



# CO2 ACCOUNTS FOR AARSTIDERNE'S BOX SCHEME BUSINESS 2018 - 2023

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# 1. INTRODUCTION

## 1.1 Why a CO2 report?

At Aarstiderne, the CO2 accounts are very important management tools allowing the company to work focused on bringing down the CO2 emissions through ever better practices. This is the 2023 report, and it shows the development of the CO2 emissions from 2018 to 2023. The CO2 emissions in tonnes decreases by 32% in the period, and in terms of CO2 emissions per DKK'000 of revenue, it decreases by 14%.

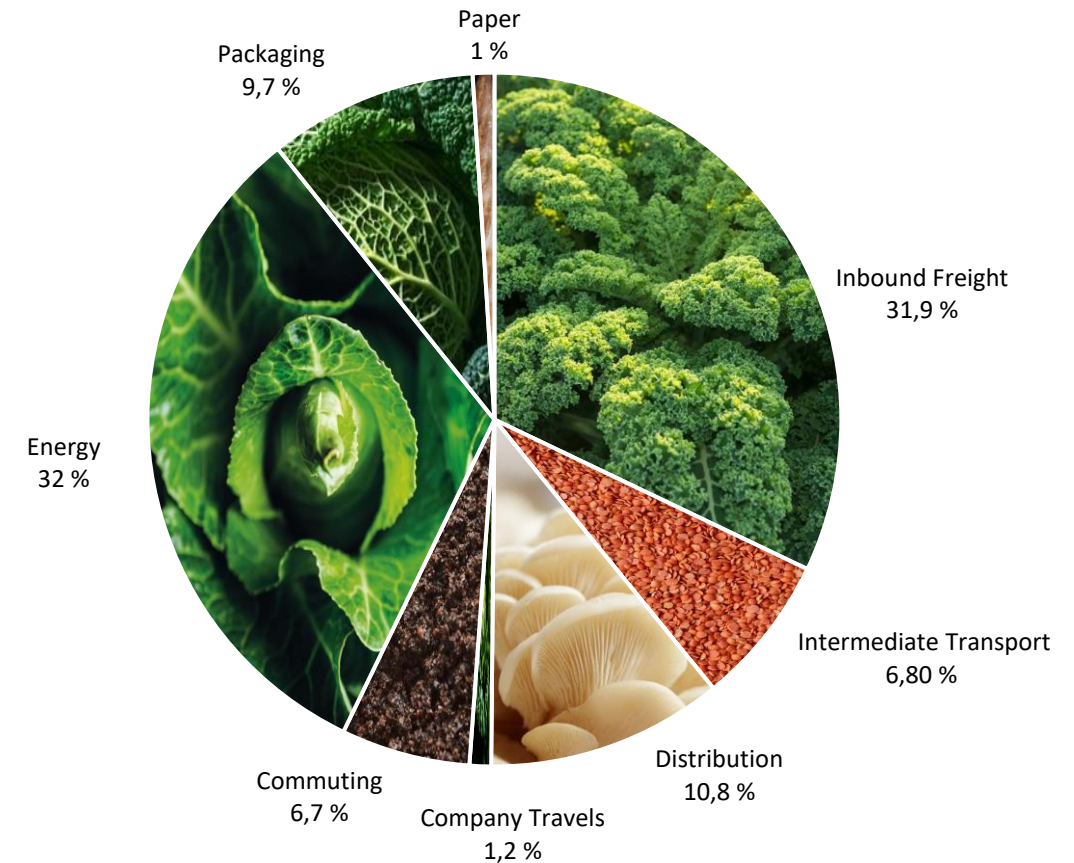
## 1.2 Sources of CO2 emissions

- Inbound freight (from supplier to our packing facility at Barritskov)
- Intermediate transport (from Barritskov to local terminals)
- Distribution (from local terminals to customers)
- Energy (electricity, agro diesel and oil, gas and coolant)
- Packaging (styrofoam, in-liner, plastic cups, flow-pack plastic, absorber etc.)
- Paper (newsletters, recipes, copying paper, activation campaigns etc.)
- Commuting (cars or public transportation)
- Company travels (private og company cars, train, plane, and overnight stay).

The CO2 footprint accounted includes issues from picking up goods at a supplier and all the way till the meal kits arrives at the doorstep of the customers. The CO2 emissions from the actual production, i.e., in the field, the stable, the greenhouse, the dairy, the vegetable packing room, the mill etc. is not included. Packaging of products done by Aarstiderne is included, but not packaging used by suppliers.

Transport of goods is the dominating factor in the CO2 accounts. Combined, inbound freight, intermediate transport and distribution make up 49% of the total emissions. If the transport of people, i.e., company travels, and commuting is added, the number is 57% - more than half of the total emissions. Consumption of energy such as electricity, gas, diesel, oil and refrigerants make up 32%, packaging 10% and paper 1% of the total CO2 emissions.

Distribution of CO2-emissions 2023



### FACT BOX: Global warming and CO2 equivalents

CO2 plays a lead role in global warming. The presence of CO2 in our atmosphere means that the atmosphere blocks Earth's heat dissipation. Instead, a part of the heat is returned to the surface of the earth and this is the essence of the greenhouse effect. Too high a concentration of CO2 in our atmosphere makes the temperature rise excessively and the result is global warming.

But CO2 is not the only contributing factor to global warming. Other greenhouse gasses such as methane, nitrous oxide and freon are also contributing factors. They do not, however, contribute with equal weight and therefore each of the gasses' contributing factor is calculated in so-called CO2 equivalents (CO2e). For example, the emissions of 1 kg methane have the same impact as 25 kg CO2. Hence, 1 kg methane equals 25 kg CO2 equivalents, while freon is as high as 1,300 CO2 equivalents. Using the CO2 equivalents as measuring unit makes it possible to compare the pollution of the different gasses.

In this report, all calculations are based on CO2 equivalents (CO2e) as provided from the Danish think tank CONCITO (see appendix C). The calculation of CO2e emissions are estimated for a 6-year period (2018-2023).

# 2. KEY FIGURES

Table 1 shows the development of CO2 emissions in kilos from the various sources in the years 2018-2023 as well as the distribution of these.

The table indicates a relative stable percent distribution with little fluctuation over the period. 2023 is characterized by lower CO2-emissions in all categories compared to 2022. In 2023 the share of inbound freight has gone down, while the share of energy and packaging have gone up. The total kg CO2 emissions have increased steadily over the years but with a clear decrease from 2022.

## 2.1 A year of change; from growth to down scaling

As revenue increases the total CO2 emissions increase; More boxes are produced, more employees, more km of delivery, more packaging, more cooling etc. This all changed in 2022 as the activities of Aarstiderne slowed down and emissions decreased. This development have continued into 2023.

Throughout the development of the business many initiatives have been taken to reduce the CO2 emissions. They are described in this report.

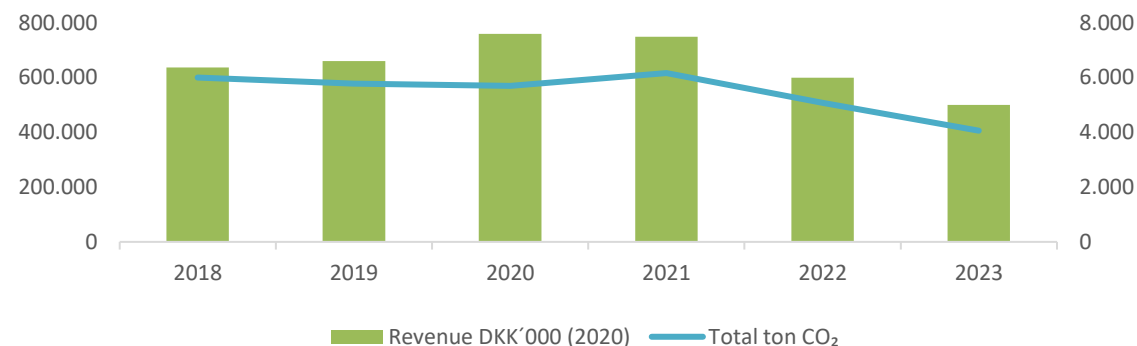
When measuring the CO2 emissions in this report, four factors repeat themselves in the methods of measuring:

- Total kg CO2 emissions
- Per cent share of the total CO2 emissions
- CO2 emissions per delivery
- CO2 emissions per DKK'000 of revenue.

Table 1: The contribution of transport of goods, transport of people, energy, packaging and paper to CO2 in kilos for the years 2018-2023 and per cent share for each category

2018-2023	2018		2019		2020		2021		2022		2023	
	Kg CO <sub>2</sub>	%	Kg CO <sub>2</sub>	%	Kg CO <sub>2</sub>	%	Kg CO <sub>2</sub>	%	Kg CO <sub>2</sub>	%	Kg CO <sub>2</sub>	%
<b>Inbound Freight</b>	2.366.572	39,5	2.111.176	36,6	2.256.293	39,6	2.243.169	36,4	1.720.334	33,9	1.296.926	32,0
<b>Interm. Transport</b>	503.306	8,4	436.713	7,6	456.447	8,0	505.741	8,2	345.075	6,8	274.537	6,8
<b>Distribution</b>	741.455	12,4	688.634	11,9	674.409	11,8	660.348	10,7	526.961	10,4	436.816	10,8
<b>Company Travels</b>	186.362	3,1	167.073	2,9	68.785	1,2	78.356	1,3	59.406	1,2	47.651	1,2
<b>Commuting</b>	382.134	6,4	417.361	7,2	265.890	4,7	355.718	5,8	346.025	6,8	273.196	6,7
<b>Energy</b>	1.159.199	19,3	1.130.509	19,6	1.197.886	21,0	1.351.400	21,9	1.568.622	30,9	1.300.757	32,1
<b>Packaging</b>	572.875	9,6	735.583	12,7	701.562	12,3	892.078	14,5	458.659	9,0	387.648	9,6
<b>Paper</b>	83.424	1,4	87.604	1,5	78.052	1,4	76.660	1,2	51.409	1,0	40.090	1,0
<b>Total</b>	<b>5.995.327</b>	<b>100,0</b>	<b>5.774.654</b>	<b>100,0</b>	<b>5.699.324</b>	<b>100,0</b>	<b>6.163.469</b>	<b>100,0</b>	<b>5.076.490</b>	<b>100,0</b>	<b>4.057.622</b>	<b>100,0</b>

Revenue DKK'000 compared to total kg CO2 emissions



## 2.2 Decrease in emissions per DK´000 of revenue

Figure 2 and table 1 show the distribution of the total CO<sub>2</sub> emissions. Table 2 shows the remaining factors - i.e., total revenue of Aarstiderne, kg CO<sub>2</sub> in total and kg CO<sub>2</sub> per DKK´000 of revenue (measured in 2020 index).

Sales grew 20% from 2018 till 2021, but dropped significantly in 2022 and further in 2023, which gave a drop of 21% over the full period. The emissions of 2023 are 32% lower than 2018.

Table 2 shows a relatively stable decrease of CO<sub>2</sub> emissions per DK´000 of revenue from 201. But while the efficacy of emissions to revenue was 19% better in 2020, it is only 14% 2023. Coming from a period, where the economies of scale gave a better efficiency in emissions, 2023 shows the difficulty of keeping up the efficacy while downscaling. Though the efficacy is better in 2023 than 2022.

Figure 3 shows, that the emissions are slowly decreasing over the years, and with a significant reduction from 2021 to 2023.

Figure 4 shows, that the reduction in emissions per revenue grew a little in 2022 and ha fallen again in 2023. So in times of lower revenue, it is hard to keep lowering the efficacy measured by CO<sub>2</sub> per DKK´000.

Table 2: List of sales figures measured in 2020 index, total tonnes CO<sub>2</sub> emissions, kg CO<sub>2</sub> per delivery as well as kg CO<sub>2</sub> per DKK´000 revenue from 2018-2023 plus an index showing the relative development

Revenue and CO <sub>2</sub> -emissions	2018	2019	2020	2021	2022	2023
Revenue DKK´000 (2020)	636.207	659.478	758.781	748.793	598.735	500.270
<b>Index revenue (relative to 2018)</b>	<b>100</b>	<b>104</b>	<b>119</b>	<b>118</b>	<b>94</b>	<b>79</b>
Total ton CO <sub>2</sub>	5.995	5.775	5.699	6.163	5.076	4.058
<b>Index (relative to 2018)</b>	<b>100</b>	<b>96</b>	<b>95</b>	<b>103</b>	<b>85</b>	<b>68</b>
Kg CO <sub>2</sub> DKK´ 000	9,50	8,76	7,67	8,23	8,51	8,13
<b>Index (relative to 2018)</b>	<b>100</b>	<b>92</b>	<b>81</b>	<b>87</b>	<b>90</b>	<b>86</b>

Figure 3: The emissions of Aarstiderne 2018-2023

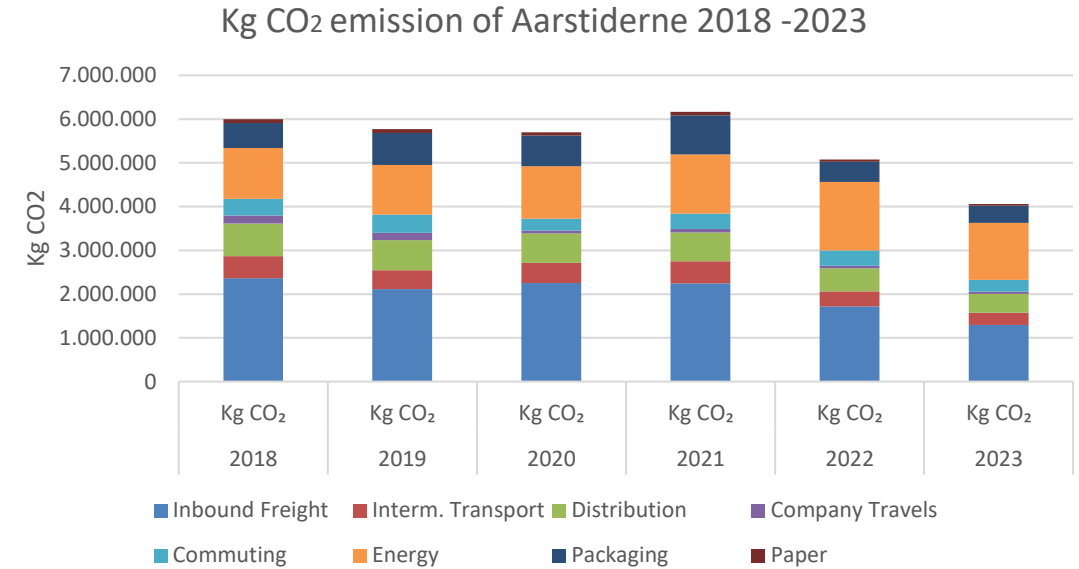
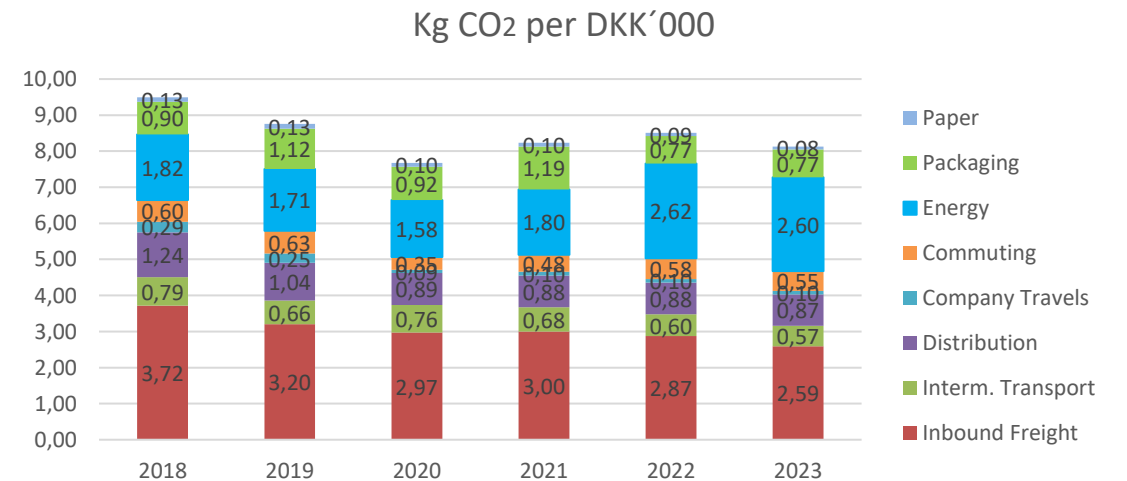


Figure 4: The emissions of different sources per DKK´000



# 3. TRANSPORT OF GOODS

Transport by truck emits 0.107 kg CO<sub>2</sub> per ton\*km, whereas transport by ship only emits 0.00243 kg CO<sub>2</sub> per ton\*km. It may therefore be CO<sub>2</sub> reducing to pick up goods that is produced close to port areas in the Dominican Republic or Argentine as opposed to transporting them with a truck from e.g., southern Italy (transport by ship from Argentine represents close to the same emission as truck transport from Nantes in France - see appendix B about types of transport). The relatively low emission from ship transport is evident in figure 5, which also explains why exotic fruits in our boxes are far from the largest climate culprit.

The transport from Italy can be done by freight train, when possible, considering timeliness and freshness of the products. Approximately. 10% of the transport from Italy is transported this way. The CO<sub>2</sub> emissions from freight per DKK'000 revenue in 2023 are at the lowest level in the period. Figure 5 describes inbound freight only. Figure 6 shows the fluctuations in inbound freight, intermediate transport, and distribution throughout the years.

Our logistic partner have in 2021 invested in lorries driven by LNG-gas (Liquefied Natural Gas) and have done 45% of the transportation of goods in 2022 from Spain this way. Transportation by LNG-gas is fossile free and have a slightly lower CO<sub>2</sub>-outlet than diesel driven transports.

The inbound freight contribution to CO<sub>2</sub> emissions has decreased since 2019 and further in 2020-23. Intermediate transport and emissions from distribution have also decreased.

Half of the intermediate transport in 2022 was done by a HVO-driven lorry. This technique gives a very low pollution of particles and gives slightly lower CO<sub>2</sub>-emissions than diesel.

The road carriers monitor their driving patterns for specified periods of time, which allows to calculate the number of kilometres driven for each customer. The numbers show a reduction in the number of kilometres driven between deliveries with about 40% since 2015 due to more customers, route optimisation, driving in less traffic at night-time and the use of alternative fuels for parts of the distribution.

In December 2019 Aarstiderne acquired a small electrical truck. The truck runs in Copenhagen greater area, delivering company fruit, goods to the farm shops etc. Also, a part of the company fruit was handled by Chainge – a last mile electrical bike company. Unfortunately Chainge went bankrupt and stopped their transports from august 2023. Furthermore, one hauler(Nordic Transport and Logistics) has invested in two electrical vans running routes since Autumn 2020. These alternatives have contributed to still lowering the emissions coming from distribution.

## FACT BOX: Transport of goods

In this report, we distinguish between transport of goods and transport of people. Transport of goods comprises inbound freight, intermediate transport and distribution. The transport of people, which comprises company travels and commuting, represents a much smaller share.

When we transport the goods from our suppliers in Denmark and abroad to our packing facilities in Barritskov, we do it by truck, ship, or train.

Figure 5: Inbound freight by truck, ship and train - kg CO<sub>2</sub> emissions per DKK'000 of revenue

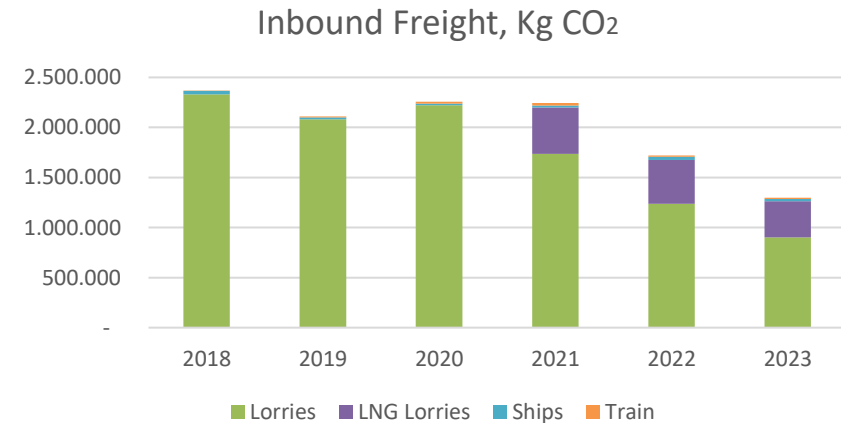
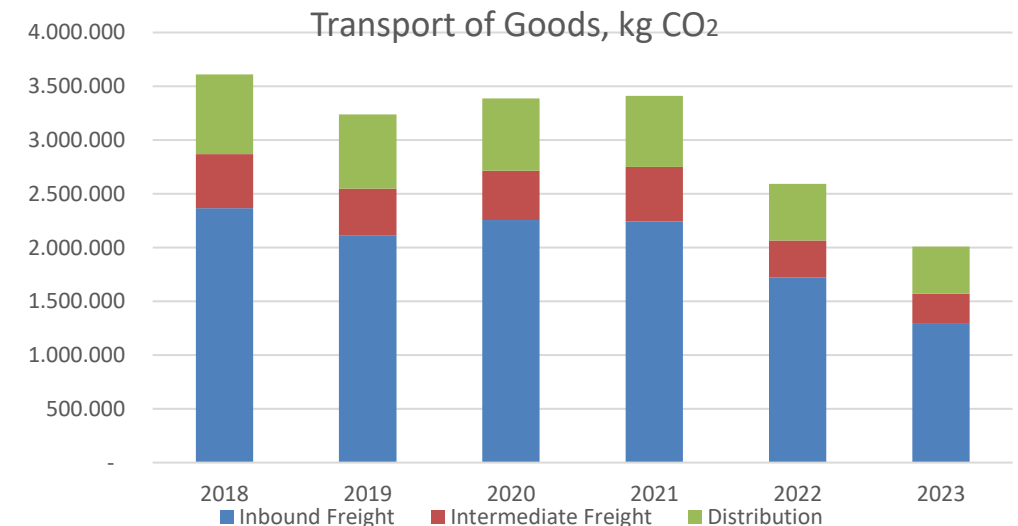


Figure 6: Development in kg CO<sub>2</sub> from transport of goods per DKK'000 of revenue (2020 index)



# 4. TRANSPORT OF PEOPLE

In 2020-21 nothing has been “as usual” due to the COVID-19 pandemic. All employees with jobs that could be carried out from at home have been asked to do so a majority of the time both years. The amount of commuting has therefore been estimated to be 40% from normal in 2020 and app. 60% from normal in 2021. Likewise, the use of company cars has been estimated to be at a lower level. 2022 and 2023 are more normal, but it seems that new habits in transportation have come to stay, as it still is at a markedly lower level than before 2020.

From 2020 all new company cars are either hybrid or fully electric. 2 hybrid cars came in as company cars the first year. By the end of 2023 there were 7 company cars, from which 5 cars are now on alternative fuels. 2 cars are fully electric and 3 are hybrid types. The hybrid cars are estimated to have CO<sub>2</sub> emissions at a level 15% lower than a diesel car, though this is highly influenced by the actual driving pattern. For electric cars the emissions are estimated to be 38% lower.

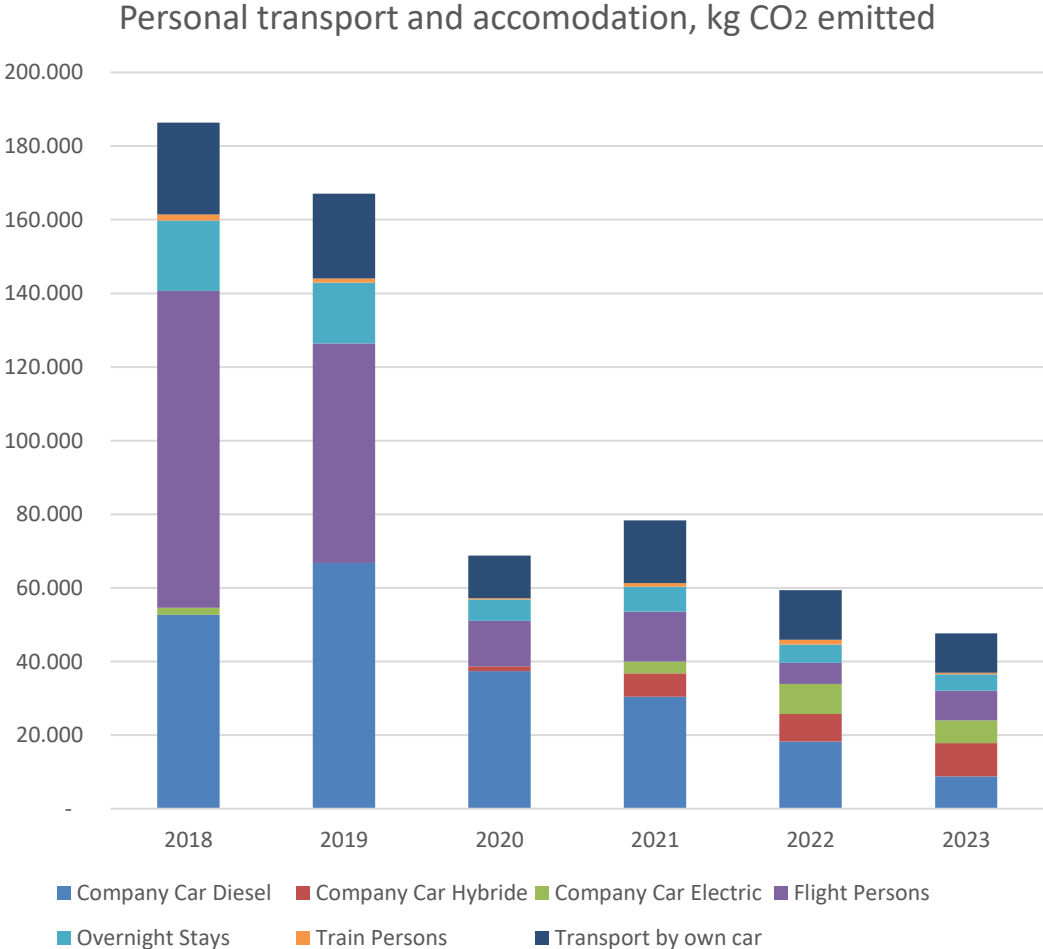
Due to the unusual COVID-19-situation the emissions from personal transport and company travels came to a significantly lower level 2020-2021. The learning from having many more meetings online and working from home seems to have become the new normal, as these activities have stayed at a low level also in 2022 and 2023.

**FACT BOX: Transport of people**

Transport of people includes, for example, commuting, the daily trip to and from work. Every year employees are asked how far they must go for work and how they get to work (by diesel car, petrol car, car-pooling, public transport or bicycle or on foot). The number of employees was multiplied with the average transport pattern. Therefore, the CO<sub>2</sub> emissions from commuting proportionally follows the number of employees.

Transport of people also covers any travelling by air and train, overnight stays that employees need in connection with work trips and meetings. Any work-related driving in private cars or company cars in addition to daily commuting is also included.

Figure 7: kg CO<sub>2</sub> emissions from transport of people and overnight stays



# 5. ENERGY

Consumption of electricity is by far the biggest of the energy sources due to the cooling facilities needed in both pack house and terminals; figure 8.

The use of electricity have decreased in 2023 after reaching the highest point in the period in 2022. This is due to reduction of facilities in distribution (Avedøre), ending of the Venue (Classensgade) and a cool store in Sweden, and a general effort in reducing the consumption in the pack houses (Hedensted and Barrit). This is efforts to adapt the production facilities to the 2023 level of revenue.

Looking at the CO<sub>2</sub> emissions from energy per DKK'000 in revenue (figure 9), it shows a drastic increase in 2022 and 2023. Here is an area, that has to be taken into detailed concern. We have still bigger areas to be cooled, but though we follow the energy consumption very tightly and still improve the use of it, we have not severely been able to cut down the use of electricity compared to revenue.

From 2020 certified sustainable electricity certificates corresponding to our use of electricity is used.

Figure 8: kg CO<sub>2</sub> emissions from energy

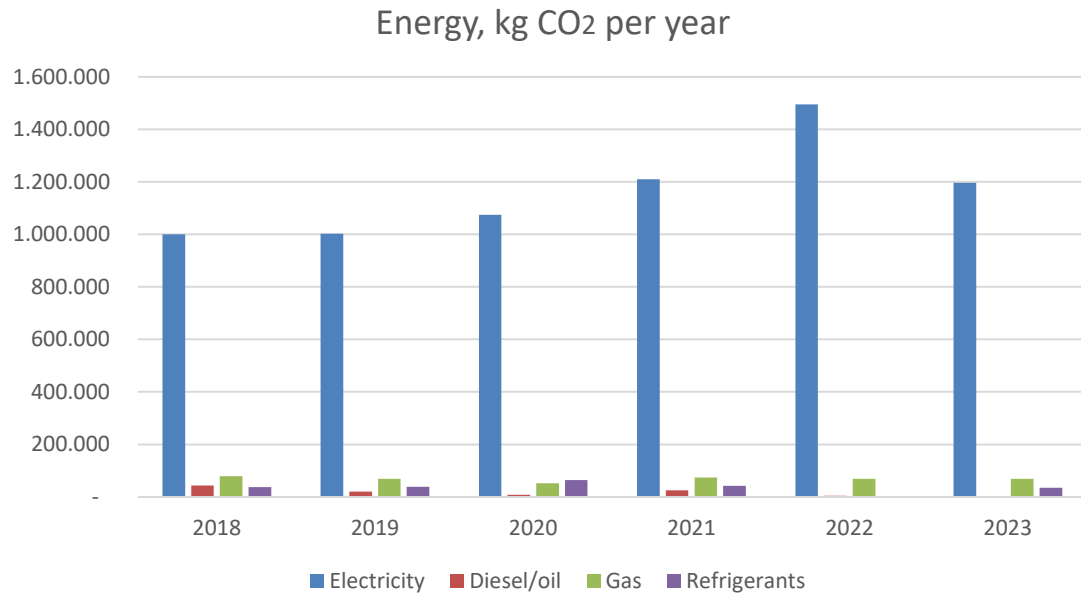
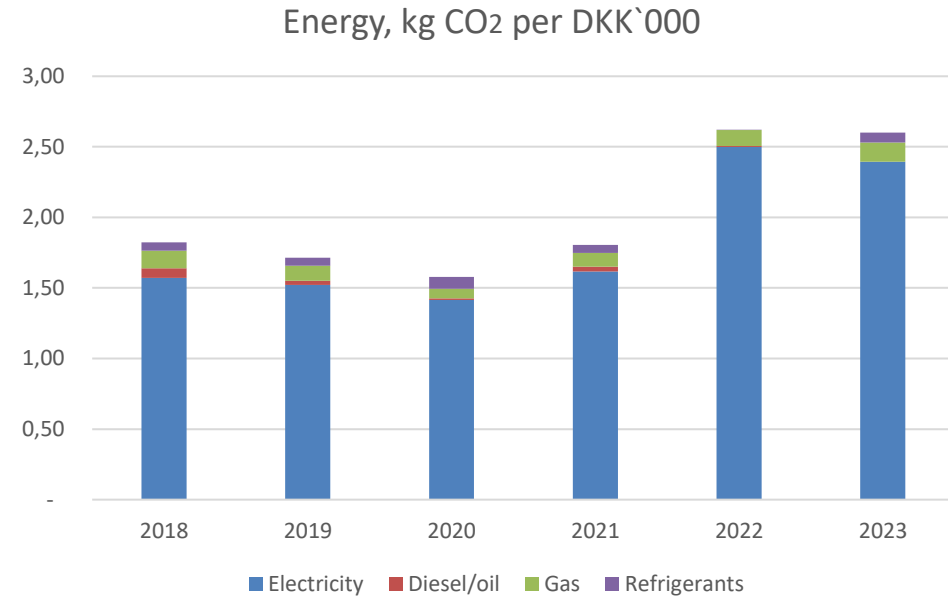


Figure 9: kg CO<sub>2</sub> per DKK'000 of revenue from electricity, agro-diesel, oil, gas and refrigerants



**FACT BOX: CO<sub>2</sub> as coolant**

CO<sub>2</sub> is one of the original coolants widely used, but it was phased out with the arrival of synthetic coolants around Second World War. As it became clear that the CFC coolants had a catastrophic effect on the ozone layer and that the substitutes HCFC and HFC coolants contributed to global warming, there was a renewed interest in CO<sub>2</sub> as a coolant.

The CO<sub>2</sub> emissions from coolants depends highly on the need to fill the facilities with coolants. In 2016 a new cooling facility at Barritskov was filled with coolants hence the high level. Earlier the cooling facilities mainly used freon, but since the emission factor is high on freon (se appendix C – emissions factors), the coolant was changed to CO<sub>2</sub> at the end of 2017 and beginning of 2018.

**FACT BOX: Energy**

Energy includes the consumption of electricity at our different locations, agro diesel (for agricultural machines) and oil for heating. Energy also covers coolants for the cooling facility as well as natural and bottled gas used for heating, forklifts, and kitchens.

# 6. PACKAGING

Only packaging used at Aarstiderne is included in this report, and not the packaging used by suppliers.

The total CO<sub>2</sub> emissions on packaging have increased from 2017 to 2021 due to increasing revenue (figure 10). Due to lower sales, the amounts have clearly lower in 2022 and 2023.

On one hand the following factors increase the emissions:

- Larger part of the boxes are packed for one- and two-persons households, increasing the amount of packaging
- More products, such as herbs, beans, spinach etc. are bought in bulk to reduce the use of plastic and to manage shelf life better.
- The emissions increase with higher volume packed in-house
- The packaging of products from The Green Workshop also means more packaging in the Aarstiderne accounts.

On the other hand, several initiatives have been done to minimise the amount of packaging:

- When packing in batches (e.g., rice, bulgur, or pea sprouts) the bag used is smallest possible and reduce the use of plastic with 50%.
- When possible, herbs are bought in bulk with a rubber band instead of a plastic bag.
- Weekly reporting keeps track of the batches of vegetables, fruit and berries packed in plastic and keeps focus on reducing the use of packaging.
- A new half size foam box have been introduced to be used in the smaller meal boxes.

Figure 11 shows, that the CO<sub>2</sub> emitted from packaging per DKK'000 have risen in the period 2018 - 2021. The main reason is still rising amounts of inhouse packaging and the rising sale in the online Groceries, which uses more packaging per product than the box scheme business does.

Following thorough research on shelf life, plastic has been removed from among other, broccoli, cucumbers, and tomatoes by the suppliers. Plastic can however still be found on these items in cases where a supplier cannot deliver, and the product must be exchanged. These are not initiatives that are registered in the CO<sub>2</sub> accounts since only our own packaging is.

All together it seems that the focus on minimising packaging is leading to a reduction of the CO<sub>2</sub> emissions. It will though be difficult to continue the reduction as more and more processing and packaging of products in the Green Workshop is insourced to gain higher and unique quality.

## FACT BOX: Re-use of boxes

The styrene box is used for products in need of cooling where they are packed with ice to keep the correct temperature until the customer unpacks the box. The styrene boxes are returned from the customers and are cleaned with UV-light and used again. When worn out they are sent for recycling.

The iconic wooden boxes are not included in the above figures as wood is a renewable resource. When the wooden boxes are worn out, they are chopped up used for heating purposes.

## FACT BOX: Types of packaging

The wooden boxes contain a so-called inliner, a large plastic bag that keeps the items in the mealboxes together and keeps the moisture inside and the sunlight and bugs out. For meat and dairy products, a styrene box is used. Flow-pack bags are transparent plastic bags, used for products like couscous, rice, and nuts, etc. The plastic containers refer to the packaging used in The Green Workshop for items like chopped mixed greens.

Part of the fruits and greens are delivered in large boxes and are repacked in the so-called lettuce bags that go under the category of miscellaneous packaging. This category also comprises the brown paper bags used for end delivery of e.g., a bag of fruit or other items in addition to the mealbox as well as the cardboard boxes used for items like tomatoes, made of recycled pulp.



Figure 10: Kg CO<sub>2</sub> from packaging

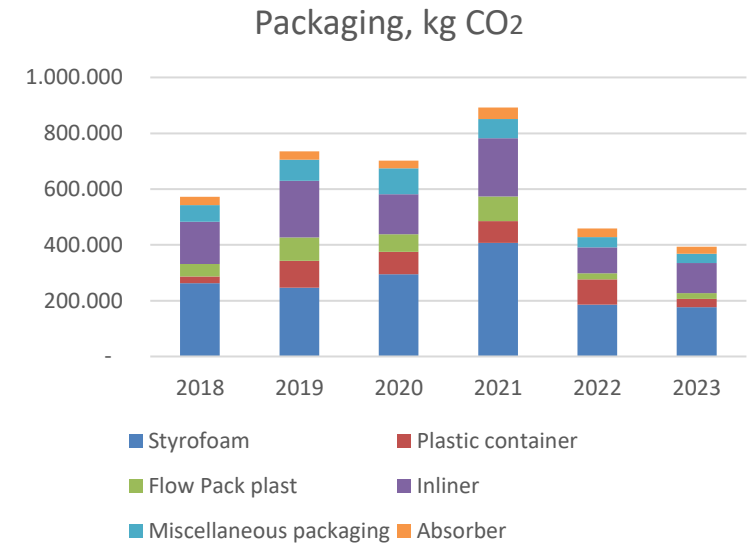
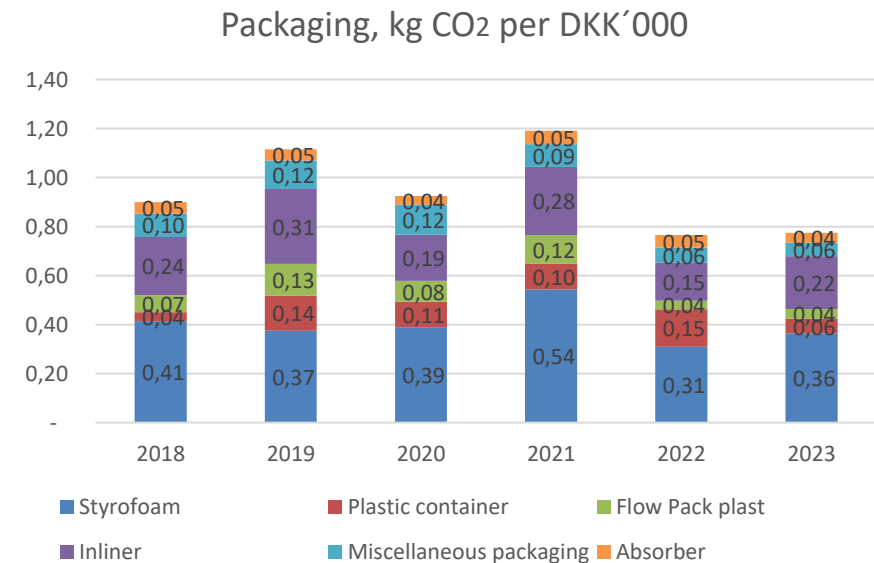


Figure 11: Kg CO<sub>2</sub> per DKK'000 of revenue from packaging





# 7. PAPER

Figure 12 shows the development in the total CO<sub>2</sub> emissions from consumption of paper. The total emissions from paper have increased since 2018 but decreases from 2020. The method of measurement has changed from an estimate of the copies made to the actual number of copies used and hence the use of copy paper has grown from 2022. Earlier years the number was estimated.

Figure 12 shows the kg CO<sub>2</sub> emissions from paper consumption per DKK'000 of revenue. The emissions have been a little higher in 2019 but from 2020 to 23 the emissions have decreased. Increased use of digital campaigning results in a lower use of paper for that use the last 3 years. The use of paper does not influence the emissions a lot being 0.09 kilograms per DKK'000.



## FACT BOX: Paper and certifications

The meal boxes contain a newsletter (paper – printed matter) and recipes (copy paper) and paper is used for activation campaigns, for example as inserts in daily papers. This all requires different kinds of paper and includes printing costs.

### The FSC label:

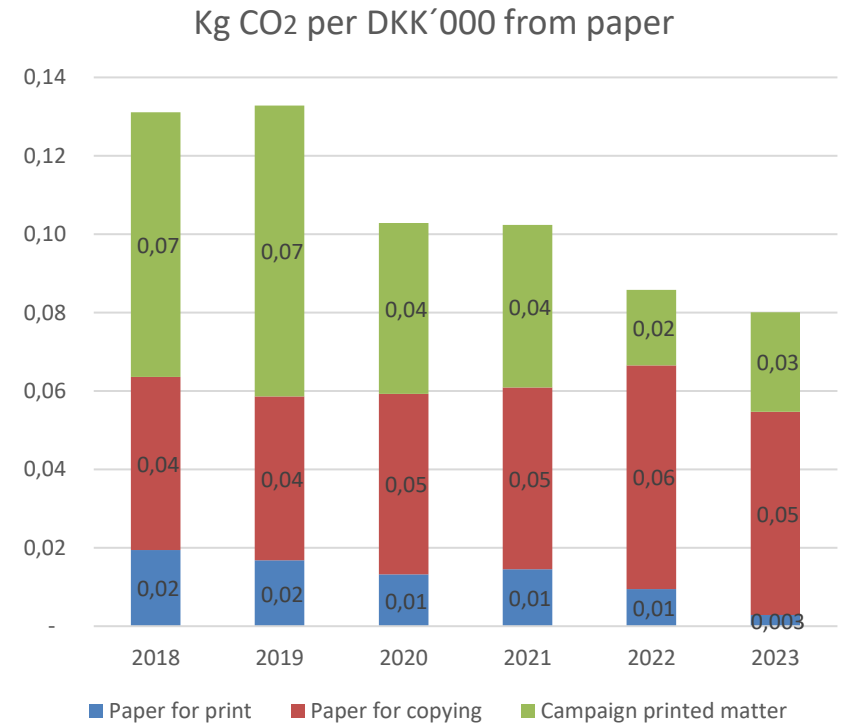
The FSC label (Forest Stewardship Council) is a certification of a sustainable choice of paper from FSC labelled forests, where only the amount of wood that the forest can reproduce is cut down. Animals and plant life enjoy protection. Education, safety gear and a proper pay is secured for the people working in the forest.

### Cradle to Cradle:

Cradle to Cradle is one of the world's most ambitious environmental certifications with high demands for the entire life cycle of a product. Paper and printing ink are produced without the use of harmful chemistry, heavy metals or hormone disrupting substances. This means that all printed matter in principle can be composted and used as fertilizer.

Only FSC certified paper is used for newsletters, recipes, copying paper and activation campaigns etc. In addition, our printing house, KLS Pure Print, is Cradle to Cradle certified.

Figure 12: kg CO<sub>2</sub> per DKK'000 of revenue from paper



# 8. SUMMARY

Table 4: Comparison of the total kg CO2 emissions from different sources in 2022 and 2023

	2022	2023		
Revenue 2020-DKK''	598.735.374	500.269.529	-16%	
Source of emission	Kg CO2	Kg CO2		Why this development?
Inbound freight	1.720.334	1.296.926	-25%	50% of transport from Spain is with LNG lorries.
Intermediate transport	345.075	274.537	-20%	More than 50% is done by HNO-driven own truck
Distribution	526.961	436.816	-17%	Following the lower turnover
Company travels	59.406	47.651	-20%	Less revenue needs less travelling
Commuting	346.025	273.196	-21%	Less employees travel less
Energy	1.568.622	1.300.757	-17%	Less squaremeters to cool
Packaging	458.659	387.648	-15%	More extras, that have higher packaging rate
Paper	51.409	40.090	-22%	Less campaign activities is made by paper
Total	5.076.490	4.063.036	-20%	More efficient use of ressources

Table 4 shows the development of the different sources of CO2 based on a comparison of the total kg CO2 emissions in 2022 and 2023 respectively.

2023 has given a noticeable reduction in CO2-outlet, coming from a lower revenue like in 2022, but 2023 shows, that Aarstiderne has succeeded in adapting the use of resources to the lower activity leading back to a high efficacy in materials use and CO2 impact made .

Concerning transportation several fossil free solutions are now used. Inbound Freight from Spain is 50% of the time made by LNG-driven lorries. A big part of intermediate transport is done by a HVO diesel truck. Distribution have introduced an electric lorry, 2 electric vans and electric bicycles doing the last mile to some of the customers. 5 out of 7 company cars are converted to electric or hybrid cars.

More goods are packed inhouse and more types of packaging are included in the CO2 account. Higher activity in the Online Groceries gives higher ratios of packaging, while the goods from there uses more packaging.

It takes many different and continued initiatives to reduce the CO2 emissions and an ongoing focus on how to do better always.

# 9. INITIATIVES TO REDUCE CO<sub>2</sub> EMISSIONS

At the end of 2019 Aarstiderne promised to have a CO<sub>2</sub> account in balance from 2020 and onwards.

An agreement have therefore been made with Climate Impact Partners to buy 16,000 tonnes of VCS's (verified carbon standard) CO<sub>2</sub> credits, in order to offset the CO<sub>2</sub> footprint for the next 4 – 5 years in projects in East Africa, Chile and Colombia. The VCS credits are of the highest standards available. Besides the compensation for the emissions through offsetting it is of course apparent that the focus on reducing the emissions should have the highest focus and likewise the possibility to inset in Aarstidernes own supply chain.

The following are initiatives going forward.

- On the **transport** area focus is on filling up the vans and optimizing the routes to save energy. For this reason, it is not possible for a customer to choose the time of arrival on their purchase.
  - A new distributionapp used by the drivers and more clear instructions gives better driving patterns and optimization of the routes
  - Using **alternative propellants** such as electricity, LNG diesel, HVO diesel or gas. The aim is to follow up on the successful introduction of both electrical vans and bikes but is challenged by the lack of technological development.
  - 2019 and 2020, a trial on **growing vegetables** in a nonheated and nonlighted glass house in Køge has taken place. The trial has challenged how many Danish leaf vegetable types can be grown in the cold part of the year. The experiences shows that the Danish growing season can be prolonged with up to 6 – 8 weeks. With an otherwise average 20-week growing period this is substantial. In the coming years this knowledge will be used to hopefully increase the share of Danish produce in the assortment and at the same time lower the need for inbound freight hence a lot less kilometres driven by truck.
  - Since 2020 it is required that all new company cars are either hybrid or fully electric. So far three hybrid cars have been acquired and two electrical cars. That makes 5 out of 7 company cars now using alternative fuel. Business travels by flight are minimized, but occasionally there is a need to go overseas to check suppliers etc.
  - Regarding the **energy consumption** several issues on heating and cooling have been addressed over the past years. In 2023 time regulators are installed on ice machines and compressors. Parts of distribution hub in Copenhagen is rented out due to lower production and cooling sectors are being separated to lower the energy used for cooling.
  - **Packaging** has been described as one of the areas with great focus on improving in order to reduce size and thickness of the packaging materials.
- This report solely looks at Aarstidernes own CO<sub>2</sub> emissions, from collecting the products at the suppliers till the box arrives at the doorstep of the customers. The CO<sub>2</sub> emissions from the production of the item in case is not included. This means that as more **production** is insourced the level of CO<sub>2</sub> emissions will increase at Aarstiderne. The alternative is to have more goods produced and packed at the suppliers which in total would most likely result in a higher total of CO<sub>2</sub> emission.
  - The meal kits contain substantially less meat than an average Danish meal. The chefs in Aarstiderne strive to design meals based on the **80/20 principles**, where 20% of the energy is animal based 80% is plant based. In 2019 methods have been developed to measure the kcal combination of the boxes. A regular Danish evening meal typically consists of 60% energy from plants and 40% energy from animals. On average the meals in our meal boxes in 2023 were 78,5% plant-based and 21,5% animal-based. Customers claim to be eating greener after having used the meal kits. This work of inspiring our customers to eat greener is one of the biggest impacts Aarstiderne has on the climate.

## FACT BOX: Our Supply Chain

Food production and delivery does have a CO<sub>2</sub> footprint and Aarstiderne lower this through the supply chain as follows:

- The Aarstiderne supply chain is very short. The time from harvest in the field to the customer only takes a few days.
- There are not many products in the storage waiting to get to a store to be sold.
- Most customers are subscribers, making it possible to forecast the sales in detail.
- In cooperation with selected farmers, yearly and quarterly planning for parts of the products is done. The farmer forecasts the amount of produce expected, and an agreement of a minimum demand from Aarstiderne is made. This way a long-term relationship is built with the suppliers.
- The customers trust the chefs in Aarstiderne to decide what to put on the plate – not everything is available at all times hereby minimizing the risk of food waste.
- The recipes are created form what is available and planned around the seasons.
- A small cauliflower fits the box for 2 people and the bigger ones the box for 5 people = less waste
- Defined portion sizes are also a mean of lowering the food waste. If only one leak is necessary for a dish this is what the customer gets and not a whole bundle.

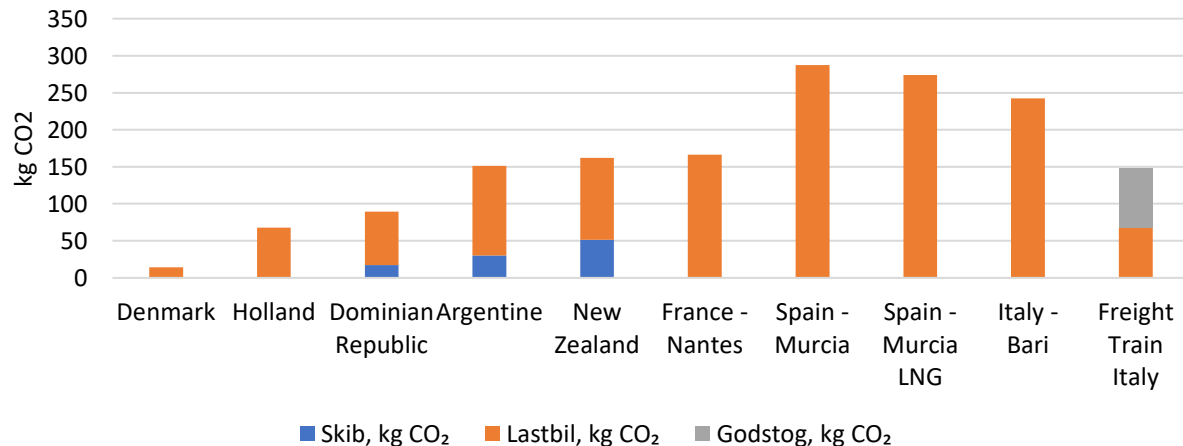
This way of organizing the business minimizes the total emissions from the food delivered and is a step on the way to a shorter and more direct supply chain aiming to significantly lower the CO<sub>2</sub> footprint from food.

# 10. APPENDICES

APPENDIX A: The Danish and Danish/Swedish/German share of bread/flour, fish, fruit, vegetables, groceries, meat, dairy products and eggs for the years 2018-2023

Danish/foreign share	2018	2019	2020		2021		2022		2023	
	DK %	DK %	DK %	DK+SE+DE %	DK %	DK+SE+DE %	DK %	DK+SE+DE %	DK %	DK+SE+DE %
Bread/Flour	-	-	62,4	69,7	52,6	62,4	66,6%	80,8%	66,4%	85,2%
Fish	-	-	95,2	95,2	92,7	92,7	95,8%	95,8%	92,4%	92,4%
Fruit	6,8	2,2	8,6	13,1	7,1	15,8	8,3%	16,8%	11,0%	24,3%
Vegetables	33,7	35,0	35,9	36,3	35,0	35,4	37,2%	37,5%	43,9%	43,9%
Groceries	-	-	31,3	32,0	26,9	27,7	28,7%	31,2%	22,1%	27,5%
Meat	49,1	69,0	65,9	79,7	67,0	82,4	65,0%	81,0%	65,8%	86,3%
Dairy	-	-	94,1	94,1	90,8	91,3	91,9%	91,9%	93,3%	93,5%
Eggs	-	-	92,0	100,0	92,1	100,0	89,0%	100,0%	98,2%	100,0%
<b>Total</b>			<b>35,6</b>	<b>38,0</b>	<b>33,4</b>	<b>37,0</b>	<b>34,3%</b>	<b>38,2%</b>	<b>37,1%</b>	<b>43,1%</b>

APPENDIX B: Kg CO2 for inbound freight per ton of goods from selected countries with different means of transport.



APPENDIX C: Emission factors from Concito applied for the calculation of emission expressed in CO2 equivalents (CO2e).

Emission factors (from CONCITO)			
Inbound Freight:	Kg CO2/unit	Description	Unit
Inbound Freight Lorry	0,107	Lorry > 32 tonnes	TonKm
Inbound Freight Lorry LNG	0,102	Lorry > 32 tonnes	TonKm
Inbound Freight Lorry HVO	0,102	Lorry > 32 tonnes	TonKm
Inbound Freight by ship	0,00243	Ship	TonKm
Inbound Freight by train	0,05	Train	TonKm
<b>Intermediate Transport:</b>	0,107	Lorry > 32 tonnes	TonKm
<b>Distribution:</b>			
Van - Diesel	0,28	Vans	Km
Van - Electric	0,22	Vans	Km
Truck Light (14 ton) electric	0,25	Truck light 14 ton	Km
Electric bikes	0,01	Electric bikes	Km
<b>Company Travels:</b>			
Company cars - Diesel	0,13	Personal car	Km
Company cars - Electricity	0,08	Personal car	Km
Company cars - Hybride	0,11	Personal car	Km
Flight persons	250	Flight	Per hour
Overnight stays	60	Hotels	Number
Train persons	0,05	Train	Km
Driving in own car	0,14	Personal cars	km
<b>Commuting:</b>			
Commuting - Gasoline	0,15	Personal car	Km
Commuting - Diesel	0,13	Personal car	Km
Commuting - Train	0,05	Train	Km
<b>Energy:</b>			
Electricity	0,5	Administration and production	Kwh
Oil/Agrodiesel	2,8	Heating	L
Gas for Heating	2,2	Natural gas	M3
Gas for Cooking	2,9	Bottle gas	Kg
Gas for Forklifts	2,9	Bottle gas	Kg
Refrigerant	1774	HFC	Kg
Refrigerant	1300	Freon	Kg
Refrigerant	3922	R404A/R744	Kg
Refrigerant	1	CO2	Kg
<b>Packaging</b>			
Foam boxes	3,5	Polystyren	Kg
Plastic container	4,4	Polypropylen	Kg
Inliner, flowpack, labels	3,07	HDPE (high density polyethylen)	Kg
Cellophane and transfer foil	2,5	LDPE (Polyethylen)	Kg
Strapex	4,2	Polypropylen	Kg
Transferfoil	2,5	LDPE (Polyethylen)	kg
Carrying tray + bag with handle	0,3	Recyclable pulp	Kg
Absorber	2,01	80% Polypropylen + 30% polyethylen	Kg
<b>Paper:</b>			
Paper for printing	1,3	Navision	Kg
Paper for copying	0,82	Codan	Kg