

Contractual Terms for Reducing Food Waste

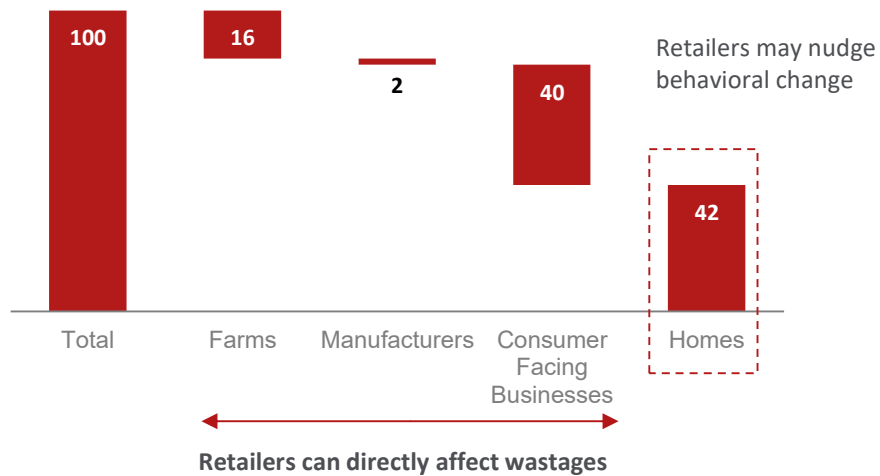
Possibilities and Potential within Fresh Grocery Supply Chain



Scope and Motivation

An estimated 63 MN tons of food amounting to \$ 218 MN value is wasted annually in the US

Where does food waste occur (in % weight)



How much more can retailers prevent? (in % weight)

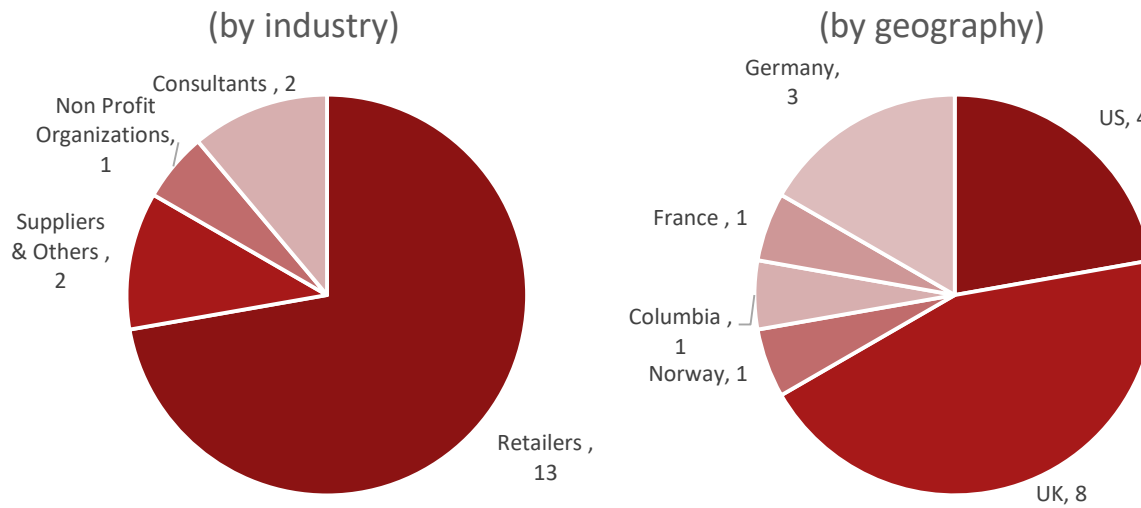
- Retailers have made significant progress in reducing waste within their boundaries
- However, only 23% of the food waste before it reaches the consumer's' homes happens within the stores
- Objective of this study is to identify ways in which retailers can reduced the remaining 77% which amounts to ~28 MN tons by weight



Approach and Methodology

A combination of semi-structured interviews and desk research was used to compare, and contract strategies being used by several retailers/suppliers

Number of interviews conducted...



Primary causes of food waste (1/3)

Extensive downstream (customer) centricity

Let us consider an example of stocking 10 loaves of bread at costs 2 cents to bake and 1 cent to dispose at a Selling Price of \$2 ...

Sales Volume	1	2	3	4	5	6	7	8	9	10
Waste Volume	9	8	7	6	5	4	3	2	1	0
Sales Value (\$)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
Cost of sales (\$)	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0
Cost of Waste (\$)	1.8	1.6	1.4	1.2	1.0	0.8	0.6	0.4	0.2	0
Cost to Disposal (\$)	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0
Profit After Exit Costs	-0.9	1.2	3.3	5.4	7.5	9.6	11.7	13.8	15.9	18.0

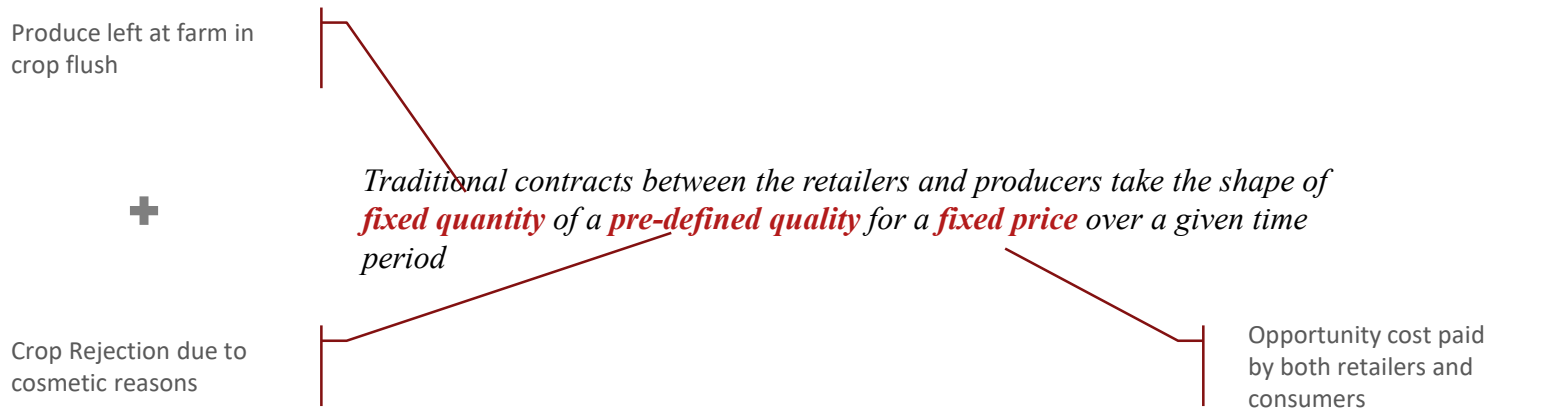
Sale of only 2 loaves of bread can cover the cost of stocking 10 loaves of bread

Imagine every player in the supply chain making a similar computation!



Primary causes of food waste (2&3/3)

Limited upstream (producer) centricity



Producers usually disaggregated. Unable to find alternate avenues to sell.

What if the fixed nature of these contracts was relaxed?



Contract Types (1/2)

Forward Contract Types (Prevention)

Whole Crop Purchase Contracts

- Retailer promises to buy the entire crop produced by the farmers without sorting
- Retailer re-distributes produce to be displayed on shelf and to be used elsewhere
- Effective in cases where retailers have an in-store kitchen, restaurant or possess a strong downstream network of hotels and restaurants, upstream networks with farmers

Investment Contracts

- Retailer and the supplier jointly identify opportunities to reduce waste
- Incentives to collaborate materialized using long term price or quantity contracts
- Effective in cases which require sizable capital investments by either party. Ex - modifications in packaging.

Scanned Based Trading









- Retailer acts only as a shelf space provider
- Supplier manages inventory from end-to-end
- Retailer gets a fixed commission for every \$ of commodities purchased
- Effective when suppliers' ability to forecast aggregate demand is higher – better forecast, lesser wastage. Ex -
 - Geographical areas with limited store presence of retailer
 - Commodities with high demand fluctuations at individual store level



Contract Types (1/2)

Whole crop purchases seem to hold the highest potential in reducing overall food waste among forward contract types

Motivation for different players to reduce food waste...

	Producers	Retailers	Example (for fruits @ Tesco)
Whole Crop Purchase			Collaborates with A Gomez to sell imperfect fruit under Wonky and Farm Brand lines. Uses blemished and damaged fruits in chopped and prepared lines
Scan Based Trading			Increase direct deliveries from AMT Fruits to extend shelf life in stores
Investment Contracts			Invested in vacuum "skin packaging" to increase shelf life and reduce food waste up to 50% with Hilton Foods
Traditional Fixed Price Contracts			

Contract Types (1/2)

A hybrid possibility of whole crop purchases with a significant reduction in logistical complexity could be Conditional Contracts

Conditional Contracts

- Retailer makes Whole Crop Purchases a pre-condition for suppliers to be eligible for bidding contracts
- The pre-conditions may also be extended to other avenues of streamlining operations for reducing food waste
- Effective in cases where there is a significant bargaining power difference between retailers and suppliers



Contract Types (2/2)

Re Sale Contract Types (Recovery and Recycle)

Backward Selling Contracts

- Retailer ships back left-over commodities to suppliers pre-determined constraints
- Constraints, cost of logistics and buy back price are pre-negotiated in contracts
- Supplier re-distributes or re-processes the commodities thus received
- Effective when suppliers' ability to process left-over inventory is higher. Ex –
 - When suppliers possess strong downstream network of discount stores
 - When suppliers are manufacturers who can re-process the commodities approaching expiry

Forward Selling Contracts

- Retailer identify players in downstream who have utility for unsold produce
- Not very popular among large retailers as they prefer to slash prices and push sale within the firm
- Gaining popularity in recent times with the advent of waste utilization start ups



Implementation Road Map

Key to success of most aforementioned contract types is seamless sharing of information

- Identify avenues with the highest waste reduction potential

- Assess the context and capabilities of all players involved

- Enlist the pre-requisite of all contract types to identify the one matching closely with the context

- Engage all players involved and invest in information sharing strategy

- Run small pilots to monitor the progress

