, it is difficult to ascertain an accurate picture of the price point wool needs to reach in order to be a sustainable income for UK sheep enterprises. **This discussion around wool production, handling, grading and price is an important area of work to be taken forward for further work.**

WOOL PRODUCTION and WOOLHANDLING IN THE UK

There is huge variation in the quality and characteristics of wool produced in the UK (British Wool, 2019) owing to there being over eighty registered breeds of sheep in the UK. It is also true that wool quality is affected by feeding, breeding and management on farm. For example, breaks in the wool staple may relate to a time period of insufficient nutrition. Woolhandling in the UK is done in a very different manner to overseas. Fleeces are taken off the shearing board and rolled tightly before being packed into a wool 'sheet'. Generally the whole fleece, with the belly placed inside, is rolled as one, with no separation of fibres from different parts of the fleece. After shearing is completed these wool sheets may be taken to any of the sixty one British Wool collection centres in the UK and the fleeces processed at one of eleven grading depots. Around 27 million kilos of wool went through the British Wool system in 2019 (Jones, 2020). Wool that goes through British Wool system is sorted into fleeces of consistent 'type' by professional graders at British Wool depots. Every fleece is handled individually, and graded into six main 'styles' depending on the characteristics of the fibre, including uniformity in length of the staple fibre, staple strength, and any discolouration of the fleece. These six main styles are fine, medium, cross bred, lustre, hill and mountain. It is the quality of the wool rather than the breed that determines the style, meaning fleeces from more than one breed are sorted into the same style, because they exhibit the same or similar fleece characteristics. The wool in each of these styles is then further graded into Hoggs (fleeces from a sheep's first shearing) and Ewes and for any unfavourable characteristics such as cotts, discolouration, kemp and grey fibre. Damaged wool, excessively marked or tainted fleeces and fleeces contaminated with vegetable matter are also separated.

Interestingly, 77% of survey respondents sell their wool through British Wool, 14% to an independent wool buyer, 4% sell fleeces to a local craftsperson and 3% dispose of their wool and do not sell it (Figures are from pre-2020). There are other independent buyers of wool operating around the UK who collect wool directly from farms. Some wool produced in the UK is bought from farmers directly for use in small to medium-scale craft enterprises, such as spinning, felting and weaving. There is a rare breed exemption scheme meaning some fleeces do not have to be sold via British Wool. A small number of UK wool producers have diversified their sheep farming business into making their own wool products from fleeces produced and shorn on their farm. This removes the uncertainty around prices they will receive for their wool clip. The amazing array of wool products manufactured from small farming businesses include wool duvets and pillows, blankets and throws, and even toiletries made from lanolin. Below are a number of case studies demonstrating innovative use of wool direct from the farm.

UK case study one: Fernhill Farm Fleece and Fibre

Fernhill Farm in Somerset, England is home to three thousand Shetland-cross sheep, selectively bred for fine colourful fibre (Figure 18). Jen and Andy who run Fernhill Farm are passionate advocates for



wool and their commitment to best practice shines throughout their business. Fernhill Farm sells their whole fleeces and rovings by the kilo, bringing in additional income to the farm. They also sell shorter 'locks' of various colours in smaller craft-sized bundles, and sometimes bulk orders for raw fleece. Customers of Fernhill Farm are given options for commission washing, spinning, blending, dyeing and

weaving, where some of these processes are outsourced to trusted artisanal British processors, allowing them to maintain the traceability of their wool products. Fernhill Farm design their own working style garments and supply blends of British Sheep wool products, including yarn, woven goods, felt for crafters, accessories and gifts through their online and on-farm shops. In addition to producing wool based products, Fernhill Farm regularly hosts blade-shearing tournaments (Figure 19), which are well-supported by the shearing community and in September 2019 they hosted a British lamb shearing record.

Figure 19: Fernhill Farm shearing shed with blade shearing in progress



Figure 20: Fernhill Farm lambs gathered ahead of Stuart Connor's British Lamb Shearing Record



UK case study two: Romney Marsh Wools

Romney Marsh Wools is a Kent business selling a multitude of wool products, such as knitting yarns, blankets, raw fleece, craft products, socks, scarves, other clothing, and a range of toiletries made with lanolin. All products are made from the fleeces of the farm's commercial flock of one thousand Romney ewes and sometimes combined with fine fibre from their small flock of merinos. Their fleeces are taken to traditional weavers in the UK who hand process, then spin and weave yarn into beautiful wool rugs and wool throws. Romney Marsh Wools exhibit and sell products at a huge number of trade shows and events around the UK, as well as through their website. From humble roots on the Romney Marsh, a traditional mixed sheep and arable farm has diversified with a truly exceptional fibre enterprise.



Figure 21: Kristina Boulden, Codirector of Romney Marsh Wools, her wool products



UK case study three: Romney Tweed

Romney Tweed is a Community Interest Company making beautiful tweed fabric from Romney wool, in collaboration with sheep farmers on the Romney Marsh. Their projects give creative opportunities to in-house textile designers and showcase the possibilities of high-end cloth production from Romney fibre. They source grade one Romney fleeces through British Wool, which are then



processed in Yorkshire and made into premium quality cloth (Figure 22). This tweed is designed for both men's and women's clothing and furnishing fabrics, and a range of products are available. Romney Tweed also hosts weaving workshops and facilitates craft and design apprenticeships.

Figure 22: Romney Tweed fabric range



WOOL PRODUCTION and WOOLHANDLING ABROAD: Sheep and Wool in Icelandic Culture

Wool is a hugely revered element of Icelandic culture. Without sheep the Icelandic people would have been both cold and hungry, demonstrating the hardiness and resilience of both farmers and their livestock. Like the other Old Norse breeds, the Icelandic sheep produce a double layer of wool. They have a soft inner layer and coarse outer layer, providing protection from the harsh conditions they are exposed to. This means Icelandic wool is suited to a range of uses, either combining both fibre types or separating them. The company Icewear is a huge business widely recognised for their traditional Icelandic woollen gifts, from clothing to blankets. Icewear uses commercial yarn (Figure 23) produced by Istex in their factory outside of Reykjavík, which also spins for the craft market (Figure 24). All of Icewear's products are made using Icelandic wool, but most of their production is outsourced to China.

As a result, only a discerning customer will be attentive enough to their labels to distinguish between those Icelandic products that are made in Iceland and those that are not. The clothing is very popular and serves a booming tourist trade throughout the country. Nowadays, the iconic Icelandic sweaters (Figure 25) still prove popular amongst local rural communities and the tourist industry, fetching a high price when sold. Some are still handmade in Iceland by local craftspeople using Icelandic wool spun into yarn in the handful of small-scale spinning mills in the country.

Figure 23: Istex factory produces commercial volumes of yarn for Icewear



Figure 24: Colourful yarns produced for the craft market in the Istex factory



Figure 25: Handmade Icelandic sweaters



Case Study: Norwegian Wool

The annual Norwegian wool clip is more than four million kilos. Norilia is the company that processes nearly 80% of this volume through eight grading stations around Norway. The wool is graded into sixteen quality classifications. The type of wool (breed) and the length of the wool (timing of shearing) form the basis for the classification. Approximately 85% of the wool handled by Norilia is cross-bred white wool, with a fibre diameter of 28 micron or more (Norilia, 2019). The spæl sheep native to Norway produce a very different type of wool which grows in a double layer on the sheep, with fine and soft wool in the underlayer, and a courser top layer. Norwegian white wool is well-known for its

lustre, crimp, durability, and shine. The Norwegian Wool Standard is a recognised mark of this grading process. Norilia's sister company is Curtis Wool Direct Ltd. which is responsible for the Haworth scouring and combing facility in Bradford. Curtis Wool Direct Ltd. is one of the biggest buyers by volume of wool through the British Wool auction system, and interestingly, also owns Laurence Pierce, one of the independent wool merchants purchasing wool directly from farms around the UK.

Wool from Norwegian farms is generally packed into large paper bags (Figure 26) to be taken to a collection centre on a designated day. This acts as both a working and social event, bringing farmers together. Due to many farmers gathering at these events, individual farmers don't want to be seen as producing inferior wool, meaning the wool quality remains high.

Figure 26: Wool sorted on farm at shearing time and packed into paper bags, in Southern Norway



Wool is still a valued commodity in Norway, owing much of its favour to the active outdoor ethos of Norwegian people and to its cold winter climate. Norwegian wool is known for its quality characteristics and its versatility, suited to a wide range of uses. Wool sportswear can be found for sale in most small supermarkets (Figure 27) and there are several well-known Norwegian clothing brands using Norwegian wool.

Figure 27: Activewear made using Norwegian wool for sale in many small supermarkets



There is a huge dedication in Norway to promoting the natural properties of wool. Similarly to the UK, handmade Norwegian woollen products are widely available for sale at independent craft markets and small shops (Figure 28).

Figure 28: Craft stall displaying handmade Norwegian wool products



Norwegian sheep are generally sheared twice per year, once in the Autumn and again in the Spring. The sheep are housed during this period and the second shear spring wool is better quality than that clipped in autumn. Whether on farms or particularly in slaughterhouses, woolhandling is most often done by skilled professionals, often travelling from overseas for the season to work alongside shearers (Figure 29). Fleeces are sorted and graded at the time of shearing often using a computerised system. This allows the sheep's flock number to be correctly identified with the selected wool code, ensuring producers are paid accurately for their wool clip (Figure 30). At the very least, rudimentary wool sorting is done on farms by farm workers themselves or again by woolhandlers working alongside the shearers. During sorting, any shorter or stained wool is removed from the main fleece due to the best quality fibre attracting a premium payment. For example, farmers are paid over fifty krone per kilo as opposed to the lower grades which are worth approximately twenty to thirty krone per kilo. There seems to be enthusiasm and willingness to adopt best practice amongst a number of the farming community, particularly those who attended a new course, run in early 2020, with the aim of teaching farmers more about wool quality and practical woolhandling (Haugdahl Humstad, 2020). It should be noted that Norwegian wool producers receive a significant government subsidy to at least cover shearing costs, which are roughly three times higher in Norway than in the UK. **Issues around pricing and payments will be examined further in the discussion section of this report and would be an excellent area for further work in light of the global wool price crash caused by Covid-19.**

Figure 29: Shearing and Woolhandling at a slaughterhouse in Southern Norway



Figure 30: Wool sorting room at a slaughterhouse in Southern Norway: sheep ear tags are scanned and labels are printed giving the flock number and wool quality code, before being weighed and further sorted



9. DISCUSSION

This report set out to define and discuss what is meant by best practice during shearing in the UK, and whether there is evidence that such best practice is feasible, given perceived and practical barriers such as financial constraints and infrastructure required. Best practice has been defined throughout this report in terms of presentation of sheep for shearing, biosecurity, suitability of handling facilities, and wool handling and presentation. Findings on each subject are summarised below with due consideration of implications for the sheep industry.

Presentation of sheep for shearing:

This study found evidence that sheep are not always presented for shearing in optimal conditions. Shearers were asked in a survey how frequently they experienced issues such as wet or daggy sheep, sticky sheep not ready to shear, and in particular how often sheep were presented without prior fasting. Over 43% of respondents reported shearing full sheep very frequently, and over 35% frequently. As outlined in chapter one, a sheep's gut comprises 15% of its overall weight. With a full belly a sheep is uncomfortable during shearing, causing at the least extra strain on the sheep, with twisted guts and heart attacks observed on occasion during shearing (anecdotal evidence only). It is suggested more veterinary science work should be done on measuring the stress levels of sheep during handling and welfare implications of shearing full sheep. Fasting sheep prior to shearing has multiple benefits include preventing injury to sheep and shearer, reducing stress and improving animal welfare, and reducing contamination of fleeces. It is reiterated here that sheep should ideally be fasted prior to shearing for at least 8-12 hours. Industry bodies might wish to reconsider their published shearing guidance. Legislation prevents sheep being held off food or water during transport for longer than eight hours. It will be up to industry bodies to tackle this potential conflict of interest. Practical implications for the sheep sector are that more farmers need to make provisions for yarding their sheep off food and water ahead of shearing. Ideally this would take place in a covered yard with slatted flooring or a chalk or dirt floor. Where such infrastructure cannot be in place due to financial constraints, a paddock tightly grazed in the days leading up to shearing leaving minimal pasture cover to hold sheep the night prior to shearing would be sufficient, weather permitting. Different breeds of sheep have distinct temperaments and it is down to the experience of individual shearers to communicate clearly with the farmer their preference for the length of time sheep should be fasted. Farmers ought to understand better the need for fasting sheep and attempt to implement suggested practical solutions.

Biosecurity:

When considering best practice for biosecurity at shearing time we are concerned with the potential spread of disease or infection within or between farm premises. Examples of best practice would be shearers changing their clothing and disinfecting their trailer between farms, and farmers making provisions for this as far as is reasonably practicable. Other options include building permanent shearing facilities on farm, so shearers do not need to bring their trailer, with the onus being on the farmer to protect their livestock from transmissible diseases. Cost benefit analyses would be a useful tool in further work to assess these scenarios. Whilst the Icelandic model of biosecurity control is enviable, the UK sheep sector is a far cry from being able to draw parallels to any practical benefit, due to our reliance on livestock markets and movement of animals between farms and regions. This is owing to the stratified nature of sheep breeding in the UK and the store sheep trade, meaning

animals are moved regularly between regions. Within the context of shearing, however, more can be done to implement best practice and reduce as far as possible the likelihood of shearers spreading infectious diseases such as scab and footrot between farms. It may be interesting to seek evidence from the pig and poultry sectors whose approach to biosecurity is far more stringent than our own. We can draw on our own industry response to previous outbreaks such as foot and mouth and learn from the Icelandic shearer's commitment to disinfecting all equipment between farms. Any such measures do add time and therefore cost to the shearing day, which farmers should be willing to pay for in order to protect the health status of their flock. Further work is required to incentivise change if it found that inadequate biosecurity at shearing is causing harm to the wider industry. It is currently unclear due to insufficient evidence whether this is in fact the case. However, a principle of precaution should be adopted by those sheep farmers seeking high flock health status and wanting to protect their business from risk. Due to the future financial landscape of farming in the UK adopting rewards for 'public goods' and increased promotion of animal health/welfare, most if not all farmers should be seeking improvements.

Suitability of handling facilities:

Handling systems should be optimised for efficiency and to minimise stress, contributing to best practice during shearing. Even small improvements to individual farm infrastructure can have a big impact on the welfare of sheep and shearers alike. Shearers should be mindful of their duty to carry out a professional service using suitably designed trailers. Farmers should be aware that a new three stand shearing trailer can cost in the region of £5000-£7000, with machines, handpieces, combs, cutters, clothing and sundries all adding up to significant investment on the part of the shearing contractor or shearer. All equipment has to be regularly maintained and updated, and the running costs of a shearing enterprise should not be underestimated. Sheep farmers should match the level of care and attention invested by most UK shearers in their ongoing skills training to ensure animal welfare is prioritised, by allocating sufficient time and resources to the task of shearing. This includes having adequate penning to yard sheep prior to shearing and to draft lambs from ewes with minimal stress. Whether a permanent yard or mobile hurdle system, facilities should be suitable, with enough competent staff present, for loading the shearing trailer efficiently throughout the day. Whilst it is accepted that some UK sheep farmers do not have access to sheds, with careful planning and perhaps more investment of time ahead of shearing, practical improvements can be made to improve the job of shearing for all concerned. It would certainly help incentivise change if grant funding was available for improved infrastructure. For example, slatted flooring and mobile handling yards have been part-funded through Countryside Productivity Schemes from a £200m Rural Development Programme for England (RDPE) package, announced in July 2017. The direction of travel of support payments for livestock farmers is focused around improving animal welfare and environmental goods from farming. Consultation has taken place between DEFRA and all stakeholders regarding the future for food, farming and the environment and it remains to be seen whether infrastructure for shearing could feature in the future. Further work is required to prove a need for financial support for these types of investments. With wool price currently on the floor it is understandably a hard sell to suggest sheep farmers invest anything in shearing. However, with the health status and future productivity of their flock paramount, the wool enterprise should be considered more keenly alongside producing lambs for market. Disruptions to global trade due to Covid-19 have adversely affected the wool price for the foreseeable future, and Brexit could yet affect the market further. Farmers should consider innovative solutions to improve the profitability of their sheep business. Examples exist around the UK of diversified wool enterprises holding firm through a difficult 2020 season. Others may choose to be

inspired by these instead of remaining understandably frustrated by the current global situation of markets closed beyond anyone's control. Equally British Wool have a huge responsibility to strongly advocate the benefits of wool as a sustainable natural fibre. With the Chancellor recently unveiling a £2bn home insulation scheme it is imperative that wool is well-placed to become an important part of the solution to environmental concerns.

Woolhandling and presentation:

British Wool pay per kilo for fleece weight, with most fleeces being kept entire, rolled and packed into wool sheets. Therefore, if a skilled woolhandler skirts the fleece or takes out seconds or pieces (topknot, socks, crutch etc.) or even dags, the fleece weight is reduced and the farmer gets paid less, despite the skilled wool sorting. Unless the buyers of British Wool demanded further grading and separation of short fibres, there will always be a ceiling on wool price. *"There used to be many more sub-grades of wool used by depot staff to differentiate between fleece characteristics, and far more interest from the farmer in producing a good quality wool clip"* (British Wool grader, 2019). A point for discussion is whether the system should be changed to incentivise better clip presentation, based on producers receiving premiums for quality wool (rewarding good production) rather than deductions/downgrading of fleeces that have problems such as yellowing, kemp, vegetable matter etc. It could be argued that higher payments for quality white wool are already in place, with payments for crossbred usually much lower, but there could be more done to differentiate and incentivise quality wool production. Producers in Iceland and Norway receive a government subsidy for their wool, which at least covers shearing costs. This is not necessarily a model the UK could or should adopt, but it worth noting that without financial constraints extra care is often taken to sort wool thoroughly at the time of shearing. This is particularly the case in Norway where there is a differential payment between quality white wool and short or stained wool. A combination of skilled woolhandlers expected to do more grading and the use of technology to class different wool types, helps maximise the return to producers. Whereas, in the UK the whole fleece gets graded on its overall merits or faults, rather than separating fibres from different areas on the sheep. The process of woollen spinning makes best use of British crossbred wool by incorporating all fibre lengths in its processing. Conversely worsted spinning relies on longer staple and higher quality fibre and uses a combing technique in fibre preparation rather than carding. The amount of short wool on hill sheep is relatively lower than some finer wool breeds than can have short wool around the heads and legs, which if not sorted at shearing becomes mixed with the main fleece wool of longer staple length. This could be a problem for discerning buyers of British Wool seeking worsted spun cloth, so attention should be given to the required end use.

10. CONCLUSION

As outlined previously there are several perceived and practical barriers to best practice at shearing, from both the perspective of farmers and shearers. The common theme underlying all of these issues is financial constraints, whereby the cost of improvements is perceived to outweigh potential gains. Farmers are understandably frustrated by the very low price paid for the fantastic product that is wool. When an enterprise is not profitable it is unsurprising to find suboptimal conditions. Those most frequently observed (by shearer respondents to the survey) include full sheep, daggy sheep, inadequate labour/penning, lack of shade or shelter, and uneven ground. The most predominant factor by far being full sheep, which has been discussed in some detail. Chapter three described how shearers choose to respond if unsatisfactory conditions are experienced on farm. Most choose to bring the issues to the farmer's attention but continue to shear. Others carry on regardless and only a small proportion will pack up and leave. Like so many of the practical considerations discussed throughout this report, this highlights the importance of communication between farmers and shearing contractors, and the need for shared responsibility for implementing and maintaining best practice. Many decisions at shearing time (like many of those made within a farming business), are primarily based on finance. The price of wool in the UK has fluctuated over time but has reduced in value considerably over the past fifty years due to competition with synthetics. British Wool stated in an interview that it hopes in the next 5 years, we would see a doubled return to producers across all wool types (Farren, 2019). However, coming as a shock, the Covid-19 pandemic has highlighted ongoing problems in the global wool market. These supply chain issues are having immediate and long term impacts on the viability of UK wool production. Questions about the type of sheep kept and therefore the quality of wool produced will have to be asked by farmers, as well as their methods of wool handling and creating end-user demand, either on farm or perhaps through cooperatives and initiatives such as the Fibre Shed movement (www.southwestenglandfibreshed.co.uk). We either accept wool as a loss-making by-product of sheep farming for meat or choose to change our approach and create more demand for a sustainable natural fibre, creating more dynamic, diversified and holistic sheep farming businesses.

In summary, it is highlighted that a subtle but important issue of accountability and responsibility surrounds practical decisions made by shearers and farmers. Clearer communication about what is expected from both parties should be agreed. Farmers should proceed in a way that maximises the welfare of their sheep and protects their business from undue risk, and shearers must act professionally to protect their reputation within the Industry and externally. Shearing has recently come under scrutiny from activist groups such as PETA who were found to have videoed undercover footage working alongside shearing contractors in the UK in 2019. The Industry must do all it can to protect the value of shearing as a compulsory process essential for animal welfare and endeavour to promote best practice at all times. Best practice at shearing has been described throughout this report and includes handling facilities, preparation of sheep prior to shearing and presentation of sheep to shearers, minimising stress on sheep and people, and improving biosecurity. As mentioned before, many of these decisions are based on financial constraints. It would be interesting to find out what wool price would persuade farmers to consider investing in infrastructure for shearing, when the general consensus is currently that wool is not worth enough to encourage farmers to do differently. This study has demonstrated that there are several farmers in the UK that have taken matters into their own hands and are diversifying their business through wool innovation. Such farmers, as well as those who have invested in improved infrastructure, should be rewarded in terms of added value from wool, reduced risk of biosecurity breaches or reduced handling stress contributing to improved flock health. **It is suggested that cost benefit analyses of various practical considerations outlined in this**

report would be beneficial for further work, to guide decision making at shearing. Shearing is fundamentally an animal welfare requirement, and it is therefore imperative that certain aspects of best practice be considered more seriously in order to retain the integrity of the UK sheep and shearing industry. It has been highlighted during the Covid-19 pandemic that many overseas shearers do not look favourably on the conditions experienced during shearing in the UK, and if we wish to encourage not only their return for the 2021 season but importantly the development of our UK shearing community, then positive change should be incentivised wherever possible. Equally, shearers must uphold the highest standards and be subject to scrutiny from within the Industry, so that no further external criticism occurs. Farmers should be encouraged to consider improvements in their handling facilities for the benefit of their flock biosecurity, their sheep welfare, and the wellbeing of people working on their farm. Shearers must conduct themselves professionally, regardless of circumstance, as their responsibility is for animal welfare, an issue never to be compromised.

11. APPENDICES:

Appendix 1. National Sheep Association regional divisions



Colour codes

Scotland: light blue, Northern: pink, Central: dark blue, Marches: yellow, Wales: Red, Eastern: Orange, South East: light green, South East: Purple, South west: Purple, Northern Ireland: dark green.

Appendix 2. Covid-19 guidelines for shearing 2020



Covid-19 Checklist for Shearing Contractors and Farmers 2020

14 April 2020

Please note: as this is a fast-moving and rapidly changing situation, this guidance may change at short notice and it is important to stay up-to-date with the latest advice from [Government](#) and the [NHS](#) on a daily basis.

It will not be business as usual this season and shearers, wool handlers and farmers must work in partnership to ensure everyone is safe and that animal welfare is protected. The process will inevitably be slower, but risks must not be taken, and co-operation, collaboration and patience will be vital. This checklist should be read in conjunction with Industry Guidance on Shearing:

<https://www.naac.co.uk/wp-content/uploads/2019/05/Industry-Shearing-Guidance-2019-1.pdf>

Please note: this may not be a comprehensive list and you must think through your own business, follow best practice and make certain you have done a full risk analysis to keep everyone safe.

Checklist of Actions:	Done
General	
<ul style="list-style-type: none"> No personnel must be present at shearing if showing symptoms of Coronavirus and must follow guidance on self-isolating. 	
<ul style="list-style-type: none"> Ensure all personnel can maintain a minimum of 2m separation. 	
<ul style="list-style-type: none"> Hand-washing facilities should be available for everyone to wash hands with soap and water regularly for a minimum of 20 seconds. If hand-washing facilities are not available use hand sanitiser. As a minimum, shearers must wash hands before leaving home, after each farm shearing, at the end of each shearing run before eating/drinking and on arrival back home. 	
<ul style="list-style-type: none"> Do not touch your eyes, nose or mouth if your hands are not clean (including if wearing gloves) 	
<ul style="list-style-type: none"> Cover your mouth and nose with a tissue or your sleeve (not your hands) when you cough or sneeze – ensure all staff are aware - put used tissues in the bin immediately and wash your hands immediately afterwards 	
<ul style="list-style-type: none"> Where possible, shearers should travel to jobs in their own vehicle. Extra vehicles may be necessary. If not possible, maintain a 2m separation, and keep the window open for ventilation and be careful not to touch your face. On leaving the cab, you must wash your hands with soap and water for 20 seconds or more or use hand sanitiser when you cannot wash your hands. 	
<ul style="list-style-type: none"> Do not allow any visitors, including children, where shearing is taking place – put up warning notices at entrances. 	
<ul style="list-style-type: none"> Communicate with shearers and farmers remotely to avoid direct contact. 	

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Machinery and Equipment	
<ul style="list-style-type: none"> • Keep to one-shearer-one machine. Each shearer must be responsible for their own kit (eg putting up and taking down their machine and dropper) and cleaning. 	
<ul style="list-style-type: none"> • Clean vehicle cabs thoroughly after use by each member of staff using disinfectant eg door handles, steering wheel and all areas likely to have been handled. 	
<ul style="list-style-type: none"> • Clean vehicle cabs thoroughly after work and in the morning using disinfectant eg door handles, steering wheel and all areas likely to have been handled. 	
<ul style="list-style-type: none"> • Wash hands regularly after touching 'shared' equipment (eg when setting up trailer). 	
<ul style="list-style-type: none"> • Only individual shearers to handle their own shearing kit and only farmers to handle their hurdles/on-farm equipment. 	
On Farm:	
Before Visiting Farms	
Have a telephone or email conversation between contractor and farmer to agree how the shearing will operate. Confirm details on the day of shearing to check if anyone's health has changed. Agree:	
<ul style="list-style-type: none"> • That no-one will come into contact with anyone who is self-isolating. 	
<ul style="list-style-type: none"> • There will be no direct contact between shearers and farm personnel, unless necessary to work safely. Agree that everyone will remain at least 2m apart. 	
<ul style="list-style-type: none"> • Ensure that hand-washing facilities are available – or equip personnel with hand sanitiser (agree beforehand who will provide facilities) 	
<ul style="list-style-type: none"> • Plan of work - discuss how sheep will be moved and how social distancing can be maintained 	
<ul style="list-style-type: none"> • Assume that all surfaces could be contaminated and try and keep separate work areas for contractors and shearers 	
<ul style="list-style-type: none"> • Ensure that facilities will be available for hand-washing and disinfecting machinery and staff before they leave the farm 	
<ul style="list-style-type: none"> • Farmer will disinfect all necessary work areas before shearers arrive 	
On-Farm and Shearing	
<ul style="list-style-type: none"> • Keep everyone at least 2m apart: <ul style="list-style-type: none"> ○ Consider making a temporarily partition between stands or not using all available stands; ○ Shearers should avoid entering pens at the same time; ○ This includes shearers and farm personnel who may be moving sheep – remember you can spread the virus even if you don't have symptoms. 	
<ul style="list-style-type: none"> • Stay a minimum of 2m apart – including in races, shearing pens and during breaks. 	

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<ul style="list-style-type: none"> Following shearing, kick wool off the board to maintain a minimum 2m distance for the wool wrapper at all times or consider using a 'broom' to pull wool off the boards. 	
<ul style="list-style-type: none"> Disinfect shearing equipment between each farm and retain one set of equipment for each shearer 	
<ul style="list-style-type: none"> Change clothing and moccasins before moving to the next farm; bag clothes at each site and wash before wearing again. 	
<ul style="list-style-type: none"> Wash hands for 20 seconds before leaving the farm 	

Farmer's Responsibilities	
<ul style="list-style-type: none"> Liaise with your shearer (see above) and work in partnership to protect everyone's health. 	
<ul style="list-style-type: none"> Ensure you, your staff and shearers remain at least 2m apart at all times 	
<ul style="list-style-type: none"> Provide hand-washing facilities where possible, otherwise provide hand sanitiser. 	
<ul style="list-style-type: none"> Please be ready and prepared for your shearer's visit. The industry will be under additional pressure this year and it will be important to have well-presented sheep ready to be shorn when the team arrives. Please follow best practice including: <ul style="list-style-type: none"> Well-designed handling system Take appropriate measures to ensure sheep presented for shearing do not have full stomachs, by yarding appropriately without food or water ahead of shearing. No wet sheep, no dags Do not combine drenching, parasite control, or other procedures at the same time as shearing Provide a safe, level, dry area for shearing. 	
<ul style="list-style-type: none"> Disinfect the work area and surfaces before shearers arrive. 	
<ul style="list-style-type: none"> Do not allow any visitors, including children, where shearing is taking place – put up warning notices at entrances. 	
<ul style="list-style-type: none"> Ensure personnel remain at least 2m apart even in raceways and loading the shearing trailer. Allow shearers to move away before approaching the trailer. 	

As this situation is changing daily, please keep updated on the latest Government guidance and if you have any questions or concerns please contact the NAAC staff and we will try and assist.

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Industry Guidance on Shearing

for Farmers and Shearing Contractors

Adult sheep should be shorn at least once every year to help reduce the risk of external parasites and to avoid heat stress. In the main, shearing is carried out to improve animal welfare rather than for the value of the wool. This guidance has been produced to remind farmers and shearing contractors to work together and ensure that sheep are handled appropriately to avoid stress and injury during the shearing process.

Presentation of Sheep

1. Prior to shearing, sheep should be kept calm to ensure the job can be done easily and efficiently.
2. Your handling systems must be designed so that sheep reach the shearers without stress or injury. Ensure experienced livestock handlers are on hand to assist.
3. Very full bellied sheep may experience discomfort when being shorn and will defecate on the shearing boards, making shearing more dangerous and clean fleeces harder to achieve. Take appropriate measures to ensure sheep presented for shearing do not have full stomachs. Achieving this will depend on several factors including the extent to which lambs are still suckling and whether lambs are weaned. Options could include penning without feed for at least 4 hours before shearing, or housing/yarding overnight with access to dry food and water.
4. Do not present the shearer with wet sheep.
5. Ensure that all sheep are clean of dags prior to shearing.
6. Ideally do not shear sheep until 8-12 weeks after lambing. Enlarged milk veins will make shearing more difficult and put sheep at risk.
7. If there are still lambs at foot, ensure that they are separated ahead of shearing and have had time to adjust.
8. Do not combine drenching, parasite control, or other procedures at the same time as shearing. This will increase stress levels, make sheep more difficult to shear, potentially waste money, and can cause harm to shearers if products are applied pre-shearing. Check any safe handling and application recommendations relating to treatments on the wool.
9. Be aware, if using a contractor, that your shearer could impose an additional charge for poorly presented sheep, which take additional, unnecessary time to shear.
10. When shearing sheep in the winter ensure that they are given adequate shelter until a covering of wool has regrown and weather conditions are suitable for turnout.

Facilities for Shearing

11. A safe, level environment is needed to shear. Attempting to shear on a slope is both difficult and more physically demanding.
12. Provide a protected and safe power supply.
13. If the weather is hot provide the shearing team and sheep with shade and water.
14. If winter shearing, protect the shearing team and sheep from wind and rain.

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Using a Contractor

15. Check that your shearing contractor has a good reputation and shearers are suitably trained.
16. Shearers moving between farms can pose a biosecurity risk. Ensure shearers have cleaned down and disinfected before leaving the last farm and that they have changed trousers, singlets and moccasins. Farmers should assist shearers with cleaning and disinfecting procedures.
17. Challenge any inappropriate handling of sheep. Be prepared to instruct any shearer that may be behaving inappropriately to stop shearing. If the lead contractor is not present phone them immediately and explain any issues.

Shearers and Shearing

18. Treat all animals calmly and with respect.
19. Only use safe and well-maintained machines and equipment to shear.
20. Clean and disinfect equipment before leaving premises (to avoid spreading caseous lymphadenitis (CLA), scab etc.).
21. Change clothing and moccasins if moving between farms and report any obvious cases of disease or parasites to the farmer or person with responsibility for the flock.
22. Shearing is a very physical job. Take care that everything possible is done to protect the personal health and safety of everyone involved in shearing.
23. Never shear under the influence of drugs or alcohol.
24. Initial training and regular refresher training is recommended. This can be obtained from British Wool in the UK.
25. When employing new shearers check references, training awards and/or get personal recommendations, if possible. Ensure that novice shearers are properly supervised, trained and competent.
26. Overseas shearers and those new to the team must be properly supervised, until it is established that they are capable of shearing competently and professionally.
27. In the unlikely event of an animal falling ill or getting injured, ensure the team is prepared in advance. Discussions are needed between the farmer and shearers to put an agreed procedure in place.
28. If contract shearing, be prepared to charge extra for badly presented sheep, dirty sheep, sheep with full bellies that display discomfort, or poor handling facilities. Likewise be prepared to leave the farm if a safe and secure area for shearing cannot be provided.
29. Challenge any inappropriate handling of sheep whether by shearers or farm staff. Be prepared to leave a farm that has stressed, or badly presented sheep for shearing.

Shearing is hard work but if farmers and shearers can work together it can be done safely, efficiently, with high standards of animal welfare and can be a rewarding job, leaving all involved with a sense of pride.

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Appendix 4: Flyspraying schedule of farmer respondents to survey

	0 WEEKS' PROTECTION (TREATMENT ONLY) (DELTANIL, SPOT ON, SPOTINOR)	6-8 WEEKS' PROTECTION (CROVECT, ECTOFLY, VECTOCERT)	8 WEEKS' PROTECTION (CLIKZIN)	8-10 WEEKS' PROTECTION (DYSECT, ZERMASECT)	10 WEEKS' PROTECTION (VETRAZIN)	16 WEEKS' PROTECTION (CLIK)	19 WEEKS' PROTECTION (CLIK EXTRA)	TOTAL
January	100.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	3
February	100.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	3
March	60.00% 3	40.00% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	5
April	21.74% 5	34.78% 8	4.35% 1	0.00% 0	0.00% 0	17.39% 4	21.74% 5	23
May	4.65% 4	32.56% 28	13.95% 12	1.16% 1	1.16% 1	18.60% 16	27.91% 24	86
June	1.28% 1	47.44% 37	12.82% 10	2.56% 2	2.56% 2	14.10% 11	19.23% 15	78
July	4.88% 2	58.54% 24	19.51% 8	0.00% 0	2.44% 1	9.76% 4	4.88% 2	41
August	6.06% 2	63.64% 21	15.15% 5	3.03% 1	6.06% 2	0.00% 0	6.06% 2	33
September	9.09% 3	78.79% 26	12.12% 4	0.00% 0	0.00% 0	0.00% 0	0.00% 0	33
October	33.33% 2	33.33% 2	16.67% 1	16.67% 1	0.00% 0	0.00% 0	0.00% 0	6
November	100.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	3
December	100.00% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	3

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