Recovery Opportunities in the Food Industry

APAC

March 2022

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Background & Methodology

The Global FoodBanking Network (GFN) herein sought information from Mintel around how companies respond to food loss and waste, including current mix and magnitude of loss and waste and reasons behind it, as well as potential future solutions.

Mintel fielded an online insights survey approximately 20 minutes in length from September 15 to October 14, 2021. A total of **n=390 interviews** were completed among B2B respondents in relevant food manufacturing, handling, distribution, and retail space who have knowledge of the food supply chain.

China	India	Philippines	Vietnam	Hong Kong	Indonesia	Malaysia	Singapore	Korea	Taiwan	Thailand
n=50	n=50	n=40	n=40	n=30	n=30	n=30	n=30	n=30	n=30	n=30

This survey reviewed how food loss and waste occurs at various points in the supply chain in relevant industries as well as how companies currently handle food loss. The survey reviewed awareness and usage of various food banks and other charities, identifying interest in and barriers to food recovery and donation. Specific reasons for food loss and waste including marketability, production/technical factors, market fluctuations, environmental or weather factors, quality degradation/product age, and transportation/distribution were also reviewed. Question numbers and text are referenced throughout the report.

*The term **food loss** is used throughout the survey, meaning food that is grown or produced but never reaches the consumer - loss at the earlier stages of the supply chain. The term **food waste** is used when referencing food that does not get consumed or is discarded and occurs at later stages in the supply chain.*

KEY FINDINGS

Key Findings: Current Landscape

- Respondents estimate an average of **27.7% is lost at any point in the supply chain**.
  - 72% of respondents state that food is discarded or thrown in the trash, with only 14% stating their company donates to a food bank.

- **Awareness is a hurdle.** 62% of respondents are aware of food banks, with only 29% aware of GFN.
  - Only 17% of respondents surveyed report their company has a food recovery/donation program set-up today. Of those that do <u>not</u>, only 36% of respondents express interest in being involved.

- **Lost food is of course lost value for a company**. 42% of respondents report COVID-19 had a profound impact on how their company deals with lost food.

Journey of Loss in the Food Supply Chain

Agriculture/Farming
Est. 30% total loss

One-third of this food loss happens in field/orchards, most citing overproduction.

Supplier/Ingredient
Est. 25% total loss

Most loss occurs in inventory, followed closely by in transport. 67% of supplier/ingredient respondents state machinery issues contributes to food loss in packaging throughout the chain.

Manufacturing/production
Est. 29% total loss

One-quarter of this loss happens in transport, followed closely by in inventory. Overproduction and product blocking drive food loss in this stage.

Distribution/Wholesale
Est. 26% total loss

Just over half of this loss happens in transport.

62% believe expiration dates create food loss in their part of the chain.

Retail grocery
Est. 27% total loss

One-fifth of this loss happens in transport.

Most grocery respondents (52%) believe expiration dates contribute to food waste at the retail stage.

Foodservice
Est. 30% total loss

Two-fifths of this occurs as customer waste, with expiration dates (35%) and excess inventory (32%) the most common issues.

A detailed understanding of industry status and needs is key to informing your product sourcing strategy

Agriculture/Farming

- Loss typically occurs **in field or in transport**, either to the packing shed or on its way to the distributor.
- Key drivers of loss:
  - Over-production (*only 19% are incentivized to overproduce*)
  - Machinery issues
  - Transportation
  - Weather
- In terms of **marketability**, ripeness is the biggest marketability issue for agriculture/ farming (81%), followed by volume/size (60%) and shape (55%).

Supplier/Ingredient Company

- The majority share of food loss (55%) occurs either in inventory or in transport to the distributor/market.
- Key drivers of loss:
  - Machinery issues (*old/ineffective tools)*
  - Excess inventory
  - Expiration dates
  - Transportation

Manufacturer / CPG Producer

- Similar to supplier/ingredient industry, manufacturers/CPG producer report 51% of food loss occurs in inventory or in transport to the distributor/market.
- Key drivers of loss:
  - Over-production
  - Excess inventory
  - Machinery issues
  - Expiration dates
  - Stock rotation errors
- **Storage and/or refrigeration** issues drive age/quality issues leading to waste.

A detailed understanding of industry status and needs is key to informing your product sourcing strategy

Distributor/Wholesaler/ Warehousing

- Food loss for these companies in APAC tends to occur in transport to the customer (55%), but 44% occurs in inventory.
- Key drivers of loss:
  - Expiration dates
  - Machinery issues
  - Transportation
    - Refrigeration
    - Infrastructure
    - Spillage
- Only 25% of respondents from this industry state their organization is flexible to minimize production errors.

Retail Grocer

- Transportation drives food waste for retail grocery, along with preparation and sorting on site.
- Key drivers of waste:
  - Transportation
    - Refrigeration
  - Excess inventory
  - Expiration
- 49% of retail grocery respondents state COVID has increased the amount of excess food created.

Food Service/Restaurant

- Customer waste makes up a hefty part of food waste (39%), followed by storage and prep.
- Key drivers of waste:
  - Production (*over-production*)
    - Overcooking
    - Spillage
  - Marketability
    - Mislabeled foods
    - Imperfections

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Key Findings: Across Industries

- Drivers of food loss fluctuate dependent on the production stage and the company's role. Top drivers of food loss across industries include **over-production, machinery issues, transportation** and **expiration dates.**

- Only 37% of all respondents report their organization is able to act flexibly to minimize production errors and subsequent waste. 43% of APAC respondents state that **COVID has increased the amount of excess food** produced by their company.

- When it comes to donating product past a sell-by date, 82% of APAC respondents who experience this issue have health and wellness concerns.

- 78% of respondents state their company would donate more food for recovery **if the logistics were easier to manage**. **Connecting with each company to uncover specific points of loss is crucial to address their specific concerns (*including transportation, storage and shelf life*), but making donation a seamless part of their process is just as important. Use this as a basis to understand the process, but dig into specific company needs one-on-one.**

Potential Innovations and Food Waste

While still in the distant future, several developments may impact the way food waste is created and handled:

Automation and robotics in agriculture
More controlled dosages reduce input wastes, and 3D printing may use perishable or by-product waste

Circular feed and upcycling
Production of microbial protein from organic waste streams increases economic value of waste

Cellular agriculture (lab-grown meat)
Prime cut alone is produced, mitigating waste created by traditional carcass trimming

Non-thermal processing technologies
Traditionally perishable products are stored longer-term at room-temperature

Personalized nutrition
Biologically tailored food deepens one's connection to the food system and reduce waste

Smart and/or nano-tech packaging
Biosensors reduce consumer waste through behavioral nudges based on date labels

Blockchain technology
Rapid response contaminant tracing helps avoid unnecessary food disposal and limit loss/waste

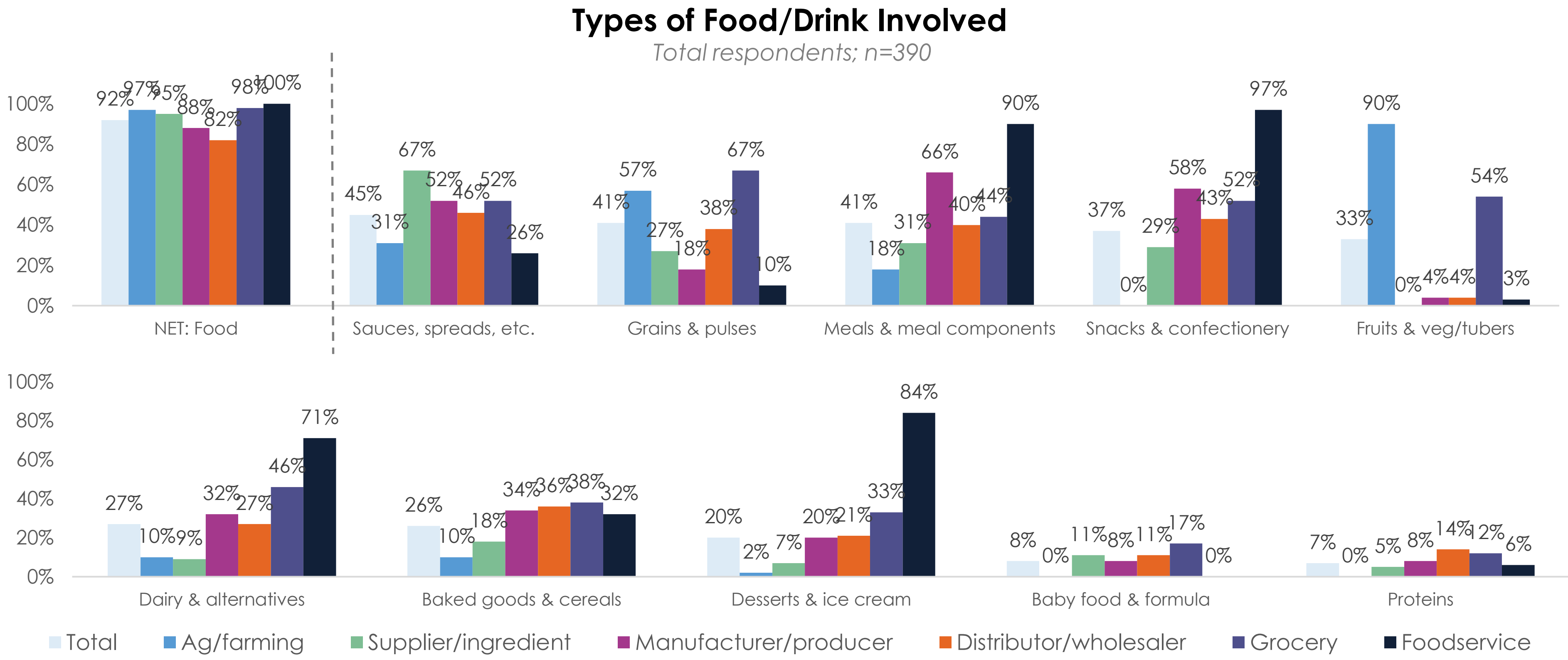
Understanding these technologies and their impact on the supply chain may not be necessary in the immediate, but looking forward, food banks may need to account for these in shaping their strategy of company engagement.

DETAILED FINDINGS

FOOD MIX & FOOD LOSS

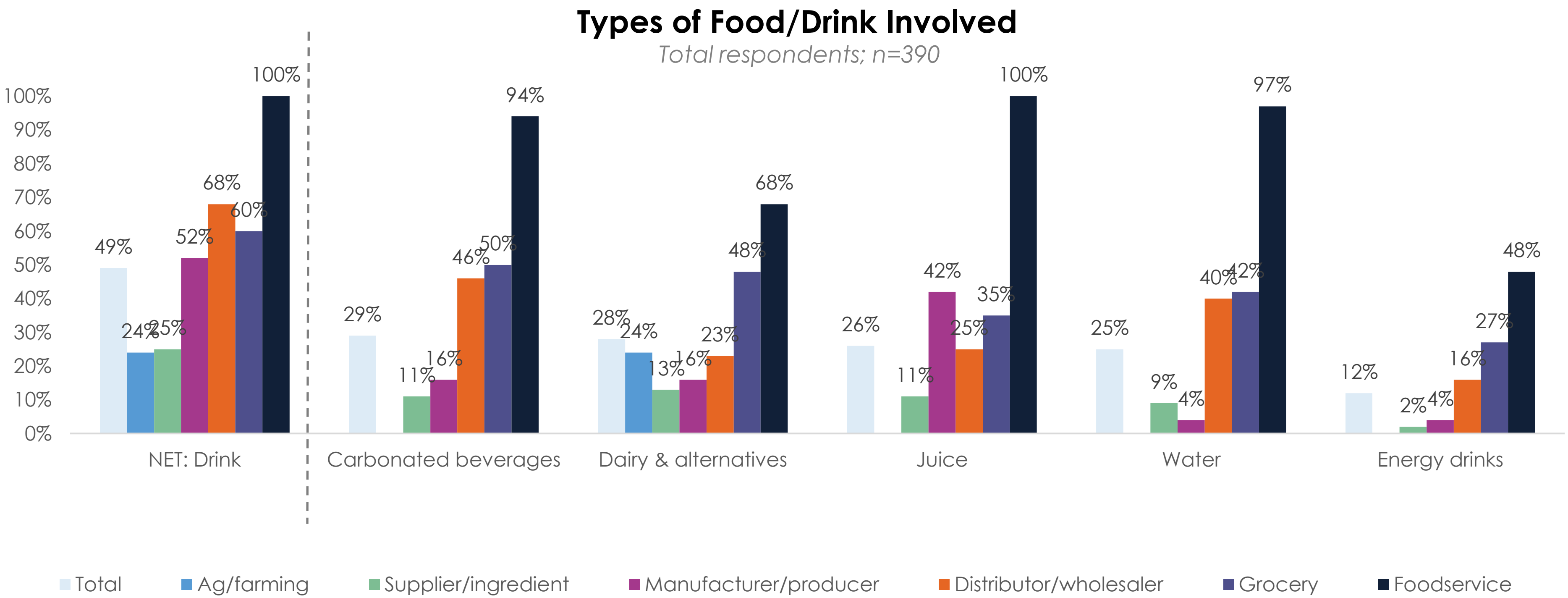
Understanding Food Mix

Most respondents work in food, with prepared components like sauces, meals, and snacks frequently involved (roughly 40% each).



*S5. Which of the following types of food and drink does your company **[PIPE IN FOODVERB]**? (Select all that apply)*

49% of respondents work in drinks, with foodservice most heavily involved.

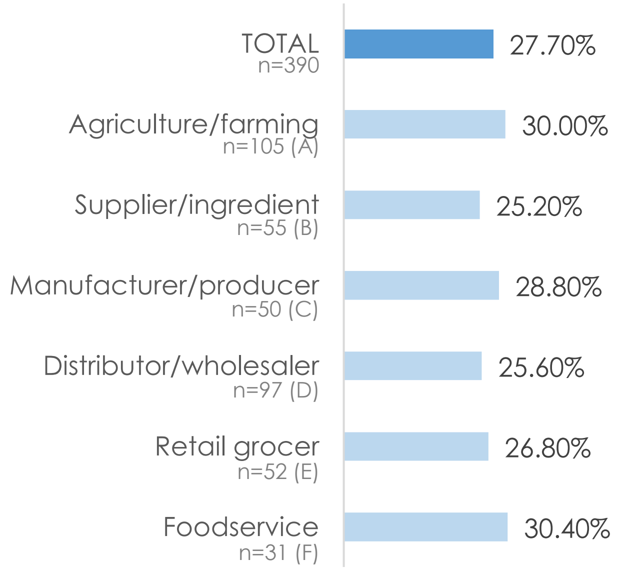


*S5. Which of the following types of food and drink does your company **[PIPE IN FOODVERB]**? (Select all that apply)*

Just under 30% of all food/drink estimated to be lost at any point in the food supply chain.

Total Share of Food/Drink Lost

Self-estimated, by respondent industry



A2. *Thinking, specifically, about the food and drink categories that your company* ***[FOODVERB]****s in* ***[COUNTRY]****, what is the total percentage of this type of food and drink that you estimate is lost at any point during the food supply chain? (Enter a percentage)*

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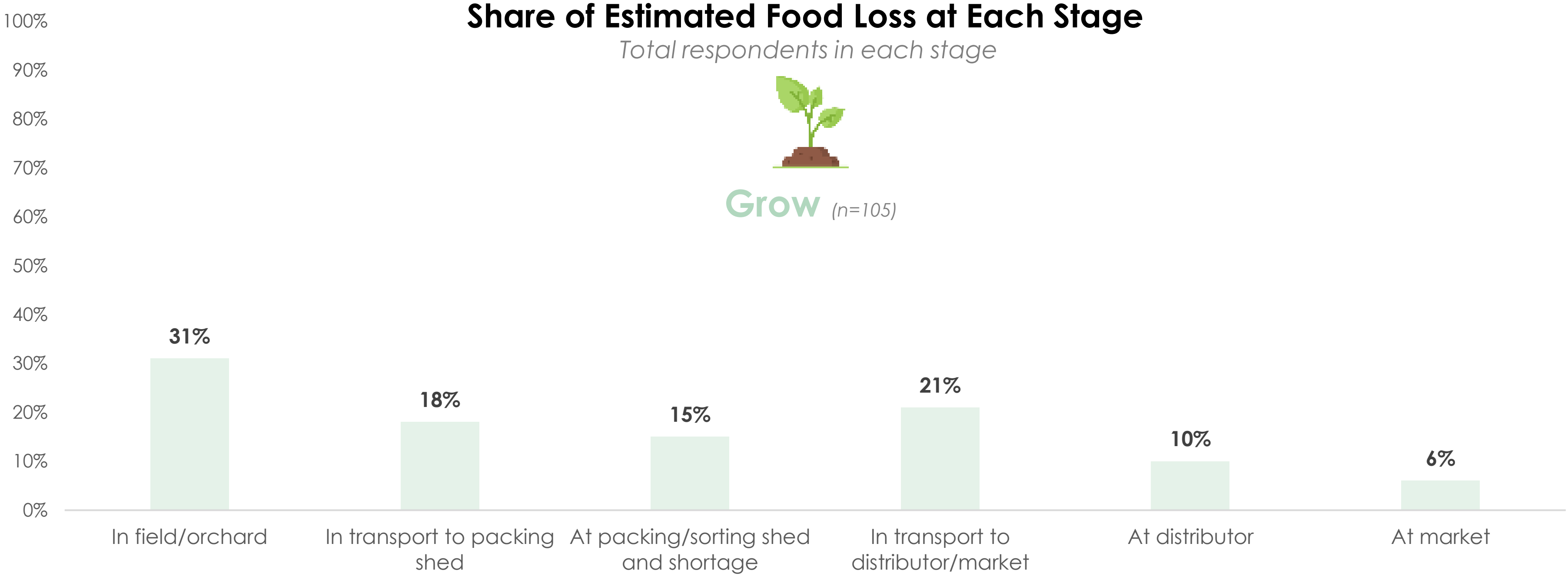
Food loss causes are distributed relatively evenly across each stage; loss in agriculture skews earlier in its chain, while mid to later in other stages.



A3. *Below is a list of seven stages of the food supply chain. Thinking about the total volume of food loss for your food and drink categories in* ***[COUNTRY]****, how much would you estimate is lost at each stage in the food supply chain? Please enter the percentage of the total loss that occurs at each stage. The sum of the numbers you enter should equal 100. If you do not feel there is any food loss at a particular supply chain stage, please enter ‘0’ next to that stage of the supply chain. Your best estimate is fine. (Enter a percentage. Must total 100.)*

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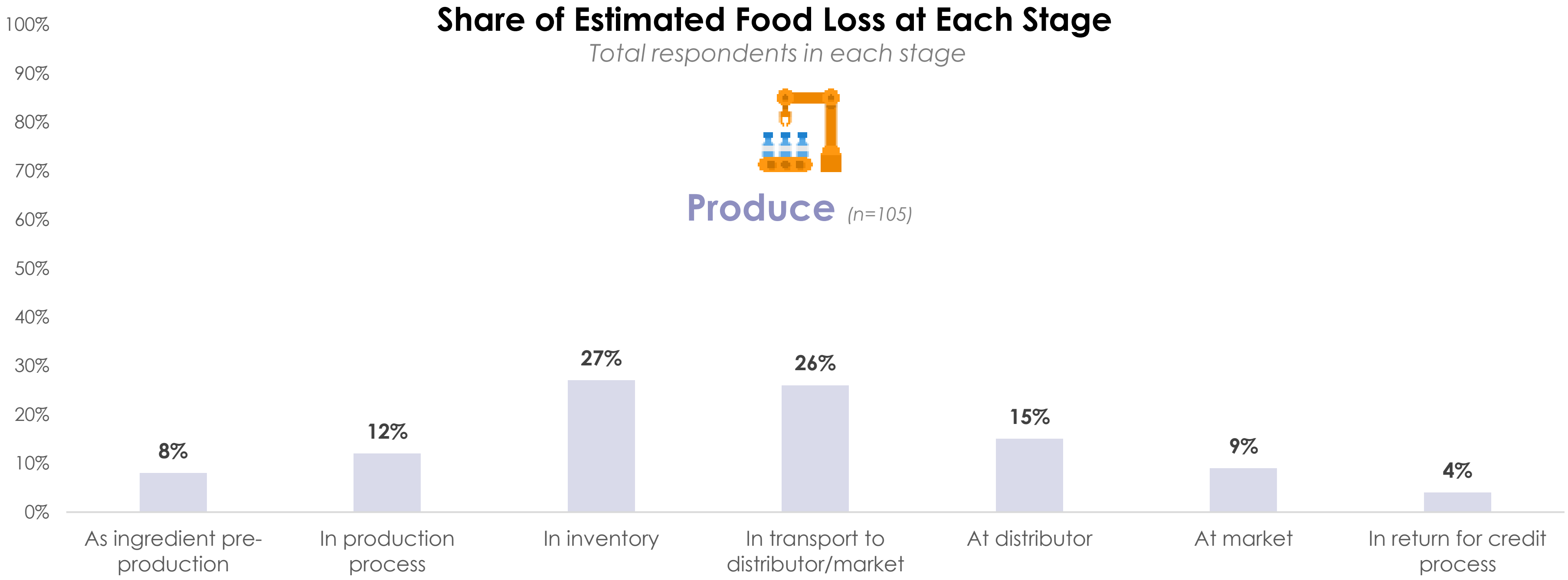

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MINTEL

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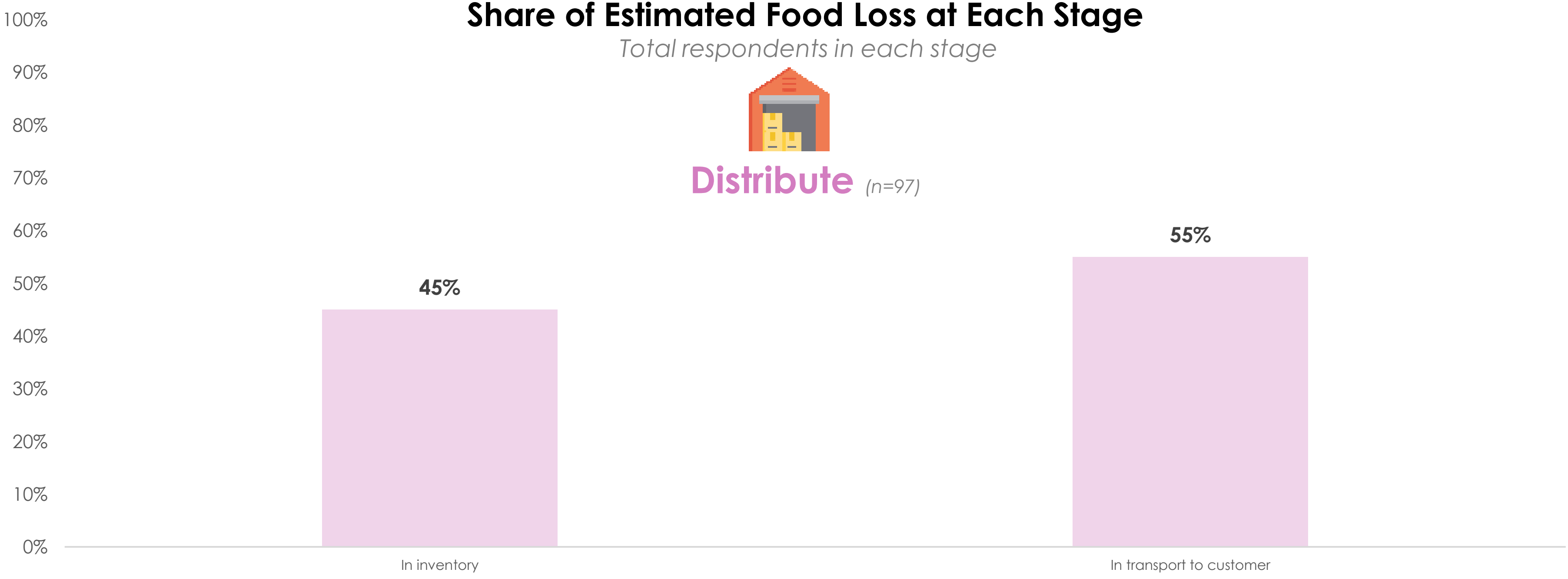
Share of Estimated Food Loss at Each Stage

Total respondents in each stage

Distribute *(n=97)*



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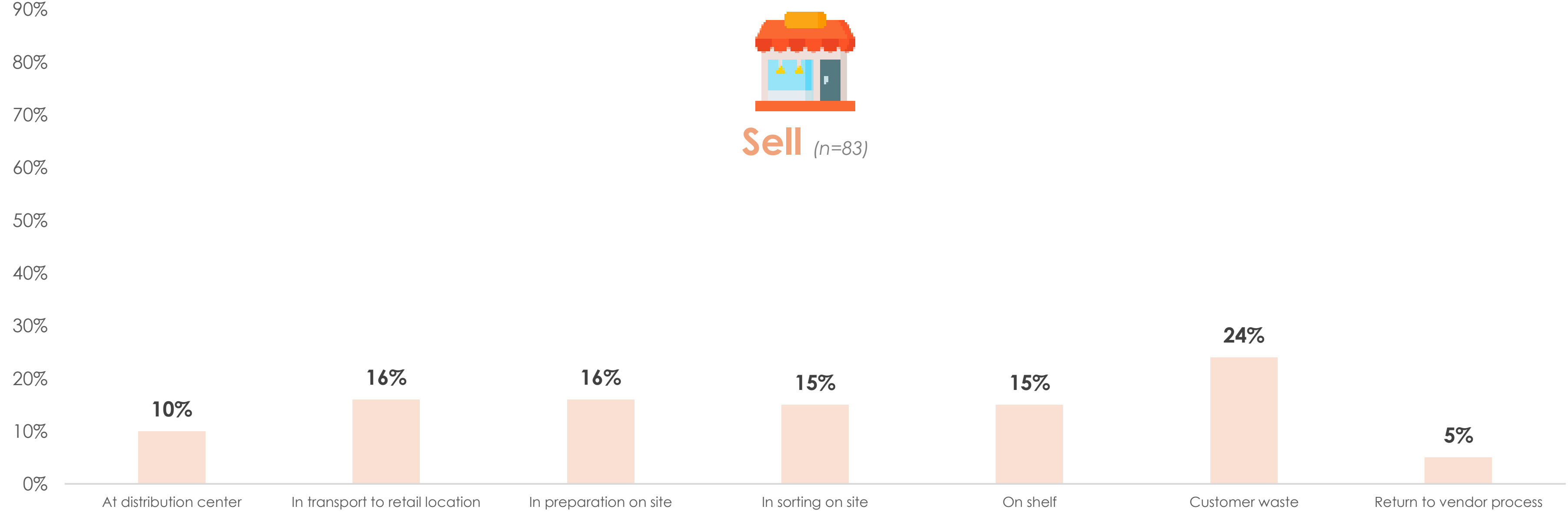
Total respondents in each stage



__A3.__ Below is a list of seven stages of the food supply chain. Thinking about the total volume of food loss for your food and drink categories in __[COUNTRY]__, how much would you estimate is lost at each stage in the food supply chain? Please enter the percentage of the total loss that occurs at each stage. The sum of the numbers you enter should equal 100. If you do not feel there is any food loss at a particular supply chain stage, please enter '0' next to that stage of the supply chain. Your best estimate is fine. (Enter a percentage. Must total 100.)

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Most respondents believe packaging (driven by machinery issues), transportation, and distribution (esp. expiration dates) contribute to food loss.

Reasons for Food Loss by Supply Chain Stage *(where 15%+)*

Total respondents; n=390

Packaging throughout		Transportation throughout		Distribution / wholesale / warehousing stage		Retail stage (grocery, foodservice)		Manufacture/ production stage		Agriculture/ farming stage		Consumer consumption*		Food supplier/ ingredient stage*	
Machinery issues	56%	Transportation issues	87%	Expiration dates	49%	Expiration dates	29%	Over-production	23%	Over-production	19%	Expiration dates	9%	Normal production processes (line start/change overs)	5%
Product blocking / mechanical mishandling	41%	Machinery issues	52%	Transportation issues	42%	Excess inventory / changes in demand	21%	Machinery issues	17%	Machinery issues	15%	Mislabeled foods / missing ingredients / allergens	6%	Transportation issues	4%
Transportation issues	39%	Product blocking / mechanical mishandling	38%	Machinery issues	42%	Transportation issues	15%	Product blocking / mechanical mishandling	15%			Imperfections (e.g., color, appearance)	5%	Machinery issues	4%
Quality compromised by damage	21%	Weather impact	32%	Excess inventory / changes in demand	39%							Excess inventory / changes in demand	5%	Product blocking / mechanical mishandling	4%
Expiration dates	18%	Quality compromised by damage	25%	Product blocking / mechanical mishandling	35%										
Mislabeled foods / missing ingredients / allergens	15%	Discontinued/slow moving products	17%	Stock rotation errors	30%										
Imperfections (e.g., color, appearance)	15%														

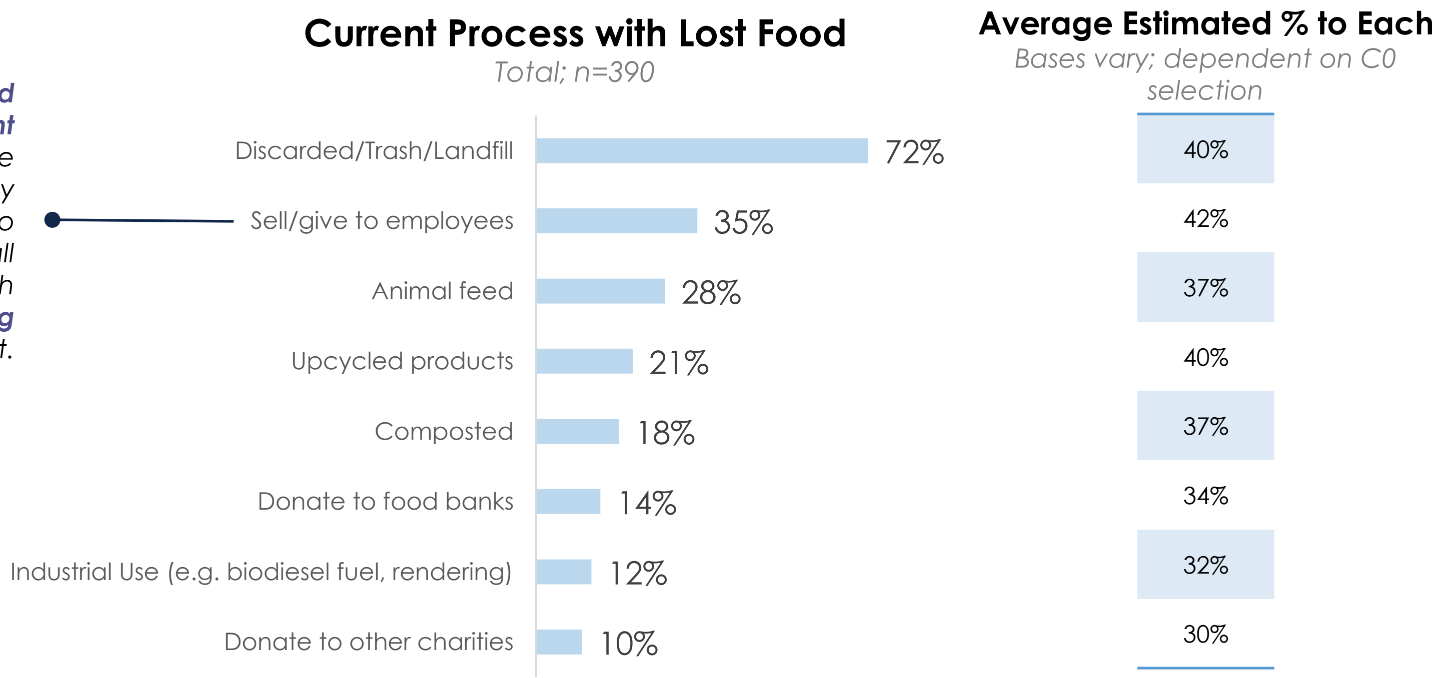
***A4.** You mentioned that at least some food loss occurs at the following stages in the supply chain. Please select all of the reasons that you believe contribute to food loss in each of these stages of the food supply chain in **[COUNTRY]**. (Select all that apply within each supply chain stage.)*

STATE OF FOOD LOSS

Current state of handling food loss and waste

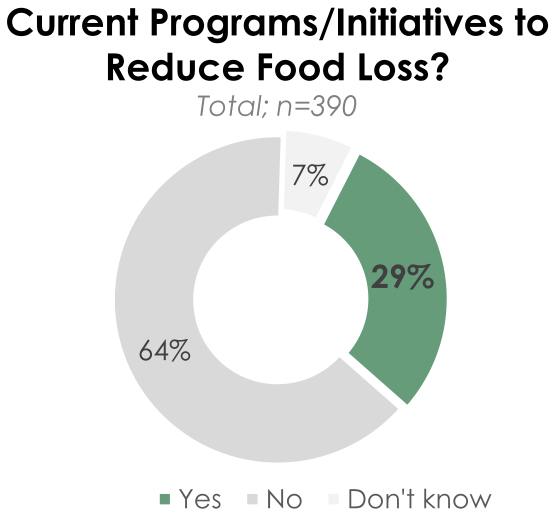
When it comes to the current process of dealing with lost food, 72% of respondents state it is discarded or thrown away.

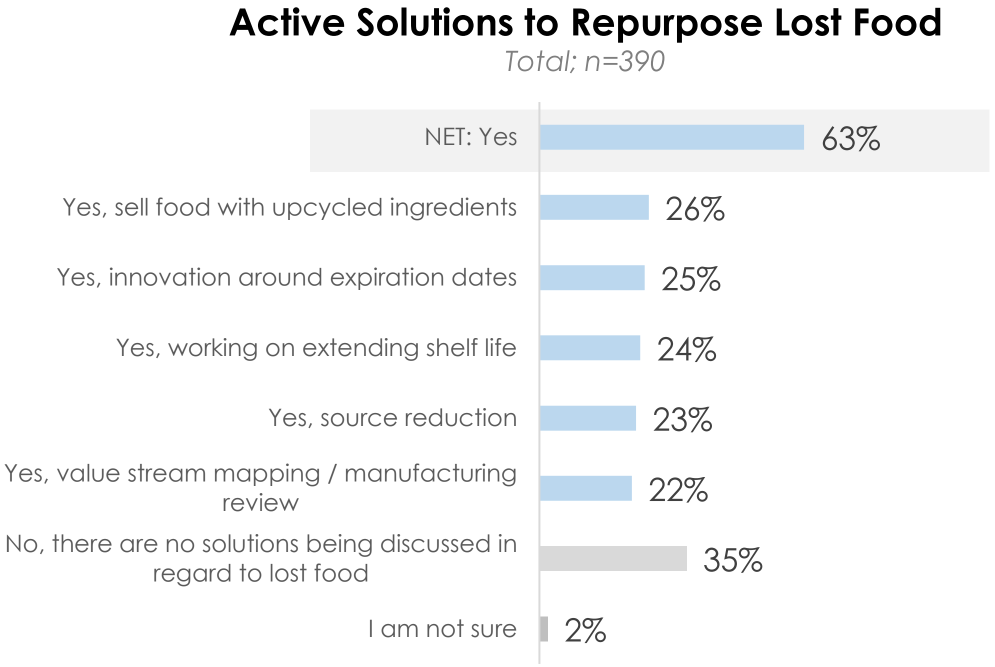
Food Service/Restaurant *respondents are significantly more likely to sell or give to employees than all other industries, with* ***agriculture/farming*** *more likely to compost.*



__C0.__ What does your company __currently__ do with lost food? (Select all that apply) __C0a.__ You mentioned that your company currently handles excess food through the below. What percentage of lost food do you estimate goes to each? (Responses must total 100)

While only 29% have a current program to reduce food loss, 63% of companies report they are working on solutions. Solutions vary, with supplier/ingredient companies and manufacturer/CPG producers focused on selling food with upcycled ingredients more than other production industries.



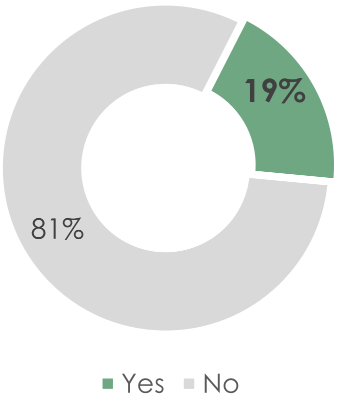


C1. Does your company currently have any programs or initiatives to reduce food loss?(Select one response) C2. Is your company actively working on any of the below solutions to repurpose lost food in the future? (Select all that apply)

19% of farming/agriculture respondents are incentivized to overproduce. Overproduced food typically is discarded or thrown out, composted or used for animal feed.

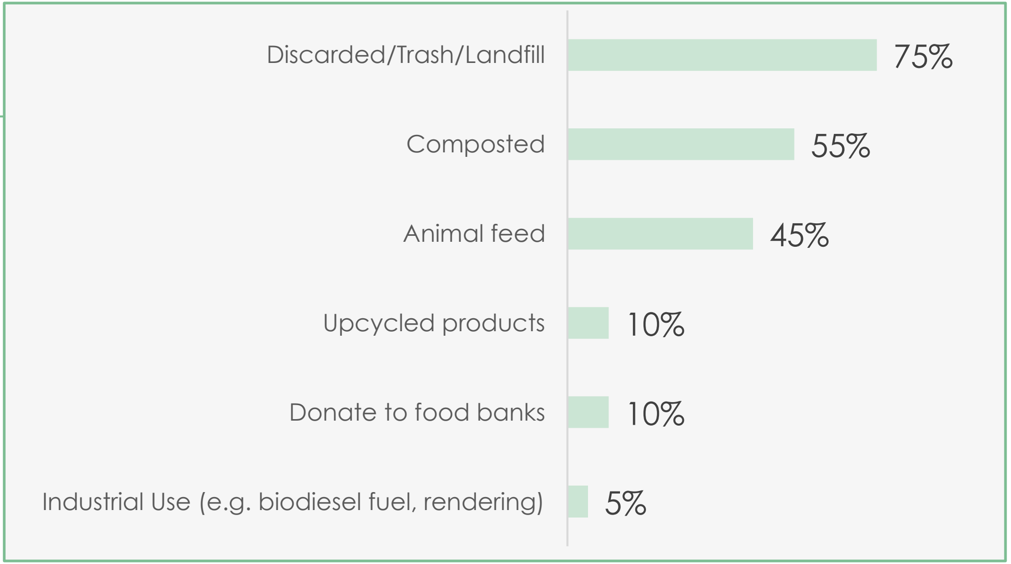
Incentivized to Overproduce?

Farming/Agriculture; n=105



Lost Food from Overproduction

*Farming/Agriculture who overproduce for incentives; n=20**



C3. *Are you incentivized in any way to overproduce in order to meet order expectations?* ***C3a.*** *You mentioned you are incentivized to overproduce to meet order expectations. What is currently done with lost food produced from* ***overproduction*** *specifically? (Select all that apply)*

**Low base size; interpret with caution*

Transportation stands out as the top limiting factor around donation, followed by insufficient storage/refrigeration and food expiration, mirroring factors for food loss.

Food expiration, health codes, and cost all have a strong impact by respondents who selected each.

	Factors that Limit Donation *Total; n=390*	Rated "***Strong Impact***" *Bases vary; dependent on C5 selection*
Transporation constraints	50%	51%
Insufficient storage/refrigeration	35%	54%
Expiration of food before distribution	34%	62%
Locations for donations are not convenient	25%	41%
Health codes	23%	59%
Lack of understanding of options	22%	31%
Liability concerns	18%	36%
Risk of re-sale into gray market	16%	53%
Quantity limitations on donations	15%	20%
Cost	14%	59%
Specific policies/laws or regulatory constraints	14%	33%
Concern about brand reputation risk	10%	58%
Other	1%	N/A

__C5.__ From the below, which factors limit the donation of lost food from your company currently?(Select all that apply) __C5a.__ You mention the below are factors that limit the donation of lost food from your company currently. How would you rank the impact of each of the below? (Select all that apply)

DETAILS: MARKETABILITY

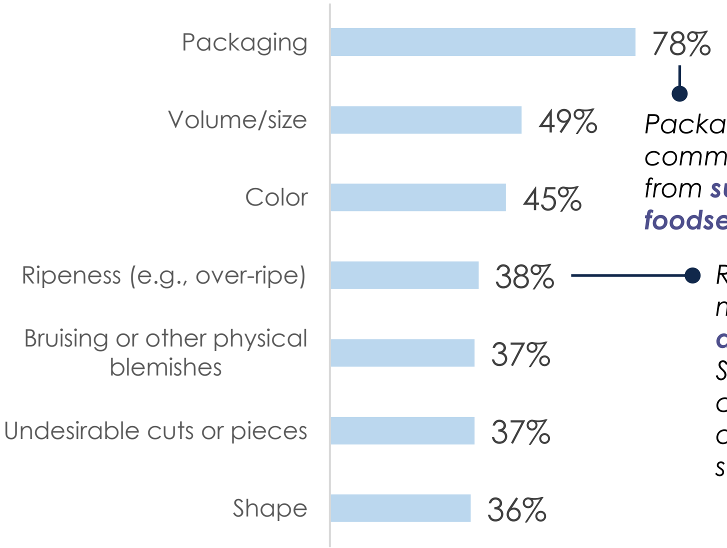
Discontinued / Slow moving product, Seasonal / Limited Offer / Promotional Items, Quality Compromised by Damage, Food Trimming, Mislabeled Foods / Mislabeled Ingredients / Allergens, Imperfections

Packaging drives most marketability issues, which arise downstream in the supply chain; it also drives the most share of waste relating to marketability.

The estimated percentage of product lost annually is estimated from 3.5 – 5.5% for each issue

Reasons for Marketability Issues

Any Marketability Issues; n=196



Packaging is naturally most common later in the supply chain, from ***suppliers*** *to* ***grocery*** *and* ***foodservice*** *(all at or over 90%).*

Ripeness is the biggest marketability issue for ***agriculture/ farming*** *(81%). Shape is also a factor more common here (55%) versus other stages of the food supply chain.*

M1. *Which types of cosmetic/aesthetic imperfections have you encountered in your operations that have created product waste? (Select all that apply.)* ***M4.*** *Approximately what percentage of product do you lose annually for each of the following reasons? (Your best estimate is fine. Please enter a value from 0 to 100)*

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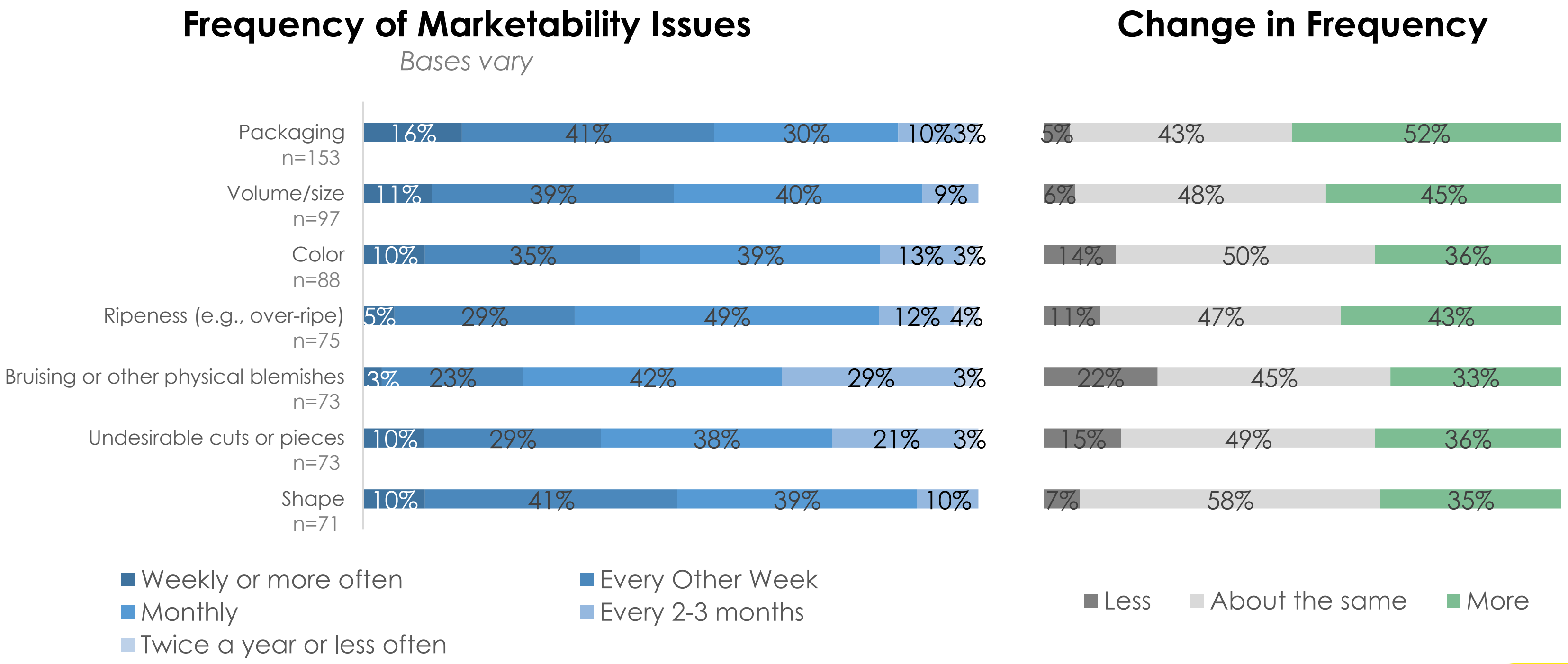
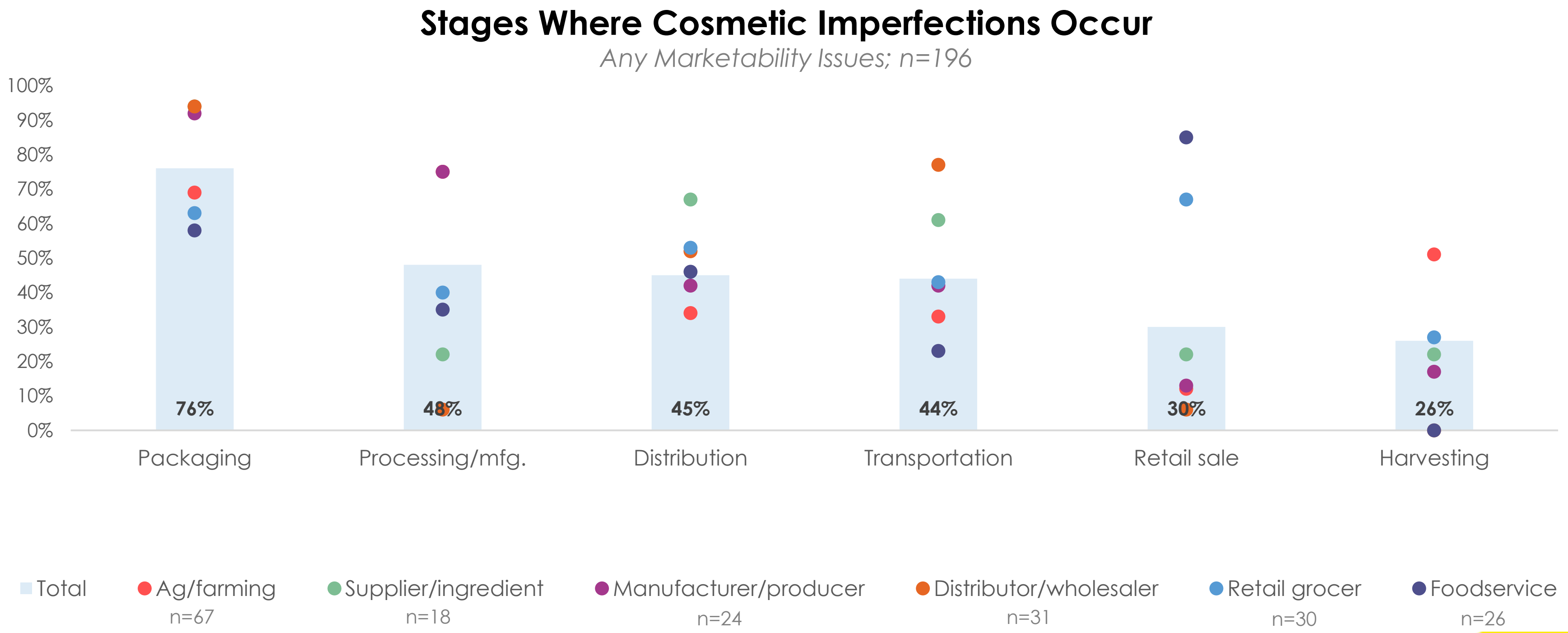
While packaging issues remain the most frequent marketability issue, product issues like shape, cuts, and ripeness may increase in the near future.



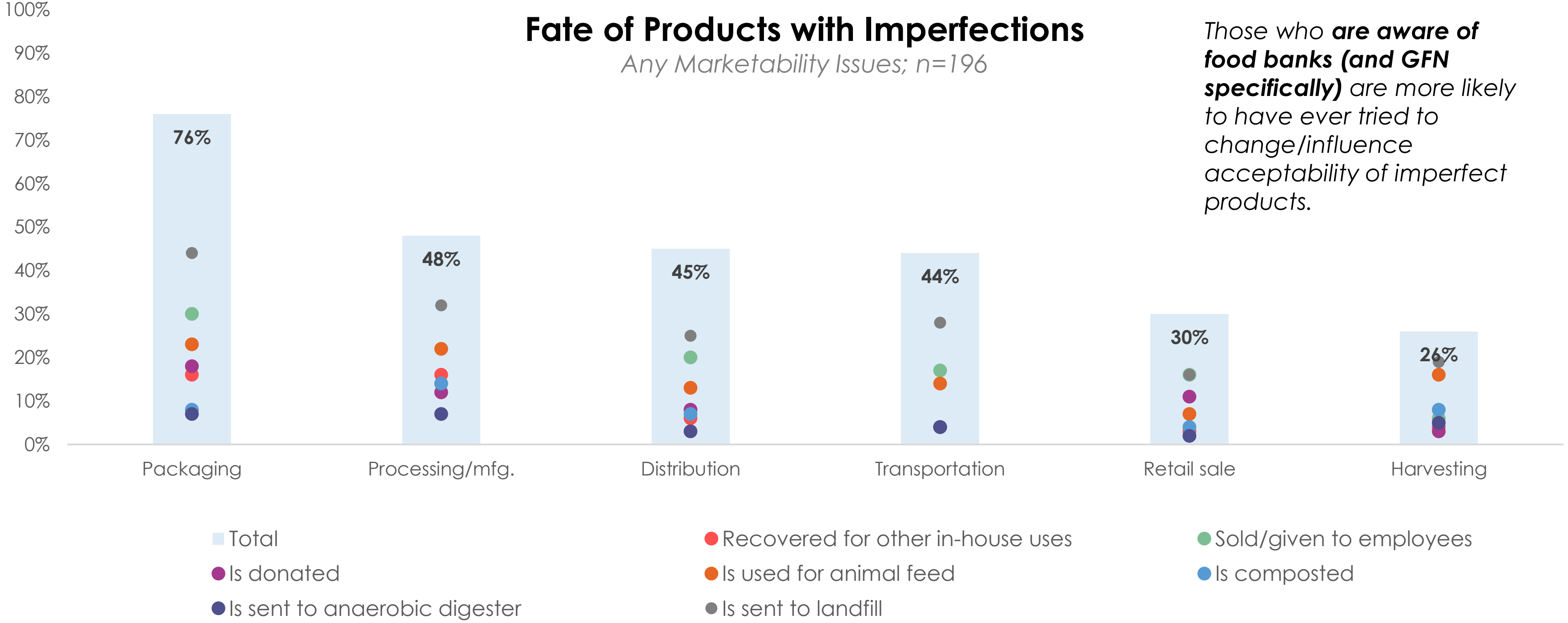
***M3.** About how frequently do you experience imperfections and subsequent product waste in your operations for each of these areas? (Select one response for each row. Your best estimate is fine.)* ***M2.** Do you find that each of these marketability issues are creating food waste more frequently, about the same, or less frequently? (Select one response for each row.)*

The packaging stage tends to catch the most cosmetic imperfections, which occur mostly down-chain (supplier, manufacturer, and distributor sectors).



__M5.__ At which stages of production do you typically see cosmetic imperfections occur? (Select all that apply.)
__M6.__ Where does the assessment of a product's ability to be sold occur? (Select all that apply.)

While landfills are generally the most common destination, donations are most often occurring at the packaging stage, or 18% of all respondents. Only 13% of respondents with issues report trying to change or influence acceptability.



*Those who **are aware of food banks (and GFN specifically)** are more likely to have ever tried to change/influence acceptability of imperfect products.*

***M7.** What currently happens to products with cosmetic/aesthetic imperfections at each of the following stages? (Select all for each.) [share of total]*

***M8.** Please briefly describe the points at which your products go from a "pass" to a "fail" in terms of being fit for sale, along with what typically happens to "failed" products. (Any details are appreciated.); excludes stop-words and terms with less than 7 occurrences*

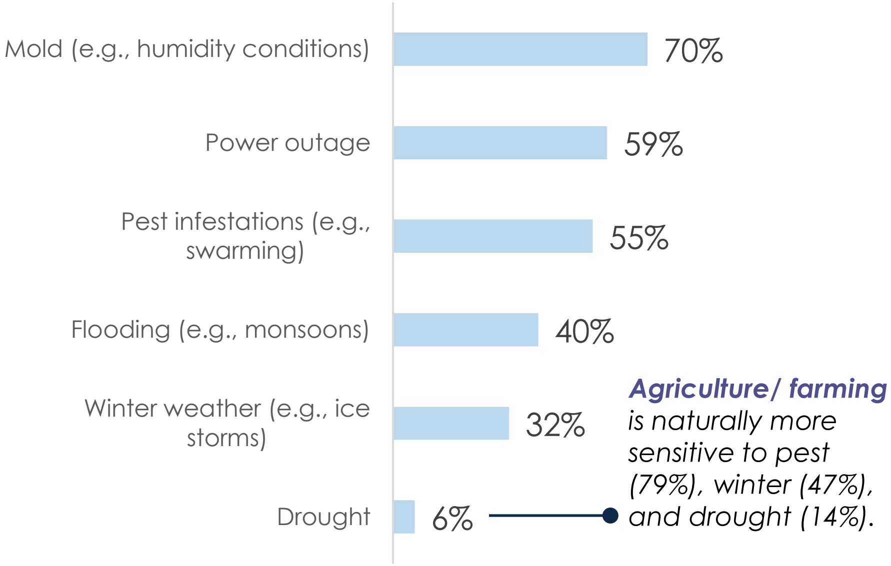
DETAILS: ENVIRONMENTAL OR WEATHER FACTORS

Weather Impact

Mold is the biggest environmental driver of product waste in APAC, most commonly impacting food crops, especially grains/pulses and fruits/vegetables.

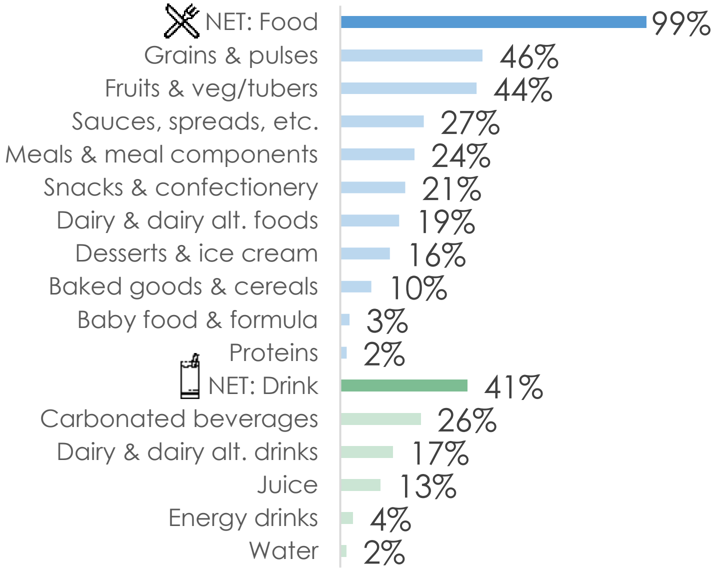
Types of Environmental Issues Encountered

Any environmental issues; n=187



Product Types Most Impacted

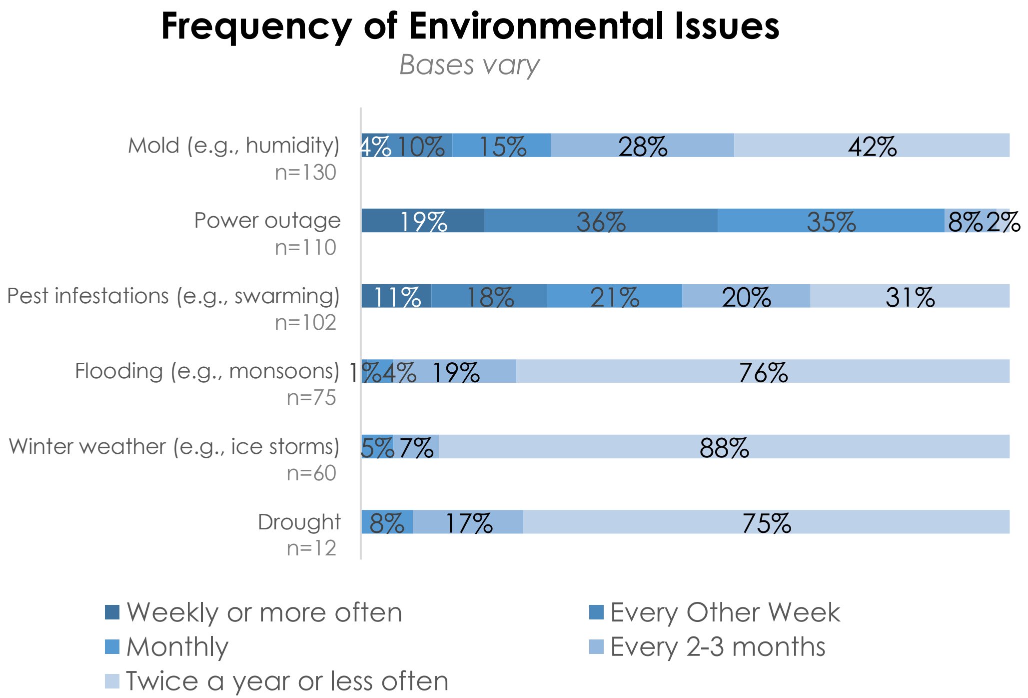
Any environmental issues; n=187

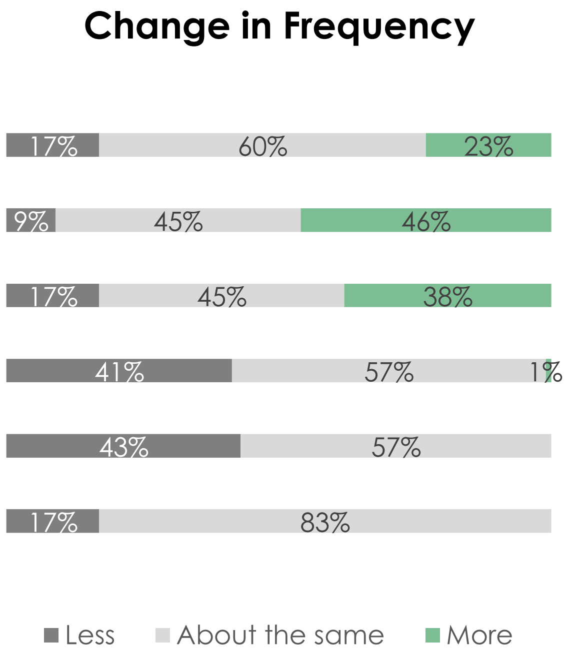


__E1.__ Which type(s) of environmental factors have you encountered in your operations that have created product waste? (Select all that apply.)

__E4.__ Briefly, what types of products in your operations are most impacted by these weather events (and most likely to be wasted)?(Select all that apply.)

Mold, power, and pest issues are the issues occurring most frequently to create product waste, while weather impact is more rare.





__E3.__ About how frequently do each of the following weather events impact your operations and cause product waste? (Select one response for each row. Your best estimate is fine.) __E2.__ Do you find that each of these weather events are creating product waste in your operations more frequently, about the same, or less frequently? (Select one response for each row.)

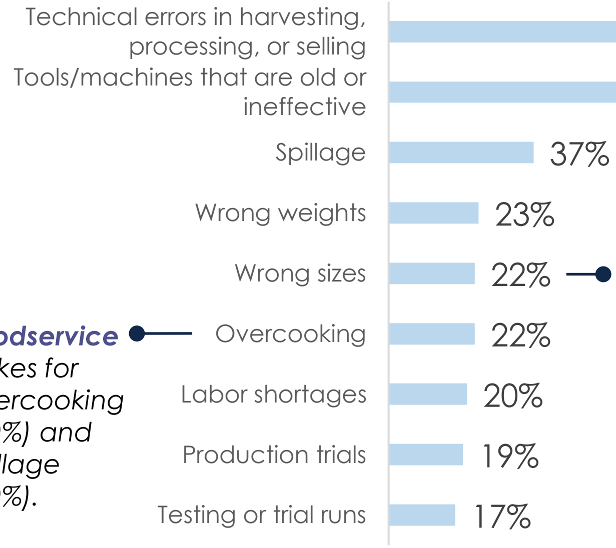
DETAILS: PRODUCTION & TECHNICAL FACTORS

Over-production, Machinery issues, Normal Production Processes, Stock Rotation, Product Blocking / Mechanical Mishandling / Loss of Power

Technical errors and ineffective tools are most likely to cause production issues, though flexibility to counteract issues remains higher earlier in the supply chain.

Reasons for Production/Technical Issues

Production/Technical Issues; n=366



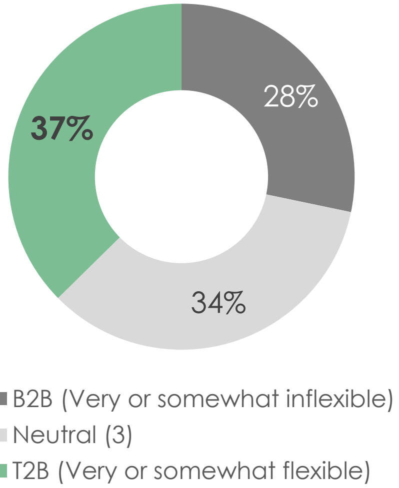
***Foodservice** spikes for overcooking (90%) and spillage (50%).*

***Agriculture/ farming** over-indexes notably for technical errors (87%) and wrong sizes (42%).*

Rated Ability to Act Flexibly to Minimize Production Errors

Production/Technical Issues; n=366

*Flexibility is relatively higher earlier in the chain (**agriculture, supplier, and manufacturing** around 44%) but dips at **distribution** (25%) and **grocery** (22%) before lifting at **foodservice** (53%).*



T0. How would you rate your operations' ability to act flexibly in order to minimize production errors and food waste?(Select one response.)
T1. Which production or technical issues have you encountered in your operations that have created product waste?(Select all that apply.)

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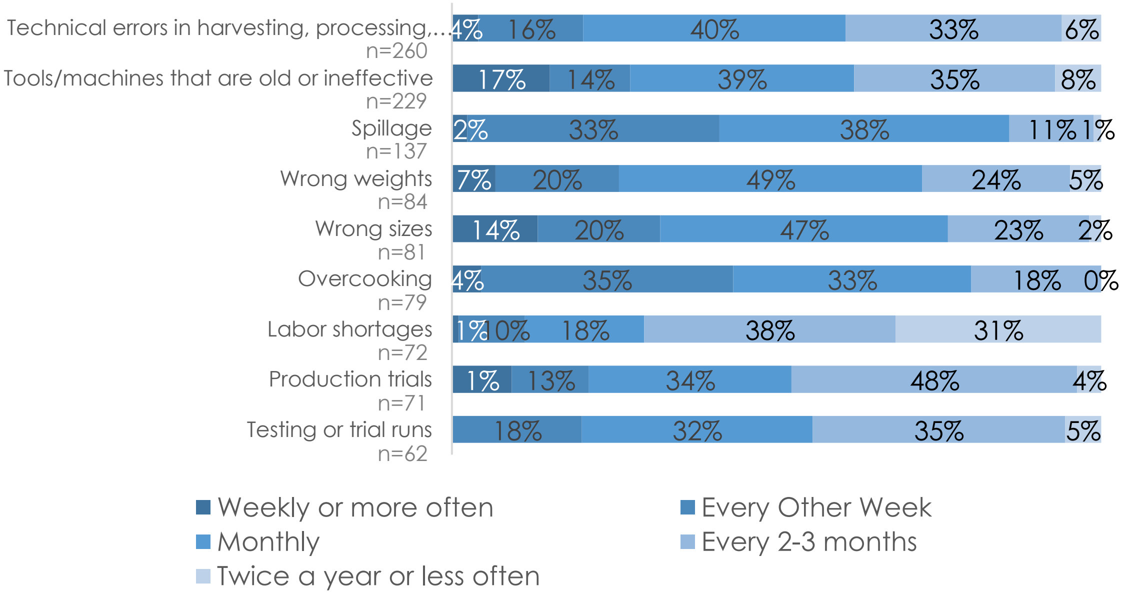
While technical errors are most commonly encountered, spillage is reported to have the highest estimated loss.

Frequency Production Issues

Bases vary



Estimated % of Product Lost Annually

5.3%
5.2%
6.5%
3.7%
3.8%
5.1%
4.3%
4.5%
4.0%

T2. About how frequently do you experience production issues and subsequent product waste in your operations for each of these areas? (Select one response for each row. Your best estimate is fine.) T3. Approximately what percentage of product do you lose annually for each of the following reasons?(Your best estimate is fine.)

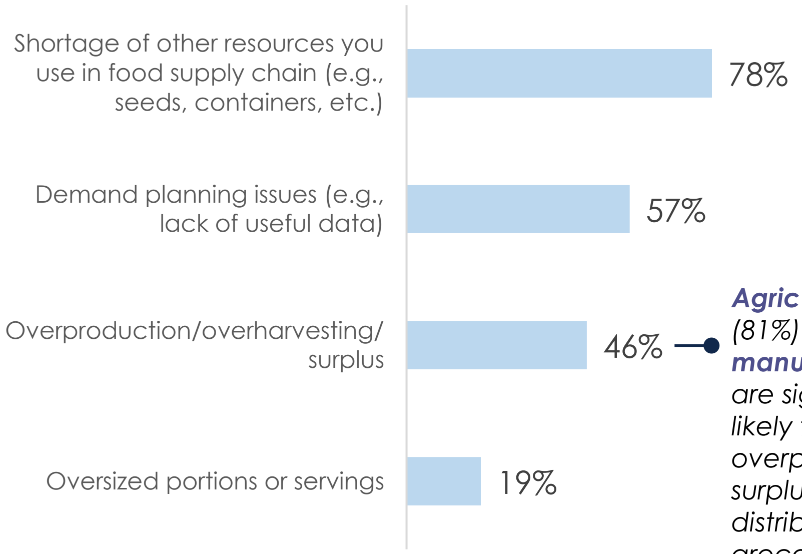
DETAILS: MARKET FLUCTUATIONS

Excess Inventory / Changes in Customer / Consumer Demand

Among those experiencing planning issues, shortage of other resources is most common, with technological resources in shortest supply.

Reasons for Planning/Fluctuation Issues

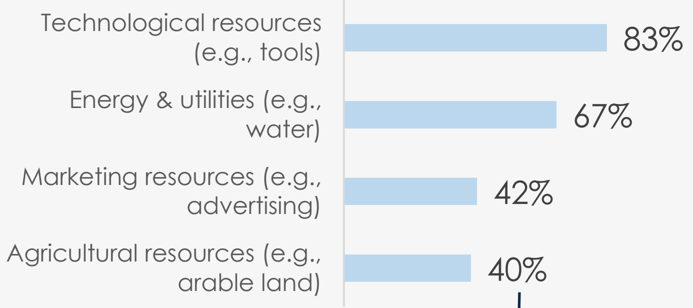
Market Fluctuation Issues; n=220



Agriculture/ farming *(81%) and* ***manufacturing*** *(63%) are significantly more likely to encounter overproduction/ surplus than suppliers, distributors, and grocers.*

Resources in Short Supply

Those encountering other resource shortages; n=172



Agriculture/ farming *naturally over-indexes for shortages on agricultural resources (95%), while other industries are most often short on tech. About half (52%)of* ***distributors*** *are short on marketing resources, much more so than agriculture and suppliers.*

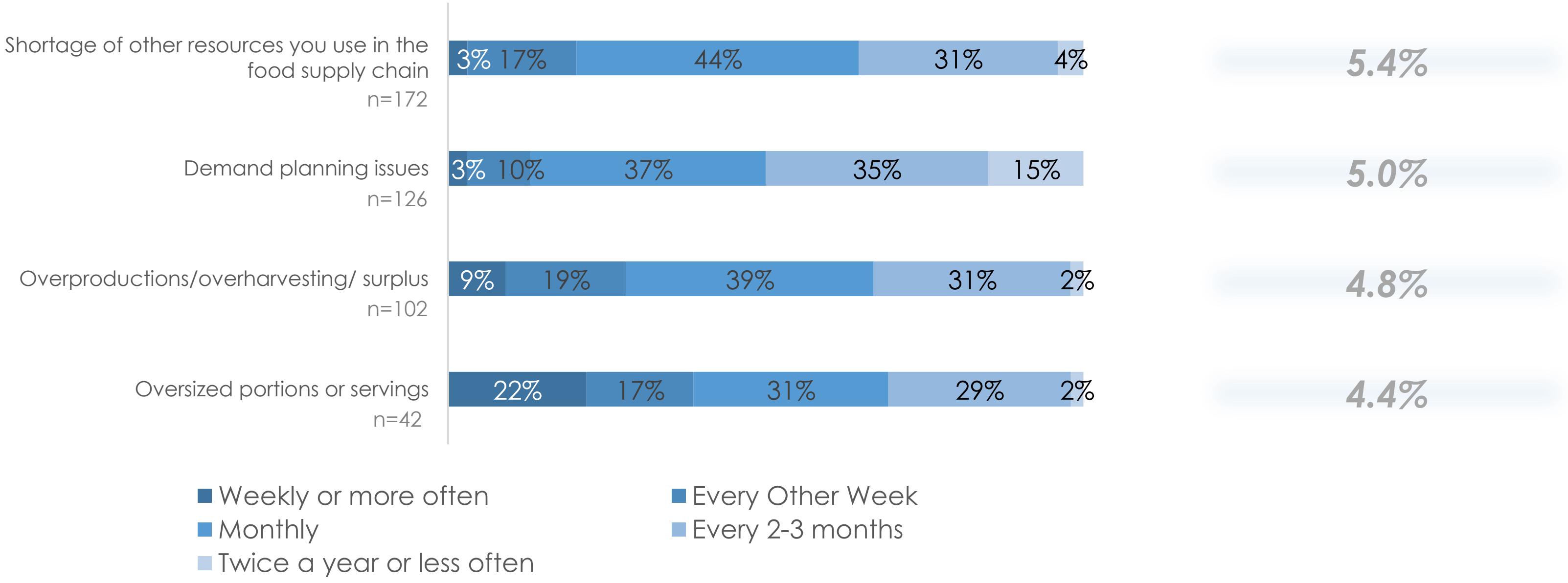
P1. *Which planning issues have you encountered in your operations that have created product waste? (Select all that apply.)*
P1b. *Which resources are typically in short supply when considering how they lead to product waste?(Select all that apply.)*

Resource shortages contribute to a slightly higher share of food loss than other issues, driving 5.4% of food loss annually.

Frequency of Planning/Fluctuation Issues

Bases vary

Estimated % of Product Lost Annually



P2. About how frequently do you experience planning issues and subsequent product waste in your operations for each of these areas? (Select one response for each row. Your best estimate is fine.) P3. Approximately what percentage of product do you lose annually for each of the following reasons?(Your best estimate is fine.)

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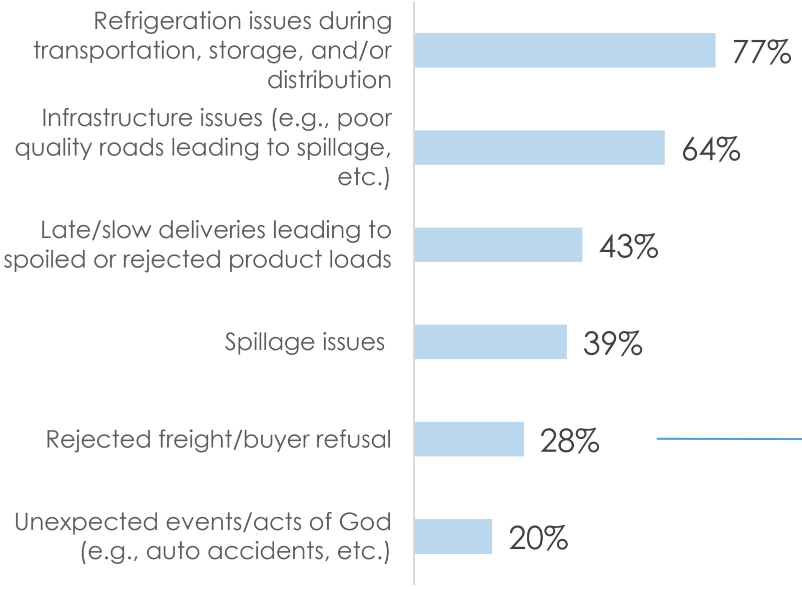
DETAILS: TRANSPORTATION & DISTRIBUTION

Transportation Issue

Most transportation/distribution issues stem from refrigeration or infrastructure issues. Top reasons for freight rejection mirror top issues, with temperature range tied with improperly contained freight.

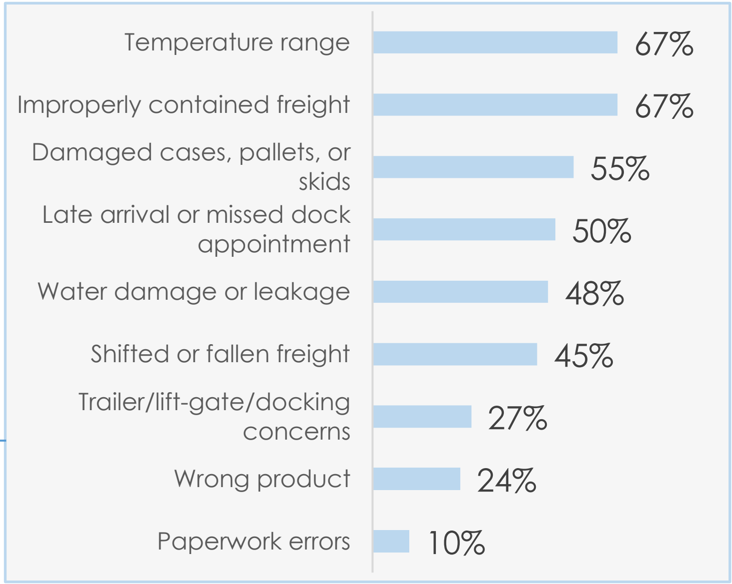
Transportation/Distribution Issues that drive Waste

Transportation/Distribution Issues; n=292



Types of Freight Rejection

Those who experience freight rejection; n=82



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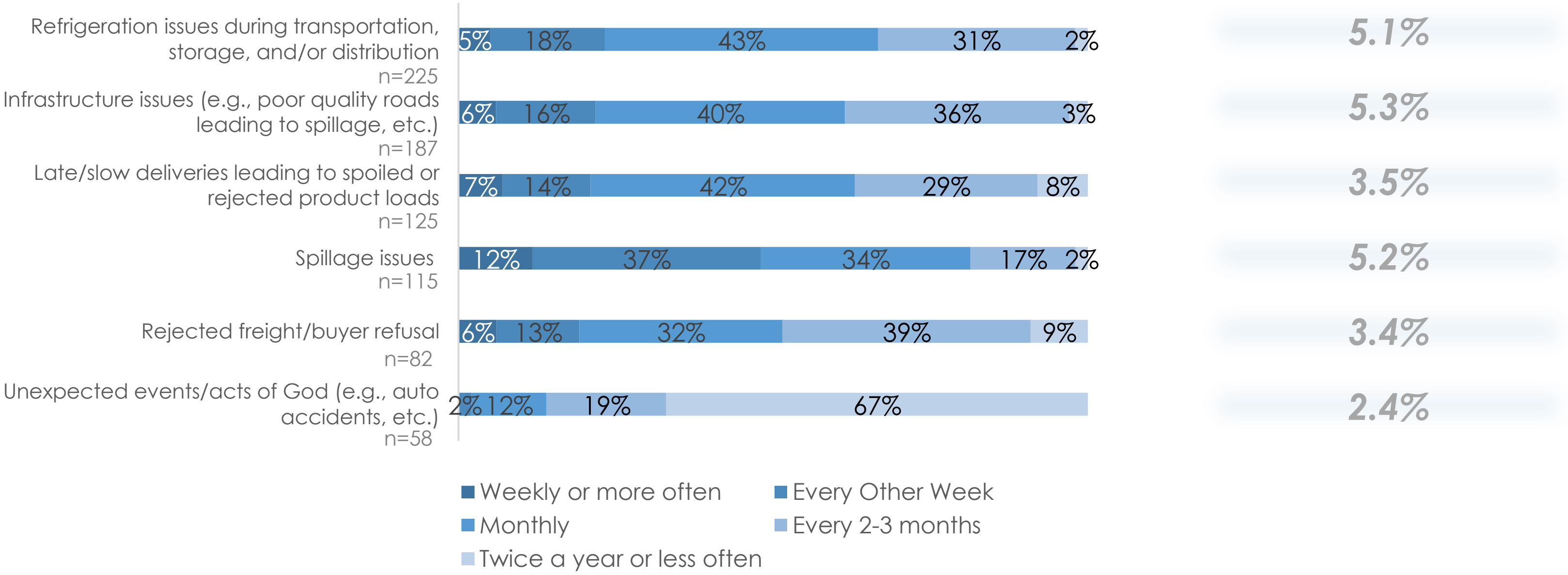
__F1.__ Which transportation and/or distribution issues have you encountered in your operations that have created product waste?(Select all that apply.) __F1b.__ Specifically, what types of freight rejection have you encountered in your operations?(Select all that apply.)

While refrigeration and infrastructure issues are top causes of food loss related to transportation/distribution, spillage is the most frequent cause of product loss.

Frequency of Transportation/Distribution Issues

Bases vary

Estimated % of Product Lost Annually



F2. About how frequently do you experience transportation, storage, or distribution issues and subsequent product waste in your operations for each of these areas? (Select one response for each row. Your best estimate is fine.)F3. Approximately what percentage of product do you lose annually for each of the following reasons?(Your best estimate is fine.)

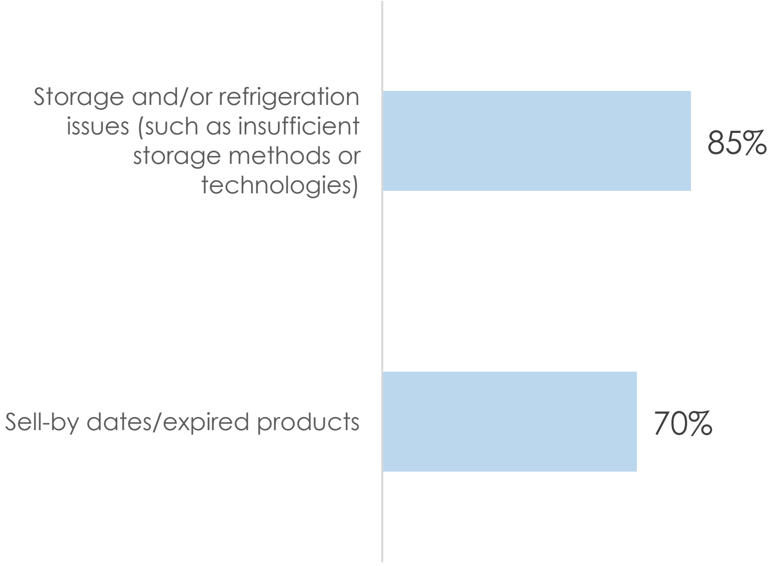
DETAILS: PRODUCT AGE, CLOSE TO CODE, QUALITY DEGRADATION

Safety recalls / Concerns

When it comes to safety recalls/concerns, refrigeration emerges as a top reason for quality issues in APAC. Of those who report seasonality effects safety recalls/concerns, 84% report issues occur in the summer.

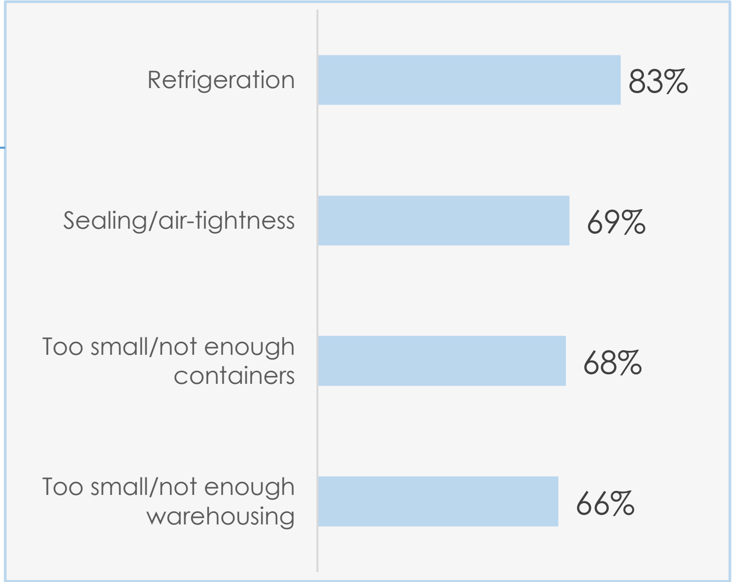
Age/Quality Issues that drive Waste

Safety Recalls/Concerns; n=91



Types of Storage Issues

Those who experience storage issues; n=77



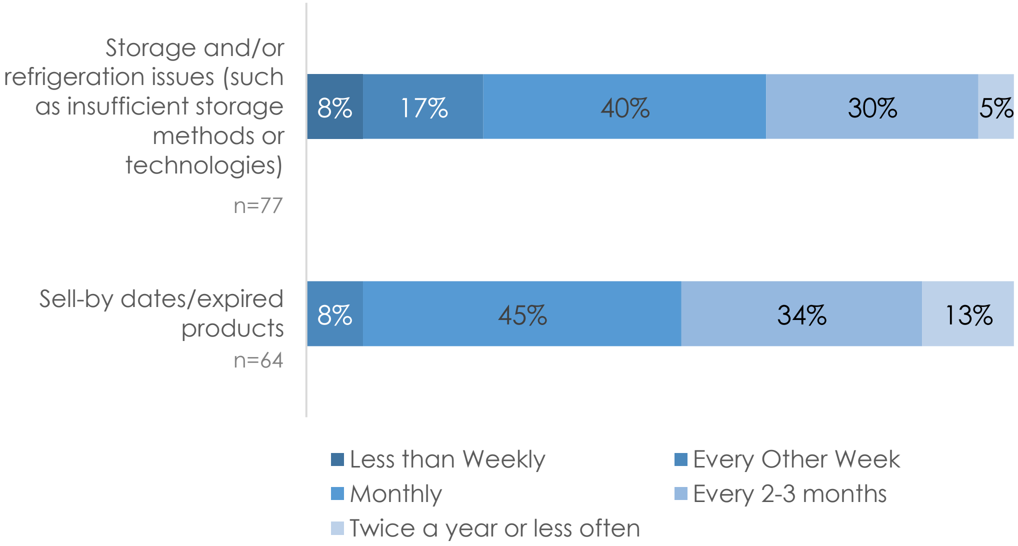
Q1. *What are the typical reasons you encounter age/quality issues that have created product waste? (Select all that apply.)*

Q1b. *Specifically, what types of storage issues do you experience that regularly lead to product waste? (Select all that apply.)*

Safety concerns that lead to subsequent waste are happening frequently, with both storage/refrigeration and expiration dates driving roughly 5% of total product loss annually.

Frequency of Safety Concern Issues

Bases vary



Estimated % of Product Lost Annually

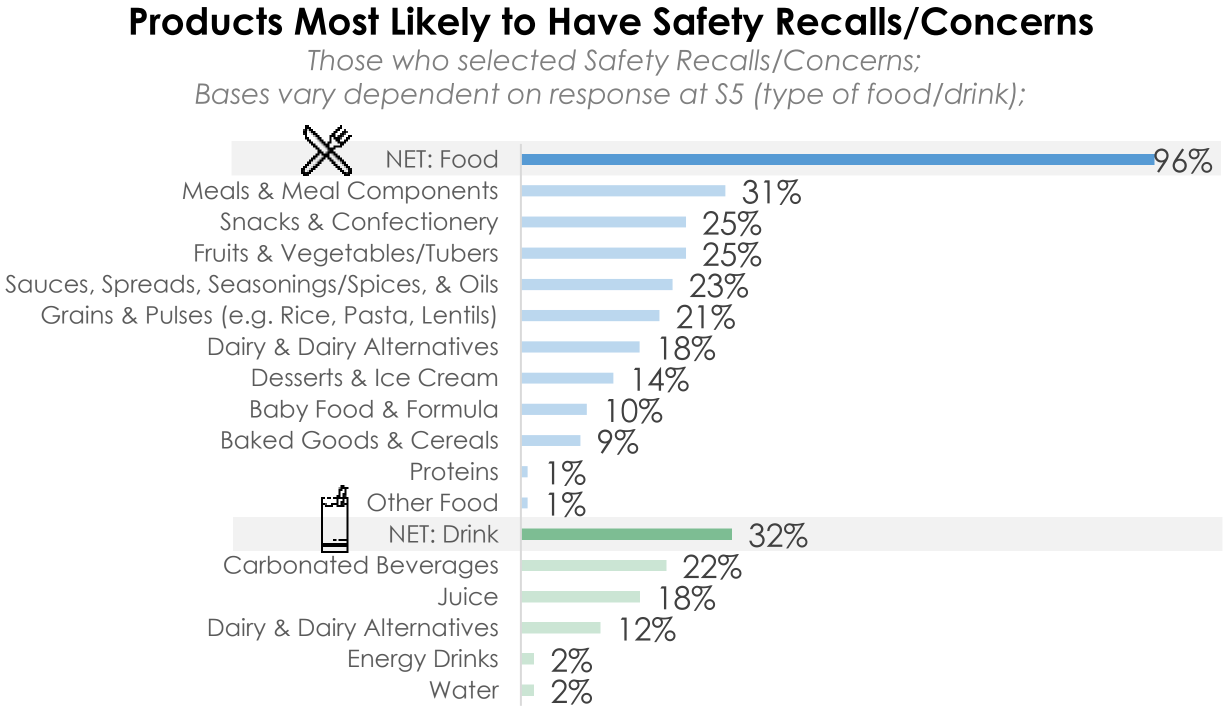
5%

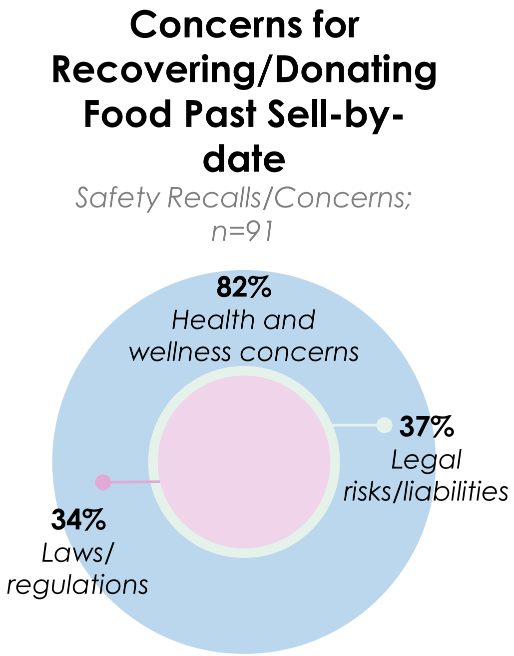
4.2%

Q2. *About how frequently do you experience safety concerns and subsequent product waste in your operations for each of these areas? (Select one response for each row. Your best estimate is fine.)* ***Q3.*** *Approximately what percentage of product do you lose annually for each of the following reasons?(Your best estimate is fine.)*

All food products seem to be affected by safety recalls/concerns, though issues around proteins & water are rare.

Health and wellness concerns, such as whether or not food is safe to ingest, top the list when it comes to donation hesitation for food close to code and food affected by product age or quality degradation.





__Q5.__ Briefly, what types of products in your operations are most likely to have safety recalls or concerns (and most likely to be wasted)? (Select all that apply.) __Q6.__ When you consider ways of recovering and/or donating product that is past its sell-by date, which of the following are of concern?(Select all that apply.)

FOOD RECOVERY LANDSCAPE

Food Bank Awareness & Interest

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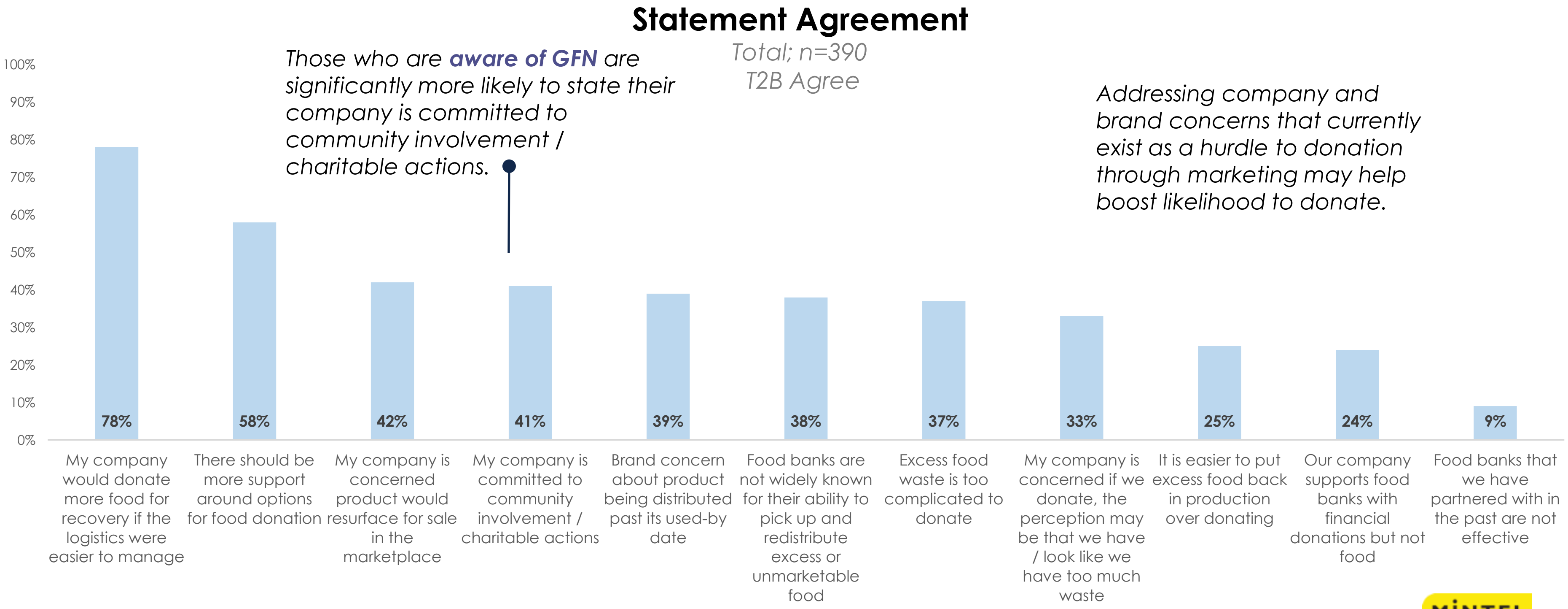
58% of respondents agree there should be more support around food donation options. Logistics are a big barrier for donation, with 78% stating their company would donate more if the logistics were easier to manage.

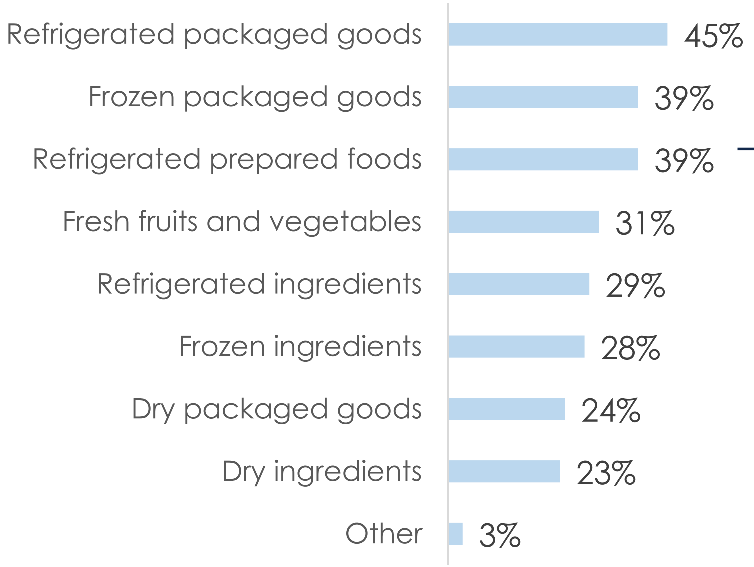


D5. How much do you agree or disagree around each of the following statements? (Select one for each)

Most have packaged goods or prepared foods to donate, with most having excess food available once a month or every few weeks.

Product for Redistribution

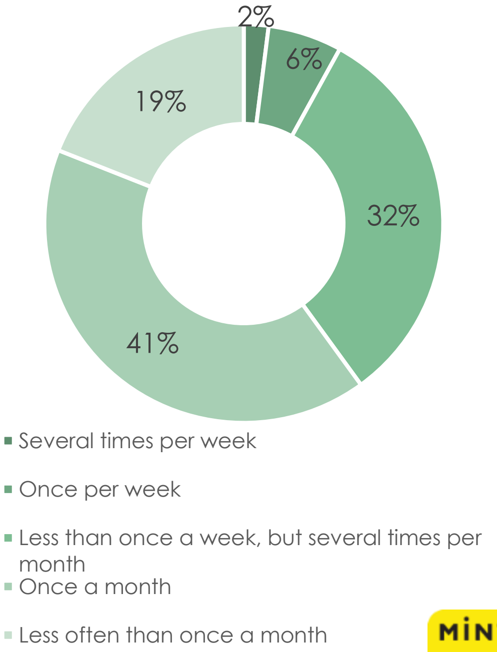
Total; n=390



China, Vietnam, Korea and Hong Kong *are significantly more likely to have refrigerated prepared foods than Thailand and Malaysia.*

Frequency of Excess Food

Total; n=390



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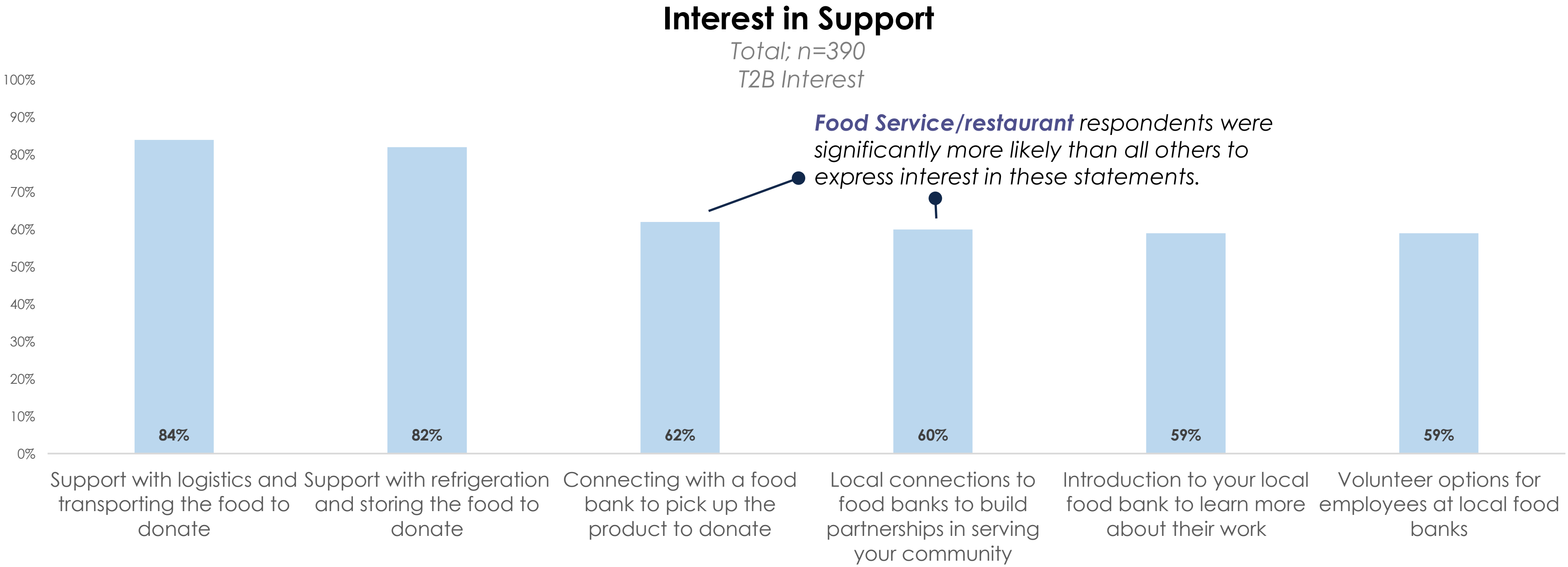
D6a. *What types of product might your company have for a food bank to redistribute?* ***D6b.*** *How frequently would excess food be available? (Select one response)*

84% of respondents state their company would be interested in logistics and transportation support, with 82% interested in support for refrigeration and storage.



D7. *Finally, how interested would your company be in each of the below? (Select one for each)*

Transportation, storage and overall transparency in process arise as top factors of consideration for working with a food recovery organization.

Factors Required for a Food Recovery Organization

Total; n=390

*"We expect good transportation, high storage capacity and experienced team for food donation" – **Singapore** (Distributor/Wholesaler/Warehousing)*

*"They should describe the requirements and types of food that are easy to transport and contribute, as well as raise awareness about the most required food item." – **India** (Supplier / Ingredient Company)*

*"The consistent support and clarity of their donation chain, such as where to donate food and how to donate." - **China** (Retail Grocer)*

*"Transportation is the biggest challenge for us. Therefore, they must have good transportation facilities" – **Indonesia** (Agriculture/Farming)*

*"To engage with us successfully, they need to have a quality inspection process that removes unqualified products." - **Malaysia** (Manufacturer / Consumer Packaged Goods Producer)*

*"They must have ample storage space and better refrigeration for food supply." – **Korea** (Food Service/Restaurant)*

*"They should place a greater emphasis on disclosing the distribution channels for the food that we donate, so that we can have more confidence in them." - **Philippines** (Supplier / Ingredient Company)*

***D6c.** Are there any other factors that a food recovery organization need to consider in order to successfully engage with your company? (Briefly explain below)*

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FOOD BANK AWARENESS

Food Bank Awareness & Participation

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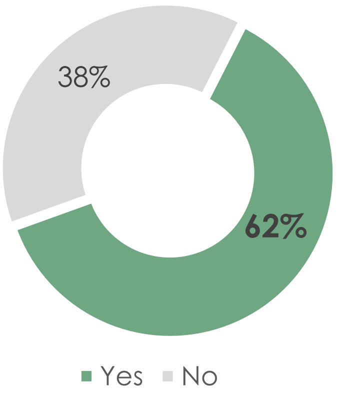
62% of respondents are aware of food banks, with 29% aware of GFN.

However, 36% are not aware of any food charity organizations.

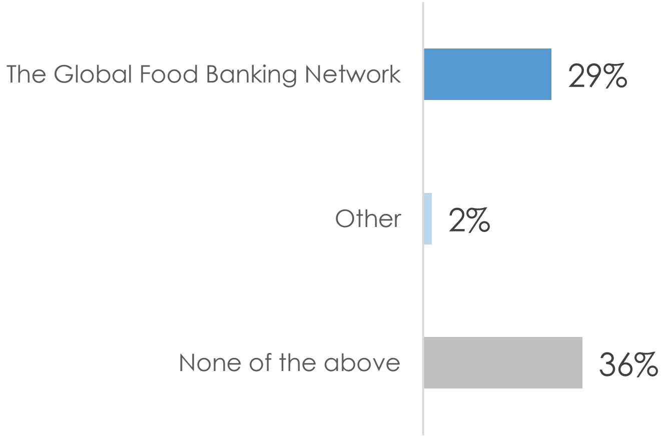
Aware of Food Banks?

Total; n=390



Organization Awareness: Food Charities

Total; n=390

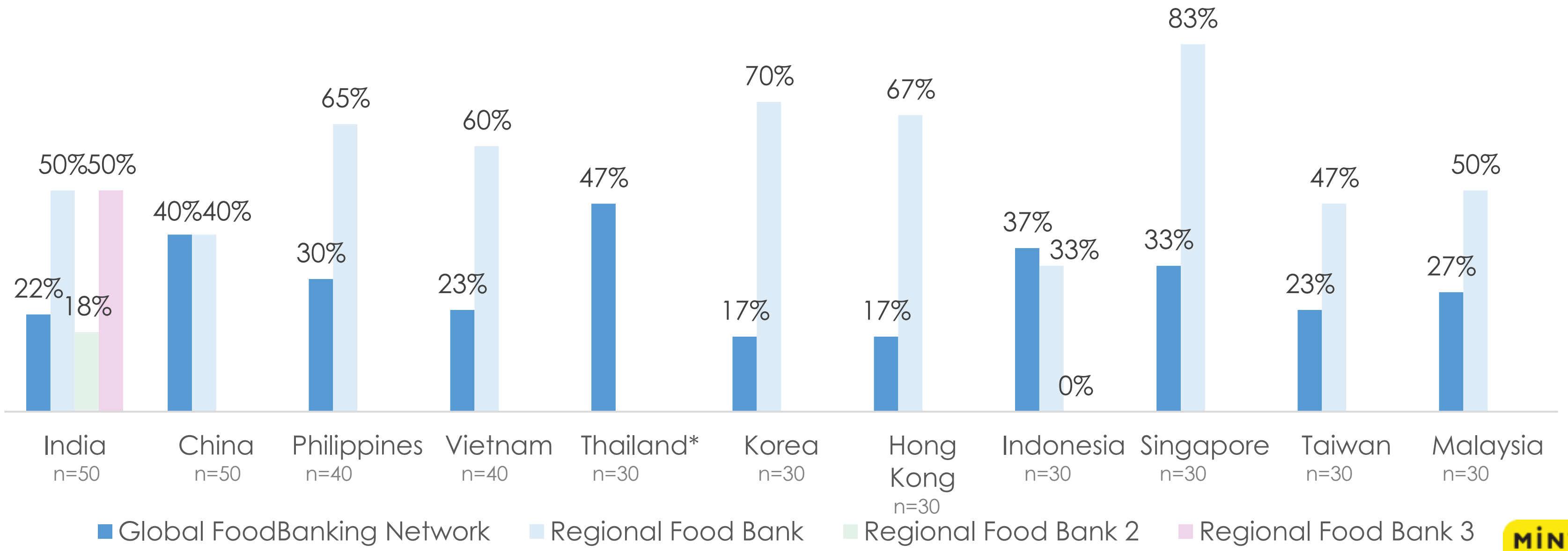


D00. *Are you aware of food banks – organizations that operate in the way we've been discussing: accessing excess food from partners at all points of the supply chain and redistributing it to men women and children in need so that it feeds people and doesn't go to waste?* ***D0.*** *Below is a list of charitable and community organizations. Before taking the survey today, which of the following organizations were you already aware of? (Select all that apply)*

Within each country, respondents report stronger awareness of regional food banks over GFN. China and Indonesia have fairly even awareness between GFN and regional options.

Organization Awareness: Food Charities – By Country

Bases vary; Regional foodbanks vary dependent on country (see appendix for details)

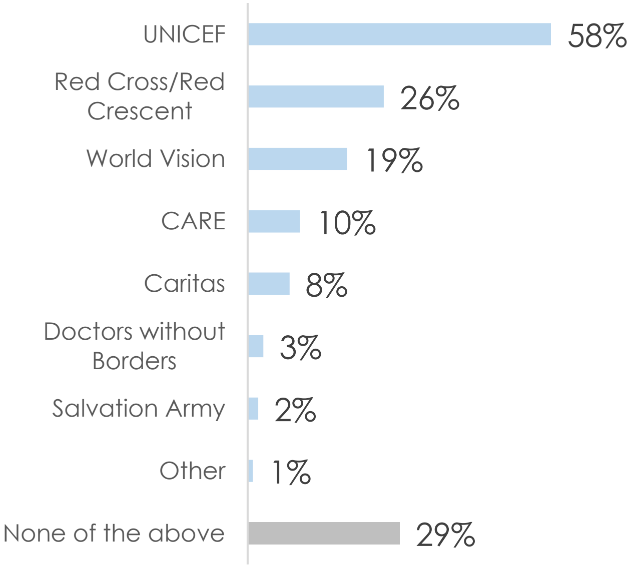


*D0. Below is a list of charitable and community organizations. Before taking the survey today, which of the following organizations were you already aware of? (Select all that apply) *Note Thailand local foodbank was not displayed to respondents.*

While non-food organizations garner more awareness, only 32% of respondents state their company currently works with any charitable organization.

Organization Awareness: Other Charities

Total; n=390



Charities: Currently Work With

Those aware of any organization; n=335

68%

*State their company **does not** currently work with any charitable organization*

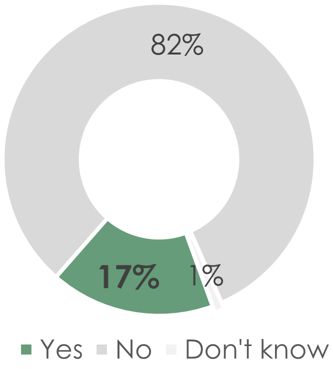
Of those who do, top organizations are UNICEF (7%), The Global Food Banking Network (4%), Red Cross/Red Crescent (2%) and larger country specific food banks including:
Feeding Hong Kong (2%), India FoodBanking Network (2%), Rise Against Hunger Philippines (2%), Food Bank Singapore Ltd (2%), Korea National Food Bank (2%),

D0. Below is a list of charitable and community organizations. Before taking the survey today, which of the following organizations were you already aware of? (Select all that apply) ***D0c.*** *You stated you are aware of the following charitable and community organizations. Does your company* ***currently*** *work with any of the following? (Select all that apply)*

Just 17% of respondents report having a food recovery/donation program in place today. Examples of programs include Foodbank Singapore, Rise Against Hunger Philippines, Indian Food Banking Network and Feeding Hong Kong.

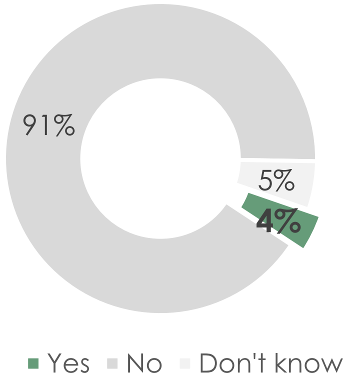
Food Recovery/Donation Program in Place Today

Total; n=390



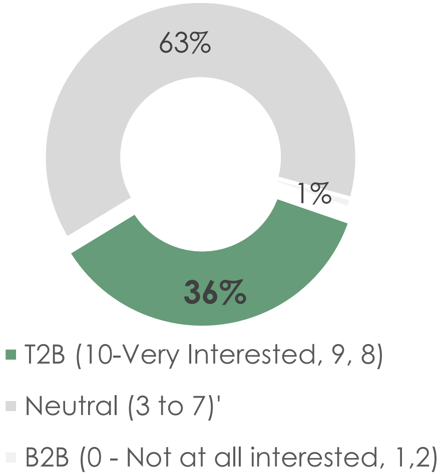
Past Participation in Food Recovery/Donation Program

Those who do not currently have one in place; n=321



Interest in Participating in New or Expanded Food Recovery/Donation Program

Total; n=390



*D2. Does your company have a **food recovery or donation program** in place today? (Select one response) **D3.** To your knowledge, has your company ever participated in a **food recovery or donation program** in the past?(Select one response) **D4.** And using the scale below, please rate how interested your company would be in participating in new or an expanded **food recovery or donation program** within the next 12 months? (Select one response)*

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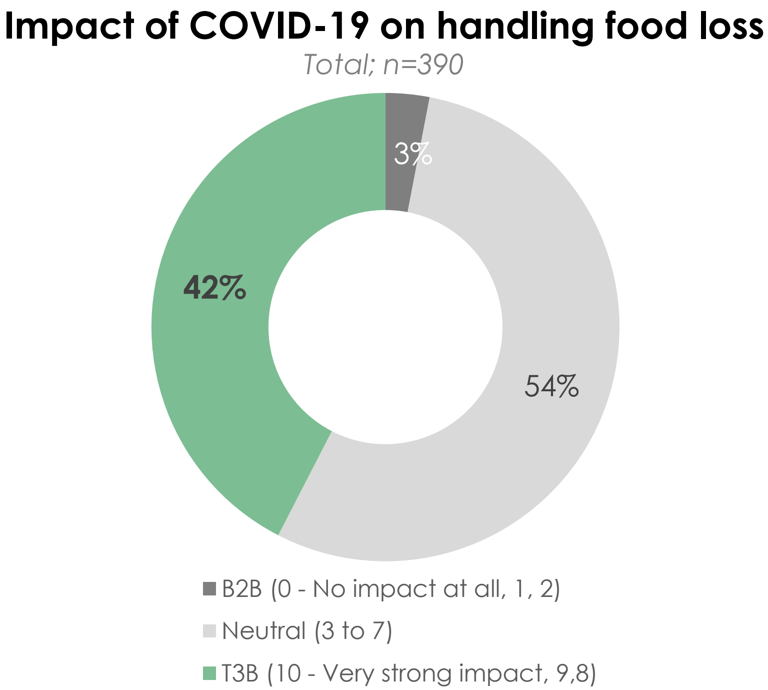
COVID-19 IMPACT

COVID-19

42% of respondents state COVID-19 has had a strong impact on how their company handles food loss.

*Those **aware of GFN** are significantly more likely to state that COVID-19 had a strong impact on how they handle food loss, compared to those unaware (62% vs 35%, respectively), possibly suggesting that an awareness of organizations drove some sort of change.*



***C4.** How would you rate the impact that COVID-19 has had on how your company chooses to handle food loss? (Select one response)*

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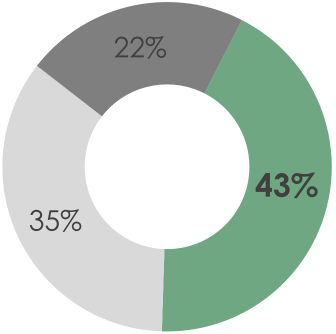
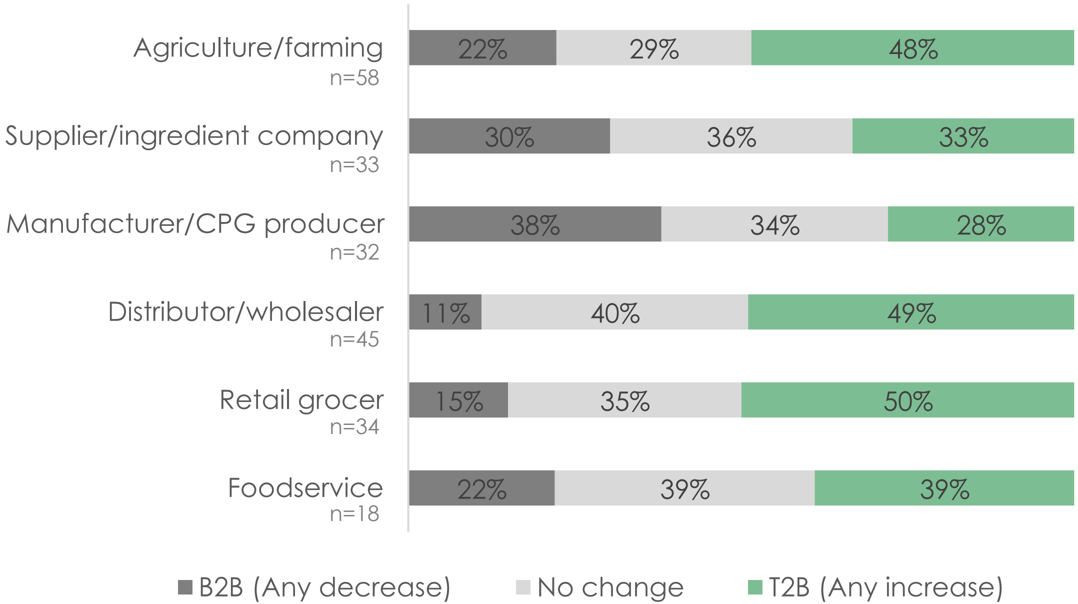
COVID-19 has contributed to increased excess food for 43% respondents, mostly in the agriculture, distribution, and grocery sectors*.

Degree of COVID's Impact in Creating Excess Food/Drink

Market Fluctuation Issues; n=220



By Industry



***P4.** Thinking about your total volume of food loss for reasons selected, how has COVID impacted the amount of excess food created by your company? (Select one response)*

**Please note that differences across industries are directional and not statistically significant.*

FIRMOGRAPHICS

Firmographics

Firmographics

- **Title:** Most respondents hold the title of Manager or Senior Manager.
- **Industry**: Respondents represented a mix of industries, with most falling into ag/farming or distribution/wholesale/ warehousing.
- **Tenure:** Most respondents have been in the industry over 10 years, with about 5 to 9 years at their current company.
- **Company Footprint:** 75% of respondents report their company has less than 4 locations globally, with 39% reporting one location. Most respondents come from mid-sized companies, with 60% reporting 50 to 499 employees.

Food Charities by Country:

Country	Charities Displayed
India	Feeding India[1], Bangalore Food Bank[2], India FoodBanking Network[3], No Food Waste[4]
China	Green Oasis Food Bank
Philippines	Rise Against Hunger Philippines - (Good Food Grocer)
Vietnam	Foodbank Viet Nam
*Thailand**	*Scholars of Sustenance Bangkok*
Korea	Korea National Food Bank
Hong Kong	Feeding Hong Kong
Indonesia	Scholars of Sustenance Bali Strong[1], Food Cycle[2]
Singapore	The Food Bank Singapore Ltd
Taiwan	Taiwan People's Food Bank Association
Malaysia	Kechara Soup Kitchen Society

*D0. Below is a list of charitable and community organizations. Before taking the survey today, which of the following organizations were you already aware of? (Select all that apply) *Note Thailand local foodbank was not displayed to respondents.*

Reasons for Food Loss:

Potential reasons for food loss across each stage of food supply chain:	**Directed To:**
Over-production	Production/Technical
Excess inventory / changes in customer / consumer demand	Market Fluctuations
Discontinued/slow moving products	Marketability
Seasonal / limited offer / promotional items	Marketability
Quality compromised by damage	Marketability
Weather impact	Environmental or Weather Factors
Safety recalls/concerns	Product age / close to code /quality degradation
Food trimming	Marketability
Mislabeled foods / missing ingredients / allergens	Marketability
Machinery issues	Production/Technical
Normal production processes [line start / change overs / underweights]	Production/Technical
Product blocking / Mechanical mishandling / loss of power	Production/Technical
Imperfections (e.g. color ,appearance)	Marketability
Expiration dates	Product age / close to code /quality degradation
Stock rotation errors	Production/Technical
Transportation issue	Transportation/Distribution

Questions? Get in Touch!

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