

TopSeries Plastic Natural stopper carbon footprint

Amorim Top Series

July 2020

Disclaimer

EY carbon footprint analysis follows a life-cycle approach based on ISO Standard 14040 and is based on Amorim Top Series data and business assumptions. The results presented are not third-party verified.

Agenda

1. About the study

2. Carbon footprint

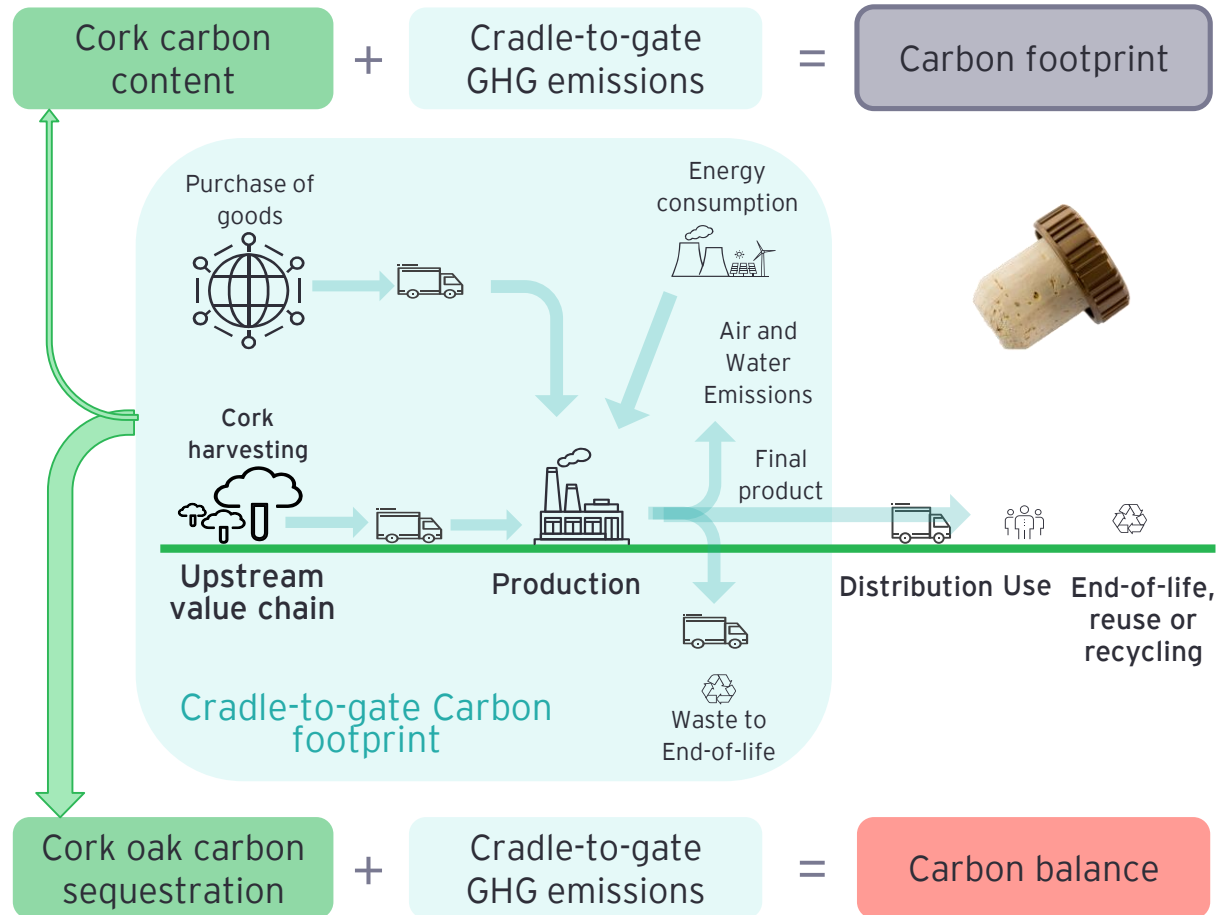
Cradle-to-gate

+

Expedition to UK

3. Carbon balance

Scenario analysis with carbon sequestration at the forest stage



1

About the study

About the study

- ▶ The **main purpose** is to quantify the potential environmental impacts of TopSeries Plastic Natural (average dimensions of stopper 27 mm x 20 mm; average dimensions of capsule 29 mm x 9 mm average weight: 3,8g; average composition: 34% cork, 57% high impact polystyrene (plastic capsule), 9% customization products), stopper produced by Amorim Top Series, through a life cycle approach.
- ▶ **Guidelines** : The study was based on ISO 14040/44 series of standards, complemented with the guidelines from the International Reference Life Cycle Data System (ILCD) Handbook - General guide for Life Cycle Assessment - Detailed guidance
- ▶ **Approach**: *cradle-to-gate* (from raw material extraction to the finished product at the factory gate)
- ▶ **Functional unit** : 1000 stoppers
- ▶ **Modelling software and database** : SimaPro 9 with ecoinvent 3.5 database
- ▶ **Method** : Midpoint characterization factors recommended by the International Reference Life Cycle Data System (ILCD).
- ▶ **Data collection procedure**

TopSeries Plastic Natural stopper production data



Amorim Top Series activity (local data),
for the year 2019, using questionnaires

General data (raw materials production, energy,
transport and waste management)



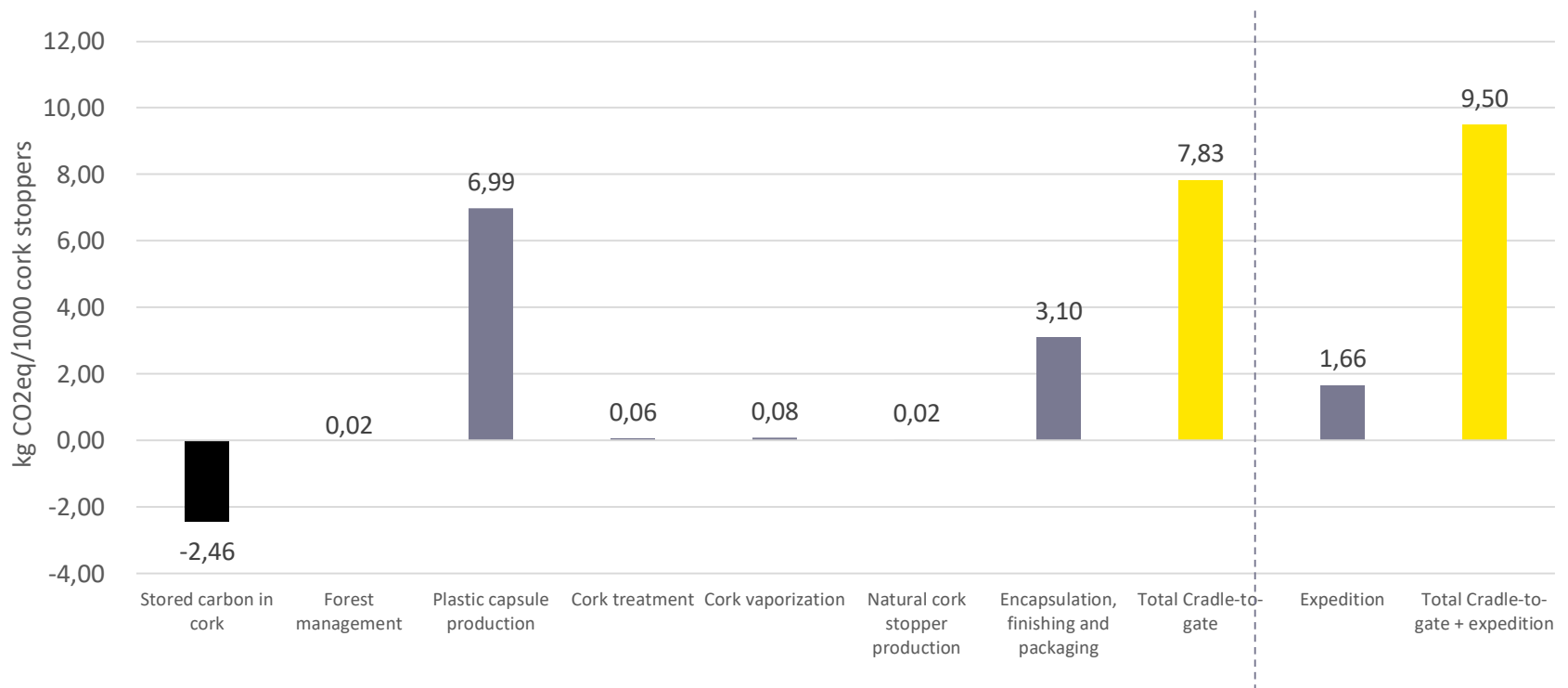
Ecoinvent 3.5. database,
compiled in 2018

- ▶ Carbon stored in the final product is included
- ▶ Additional scenario analysis of the potential carbon sequestration at the forest stage

2

Carbon footprint

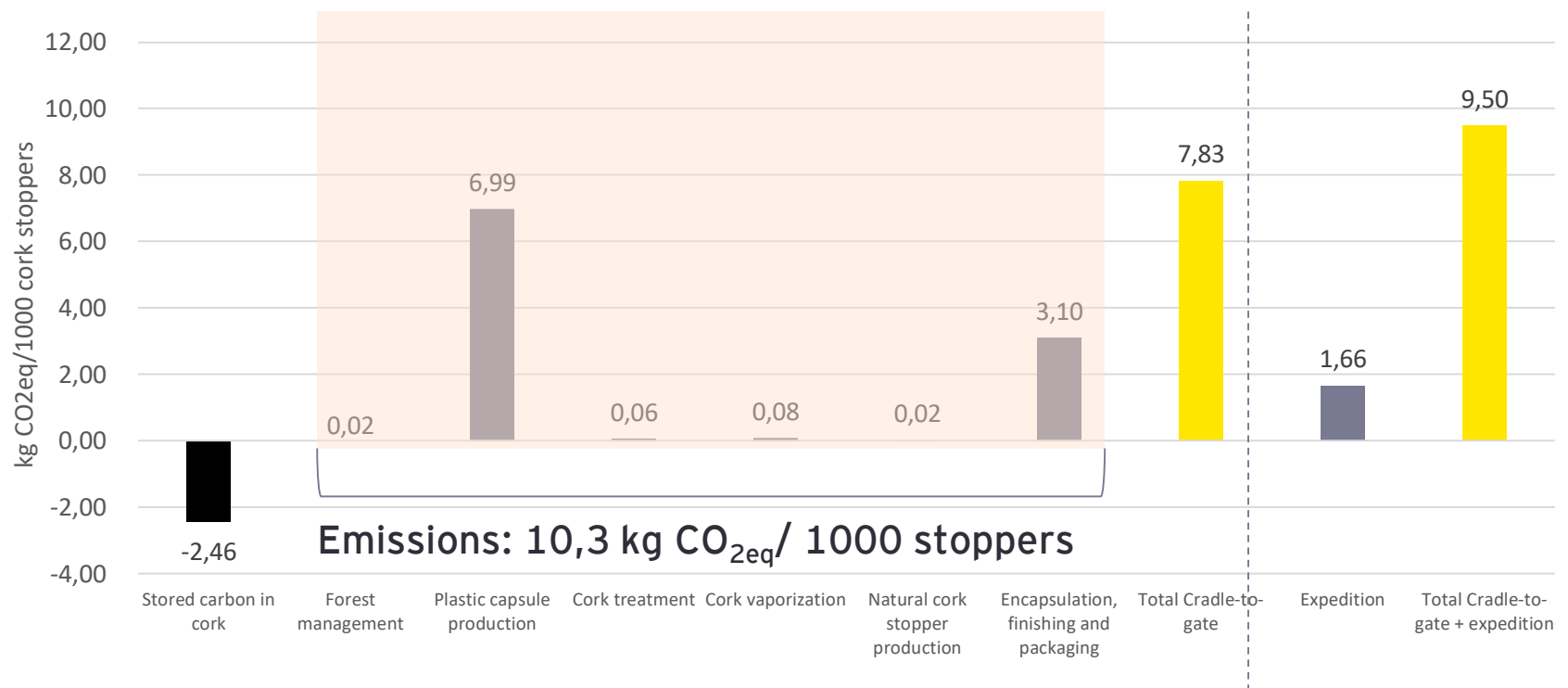
Carbon footprint: results



TopSeries Plastic Natural carbon footprint:

- ▶ Cradle to gate: **+7,8** kg CO₂eq /1000 stoppers
- ▶ Cradle to gate with expedition to UK: **+9,5** kg CO₂eq /1000 stoppers

Carbon footprint: results



68% emissions associated with processes occurring in the plastic capsule production stage

- ▶ Most upstream value chain activities carbon impacts (e.g. production and purchase of raw materials and chemicals) are reflected in this stage
- ▶ Higher energy consumption (indirect impacts of electricity production)



3

Carbon balance

Carbon balance: results

Scenario analysis with carbon sequestration in the cork oak montado

For the average stopper when considering carbon sequestration in the cork oak* montado:

There is a forest storage up to:

- 98
kg CO₂/1000 stoppers

Therefore, the carbon balance reaches up to

- 87
kg CO₂/1000 stoppers



scenario analysis based on well-managed cork oak montado

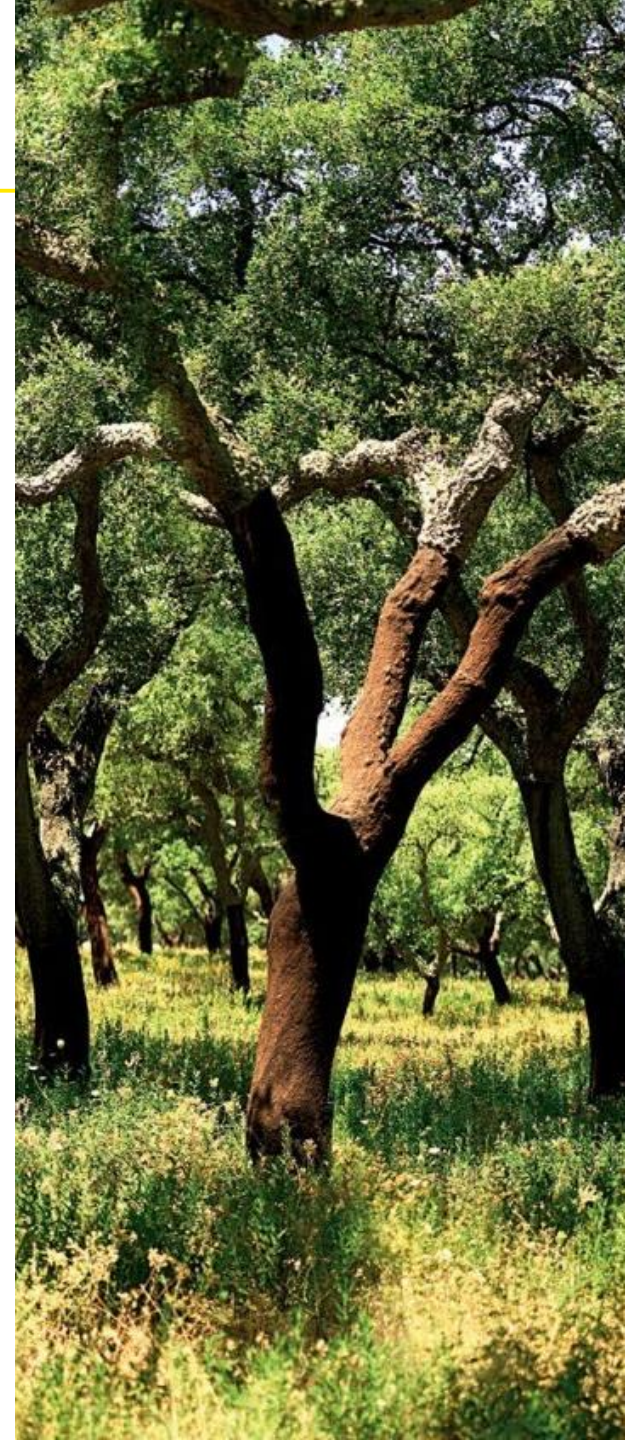
- 73 t CO₂/t cork

Maximum ecosystem CO₂ uptake registered (14,7 tCO₂/ha) (Costa-e-Silva et al., 2015).

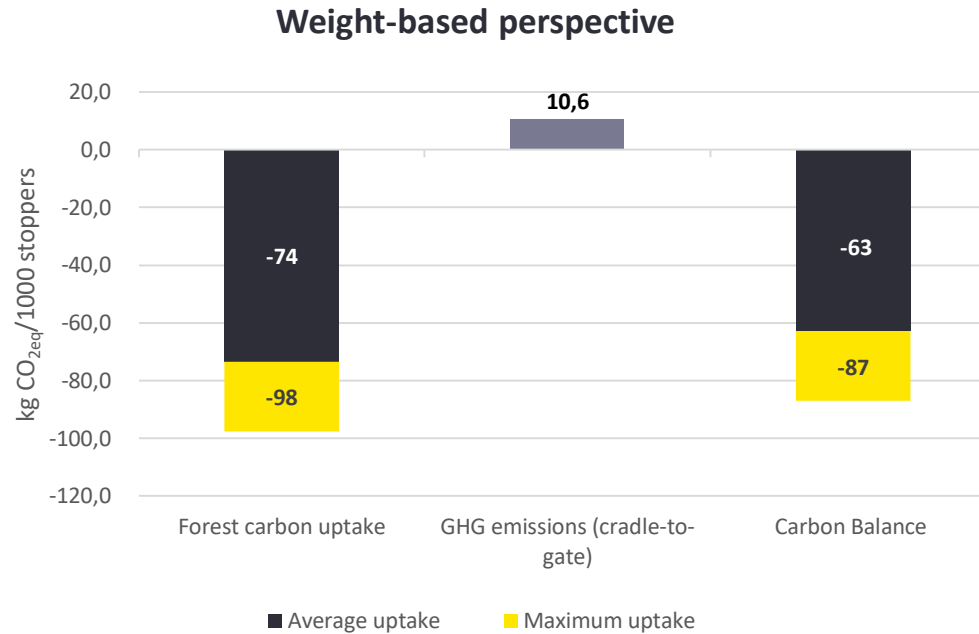
with the average ecosystem CO₂ uptake being - 55 t CO₂/t cork, considering wet and dry years in well managed forests (11 t CO₂/ha).¹

The PEFCR for the wine sector states that carbon stored at cork oak trees shall be included in the analysis as additional environmental information, if carbon storage goes beyond 100 years, which is the case for cork.

¹ figures used in "The value of cork oak montado ecosystem services, EY 2019"



Carbon balance: maximum weight stopper



Carbon balance reaches up to:

-87 kg CO_{2eq}/1000 stoppers

considering maximum ecosystem CO₂ uptake registered in a well managed cork oak montado **-73 t CO₂/t cork**

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