

## 1. Introduction

- Since the introduction of the British Wool Marketing Board in 1950, wool has seen a steady decline in the price received by farmers. Particularly over the past two decades with the widespread use of plastic-based fibres for clothing and other textiles which would have historically been made from sheep wool (IWTO, 2019).
- The aim of this study was to assess the current state of the UK wool industry, analyse its challenges and opportunities, and develop strategic recommendations for its sustainable growth and competitiveness in domestic and global markets.

## Hypothesis

H<sub>0</sub>: There will be no statistically significant difference in the past usage of wool in comparison to future usage.

H<sub>1</sub>: There will be a statistically significant difference in the past usage of wool in comparison to future usage.

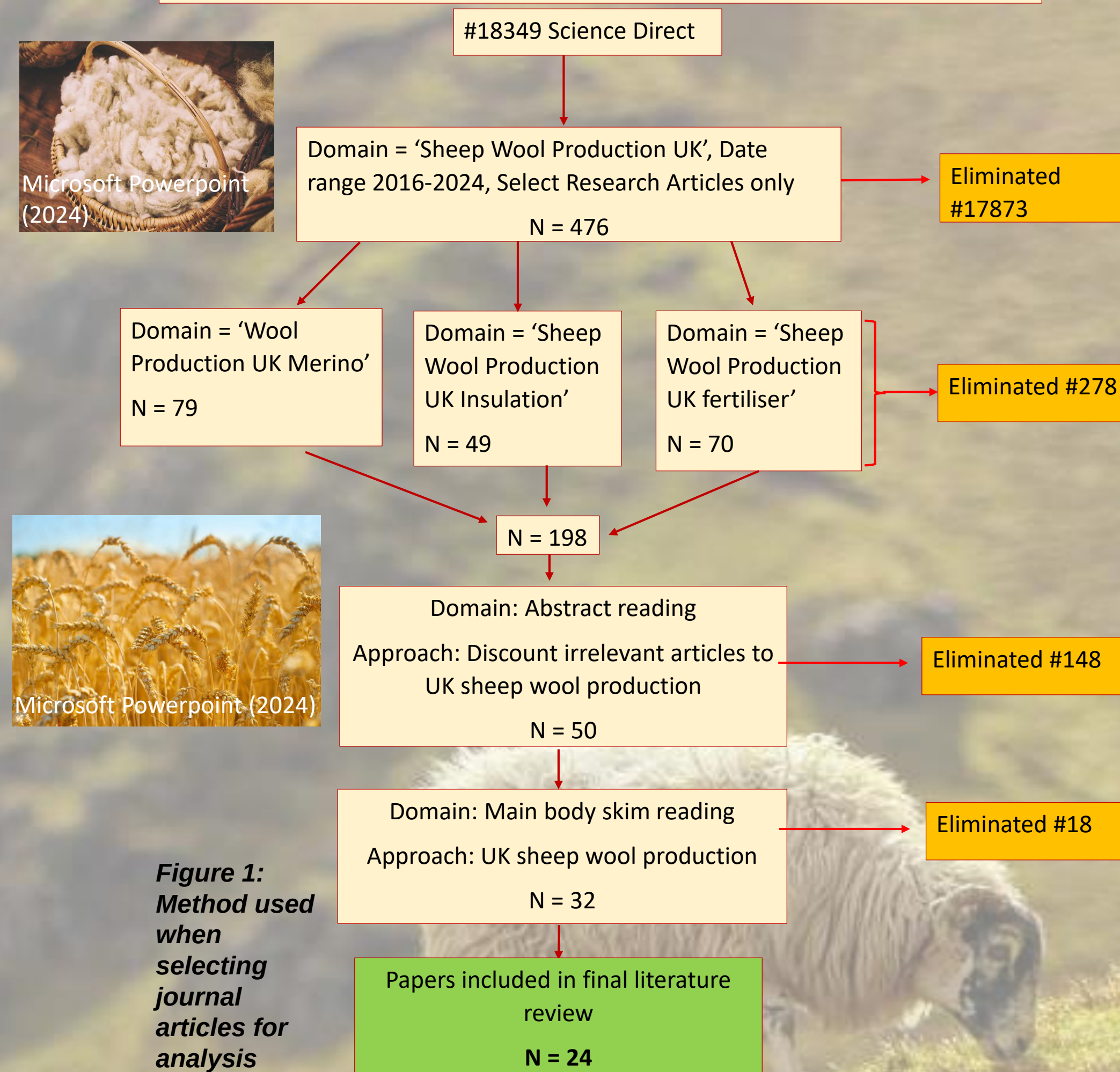
## 2. Literature Review

- Some of the potential avenues for wool which have been explored through literature include wool being used for thermal insulation, soil erosion prevention, fertiliser products and altering breeding programmes within UK sheep flocks to introduce Merino genetics as a way to improve wool quality.
- A study which explored the use of wool as a hydrophobic insulator suggest it is a successful insulator (Erkman & Sari, 2023), and a similar study found it was also mildew resistant (Rubino, *et al.*, 2021).
- Lal *et al.* (2020) suggest that wool improves growth rates of barley when used as a fertiliser while also improving soil structure (Lal *et al.*, 2020).
- A study by Broda *et al.* (2016) investigated the ability of wool to prevent erosion of soil on riverbanks when woven into ropes, their findings suggest it may be effective for a period of up to 12 months (Broda *et al.*, 2016).
- Saul *et al.* (1993) suggest that crossing Merino sheep with UK breeds could reduce the micrometre of the fleece to create a finer wool (Saul *et al.*, 1993).

## 3. Methodology

- The review involved examining literature surrounding alternative uses for wool which could add value to the product and increase profitability. The literature was found through Science Direct and selecting journals based on relevancy.
- A thematic analysis was also carried out on the literature using Voyant-Tools© to identify common themes.
- One of the main literature topics explored the use of Merino wool, and in the methodology Australian wool was compared to UK where Merino wool is not common.

Domain = 'Wool Production', Date range 2016-2024, Select Research Articles only



## References

- Broda, J. *et al.*, 2016. Biodegradation of sheep wool geotextiles. *International Biodeterioration & Biodegradation*, Volume 115, pp. 31-38.
- Erkman, J. & Sari, M., 2023. Hydrophobic thermal insulation material designed from hazelnut shells, pinecone, paper and sheep wool. *Construction and Building Materials*, Volume 365.
- IWTO, 2019. *IWTO market information: statistics for the global wool production and textile industry*, Brussels: Poimena Analysis & Delta Consultants.
- Lal, B. *et al.*, 2020. Utilization of byproducts of sheep farming as organic fertilizer for improving soil health and productivity of barley forage. *Journal of Environmental Management*, Volume 269.
- Rubino, C. *et al.*, 2021. Wool waste used as sustainable nonwoven for building applications. *Journal of Cleaner Production*, Volume 278.
- Saul, G. R., Russel, A. J. F. & Sibbald, A. R., 1993. Potential of different sheep breeds to improve wool production on UK hill and upland sheep farms. *Small Ruminant Research*, 11(1), pp. 1-9.

## 4. Results

- The results of a Minitab analysis indicated that over the past 20 years the UK wool price averaged around £101 per 100kg ( $p = 0.055$ ) compared with Australia which has averaged almost six times higher at £596 per 100kg ( $p = 0.420$ ) as shown in Figure 2.
- Common notable themes among the literature were 'Waste', 'Recycling', 'Sustainable', 'Merino', 'Market' and 'Insulation'.

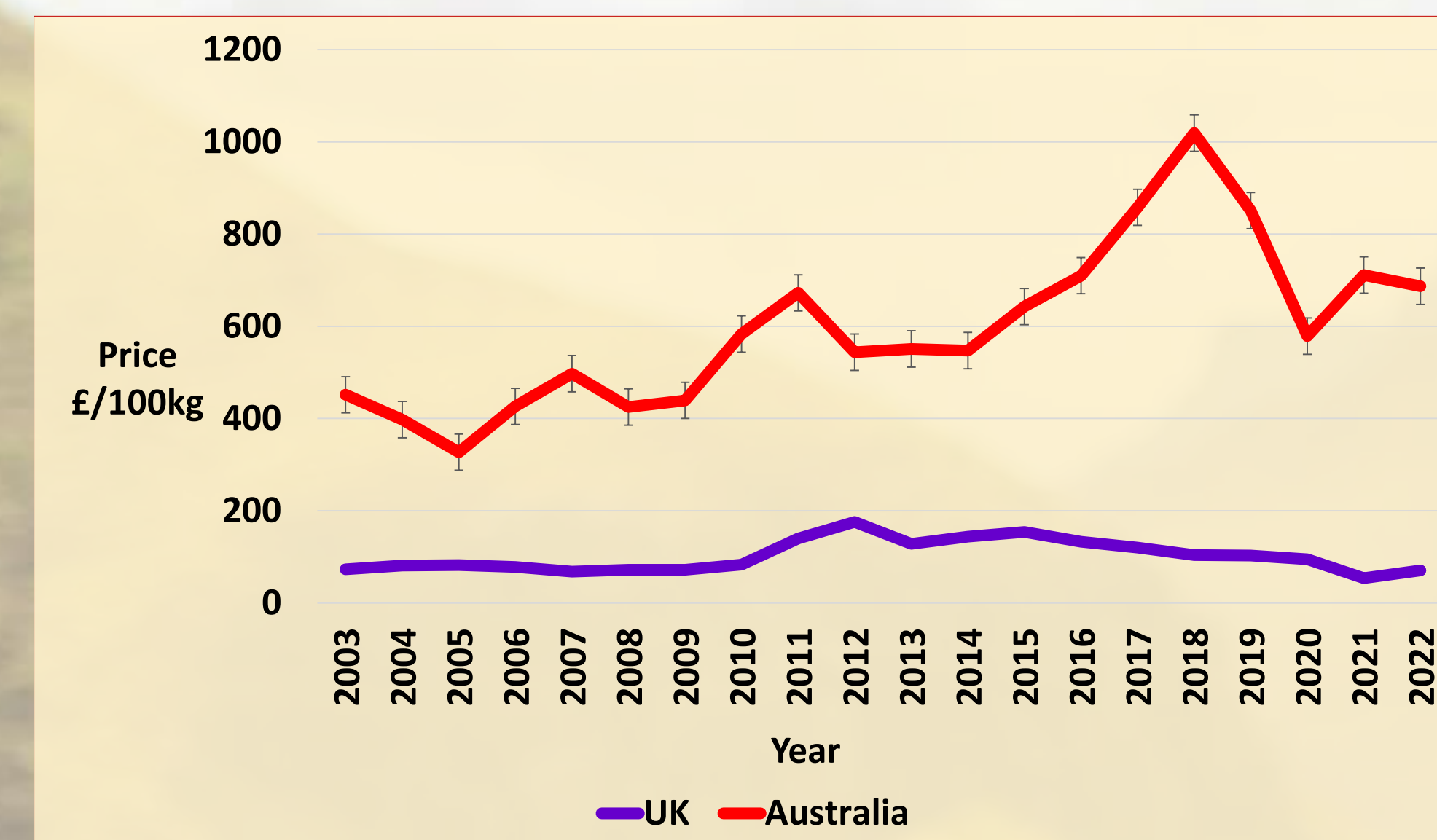


Figure 2: Line graph showing average wool clip price from 1 April to 31 March in the UK and Australia (2003-2022),

## 5. Discussion

- Evidence from this review suggests that the null hypothesis can be rejected.
- Some challenges with breeding Merino sheep in the UK could be the climate being less suitable for the breed, and sheep in the UK are currently being selectively bred for the meat market which remains in high demand.
- Wool could be suitable for building materials such as insulation due to its biodegradable properties and could aid in meeting net zero targets.
- As a fertiliser wool can add organic carbon and improve water retention.
- Planting trees along riverbanks along with woollen ropes could help allow plants to establish, preventing soil erosion in places vulnerable to damage.

## 6. Conclusion

- Sheep's wool for building insulation could be promising due to the availability of the fibre.
- Improved marketing of wool as a sustainable, environmentally friendly alternative could prove effective.
- Limited research on Merino sheep enterprises in the UK – Could be worth further investigation.