

# **Sustainability Innovation**

## **Ugly, Not Bad: Strategies To Reduce The Waste Of Ugly Food**

Yuxuan Xia, Sirui Education

Yukun Zhang, Sirui Education

Jie Ji, Sirui Education

Yirou Su, Sirui Education

Yi Wang, Sirui Education

Jiaan Han, Sirui Education

YIHUI WU, Sirui Education

Xuanwen Wang, Sirui Education

Pengpeng Zhang, Sirui Education

Naicheng He, Sirui Education

# Summary

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Nowadays, with the fast development in food production and great improvement in the social economy, citizens elevate their living standards and increase their standards of food evaluation. Pushed by the original desire of pursuing beauty, people choose to buy nice-looking food that satisfies their visual pleasure. However, ugly food, with the same intrinsic value, is discarded and left to rot, which leads to serious food waste problems. In this passage, aiming to reduce the waste of precious food resources, our team conducted a research based on information gathered and designed sustainable improvements of ugly food management policies, commercial line, and public awareness.

Analyzing documentary evidence, searching on the internet, and distributing questionnaires, we first collected data and concluded several main problems leading to the waste of ugly food. We grouped the detailed problems by certain stakeholders, including merchants, the government, and consumers. Summarizing the problems, we identified the two common root causes of them, which are humans' love of beauty and the mutual distrust in the market. Aiming to solve the problems, we designed solutions targeting the stakeholders mentioned in the problems respectively. We evaluated them from aspects including health, economics, feasibility, sustainability, and public consensus. According to the result of the evaluation, we added a detailed action plan to put our final solution in practice. In which, considering the benefits and interests of various groups, we improved the fundamental chain of ugly food supply, including production and marketing. Moreover, we designed policies to promote the acceptance of ugly food, with a self-made poster as an example. Eventually, based on the feedback from questionnaires and the responses of interviews, we discovered flaws and deficiencies to be improved in the action plan.

In the future, we may conduct further research collecting data that covers more citizens from more regions of various social statuses, accumulate extra information to gain deeper insight and design more specific countermeasures targeting on all kinds of practical issues.

To summarize, our passage used interdisciplinary methods to design sustainable policies targeting the supply chain and consumers' awareness, which hopefully, will decrease the waste caused by people's stereotypes.

# Identify the Challenges

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## 1. Merchants

Sometimes, it is merchants' concern of low profits instead of consumers' unwillingness to purchase that leads to the massive discarding of ugly food. Farmers, companies, and groceries refuse to sell weird fruit and vegetables because they lack economic value.

### 1.1 Farmers

From one perspective, farmers are unaware of the importance to improve their techniques as they are producing ugly vegetables, the cause of which can be genetic deficiencies that pass on and on every year inside some plants, or the inappropriate farming environment that is so crowded that the plants crash into each other, or simply the insufficiency of fertilizer. No matter why the weird fruit and vegetables appear, most farmers are not making any effort to solve the problem, which is also the duty of the food scientists.

On the other hand, some farmers don't have the realization to be environmentally friendly. If the companies don't want the ugly-shaped vegetables they produced, they might throw them away. There are no special agencies or policies that prevent them from doing so. The companies will even refuse to take the weird-looking ones, which makes farmers dump even more ugly food.

### 1.2 Food processing companies

The food processing companies usually don't have a separate processing line for ugly food. During processing, they just simply clean them out instead of putting them into a different category at a lower price, which will influence both the farmers' and the groceries' willingness to produce and sell ugly food.

### 1.3 Grocers

Grocers are where most people buy their food and supplies. However, all grocers have a limited number of shelves and marketing place, which urges the sellers to carefully select the products. Products like fruits and vegetables with weird shapes will not only bring less economic benefits to the shops but also affect the shops' image on a larger scale. The shops and supermarkets have no reason to sell ugly food if they only care about profits. However, there are no environmental organizations or government regulations that give them subsidies. If grocers refuse to sell ugly food, they will not buy them from food processing companies. If the food processing companies won't getting any good from the ugly food, they will not take them from the farmers and the vicious cycle goes on and on.

## 2. Governments

### 2.1 Fails at starting an educational campaign

The government does not take any action to advertise that the “ugly” food has the same nutritional value as the “normal” food. Also, there is a vast amount of people spending their time on social media. More and more brands choose to advertise their products online and ask some Internet celebrities to participate. At this point, asking influencers to help with advertising will be useful. However, governments fail to encourage influential bloggers or celebrities to appeal to the public to take the issue of ugly food waste seriously.

### 2.2 Ignore the severity of the problem

Many of these “ugly food” are thrown away by the farmers or the food companies. The rest of them are left to decay in the market. The government does not see food waste in grass-roots units and fails to realize how serious it is, which stops the authority to pay more attention to this issue.

### 2.3 Maintain stability

Lacking relevant research and necessary information, the government cannot be one hundred percent sure about potential influence that may be brought by relevant policies targeting ugly food. Without a mature evaluation strategy, the government also worries about causing a public health crisis. Since the authority prefers to maintain stability, there is no policy published until now.

## 3. Consumers

### 3.1 Overall prejudice

Walking into the neighborhood's vegetable markets, we find that attractive food usually sells more than ugly food. To a large extent, the public's rejection of ugly food stems from the idea that "ugliness is of poor quality". It is true that some foods that are putrid and inedible do not have a particularly good appearance. However, the public's judgment on the consumption level is relatively weak, so it is easy to throw away the ugly food with the contaminated food. Since most people who buy food directly in the market are middle-aged and elderly people, they are not that open to new ideas. And this is why they often hold onto the idea that ugly food is poisonous.

### 3.2 Health concerns

People may mistake ugly foods and refuse to buy them out of health concerns because consumers can easily associate the shapes of ugly food with deformity and worms-eaten. Moreover, since some polluted and disease-carrying food may bring a negative effect on the human body, people are trying to avoid buying products

that look “wrong” .

Also, genetically modified food tends to have a grotesque appearance, and particular genetically modified food is proved to be harmful to the human body. Thus, the public fears all seemingly GM food. The problem now is how to convince the public that most GM foods are harmless and weird food is different from GM food.

Moreover, because of social bias and lack of proper knowledge, some people think that ugly food with strange shapes is caused by radiation and poisonous fertilizer. With great potential risks, consumers are less likely to buy ugly food.

### 3.3 Doubt nutrients

Many people think that ugly foods are not as nutritious as those that look fresh and beautiful. Ugly food that is neither rich nor brightly colored is liable to be thrown away. Actually, ugly foods have the same nutritional value as foods that were not crushed or damaged. In addition, squeezed parts tend to be dull in color. Different from many western countries, Chinese food culture is actually concerned about the combination of "color, aroma, and taste". This means that ugly food, which is neither pretty nor scented, can easily be left out by Chinese families.

### 3.4 Taste

The relatively poor taste of ugly food is also one of the reasons for its abandonment. From a biological point of view, in the course of human evolution, ancient humans generally avoided eating bitter foods to avoid food poisoning. The relatively bitter taste of ugly food is easily excluded from recipes because of over freezing, squeezing, and drying. In Chinese vegetable markets, vegetables are usually priced by weight. With the same price, people will choose to buy relatively good-looking food instead of the ugly food which seems to be of low quality. As a result, choosing foods that look plump is one of the reasons many people are reluctant to buy ugly foods. The Chinese culture of "enjoying" food leads people to overly focus on the taste of food, even more than its nutritional value, becoming the most important criterion in the Chinese diet. This has also led to poor sales of ugly food.

### 3.5 Social Media Influence

The rise of social media makes customers overly focus on the appearance of food. On the online shopping website, the shop owner always chooses the photo of the most “perfect” products to be the reference picture and post them on the front page. This can easily make consumers sense that only the “nice-looking” fruits and vegetables are “good” .

In addition, with the popularization of social media, younger groups like taking pictures of their meals and posting them online. They only take photos of “good-looking” food to get more “likes” and followers. This will be quite difficult to

solve for changing people's mindsets about "beauty and class" is a long and arduous journey.

# Identify a Root Cause

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## 1. Human's love of beauty

Humans love seeing things that are considered "beautiful". People enjoy paying to appreciate artistic items and features, making our surroundings look better, and using cameras to record aesthetic objects and gain happiness from sharing beautiful things with others. So why do we like tasteful-looking things? Some people said "because it's appealing to our eyes, mind, and soul. It's as simple as that. We like seeing pretty things because it generates positivism in our mind. It makes us appreciate something." Good-looking objects please humans, so it is easy for people to be absorbed by the "beautiful things". The great designer and managers Gary Hamel maintains that "you know it when you see it. You want it, too: brain scan studies reveal that the sight of an attractive product can trigger the part of the motor cerebellum that governs hand movement. Instinctively, we reach out for attractive things; beauty literally moves us", giving us the idea that trying to take possession of beautiful things is human nature. On the other hand, rejecting "ugly things" is also human nature. When people first meet a stranger, they will hold a negative impression with these individuals who look not so attractive. Because people's brains naturally look for potential mates with good genetic material and strangers' appearance is the first thing people can judge in their brains. People who look disproportioned of facial traits, odd or asymmetrical can easily be judged as "unhealthy". So do the food. Ugly food usually is thought of as the food that is not healthy or even can cause some health issues.

As a result, when people walk in the supermarket trying to pick goods, they are more likely to pick prettier things. Besides, individuals love choosing the fresh-looking products not only because people are absorbed by their aesthetic shapes, but also worry about the health risk of the ugly items. Deformities could be caused by genetic mutations or parasites. People believe that the food which looks more symmetrical and aesthetically pleasing is healthier by the light of nature.

## 2. Mutual distrust situation

The desire of consumers to get the best-qualified food (including appearances), the desire of producers, and employees of the quality control organization to get the highest profit would lead to the distrust and unnecessary concern among consumers, producers, and the quality control organization of the government. According to the psychologist John Rempel, trust contains three main factors: Predictability, dependability, and faith. First, consumers are unable to predict the behaviors of the producers. Sometimes they could buy food that satisfied them, also employees of the quality control organization are responsible. In contrast,

consumers may buy low-qualified products from unscrupulous merchants. Second, as for dependability and faith, dependability means others have some behaviors that worth our trust. However, according to the study, distrust can arise directly as the result of personal experiences among individuals, such as when one person breaks a promise to another. The restaurants are supposed to make a promise to the consumers that the ingredients including the ugly food are quality-guaranteed. However, some restaurants break this promise in order to pursue higher profit, which will cause distrust between the consumers and producers. This is the mutual distrust situation.



# Generate Solutions

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## 1. Merchants

The food sellers play a key role in dealing with the problem of ugly food, for their behaviors directly influence consumers' attitudes and their consumption. On the other hand, merchants ought to deal with ugly food properly to prevent economic losses.

### 1.1. Ways to improve consumption

Since it is difficult to change people's stereotypes about ugly food quality in a short period of time, the merchants should wisely follow the marketing methods. They can separate ugly food from common-looking ones and set lower prices to attract more purchases. They can also make advertisements to illustrate that these foods are of good quality. Some small marketing techniques are also helpful, for example, putting these foods near consumers and make them more approachable.

### 1.2. Process semi-manufactured food

If the ways above are not so effective, merchants can still take a step back and use alternative strategies to cover the natural weaknesses of ugly food, which means, to use them to produce processed products like canned food. The processing makes ugly food undistinguishable from other food and avoids the effect of consumers' stereotypes, while also enhancing its taste.

### 1.3. Commercial tricks to promote ugly food

Moreover, to make more consumers accept ugly food and probably change their values about food, merchants could make offline advertisements in public places that introduce their nutritive value and the dire situations they face in a humorous way to promote ugly food. They can also attach cute anthropomorphic stickers of fruits on ugly foods. These novel ways might be especially attractive to people and also help them learn more about ugly food.

### 1.4. Special stores

Considering the relatively low price of ugly food in the market, processing ugly food and selling it again is actually a good way to deal with ugly food. For most of today's young people, ugly food, properly and beautifully packaged, is actually a way to set a new trend and show their individuality. The selling of ugly food is more likely to aim at young people since they are more open to new things. In fact, the growing demand for contemporary youth for vegetables also provides

opportunities for ugly food to enter the market.

## 2. Governments

The sole efforts of buyers and sellers are not enough. To make changes among the whole society and to regulate them, a stronger power of the government should be introduced.

### 2.1. Set standards

First and foremost, governments should set standards for ugly food production and marketing and monitor these processes, which ensure consumers' rights and make them more willing to purchase ugly food. To be more specific, food agencies in the government should make sure that the ugly foods are of the same quality as normal ones and even attach markings on products to assure customers.

### 2.2. Change people' s minds

Then, governments can use social media to disseminate information about ugly food, for instance, making non-commercial advertisements in public spaces or delivering news reports about the severe waste of ugly food in TV programs. This procedure is especially important in areas where people have deep-rooted prejudice to this food.

In general, governments should lead the public to better understand the so-called ugly food and accept them, while ensuring food safety.

## 3. Consumers

### 3.1. Education at school

Education at school could play a key role in solving the problem of wasting ugly foods. Good-looking foods seem much more attractive to young kids and on most occasions, they will regard those as delicious ones. When ugly foods and other foods are placed together, they will absolutely ignore ugly foods and choose to eat what they think as "delicious" ones. Besides, considering nutrition levels or health problems that they think could possibly occur in ugly foods, they would prefer to not take risks.

#### 3.1.1. Scientific researches in schools

Confronted with all these above, schools should try their best to change students' misunderstandings on ugly foods by conducting several scientific researches to prove the harmlessness of ugly food. The practice could be the only criterion for testing the truth. When seeing the authoritative results of these scientific researches, students would gradually change their minds on selecting foods. It will significantly exert a subtle influence on their daily diet when faced with the decision between different foods.

#### 3.1.2. Classes in schools

Besides conducting scientific researches to better convince students, schools could

also design special classes to further educate young students about ugly foods. By presenting serious results caused by wasting ugly foods, students would better understand the current situation and try their best to avoid wasting foods in their daily lives so that they could help those suffering from famines. On the other hand, when teachers start to eat ugly foods, young students will think that it will be a good choice for them to follow their teachers. When more and more students begin to eat ugly foods, other students will follow that trend. They will even educate their family members about ugly food and then this will definitely enhance the promotion of ugly food.

### 3.2. Education toward misunderstanding

While educating the public to consume ugly food, the most important thing is to grasp the root causes of public prejudice against ugly food. Due to the development of technology, the dissemination of knowledge and information in the Internet era tends to be low-cost, and the dissemination of knowledge is accompanied by a variety of pseudoscience. Many people do not have enough ability to judge the truth of what they know but simply believe the so-called expert theory. One of the most popular pseudoscience theories in the 2010s is that ugly food is caused by excessive chemical substances, radiation, or soil pollution. In fact, food that is of substandard or excessively irradiated is not approved by the State Food and Drug Administration. The reason for these malicious speculations is that the unrest in modern times has led to people's distrust of relevant law enforcement agencies. Frequent food crises, such as gutter oil, Sudan red, and tainted milk powder, have exposed inadequate supervision. In this social environment, the general public's excessive caution about food safety is actually understandable. The solution to the public's distrust of ugly food is to arouse the public's trust in the government and the supervision of food in the market by publishing detailed regulations and punishments for disqualified food productions online for the public to see.

### 3.3. Public figures and signs

In addition, the spread of ugly food also needs the help of public figures. The public's re-examination of ugly food is enough to open a breakthrough for the difficult eradication of food waste, and that is why the question of how to make ugly food accepted by the public is actually a question of how to change the public's stereotype of judging good and bad by beauty and ugliness. The resistance to ugly food is deeply rooted in people's hearts, but in the face of interests, all this can be mitigated. Cheaper price is the solution that most businesses choose to treat symptoms rather than root causes, while the real solution is to let the public see ugly food and ordinary food in an equal light.

### 3.4. Media

Media could also play a great part in helping promote ugly foods. The effects of

advertisements could be extraordinary among the public.

#### 3.4.1. Celebrity effect

If several celebrities record an advertising video about avoiding the waste of ugly foods, it will soon lead a popular trend among the public. More and more people will start to follow that trend since their idols have already chosen to eat ugly foods. They will feel much safer when choosing to eat ugly foods themselves.

#### 3.4.2. Scientific proofs

Scientists could also take part in the promotion of ugly foods. By presenting their ideas and thoughts on social media, people will be better convinced about the safety of eating ugly foods once the system of examining their safety has been built up.

#### 3.4.3. Innovative designs

People could also create some cartoon images or animations about ugly foods so that they could devote themselves to beautify ugly foods in people' s minds, especially for young kids. By exerting influences on people' s traditional aesthetic thoughts on foods, people will gradually change their misunderstanding of ugly foods and lead a different diet trying to avoid wasting ugly foods.

# Identify the Criteria

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## 1. Health guarantee

Since ugly food looks so different from normal food, people usually have concerns about the quality of ugly food. People should learn to distinguish between ugly food and food whose quality is as inferior as its appearance, such as decaying food. Consumers should also understand that ugly food shares identical nutrition value as normal food before purchasing any ugly food. In this aspect, we intend to measure the health guarantee of ugly food implemented by solutions.

## 2. Feasibility

Farmers do not intend to produce ugly food. Instead, ugly food is just a by-product of normal food and only takes a small proportion of total food production. Traditionally, the amount of ugly food is not enough for retail and is widely discarded, leading to food squander. In this aspect, we intend to evaluate whether vendors are able to set up platforms of selling ugly food, and consumers can access ugly food without difficulty.

## 3. Economic benefits

Consumers are typically less willing to pay for ugly food, leading to decreasing price of ugly food. Nevertheless, quality testing, retailer platform, and consumer education of ugly food all take money and these factors reduce the financial potential of ugly food. In this aspect, we intend to evaluate the economic benefits of ugly food considering its cost and profits.

## 4. Sustainability

The original intention of the promotion of ugly food is to develop an accessible measure to protect the environment. We expect that instead of wasting all the ugly food, producing it will lead to the alleviation of pollution and starvation. In this aspect, we intend to evaluate the squander of food and carbon emission reduced by the production of ugly food.

## 5. Willingness and consensus of the public

The project requires the public's cooperation. If people keep resisting the campaign, the project will not last long enough to cause expected effects, which hinders people to recognize the real advantage of the ugly food and deprives the project of a solid foundation to develop in the future. Thus, governments and social groups ought to take action to lead the consensus, which is definitely one of the

most important aspects of the evaluation. Under this consideration, we intend to evaluate the willingness and opinion of the public to embrace ugly food.

# Evaluate the Solutions

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Based on our criteria (health guarantee/feasibility/Economic benefits/Sustainability/Willingness and consensus of the public), we scored eight possible solutions and rank them by adding up their total score. The evaluation form linked below showed the score in a graphic way.

1. Set standards:

$$8+7+5+7+7=34$$

2. Process semi-manufactured food:

$$6+7+8+6+6=33$$

3. Commercial tricks to promote ugly food:

$$5+7+8+6+6=32$$

4. Media promotion (in general):

$$6+7+6+6+6=31$$

5. Ways to improve consumption:

$$5+8+7+6+4=30$$

6. Public figures and signs:

$$5+6+6+5+7=29$$

7. Education (in general):

$$5+6+5+6+7=29$$

8. Special stores:

$$5+5+7+5+6=28$$

Due to the complexity of the supply chain, not a single solution could fully solve the problems. Considering the practical needs and maximize the benefit of all, we generate the action plan by looking at multiple perspectives and combine possible solutions that support each other.

 [Evaluation form](#)

# Make an Action Plan

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According to the solutions and criteria we have come up with, and also with regard to a questionnaire we handed out, we now propose an appropriate and effective action plan. This plan is mainly based on the fundamental supply chain of “ugly food” , including production, marketing, and publicity.

## 1. Production

### 1.1. Collection

Ugly food is not mass-produced, so it should be collected for selling. Farmers do not intend to produce ugly food. In fact, they think of ugly food as the by-product of normal food. Previously, a uniform channel to gather ugly food did not exist and farmers had no choice but to throw it away, which led to the squandering of ugly food. Therefore, we plan to find ways to collect ugly food from crop fields and then provide ugly food to factories or individuals to be processed or consumed directly.

#### 1.1.1. Collection from individual farmers or cooperative

The town is the smallest unit of collecting ugly food from farmers or cooperatives. Organizations set up by the government or attributed to companies are the agencies responsible to conduct the collection of ugly food. Those agencies should gather ugly food from farmers or cooperatives and should also pay a relatively low price for ugly food given by producers according to its weight. The collection of ugly food should follow the rules.

#### 1.1.2. Collection from corporations

Corporations should appoint special staff to collect ugly food. The staff should gather ugly food from sub-production units including fields and greenhouses and accumulate it into large amounts for selling or later processing. The collection of ugly food should follow the rules.

#### 1.1.3. Rules of collection

The rules of collection aim to guarantee the quality of ugly food when ugly food is sold to individuals or processed in factories. The rules would restrict people in the collection process to choose ugly food only with good quality. Nutrition value should be insured and rotten food should be discarded. The rules would also restrict the preservation of ugly food after collection. Ugly food should be stored in a cool and dry environment so that ugly food will not degenerate. The rules will be further elaborated in the main point 3 Government Supervision below.

### 1.2. Semi-manufacturing

Lives could be hard for the weird-looking fruits and vegetables in the grocery’ s or in the supermarkets, but we come up with an idea to promote the selling by turning



raw materials into processed food.

Feasibility: What we already know is that the ugly fruits and vegetables are nothing different except appearances, which means ugly food has the same quality as normal ones and taste just like the same. The action of manufacturing them into (semi) products is ethical and harmless.

#### 1.2.1. Processed dishes

The easiest way of doing this is to make the raw materials into dishes that won't show the raw materials themselves. For example, wine is made out of grapes and apples and all kinds of fruits. Since the weird-shaped fruits don't make any difference in tastes, they should be incorporated into the wine-making industry. Other products include fruit yogurt, salad, and pies.

#### 1.2.2. Direct view

Another way that may succeed is to make raw materials into products in which they can be directly viewed by customers. For example, in China, there is a famous snack named sweet lotus roots. Lotus roots are difficult to keep in good shapes. There are often dots and scars on the roots, which make them ugly. However, it is noticed by most people that flaws on the surfaces of the food don't interfere with the taste and some of the ugly ones taste really nice. The promotion of cheaper manufactured food like this famous snack can change people's view of the ugly food, thus resulting in the general acceptance of weird fruits and vegetables.

#### 1.2.3. Semi-products

The final method is to turn raw materials only into semi-products, which means the process simply includes washing and cutting and filling them into plastic or paper packaging. Although the method may seem less effective, we have a strong belief that it can make an impact. Once washed and cut into pieces, the difference in shapes of the fruits is not so obvious anymore. Also, there should also be labels from the food agency in governments to prove that the ugly food is qualified and customers should have confidence and pride to buy them, for the purchase at the same time helps our environment.

### 1.3. Government supervision

Since the food market is too complex and many food producers might choose some irrational and illegal ways to manufacture their products for more benefits, it is difficult to maintain the fairness of the market and the quality of products without the powerful supervision of the government. In other words, if the government does not take action and only depends on the market's self-regulation, more sub-standard food products will emerge and consumers' rights will be threatened. When it comes to ugly food, it is much easier to use unhealthy food to replace the healthy "ugly food". If this happens, ugly food products will soon become notorious and cause economic losses. As we can see, government supervision is essential in the production process, which ensures the producers' and consumers' top priorities. There are several ways for the government to enhance supervision:

### 1.3.1. Standardization

The government should first set a clear standard for ugly food products. In our view, the standard for the safety and nutritional value of ugly food shouldn't be lower than those of normal food. Moreover, the Department of Food Security should put these standards into action. They can put these standards on websites or use posters and advertisements to promote these standards to make producers and consumers more aware of them. These procedures help producers become aware of the significance of producing healthy food, and also make consumers more confident with the quality of ugly food products in the market.

### 1.3.2. Testing

The government should do tests on ugly food products to ensure its quality. In order to prevent manufacturers from deliberately preparing for these tests and deceiving the authorities, governments could randomly choose some manufacturers for testing without any announcement ahead. That's especially important for those semi-manufactured ugly food products. To avoid cheating, these products need to be tested before they are semi-manufactured. Through these tests, food security can be greatly ensured, thus enhances the consumers' willingness to buy these products and bring more economic benefits. Furthermore, the good market environment created by these procedures is essential to the sustainable development and prosperity of ugly food products.

## 2. Marketing

### 2.1. Price promotion

Most people are unwilling to purchase ugly food because of their appearance. Nevertheless, if we decrease the potential cost of ugly food, a growing number of people will accept ugly based on basic economic principles. According to our survey, the increase of people willing to buy ugly food after the price drop is not drastic. 10%, however, is a considerable number of consumers considering the enormous national market and is lucrative enough to sellers of ugly food. Therefore, we decide to utilize a price decrease to promote the selling of ugly food

#### 2.1.1. Direct price decrease

Decreasing the price of ugly food may directly lead to an increase in sales. Since consumers can buy more goods with the same budget when the price decreases, they are more prone to choose ugly food. Thus, this way may be more effective for price-sensitive consumers, such as people with low income. Furthermore, the decrease in the price is more straightforward to understand. Instead of dazzling posters or complicated discount mechanisms, a decrease in price is more likely to improve consumers' willingness to purchase ugly food.

#### 2.1.2. Merit Points Management

By setting up a system of points, stores may promote the selling of ugly food to consumers. When consumers purchase ugly food, they can acquire certain points accumulated in their accounts according to the consumption amount and as they buy more, the points will increase. The initial way to reward those points is money

or equivalent items. For example, people may use 3000 points to exchange for free cooking utensils and become more willing to buy ugly food for practical rewards. An advanced reward way is a value, or something meaningful. For instance, people may use 3000 points to plant a tree in a desert and become more willing to buy ugly food because they protect the environment. Therefore, Merit Points Management provides motivation for people to buy ugly food, proving its success in promotion.

## 2.2. Bundling selling

People could offer the sales of several ugly food products together by bundling them up and then selling at a lower price than separately. Similar strategies could also be employed in many cases for those less competitive products.

### 2.2.1. Bundling strategy:

Obviously, it could be difficult to promote the sales of ugly food. As many companies use bundling selling to help promote some of their unsalable products, they could use a similar strategy to solve this problem. When presented individually to the public, they hardly have any competitiveness compared to those beautifully-decorated ones. Despite its distasteful appearance, people could still introduce some sales promotion strategies to attract consumers' attention. Due to economic considerations, customers will possibly prefer to save money by choosing these bundling products.

### 2.2.2. Additional requirements

Simply presenting the bundling products of ugly food could have no effect on consumers. They might still doubt the safety or taste of ugly food. Because of this, they should be combined with the process of quality checks. When the ugly food has passed the strict quality check and has been marked with the logo of healthy food by the government, the consumers will be more likely to choose it during shopping for both it is both safe and cheap. When added with some fascinating advertisements with famous idols or celebrities on the package of bundling products, this would capture even more attention than other ordinary food products. Consequently, the sales of ugly food products could be significantly increased and more people would have the opportunity to have ugly food in their daily diet. When more and more people correct their misunderstandings about the ugly food, the problem would be solved easily.

## 2.3. Processed ugly food products marketing

Designing colorful and attractive packages of ugly food products can also be a beneficial way to improve their sales. Some additional advertisements can also attract the attention of customers. When companies put in more effort in designing packages that enable ugly food products to become eye-catching and convenient, it would accumulate more advantages in the food products market. Contemporary people' s life pace becomes faster and faster, exaggerating stimulations may be more likely to effectively provides people with strong visual pleasure, which makes

them competitive.

### 3. Publicity

It is necessary to use advertisements to propagate the idea of ugly food among the public to get more attention on this issue. According to the statistics, we have concluded a few effective strategies.

#### 3.1. Videos

The most popular way to impress people is to record some short videos about our products and upload them on video platforms like Tiktok, Bilibili, and YouTube.

There are several contents that could be included in these videos:

##### 3.1.1. Personal experience

There could be a person using his or her personal experience of using our products to tell everyone that it is possible to turn ugly food into something delicious. For example, one person bought some ugly fruit and vegetables from the supermarket. Then he/she used some to make delicious meals. In this way, people may change their stereotypes about ugly food, which makes them more willing to consume the ugly food products

##### 3.1.2. Scientific promotion

The video could be a scientific one, illustrating how ugly food products are manufactured by using certain advanced techniques. In this way, people will gain more understanding of this kind of food and become more willing to buy them.

##### 3.1.3. Live shows

There could be some live shows on these websites by famous hosts to introduce and promote ugly food products. For example, they can present the good taste and nutritional value of this food, or they can make some time-limited discounts to promote people's enthusiasm. This will spread the notion of ugly food products to a much wider range of people and make them more eager to buy this kind of food.

#### 3.2. Advertising

The second popular way is to make public advertisements or TV programs related to ugly food problems. Here are some possible contents:

##### 3.2.1. Public service advertisement

Spreading ugly food products in the form of public service advertisements can be a good idea. These advertisements can effectively change people's mindsets about ugly food and make them aware of the significance of preventing them from being wasted. Recording some of the food's nutritive values in videos can popularize the products among the audience like the elder people.

##### 3.2.2. Celebrities' effect

Manufacturers can also invite some celebrities to promote the products. This will be especially attractive among their fans, which also helps with the promotion.

#### 3.3. Posters

The third popular way is to use posters and put them up in eye-attracting places, using distinctive colors to attract peoples' attention. The function of posters is to turn the ugly food into some beautiful designs in peoples' minds. For example, some ugly food may look like swans, humans, and so on. In this way, they could be posed and photographed in some interesting postures to change peoples' minds about ugly food, which will help improve the situation of ugly food and gain more economic benefits.

#### 3.4. Schools

There are also other ways. For example, some product-related information can be put into some students' textbooks or some exam questions to leave a deep impression in students' minds.

# Prototype and Test

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## | Prototype Design

Prototype design:

Our poster aims to change people's stereotypes of ugly food, wishing to tell people that ugly food can be really creative and beautiful in a special way. At the center of the poster, there is a prince carrot is ballroom dancing with the princess carrot. In most people's minds, those carrots with the erratic half bottom of their bodies could also show off their real beauty, like that shown in picture 1.

The long "legs" of this carrot, as well as the odd appearance of ginger and cucurbita offer them the ability of dancing. Also, some strawberries are bigger and stranger than some normal strawberries. It is these characteristics that keep them alive, flying like some beautiful butterflies to decorate the stages. The mixed-use of those light colors has offered the picture a strong vision wallop which seems to ask people again and again: Are we ugly?

 [Poster for ugly food](#)

 [picture 1](#)

## | Feedbacks learnt from users

### 1. Questionnaire feedback

#### 1.1. Data analysis

After making questionnaires, we got feedback from 280 people. Firstly, the top two of the age range is 11-20, which has a proportion of 36.07%, and people above 40 takes a proportion of 39.29%, but there are also other age ranges. Secondly, the top two of the educational backgrounds are middle school which has a proportion of 35.71%, and undergraduate students, which has a proportion of 31.43%. There are also primary school students and graduate students. Finally, as for the monthly income, most of our respondents are students so they don't have a regular income. As for those who have work, the top two of the income per month are 10000-20000RMB, which has a proportion of 16.07% and 6000-10000RMB, which has a proportion of 15.36%. According to our statistics, our sample size with all of the possible factors that may have influences on our research is large enough to guarantee the reliability of our data and reflect most people's perspectives.

## 1.2. Quantitative feedback

1.2.1. According to the statistics of places that impress people most, the top one source is 51.43%, which are video platforms like Bilibili and YouTube. The proportion of the posters, advertisements, and TV program is also very high.

1.2.2. According to the statistics of the places that people go to buy fruit and vegetables, the offline method, which has a proportion of 80.36% is much higher than the online method.

1.2.3. According to the statistics of the factors that one takes into account when buying fruit and vegetables, the top two factors are the shape of 56.79% and the color of 47.14%.

1.2.4. There are 58.58% of people refuse to buy those fruit and vegetables which look ugly.

1.2.5. There are still 52.50% of people who refuse to buy fruit and vegetables even they are at a lower price.

1.2.6. We uploaded a picture of the "ugly" carrot and ask people whether it is of low quality, and 59.29% of people think there are no quality problems. However, there still be 40.71% of people think there are.

1.2.7. There are 57.14% of people who will buy ugly food with official authentication.

1.2.8. There are 43.57% of people who will buy the "ugly drinks" which are made from ugly fruit if they know the price and nutritional level is the same as the common drinks. However, there are 34.64% of people will decide whether to buy or not according to the beverage stores.

1.2.9. There are 76.43% of people who think that it is necessary to take some action to solve the problems of ugly food.

## 1.3. Qualitative feedback

We could draw some conclusions according to our statistics which could guide the route of the action:

1.3.1. According to the third and fourth quantitative feedback, most of the people prefer good-looking food, indicating that the problems of ugly food are serious.

1.3.2. The prevalence of video software, TV, and the posters indicates that the best way to get publicity is to record and upload some promotional videos on YouTube or Bilibili and so on. In addition, we could paint some posters and put them on eye-catching places and make some public service advertisements.

1.3.3. The prevalence of the offline shopping method reflects the importance and the feasibility of the special shelves for ugly food.

1.3.4. Above half of the people will buy the ugly carrots with official authentication, indicating that it is necessary to get the official authentication from the government to make people feel safe. However, it only has a little influence on people so it can be considered as a second-best choice.

1.3.5. The fact that most people are willing to try the ugly drinks and the answers to

the questions about the quality of the ugly carrot indicate that most people think the quality has nothing to do with the ugly appearance.

1.3.6. There are still some people who choose depending on the beverage store, indicating that the importance of using famous beverage store brands like Xicha to attract more attention for ugly food problems.

1.3.7. The large proportion of the people who think it is necessary to take action indicates that people have the awareness of the food-wasting and ugly food problems, so the education for the public is relatively easier to implement.

## 2. Interview feedback

We interviewed our neighbor, Mrs. Wang, on her opinions towards the ugly food. In the interview, when asked about her criteria for choosing fruit and vegetables, she replied that she would choose round and complete ones because the strangely shaped ones are hard to remove the peel. What's more, it would also be a waste because their surfaces are too bumpy. From her answer, we can see that customers also choose not to buy ugly ones out of practical concerns. We also ask about her ways of buying food, and she said she always went to physical stores because online merchants may fake advertise. However, she also stated that with strict regulation, she may consider buying food that is about to expire on a discount online as long as it can be delivered at once. This is an example of how most customers still don't trust online merchants, suggesting that we should still put our focus on innovations in physical stores. As for public benefit advertisements, she believed that they should be put in more obvious places, instead of just along the road, so that people can see. Lastly, she gave her suggestions on how to stop the waste of ugly food. For one thing, the governments should provide platforms to encourage farmers to sell the ugly food at low prices, as distributors won't buy the ugly food as primary products for the same price as normal-looking food. Also, with cheap ugly food, governments can set up factories to produce safe products manufactured by ugly food.

 [Questionnaire](#)

# | Improvement for next iteration

1. Nearly half of the respondents say that they are unwilling to buy the ugly food even if they know that the ugly food is of the same quality as normal-looking ones, and the exact reasons behind this repulsion for the ugly food deserve to be further explored in the next questionnaire by leaving out space for them to fill in.

2. The connection between people's income/residence and their attitudes towards ugly food may reveal some clues about the source for biases against the ugly food. We have only gained a rough distribution of people's income and residence so far.



To solve this issue, we could conduct several interviews with people of different classes and then compare their answers.

3. There is a concern that setting a lower price for products made out of ugly food is an insinuation for consumers that ugly food is of lower quality so that the shops have set a lower price to "compensate" the consumers. Especially for products that people can't tell their raw materials like wine and pies, we think there is no need to notify the consumers that they are made of ugly food or set a lower price. However, if the price is kept the same, shops may lose a certain number of customers. A consensus we have reached so far is that we shouldn't incite customers' bias against the ugly food by setting a lower price for ugly food products when there is no distinction whatsoever between them and common products.

4. There is another concern in regard to the solution of using packages to attract consumers because beautiful packages often mean overpacking and this could be wasteful for paper and plastic. We should work to come up with both simple and artistic packages for ugly food.

5. All of the questions in the questionnaire start off from the perspective of consumers. In the next iteration, we should come up with ways, like online interviews, to directly communicate with farmers and shopkeepers about their attitudes towards ugly food.

# Team Credits

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夏雨萱 Yuxuan Xia, the leader of the team, is responsible for the overall management of the whole project. She held conferences, led discussions, and organized team members' ideas. Also, she chose the topic, designed the outline, and scheduled the timeline. In the writing process, she finished the sections of summary, team credits, and modification.

韩佳安 Jiaan Han, the leader of the action plan group, is responsible for organizing the conference of his group members and supervising their work. In the writing process, he contributes to the generation of solutions and the description of the action plan.

王炫雯 Xuanwen Wang, an active member of our team, is responsible for the design of questionnaires. In the writing section, she contributes by identifying the root cause, analyzing the results of questionnaires, designing the poster, and helping with the members in the action plan section to finish their work.

何乃成 Naicheng He is responsible for identifying the challenges and describing the action plan. He set a good model for other members using his elaborate writing.

季洁 Jie Ji is responsible for analyzing the deficiency and giving improvement about the action plan in the prototype section. Also, she contributes to the revision of the action plan, solution, and the final modification of every section that eventually unifies the whole passage.

苏依柔 Yirou Su is responsible for setting criteria, evaluating the solutions, and writing the prototype. In the prototype and test section, she contributes by finishing an interview.

王屹 Yi Wang is responsible for identifying the challenges and the root cause. In the revision part, she contributes to the detailed improvement of the root cause.

吴宜荟 Yihui Wu is responsible for identifying the challenges and generating the solutions. Also, she contributes to the general modification of the solutions after receiving the suggestion of modification in the second round.

张芃芃 Pengpeng Zhang is responsible for setting criteria, evaluating the solutions, and making the action plan.

张煜堃 Yukun Zhang is responsible for generating solutions and making the action plan.

# Judge Comments

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" Review Comments:

The team went into this with an open mind and willing to iterate on your solutions - a curious mind is important to developing impactful solutions. Good job looking at gaps across the board - supply chain, government intervention, and consumer bias. I appreciate the focus on education and solutions proposed to address this at schools.

Some of the ideas suggested, including processing the food prior to selling are tried and tested ideas and have the potential to move this important issue forward. For the health guarantee, which is a fantastic solution, I would urge you to also consider an NGO partnership to develop a certification program for ugly food, locally or more broadly. Government-dependent solutions while feasible may take longer to implement. Your idea of including packaging solutions to encourage younger groups to buy ugly food is one that has lots of potential - continue to explore this! It would also be helpful to consider if the food can be successfully diverted to causes like charities and food banks that help feed the poor.

The team did a great job with the survey and including questions to gauge the willingness to pay for ugly food, as well as looking at your age and income demographics in the survey to determine viable solutions.

While the root causes you have identified seem right, it would have been helpful to further explain your research and logic better. Some of the conclusions including that farmers aren't environmentally aware and that merchants are a bigger barrier than consumers deserve added analysis and explanation. It would also have been helpful to see an identification of how big a problem is 'ugly food' - what is the rough quantity of food lost, what is the rough environmental harm from discarding it etc.

I commend you once again for your ideas and encourage you to continue exploring solutions in this important space.

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