

Carbon Footprint Analysis for Eco-Labeling

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What is carbon footprint labeling?

- A product label indicating the total CO₂ emissions generated in getting the product to market
- Typically displayed on store shelves and in online product descriptions

Why do we need carbon footprint labeling?

- Gives customers a powerful tool to make better purchasing decisions
- Assures customers that the retailer, distributor and manufacturer are showing a commitment to reduce footprints
- “What gets measured gets improved”

Some recent eco-labeling news

- Tesco (UK supermarket chain) plans carbon labeling on 70,000 products
- British government plans to work with food producers to create labeling system
- Bon Appetit to introduce “low carbon diet” and a carbon points system
- Home Depot to expand “Eco Options” label

Annual per-capita CO₂ emissions in the US

- Food consumption: 2.8 tons
 - Food production uses 17% of fossil fuels in US
 - 80% of energy goes into transport and processing
- Personal transportation: 2.24 tons
 - 8332 miles in a typical family sedan
- Total emissions: 9-10 tons

[Sources: G. Eshel and P. Martin, "Diet, Energy and Global Warming", 2005; www.epa.gov]

Food supply chain

- The food supply chain often includes large transport distances
- Transport modes are usually selected for speed rather than efficiency
- A carbon footprint analysis will consider the impact of freight transport in getting the food products to consumers

Carbon footprint calculation

- Two basic components
 - Energy use and emissions in transportation and logistics
 - Energy use and emissions in production
- SEAT™ software will compute total emissions for each unit of a product

What goes into the labels

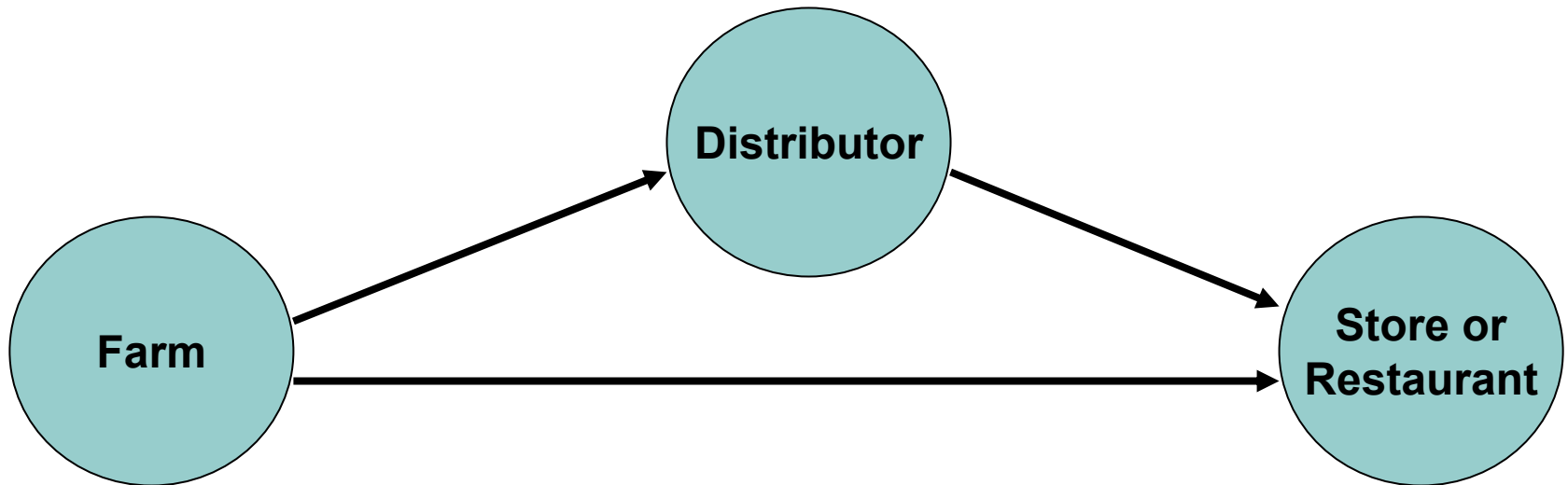
Carbon footprint: 2.1 pounds

National average: 3.5 pounds

How customers can use carbon footprint labels

- Compare carbon footprints of different products at the store or online
- Compare carbon footprints with national averages for similar products

Basic solution – focus on transportation & logistics



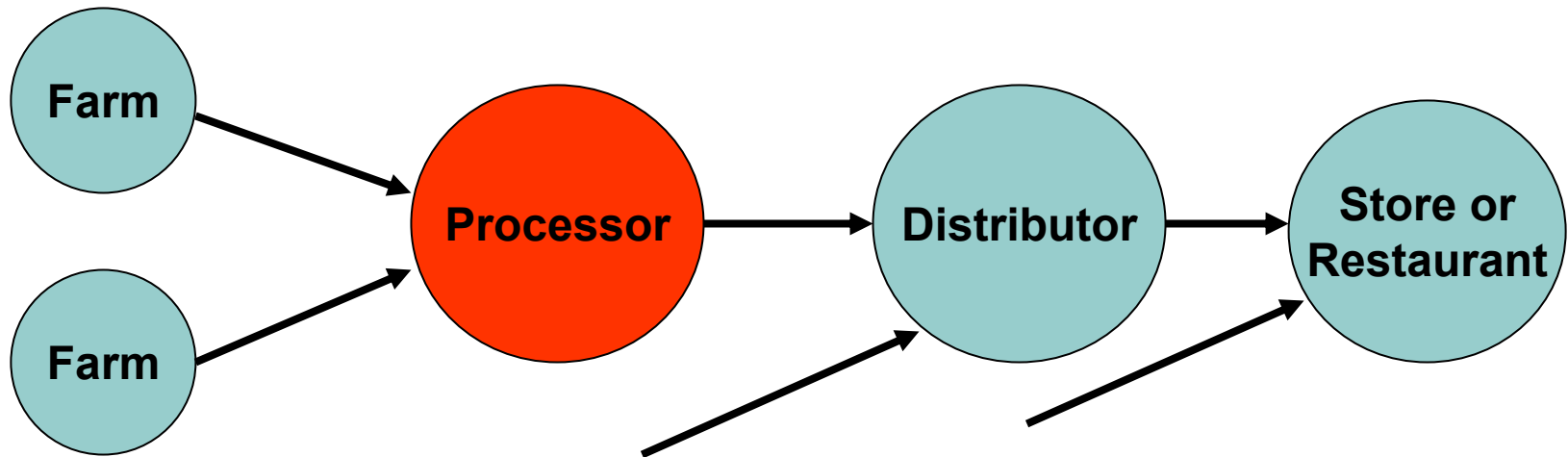
- Consider transport modes, distances, refrigeration
- Cover fresh fruits, vegetables, some dairy/meat

Example: CO₂ generated by transporting 100 pounds of produce

- Local sourcing:
 - Direct from farm to store (400 miles): 73 lb
 - Farm to distributor (50 miles), distributor to store (400 miles): 13.4 lb
- National sourcing:
 - Farm to distributor (100 miles), distributor to store (1500 miles): 25.7 lb

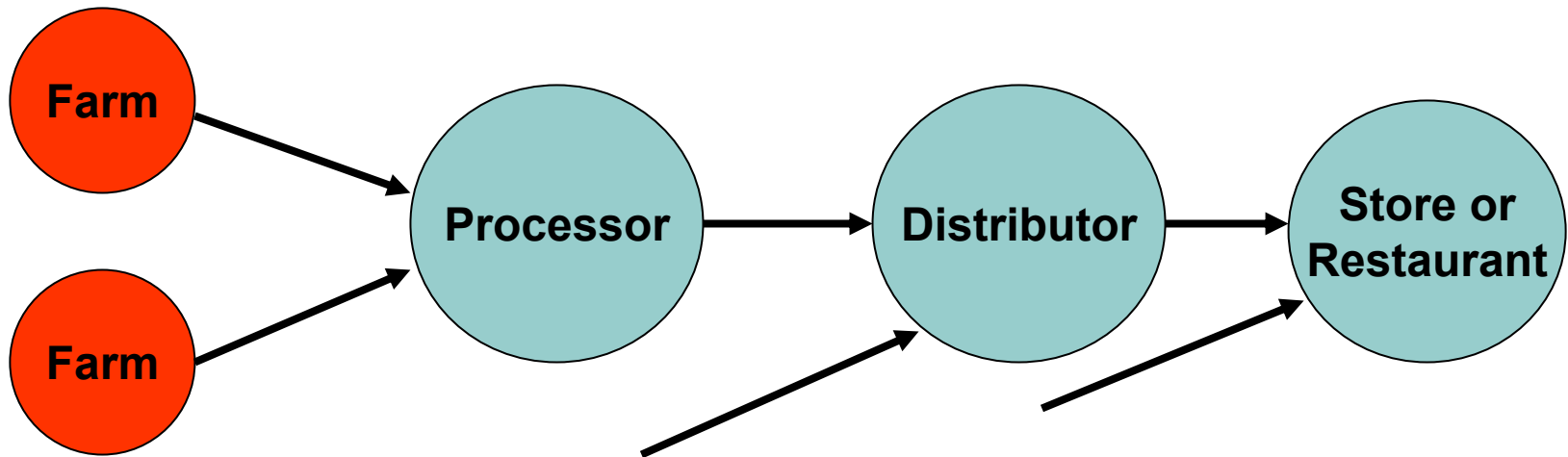
[Farm to store/distributor by diesel cargo van, 25 mpg, using 10% of capacity, returns empty; local distributor to store by midsize truck; national distributor to store by heavy-duty truck]

Intermediate solution – include key processing steps



- Cover processed foods – dry, refrigerated, frozen

Complete solution



- Include energy use and emissions at the farms
- Consider different types of farms