Wool LCA

The facts behind the figures.

A guided tour of the wool lifecycle.

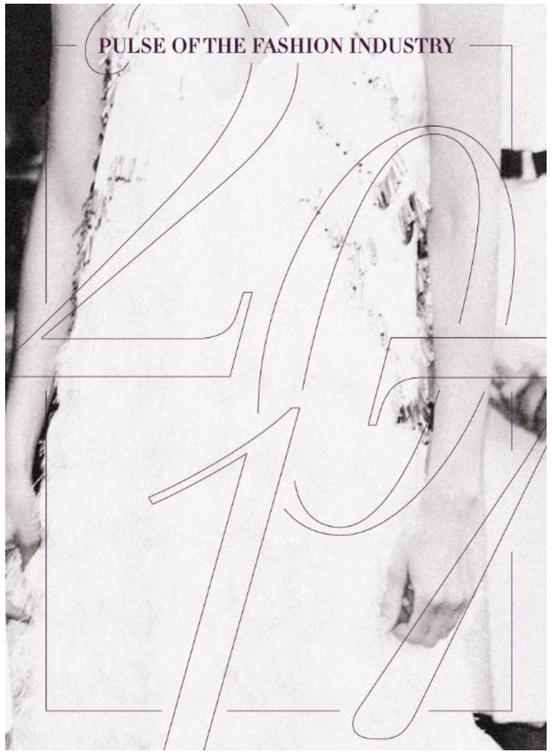
MADE-BY ENVIRONMENTAL BENCHMARK FOR FIBRES

www.made-by.or

CLASS A	CLASS B	CLASS C	CLASS D	CLASS E	UNCLASSIFIED
Mechanically Recycled Nylon	Chemically Recycled Nylon	Conventional Flax (Linen)	Modal® (Lenzing Viscose Product)	Bamboo Viscose	Acetate
Mechanically Recycled Polyester	Chemically Recycled Polyester	Conventional Hemp	Poly-acrylic	Conventional Cotton	Alpaca Wool
Organic Flax (Linen)	CRAiLAR® Flax	PLA	Virgin Polyester	Generic Viscose	Cashmere Wool
Organic Hemp	In Conversion Cotton	Ramie		Rayon	Leather
Recycled Cotton	Monocel® (Bamboo Lyocell Product)			Spandex (Elastane)	Mohair Wool
Recycled Wool	Organic Cotton			Virgin Nylon	Natural Bamboo
	TENCEL® (Lenzing Lyocell Product)			Wool	Organic Wool
					Silk

More Sustainable — Less Sustainable

bwe This Benchmark was made in cooperation with Brown and Wilmanns Environmental, LLC. For further information on this Benchmark see www.made-by.org/benchmarks



MADE-BY

European Commission

Higg Index

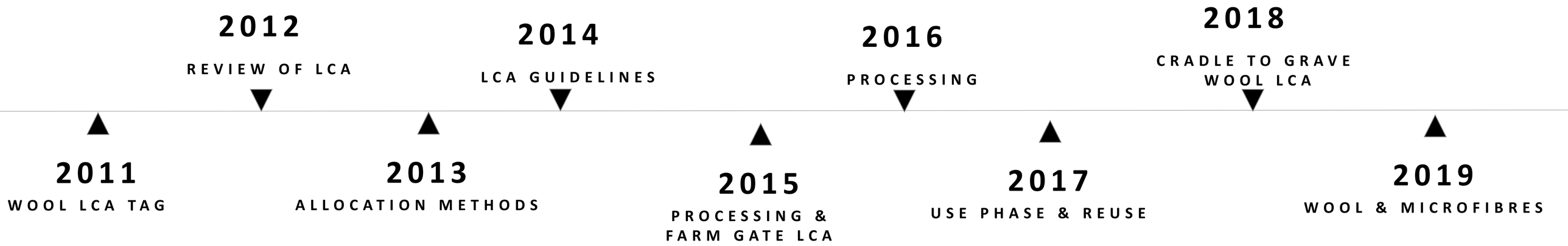
“LCA IS A TECHNIQUE USED TO ASSESS ENVIRONMENTAL IMPACTS OF PRODUCTS, PROCESSES OR SERVICES.”

ISO 14040 Environmental Management – Life Cycle Assessment – Principles and Framework, ISO, 2006

Graphic by NZ Merino

WOOL INDUSTRY ENGAGEMENT IN LCA

TIME LINE OVERVIEW

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2HD IBM
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12/11/03 LCA Data

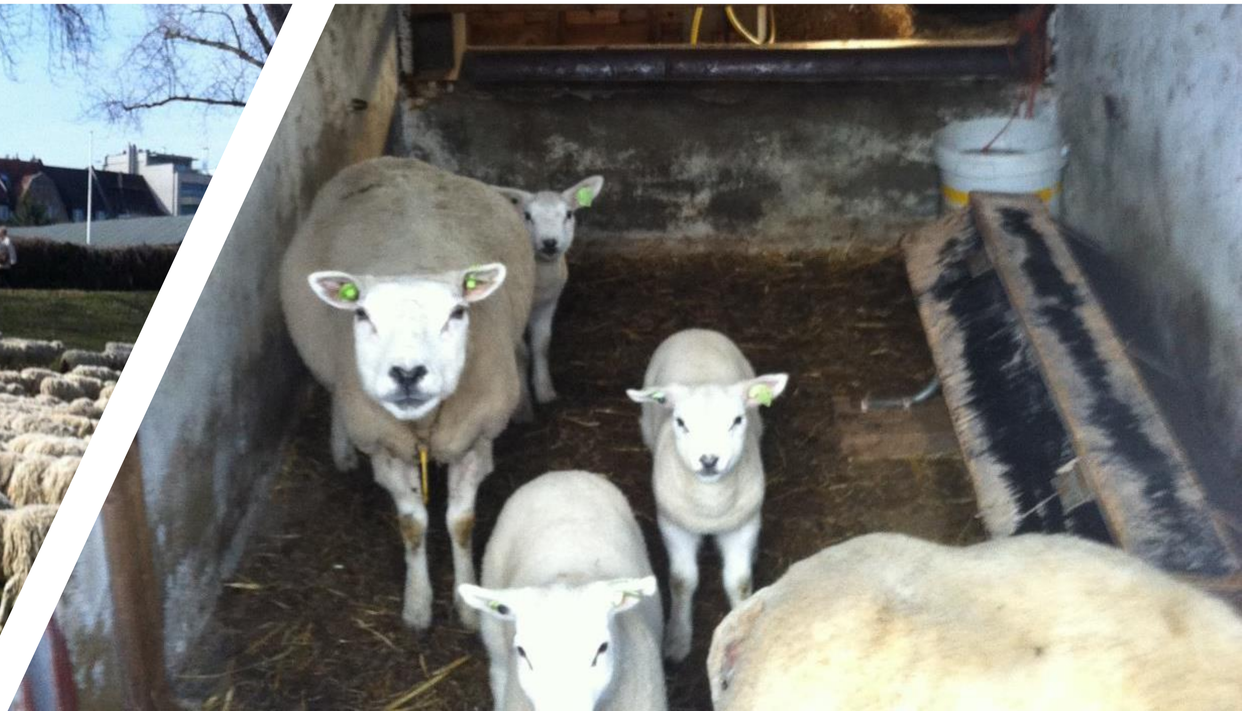
“IT IS WISER TO FIND OUT THAN TO SUPPOSE.”

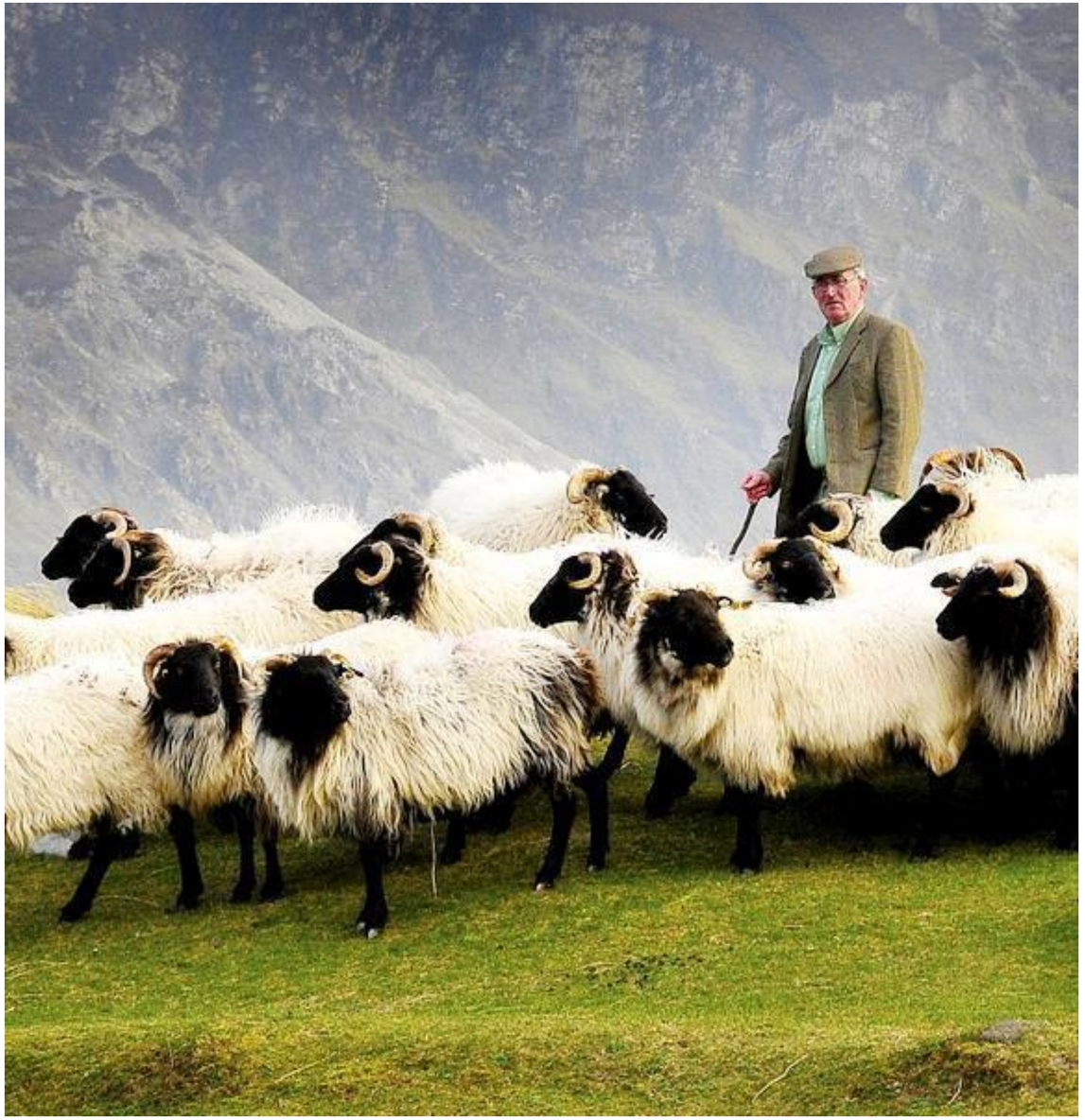
MARK TWAIN


COCO ROSE
CALM
DETOX
Wise

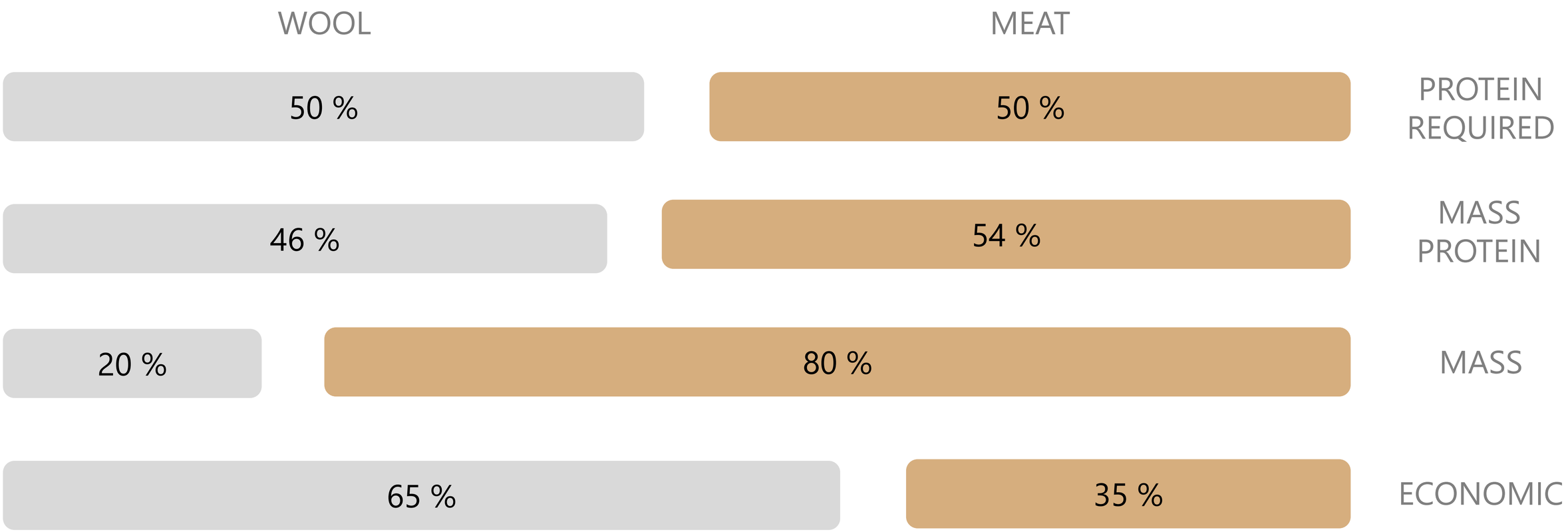


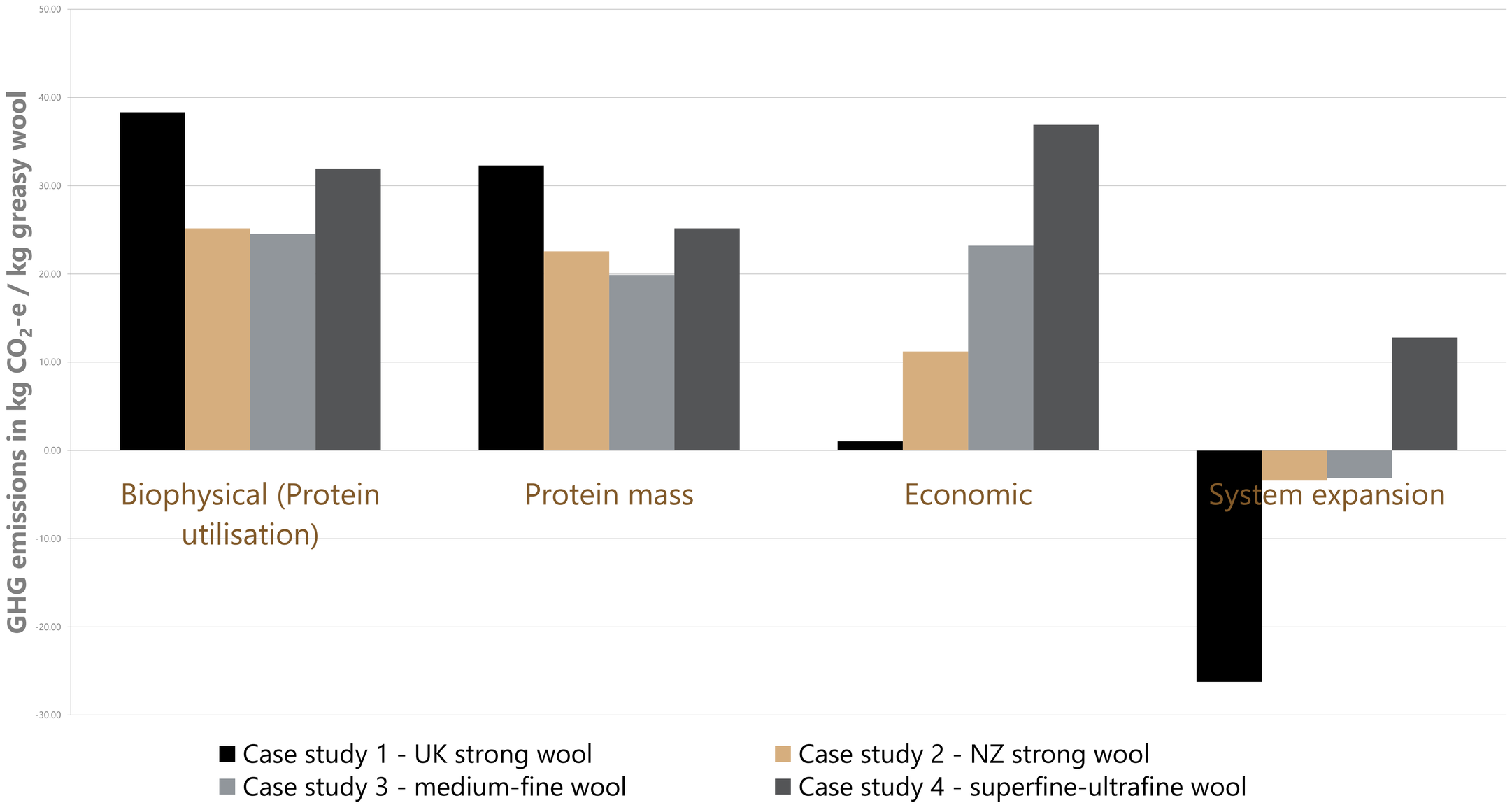






ALLOCATION METHODS



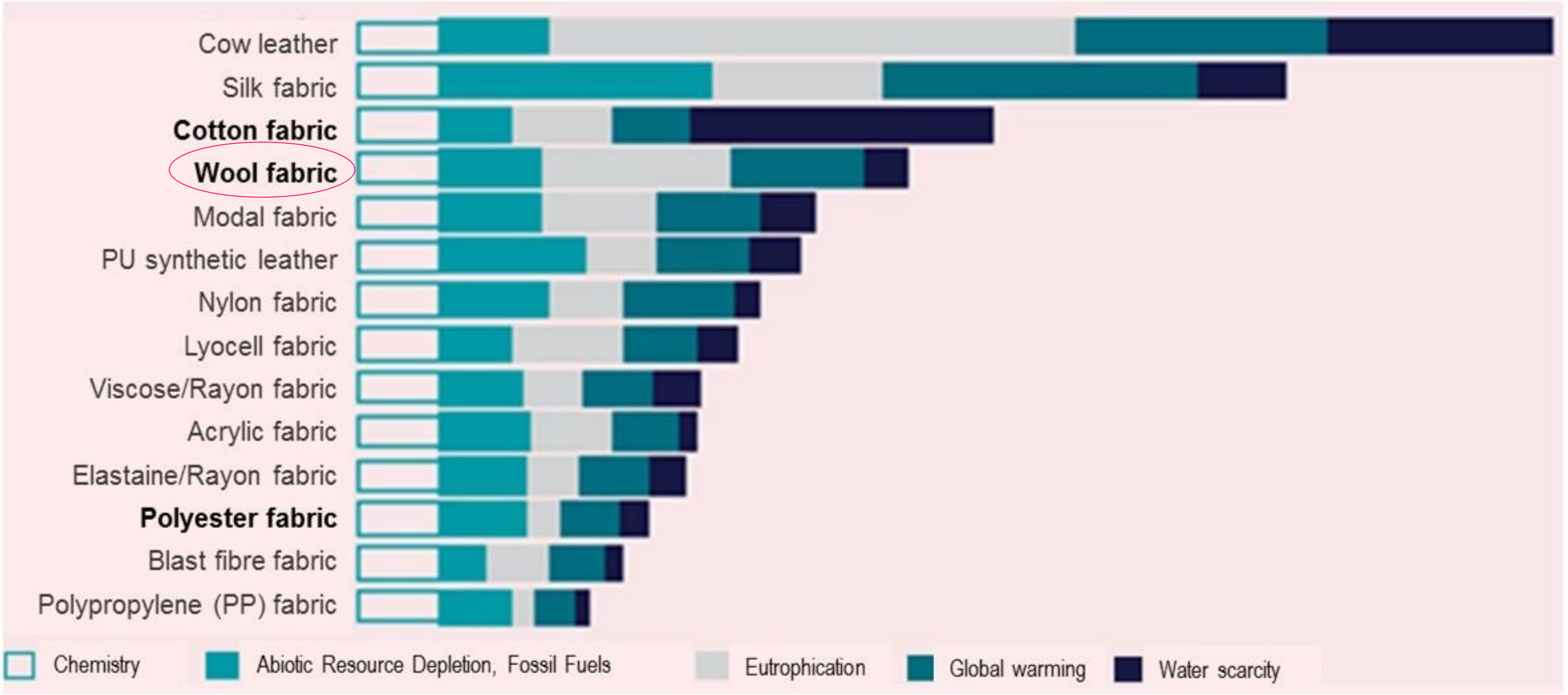


Source: Wiedemann et al, 2015

Guidelines for conducting a life cycle assessment of the environmental performance of wool textiles

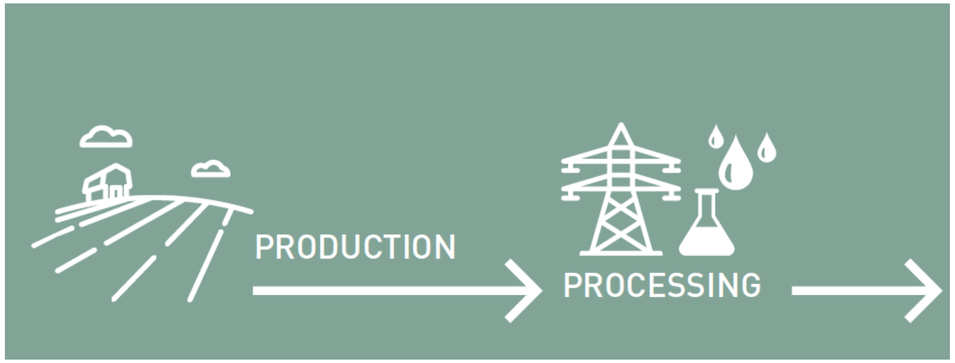
April 2016

International Wool Textile Organisation
Wool LCA Technical Advisory Group



SAC Material Sustainability Index as presented in Pulse of the Fashion Industry 2017


PRODUCTION
PROCESSING
DISTRIBUTION
USAGE
AND
RECYCLING
END-OF-LIFE


PRODUCTION
PROCESSING


PRODUCTION
PROCESSING
DISTRIBUTION
USAGE
AND
RECYCLING
END-OF-LIFE


WARNING
ASSUMPTIONS
AHEAD

ASSUMED USE SCENARIO FOR ALL GARMENTS OF ALL FIBRE CONTENTS

WORN ONCE PER WEEK

52 wears

WASHED ONCE PER WEEK

52 washes

LASTS FOR ONE YEAR

Service 365 days

LANDFIL

Discarded

REALITY CHECK

WHAT DO WE REALLY DO WITH
OUR CLOTHES?

- ✓ **MAINTENANCE**
- ✓ **LIFESPAN**
- ✓ **DISPOSAL**

Sustainability Journal 2018

DOES USE MATTER?

Comparison of Environmental Impacts of Clothing Based on Fiber Type.

Kirsi Laitala, Ingun Grimstal Klepp and Beverley Henry

MAINTENANCE

HOW DO WE TAKE CARE OF OUR CLOTHES?

ODOUR
How quickly does a garment develop odour?

STAINS
How easily does a garment stain and how can a stain be removed?

CLEANING METHODS
Do we use washing machines, hand wash, airing, steaming or dry cleaning?

WASHING TEMPERATURES
At what temperature are clothes being washed?

DRYING TEMPERATURES
How are clothes dried and at what temperatures?

SHEDDING OF MICROFIBRES
Do the shedded microfibres biodegrade?

COTTON VS WOOL

3
WEARS BEFORE WASH

30.3°C
WASHING TEMPERATURE

6.0
YEARS OF LIFESPAN

1,5
WEARS BEFORE WASH

41,1°C
WASHING TEMPERATURE

3.8
YEARS OF LIFESPAN

WOOL IS

- ✓ WORN MORE OFTEN BEFORE WASHING
- ✓ WASHED LESS OFTEN
- ✓ LASTS LONGER


WARNING
ASSUMPTIONS
AHEAD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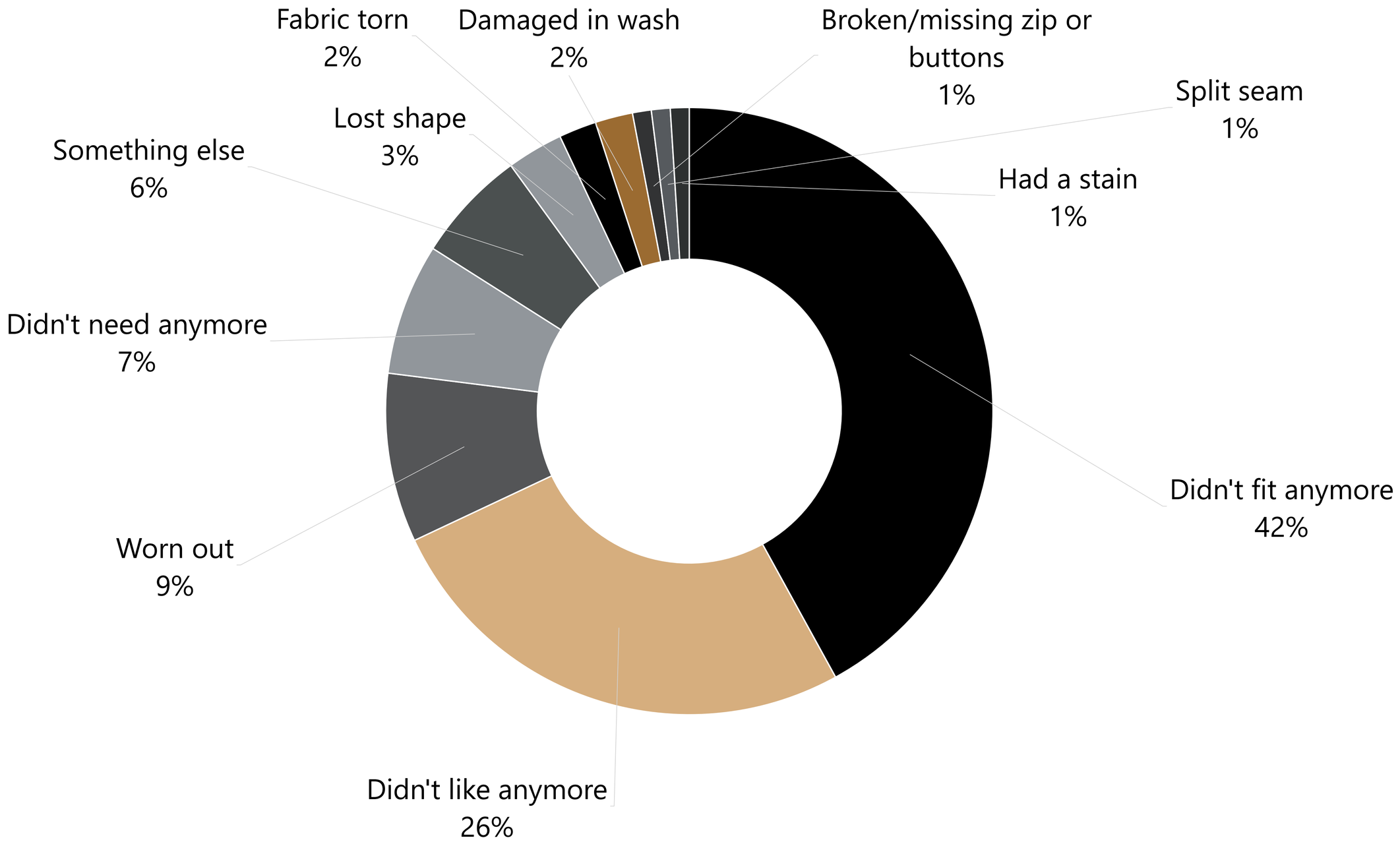
1935



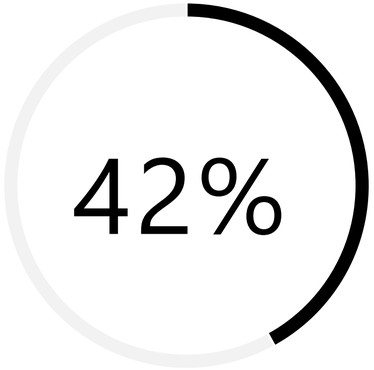
Disposal reasons: Reproduced from WRAP, 2017 (16,895 items)


WARNING
ASSUMPTIONS
A H E A D

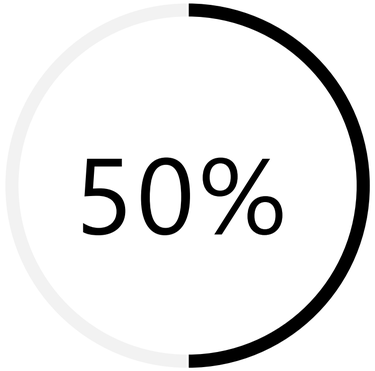
GARMENTS FOR REUSE

COTTON AND COTTON BLENDS

42% of cotton garments would be donated to charity, family, friends or sold



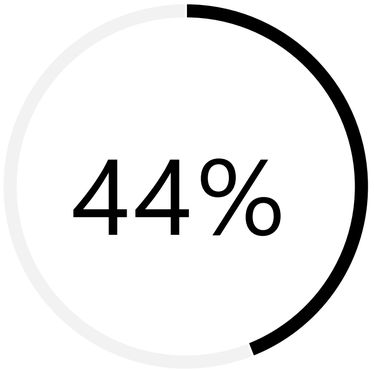
WOOL AND WOOL BLENDS



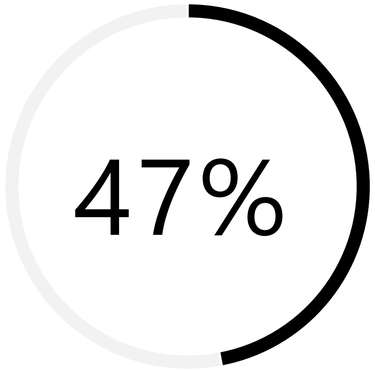
50% of wool garments would be donated to charity, family, friends or sold

SYNTHETICS

44% of synthetic garments would be donated to charity, family, friends or sold



SILK



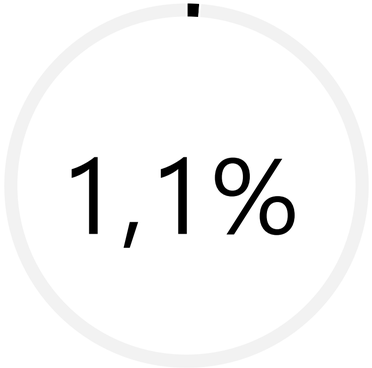
47% of silk garments would be donated to charity, family, friends or sold

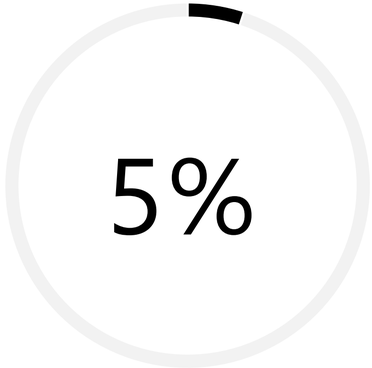
Source: The Nielsen Company. Global Wardrobe Audit – All Countries; Prepared for Australian Wool Innovation, The Nielsen Company: Root, Switzerland, 2012

RECYCLING OF WOOL

Wool market share

Wool's share of the virgin fibre supply is about 1.1%



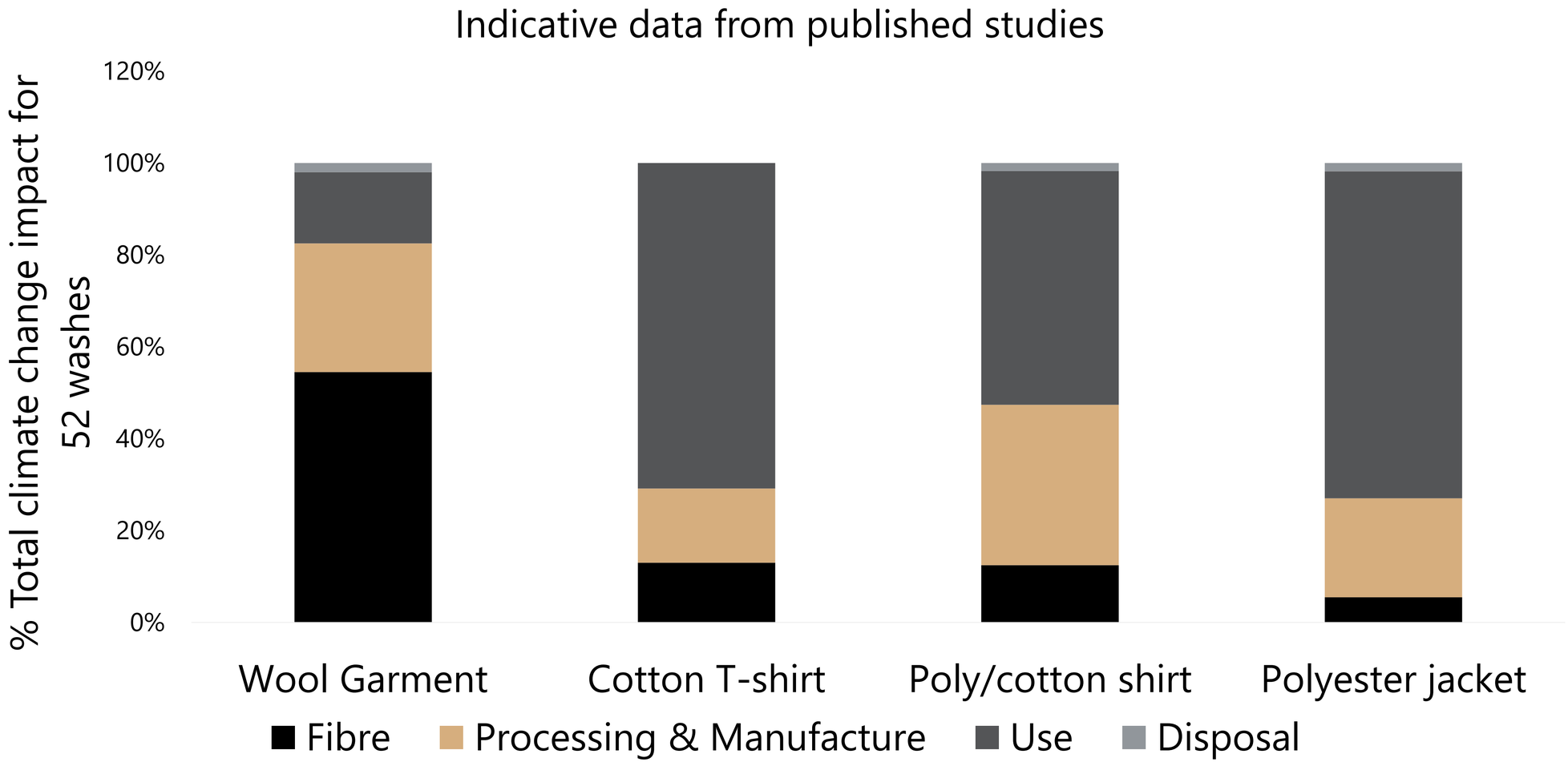


Wool recycling

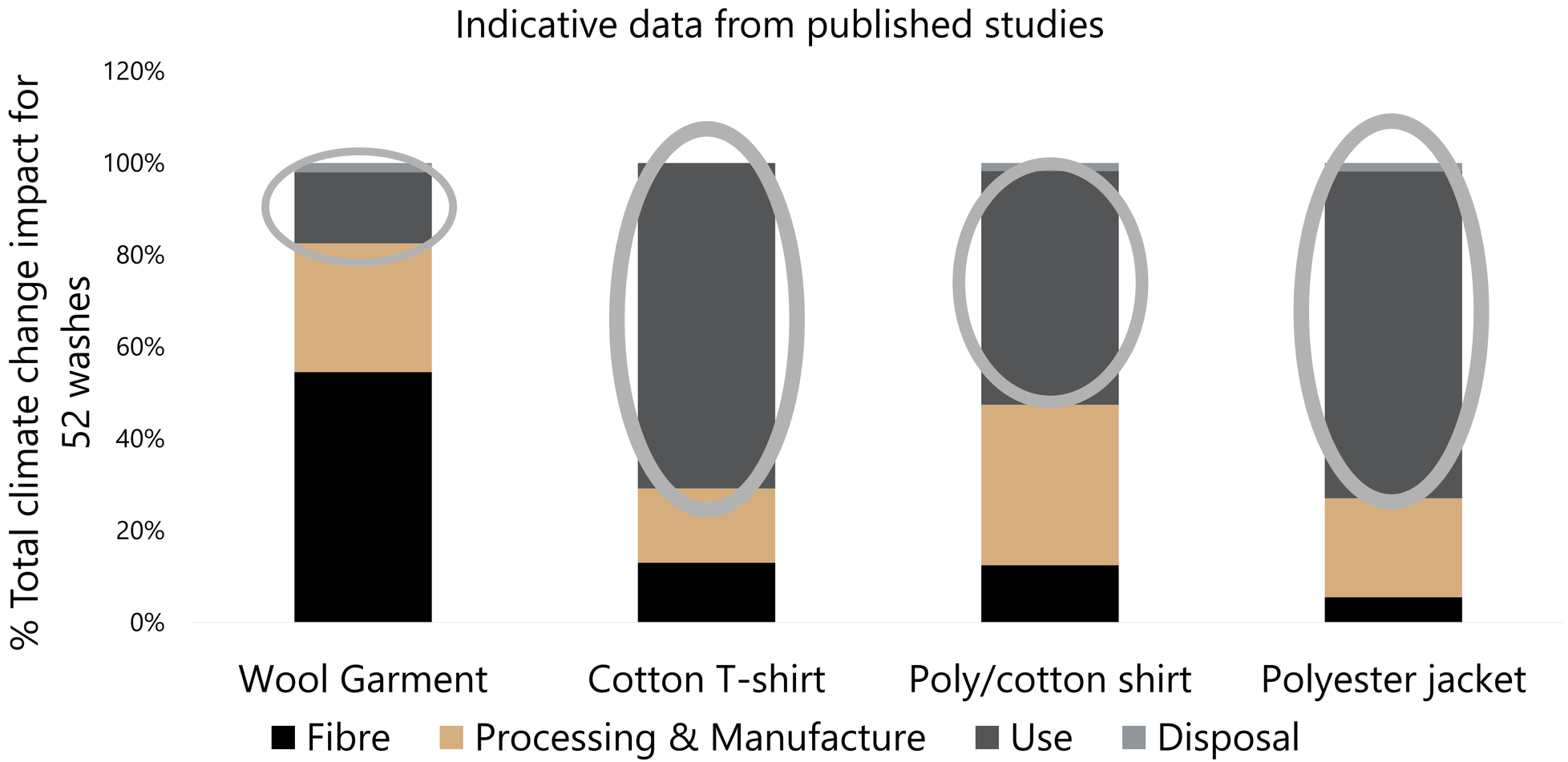
Wool accounts for up to 5% by weight of total clothing donated by consumers for recycling and re-use.

Source: Textiles Materials and Technology at Leeds University

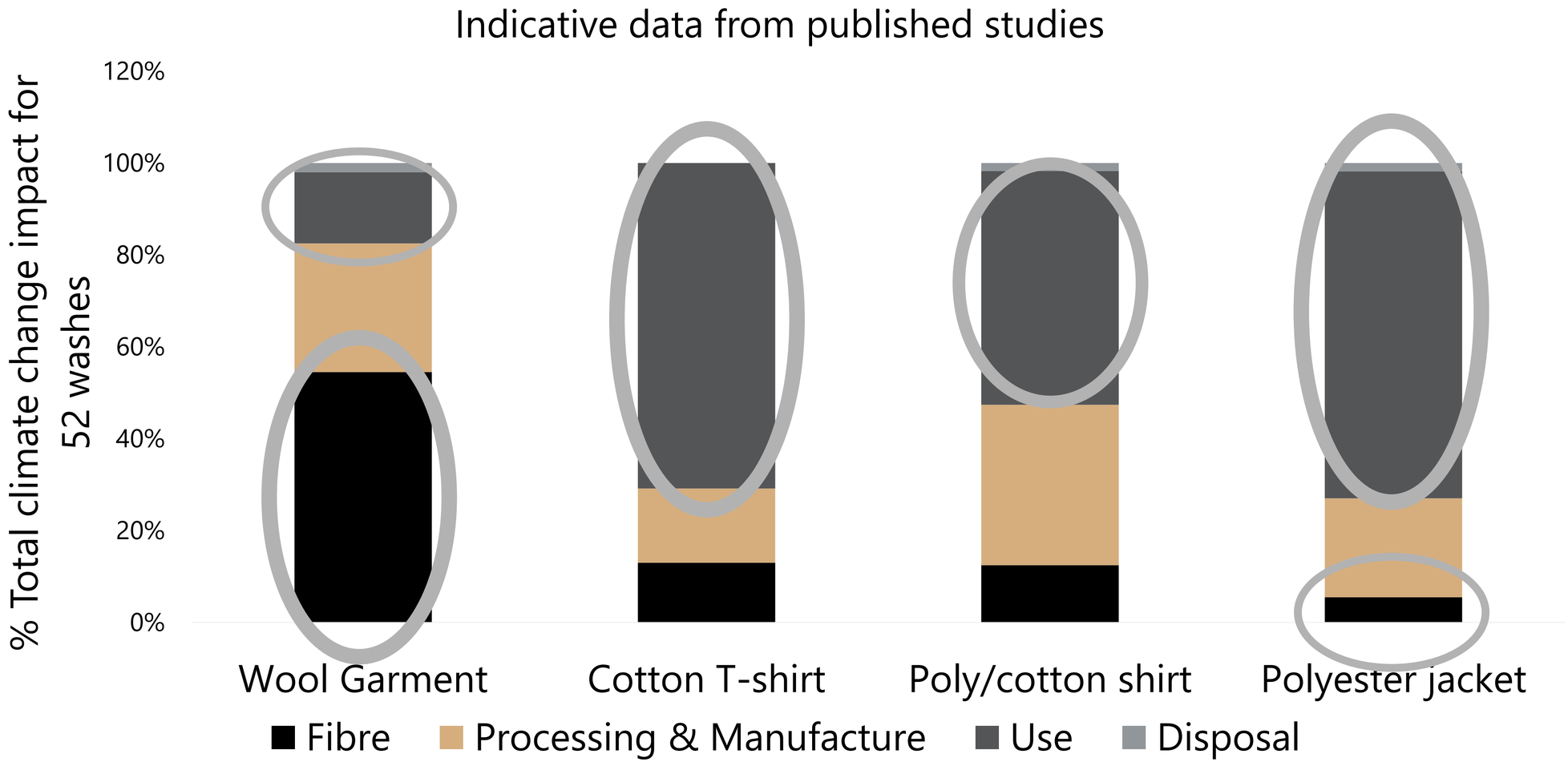
WHAT DIFFERENCE DOES REALITY MAKE FOR LCA?



Source: Beverley Henry 2016



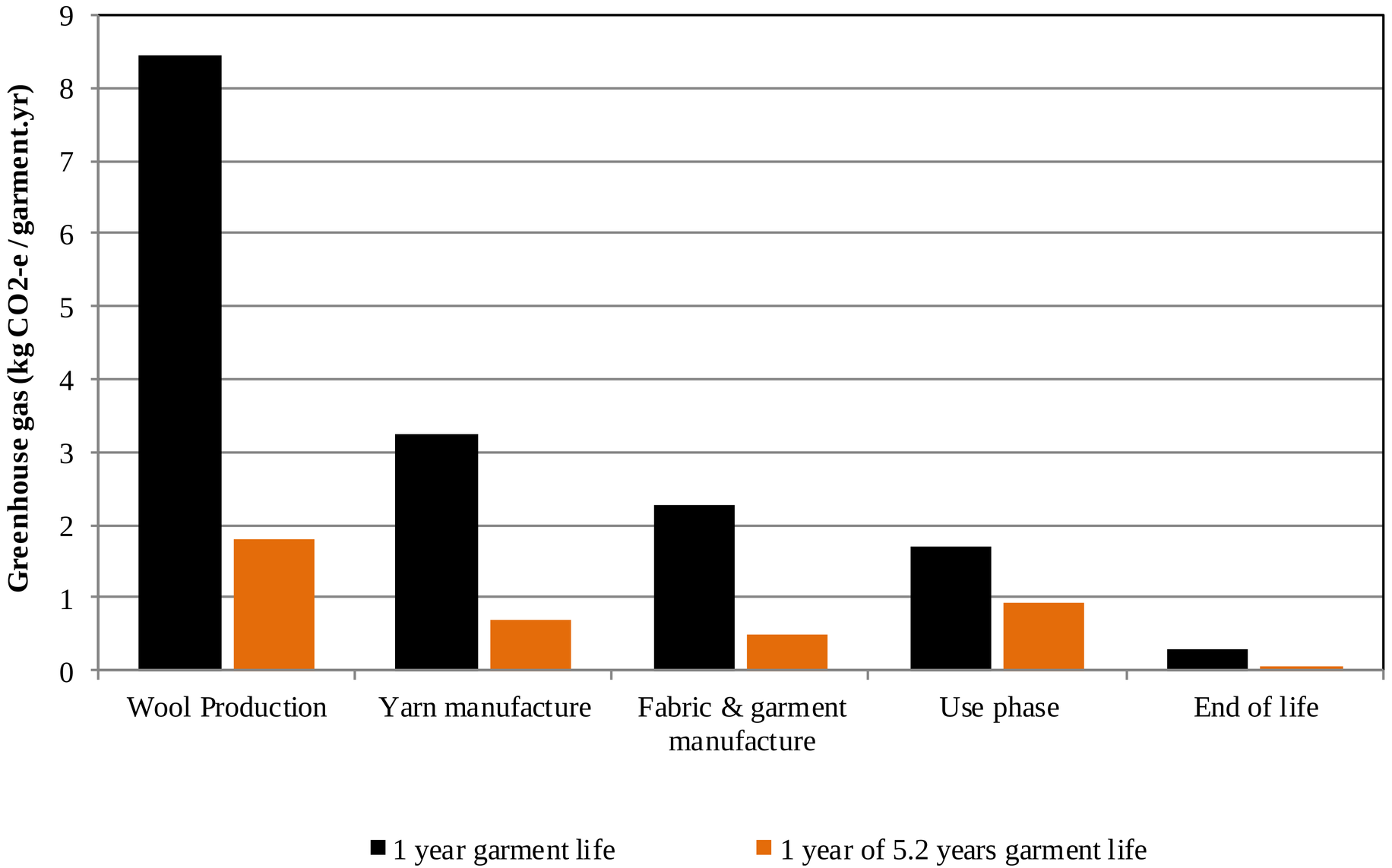
Source: Beverley Henry 2016



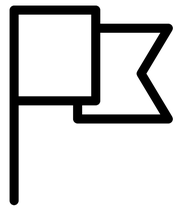
EXTENT OF APPAREL RATINGS AGENCIES' SUPPLY CHAIN ASSESSMENT:

- **MADE-BY Fibre Benchmarking Tool**
- **SAC MSI models to fabric**

Source: Beverley Henry 2016



Source: Wiedemann et al. pers. Comm.



CONCLUSION

WHAT DO WE LEARN FROM ALL OF THIS?


PRODUCTION
PROCESSING
DISTRIBUTION
USAGE
AND
RECYCLING
END-OF-LIFE

Assumption
is the mother
of all mistakes....

“WE NEED TO KNOW WHERE WE WANT TO GO AND NOT ONLY WHERE WE DON’T WANT TO BE.”

INGUN GRIMSTAL KLEPP

THANK YOU

for listening

THANKS TO THE WOOL INDUSTRY

for making wool LCA research available

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Podcast: Wool Academy

DOWNLOAD REFERENCES

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