

# Case Study: Producing a Surplus During the Farm Stage in the United States

Food Type:



Food Production Stage:



## Why do farmers produce a surplus?

In the United States, many farmers have already sold their produce before it's even planted. These sale contracts specify how much produce the farmer is required to provide and the physical specifications of said produce. If farmers do not meet their sales contracts, they lose their livelihoods.

Consider that when farmers are making the decision of how much of a certain crop to plant, they are having to consider these contractual obligations months and sometimes years in advance because of how long it takes their produce to mature.

Let's think about almond farmers in California's Central Valley. It takes almond trees 3 to 4 years before they mature and produce almonds for harvest. Meaning a farmer has to plan 3 to 4 years in advance of when they want a yield that will earn them income. At the start of the 2000s, California farmers began to plant almond orchards because of the high price that almonds were fetching. The fact that almond trees require huge amounts of water wasn't a concern because California wasn't in drought. However, that changed in 2011 when a six year drought started. Many almond farmers did not have the needed water for their orchards or if they did, the water came at a great price. Some farmers let their almond orchards die and so did their income. Other farmers continued to water their orchards and produce almonds. However, public backlash against California almonds, a water-heavy commodity, during a drought meant that demand was down and so too went the price of their product.



Farmers must make complicated and highly consequential long-range decisions. This decision-making is even harder considering that they don't have control over many factors—and that the choices they make can dramatically affect their livelihoods.

Some of the factors that farmers have to consider when planting include:

- Loss due to disease
  - When farmers are figuring out what to plant, they have to account for the fact that some of their crops may be victim to disease. Some farmers choose to use seeds that have been bred to withstand certain diseases while other farmers do not. It can be difficult to predict exactly what disease is

going to strike the crop, so farmers are inclined to plant a surplus to account for that unknown factor.

- Loss due to pest and insect damage
  - Pests are another common issue that farmers run into. Some farmers choose to use pesticides and insecticides while others do not. Either way, pests and insect damage can occur even with the use of pesticides and insecticides and if the problem is bad enough, it can ruin an entire harvest – and the farmer’s livelihood with it.
- Weather events (e.g. droughts or heavy rains)
  - Some farmers only plant one time a year. When planting, they have to consider weather events outside of their control such as droughts, flooding, unusual rain patterns, etc. For instance, rain at the wrong time of year can ruin an entire crop. With climate change, weather patterns are becoming more difficult to predict – making farmers’ decisions even harder.
- Produce being bruised during picking or threshing
  - It is inevitable that some produce will be damaged during harvest. Take for example potatoes – when a potato picking machine uproots the crop, it is unavoidable that some will be sliced open, making it unsellable.
- Minimum quality standards in terms of shape, size, color, and time to ripeness
  - There is a reason that every carrot or apple in U.S. supermarkets look the same. That’s because retailers have very specific standards about the size and shape of produce they are buying. Retailers claim that they have these specifications because consumers will typically only want to buy produce if it looks like what they are used to (e.g. a stick straight carrot).
- Market demand
  - Farmers are going to plant the crop that gives them the highest return on investment (e.g. almond farmers in California). However, farmers have to consider that agricultural products are in a commodity market – meaning that the prices are always changing, which could go in their favor or against it.

### **Why this matters?**

When farmers end up having too much harvested product after their contractual obligations are fulfilled, there is a lot of food loss. Farmers often do not have an economic incentive to harvest the fields of surplus food as it costs time and resources to harvest. Meaning entire fields of food may be left unharvested, and edible food is plowed under.

In the United States, approximately 7% of planted fields are not harvested each year. This number can vary based on the particular crop – for potatoes it’s as low as 2% unharvested but for fruits and vegetables it can be much, much higher. For produce specifically, Feeding America estimates that more than 6 billion pounds of fresh produce go unharvested and unsold each year in the United States alone.

The loss of produce on the farm due to surplus planting is not only the loss of edible food that could be used to feed people but also all of the climate change-causing inputs that went into growing it. As was shown in the presentation, growing food has a significant impact on greenhouse gas emissions, water use and land use.

## **In the context of surplus production in the United States, how might we reduce food loss before it reaches the consumer in order to increase the amount of available edible food and lessen the impact on climate?**

Now it's time to brainstorm as many potential solutions that each respond to this case study. Within surplus production, there are many opportunities for improvement that will decrease food loss.

Start by brainstorming as many ideas as you and your team can come up with. Don't worry if you think they sound farfetched. After 15 minutes, talk to your team and identify the 2-3 most promising solutions that you came up with. To help you do this, use the Business Canvas Solution worksheet. After another 10-15 minutes, decide as a group on the single best idea and spend the rest of your time working on and refining that solution.

**Remember: your idea doesn't need to fix every reason that farmers produce a surplus.** You can take inspiration from information presented in the case study, the presentation you just heard, or credible online sources.

Examples of solutions may include any combination of the following:

*Biological/Chemical:* how to make crops more resistant to disease and pests to avoid surplus in the first place

*Mechanical:* creating new harvest equipment to minimize food lost due to bruising

*Business oriented:* how to get surplus crops to those who need them

*Product-based:* creating an app that enables farmers to post when food is left on their farm unharvested. Livestock can then bring their livestock to the farm to eat the crops that remain in the field

### **Example solution:**

*Tons of produce is left unharvested on the farm for a variety of reasons including cost of labor and uniformity obligations. Our solution is to create an app called "Produce Direct" that enables the farmer to post the volume and type of food on their land, and indicate when gleaners (collectors) could come to claim the food. Volunteer gleaners from anti-hunger groups could then come to the farm to harvest the crops. They would issue a tax-deductible receipt to the farmer so that the farm has a financial motivation to participate.*

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<sup>i</sup> Ferdman, Roberto. (2016, January 29). The crazy sequence of events that's making almonds cheap again. The Washington Post. Retrieved from [https://www.washingtonpost.com/news/wonk/wp/2016/01/29/too-many-almonds/?utm\\_term=.679a25cba794](https://www.washingtonpost.com/news/wonk/wp/2016/01/29/too-many-almonds/?utm_term=.679a25cba794)

<sup>ii</sup> FAO. 2011. Global food losses and food waste – Extent, causes and prevention. Rome

<sup>iii</sup> FAO. 2011. Global food losses and food waste – Extent, causes and prevention. Rome

<sup>iv</sup> FAO. 2011. Global food losses and food waste – Extent, causes and prevention. Rome

<sup>v</sup> Lipinski, B. et al. 2013. "Reducing Food Loss and Waste." Working Paper, Installment 2 of Creating a Sustainable Food Future. Washington, DC: World Resources Institute. Available online at <http://www.worldresourcesreport.org>.

<sup>vi</sup> Gunders, Dana. NRDC Issue Paper. 2012. Wasted: How America is Losing up to 40 Percent of Its Food from Farm to Fork to Landfill

<sup>vii</sup> Gunders, Dana. NRDC Issue Paper. 2012. Wasted: How America is Losing up to 40 Percent of Its Food from Farm to Fork to Landfill

<sup>viii</sup> Gunders, Dana. NRDC Issue Paper. 2012. Wasted: How America is Losing up to 40 Percent of Its Food from Farm to Fork

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