Assessing on Farm Food Loss in Colorado

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Introduction

The focus of this report is to deepen our understanding of how farmers in Colorado perceive issues associated with food loss, local gleaning efforts, farming challenges, and agricultural policies and/or tax credits. Issues surrounding food loss and waste are becoming increasingly more apparent and are being recognized by policy makers and academic researchers (Koester, 2014). Currently, over 100 definitions of “food loss” and “food waste” have been obtained by FUSIONS, though a general consensus on these definitions has not been reached (Cerciello, 2018).

In this paper “food loss” will refer to edible food that does not make it to human consumption and can take place through the production, postharvest, processing, and distribution stages. This paper is primarily focused on understanding on-farm food loss, and food loss that occurs postharvest. Factors that influence food loss include market fluctuations, varying customer demands, crop damage, lack of cold storage infrastructure, over production, and ridged grading standards (Kuffel, 2018). Significant losses on the farm level have been reported but few studies to quantify the exact amount have not been done (Creamer, 2017).

“Food waste” refers to food that is deemed fit for consumption, yet is discarded, or left out to spoil. Food waste on this level occurs at the retail and consumption stages (although not exclusively) (Lipinski, 2013). The primary focus of this paper is on deepening our understanding of how farmers perceive issues associated with food loss, and why it occurs. However, food waste is a major problem in America, as an estimated $218 million dollars worth of edible foods are thrown away each year (NRDC, 2017).

Currently, the U.S. Census of Agriculture does not collect data on state level on-farm food loss. The original purpose of this project was to quantify the amount of food being lost during the production and post-harvest stages across farms in Colorado. Unfortunately, because of low response rate to the survey there is not enough quantitative data collected to accurately estimate of food loss that occurs on farms in Colorado. I then decided to focus more on the qualitative portion of this study, and interviewed 8 farmers across various regions of Colorado. It was from these interviews that I was able to obtain information on how farmers perceive 1) how food loss occurs and why; 2) gleaning as a solution to food loss and current efforts in Colorado 3) challenges associated with farming and 4) current farm related policies and/or tax credits. Data obtained from surveys will be included in this report, but they cannot be used to provide state level estimates on the amount of food loss occurring in Colorado.

Methods

Qualitative data for this study was obtained from semi-structured phone interviews that were conducted with 8 fruit and vegetable small-scale (<20 acres) farmers across the state of Colorado. Quantitative data was obtained by administering 52 electronic surveys to small scale (<20 acres) fruit and vegetable farmers across Colorado in order to obtain an understanding of the amount of food loss that occurs on farms.

Survey Data

Data obtained from surveys was used to estimate how much edible produce was being left, un-harvested, on farms. On average, 19% of vegetables and 39% of fruits and berries are left
unharvested in fields. Farmers indicated that 41% of vegetables left in the field were deemed as being edible; 42.50% of fruits and berries left in the field were also considered to be edible.

Survey data pertaining to why on-farm food loss occurs was also obtained. 12.5% of farmers reported “lack of affordable labor”, 21% reported “lack of available labor”, 12.5% reported “the produce was blemished”, 9% reported “not confident we would be able to sell” as to reasons why edible food was being left on farms. Other responses included “harvesting wouldn’t be worth the time,” “lacked access to market and marketing”; and “fruit was too ripe for market standards”.

Survey reports also offered insight into how farmers view working with volunteer groups based off of past experiences. Farmers were asked to rate their satisfaction levels with volunteers and the services provided (i.e. communication, overall service, ability to manage volunteer groups, responsiveness to farmers needs, punctuality, etc.). Farmers reported being “extremely satisfied” with “consistency of service”; “responsiveness to farmers needs”; “responsiveness to instructions”; and “respect for farmers time and instructions”. Farmers then reported being “somewhat dissatisfied” with “overall communication”; “consistency of service”; and “showing up when scheduled”.

**Qualitative Findings**

The purpose of the qualitative portion of this project is to increase our understanding of how farmers perceive issues associated with food loss, efforts being made to reduce on-farm food loss (i.e. gleaning, secondary markets, etc.), challenges related to farming, and agricultural policies and/or tax credits and deductions. I hope that by increasing our awareness and understanding of how farmers perceive these issues, consumers, advocacy groups, and political leaders will increase efforts to support local farmers across the Colorado area.

**Food Loss**

In this report, questions surrounding food loss refer to foods being left unharvested on farms, or foods that have been harvested, but weren’t sold at markets. Half of the farmers interviewed reported “rarely” or “almost never” having edible produce left un-harvested on farms. The first farmer interviewed described his farming practices as being a form of “reverse gleaning” and avoids on-farm food loss by growing less of what he needs. He said,

> I know my market, and I only grow crops that I know will sell. I grow less of what I need and so I’m able to harvest it all. This is easy for me to do because I’ve got such a small farm.” When asked about why he thinks food loss occurs he replied, “Well, farmers are out there growing too much food. I think the ones that are really struggling with this problem are the farmers growing for grocery stores; I only grow food for CSA’s and people I know.

Another farmer, who has been farming in Colorado for over 13 years, discussed the importance of learning more about business and finances as a way to avoid food loss. He explained,
You have to be strategic. You have to grow what you know people will buy. We keep it simple. We’ve got carrots, onions, beets, and potatoes; easy to grow and easy to sell. A lot of farmers go into farming without having a clue about how to properly run a business. That’s what food loss is, bad business.

In a different interview, a farmer working in El Paso county said he was able to avoid edible food being left un-harvested by being strategic and by ensuring his products are in high demand. He explains,

I’m very specific with how I grow my food. I’m out in the field 60-100 hours a week. I may be a bit of a perfectionist, but my food tastes great. I’ve got a 150 member CSA in the summer and 130 in the winter; CSA’s provide security; they’re how you build relationships. I know exactly how much to grow and who I’m growing for. Farmers markets get too tricky; I’ve watched farmers go home with a lot [of unsold produce].”

Other farmers reported having on-farm food loss, but were unsure about how much they leave on their farm each year. Reasons for leaving edible foods un-harvested include crop damage, lack of affordable labor, problems with the weather, and consumer demands. Crop damage typically occurred because of pests. One farmer described his on-going battle with grasshoppers and described the amount of damage they would do to his vegetables. He described the crops as still being “perfectly edible” but that he “could never bring produce that has been contaminated by pests to the market”.

Lack of affordable labor also came up as to why food is left in the fields. A woman in the Montrose area explained:

It just doesn’t feel worth it sometimes, to try and harvest all of your food. I’d need to hire people to come work on the farm, and we don’t have the money to do that. It makes more sense a lot of the time to just leave the food out there. Once you harvest the food, then you have to clean it, and prepare it, and store it somewhere. All of this takes time…and money.

A percentage of food left in fields is turned back into the soil or fed to animals. Although this is considered food loss, as it is edible produce that does not make it to human consumption, it isn’t necessarily considered a “loss” from the perceptive of a farmer as it is being used to improve aspects of their farm.

In regards to the produce that farmers do harvest, only some of it can be sold. Post-harvest food loss, or unsellable harvested produce was reported. Stated reasons to why food loss occurs at this stage include farmers markets, lack of available market, and varying customer demands. At times, farmers are able to donate a portion of this food to food banks or farmers market volunteers, since the work of harvesting, cleaning, and distributing the produce has already been done.

Efforts to Reduce Food Loss
Participants discussed advantages and disadvantages associated with using gleaning as a way to reduce food loss.

Overall, participants described gleaning as being an effective way to reduce on-farm food loss. Theoretically, many farmers were in favor of the idea, as it provides farmers with an opportunity to give back to the community. Several participants reported having had prior positive experiences with allowing gleaners onto their farms. A young woman who owns a farm in the Vail area described her experience with gleaning,

> It was wonderful. We had about 60 pounds of kale we couldn’t sell just sitting there. Having someone come… get it off of our hands… felt good. We really value being able to get our food to people, the last thing we want to do is watch it sit in the field.

However, a number participants noted feelings of apprehension around allowing gleaners onto their farm due to bad prior experiences with gleaners, a lack of trust, lack of coordination, and lack of financial incentive. A farmer in his early 40s describes an unfortunate prior gleaning experience,

> Look, I let a bunch of people in Birkenstocks onto my farm some years ago (laughs), and they took out rows and rows of first grade, ready for market, heads of cabbage. They filled up their entire fucking truck with produce that was supposed to be sold at the market; all of it…. just gone.

A lack of trust with allowing volunteers (i.e. strangers) onto the farm was also reported. One man said, “I can’t risk letting people come on the farm if I’ve never met them before. A lot is going on here. How do I know they actually know what they’re doing? If they’ve ever been on a farm before?”

Issues surrounding coordination and organization were also identified during interviews. Many of the farmers interviewed for this project did not employ many farm workers; finding a time when the farmer was able to be present in order to host gleaners was described as being difficult. A young woman who runs a farm with her husband said,

> To make a gleaning event work for both the gleaners and the farmer, it takes a lot of coordination. I notice a crop can be gleaned the day of…it’s impossible to plan. And then when they come, I have to take the time to explain how things work, and what to do. I have to watch over people. It’s a lot. It feels great to donate, it really does. I want my food to be enjoyed. But the effort you have to put in to coordinate the whole thing… to try and make it work…and not make any kind of profit… even a little... doesn’t always seem worth it.

A few farmers described their farms as being “too small” to make a gleaning event “worth it”. A woman who runs a 1.5 acre farm noted, “For me, and my size farm, the effort wouldn’t be worth it for the gleaners, or for me. I haven’t worked with gleaning groups. They’re better for large scale farms.”
Some participants brought up issues regarding gleaned foods being culturally appropriate for certain food banks and food pantries. For example, a young farmer in his early 30s talked about the importance of making sure gleaned produce being distributed to food pantries is culturally relevant. He explained,

If you bring pounds and pounds of radicchio into a food pantry that mainly serves a Mexican community, do you think people are going to eat it? Then you just wasted more effort, more resources, and more time, to do what? Bring food to a place where people aren’t going to eat it?

Other methods of reducing food loss were also discussed. A few farmers expressed having interest in secondary markets because they provide a financial opportunity for farmers. One participant said that he would be “more likely to take the time to coordinate a glean, and watch over volunteers, if there was a small profit involved, if the produce could be sold using a secondary market”.

The concept of “growing a row” was also discussed, as many farmers liked this method of donating food because it takes out extra work surrounding coordination and managing volunteers. Another alternative that was mentioned included utilizing a two bin system, where farmers could harvest seconds in combination with market ready produce; seconds would then be put into a bin that could be picked up by gleaners and distributed to food banks. Concerns around how long produce would last sitting in a bin were expressed. For example, “You can’t just throw a bunch of greens in a bin and expect them to stay good all day. They need to be washed…they need to be refrigerated…this takes time…and storage…if you don’t, you are going to end up with a big bin of greens no one wants to eat.”

Challenges of Farm Life

This section highlights various challenges associated with operating and maintaining a farm. The most common challenges reported include physical demand, low wages, consumer disconnect, and severe weather conditions.

The amount of physical labor farming requires was described as a major challenge for farmers. Many farmers interviewed for this project do not employ farm workers; if they do, they have very few due to high labor costs. Therefore, these men and women are out in the field, 7 days a week, working 10-14 hour days. One woman described farm work as being “bone crunchingly fatiguing”. Another participant describes his difficulties with getting older,

I became a farmer when I was in my twenties; I was in the field all day, I was drinking beer all night (laughs)...I’d wake up, eager to do it again... now, well, I’m still in the field all day, I drink a beer, ah maybe two, at night, but I wake up and my body asks me, are we really doing this again?

Low wages and farm expenses were also brought up as being challenges for farmers. One participant said, “No one gets into farming to make money, and if you do, well (laughs) then you’re stupid.” An older man who runs his farm with the help of his wife and 4 children said,
“I’m working 60, 70, 100 hour weeks, on the slowest week of the year, I’m still out there 50 hours; I’ve got this $250,000 business… and here I am with an income of about (long pause) $23,000 a year.” Another said, “It’s hard to make a living. I mean I’m doing it…well, I think I’m doing it… but some months are really very tight.”

A few participants mentioned “unexpected farm expenses” and “access to capital” as being a challenge. A few farmers expressed their frustration with expensive farm equipment, lack of storage space, and a lack of affordable labor. One man, who has been farming for about 10 years said,

Learning the business side of things was a huge learning curve for me, and I’m still learning. So many expenses come up that are hard to plan for. You have to put a lot of money in in the beginning, and it takes a long time before you feel like you’re making a living wage. I’m scared to look at how many hours I work compared to what I actually make.

Consumer disconnect was also described as being a challenge. A few participants mentioned difficulties associated with getting people to care about the food they eat and consumer’s unwillingness to pay for quality food. One man said, “If I’m going to make a little money off of my tomatoes, then they’re going to be $6 maybe $7 a pound. Who the hell wants to pay $6 for a tomato when they can get one for $2 from a grocery store? They need to taste the difference. That usually gets em’.”

A few participants mentioned the need for more education that works to support people to local foods and farmers. One man said, “Our local food movement is shit. People don’t understand the importance of food. Food can be health; your food can be medicine. No one seems to get this.”

Severe weather conditions such as drought, unexpected heavy rainfall, freezing temperatures, and extreme heat were all mentioned as being a challenge to farmers. One woman said,

“I wish I could just build a big bubble over my farm. You can’t control mother nature…and sometimes I’m out there trying to work in it. The elements are powerful, but not always helpful.”

Participants expressed their frustration around relying on certain crops as a source of income, only to have them destroyed by a change in the weather. An older woman who runs a small farm with her husband said, “Climate change is so real. Weather patterns have become impossible to predict. You can plan on harvesting a crop the night before, and by morning, it can be completely destroyed.”

**Agricultural Policies**

Farmers were asked about agricultural policies and/or tax credits (i.e. Colorado Charitable Crop Donation Act) that work as barriers, or help promote, small-scale farmers. Overall, farmers expressed a lack of government support for small-scale farmers, and feel as though it works to
support large scale food production. Tax credits such as the Colorado Charitable Crop Donation Act were not used by any of the farmers interviewed for this project.

In regards to current agricultural policies that present barriers, or work to promote, small-scale farmers, not one farmer mentioned agricultural policies that work to support them. Many participants described feeling a “lack of support” from the government, and described agricultural policies and regulations as being “expensive”, “annoying”, and “unnecessary”. One concern that was mentioned in an interview was that political leaders are too far removed from the world of agriculture and farming to understand how agricultural regulations negatively impact small scale food production. One participant said, “A man in a suit, that has never stepped foot on a farm, is the one sitting up there making all these rules.”

Tax credits, such as the Colorado Charitable Crop Donation Act, were also discussed. Many farmers said tax credits like the CCCDA require too much paper work, and time, to “actually feel worth it”. A few participants mentioned using donated produce as a tax write off, but mentioned having to donate food to a non-profit in order for this to work.

Limitations

Three limitations are taken into account in regards to this study. First is in regards to food loss estimates. Estimates provided by farmers are not exact measurements so percentages may not be accurate. The second concern is around having a small sample size. The sample size of participants who completed the survey, and participated in interviews, is relatively small. Therefore, data obtained from surveys and interviews while insightful, do not provide a representative portrayal of state-level agricultural situations and concerns. The third limitation regards obtaining data from only a few geographic areas of Colorado. Farmers living in other parts of the state who did not participate in this study, may have a different story to tell, or have different on-farm food loss estimates.

Discussion

Although the original purpose of this project was to better understand where and how much, on-farm food loss occurs in Colorado, many of the people interviewed for this project did not experience high amounts of food loss at this stage. With this being said, it does not mean food loss is not a concern across the state. The farmers that participated in this study operate small farms, and/or sell produce using CSA’s, two factors which help reduce the amount of edible foods being left unharvested in fields. A main driving force behind why food loss occurs is due to rigid grading specifications put forth by grocery stores and consumers. Although consumer standards can be problematic for small-scale farmers, they are considered to be less rigid than those put forth by grocery stores.

Efforts are increasing to prevent and reduce food loss across the globe. Careful consideration should be given to how farmers perceive current efforts. A lack of trust, coordination, and management were identified as barriers around allowing volunteers (i.e. gleaners) onto their farms. Conversations between farmers and advocacy groups are essential in order to make sure the needs of farmers are being met. This is true for all advocacy groups that work to support
local food production and farmers. An accurate understanding of how we can work to support our local food system is only possible if farmers are made a core part of the solution.

Highlighting farm related challenges, and agricultural policies that act as barriers to local farmers, is intended to increase awareness surrounding ways in which consumers, advocacy groups, and political leaders can work to strengthen and support our local food system. There is a variety of reasons as to why consumers purchase and consume the foods they do. Education which aims to connect consumers to who is growing their food, and how it is being grown, should be prioritized and can work to inform consumers about the many benefits associated with purchasing and consuming locally grown food.

Conclusion

Efforts that work to capture the amount food loss that occurs on farms, or during the post-harvest stage (i.e. harvested foods unable to be sold at markets or donated) can help expand market opportunities for farmers and work to strengthen our local food system. Approaches to controlling food loss must ensure the needs and wants of farmers are being prioritized. Farmers, consumers, gleaners, policy makers, and food rescue groups all play a role in ensuring wholesome food makes it on to the plates of community members.

References Cited


