THE WOOLMARK COMPANY

WOOL AND GREENHOUSE GAS

OFFSETTING GREENHOUSE GAS EMISSIONS

Global greenhouse gas (GHG) emissions arise from a range of sources – primarily from the energy, transport and industry sectors. A smaller percentage is from agriculture, including from livestock. Ruminants such as sheep, cattle and goats convert atmospheric carbon into the GHG methane during digestion. At the farm level, GHG emissions are being offset by woolgrowers through flock productivity (half of wool's weight is carbon), planting trees as shelter belts and increasing the proportion of methane-mitigating legumes and shrubs in their pastures. Further mitigation of GHGs occurs when consumers use wool products, because of the long life of wool garments and the fact that wool is the most reused and recycled fibre of the major apparel fibres.

UNDERSTANDING GREENHOUSE GAS

The environmental impacts of products commonly influence consumer choices in our changing world. To understand the environmental impacts of production systems, including wool, it is important to account for GHG emissions. A product's GHG impact must be measured across its whole life cycle from the cradle to the grave – commonly termed the carbon footprint – that is, the mark it leaves on the world when produced and used. In the case of wool this means all stages, from the farm, to wool processing and garment manufacture through to consumer use, recycling and ultimately end of life.

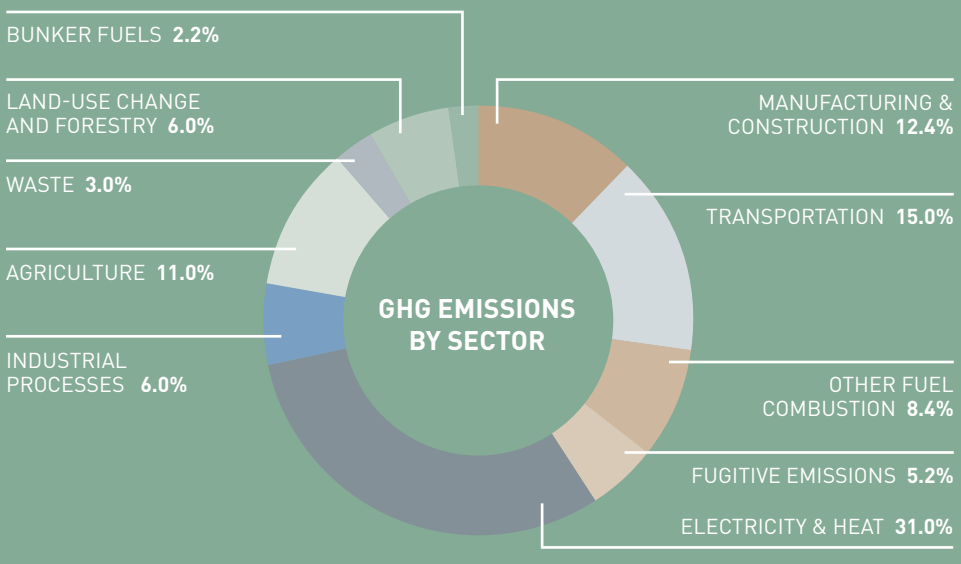

Figure 1: Global man-made GHG emissions by sector.

THE WOOL INDUSTRY IS WORKING TO MANAGE AND REDUCE GHGS

There are many ways the wool industry is working to manage and reduce GHGs. In Australia, where more than 90 per cent of the world's fine apparel wool is produced, significant research is under way to better understand and mitigate methane. At the farm level, emissions can be offset by changing pasture species, improving soil management to increase carbon storage, and via tree planting. Increasing flock productivity by producing more lambs and wool from each sheep also reduces emissions per kilo of wool. Emissions are also being reduced during wool processing, by increasing energy efficiency and sourcing more renewable energy rather than fossil fuel-based energy.

Consumers can have a huge impact on reducing the emissions through the clothes they buy. One of the largest impacts is to buy longer-lasting clothes – such as those made from wool – and to donate clothes for recycling. Wearing clothes longer means that fewer new garments are required, producing less emissions. Giving used wool garments to charity enables them to be used again (reducing the need for new garments) or recycled into new garments or products, such as mattresses or insulation, where wool's natural flame resistance is valued. Due to wool's inherent abilities, consumers can reduces GHG by washing their garments less often, at lower temperatures and by drying naturally. It's known that consumers value their used wool garments, as shown by donation rates. Even though wool represents only 1.2% of the virgin fibre supply, surveys have shown it represents about 5% of clothing donated to charity. This high rate of reuse and recycling of wool curbs the amount of GHG emissions from wool.

GHG AND WOOL

Wool is a natural, high-quality fibre that has a long wear life and low care requirements, and at the end of its useable life, a wool garment is biodegradable. When wool fibres are disposed of, they will naturally decompose in soil, slowly releasing valuable nutrients back into the earth and improving soil health, water retention and enhancing plant growth. However, like any product, there are environmental impacts that arise from the production of wool and from use of wool garments. Emissions arise from all stages of the supply chain from the use of energy. A significant proportion of emissions arise from farm production, mainly from enteric methane. When sheep digest pasture, 4.5-6.5% of the energy can be lost as methane, which is belched out. Methane is produced by micro-organisms in the rumen (four-chambered stomach) of sheep to assist with digesting fibrous materials, such as grass. Emissions also arise during wool processing and garment manufacture, mainly because of the energy required in these stages. The phase in which consumers use their wool products is the third largest area of contribution for a wool garment. See Figure 2.

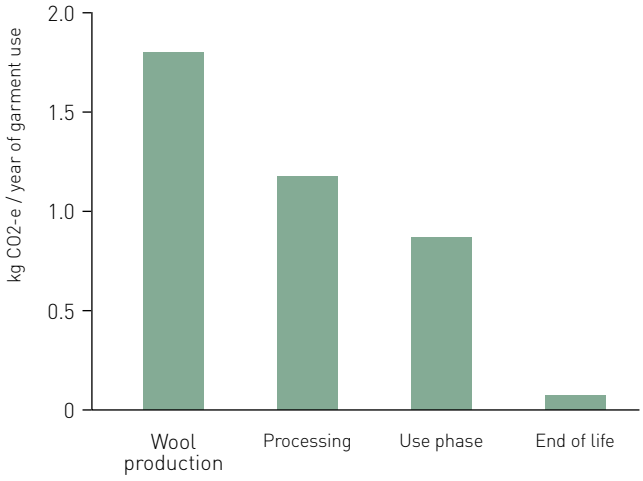

Figure 2: Greenhouse gas emissions from the production and use of a woollen sweater per year of garment use over the whole life cycle.

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Figure 1: Globally, the primary sources of greenhouse gas emissions are electricity and heat (31%), transportation (15%), agriculture (11%), forestry (6%) and manufacturing (12%). Energy production (including electricity and heat, manufacturing and construction, transportation, other fuel combustion and fugitive emissions) accounts for 72% of all emissions (2013): Climate Analysis Indicators Tool (World Resources Institute, 2017). https://www.c2es.org/content/international-emissions/.

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Due to wools inherent abilities, consumers can reduces GHG by washing their garments less often: Factsheet 'Wool is naturally odour resistant'.

Even though wool represents only 1.2% of the virgin fibre supply, surveys have shown it represents about 5% of clothing donated to charity.

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