



SCOTTISH WHOLESale ASSOCIATION

The voice of the Scottish Food, Drink and Allied Trades

# FOOD WASTE REDUCTION IN FRESH PRODUCE WHOLESale

## Lessons learned from Mark Murphy Dole



 **Mark Murphy**  
Part of  Foodservice



# Executive Summary

A collaborative project between **Mark Murphy Dole, Scottish Wholesale Association, and Zero Waste Scotland** to explore food waste reduction opportunities in the wholesale sector, which took place from autumn 2023 to spring 2024.

Central to this project was the **Zero Waste Scotland One Month Challenge**, [www.zerowastescotland.org.uk/one-month-challenge](http://www.zerowastescotland.org.uk/one-month-challenge), which sets out four steps to tackling food waste; helping the business to assess current food waste data, measure food waste, analyse findings and develop an action plan. Following this, to develop in-depth understanding of how and where food waste arises in the company's operation, an observational food waste audit was carried out, which provided recommendations for further action.

Findings from the measurement revealed an unexpected amount of food waste. Despite making up only 0.2% of total food passing through the depot, the total food waste recorded during the month measured was 1.62 tonnes – the equivalent to 19.5 tonnes per year. The annual disposal cost alone for this food waste comes to £11,877, and the true cost of waste, i.e. all the associated costs such as purchasing and handling, was estimated to be £61,000 per year.

A bin audit also found that food waste was routinely being discarded in the general waste bins, rather than the dedicated food waste bins. It was estimated this increased the food waste generated by approx. 10%.

Acting on the audit recommendations, Mark Murphy Dole focused on improving food waste measurement, introducing staff communication, training and engagement on the subject, and updating food waste processes and procedures.

A Green Champion programme was introduced, and following training and staff engagement, an improvement could be seen, including a 32% decline in contamination of the general waste stream, compared to the previous year. The recycling rate also improved by 5%, likely a result of less contamination in the general waste stream.

Thanks to a combination of interventions – from new practises to monitor and reduce food waste, to the efforts to change culture and attitudes in the organisation, coupled with improved interdepartmental communication, and efficiencies introduced in the warehouse – food waste at Mark Murphy Dole has decreased by 33% from 2023 to 2024.

Results demonstrate the importance of measuring and monitoring food waste in order to fully understand the financial, environmental and community benefits of tackling it. They also highlight the importance of looking at policies and processes to identify if they are promoting or obstructing progress to food waste reduction, but crucially, also the importance of culture to food waste reduction in the workplace.



***“Food waste has decreased by 33%”***

Even with procedures in place to reduce food waste, if efforts are not made to shift the culture to match, then the effectiveness of these procedures will be limited. Training and staff engagement can help change this, and its effects are not limited to the workplace. Employees who took part in the Green Champion training also reported a change in attitudes and behaviours in the home as a result of their increased awareness and knowledge.

## Scope 1, 2, 3 emissions explained

<b>Scope 1 emissions</b>	Direct emissions from sources owned or controlled by a company or organisation. For example, fuel use for vehicles.
<b>Scope 2 emissions</b>	Indirect emissions from the generation of purchased energy. For example, electricity used for depots and offices.
<b>Scope 3 emissions</b>	Indirect emissions that occur in the value chain of an organisation, both upstream and downstream. For example, from the production of ingredients and manufacturing of products.

## Introduction: Why take action on food waste?

Food waste is a global problem that has significant economic, environmental, and societal impacts. Almost one million tonnes of food and drink is thrown away every year in Scotland, with a carbon impact of 3.7 million tonnes CO<sub>2</sub>-equivalent, nearly 5% of Scotland's total carbon footprint. Tackling food waste is one of the most important ways we can reduce the carbon impact of Scotland's waste and an achievable first step in reducing your Scope 3 emissions.

When food waste is sent to landfill it releases methane, a greenhouse gas many times more potent than carbon dioxide. Some of these emissions can be avoided by recycling food waste. However, cutting down on food waste also reduces the upstream emissions and costs associated with growing, harvesting, processing, transporting, and buying food to begin with.

This makes food waste reduction vital when it comes to sustainable management. Any food that ends up in the bin is also a financial loss and adds to food insecurity, as wasted food is no longer available for human consumption. In short, reducing food waste helps fight climate change, saves money, and aids in creating secure communities.

Food and drink wholesalers, in their central position between producer and customer in the supply chain, can play an important role in food waste reduction. To date, this has not been the focus of much investigation.

This collaborative project between Mark Murphy Dole, the Scottish Wholesale Association, and Zero Waste Scotland set out to change this. The project aimed to investigate the challenges and opportunities for reducing food waste in wholesale by testing and implementing actions, considering barriers, and establishing future strategies.



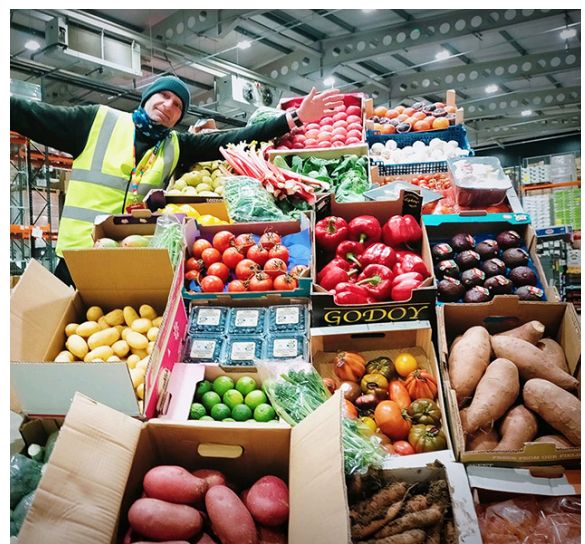
## About Mark Murphy Dole

Mark Murphy Dole is a fresh produce wholesaler, part of Dole plc, which has 14 depots across the UK. Its operations deliver wholesale, storage and distribution of open and pre-packed fresh fruit and vegetables, branded ambient and chilled foods and associated consumer products, and wholesale and storage of frozen foods distributed chilled or tempered. Operating 24 hours a day, fresh produce delivered to the depot in Edinburgh leaves as deliveries within 24 hours.

Mark Murphy Dole has already made great strides in sustainability. Several energy-efficiency measures have been implemented, resulting in 100% insulation and LED lighting coverage. To reduce energy and water use, PIR sensors, which turn lights on and off automatically, have been installed, as have hot water urns. The site receives over 50% of its energy from on-site solar panels.

A waste management system that processes glass, card, dry-mixed recycling (DMR), food waste, cardboard, wood, and general waste as separate waste streams has also been in operation since 2016. In addition, the site has introduced a backhaul delivery approach, incorporating pick-up points as part of delivery routes. In 2022, this shortened routes by 150,000 km, reducing fuel consumption and CO2 emissions. The site has also introduced several alternatives to plastic to help reduce plastic consumption.

As a result of these successes, and in order to further reduce its carbon emissions, Mark Murphy Dole is increasingly setting its sights on tackling its Scope 3 carbon emissions, including food waste.



# Taking on the food waste challenge

Mark Murphy Dole had a waste management system in place to tackle food waste, but there were many uncertainties present. Following conversations with the Scottish Wholesale Association, a package of support was provided by Zero Waste Scotland to help Mark Murphy Dole understand and address food waste hotspots, and change procedures and behaviours.

## 1. One Month Challenge

Completing this challenge gave Mark Murphy Dole an overview of where food waste was coming from and how much was being generated. Although a mere 0.2% of the total food passing through the site was wasted, this still amounted to 1.62 tonnes, equivalent to 19.5 tonnes a year. The annual disposal cost alone for this food waste comes to £11,877 a year, and the true cost of this wasted food, i.e. including all the associated costs such as purchasing and handling, was estimated to be £61,000 per year.

## 2. Food waste audit and recommendations

An observational audit was conducted by Zero Waste Scotland for an in-depth picture of where food was being wasted in operations. This included a review of food waste produced in the pack house, box chill, bulk chill, and in-bound and out-bound delivery areas of the warehouse.

The action plan that resulted from this audit gave recommendations under three themes: Monitoring & Measurement; Staff Communication, Training & Engagement; and Food Waste Processes & Procedures.

It was recommended that Mark Murphy Dole expand their food waste monitoring to include liquid food and drink waste. The audit also highlighted that although redistribution of food that could not be sold was occurring, there was no monitoring and tracking in place. Another recommendation for monitoring and measuring included engaging with waste management contractors to get more accurate information and monitor financial losses through food waste.

A bin audit was also conducted to determine how contaminated the waste streams were, i.e. to what extent recycling bins had incorrect materials within them. This was building on an in-house bin audit, conducted prior to the start of the food waste reduction project.



## One Month Food Waste Challenge



**STOP  
WASTING  
& START  
SAVING**



## **Week 1**

Assess your current position



## **Week 2**

Evaluate your performance



## **Week 3**

Analyse the results



## **Week 4**

Get ready for action

Staff engagement recommendations included a review of current food waste training, as well as the introduction of a Green Champion programme to cascade training and awareness to the rest of the staff. Lastly, the recommendations for food waste processes included formalising those that previously existed, but in a vague undefined state.

### **3. Green Champions, training and communication**

Acting on the recommendations, a Green Champions programme was introduced – a programme that was not in place before the project. A total of 10 staff members were selected to create a diverse team that incorporates several different areas of the business, and that is responsible for upholding and promoting environmental issues and standards.

Green Champions were provided with food waste reduction training by Zero Waste Scotland to help them understand the impact of food waste on climate change, and the true cost of food waste. Responsible for cascading sustainability training to the rest of the staff, they were also provided with training in communication delivery techniques, which they continue to make use of as they meet and engage with colleagues on waste reduction and other sustainability issues.

The food waste audit had also highlighted that new training methods were needed to inform staff of the onsite recycling facilities and procedures. New training methods were developed,

focusing on how to correctly dispose of different waste materials. The training was incorporated into the new-start induction process. A quiz that aims to highlight “unintuitive” materials that many staff members dispose of in the incorrect bin was introduced to the new-start induction pack.

A waste board, acting as a visual reminder on these unintuitive materials, was also set up in the warehouse. This board is updated on a monthly basis with the current recycling performance of the business.

## Purpose of training session

1

Understand the impact of food waste on Climate Change

2

Be familiar with the True Cost of food waste

3

Understand the current situation of food waste at Mark Murphy Dole

4

Training delivery techniques and practice talking about sustainability

5

Create an Action Plan for how to communicate to others and how they can play a role in food waste reduction

## 4. Measurement and implementation

Support was provided to embed measurement of food waste into the operational procedures, to continually monitor food waste and to measure the efficiency of interventions implemented. For example, spreadsheets were provided with equations to calculate the true cost of food waste, as well as methodologies to instruct Mark Murphy Dole on the most efficient ways to measure food waste.

To help improve the quality of their measuring and monitoring while also identifying weaknesses in procedures, a food waste management flow chart was created by Mark Murphy Dole.

The flow chart shows the ideal process for food waste and follows the food waste hierarchy where redistribution is priority. If that is not possible then the food waste will be sent for animal feed, then recycled via anaerobic digestion. If the below process was followed with complete efficiency, very little food would end up being recycled via anaerobic digestion.

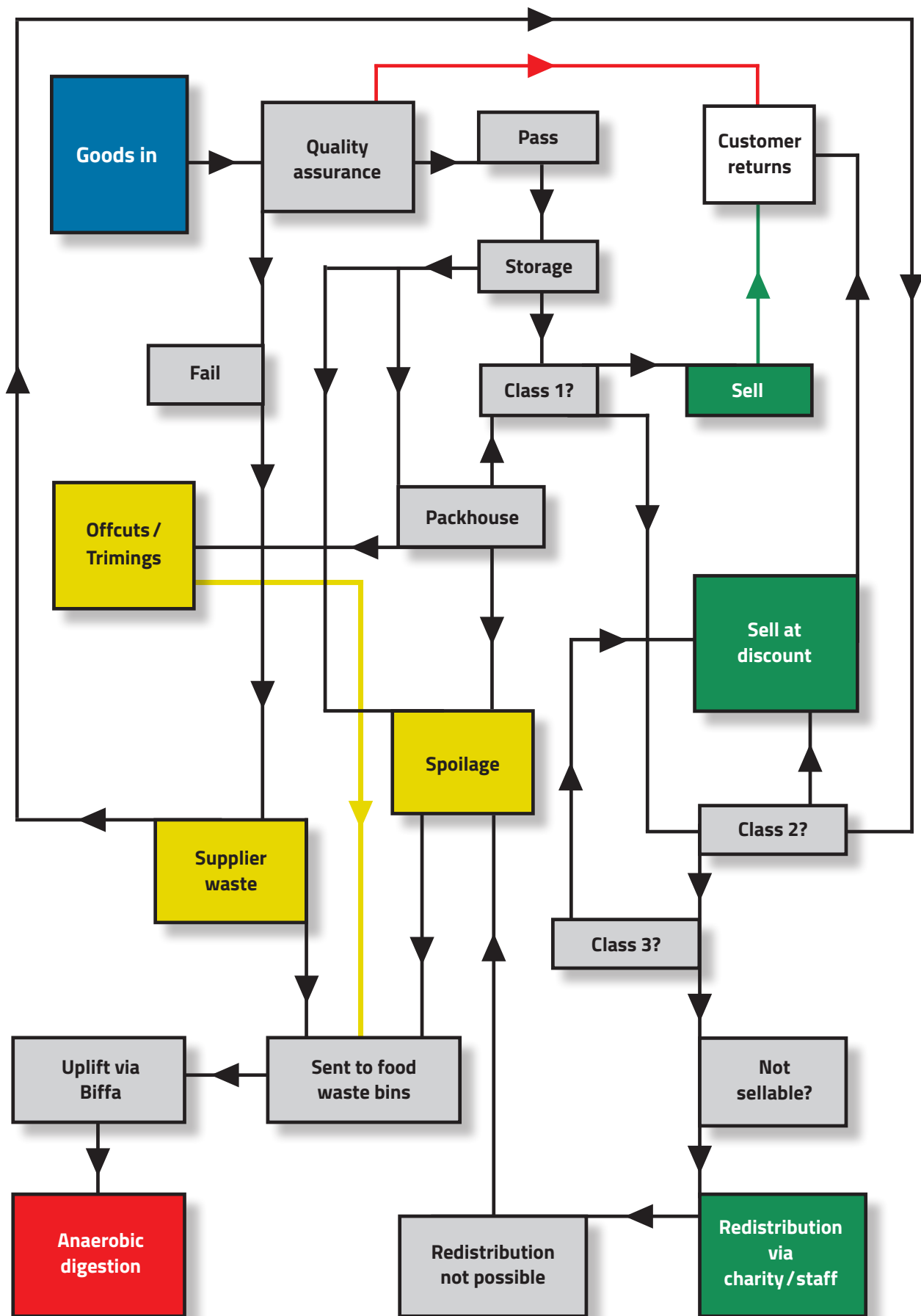


Figure 1: Food waste reduction flow chart. This graph follows the food waste hierarchy where redistribution is a priority over recycling. If the steps on this graph are followed correctly, most food waste will be redistributed, rather than recycled.



# Barriers to action

The barriers to reducing food waste identified during the project can be split into three categories: **policy**, **cultural**, and **economic**.

## Policy

Many policies and procedures at Mark Murphy Dole had been in place for many years. Looking through the food waste reduction lens offered the opportunity to scrutinise procedures, and update policies to support food waste reduction such as outdated measurement procedures.

## Cultural

In an organisation like Mark Murphy Dole, which has been operating since 1981, and that has many longstanding employees, resistance to change in policy and procedures is to be expected. For example, food waste is already diverted from the bins and sold at a discount or donated. Historically, there was no need to track this data and when introduced, the new task of collecting data was met with resistance. As a result, it made it more difficult to measure the flow of food through the food waste flow chart (Figure 1), and therefore to identify food waste hotspots.

There was also a sense that most employees did not feel sustainability in the workplace was their personal responsibility. Efforts were therefore made to cultivate staff engagement around disposing waste items, including food waste, in the correct bins in order to reduce contamination and support food waste reduction, in line with the flow chart outlined in Figure 1.



## Economic

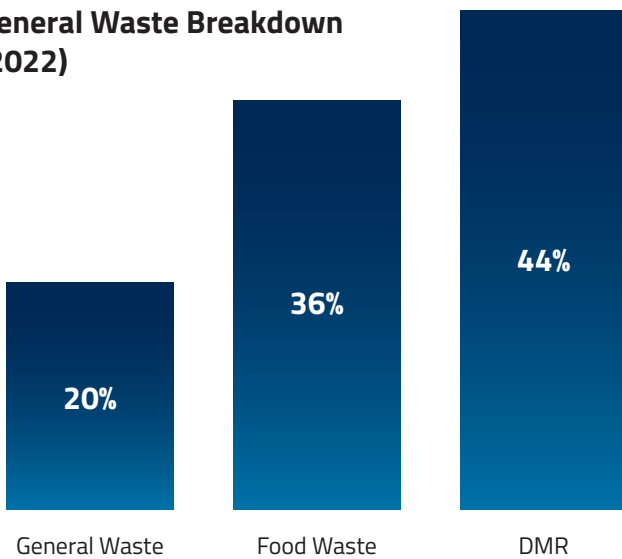
Economic barriers are concerned with the conflicts between the core business model of wholesale and food waste reduction. There can be a perception that reducing food waste is incompatible with the focus of making a profit and should therefore not be a focus. The focus has since been on reducing food waste without modifying the economic system in place.

# Results and next steps

## Introduction of new practices to reduce food waste

By introducing new practices for monitoring and measuring food waste, Mark Murphy Dole can now track food waste with more accuracy, and therefore increasingly tackle it at source and at an earlier stage. Newly introduced food waste measurement procedures are being monitored, and their effectiveness determined through the better data now available, which will also allow for tracking of year-on-year food waste figures. During 2023, data showed an increase in the amount of food waste being disposed of, which is not unsurprising as it shows the measuring procedures are being followed correctly.

**General Waste Breakdown (2022)**



**General Waste Breakdown (2024)**

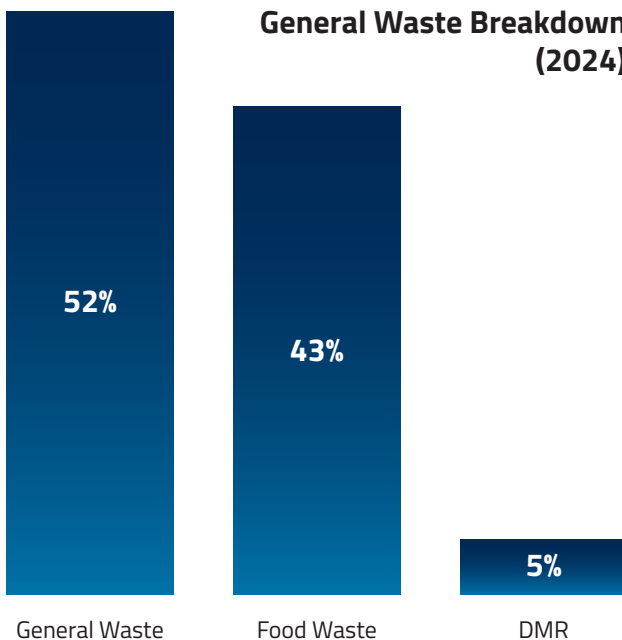


Figure 2: The results of the bin audits carried out in 2022 and 2024. The results show the average percentage of waste streams within the general waste bins.

## Tackling bin contamination

Following the introduction of a Green Champion programme, and subsequent recycling training and staff engagement, there was evidence to show an improvement in waste and recycling behaviours, leading to a decline in contamination of the waste streams.

The results of the two bin audits can be seen in Figure 2. The percentages on each bar represent the type of waste found in the general waste bins. In 2022, only 20% of the waste in the general waste bins was actually general waste, while 36% of it was food waste. Not only were the waste streams significantly contaminated but the total food waste figure at Mark Murphy Dole was therefore likely bigger than previously thought.



**The results from 2024 show an improvement in these areas: 52% of the content in the general waste bin was now general waste, a 32% improvement on the 2022 bin audit figures, showing that the correct bin is being used more often by staff.**

Less contamination within the waste stream will also provide more accurate data, allowing for the development of more refined strategies.

These results suggest that the Green Champions and recycling training are doing their part in improving culture even if slowly. That said, there has been an increase in the percentage of food waste in the general waste bins from 2022 to 2024, which highlights that there is still some way to go to change behaviours in relation to food waste disposal, and the need for ongoing engagement.

Outside of the bin audit, recycling trends are improving at Mark Murphy Dole. The recycling rate improved by 5% from 2022 to 2023 while the food waste reduction case study took place.

This improvement is likely a result of less contamination in the general waste stream. **The recycling rate has increased by a further 4% from 2023 to 2024. The recycling rate in 2022 was 76% – now, in 2024, it is 84%.**



## Changing culture and attitudes

Results demonstrate how vital culture is to food waste reduction in the workplace. Even when procedures and methods are put in place to reduce food waste, if efforts are not made to shift the culture to match, then the effectiveness of these procedures will be limited.

Training and staff engagement can help change this, and its effects are not limited to the workplace. Employees who took part in the Green Champion training also reported a change in attitudes and behaviours in the home as a result of their increased awareness and knowledge. The following is a statement from

**Marek Pawluk**, a warehouse manager at Mark Murphy Dole who took part in the Green Champion training.

*“Since my training last year my household has looked at ways of reducing food waste, and what comes with it is saving money too. We started doing menus for each day of the week and planned our meals. We started shopping only by using shopping lists and sticking to it. We started growing our own fruit and veg, and picked only what we need.”*

These adjustments at home can be brought into the workplace as well and are thought to be helping to promote a sustainable culture at Mark Murphy Dole. Marek has made significant strides in improving warehouse efficiency in 2024. These changes have not all been related to food waste, but the knock-off effect they have had on food waste is undeniable.



***“Since my training last year my household has looked at ways of reducing food waste”***

## Food waste reduced by 33%

Thanks to all of these efforts – from new practices to monitor and reduce food waste, to the efforts to change culture and attitudes in the organisation, coupled with improved interdepartmental communication, and efficiencies introduced in the warehouse – food waste at Mark Murphy Dole has decreased by 33% from 2023 to 2024.

Improved communication between operation, transport, procurement, and sales departments means there is now less risk of food waste occurring under the radar. Training has improved for new employees and the appraisal process has become more efficient. Marek has stated that this has been vital for warehouse efficiency, especially within the nightshift team.

Other practical changes have also taken place. Picking efficiency has increased, and a focus on encouraging pickers not to open a new box until the one currently open has finished has led to a decrease in food waste. Structural rearrangements with the racking in the warehouse have led to improved time efficiencies. This means there is now more time to manage food waste.



**Andrea Ogana** is another employee who took part in the Green Champion training. He is responsible for quality assurance within the warehouse at Mark Murphy Dole. Andrea has stated that he believes that efficiency and awareness around food waste has improved since the Green Champion training.

*“There is now much more of an emphasis on reclassing potential food waste to class 2 or 3, redistribution to charity, or donation to staff than there was previously.”*

This demonstrates how the efficiency around the process highlighted in the food waste flow chart has been improved. There has been an increase in class 2 and 3 sales by approximately 8% from 2023 to 2024 when comparing the same period. This may also be due to the increased interdepartmental communication. Telesales have also been selling class 2 and 3 products which has not been accounted for in this figure.



***“There is now much more of an emphasis on reclassing potential food waste”***

## **Next steps: A focus on redistribution**

At Mark Murphy Dole, staff continue to implement new processes to enable further food waste reduction. Next up is an expansion of data collection from surplus food redistribution. This will allow a comparison between the amount of food that is being sent for recycling by anaerobic digestion and the amount that is being redistributed in order to determine the effectiveness of newly introduced practices and policies aimed to boost redistribution. Liquid food waste remains a blind spot and steps are being planned to address this in the future.

More staff engagement and culture change projects are also planned. This will include food waste training specially aimed at educating staff about when it is necessary to dispose of food in the food waste bin and when it is possible to redistribute the food instead. Future bin audits will act as the benchmark to measure their effectiveness.

Further improving food waste data through closer engagement with the waste contractor remains a focus too, in order to establish improved insights into the cost of food waste to the business.



# Conclusion and recommendations

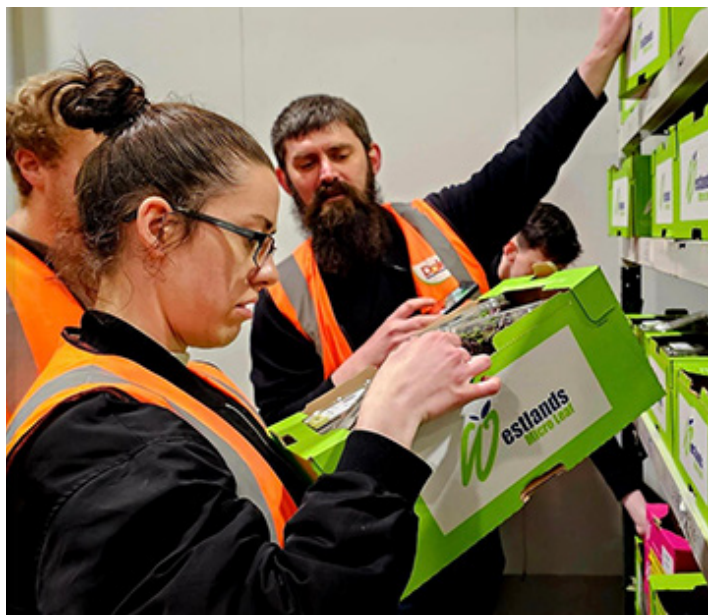
By taking on the **Zero Waste Scotland One Month Challenge**, [www.zerowastescotland.org.uk/one-month-challenge](http://www.zerowastescotland.org.uk/one-month-challenge), and introducing improved measuring and monitoring, Mark Murphy Dole has gained a better understanding of where food waste occurs and why, and how it may be reduced. Looking through the food waste reduction lens gave the company the opportunity to scrutinise existing policies and procedures in order to promote progress towards their sustainability objectives.

Despite the small percentage of food going to waste onsite, by introducing changes to how potential food waste was dealt with internally significant monetary savings were identified. By capturing food at risk of going to waste earlier in the process, more food can be sold at discount, or go to redistribution in the community rather than to recycling by anaerobic digestion, and therefore reduce Scope 3 climate change emissions and boost Mark Murphy Dole's support to local food projects.



While barriers and cultural barriers in particular, highlighted by the continued challenge to end contamination of bins require further and ongoing attention, efforts made to date show that updated policies and procedures, coupled with staff engagement through Green Champions' awareness-raising and training, can make a significant difference to attitudes and behaviours. This has been demonstrated by the 33% reduction in food waste from 2023 to 2024.

From a wider wholesale perspective, there is an opportunity for the sector to be a force for good on food waste. Thanks to a wholesaler's position in the middle of the supply chain, wholesalers like Mark Murphy Dole are in a unique position to instigate change to reduce food waste across the food and drink industry. Wholesalers can work both with their customers in retail, hospitality and foodservice and their suppliers, to influence their supply chain to achieve food waste reduction goals in the future.



# Recommendations

So, what would Mark Murphy Dole say to others who are thinking about how to take action on food waste?

- Measure your food waste. Until you do, you won't know the opportunities that food waste reduction could bring in terms of financial, environmental and community benefits. Take the Zero Waste Scotland One Month Challenge to get started.  
*[www.zerowastescotland.org.uk/one-month-challenge](http://www.zerowastescotland.org.uk/one-month-challenge)*
- To further build a picture of how much goes to waste, engage with your waste management contractors to get more accurate measured information on food you are sending for recycling.
- Be willing to look at things differently, and change outdated procedures that don't serve your objectives.
- Once you know what is required in your business to build lasting impact to reduce food waste, formalise your food waste processes.
- Work on your culture. Ensuring the culture of the company matches your ambitions and systems in place is vital. Are your new staff onboarding processes supporting your policies and procedures relating to waste?
- Introduce a Green Champions programme. You will likely face barriers, such as resistance to change. Work to make food waste reduction part of the everyday, with the help of staff champions, and keep the momentum up.
- Invest in sustainability. For best results, if you can, create a role within your business dedicated to sustainability if you are in a position to do so.



*“Working with Scottish Wholesale Association and Zero Waste Scotland on this food waste reduction project has given me the opportunity to develop my understanding on the barriers and limitations halting sustainable progress within commercial businesses in the food industry sector. I think being able to see how these issues operate beyond a technical level is especially useful. I hope that this experience will allow me to promote meaningful change in the future”.*

**Cora Allen, Technical Coordinator at Mark Murphy Dole**



***“I hope that this experience will allow me to promote meaningful change in the future”***



The Scottish Wholesale Association (SWA) is the official trade body for Scotland’s food and drink wholesaling industry. SWA members are ‘the wheels to Scotland’s food and drink industry’, supplying products to over 5,000 independent convenience stores, 30,000 catering, hospitality, tourism and leisure businesses, and the majority of public sector establishments across Scotland.

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