

**Recommendations for Programs to Reduce Food Waste**  
**Submitted to Eureka Recycling**  
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1. **Feedback.** People need feedback about wasted food. When are they wasting? How much? This is invisible information and individuals cannot respond to a problem that they cannot detect.
  - a. Why feedback? Feedback is critical because it makes otherwise hidden information visible. People have no idea how much food they throw away over the course of a week or month- the food simply goes into the compost or trash and then disappears. People not only don't know how much food they have wasted, they have no idea of the environmental, social, and financial impact of their waste. We must make this information visible by giving people feedback about the food that they waste, how it affects the environment, how it affects larger systems (e.g., agriculture), and how it affects their own pocketbooks.
  - b. Important features of successful feedback
    - i. **Make feedback immediate and in close proximity to where the behavior occurs.** Feedback should happen at the moment that the behavior occurs, or as close in time to that moment as possible. This principle is highlighted in Community Based Social Marketing materials (e.g., McKenzie-Mohr, 2011). However, the premise comes from basic Learning Theory in Psychology. Giving feedback is akin to giving people a reward or a punishment in response to a particular behavior – similar to B.F. Skinner and his rats – he put them in a “Skinner box” and trained them to hit a lever by immediately rewarding them with a food pellet. Positive feedback makes a person more likely to continue to engage in the behavior whereas negative feedback makes a person less likely to continue (negative feedback acts like a punishment). According to Learning Theory, we are strengthening the link between the behavior and the reward (or punishment) by making that reward/punishment (= feedback) happen as close as possible in space and time to the behavior. The stronger the link between the behavior and the feedback response, the more effective it will be in shaping behavior. An example from energy conservation: monthly bills are a form of feedback that is very removed in time and space from the behavior of using energy – people don't have an easy time responding with behavior change because no specific behavior is linked to the feedback on the bill. However, if you give people immediately feedback when they turn on an appliance (e.g., a glowing orb turns orange) then the light-switching behavior becomes linked with the feedback and people are able to respond by changing that behavior (for a review of research on energy feedback, see Darby, 2008.)
    - ii. **Make feedback concrete, tangible, meaningful.** The more concrete, tangible, meaningful and personally relevant that you can make the feedback you give people, the more likely they are to respond to it. This recommendation is based in part on McKenzie-Mohr (2011) and Community-Based Social Marketing principles. There is also growing evidence that people are more likely to take action in response to a problem

or crisis if they can link the information they receive about the issue to some sort of personal experience they have had (see, for example, Spence, Poortinga, Butler and Pidgeon, 2011; and Marx, et al., 2007).

iii. **Combine feedback with goal-setting.** According to many years of research on motivation, people perform better when they have set a goal, and the most motivating goals are those that are challenging but attainable (Latham and Locke, 2002). Without a goal, people lack a focus for their efforts and they will quickly lose steam. And to monitor progress toward their goal, people need feedback to tell them how they are doing. Feedback allows people to adjust their behavior/performance and get closer to the goal they have set – if the feedback tells them that they are falling behind, they can increase their effort.

2. **Movement building.** To build a social movement around reducing food waste, the best place to start is with the early adopters. This group is willing and motivated – they are more likely to overcome barriers to reducing their food waste and they are also more likely to stay engaged because they are already interested and personally invested.

- a. Early adopters are the essential first step in building a movement. They are enthusiastic and willing, eager to embrace change. Once you have a strong critical mass of early adopters, they can begin to change the social norm of the behavior (see point 3: Social Norms) and people beyond the early adopters will begin to embrace the new normal.
- b. What other key features are there in the movement?
  - i. Make it visible. Make sure that people see the early adopters who are out there embracing a no-wasted-food lifestyle. Take every opportunity to highlight these people in whatever community communication channels there are- community paper, radio, TV, community festivals.
  - ii. Make it personal- one to one connections. Have the early adopters act as ambassadors. Give them every opportunity to talk to other people, one-on-one, to tell them about what they are doing (wasting very little food), why, and how. Highlight their enthusiasm and the rewards they find in what they are doing.
  - iii. Help the early adopters welcome the people who come after them
    1. No shaming! Early adopters should talk about their own journey- why they are doing what they are doing and why it might be personally important. They should avoid implying that other people are doing it wrong. Instead, they should focus on the rewards that they have gotten from the efforts they have made.
    2. Early adopters should enthusiastically talk about what they are doing. Make it invitational rather than combative. Again, they should focus on the rewards (personal, financial, ethical, etc.) they have gotten from the change they have made. They should not challenge anyone else’s lifestyle or come across as accusing toward others (“YOU are polluting the environment with your wasted food!”)

3. **Social Norms.** Social norms are probably the most powerful behavior motivator. Social norms are more powerful than values in shaping behavior, though values have a role, too. People are more likely

to reduce their food waste if they believe that people around them are already doing it (and/or at least think it is the right thing to do). For example, most people today share the value that we shouldn't waste energy. Yet nearly all have home wireless systems and they leave them on all day, every day while at work or even when away for several weeks on vacation. The value is not strong enough to overcome the many barriers to turning off the wireless router (inconvenience of going into room to turn switch, forgetfulness, lack of awareness that it uses energy, desire for immediate no-wait wireless connectivity).

There is strong reason to believe that the perception of a new social norm around food wasting is probably a strong motivator. In a 2008 study, Nolan, Schultz, Cialdini, Goldstein, and Griskevicius asked participants to rate how important it was that using less energy protected the environment, saved money, benefited society, and mirrored many other people trying to conserve on a scale from 1 (not at all important) to 4 (extremely important). Participants rated environmental protection highest among the four reasons to conserve energy followed by benefitting society and saving money. However, when Nolan et al actually looked at people's energy conservation behavior, it turned out that those individual households that received a social norm message (e.g., "Your neighbors are turning off their air conditioning during the day to save energy!") were significantly more likely to reduce their energy use than people who received any other message (ethical, financial, environmental), including the environmental message. Recently, a student of mine, Bridgette Kelly, has replicated the first Nolan et al study, looking at people's responses to messages about food waste rather than about energy. She finds similar results to Nolan et al, that is, people when asked directly claim that they are more motivated by the environmental message than by the social norm message. Bridgette will soon replicate the second Nolan et al, study to see if, similar to energy conservation behavior, people actually change their behavior more readily in response to the social norm message despite claiming that the environmental message is more compelling.

There are different types of social norms. Most relevant here are:

- a. **Descriptive social norm:** what we see others doing is what we think of as "normal" and acceptable. People are more likely to engage in a behavior if we see others doing it and thus perceive it as the norm. Basic psychology research shows that individuals are particularly influenced by descriptive social norms when they are uncertain about the right thing to do. For example, imagine eating dinner with a new group of people or in a new restaurant and you receive unusually large portions. Because you are in a new situation, you are more likely to look around and you notice that nobody is asking for a take-home box. Instead, people are letting uneaten food on the plate get bussed away, in this new and uncertain situation you feel uncomfortable asking for a take-home box for yourself because it seems that "this is not the way it is done here".
- b. **Injunctive social norm:** what we believe others approve of. Similar to the descriptive norm, the injunctive norm shapes behavior. If people believe that their community approves of a particular behavior (e.g., buying lots of food in bulk even if it doesn't all get eaten before it goes bad), then they are more likely to engage in that behavior. And conversely, if they think that others disapprove, then they are less likely.

4. **Addressing the social dilemma aspect of food waste.** A social dilemma is a problem in which an individual's self-interest conflicts with the greater good. Food waste is a social dilemma because individual people's self-interest probably encourages them to have wasteful food habits- having lots of food choices is individually rewarding, and the personal cost of wasted food is relatively low. But the cost to the environment and to society is quite high when aggregated across all individuals. How can the social dilemma aspect of food waste be addressed? Myers (2005: Social Psychology) makes four relevant suggestions.

- a. **Make the group size small.** When people are in a small group or community where there are personal connections, they are more likely to recognize the impact of their behavior on the larger group and thus be more motivated to behave differently. This is a strong argument for work with small communities, where information and stories can be shared in a more personal way. The more personal connections there are within a community, the more likely people will act in the interest of the community rather than solely self-interestedly. Most people hold a personal standard of social responsibility, reciprocity (with community members), equity, and keeping commitments to others. It seems that it is easier to behave in alignment with this personal standard (or value) when the social group is smaller (Kerr, 1992, as reference by Myers, 2005).

In addition to feeling more responsible to the community when the group is small, people also feel more effective (Myers, 2005). They are more likely to see that their small action has had some sort of an effect, and thus they feel empowered and motivated.

Finally, in a smaller community or group, people are more likely to feel a sense of personal identity that is tied to the community. They are probably more likely to feel like a "Frogtowner", or even a member of their block, for example, than a "St. Paulite". Appealing to this identity, and the social norm of this group as people who don't waste food, can help overcome the tendency for self-interest to push people toward food-wasting behavior.

- b. **Communicate.** "Open, clear, forthright communication reduces mistrust." (Myers, 2005, pg. 327) When you are faced with a social dilemma, it is essential to give people clear information about the problem and why they should help despite it feeling like they are acting against their self-interest. Of course, in-person communication is the most powerful, but not always feasible. The important point here is not to forget that people can be persuaded by facts and reasonable arguments, and accurate information provides the bedrock for any successful behavior change campaign. But information alone is never enough to shift behavior substantially.

It also seems that the simple fact of communicating what a social dilemma is might inspire people to new, less self-interested and more community-minded behavior. (Mio et al., 1993, as referenced in Myers, 2005).

- c. **Change the incentives.** Look for ways to change the incentives/rewards that people feel (implicitly or explicitly) they receive for maintaining their current behavior with respect to food waste. This probably requires an observation and analysis of barriers to the goal behavior (explained in McKenzie-Mohr, 2011). If possible, make food-wasting behavior "more

expensive” in some way- perhaps by giving people the social norm message that “we do not waste food here”. This makes wasting food “expensive” in the sense that individuals will feel socially awkward if other people see them wasting food.

- d. **Appeal to altruism.** Is it possible to encourage lower food waste by appealing to people’s sense of doing the right thing for others? The answer is a tentative yet. According to Myer, there are mixed results when it comes to appealing to altruism as a way to motivate a new behavior. Myers reviews studies showing that that people’s attitudes may respond to an altruistic appeal, but they don’t necessarily then change their behavior.

However, recent research shows that altruistic appeals only work when they are completely separate from economic appeals. Apparently, once economic (or any other sort of incentive/reward) factors are included, a different region of the brain takes over processing the information and this brain process essentially eclipses the part of the brain that wants to respond to the altruistic appeal. This interesting finding is discussed in two recent books: *Sway: The Irresistible Pull of Irrational Behavior* (2008) by Brafman and Brafman, and *Drive: The Surprising Truth about What Motivates Us* (2009) by Daniel Pink.

5. **Context change.** A great evolutionary adaptation of the human brain is also a huge barrier to individual change: habit. To save ourselves the strenuous necessity of cognitively processing every detailed action we take, our brains save us mental resources by forming sets of reflexive-like behaviors that we perform automatically. Most people are familiar with “autopilot” behaviors: things we find ourselves doing the same old way we usually do when we actually had intended to do something differently.

Habits are notoriously difficult to overcome. This is in part because the brain has created a neural network/pathway that results in the habit, and that network must be dismantled or avoided to overcome the habit. Breaking a habit through dismantling the neural pathway involves slowly weakening the connection between the features in the environment and situation that prompt the behavior and the behavior itself. For example, when a person goes to cook a meal, a probable habit is to open the fridge and start with the things in front that are most salient, rather than to look at the things in the back of the fridge first for the things that are more likely to be close to their expiration date. To break this habit, the features of the environment and the situation must slowly be linked to a new, different behavior (look at the food in the back of the fridge first). There are many ways to go about this sort of intentional change program- any behavior change program teaches techniques for this kind of behavior modification (e.g., diet centers, fitness programs, some addiction programs.)

A complementary approach to habit-breaking is to change the context of the behavior. That is, to make some change to the situation, a big change or a small, so that the features of the environment that usually support the habitual behavior are not there. Several researchers are conducting work on habits and context change, most notably Neal, Wood and Quinn (2006). For the example of looking in the front of the fridge, a context change could be done in many ways. One could put up **reminders** or **prompts** that get the individual’s attention as they open the fridge door, so that they consciously and intentionally look in the back. Or, one could change the position of the refrigerator – move it a few feet away from its

usual position, or rehang the door so that it opens on the other side. Though this sounds perhaps simplistic, it in some cases can be enough of a change that the individual notices “something is different!” and this breaks them out of autopilot mode and enables them to think more intentionally about what they were about to do. Macalester students have noted, when engaged in class projects on personal behavior change, that small changes to context do indeed help them break a habit. One student was trying to avoid producing any trash for 10 days and she had the habitual behavior of taking a napkin each time she sat down in Café Mac for a meal. One day as she sat down and reached for a napkin, she noticed that the napkin holder was new- the old metal had been replaced by something brightly colored. This small change disrupted her habit of napkin-taking in that moment.

It is important to note that small context changes tend to be a temporary disrupter of habits. The brain is powerfully motivated to develop and maintain habitual behaviors, and it will adjust quickly to small changes. This is called habituation. Thus, prompts, reminders, and minor changes lose their effectiveness rather quickly- they become part of the background that people no longer perceive (think about all of the “turn the lights off” stickers on light switches that nobody pays attention to anymore.)

A more permanent context change is something major- a kitchen remodel, for example, or a move to a new house. In fact, Neal, Wood, Quinn (2006) and others find that habits are most successfully broken when there major life context changes occurring, such as a move, a job-change, change in marital status, or becoming a parent. In these situations, people’s habits are forcibly being changed. They thus need **support in times of other life changes** to form new and more sustainable habits. It is a great idea to give people resources and ideas of how to avoid food waste when they, for example, move to a new neighborhood. In addition, people in a new situation are also looking (subconsciously) for information about the social norms of this new and different place. It is good time to communicate the community injunctive norm “people here think it is important to not waste food” or social norm “in this neighborhood, there are a lot of people who work hard to avoid food waste”.

Finally, one last suggestion for context change and food waste. A context change could be coupled with goal-setting (briefly described above). Encourage people to set a goal that addresses food waste but also contributes to a change in the situation/context in which the habitual behavior occurs. For example, to support changing the habit of looking at the front of the fridge first, people could be encouraged to set the goal of rotating the food in their fridge weekly. This context change (different food is in the front of the fridge) supports a different kind of behavior (people will no longer let things linger in the back of the fridge until they go bad).

6. **An overarching societal barrier.** It is important to note that food waste in America occurs in a broader societal context that supports and promotes (over)consumption. Buying more food than one can eat is a common practice, encouraged, for example, by the prevalence of buying-club style stores where the savings is larger if one buys in quantity or by the relatively small jump in price for extra-large sizes of soft-drinks or fast food. In restaurants, plentiful portions are the norm. At home, it is also the norm for people have extra-large refrigerators, often more than one, for their food storage. The availability of more fridge space also invites buying (and storing) extra food.

The work that Eureka is doing on the individual level will always be constrained by this social context and infrastructure in which buying too much food is easy, encouraged, and perceived as “what everyone does”. Wherever possible we should bring attention to these structural barriers and look for opportunities to change them (lobbying, legislating, organizing within a community).

- 7. Being given the opportunity to be right vs. being told you are wrong.** Why do people change their behavior? They change because they recognize that the old way is not working and/or that there is a new opportunity available that has advantages over the old. What motivates people to take the new opportunity? According to Self Determination Theory (SDT, Ryan and Deci, 2000), internal motivation is highest when people feel like they have *autonomy* – they can make the choice, no one is forcing them. In addition, internal motivation is high when people feel *competent* and a sense of *relatedness* (e.g., to a social circle, to a higher power, to an important value or idea or goal).

Autonomy underscores how critical it is that people do not feel forced into taking an action. Competence underscores the importance of people being able to maintain a sense of themselves as capable actors in the world. When someone confronts a person to say “you’re doing this wrong”, the person receiving the message is likely to feel that both their autonomy and their competence has been threatened. This will erode their internal motivation to take any sort of action.

Instead of in any way implying to people that they’re doing something wrong, I recommend bolstering their sense of competence by finding something they are doing right, noting it, and building on it. Give them the opportunity to move further into the program, invite them to continue their good habits and take them to the next level.

- 8. The importance of a multi-pronged approach.**

Each recommendation listed here, once implemented, can make a small difference in how people engage with the issue of food waste. However, there are no magic bullet solutions: none of these recommendations on its own is likely to fully address the behavior of food waste. To gain the most power from these suggestions, one should always take a multi-pronged approach. The more of the recommendations that are implemented, the higher the likelihood of noticeable progress on changing food waste behavior.

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