

# Executive Summary

## Documenting California Produce Growers' Approaches to Maximizing Crop Utility

Voices from the Field Project, Phase 1

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## Executive summary

Food loss and waste is a growing problem in the U.S. with significant social and environmental consequences. Although loss and waste occur at every stage of the food supply chain, previous research indicates that a substantial share of fruits and vegetables produced in North America (20-40%) are lost on farms. Many programs and policies aim to recover on-farm food losses for human consumption, yet growers' voices are often absent from conversations about program design and implementation. Because growers are critical partners for successful food recovery, our study investigates how growers experience and perceive the problem of food loss and the potential for food recovery. We conducted 35 semi-structured interviews with California growers of three important crops: leafy greens, peaches, and tomatoes. Interview topics included growers' perceptions of the primary drivers of food loss, total volumes of losses, prior experiences with food recovery programs, and barriers and opportunities for maximizing crop utility. We analyzed the interviews to identify insights of potential interest for food recovery programs, policymakers, researchers, and growers who might be interested in the experiences of others.

### *On-farm food loss: Definitions and scale*

- There is little consensus about the official definitions of "food loss" and "food waste," leading to different quantitative estimates of loss and waste.
- Food loss is therefore an "essentially contested concept" (Gallie 1955; Connolly 1974), with stakeholders variously defining it according to its origin in the supply chain, its final destination, or individual perceptions about its avoidability, desirability, or edibility.
- On-farm loss is divided into two categories: in-field and post-harvest loss. In-field loss occurs when food is left unharvested or abandoned in the fields. Post-harvest loss occurs when picked produce is sorted on the farm and lower-quality produce is culled.
- Interviews suggest wide variance in the estimates of in-field and post-harvest losses for the three crops in the study. There was also dramatic variance in the quantity of loss for any given year, or even for different periods within a growing season.

### *Drivers of loss*

- Growers reported that on-farm losses are driven by two key factors, which they do not control: the market and the natural environment. These are interrelated, as environmental events impact market prices, and market conditions impact the degree of weather-related damage that suppliers will accept.
- Market-driven losses are often caused by rigid quality specifications, and prices also determine the intensity with which growers will cull produce. Loss is also driven by oversupply-cases in which there is effectively no market for even perfect produce.
- The calculation of what is worth harvesting and packing based on market conditions depends on where in the process farmers incur the greatest cost. For example, half of the production cost for leafy greens is in harvesting.
- Unpredictable weather also impacts the volume, quality, and timing of crops and associated losses.
- Many-though not all-growers also talked about labor as a significant influence on loss. In some cases, labor shortages had led growers to leave product in the field or delay harvesting. Rising labor costs have also shifted the cost-benefit analysis of what is worth harvesting, thus indirectly driving loss.

### *Lost but not wasted*

- When growers choose to till unharvested produce back into the soil or divert it to animal feed, they may prevent more environmentally harmful food waste at later stages of the supply chain. Life cycle analysis demonstrates that landfilled food generates substantially greater greenhouse gas emissions than the food lost on farms (Gillman, Campbell, and Spang 2019). Therefore, farms may be the best place for food loss to occur.
- Growers of all three crops reported diverting lost produce to animal feed. For leafy greens growers, this constituted a small portion of overall loss. On the other end of the spectrum, fresh peach growers reported diverting a large portion of their culls to feed.
- Growers of all three crops reported that all produce left in the field, as well as some post-harvest fruit in the case of tomatoes or peaches, gets disked back into the soil or left to rot somewhere. Opinions about how this impacts soil quality were mixed.

### *Recovery opportunities*

- Almost all growers reported efforts to recover crops that did not make it to primary markets for human consumption, though in most cases recovered food constituted a small percentage of overall loss.
- Recovery opportunities fit broadly into two categories: donations to the emergency food system and side markets for off-grade produce.
- Three key factors shape whether growers are able or inclined to recover food losses:
- (1) fluctuating demand for rejected or surplus product, (2) costs of recovery relative to compensation, and (3) logistics of the recovery process.
- Some growers specifically pack donations for emergency food organizations. Others donate only when their crops are rejected from primary markets or they cannot find a suitable buyer.
- Gleaning was not a popular mode of food recovery among growers, who shared negative experiences with volunteer labor or fears of legal liability for volunteers' injuries.
- Few of the growers in our study reported taking advantage of the available state or federal tax incentives for donation.
- Growers reported seeking various markets for off-grade produce, including discount retailers, processors, farmers' markets, and informal markets.

### *The bigger picture*

- In interviews, growers often talked about themselves as having little power to impact food loss within the supply chain, instead responding to broader structural issues and constraints set by other actors.
- Many growers - particularly large-scale conventional growers - portrayed themselves as both socially generous and stewards of the land, in some cases feeling misunderstood or miscast by a progressive movement focused on the social and environmental impacts of waste.