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Center for Food Innovation & Entrepreneurship



# **Farm-level Food Loss: Opportunities and Challenges to Reducing Food Loss**

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## The Research\*

- Northern & Central California
- Salinas & Central Valleys
- Salinas - Salad Bowl of America
- Largest study of fam-level food loss
- 20 crops, 123 fields, 5-6 observations/field

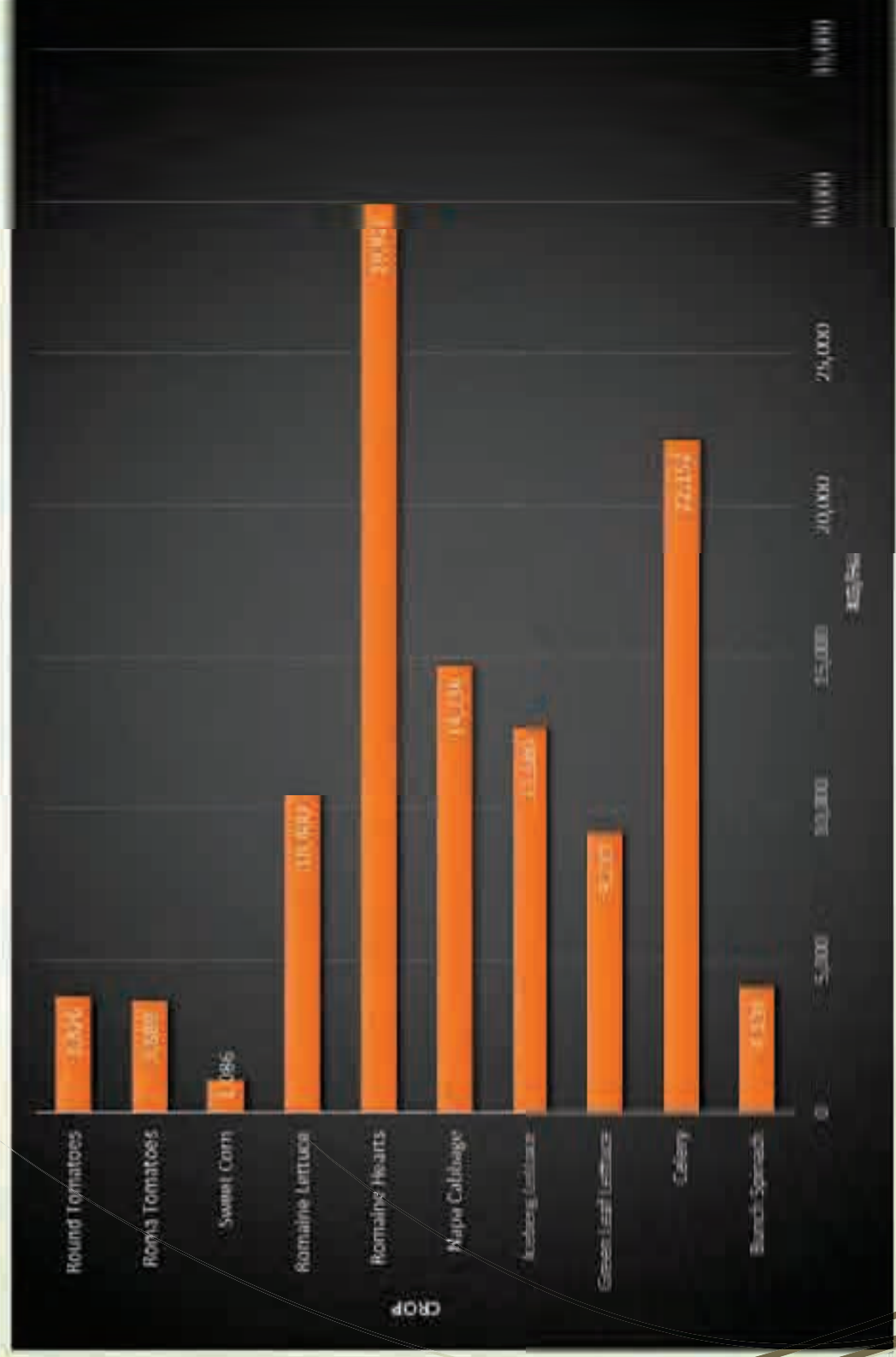
\* On-farm food loss in northern and central California: Results of field survey measurements

Authors: Gregory A. Baker, Leslie C. Gray, Michael J. Harwood, Travis J. Osland, and Jean Baptiste C. Tooley

<https://www.sciencedirect.com/science/article/pii/S0921344919301296>

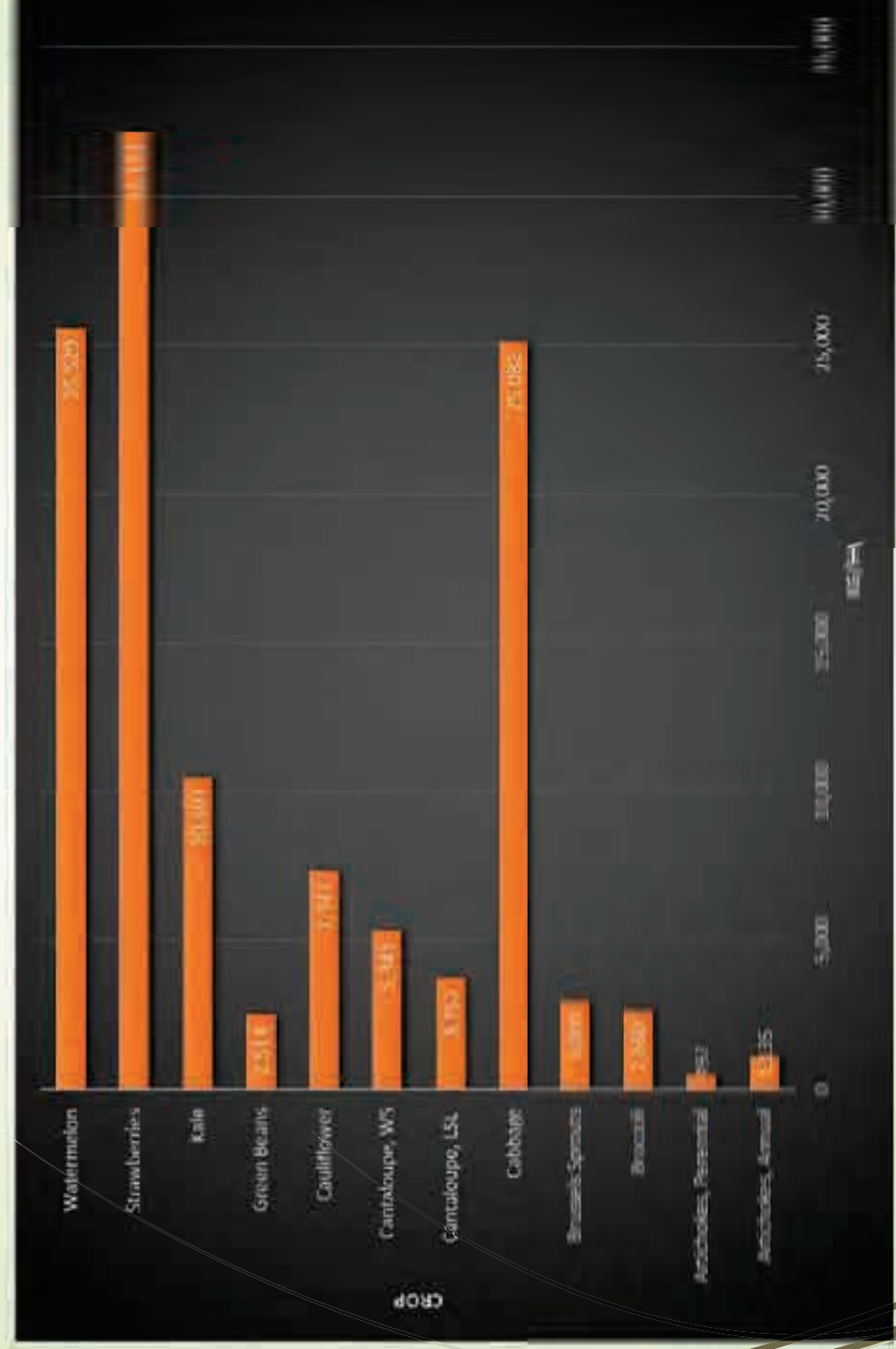


## Full-harvest losses for single-cut crops





## Full-harvest losses for multiple-cut crops





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## Total full-harvest losses for all crops

Crop	Walk-By Fields Loss (%)	Full-harvest Loss, Harvested Fields (%)	Total Losses (%)
Artichokes, Annual	0.0	8.5	8.5
Artichokes, Perennial	0.0	4.7	4.7
Broccoli	3.0	15.9	18.9
Brussels sprouts	0.0	13.2	13.2
Bunch spinach	2.6	20.9	23.5
Cabbage	4.0	51.6	55.6
Cantaloupe, ISL	1.0	9.7	10.7
Cantaloupe, WS	0.0	13.9	13.9
Cauliflower	2.0	34.1	36.1
Celery	1.8	30.3	32.1
Green beans	12.5	21.4	33.9
Green leaf lettuce	3.5	43.3	46.8
Iceberg lettuce	2.0	22.6	24.6
Kale	0.0	38.6	38.6
Napa cabbage	3.3	42.0	45.3
Romaine hearts	2.9	113.6	116.5
Romaine lettuce	3.1	39.5	42.6
Roma tomatoes	1.3	8.2	9.5
Round tomatoes	1.3	6.4	7.6
Strawberries	0.0	43.8	43.8
Sweet corn	4.0	4.5	8.5
Watermelon	0.8	56.7	57.5



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# Loss Examples







## Reasons for Loss

- **SPOILER ALERT: Growers do not spend thousands of dollars per hectare to plow under their crop!**
- **Market prices**
- **Buyer specifications (retailers & consumers)**
- **Increasing labor costs and labor availability**
- **Environmental factors**



## **Why Solutions are So Hard to Identify?**

- **Perfect produce expectations among consumers & retailers**
- **Growers face strong penalties for underproduction, so they overplant to reduce risk**
- **High cost of labor relative to product value**



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# How Would You Solve the Problem?





## Potential Solutions

- **Harvesting all produce for retail AND processing**
- **Guest worker program = additional labor**
- **Improved & more consistent-yielding varieties**
- **Innovative ideas:**
  - **Retailers buy entire fields**
  - **App to connect growers with available labor**