GANNI

Ganni's carbon footprint 2016

A carbon footprint lifecycle assessment study of Ganni clothing collection 2016

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The assignment of this study is to calculate a total carbon footprint measured in tons of CO_2 equivalents for all Ganni clothing starting with the 2016 collection. In more technical terms it means to calculate the global warning potential (GWP) including the six types of greenhouse gases* as defined in the Kyoto protocol, which are produced through the lifecycle of a Ganni clothing from cradle to the usage by the customers.

The purpose is to offset the total carbon footprint which is calculated and for Ganni to offer their collection as **carbon compensated** to their customers.

Our approach is to evaluate a range of international LCA studies and define which of these are relevant to use on the Ganni collection. In addition, we use actual production data from Ganni in order to calculate emissions related to transportation, packaging materials, sales & administration, distribution and use of the textiles. Hence, we use generic emissions factors for calculation of this hybrid lifecycle assessment study, which include greenhouse gas (GHG) emissions from cradle to usage of the clothing.
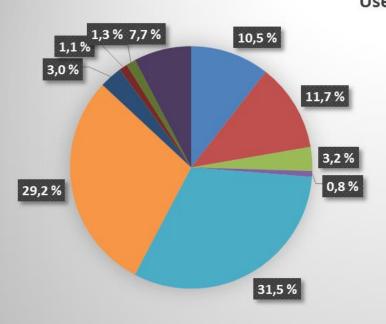
Based on the calculated results and as part of their overall corporate social responsibility, Ganni is purchasing Gold Standard or UN approved carbon credits to offset a similar volume of GHG emissions. The study also gives the Ganni designers and developers new knowledge about the GHG impact of different types of textile and therefore a good starting point in evaluating alternatives and low-carbon intensive clothing for the future.

Ganni will each year update the calculations based on input from their collection of textiles, production volume, packaging materials and other relevant variables.

*The six gases are CO_2 (carbondioxide), CH_4 (methane), N_2O (nitrogen oxides), HFCs (hydrofluorocarbons), SF_6 (sulfur hexafluoride) and PFCs (perfluorocarbons)
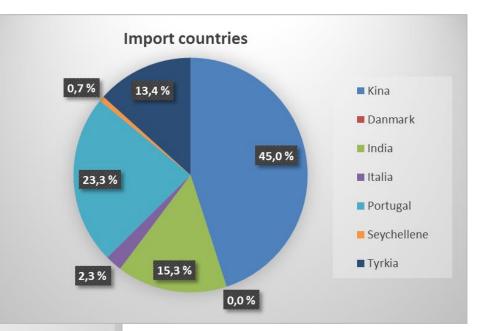
The production data shows that synthetic fibers (e.g. PE, Nylon, Lycra) and cellulose based fibers like Viscose, Rayon etc. are the most used textiles in Ganni clothing (31% and 29%). Cotton (10,5%) and different type of wool (11,7%) are also popular textiles. The total volume of textiles used in the 2016 collection was 132,5 tons.

A majority of the collection is produced in China and India (60,3%), while 25,6% is produced Italy and Portugal. All Ganni's collection are being imported either by sea transportation or by road from Turkey and Europe.

Import countries

0,7 %	
13,4 %	
45,0 %	
23,3 %	
2,3 %	
15,3 %	
0,0 %	

- Kina
- Danmark
- India
- Italia
- Portugal
- Seychellene
- Tyrkia

Use of different textile

1,3 % 7,7 %
1,1 %
3,0 %
10,5 %
11,7 %
3,2 %
0,8 %
29,2 %
31,5 %

- Cotton
- Wool (Mohair, Merino, Yak, Alpaca)
- Silk
- Linen
- Synthetic fibers, PE, PA, PC, AC, Nylon, Elestane, Lycra, Lurex
- Cellolose fibre - Viscose, Rayon, Lyocell, cupro.
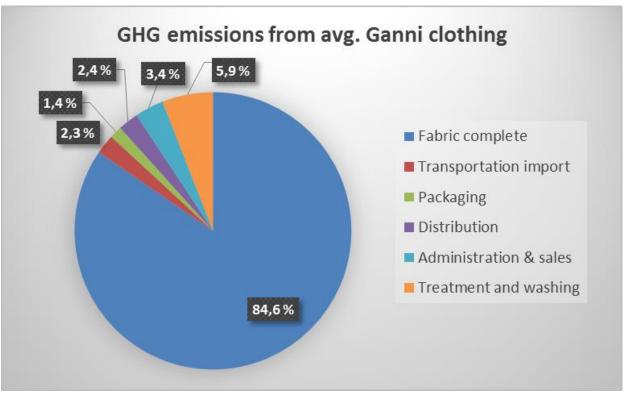- Cow Suede
- Goat Suede
- Lamb Leather
- Leather

The key findings from the LCA study shows that approximately 85% of the emissions from an average clothing comes from producing the actual fabric. This include the whole process from crop cultivation (or oil/gas production for synthetic fibers), fiber production, yarning, dyeing to final fabric.

The next step is cutting/sewing, before the final clothing is packed, transported, repacked and distributed out to consumers. These last steps are quite modest with regards to GHG emissions.

More important is the treatment and washing of the clothes and this can vary a lot depending on the type of clothing and different washing methods. Ganni's collection are mostly being treated very gently, washed at 30°C through its lifetime and therefore this phase have relatively modest GHG impact.

The final stage of life, waste handling, has not been included in the study, but it is reasonably to assume that the clothes are being incinerated and therefore recycled back to new energy.

GHG emissions from avg. Ganni clothing

- 2,4 %
- 3,4 %
- 5,9 %
- 1,4 %
- 2,3 %
- 84,6 %

Legend:
- Fabric complete
- Transportation import
- Packaging
- Distribution
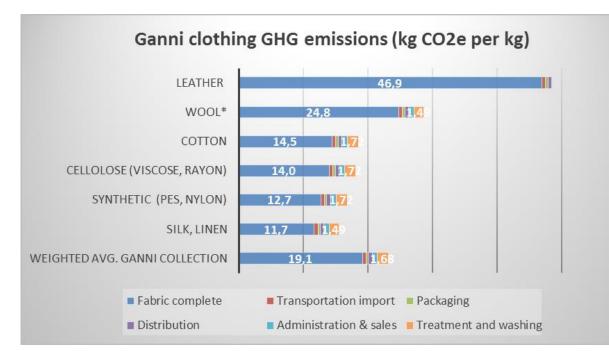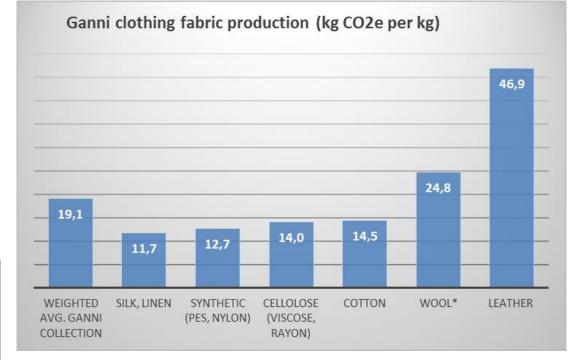- Administration & sales
- Treatment and washing

The diagram shows the distribution of GHG emissions for an average Ganni clothing through it lifecycle from making the fibers, and including usage of the clothing.

With regards to the different textiles and their GHG impact it is quite surprisingly to see that leather and wool have the highest impact per kg fabric. It is however important to underline that the majority (>80%) of the emissions from wool production comes from enteric methane, which is the natural digestive process for the animal and expelled through burping.

Regarding the synthetic textiles the carbon footprint of the different fibers varies a lot, with polyester (PES) and nylon at the lower range of these alternatives. Cotton and cellulose based textiles shows comparable results in several studies and are slightly higher than e.g. polyester. Silk and linen have the lowest GHG emissions in the Ganni collection.

Ganni clothing fabric production (kg CO2e per kg)

A weighted average for all Ganni clothing shows a carbon footprint of 23,2 kg CO2e per kg clothing.

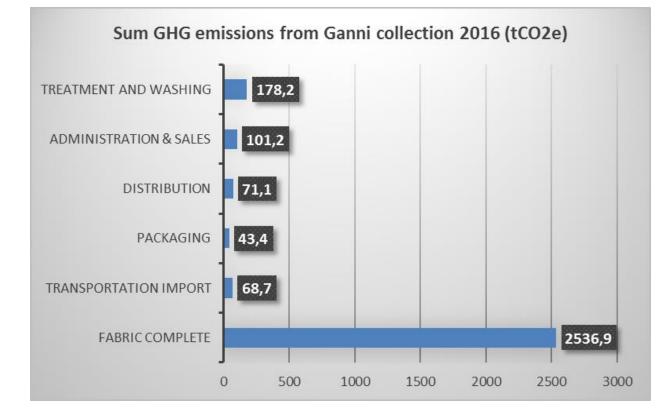**Ganni clothing GHG emissions (kg CO2e per kg)**

The total calculated GHG emissions from the Ganni clothing collection 2016 is **2999** tCO2e.

GHG emissions related to the production of the clothing is estimated **2537** tCO2e, i.e. 85% of total emissions. The second most carbon intensive phase in the lifecycle of a clothing is washing and treatment, here calculated to **178** tCO2e. This is relative modest compared to other type of clothing. Ganni clothing is washed gently and not tumbled dry, which reduces the energy consumption considerably.

Transportation (import) and distribution of the clothing has a footprint of **140** tCO2e. The most important measure in this regard is to avoid transportation by air which will increase the carbon intensity considerably.

Emissions related to sales/ administration and travels are **101** tCO2e. Ganni purchase renewable electricity from Dong Energy to cover their indirect emissions from electricity consumption.
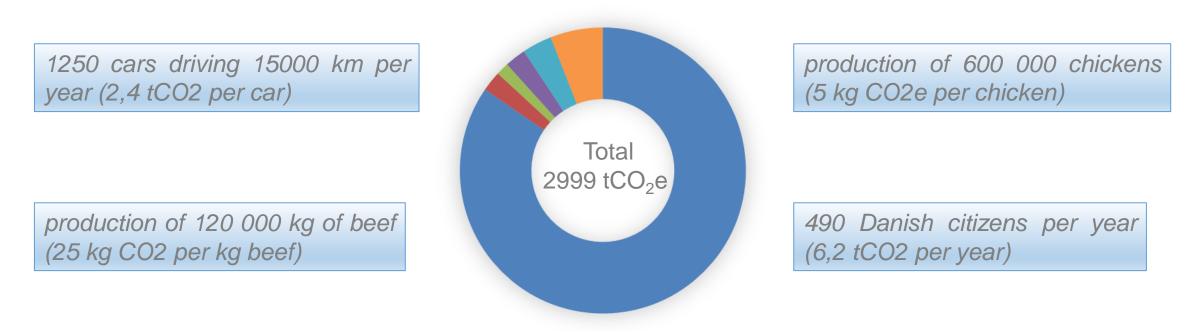
Packaging material constitutes a total carbon footprint of **43** tCO2e.

Sum GHG emissions from Ganni collection 2016 (tCO2e)

Stage	tCO2e
TREATMENT AND WASHING	178,2
ADMINISTRATION & SALES	101,2
DISTRIBUTION	71,1
PACKAGING	43,4
TRANSPORTATION IMPORT	68,7
FABRIC COMPLETE	2536,9

Production of the fabric is by far the largest contributor to the global warming potential of a clothing and the choice of materials is therefore important.

A carbon footprint of **2999** tCO2e would be approximately equivalent of the emissions from …..

1250 cars driving 15000 km per year (2,4 tCO2 per car)

production of 600 000 chickens (5 kg CO2e per chicken)

production of 120 000 kg of beef (25 kg CO2 per kg beef)

490 Danish citizens per year (6,2 tCO2 per year)

Total
2999 tCO$_2$e

2000 families (of 4 members) flying from Denmark to Spain and return (1500 kg CO2 per family)

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