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Royal LC Packaging

Environmental Report 2023

www.lcpackaging.com

Introduction

Before you lies the **Royal LC Packaging Environmental Report 2023**, which includes data from 2023 (1 January 2023 – 31 December 2023) related to the environmental impact of Royal LC Packaging International B.V.* (LC Packaging). This report is part of LC Packaging's Sustainability Update 2024 and reports on environmental impact factors.

With this report, LC Packaging aims to measure and understand the company's environmental impact in its value chain and on society at large, identify areas of improvement, and increase the environmental value of our operations and with that, our packaging and services.

The Environmental Report 2023 presents data aligned with multiple reporting requirements and is produced in accordance with the GRI Standards: Core Option. In accordance with the GRI Standards, this report shows data from 2019 (where available/ applicable) to 2023.

This document is publicly available and provides LC Packaging's management, shareholders and stakeholders with detailed information related to the topics '**Climate Change**', '**Environmental Footprint**' (**water**, **waste**, and **energy**), and '**Material Use and Circular Economy**'.

Compared to the previous years, data quality and availability has increased significantly for both greenhouse gas calculations and material (weight) data. This has led to recalculations for 2022 and base year 2021.

In the years leading up to reporting year 2025, this report will be supplemented according to EU CSRD Reporting Standards.

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* LLC Packaging International B.V. includes all subsidiaries of which we have more than 50% ownership: LC Packaging affiliates, Hagens Verpakkingen B.V., Weiterer GmbH, WorldBag B.V., and production facilities Dutch-Bangla Pack Ltd. (DBPL) and LC Shankar (PTY) LTD. When referred to as 'LC Group', the production facilities are excluded from the calculation.

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Summary

Royal LC Packaging International (LC Packaging) includes all subsidiaries of which we have more than 50% ownership: LC Packaging affiliates, Hagens Verpakkingen B.V., Weiterer GmbH, WorldBag B.V. and production facilities Dutch-Bangla Pack Ltd. (DBPL) and LC Shankar (PTY) LTD. This chapter summarised the 2023 results. More detailed information can be found in the following chapters.

Climate change

Greenhouse gas emissions

Total Gross GHG emissions	Total GHG emissions per net turnover	Gross Scope 1 GHG emissions	Gross Scope 2 GHG emissions (market based)	Gross Scope 3 GHG emissions
275,886 MT CO_2e	**0.0013 MT CO_2e**	**5,511 MT CO_2e**	**4,617 MT CO_2e**	**265,757 MT CO_2e**

Environmental footprint

Water consumption, waste production and energy use

Water used	Waste generated	Energy used	Renewable electricity used
41,994 M^3	469,381 KG	36,240,890 kWh	30.0%
-7.0%	**+0.5%**	**-0.1%**	**-0.3%**

Material use and circular economy

Circular Packaging
23% of turnover from circular packaging

Materials used				
28,372,300 KG Cardboard	**3,477,551 KG** Jute	**34,481,720 KG** PP/PE	**32%** recycled content materials used	**48%** renewable materials used

Reusable Packaging	(closed-loop) Recyclable packaging	Home-compostable packaging
2% of turnover from technically reusable packaging	**67%** of turnover from recyclable packaging	**23%** of turnover from home-compostable packaging
52% of technically reusable packaging actually reused	**41%** of turnover from closed-loop recyclable packaging	

1. Climate change

Introduction

GRI 305-1 Direct (Scope 1) GHG emissions
GRI 305-2 Energy indirect (scope 2) GHG emissions
GRI 305-3 Other indirect (Scope 3) GHG emissions
GRI 305-5 Reduction of GHG emissions

Royal LC Packaging International (LC Packaging) has set itself the goal to reduce absolute scope 1 and 2 greenhouse gas emissions **50%** by 2030, from base year 2021, and reduce scope 3 greenhouse gas emissions **50%** within the same timeframe. Based on improved data quality and availability in 2023, a recalculation has been made for 2022 and base year 2021. In base year 2021, **347,516 CO_2e** was emitted in LC Packaging's value chain. Meaning that by 2030, no more than **173,758 MT** of **CO_2e** may be emitted in our value chain.

LC Packaging's emission reduction goal is validated by the Science Based Targets initiative (SBTi) includes the company's full operations and value chain, which includes the direct (Scope 1) and indirect emissions (Scope 2 and 3) of all our sales offices and warehouses, and our FIBC production facilities in Bangladesh and South Africa.

Greenhouse gas emissions

In 2023, **275,886 MT CO_2e** was emitted in our value chain. This means a decrease of **20.6% (56,832 MT CO_2e)** compared to base year 2021.

Greenhouse Gas Inventory 2023

In accordance with the Greenhouse Gas Protocol (GHG Protocol)

Total Gross GHG emissions	Total GHG emissions per net turnover	Gross Scope 1 GHG emissions	Gross Scope 2 GHG emissions (market based)	Gross Scope 3 GHG emissions
275,886 MT CO_2e	0.0013 MT CO_2e	5,511 MT CO_2e	4,617 MT CO_2e	265,757 MT CO_2e

Scope	Category	MT CO_2e	% of total emissions	Progress compared to 2021 (%)
Scope 1 (Direct emissions)	Fuel use and refrigerants in activities	4,889	1.8%	-12%
	Vehicles (leased and company owned)	623	0.2%	-9%
Scope 2 (indirect emissions)	Purchased electricity for own use	4,617	1.7%	+33%
Scope 3 (indirect emissions)	Purchased goods and services	209,111	75.8%	-20%
	Capital goods	931	0.3%	-37%
	Fuel and energy related activities	987	0.4%	-19%
	Upstream transportation and distribution	7,258	2.6%	-11%
	Waste generated in operations	98	0.04%	+21%
	Business travel	222	0.1%	+134%
	Employee commuting	269	0.1%	+6%
	End-of-life treatment of sold products	46,706	16.9%	-28%
	Downstream leased assets	175	0.1%	-3%
	Total	**275,886**	**100%**	**-21%**

Explanation: The calculations for the 2023 GHG Inventory are based on the Greenhouse Gas Protocol Corporate Value Chain Accounting and Reporting Standard. The Scope 3 emissions are calculated in accordance with the guidelines of the GHG Protocol Standard, including at least the "minimum boundaries".

Explanation

In 2023, data availability and quality improved significantly due to, among other things, better product-related data and lifecycle assessments that were conducted for our main product categories. Based on that data, base year 2021 and GHG Inventory 2022 have been recalculated and rectified in this report. Overall, in 2023, we achieved a **20.6%** decrease of CO_2e emissions compared to base year 2021, and a decrease of **12.8%** compared to 2022.

A summary of the results:

- A substantial decrease in product sales compared to base year 2021 drove the main reduction in emissions, as the categories 'purchased goods' and 'end-of-life of sold products' are closely linked to sales and contribute most to the greenhouse gas inventory.
- Emissions related to 'purchased goods' decreased by **20.3%** and to 'end-of-life of sold products' by **27.8%,** compared to base year 2021. 'End-of-life of sold products' decreased more than 'purchased goods', because fewer plastic products were distributed in 2023 compared to 2021.
- Upstream transportation and distribution, accounting for **2.6%** of the total greenhouse gas inventory, saw a decrease of **11.2%** compared to 2021, primarily due to decreased emissions from sea transport, due to less sea freight.
- Total scope 1 and 2 emissions increased by **4.2%** compared to 2021. This is because production facility Dutch-Bangla Pack (DBPL) – responsible for over **80%** of total scope 1 and 2 emissions – had to use more electricity from the grid, instead of its own generators. Adding to this, grid emissions of Bangladesh increased by **8%** between 2021 and 2023 according to the ecoinvent database. This led to an increase of DBPL's scope 1 and 2 CO_2e emissions of **409** t **CO_2e**.
- In total, we can conclude an **11.7%** decrease of scope 1 emissions, and a **33.2%** increase of scope 2 emissions.
- As scope 1 emissions have been reduced, emissions related to 'fuel and energy related activities' have also been reduced **(-19.2%).**
- Emissions related to 'capital goods' have decreased by **36.9%** due to a smaller investment in capital goods in 2023 compared to 2021.
- In 2021, COVID-related travel restrictions limited mobility. Since these constraints were lifted, we have experienced a large growth in emissions related to 'business travel' **(+134.4%)** and employee commuting **(+6.1%).** Overall, this still has a small impact (**0.1%** of total emissions).

2. Environmental footprint

Introduction

GRI 307-1 Non-compliance with environmental laws and regulations
GRI 303-5 Water consumption
GRI 302-1 Energy consumption within the organisation
GRI 302-4 Reduction of energy consumption
GRI 306-3 Waste generated
GRI 306-4 Waste diverted from disposal
GRI 306-5 Waste directed to disposal

Since 2017, Royal LC Packaging International (LC Packaging) annually calculates its environmental footprint in the areas of water consumption, waste production, CO2e emissions and energy use. These calculations include all LC Packaging operations. Since 2022, the CO_2e emission calculations have been extended from only scope 1 and 2 emissions to also scope 3 emissions and are reported in chapter **1: Climate change.**

In this report, 2023 data has been added and in some cases, data has been adjusted as we have rectified calculation errors made in previous years.

› Reported incidents of non-compliance with environmental laws and regulations

Reported incidents				
2019	**2020**	**2021**	**2022**	**2023**
0	0	0	0	0

Water consumption

› Water consumption

	Water use (m^3)				
Type of water	**2019**	**2020**	**2021**	**2022**	**2023**
Drinking water (tap)	11,734	3,703	9,560	4,400	3,543
Rainwater	30	Unknown	Unknown	Unknown	285*
Ground water	34,560	34,570	39,751	40,747	38,166
Total	**46,324**	**38,273**	**49,311**	**45,147**	**41,994****

* Not all rainwater use is measured. Production facility Dutch-Bangla Pack Ltd., and LC Packaging Romania report the amount of rainwater used.
** Decrease in water consumption due to the use of rain water thanks to water tanks installed at production facility LC Shankar.

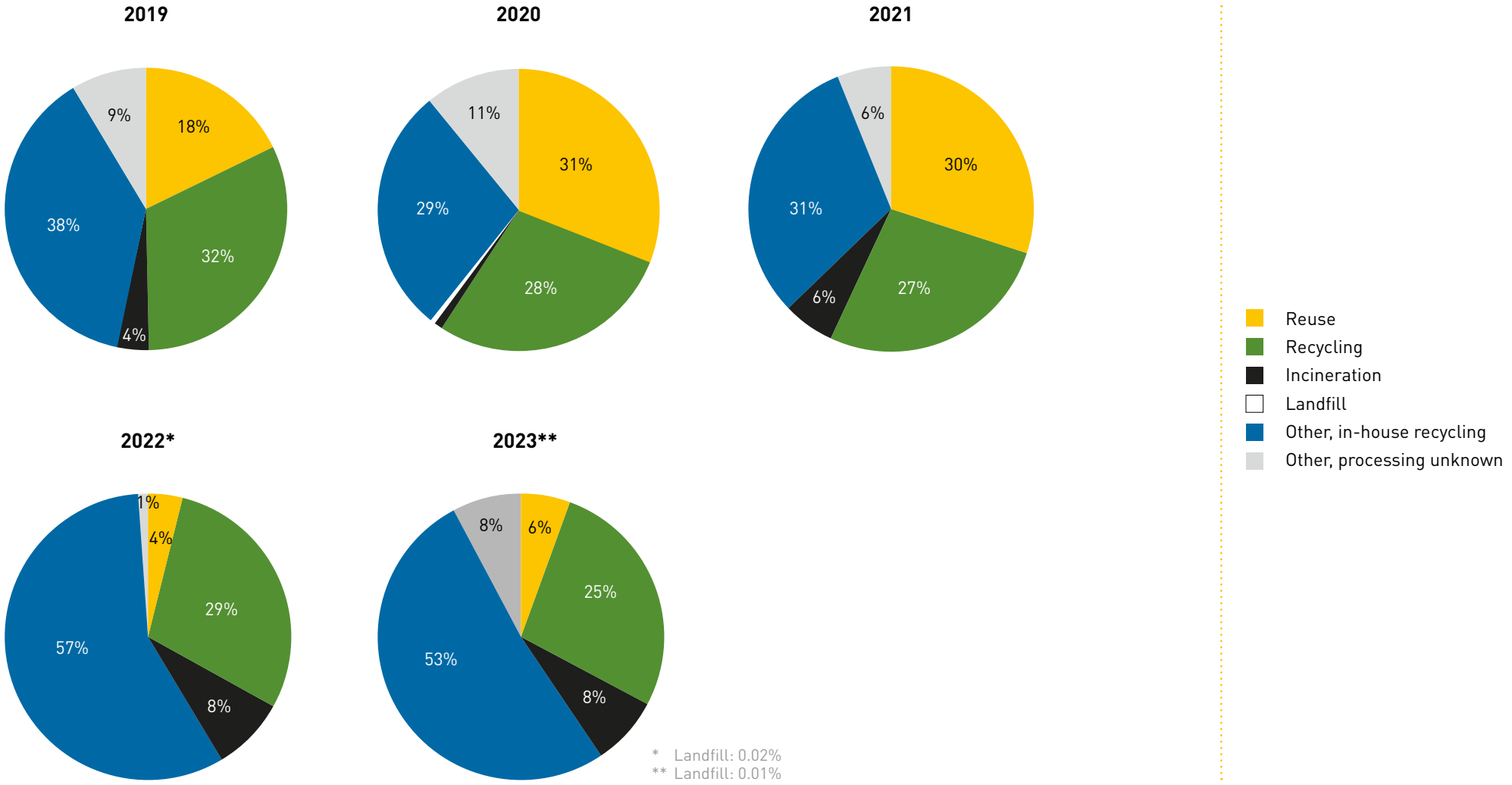
Waste consumption

Total weight of non-hazardous and hazardous waste

	Non-hazardous waste (KG)					Hazardous waste (KG)				
Disposal method	**2019**	**2020**	**2021**	**2022**	**2023**	**2019**	**2020**	**2021**	**2022**	**2023**
Reuse	330,343	462,543	494,774	47,478	69,607	0	0	0	0	0
Recycling	592,805	420,452	436,734	353,459	282,289	0	0	1,550	0	660
Composting	0	0	0	0	0	0	0	0	0	0
Recovery, including energy recovery	0	0	0	0	0	0	0	0	0	0
Incineration (mass burn)	65,644	14,528	97,940	101,044	92,672	0	0	3,000	0	1,155
Deep well injection	0	0	0	0	0	0	0	0	0	0
Landfill	1,424	7,400	0	245	115	0	0	500	0	0
On-site storage	0	0	0	0	0	0	0	0	0	0
Other, in-house recycling initiative	709,230	425,863	503,606	689,223	592,627	0	0	100	0	0
Other, pro-cessing unknown	161,668	159,363	104,262	10,474	91,365	2,000	3,860	0	1,725	1,125
Total	**1,861,114**	**1,490,149**	**1,637,316**	**1,201,923**	**1,128,674**	**2,000**	**3,860**	**5,150**	**1,725**	**2,940**
Total waste production(*)	**823,541**	**605,603**	**644,086**	**465,222**	**466,441**				**1,725**	**2,940**

* Total waste production = waste production – (resold/internal recycling/reused)

Percentage of waste per disposal method



* Landfill: 0.02%
** Landfill: 0.01%

Total weight of hazardous waste treated (KG)

Hazardous waste treated				
2019	**2020**	**2021**	**2022**	**2023**
2,000	3,860	5,150	1,725	2,940

Total weight of hazardous waste transported, imported or exported (KG)

Hazardous waste transported				
2019	**2020**	**2021**	**2022**	**2023**
0	0	Unknown	Unknown	Unknown

Percentage of hazardous waste shipped internationally

Hazardous waste shipped				
2019	**2020**	**2021**	**2022**	**2023**
0	0	Unknown	Unknown	Unknown

Energy use

- Energy use related to electricity, fuel and transport.

	Energy use in kWh		
Type	**2021**	**2022**	**2023**
Electricity	fossil(*)	4,595,216	5,506,923	5,765,916
Electricity	renew-able, grid & own generation	2,398,755	2,399,062	2,468,942
Fuel(**)	29,214,736	25,264,188	25,299,463
Vehicles***	2,930,772	3,112,527	2,706,570
Total	**39,139,480**	**36,282,700**	**36,240,890**

- Renewable energy purchased/produced across all entities

Renewable electricity use		
2021	**2022**	**2023**
34.3%	31.7%	30.0%

Explanation

Today, **30%** of electricity use is renewable, of which **5.2%** is self-generated, and **24.7%** is from purchasing renewable electricity. The last number includes purchased guarantees of origin, supplier specific fuel mix for electricity, or grid electricity mix.

* Includes nuclear
** Stationary combustion (heating & generators)
*** This category includes vehicles using fossil fuels and electric vehicles. A note for electric vehicles: Electric vehicles are 50% charged on site at LC Packaging, Therefore 50% of their electricity use is excluded to avoid double counting the use of electricity.

Note: For the impact categories 'Fuel' and 'Vehicles' the conversion factors have changed, to align with the calculation method for the Greenhouse Gas Inventory. The new factors are roughly 5% higher.

3. Material use and Circular Economy

Introduction

As part of its 2030 Ambition, Royal LC Packaging International (LC Packaging) has set itself the goal to have at least 80% of turnover come from packaging that delivers the circular economy by 2030. Based on internationally accepted standards and guidelines, circular packaging has been identified as follows: Packaging made out of renewable materials or **recycled-content materials**, that is **reusable** if possible, and 100% **recyclable** (preferably closed-loop) or **compostable**.

In the chapter **'Material Use and Circular Economy'**, LC Packaging reports on Key Performance Indicators (KPIs) measuring the progress towards our goal, supplemented with KPIs which are part of internationally accepted reporting standards (GRI), and additional reporting obligations.

Data availability and quality

LC Packaging aims to annually improve the availability and quality of its data related to material use and circular economy criteria. Compared to the 2022 report, definitions have evolved due to having obtained more knowledge on the actual reusability, recyclability and composability of many of our packaging products, and due to market developments. As data availability and quality has improved significantly, the data for 2021 and 2022 has been recalculated and rectified in this report. Modified definitions, estimations and other determinative decisions made in the process are explained throughout the report.

With a view to data availability and quality, this calculation includes **61.3%** of LC Packaging's distributed packaging products*, representing its primary product categories**, **93.8%** of the weight of materials used, and **94.4%** of the company's total turnover in 2023.

* In 2023, 508,259,152 pcs of packaging were distributed.
** Primary product categories: Cardboard packaging, FIBCs (Big bags), Jute bags, Net bags, and Woven PP bags.

Packaging solutions

In 2023, LC Packaging distributed 508 mln. pcs of packaging, compared to 512 mln. in 2022 and 510 mln. in 2021.

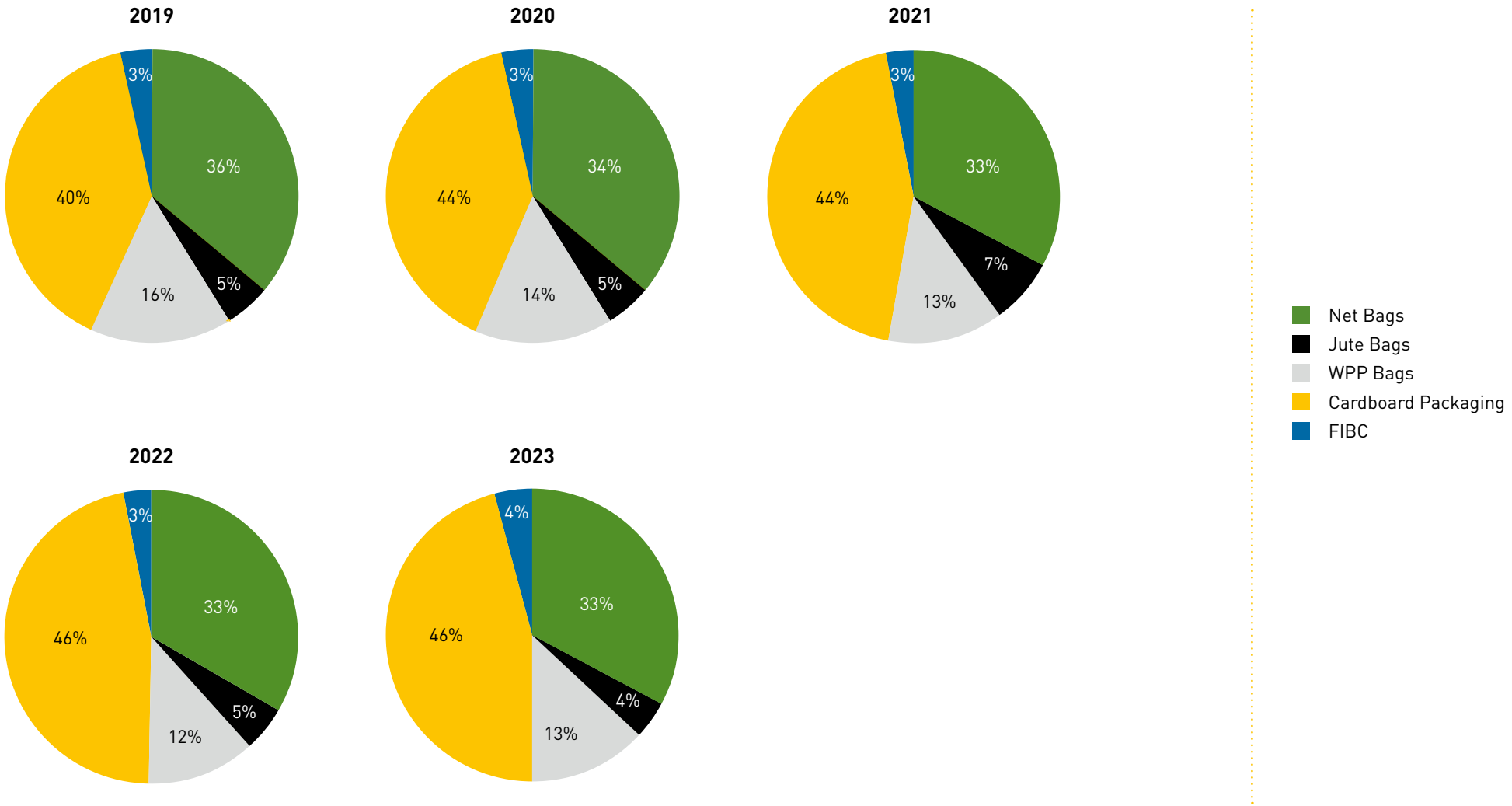
Explanation
The table below shows the total pcs of packaging distributed in 2023 (100%).

› Packaging distributed (pcs)

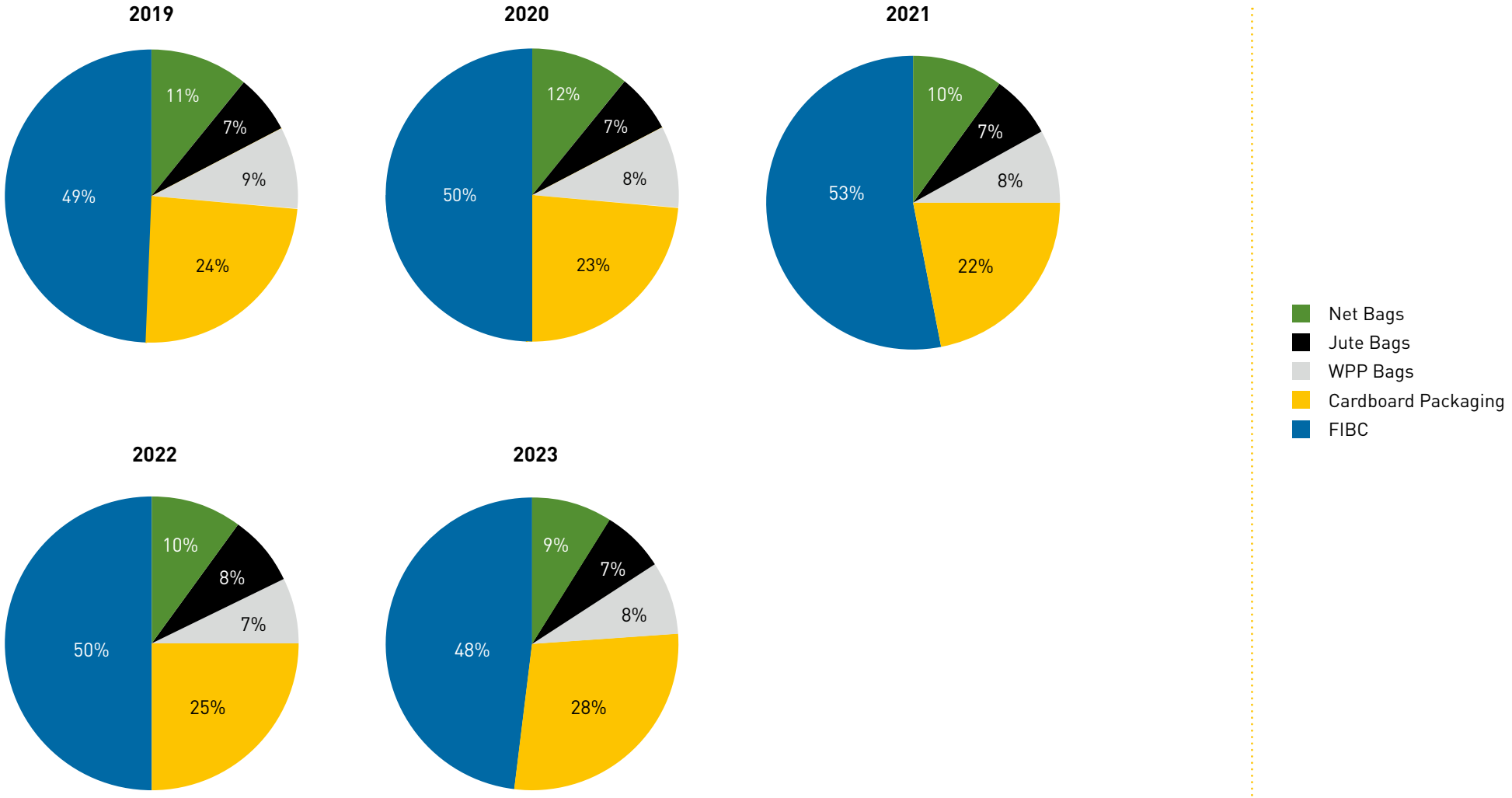
# of solutions				
2019	**2020**	**2021**	**2022**	**2023**
337 mln.	360 mln.	510 mln.	512 mln.	508 mln.

With a view to data availability and quality, only primary product categories are included in the rest of this report, representing **61.3%** of total distributed pcs and **94.4%** of LC Packaging's total turnover.

Packaging distributed by product category (pcs)



Product category as a percentage of turnover



Materials used

GRI 301-1 Materials used by weight or volume

Explanation

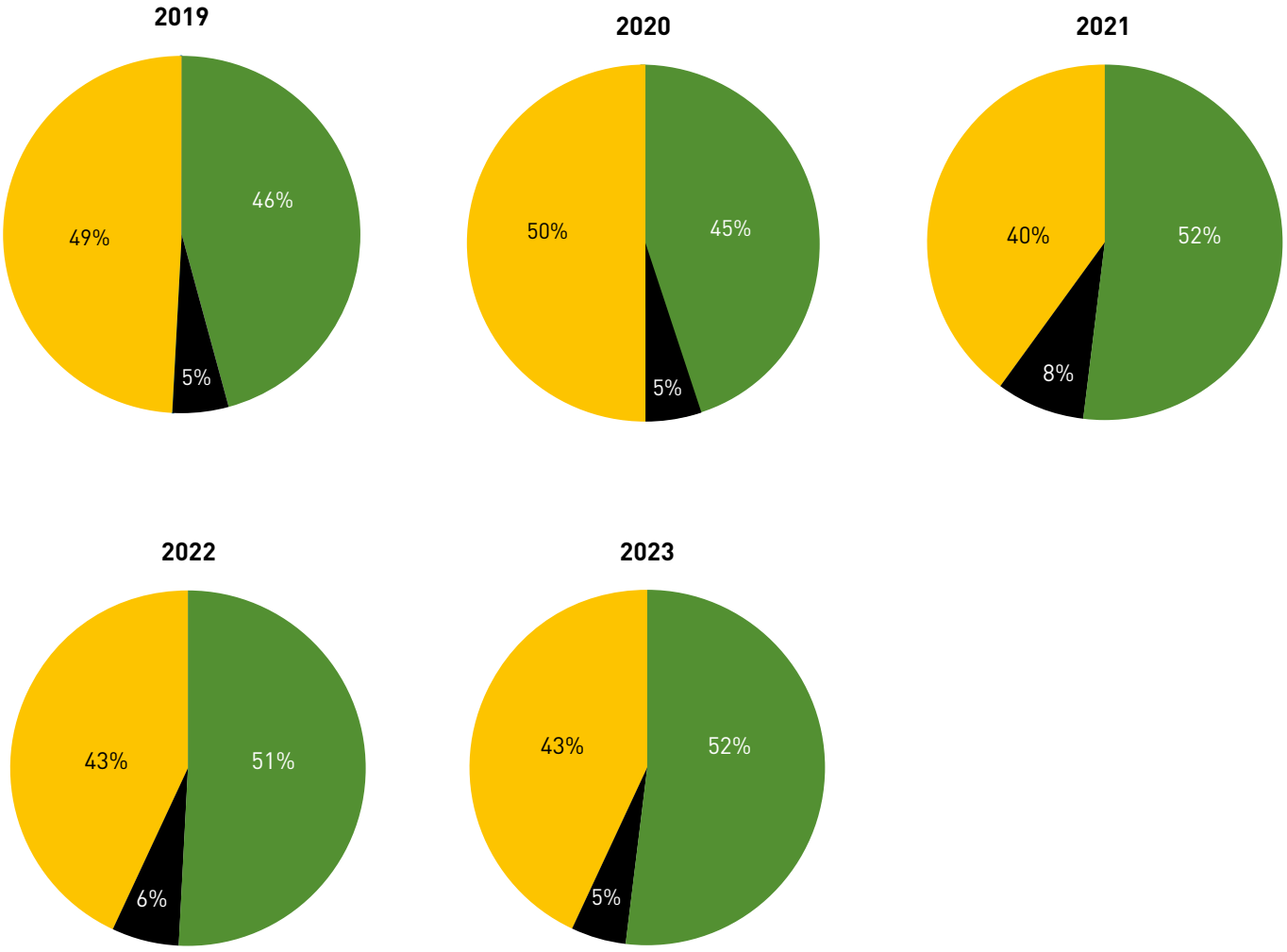
The calculation below includes **93.8%** of materials used by weight by LC Packaging, representing **94.4%** of turnover and **61.3%** of all pcs of packaging distributed.

In 2023, we used **66.3 mln** kilos of material, compared to **72.2 mln.** in 2022. We distributed over **28 mln.** kilos of cardboard, **3 mln.** kilos of jute and **34 mln**. kilos of plastics.

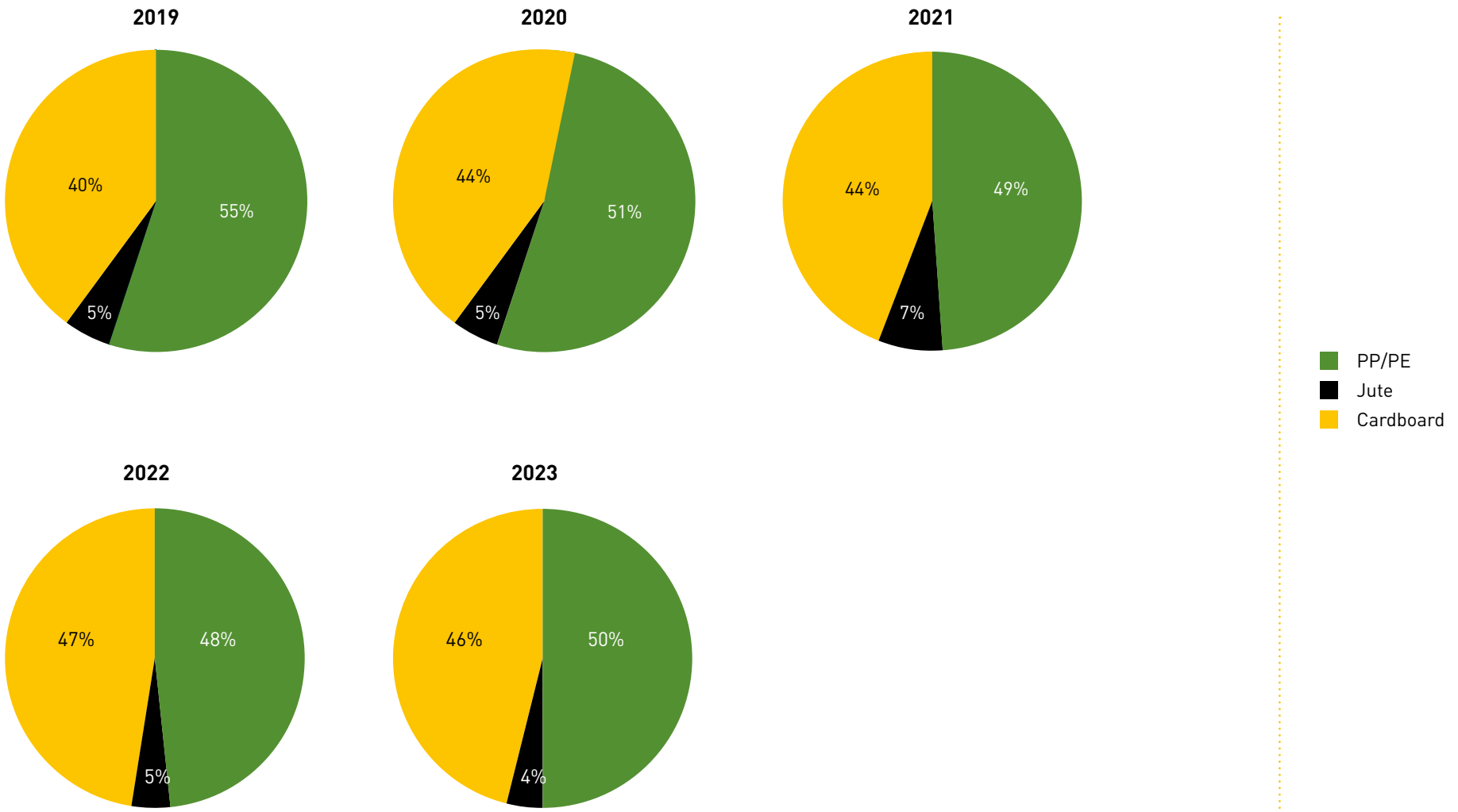
› Materials used in KG

	Kilos				
Material	**2019**	**2020**	**2021**	**2022**	**2023**
Cardboard	43,658,836	43,653,503	30,847,134	31,043,290	28,372,300
Jute	4,408,156	4,485,928	5,800,882	4,409,099	3,477,551
PP/PE	40,408,412	39,266,485	40,388,416	36,792,179	34,4817,19
Total kg of materials used	**88,475,505**	**87,365,916**	**77,036,433**	**72,244,568**	**66,331,571**

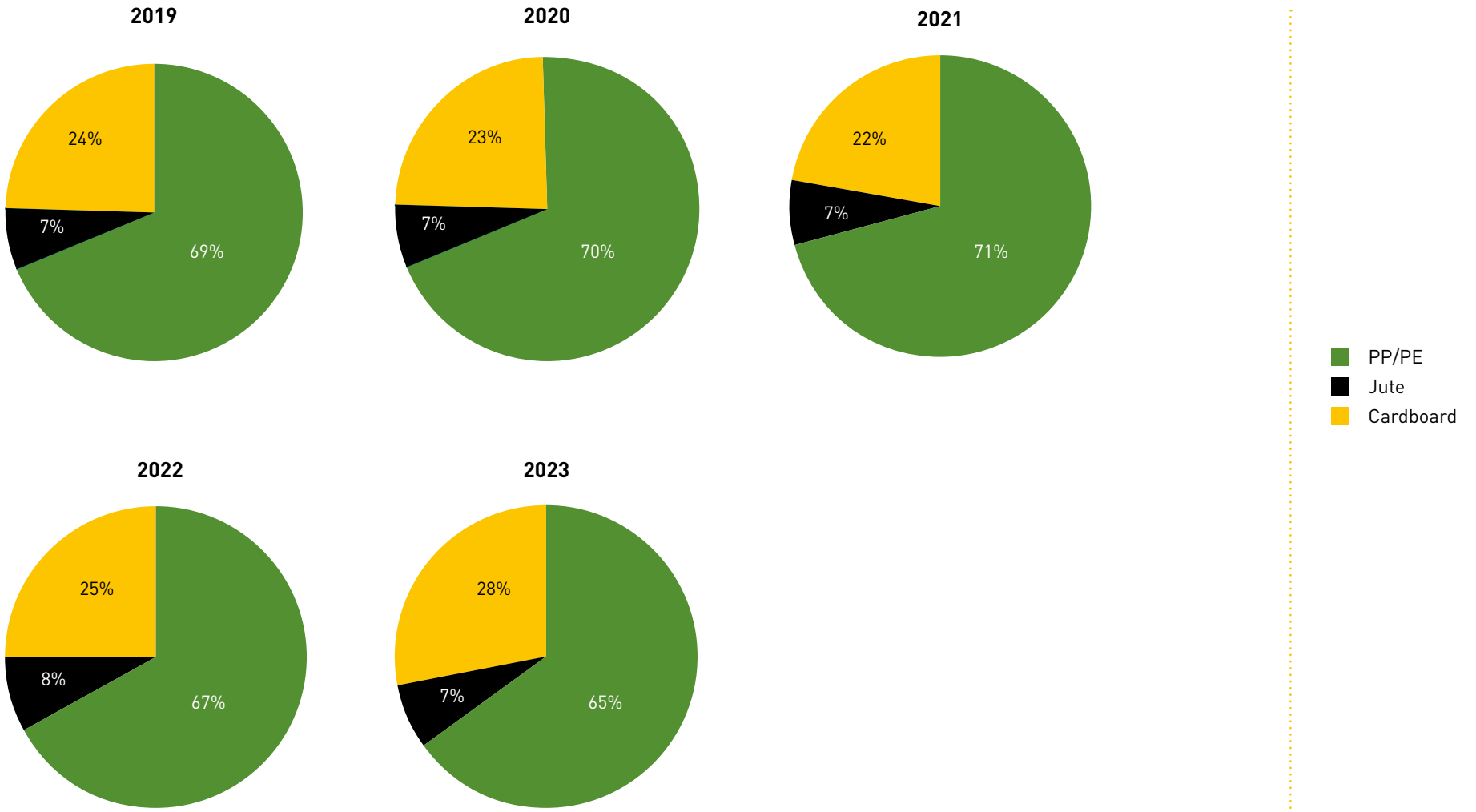
% of total material use



% of total distributed packaging solutions (pcs)



% of turnover per used material



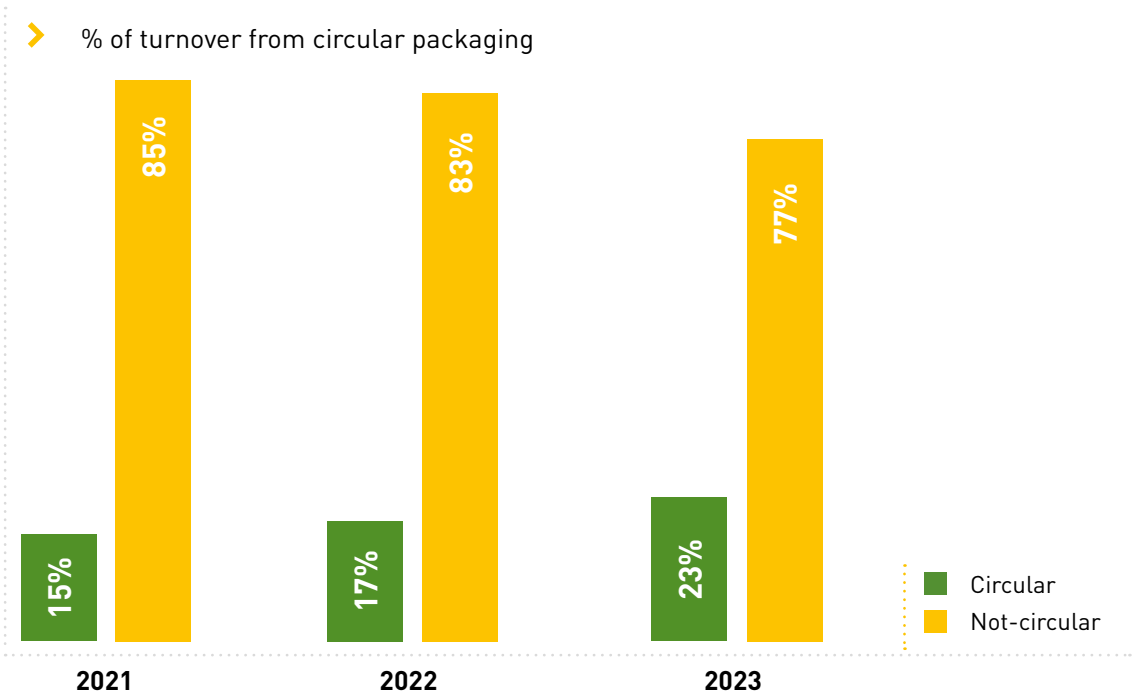
Circular Economy

GRI 301-2 Recycled input materials used

Explanation

Based on internationally accepted standards and guidelines, LC Packaging has defined circular packaging as follows: Packaging made out of **renewable materials (a)** or **recycled-content materials (b)**, that is **reusable (c)** if possible, and 100% **recyclable (d)** (preferably closed-loop) or **compostable (e)**.
By 2030, we aim for at least 80% of our turnover to come from packaging that delivers the circular economy. Read more on our circular economy goal.

In 2023, **24%** of LC Packaging's total turnover came from circular packaging. **23%** of the turnover for the primary product categories included in this report comes from circular packaging, compared to **17%** in 2022. An **8%** increase compared to base year 2021 **(15%).**



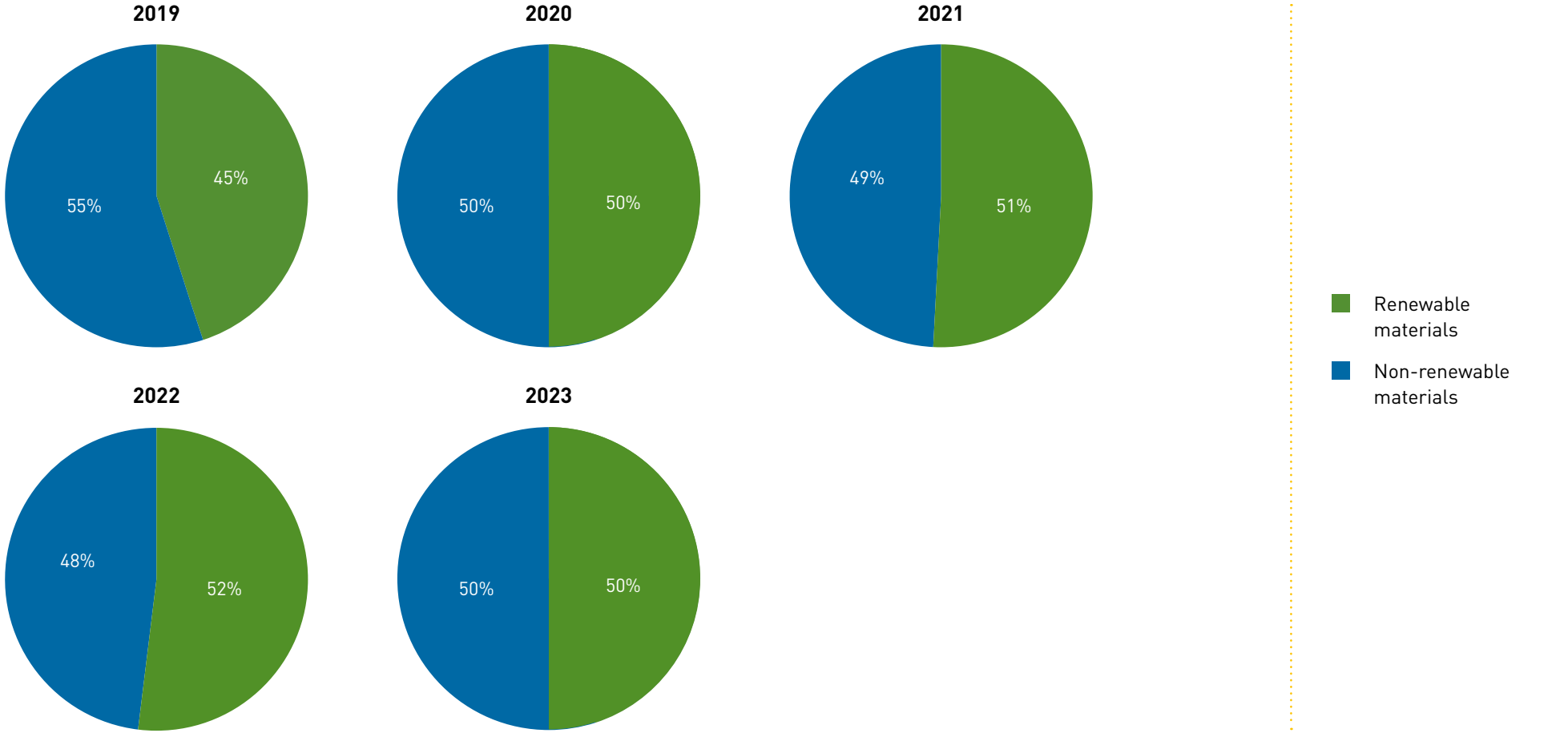
a. Renewable materials

Explanation

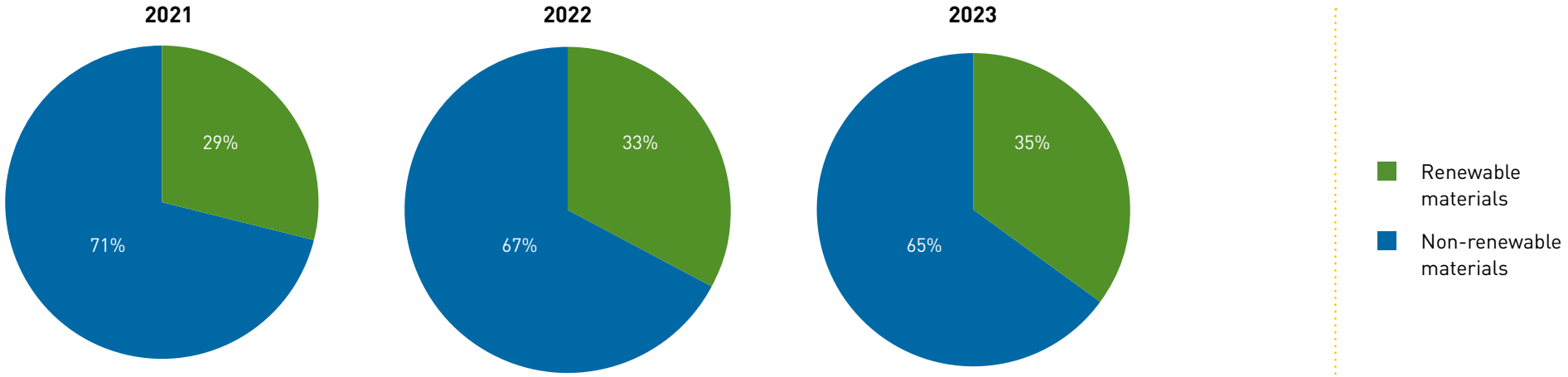
In LC Packaging's product portfolio, the renewable materials that are used are jute and cardboard. Some jute bags or types of cardboard packaging include a small percentage of other – non-renewable – materials. In this report, all jute bags and cardboard packaging are identified as 'packaging made out of renewable materials. In this report, all jute bags and cardboard packaging are identified as 'packaging made out of renewable materials'.

In 2023, **48%** of the materials used were renewable, and **35%** of turnover came from packaging made out of renewable materials.

› Distributed packaging made out of renewable materials



% of turnover from packaging made out of renewable materials



b. Recycled content materials

Explanation

In 2022, LC Packaging distributed its first FIBCs (big bags) that included PCR* rPP and PIR** rPP. In 2023, we continued to distribute these products. In 2023, **448,336 MT** of PIR rPP was used in FIBCs and Woven PP bags, compared to **900 MT** in 2022. However, as PIR has no significant positive environmental impact, only PCR rPP is considered a recycled-content material in this report.

In 2023, **32%** of the materials used were recycled-content materials (PCR), and **38%** of our distributed products included recycled-content materials. This is **4%** less compared to 2022 due to the exclusion of cardboard service articles. Nevertheless, **25%** of turnover came from packaging including recycled content, compared to **23%** in 2022.

Approximately **82%** of all pcs of cardboard packaging distributed in 2023 included recycled-content material.

Many of LC Packaging's products are food-safe and pharma-clean and comply with that legislation, which in 2023, means that it must contain no recycled content unless a fully documented closed loop is established.

* PCR: Post-Consumer Recycling
** PIR: Post-Industrial Recycling

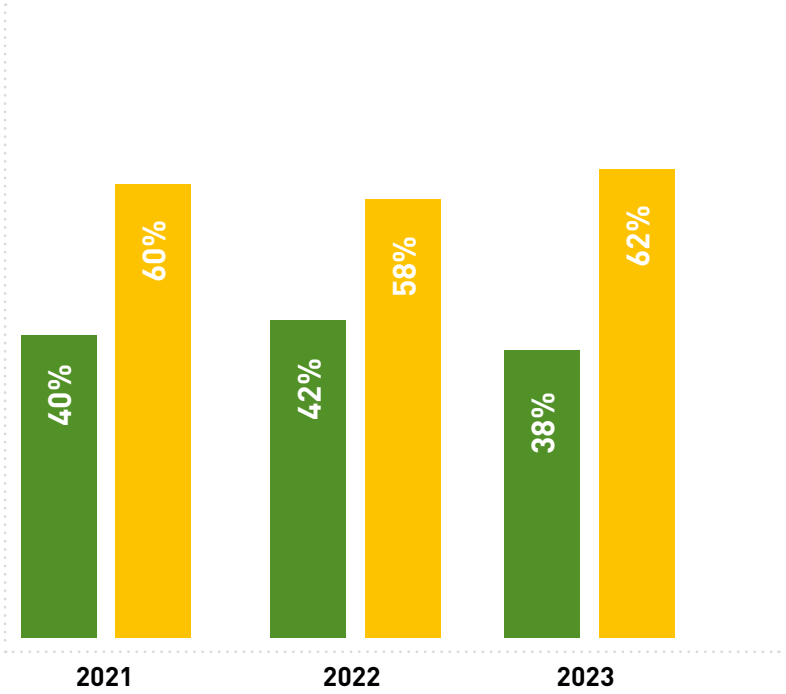
Recycled content materials by product category:

	2019		2020		2021		2022		2023	
Category	**% recycled content**	**recycled content (KG)**	**% recycled content**	**recycled content (KG)**	**% recycled content**	**recycled content (KG)**	**% recycled content(*)**	**recycled content (KG) (**)**	**% recycled content(*)**	**recycled content (KG) (**)**
Net bags	25	811,05	0	0	0	0	0	0	0	-
Jute bags	0	0	0	0	0	0	0	0	0	-
WPP bags	0	0	0	0	0	0	0	0	30	6,308
Cardboard	85	37,110,010	85	37,105,477	85	23,064,220	86	24,291,809	76	21,475,247
FIBCs	0	0	0	0	0	0	30	2,655	30	51,215
Total		**37,921,060**		**37,105,477**		**23,064,220**		**24,294,464**		**21,532,769**

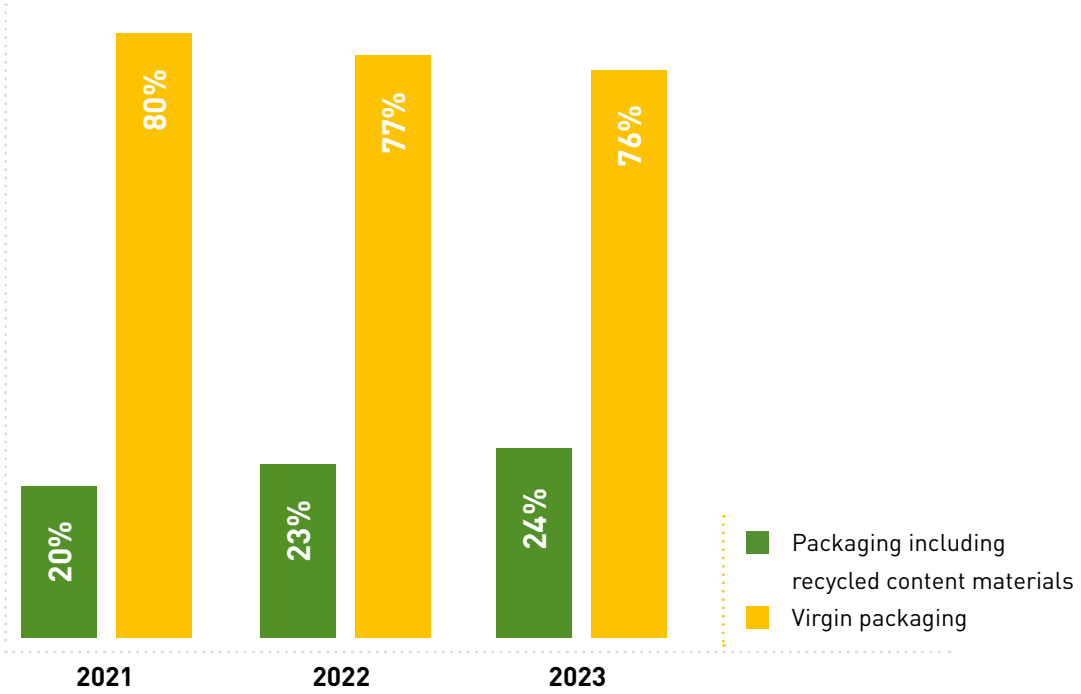
Compared to last year, we reported a significant difference in % recycled carboard. This is due to data that was corrected in 2023 and data that still has to be corrected in the upcoming year.

* Percentage of recycled input materials used (total KG recycled input materials used / total KG input materials used) * 100.
** Recycled-content materials used in KG

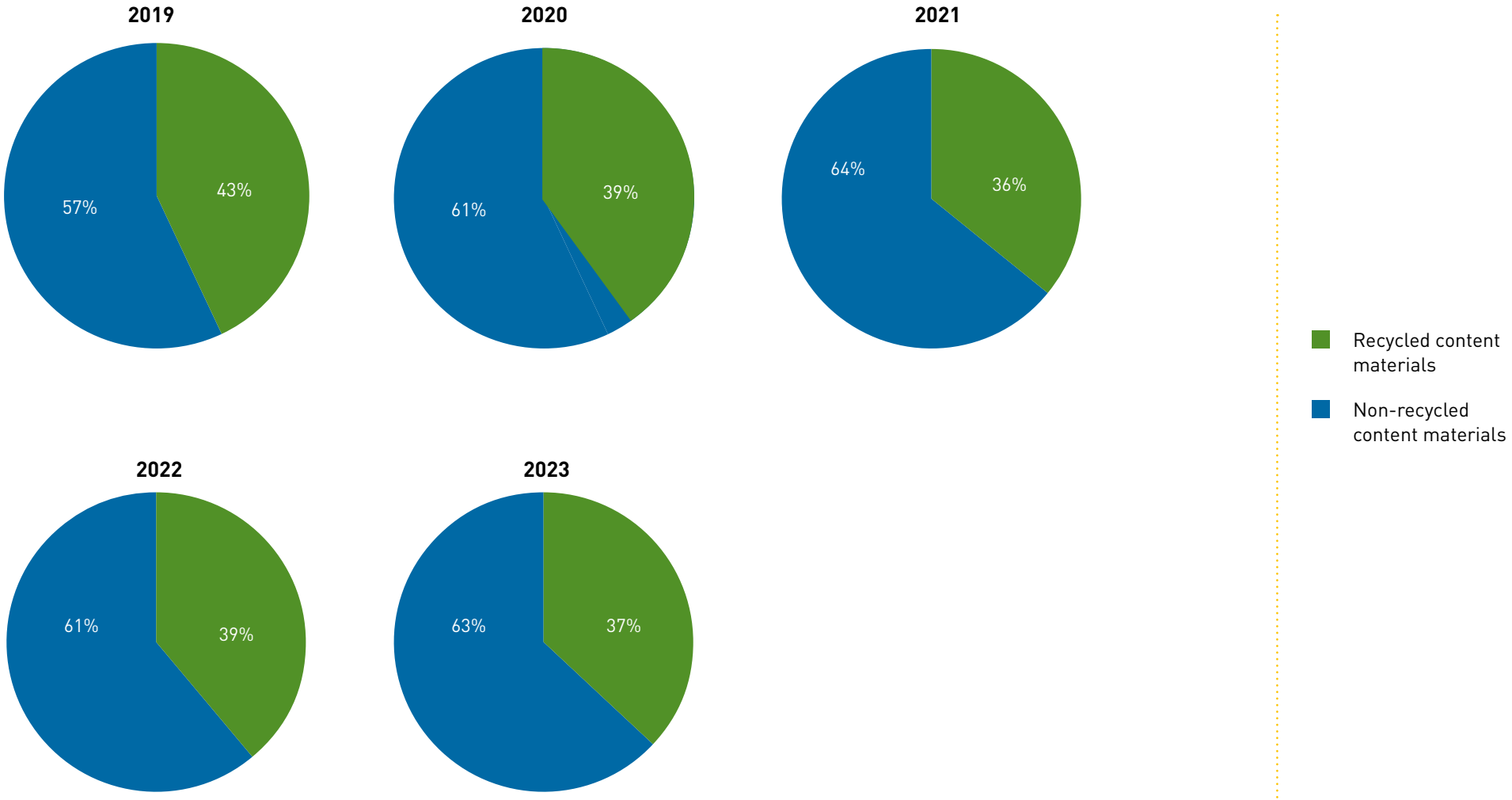
Distributed packaging including recycled content materials



% of turnover from packaging including recycled content materials



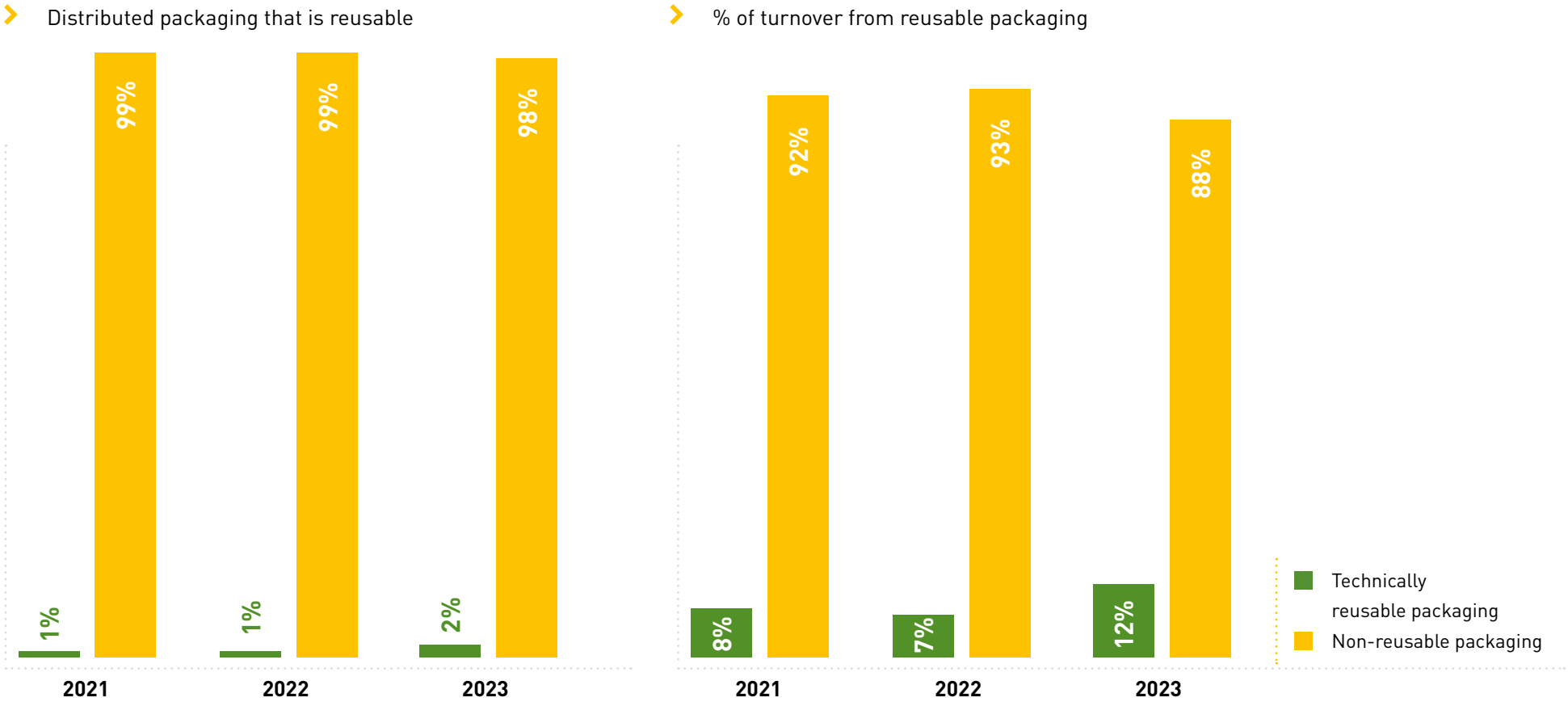
% Recycled content materials used in packaging



c. Reusable packaging

Explanation

A distinction is made between '**non-reusable packaging**', '**technically reusable packaging**' and '**packaging that is actually reused**': packaging purchased for reuse. Almost **5 million pcs** of packaging distributed in 2023 were categorised as technically reusable, of which **52%** was actually reused through LC Packaging's WorldBag reuse programme (representing **12%** of total turnover from technically reusable packaging) or at our customers' site. This is compared to almost **4 million pcs** distributed in 2022, of which **1%** was actually reused. The increase is mainly due to the PP post bags added to the 'actually reused' category. By investing heavily in WorldBag, we are confident we will continue a gradual annual increase of turnover from actually reused packaging in the upcoming years.



d. Recyclable packaging

Explanation

Throughout the years, LC Packaging's definition of recyclable packaging has evolved multiple times, which explains the increase of non-recyclable packaging over the years.

For 2023 data, the strict classification from 2021 has been maintained.

Evolution in recyclability classification:

- 2019: Almost all types of packaging were considered (theoretically) recyclable.
- 2020: The definition was adjusted based on knowledge gained through LC Packaging's partnership with resource management company Veolia.
- 2021: The classification became stricter based on a deep-dive analysis of our packaging portfolio in cooperation with the Netherlands Institute for Sustainable Packaging (KIDV).

Today, packaging types that are considered recyclable are:

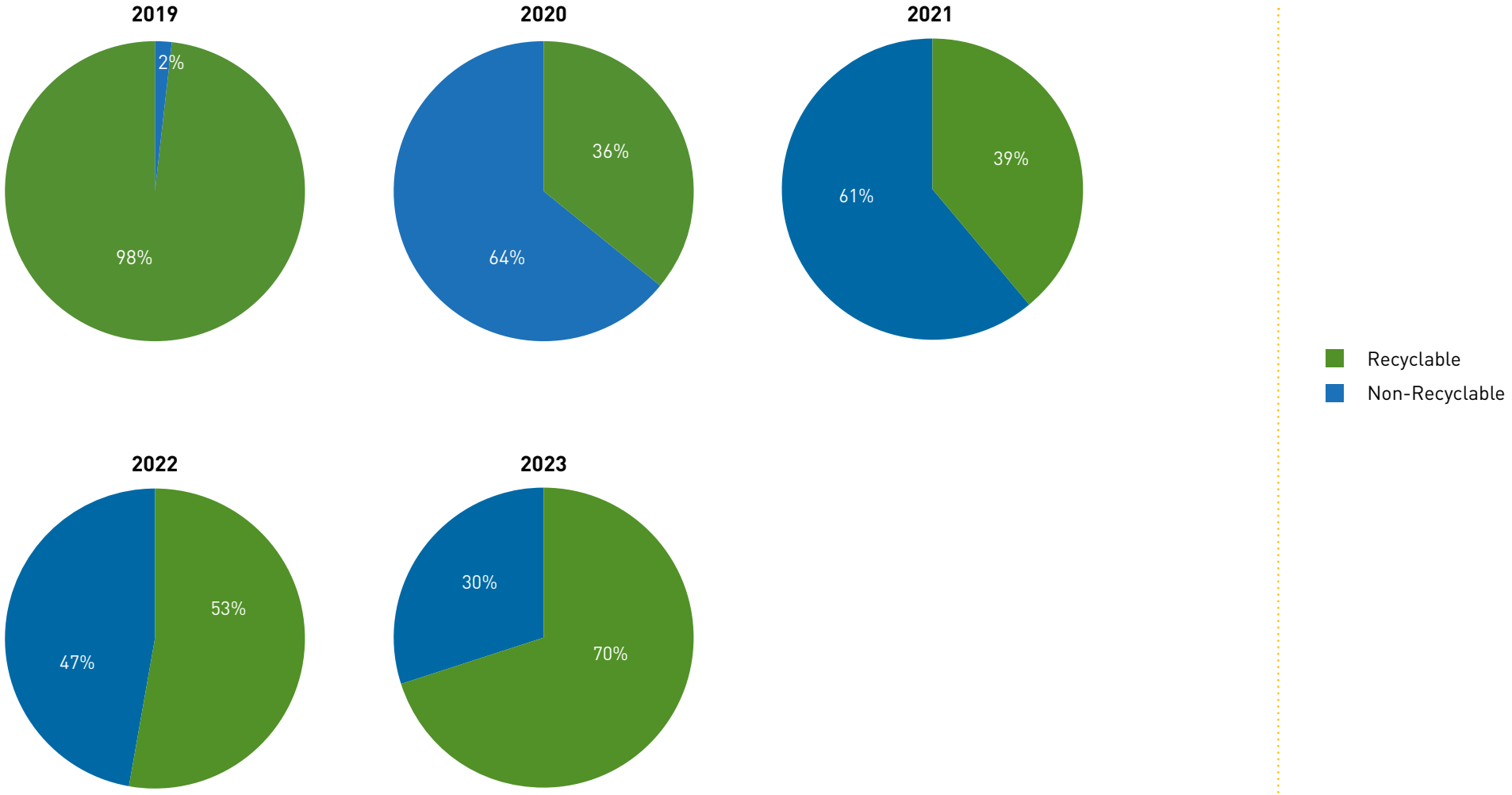
- Jute bags without a PP/PE strip
- WPP bags without liners or BOPP film
- FIBCs Type A and B, without liners
- Cardboard packaging without PE
- Net bags without metallised label

Since 2023, our net bags without metalised label are also classified as (closed-loop) recyclable, which explains the significant increase in (closed-loop) recyclable distributed packaging and related turnover.

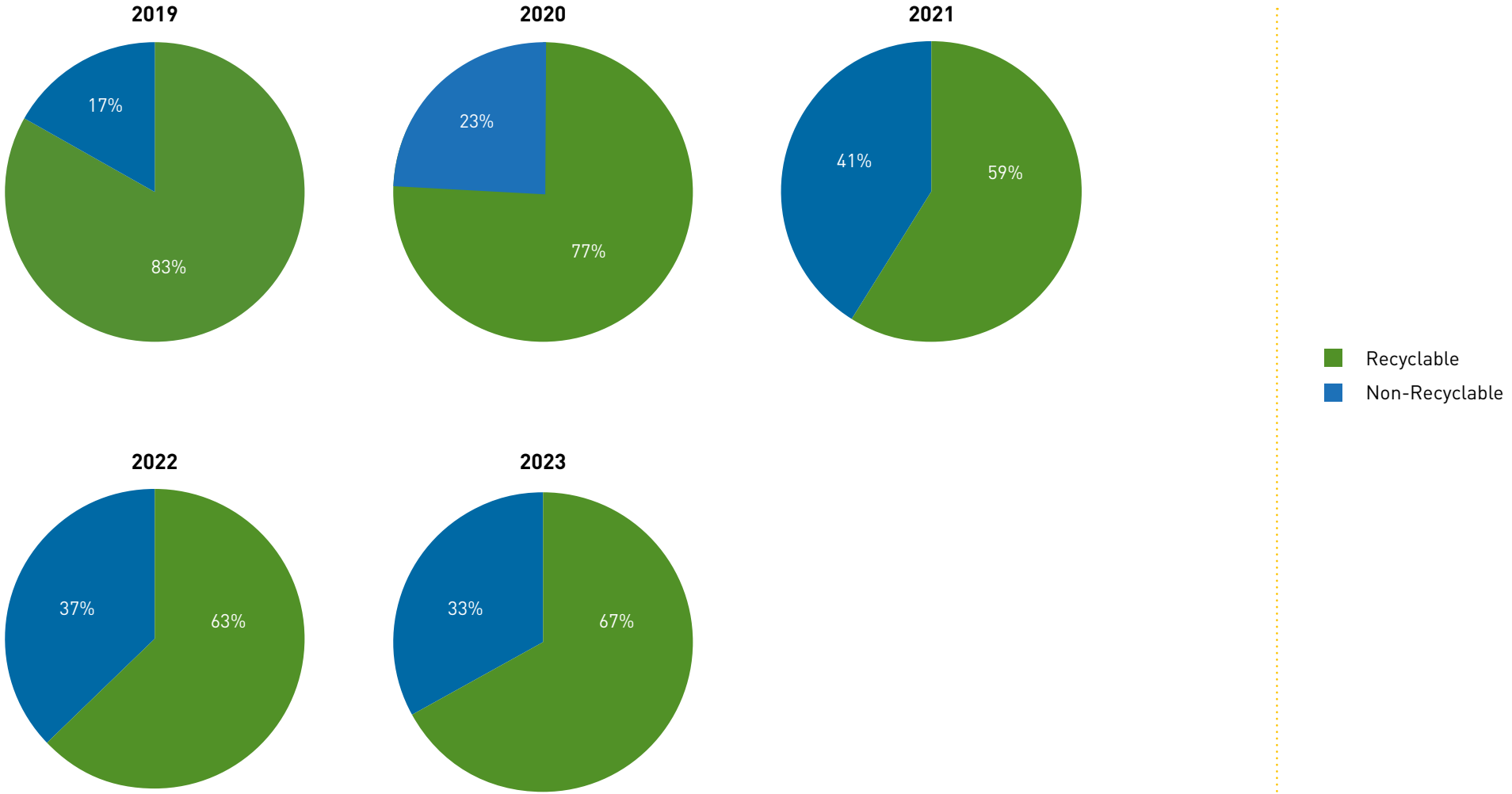
Packaging types for which LC Packaging has no knowledge whether it is actually recycled, and/or for which recycling is not a common market practice, for example, due to extra handling costs (costs vs benefits) or insufficient recycling infrastructure available on locations where the bag ends up after use, are categorised as 'non-recyclable' in this report.

In 2023, **70%** of distributed packaging was recyclable. An increase of **17%** compared to 2022 and **31%** compared to 2021. Recyclable packaging represented **67%** of our turnover. The percentage of distributed closed-loop recyclable products increased to **63%**, representing **50%** of our turnover.

Distributed packaging that is recyclable



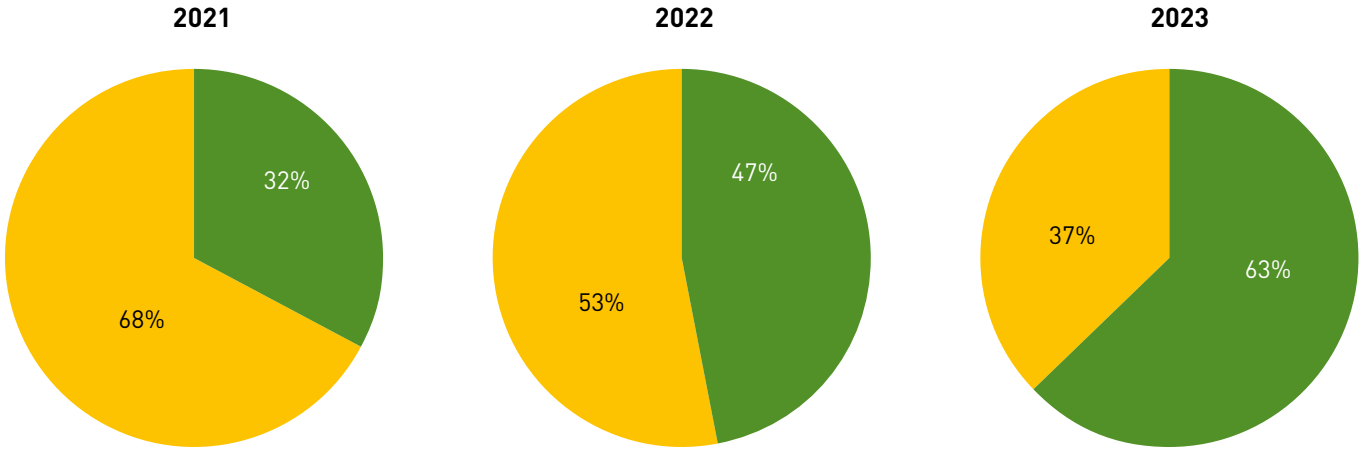
% of turnover from recyclable packaging



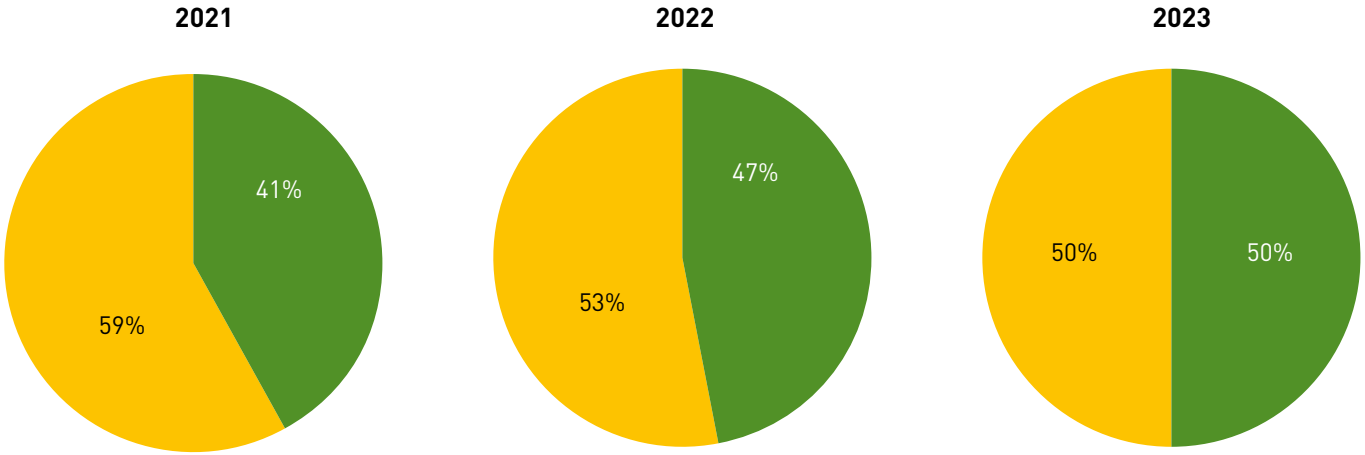
Closed-loop recyclable

For closed-loop recycling, the [Draft] EFIBCA/Euro Jute Design for Recycling Standard has been used for the classification of FIBCs (big bags) and WPP bags, which includes the majority of the Type A and B FIBCs, without liner. Additionally, cardboard packaging and jute bags that have been classified as 'recyclable' are also classified as 'closed-loop recyclable'. Since 2023, our net bags without metalised label are also classified as closed-loop recyclable, which explains the significant increase in closed-loop recyclable distributed packaging and related turnover.

› Distributed packaging that is closed-loop recyclable



› % of turnover from closed-loop recyclable packaging



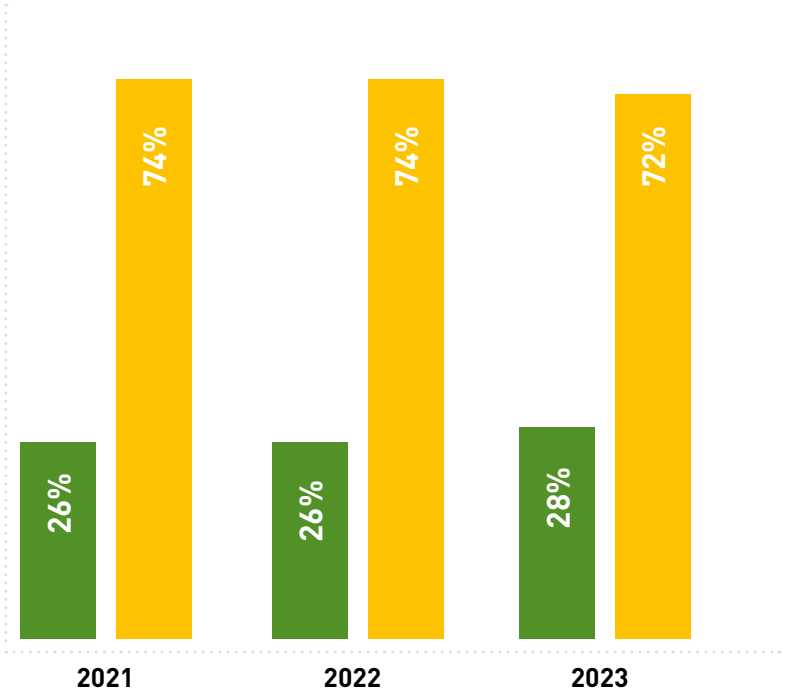
e. Compostable packaging

Explanation

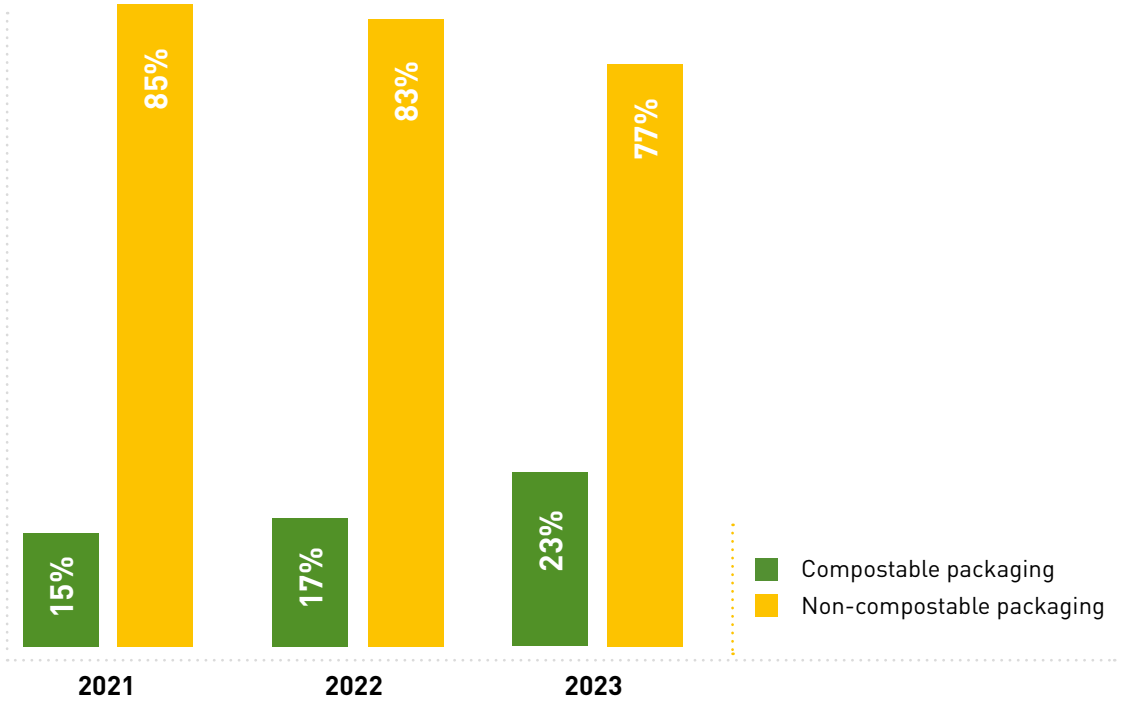
In this report, home-compostable packaging is considered 'compostable', unlike industrial compostable packaging. Plain jute bags and plain cardboard boxes are identified as home-compostable: made of components and materials that fully decompose into the soil.

In 2023, **23%** of turnover came from home-compostable packaging, compared to **17%** in 2022, and **15%** in 2021. **28%** of distributed packaging was home-compostable, compared to **26%** in the previous two years.

Distributed packaging that is compostable



% of turnover from compostable packaging



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Our sustainability efforts have been rewarded with a Platinum CSR rating. We are among the top 1% assessed companies with the highest score.