University of HUDDERSFIELD
University of Huddersfield Press

Fields: journal of Huddersfield student research
Available open access at: https://www.fieldsjournal.org.uk/

FIELDS Journal of Huddersfield student research

The 'golden hoof': The regeneration of regional wools

Louisa Knapp

University of Huddersfield , Queensgate, Huddersfield, West Yorkshire, HD1 3DH

ARTICLE INFO

Article history:
Received 18 October 2021
Received in revised form 10 January 2022
Accepted 00 February 22

Keywords:
The Golden Hoof
Rare Breed Wool
British Sheep Breeds
Sheep
Textiles
Wool
British Wool
Regional regeneration

ABSTRACT

There is a myriad of benefits to native and rare breed sheep wool. Making better use of it in innovative products, could position it as the sustainable fibre to champion in the future as we look more inwardly for green solutions in British manufacturing. The relevance of these breeds for a more sustainable future is an issue that divides many in the farming, agricultural and manufacturing communities. This evolving body of work set out to discover the positive impact these breeds could have on both regional economy as well as wider ecology.

The key findings showed flaws in British Wool's homogenised sorting practices, a disconnection between farm and factory with breeders struggling to find that 'middleman' without huge overheads as well as outdated breed information with categories of 'carpet' or 'garment' being unsatisfactory.

The research draws together multiple fields of study including textile manufacturing, sheep husbandry and edaphology. Confirming how, in microcosm, the textiles industry's drive towards natural solutions could be satisfied by wool's symbiosis with nature.

This article forms part of a wider research project which combined academic and practical textile research, highlighting the innovation and diversity of research achieved and encouraged in the School of Arts and Humanities.

Introduction

'The grand secret of breeding is to suit the breed to the soil and climate'. (William Youatt, 1867, p. 22)

Over the centuries, sheep farming has faced many challenges owing to advances in technology. Starting from the Industrial Revolution, intensified by population increase and now, living with climate change and increasing consumerisation, the challenges are as onerous as ever. However, the evolution and adaption of sheep breeds has ensured their resilience.

The aim of this research was to explore the relevance of native and rare breeds in the future British wool industry. In 2020:

> COVID-19 forced the global marketplace for cross-bred wool to shut and British Wool had a third of last year's 27 million kilos still unsold before the 2020 shearing season started. Consequently, they are paying an average of 32p per kilo, with mountain or coloured wool as low as 15p or less (Barber, 2020).

With an economic crisis imminent post-COVID-19, and economic uncertainty with Brexit plans unfolding, their relevance is an issue that divides many in the farming, agriculture, and manufacturing communities.

Britain was once known as the 'workshop to the world' (Hudson, 2011), and there is a potential for the British wool industry to restore wool, once again, to its former value. Just as the Speaker in the House of Lords sits upon a wool sack, symbolic of the historic significance of wool to the wealth of the Nation, wool could play a significant role in a regenerative period in this country's economic reconfiguration (UK Parliament, n.d.).

Existing literature on the subject of sheep husbandry, not surprisingly after hundreds of years of farming, was vast. However, a reason why commercially, these breeds have not been better exploited in the modern wool industry remained sparse and divided. As a consequence, this research incorporated interviews with several native and rare breed farmers in order to discover the obstacles in that line of enquiry.

Literature review

'One threat to the future of sheep is the uniformity brought about by intensive specialisation of relatively few objectives.'
(Michael Lawson Ryder, 1983, p. 784)

Locality and region

Provenance wavers between urban and rural environments like socio-spatial perspectives. From a craftsperson's home environment, connection to a particular tradition, distinct 'craft quarters' or towns to established regional practices (Brown, 2014), all these can contribute to a product's unique regional identity. Landscapes, however, are a powerful means by which people maintain this identity, growing stronger despite societal changes. For some, they even function as symbols of national identity (Readman, 2018).

This championing of region and connection to a geographical heritage is, interestingly, parallel to the French term 'Terroir', defined as 'land considered in respect of its agricultural production' (Terrior, 2020). This is prominent in the production of wine: the environmental conditions, especially soil and climate, are all said to create the unique flavour and aroma of the wine. By implementing this concept towards wool, the diverse traits of these more regional and native breeds could be improved through the education and publicity of their geographical origins, just as it does for Dijon mustard, Seville oranges and Aberdeen Angus Beef.

Genetic diversity

The history of sheep husbandry is one of innovation and selective breeding for the improvement of characteristics beneficial to both the farmer and the consumer. The different local environments across a range of geographical climates in the UK, have all contributed to the evolution of regional breeds. The desired characteristics during earlier centuries were 'survival, local adaptation and ease of management' (Parkin, 2015, pp. 7–8). However, today, the demand focuses on quickly maturing, lean meat producing, white fleeced sheep.

An example of this is the aptly named EasyCare™ sheep, developed by IoIo Owen in the early 1960s (Davidson, 2019). The breed comes predominately from Wiltshire Horns crossed with other breeds, notably the Nelson type of Welsh Mountain sheep.

The EasyCare Sheep Society's website (n.d.) states how they, aim to keep up with ever-changing needs and to 'avoid being a "dyed in wool", narrow minded society, stifled in tradition'. Capital is perhaps taking centre stage, rather than heritage, heightened by their breed name being devoid of any geography.
These, non-shearing breeds such as EasyCare™ and Texel, aim at a low cost, easy lambing and quick growing sheep for meat-only production.

Common in both these breeds in the genetic modification of the myostatin gene, first described as 'double muscling' (Miar et al., 2014), and it is this modification that increases the amount of lean meat and decreases the percentage of fat and bone mass. Limited literature exists on the long-term effects; however, the disadvantages of its use within cattle have been seen to include: 'reduced fertility, low calf viability, increased stress susceptibility and dystocia' (pp. 33–4). Dystocia (difficult or obstructed labour) is the biggest concern in the husbandry of both the EasyCare™ and Texel breeds.

The danger of breeding out biodiversity for commercial aesthetics is the loss of a potentially vital genetic resource. In his book *Sheep and man* (1983, p. 784), biologist Michael L. Ryder discusses the issue of breed and fleece homogenisation, declaring 'the future of wool is threated by uniformity brought about by an intensive specialisation of relatively few objectives'. Rare breeds may seem to have low economic value now, but nobody knows what conditions will emerge in the future and which breeds will prosper as agriculture adapts.

Not all cross-breeding and sharing of genetics has a negative impact. A good example of this is the Lleyn sheep – which, 15 years ago, the breed was confined to the mountainous region of the Lleyn peninsula in North Wales. Throughout the 1980s and 1990s, English sheep farmers were looking for a maternal sheep that would do well on low-input, grass-based systems, the Lleyn's qualities matched these parameters perfectly, and today they can be found throughout the UK, indeed they are the fastest growing breed in the country (Harding, 2015).

Mankind's over-involvement in the genetics of livestock aligns with what Sir David Attenborough describes as 'our destructive relationship with nature' (Thomas, 2020, 34:50). Within the documentary *Extinction: The facts*, Dr Peter Daszak (Disease Ecologist for EcoHealth Alliance), states that '31% of all emerging diseases have originated through the process of land use change' (36:56), highlighting how it is humanity's impact on the environment, and interference with nature, which drives the emerging crises. Perhaps working with nature, rather than against it, is key to ensuring the longevity of our wool industry and the continued diversity of their genetic pool. This would allow regional diversity to offer more than mere novelty.

British Wool marketing board

The concept of homogenisation could be said to be encouraged by the way in which wool is sorted and sold. In Britain, all wool is sold through British Wool, formerly The British Wool Marketing Board (BWMB), which auctions the wool on behalf of the farmer. However, the wool is sorted into just six categories, effectively erasing breed origin, and preventing the wool from taking advantage of a single origin appeal. Due to the great diversity of sheep breeds producing relatively low quantities of fibres that are identical in quality, they are 'ill-suited to a bulk wool industry, designed to process large batches of homogeneous fleece' (Parliamentary Assembly, 1995, para 2,5).

There are special considerations for those breeding rare breeds (classified by the Rare Breed Survival Trust) so that they are exempt and allowed to not only sell their wool to the board but also to other niche markets. Breeders are, however, left on their own when negotiating with traders and obliged to accept potentially undervalued prices with very few offers on the table.

However, elsewhere in Europe, wool suffers even more because it is not recognised as an agricultural product by the European Union, and so it receives no subsidies or assistance. Even those similarly uncategorised agricultural products such as tobacco receive considerable amounts (Parliamentary Assembly, 1995). Wool, it seems, is viewed by governments as low-value commodity and simply a by-product of the larger, subsidised meat industry.
In the past, other commodity boards have failed due to the modern scale of consumption and production. This could be said to be true of the Milk Marketing Board (MMB), established in 1933, to control and promote the British Dairy industry, guaranteeing a minimum price for producers. With the rise of market power from supermarket quotas, the price of dairy products became very low, and many farmers struggled during what was called the 'Milk Crisis' (Elmbridge Museum, n.d.). Similarly, because of the industry monopolies, like Australia and China, the price of wool has become very low – as homogenisation and commoditisation of a quality product lowers its intrinsic value. The milk board was later abolished, not least, because it failed to protect the interest of its members. The same could be said of the wool board who have been seen, by some, to have been slow to respond to the needs of its members as seen in 2020's fleece burning scandals.

The concept of a commodity board seems outdated now with the internet enabling effortless consumption. Today, the fashion and textiles sectors are increasingly, 'neither spatially nor culturally confined: online access allows a connection to be kept across geographical borders' (Brown, 2014, p. 7).

The rewilding debate

Rewilding is a term first defined, in 1998, by American conservation biologists, Michael Soulé and Reed Noss. According to Soulé and Noss (1998, p. 19): rewilding simply 'emphasises the restoration and protection of big wilderness'. In an island nation such as the UK, the idea of large-scale rewilding is understandably unrealistic. However, it has been adopted, on a smaller scale, by regenerative farming methods where livestock, crops and fallow land are rotated.

However, in his book *Feral: Rewilding the land, sea and human life*, George Monbiot argues for a partial rewilding of the land as an antidote for the farming monoculture and 'agricultural hegemony' (Monbiot, 2014, p. 166) that has caused so much damage to the British landscape. Monbiot blames the husbandry of farmland as the greatest obstacle to rewilding, stating that grazing prevents the land from regenerating while destroying the habitat for so many other species. He pinpoints sheep farming specifically as a 'slow-burning ecological disaster, which has done more damage to the living system of this country than either climate change or industrial pollution' (Monbiot, 2014, p. 158).

The 'golden hoof'

The 'golden hoof' can be used as a metaphor to challenge this argument. It is an ancient phrase which suggests grazing and trampling of the land, by sheep improves soil texture and fertility. By emphasising that those in the ungulate species, such as sheep, have been a natural fertilising agent for hundreds of years. The benefits of sheep, in an arable rotation, can be seen across the world in modern regenerative farming methods. Further, the National Sheep Association (NSA, 2017), cites multiple benefits, for both sheep and land, including increased soil health, management of invasive species, and reductions in the use of polluting chemical fertilisers and pesticides.

Powell (2018, p. 6) also highlights sheep's ability to 'reverse climate change by rebuilding soil organic matter and restoring degraded soil biodiversity; resulting in both carbon draw down from the atmosphere and improving the water cycle'.

The phrase 'carbon draw down' is similarly championed in a new Netflix documentary: *Kiss the ground* (Tickell et al., 2020), which focuses on soil's unique ability to sequester carbon from the atmosphere and consequently reverse the effects of global warming. Many working in the culture of modern farming can be seen to be aware of the outdated, damaging effects of a mono-crop, and it is this 'monoculture' that Monbiot (2014) warns so seriously against.

Effects of pasture on wool quality

The importance of soil for the textile industry might, at this point, seem unclear, but when it is understood that soil imbues itself with everything that lives among it, soil and wool are shown to be inextricably linked. Sheep, reared long enough on the same pastures, will inevitably be affected by the minerals and nutrients it contains. For example, 'sheep bred on soils overlying limestone appear to take on a black/blue bloom in their skin; whereas acidic soils, especially those containing iron, seem to impart a reddish hue' (Walling, 2015, p. xvi).

In previous years there has been a focus on pasture-fed livestock leading to better-quality meat (Pasture for Life, 2018), so there should be a similar awareness to the effect that poor-quality soil has on the production of substandard wool. This is especially important as British wool has a reputation of being a coarse fibre that is rough and itchy against the skin. Suzy Shepherd, founder and Director of Leeds Fashion Works and Yorkshire Textiles Ltd agrees saying that, 'when people think of British wool garments they often think of very outdoorsy tweeds' (University of Huddersfield, 2020, 24:16).

An increase in soil health can be found to increase the yield and quality of a sheep's fleece which would appeal to both breeders and consumers. Although the textile industry continues to innovate and advance, using technology to continuously push the properties of wool, if we are able to change the fibre while still growing on the sheep, this consideration could not only lead to more environmentally friendly farming methods, across the UK, but to a better-quality end product without the need for heavy chemical finishing and processing.

One of the most important causes of fibre variation (which can lead to a low price at auction) is the

level of nutrition available to the sheep. Wool fibres are produced from the follicles in the sheep's skin, and sheep that receive good nutrition produce a greater mass of wool, each day, compared to sheep who do not. Sheep fed high levels of nutrition have higher fleece weights, with an increase in both staple length, fibre diameter and staple strength (Abbott, 2018). Poor nutrition can cause thin fibres and shortened staple length which leads to a brittle fibre with increased numbers of breakages, causing difficulties in spinning and weaving (Abbott, 2018).

Another factor associated with wool quality is trace element deficiencies within the soil, including cobalt, which, when deficient is associated with poor-quality wool and an open fleece (N. Yoxall, personal communication, October 29, 2020). Whereas, subclinical copper deficiency, is associated with loss of a natural wool crimp (a highly valued quality). Without copper, a number of important enzymes would cease to function - including the one that produces melanin.

Melanin is responsible for the myelination and the development of the nervous system (The Hebridean Sheep Society, 2011). Particularly important is its role in producing the pigment that naturally colours wool for coloured sheep breeds. This is essential for sheep breeders who rely on the colour of their flock's fleece to market this unique attribute.

Modern uses

The diversity of attributes across a range of pure breed fleeces presents opportunities for enterprises to champion wool selected for its unique properties rather than as a homogenised commodity.

Chimney Sheep

Chimney Sheep™ manufacture draught excluders and insulation for the home, made from 100% Herdwick wool. Herdwick sheep are a breed native to the Lake District fells (Herdwick Sheep Breeders' Association, n.d.). As a breed, Herdwick sheep, are known for their hardiness, surviving the harsh weather conditions on little sustenance from such poor vegetation throughout the winter months, and their wool reflects this. Their fleece produces a steel grey, coarse wool with a high lanolin content; therefore, it has naturally weatherproof properties. In the twentieth century, this wool lacked mass market appeal and fleeces dropped to as low as 1p/kg (Wools of Cumbria, n.d.), but more recently due to clever marketing of its heritage and provenance to the Lake District, the niche use of its wool has seen a minor increase in value, achieving 15/kg (British Wool, 2021).

However, for this context, Herdwick wool is a much more sustainable alternative to fibreglass, which is conventionally used as commercial building insulation. The highly breathable properties of Herdwick wool can ensure a more stable temperature balance, helping to reduce the build-up of harmful moisture (Thermafleece, 2020). As tested at the University of Liverpool, Building Services Research and Information Association (BSRIA) and The British Board of Agrémen (BBA), they list several other benefits including: reducing energy bills, blocking 94% of airflow up a chimney which prevents around 4.5% of household heat from escaping; it reduces carbon output, saving around 250kg of carbon dioxide per year, as well as noise and air pollution reduction (Chimney Sheep, 2019).

Rundholz

German fashion brand, Rundholz, have been working with chairman of the Lincoln Longwool sheep breeders society, Louise Fairburn, to substitute Lincoln Longwool fleece as an alternative to animal fur (L. Fairburn, personal communication, December 17, 2020).

Lincoln Longwool has a unique crimp and lustrous fleece that make it very desirable and mimic very naturally the feel and sheen of both animal and synthetic furs. Thus, not only does this give breeders, like Louise, another market to exploit, it can help tackle several environmental and ethical issues such as animal cruelty, fur farms and the production of petrochemical based faux furs (L. Fairburn, personal communication, December 17, 2020).

Harrison Spinks

Traditional mattress maker, Harrison Spinks, teamed up with *Countryfile* presenter and farmer, Adam Henson (whose father founded the Rare Breed Survival Trust in 1973) to create a collection of mattresses filled with Cotswold wool (Harrison Spinks, n.d.).

Nicknamed the 'Cotswold Lion' for its golden lustrous fleece, it is not only utilised for the benefit of the farmers, like himself, who are fighting to keep rare and native breeds thriving, but to highlight their superior quality of springy and resilient fleece: perfect qualities to maximise for a product on which people spend an average of 26 years, over a lifetime (Curtis, n.d.).

Designed by nature, wool is inherently anti-bacterial and fire retardant, without the use of chemical finishes, along with being effortlessly soft and springy, bouncing back from compression to provide sumptuous support (Harrison Spinks, n.d.). These innovative brands demonstrate the potential for success, in the specific qualities, inherent in regional breed wools.

Methodology

'The precision in description and stringency in meaning interpretation in qualitative interviews corresponds to exactness in quantitative measurements.' (Kvale & Brinkmann, 2009, p. 30)

A constructivist approach was taken when forming this research. Constructivist learning is when knowledge is constructed, rather than innate, or passively absorbed (McLeod, 2019). The chosen method to achieve this was interviews, which drew upon the knowledge of multiple sheep breeders and their industry experiences to amplify the research previous undertaken.

Data collection

Conversation is the most versatile form of human interaction, allowing for deeper questioning and explanations of detail. With the research question being so imbued with abstract concepts such as culture and regional identity, it was deemed the right way to gain an understanding of a breeder's personal views and experiences. An interview would give the researcher qualitative data to analyse with the aim being to deduce nuances from different aspects of the interviewee's industry experience. Conversely, interviewing manufacturers was not undertaken because the focus of this research was on the beginning of the production line with the breeders.

Ethical approval was granted by the School of Arts and Humanities ethics review panel at The University of Huddersfield before any interview was undertaken.

In order to collect professional, authentic data, it was important to go beyond the spontaneous nature of everyday conversation and produce a carefully curated questioning and listening approach. The purpose of this was to obtain authentic opinions with the potential for developing greater knowledge of the issues and to turn experience into evidence (Kvale & Brinkmann, 2009). With the niche scale of the rare breed wool industry, quantitative data would not be beneficial to the research topic. However, with planning and precision, a qualitative interview can create meaningful interpretations equal to the exactness of quantitative measurements (Kvale & Brinkmann, 2009).

A funnel-shaped questioning technique was employed, meaning that the questions started out broadly and gradually narrowed down to more specific subject matter. This allowed a variety of both descriptive and opinion-based answers to be provided.
All interviewees were asked the same set of questions, in order to fairly evaluate reoccurring themes and opinions. This meant that no prior knowledge from one interview to the next affected the questions that were asked.

Research sample

In order to gain a better understanding of what needs to be done to improve how regional sheep, and the key qualities of their wool could be better promoted, the perfect participants were breeders. The referenced breeders were chosen because of the physical and aesthetic differences in their breeds which leads to different uses and contexts of their wool. For example, Herdwick wool has been compared to fibreglass and is used for insulation and warmth whereas Lincoln Longwool has been used prior to worsted wool machinery for their long staple length as well as aesthetic qualities such as lustre and high crimp that is mainly supplied for the hand knitting industry. The diversity within participants was chosen to best represent the opinions of breeders from across the UK, in order to anticipate what potential results could have been obtained given a larger number of participants and amount of time and resources.

Data analysis

Interviews were transcribed verbatim to create the transcripts which were analysed in order to draw out key themes and reoccurring issues.

Research ethics

As a researcher, it is good practice to consider a professional code of ethical conduct and responsibility throughout all stages of the interview process and when handling the results. It was important to inform the research participants of the overall purpose and the research procedures and to allow them to give their consent before they participated. It is a researchers' responsibility to reflect on the possible consequences, not only for the people taking part in the study, but also for the larger group they represent, and it is important to inform them that they can exit the study at any time, having the right to refuse any question asked. The researcher should remain unbiased in their line of questioning in order to give a fair and proper result, true to the interviewee's personal opinions.

Breaches of these ethical considerations would include: misrepresentation of findings, failure to declare conflicts of interest or failure to acknowledge the contribution of others within the research (King et al., 2019).

Study limitations

Limitations of this research is sample size. Specifically, the number of interviews carried out and the scope of the study being defined by those breeders who responded and those who agreed to a formal interview. Initial enquires were made to 12 breeders or breed societies. Five responded and three interviews were agreed and completed.

Results

'All these people that are wool connoisseurs that know totally about wool and a bit like a fine wine, they're looking for breed-specific, single-farm yarn. A bit like a malt whiskey or wine from a particular vineyard or particular year.' (M. Benjamin, personal communication, December 8, 2020).

Figure 1: Venn diagram of interview results, (Author's Own, 2020).

The Venn diagram above shows the findings from the three interviews that were undertaken. Each circle, in the diagram, represents a single interview with one breeder, and encapsulated within this circle are significant issues and opinions that were individual to them and did not come up in the other interview. The centre of the diagram shows each circle to be overlapping and therefore contains key issues, themes and opinions that came up in all interviews.

Discussion

'They don't want to use Australian Merino, they are looking for something with provenance and haven't really found that in Europe.' (M. Benjamin, personal communication, December 8, 2020).

Overall, there were more issues and themes that were unanimous rather than individual (see Figure 1). Four key topics reoccurred, in all three interviews, despite the variation in their breeds and geographical locations. These were: environmental factors, opinions of British Wool, national pride, and loss of skillset.

Environmental factors

All breeders were aware that environmental factors affect the quality of wool. Louise Fairburn, talked about the higher-quality fleece that was produced from another farm on the coast of

Lincolnshire which was superior to hers because of the 'environmental challenges placed on the wool'.

She proposed that the damp, salty atmospheric conditions of the sea air made the sheep generate a greater amount of grease and therefore produced a softer fleece. Commenting that her elevated location in the Lincolnshire Wolds was subject to high winds which she felt, resulted in a comparatively 'dry' fleece.

Similarly, Maria Benjamin (farmer and artist) was aware that Castlemilk Moorits would prefer drier pasture due to the trouble they can have with foot rot in overly damp conditions. In addition, Castlemilk Moorits do not have the additional layer of hair on their fleece, and therefore they are not protected from the rain and cannot tolerate a wet climate, which admittedly, Cumbria often is. However, Castlemilk Moorits are a primitive breed made up from an amalgamation of three different breeds and therefore has no specific geographical heritage unlike the others. Therefore, their wool quality would not have come from years of grazing on the same terrain but rather from genetic factors. Contrastingly, Mary Bell (Herdwick breeder) did not hesitate when asked why she kept Herdwicks, she answered because the breed is native to Cumbria, stating, '95% of Herdwicks live with a 14 mile radius of Coniston' (Lake District Farmers, n.d., para. 12). Their fleece type means they can survive all year round outside at altitudes of up to 3,000 ft. Their fleece has a unique coarse guard hair that sheds water, acting as a raincoat. Interestingly, the topic of environmental factors was actually in response to the question which proposed soil quality affecting wool traits. Instead, their answers concerned topics such as pasture, location and nutrition. In some cases, they even admitted having never thought about soil and being unaware of the environmental qualities outside of their own location. Therefore, it is hard to deduce whether the breeders did not feel that soil quality affects their wool or they were unaware of the huge impact that soil quality can have on the final fleece. If it is a lack of knowledge, this responsibility to education, as well as the opportunity to reap the rewards, falls to co-operation and communication between those associations such as The Rare Breed Survival Trust and The National Sheep Association with corporations like the Soil Association and The Organic Research Centre. This could lead not only to healthier soils across the UK as we battle climate change, but could it enable native wools to be marketed to their greatest potential just as 'Terroir' plays a role in champagne?

Opinions of British Wool

All breeders used the wool board in a similar way and agreed that farmers of these rare and native breeds are not being supported enough by British Wool.

Louise was using the wool board to sell half of her wool and was aware that British Wool gives rare breeders an exemption from only selling their wool through the board, stating this was an 'incentive to find new and niche markets for their wool'.

Maria and Mary both declared they were not selling any coloured wool through British Wool as the current market prices are so poor. Maria commented that British Wool 'seem to just have one business model and they have not really branched out and looked into other ways of selling the wool to smaller producers that want provenance'. Maria has been approached by an Italian spinner who is looking for just that: 'they don't want to use Australian Merino, they are looking for something with provenance and haven't really found that in Europe'.

This proves that there is a market and a desire for rare and native breeds and that companies are looking for this from British farmers because of the diversity of wool fibres across British breeds. Due to the low price offered to Maria for her naturally coloured wool, she revealed that she is only selling wool from her other breeds and her older sheep to British Wool. These fleeces are of inferior quality to the shearling fleeces (the first clip from a lamb at around 12–18 months old), which she is selling direct to consumers as it is more profitable. As a result, despite the British Wool logo now being marketed as a stamp of quality and transparency for the consumer, if other breeders are in a similar position as Maria, British Wool are actually selling wool of a lower quality than that of other suppliers.

It is companies like British Wool, who already dominate the market that could easily adapt their methods. British Wool has the reach and the means to promote the distinctive values regional wool: to grade fleeces per farm or indeed per breed to maintain the highly specialist features of pure

origin fleeces. Could it be that provenance is the key to mitigate against the homogeny so damaging to diversity?

National pride

Reassuringly, all breeders, to some degree, described a sense of pride or cultural heritage in their endeavours to keep the flame burning for rare breeds across the UK. Louise spoke out about how wool was once called the 'sovereign merchandise of England', elaborating how it paid for wars, it bought allies and it built historical towns and villages that England is so well known for. She highlighted how, as a nation, 'we should be proud of our shepherding heritage', not resigning it to the books of history because it is still a commodity to offer for future generations.

In her collaboration with the Italian yarn manufacturer, Makeo, Maria pointed out that sometimes locally, cultural heritage is not valued until someone outside of that location desires it. This can make local people feel a sense of pride and responsibility when foreign companies or equally, popular labels or fashion houses, covert a local product. It gives it a superiority which trickles down the supply chain to the grass roots.
So perhaps, until a national re-evaluation of regional potential is realised, wool along with other inherently sustainable products will continue to be overlooked. A national promotion would surely lead to an increase in demand both at home and abroad. The consensus of opinion was that it falls to companies like British Wool who represent British interests on a global stage to the spokesperson for British wool and British wools emphasising rather than eradicating the breath of and diversity available.

Loss of skillset

Some of the themes discussed in the interviews were unique to each breeder. This information is equally important to learn what knowledge and resources need to be shared and passed on within the sheep breeding community.

Louise Fairburn was quite adamant about a lack of skill within the yarn spinning industry. With the rise of synthetic fibres, woollen mills became redundant and much of the equipment was bought by and shipped to other countries such as those in Asia. Consequently, Britain has not only lost the machinery but also, 'we have lost the skills set of people that know how to build and operate the machines'.

With any Brexit deal likely to impose tariffs on goods imported from the European Union, this could force a revival of textile industry within these historic towns such as those in West Yorkshire. With industry comes education and a rise in skills that could be so vital in a return to British textile manufacturing.

Conclusion

'The only limit is our willingness to act, and the time to act is now, and we can all make a difference.' (HRH The Prince of Wales, 2020).

The key findings of this research (see Figure 4) concluded that British Wool appears to require their practices to be updated and innovated in order to cater for a new generation of consumers who are looking for wool with provenance and regional heritage as well as facilitating the burgeoning community of young farmers who are educated in sustainability and need a representative that reflects their ethos. Information about the markets available to breeders enlightens stakeholders that there is a growing market for these diverse breeds. The report has highlighted a disconnection between farm and factory, with rare and native sheep breeders struggling to find that 'middleman' to process their unique wool into yarn through to product without huge overheads. However, the indication is that there is a positive future for these wools in the wider British wool industry. With the exponential growth in the digital marketplace, the ability for links between breeders and manufacturers is certain to increase. That fact is a further indication that the wool board must adapt or become obsolete.

The research conducted was unique due to the investigation drawing together multiple fields of study including agriculture and edaphology (the influence of soil of living things), for the benefit of those within the textile design and manufacturing industries. This approach is significant in ensuring that myopic, narrow considerations do not obscure the greater goals of sustainability both ecologically and economically.

Despite the limited number of interviews, the line of enquiry managed to generate both key issues shared by multiple breeders, as well as individual opinions that are unique to specific farm and/,-or geographical, location. With more time, the study could have been improved by including a larger sample of participants. The key issues and themes discussed in this article may have had representativeness of the opinions of the sheep breeding community. Furthermore, the credibility of the report may also have been improved if the opinion of all the famers contacted, but who did not respond, who breed sheep that are not endangered, and who farm wool on an industrial scale, were included.

In a seasonal letter from the Master Woolman, Alderman Sir David Wootton of the Worshipful Company of Woolmen, he stated their advisory committee is looking at how it can 'support the industry, focussing on innovation and the sustainability and the environmental qualities of wool' (D. Wootton, personal communication, December, 2020). The fundamental importance of regional influence is also stressed by the Master Woolman with the announcement of 'recent establishment of regional hubs [...] to develop links with wool businesses and activities, and with institutions'. Clearly then, centralisation has revealed its limitations, and an additional focus on regionalisation is seen even by old established institutes as one response to their continued relevance.

It is clear that nature needs to be the driving force as the goal for a greener future reinvigorates the economy to one that champions a more sustainable model, with 'people and planet at the heart of global value creation' (HRH, The Prince of Wales, 2020). The report, its research and interviews, confirmed in microcosm, the unstoppable drive towards natural solutions to the crises mankind faces. Wool, once the most valuable commodity of the nation, could prove again to be an answer to local and national regeneration.

Acknowledgements

I would like to thank the farmers who took time out of their busy schedules to sit for an interview. To Campaign for Wool and The National Sheep Association for being so obliging to my questions.

References

Abbott, K. (2018). *The practice of sheep veterinary medicine*. University of Adelaide Press. https://www.jstor.org/stable/j.ctvb4bssr

Author's Own. (2020) Venn diagram of interview findings [**Venn diagram**].

Author's Own. (2021). The golden hoof. [**Research Poster**].

Barber, J. The Sustainable Food Trust. (2020, July 10). *The worth of wool*. https://sustainablefoodtrust.org/articles/the-worth-of-wool/

British Wool. (2021). *Producer information and wool values*. https://www.britishwool.org.uk/ksupload/userfiles/Farmer/Producer_Booklet/36pp-UK-Combined-A5-BritishWool-Brochure-AUG2021%20-%20interactive.pdf

Brown, J. Crafts Council. (2014). *Making it local: What does this mean in the context of contemporary craft?*. https://www.researchgate.net/publication/301559376_Making_it_local_what_does_this_mean_in_the_context_of_contemporary_craft

Chimney Sheep. [@ChimneySheep]. (2019, October 8). [Caption]. Instagram. https://www.instagram.com/p/B3Wcr9tFs_7/

Curtis, G. Dreams. (n.d.).*Your life in numbers*. https://www.dreams.co.uk/sleep-matters-club/your-life-in-numbers-infographic/

Davidson, G. (2019, October 14). EasyCare breed society celebrates trademark. *The Scottish Farmer*. https://www.thescottishfarmer.co.uk/news/17962751.easycare-breed-society-celebrates-trademark/

EasyCare Sheep Society. (n.d.). *History*. EasyCare. https://www.easycaresheep.com/history

Elmbridge Museum. (n.d). *MILK: The milk marketing board & the 'milk crisis'*. Elmbridge Museum. https://elmbridgemuseum.org.uk/online-exhibitions/milk-the-milk-marketing-board-and-the-milk-crisis/

Harding, M. Indie Farmer. (2015, January 28). *Rare breeds – what's the point?*. https://www.indiefarmer.com/2015/01/28/rare-breeds-whats-the-point/

Herdwick Sheep Breeders Association. (n.d.). *Herdwick Sheep*. Herdwick- Guardians of the fells. http://www.herdwick-sheep.com/

HRH, The Prince of Wales. Campaign for Wool. [@campaignforwool]. (2020, December 13). [Instagram Caption]. Instagram. https://www.instagram.com/p/CIvgK7DrEjD/

Hudson, P. BBC. (2011). *The workshop of the world*. BBC: British History. http://www.bbc.co.uk/history/british/victorians/workshop_of_the_world_01.shtml

King, N., Horrocks, C., & Brooks, J. (2019). *Interviews in qualitative research* (2nd ed.). Sage Publishing.

Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research interviewing* (2nd ed.). Sage Publishing.

Lake District Farmers. (n.d.). *Our products*. Lake District Farmers. https://www.lakedistrictfarmers.co.uk/?page_id=613793

McLeod, S. (2019). *Constructivism as a theory for teaching and learning*. Simply psychology. https://www.simplypsychology.org/constructivism.html

Miar, Y., Salehi, A., Kolbehdari, D., & Seyed Ahmad, A. (2014). Application of myostatin in sheep breeding programs: A review. *Molecular biology research communications*, *3*(1), 33–43.

Monbiot, G. (2014). *Feral: Rewilding the land, the sea, and human life*. Penguin Books.

National Sheep Association. (2017). *The benefits of sheep in arable rotations*. https://www.nationalsheep.org.uk/workspace/pdfs/nsa-the-benefits-of-sheep-in-arable-rotations.pdf

Parkin, S. (2015). *British sheep breeds*. Shire Publications.

Parliamentary Assembly. (1995). *Importance of the wool industry for rural areas in difficulty* (Doc. 7349). Committee on Agriculture and Rural Development. https://assembly.coe.int/nw/xml/XRef/X2H-Xref-ViewHTML.asp?FileID=6997&lang=EN

Pasture for Life. (2018). *The animal welfare and environmental benefits of Pasture for Life farming – interim findings*. https://www.pastureforlife.org/media/2019/02/The-animal-welfare-and-environmental-benefits-of-Pasture-for-Life-farming-FINAL-at-10-Aug-2018.pdf

Powell, G. (2018). *Sustainable grazing strategies that meet ecological demands*. The Nuffield Farming Scholarships Trust.

Readman, P. (2018). *Storied ground: Landscape and the shaping of English National Identity*. Cambridge University Press.

Ryder, M. L. (1983). *Sheep and man*. Duckworth.

Soulé, M., & Noss, R. (1998). *Rewilding and biodiversity: Complementary goals for continental conservation*. Wild Earth. https://rewilding.org/wp-content/uploads/2012/04/RewildingBiod.pdf

Terroir. (2020) In Oxford English Dictionary Online, (3rd ed.), Oxford University Press. https://www-oed-com.libaccess.hud.ac.uk/view/Entry/199605?redirectedFrom=terroir&

The EasyCare Sheep Breed Society. (2019). News. Easy Care. https://www.easycaresheep.com/news

The Hebridean Sheep Society. (2011). *'Silvering' in fleeces – The explanation?* https://www.hebrideansheep.org.uk/Documents/Silvercoat-Copper.pdf

Thermafleece. (2020). *Insulation of roofs*. Thermafleece: Nature's finest insulation. https://www.thermafleece.com/application/roofs

Thomas, H (Executive Producer), & Attenborough, D (Presenter). (2020) *Extinction: The facts* [Television documentary]. BBC.

Tickell, J., & Tickell, R.(Directors), & Harrelson, W., & Tickell, R. (Producers). (2020). *Kiss the ground* [Documentary]. Netflix.

UK Parliament. (n.d.). *Woolsack*. UK Parliament. https://www.parliament.uk/about/living-heritage/building/cultural-collections/historic-furniture/the-collection/chairs-chairs-chairs/woolsack-/

University of Huddersfield. (2020, November 26). Department of Fashion and Textiles Public Lecture Series - 4. Suzy Shepherd [Video]. University of Huddersfield. https://www.youtube.com/watch?v=CBCfQWmZCsk&list=PLq6rv4oSqcwXhVBleI8BpBHwPNH2nbn26&index=4

Walling, P. (2015). *Counting sheep*. Profile Books LTD.

Wools of Cumbria. (n.d). *The Herdwick story*. Wools of Cumbria – carpets. https://www.wocc.co.uk/the-herdwick-story

Youatt, W. (1867). *Cattle: Their breeds, management, and diseases*. Society for the Diffusion of Useful Knowledge. https://wellcomecollection.org/works/n26ztgk2

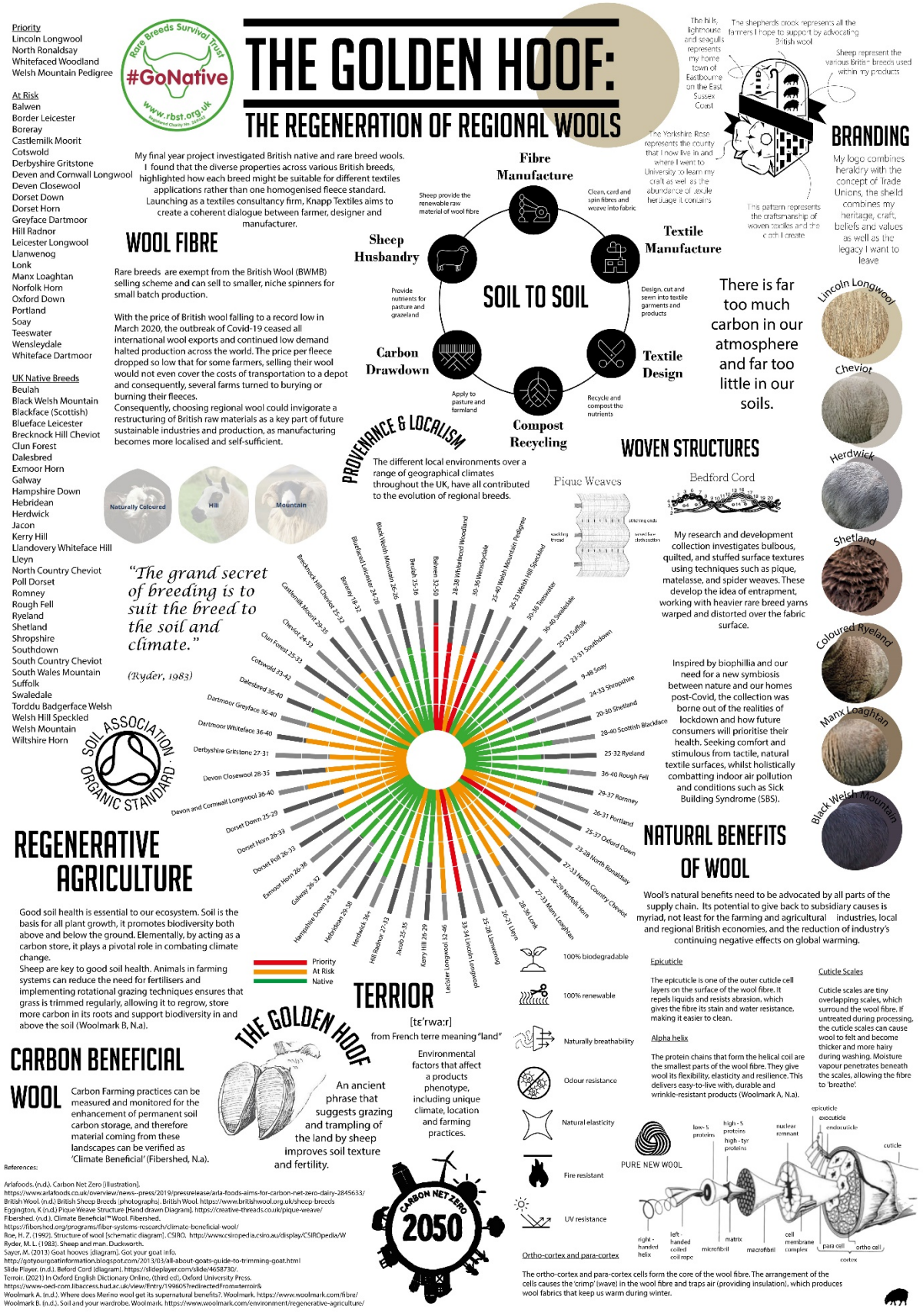

Figure 2: Research poster, (Author's Own, 2021).