

**Terminated food recalls by FDA**

Group 2

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BUS2 194A - Section 80

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**Introduction:**

The United States Food and Drug Administration, or FDA, is responsible for protecting public health through supervision of many products that are offered in America. However, some products may have adverse effects and get recalled by the FDA. Recalling products uses many resources, like time and money. Terminated recalls happen when the FDA concludes that all reasonable efforts have been made to correct or remove the unsafe product.

**Problem Statement:**

The problem at hand is the fact that there are too many dangerous products that get recalled by the FDA. We want to use statistics to find out if the FDA is doing a better job or if manufacturers made an effort to correct or remove their product in accordance with the recall strategy that is outlined by the FDA. Overall, we wish to help the FDA determine whether or not they have done a better job at implementing their recall strategies.

**Objective:**

While the Food and Drug Administration has been recalling certain food & beverage products for better health precautions, the objective of our project is to compare the percentage of terminated food recalling between the year 2020 and 2021.

We will be finding which year had the highest percentage, and then analyze the difference between the results of the two years.

**Method:**

We will conduct a hypothesis, low-tailed test using two population proportions. In this case, we will use the sample of food & beverages product recalls from the year 2021 and year 2020 and determine if the percentage of recalls that are indicated as terminated recalls in 2021 is

lower than the percentage of terminated recalls in 2020. We will use a significance level of 0.05 to compare it with our p-value and we will also analyze the range of 95% confidence interval.

## Data Collection:

We got our data straight from the FDA website and found a spreadsheet with all the information we needed. Below is a *small* portion of the data in the spreadsheet, showing the beginning of year 2021, and the end of year 2020. There are 7 columns: Column A - Date, Column B - Brand Names, Column C - Product Description, Column D - Product Types, Column E - Recall Reason Description, Column F - Company Name, Column G - Terminated Recalls.

We mostly used Column A, and Column G as we are calculating the difference in percentage between the terminated recalls in 2020, and 2021.

A	B	C	D	E	F	G
245	02/18/2021	Aaron's Gourmet Smoked Fish	Smoked fish products	Food & Beverages, Food Compliance Programs, Fish	Lack of licensure and regulatory oversight by the state agency	Aaron's Gourmet Smoked Fish
246	02/15/2021	Kowalski's Markets	Buffalo Cauliflower Bites	Food & Beverages, Allergens	Undeclared Fish (Anchovies)	Russ Davis Whiteale
247	02/15/2021	Britt Harbor	Casav Dressing & Dip	Food & Beverages, Allergens	Undeclared Anchovies	Unihorse Inc.
248	02/10/2021	Dole	Sunflower Crunch Chopped Salad Kit	Food & Beverages	Undeclared wheat and tree nuts	Dole Fresh Vegetables
249	02/09/2021	Ignoult	Vanilla Yogurt Covered Cranberries	Food & Beverages, Allergens	Undeclared Almonds	Hickory Harvest Foods
250	02/09/2021	Delice	Thai Peanut Sauce, Spicy Red Curry Sauce	Food & Beverages, Allergens, Grains/Sauces	Undeclared Shrimp	Delice Gourmet LLC
251	02/08/2021	Simple Truth, That's Tasty, Shandorah Growers	Basil	Food & Beverages	Potential <i>Cyclospora</i> contamination	Shandorah Growers, Inc
252	02/04/2021	Publix	Panama-Crusted Wild Alaskan Salmon Fillets	Food & Beverages	Undeclared Soy	Ocean Beauty Seafood LLC
253	01/29/2021	Dole*	Dole* Endless Summer Salad Kit	Food & Beverages	Due to possible undeclared allergens (fish and egg)	Dole Fresh Vegetables, Inc.
254	01/29/2021	Golden Boy	Custard Muffin Banana	Food & Beverages, Allergens, Dairy	May contain undeclared milk	Hong Thai Foods Corp.
255	01/28/2021	iboni	Protein fiber oatmeal farmer's market berry cumble	Food & Beverages	Due to undeclared almonds and pecans	iboni and Intersac Technologies, Inc.
256	01/27/2021	Mane Grains, GrewNYC	Organic yellow peas	Food & Beverages	Undeclared soy	Main Grains, Inc.
257	01/25/2021	Bickel's Snack Foods	Butter Flavored Popcorn	Food & Beverages, Allergens	Undeclared Milk	Bickel's Snack Foods, Inc.
258	01/23/2021	Door County Coffee & Tea Co.	French Vanilla Flavored Cappuccino Single Serve Cups	Food & Beverages, Allergens	Product may contain undeclared milk and soy.	Door County Coffee & Tea Co.
259	01/23/2021	HouseAutry	Tartar Sauce	Food & Beverages	Speilage	HouseAutry Mills, Inc.
260	01/21/2021	Publix	Beem in bag products containing butternut squash	Food & Beverages	Listeria monocytogenes	Publix Super Markets, Inc.
261	01/21/2021	Ruffles	Potato Chips	Food & Beverages, Allergens, Snack Food Item	Undeclared milk	Frito Lay
262	01/19/2021	Fans Family Farms	Butternut squash cookies, chunks, and spirals	Food & Beverages	Listeria monocytogenes	Fans Family Farms Food Company, LLC
263	01/19/2021	Lancaster Foods	Butternut squash noodles, planks, chunks and butternut squash containing medleys and blends	Food & Beverages	Listeria monocytogenes	Lancaster Foods, LLC
264	01/17/2021	Island Dairy	1% low fat chocolate milk	Food & Beverages, Contaminants, Milk/Milk Product	May contain food grade sanitizers	Island Dairy
265	01/16/2021	Champlain Chocolate Company	Select LLC Milk Chocolate Products	Food & Beverages, Chocolate/Cocoa Product	Potential Foreign Objects - Brittle Plastic Pieces	Champlain Chocolate Company
266	01/21/2021	LAOIA	Blueberry Pears Blended Yogurt	Food & Beverages	Potential for Mold	LAO Foods Inc.
267	01/21/2021	Sportmix, Nuon Better, ProPac, and Others	Dog and Cat Pet Food	Animal & Veterinary, Food & Beverages, Pet Food	Affirmation Levels Sourced Acceptable Levels	Midwestern Pet Foods Inc.
268	01/10/2021	Wells, Klein's, Nelson's	Ice cream products	Food & Beverages	May be contaminated with extraneous material	Wells Markets
269	01/05/2021	Dole	Sesame Asian Chopped Salad Kit	Food & Beverages, Allergens, Prepared Food	Undeclared eggs	Dole Fresh Vegetables, Inc.
270	12/21/2020	Backroad Country	Solo Cakes Mix	Food & Beverages, Allergens, Snack Food Item	Undeclared milk	Local Foods
271	12/21/2020	Onivies	Vanilla Cupcakes	Food & Beverages, Allergens, Bakery Product/Mix	Undeclared milk and eggs	Onivies, LLC
272	12/10/2020	Sportmix	Dog and Cat food	Animal & Veterinary, Food & Beverages, Pet Food	Elevated levels of aflatoxin	Sportmix
273	12/06/2020	Canyon Bakehouse	Canyon Bakehouse Everything Bagels	Food & Beverages	Potential presence of gluten	Flowers Foods, Inc.
274	12/28/2020	Legendary Baking	French Silk Pie	Food & Beverages	May contain undeclared pecans	Legendary Baking
275	12/24/2020	Velvet's	Herring in oil	Food & Beverages, Foodborne Illness, Fish	Listeria Monocytogenes	B&B Overseas Trading, Inc
276	12/24/2020	Food Club	Gulf Frieder	Food & Beverages	Undeclared Soy	B & B Foods, Inc.
277	12/21/2020	SE Grocers	Party Tray Vegetables with Ranch Dip	Food & Beverages	Undeclared Egg	Country Fresh, LLC
278	12/18/2020	Osli Danish Bakery	Almond Kringle	Food & Beverages	May contain undeclared pecans	Osli Danish Bakery, Inc.
279	12/16/2020	Tealor Jew's	Peanut Lightly Salted Skisame	Food & Beverages, Foodborne Illness, Vegetable Protein Product	Potential to be contaminated with Listeria monocytogenes	Tealor's Trading Company
280	12/08/2020	Publix	Publix Bakery 20 Oz Holiday Cookie Platters	Food & Beverages, Allergens, Bakery Product/Mix	May contain undeclared pecans	George DeLallo Co., Inc.
281	12/06/2020	Market of Choice	Sour Cherry Baked Bire	Food & Beverages	Undeclared almonds	Market of Choice
282	12/04/2020	Canyon Bakehouse	Canyon Bakehouse Mountain White Bread and Canyon Bakehouse Everything Bagels	Food & Beverages	Potential presence of gluten	Flowers Foods, Inc.
283	12/01/2020	Cacao Market Marketplace	Dark Chocolate Pearls	Food & Beverages, Chocolate/Cocoa Product	Undeclared milk	Marketplace
284	11/30/2020	Golden Boy	Custard Muffin Original	Food & Beverages	Undeclared milk	Hong Thai Foods Corp.
285	11/30/2020	Golden Boy	Custard Muffin Pandan	Food & Beverages	Undeclared Milk	Hong Thai Foods Corp.
286	11/29/2020	Fresh Abundance	Baby Spinach	Food & Beverages	Salmonella	Veggie International
287	11/25/2020	Good & Gather	Banana Chocolate Chip Date & Nut Bar	Food & Beverages, Allergens	Undeclared almonds	Riverside Natural Foods
288	11/25/2020	Prarie Farms	Chocolate milk	Food & Beverages, Allergens, Milk/Milk Product	Undeclared egg	Prarie Farms
289	11/24/2020	The Fresh Market, Good & Gather and more	Organic Basil	Food & Beverages, Foodborne Illness	Possible <i>Cyclospora</i> contamination	Shandorah Growers, Inc
290	11/24/2020	HyVee	Shred Cuts vegetable mix products	Food & Beverages	Potential to be contaminated with Listeria monocytogenes	HyVee, Inc.
291	11/23/2020	Whole Foods Market	Papicon chicken with sweet chili sauce	Food & Beverages	Undeclared shellfish (shrimp)	Whole Foods Market
292	11/21/2020	Dole and Wm's Harvest	Organic Romaine Hearts	Food & Beverages, Foodborne Illness, Produce	Potential for Pathogens: non-O157 E. coli	Dole Fresh Vegetables, Inc.
293	11/17/2020	Fresh Express	Fresh Express Kit Caesar Supreme	Food & Beverages, Foodborne Illness	Escherichia coli STEC O26 bacteria	Fresh Express
294	11/17/2020	Albright's	Raw Dog Food Chicken Recipe for Dogs	Animal & Veterinary, Food & Beverages, Foodborne Illness, Pet Food	Potential to be contaminated with Salmonella	Albright's Raw Dog Food
295	11/12/2020	Adi Southern Grove	On the Go Sweet & Salty Trail Mix	Food & Beverages, Allergens, Snack Food Item	Undeclared Almonds	Kanan Enterprises

## Descriptive Statistics:

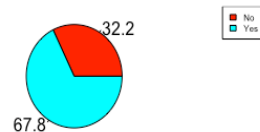
Regarding the descriptive statistics, we want to use R in order to help us describe the data in order to then further understand it. There are a variety of functions that give us specific descriptions of the data such as: the mean, median, maximum, minimum, and mode. In fact, the “summary()” function gives us these exact descriptive statistics. Furthermore, because values in

the dataset are either yes or no, therefore the mean gives us a lot of information. The mean will give us the direct percentage of recalls and terminated recalls.

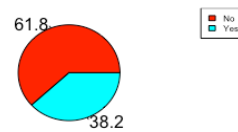
```
> #Summary 2020
> summary(recall_2020)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
0.0000  0.0000  1.0000  0.6775  1.0000  1.0000

> #Summary 2021
> summary(recall_2021)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
0.000  0.000  0.000  0.382  1.000  1.000
```

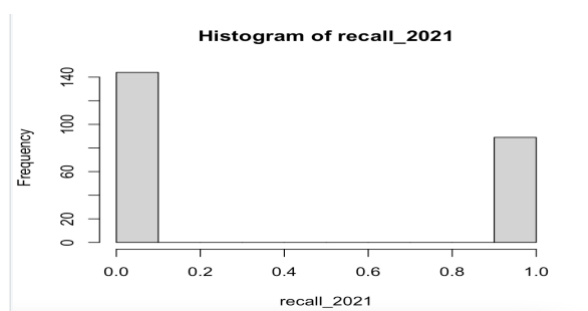
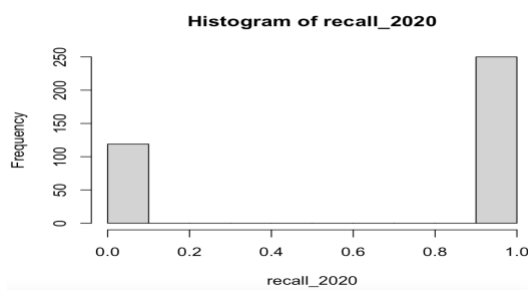
Percentage of terminated recalls 2020



Percentage of terminated recalls 2021



Based on the mean, in 2020, 67.75% of recalls were terminated. When we look at 2021's mean, 38.2% of recalls were terminated. When you then look at the pie charts, the amount of terminated recalls corresponds to the mean because the values of 1 and 0 denote yes and no.



```
come and predict
2020
2021  No  Yes
0     17 119
No    64  80
Yes   38  51
```

The histogram and contingency table above showcases the data differently from the summary statistics, however the inferences we make are the same. Constructing a histogram gives us the frequency distribution of recalls. 0 Denotes: Food recalls, 1 Denotes: Food recalls terminated. The frequency of recalls terminated outnumbers recalls in 2020 and in 2021 the frequency of recalls outnumbers terminated recalls. The contingency table that shows number of recalls and terminated recalls in each year, 2021 has missing values so we replaced NA with 0 so that the sample size is equal for both 2021 and 2020, otherwise the contingency table will not count those values despite not missing from the year 2020.

### **Interpretation and Results:**

Before we begin conducting our hypothesis test, we will first clean the data and omit NA values for the year 2021. We will first take a look at the number of terminated food recalls in year 2021 and 2020 (number of “yes” means that the food recalls were terminated):

```
> num_yes2021 <- nrow(yes2021)
> num_yes2021
[1] 89
```

```
> num_yes2020 <- nrow(yes2020)
> num_yes2020
[1] 250
```

The sample size for the year 2021 (samp\_size1) and 2022 (samp\_size2) can be seen from the below output:

```
> # Count the samples of Yes and No
> samp_size1 <- num_yes2021 + num_no2021
> samp_size1
[1] 233
```

```
> # Count the samples of Yes and No
> samp_size2 <- num_yes2020 + num_no2020
> samp_size2
[1] 369
```

The below output tells us that we reject  $H_0$  as the p-value is smaller than alpha (0.05). Our hypothesis testing conclusion is consistent with the report's interval estimation results that showed the interval estimate of the difference between the population proportions 2021 and 2020 to be -1.0000000 to -0.2296296, with 2021 having lower percentage of terminated recalls and that the p-value falls within this confidence interval range. It is also worth noting that the confidence interval for the difference does not contain the value of zero:

```
> list(test)
[[1]]

      2-sample test for equality of proportions without continuity correction

data:  c(num_yes2021, num_yes2020) out of c(samp_size1, samp_size2)
X-squared = 50.703, df = 1, p-value = 5.373e-13
alternative hypothesis: less
95 percent confidence interval:
 -1.0000000 -0.2296296
sample estimates:
   prop 1    prop 2 
0.3819742 0.6775068
```

### **Conclusion:**

We conclude that the percentage of terminated recalls is indeed lower in 2021 than in 2020 and there is a statistically significant difference in the two population values at the given level of confidence which means that the FDA has done a better job at implementing their recall strategies because there were fewer cases of food recalls in 2021 than in 2020 and hence, the number of terminated recalls were also lower in 2021 which is another indicator that the manufacturers made effort to either correct their products or implemented rigorous quality control process which resulted in fewer cases of food recalls in 2021.

### **Recommendations:**

1. We recommend that food manufacturers implement more rigorous quality assurance processes and have better quality management systems; this can be done by investing in

more food sampling procedures that may be needed before the food manufacturers release their food products to the market.

2. We recommend the food manufacturers to invest more money and resources in research and development, and advanced technology to ensure that their foods are processed with the best quality. If needed, they may get federal funding to invest in advanced food processing before food products are ready to reach consumers.
3. It is also important for food manufacturers to hire more quality assurance personnel and encourage their employees to participate in process improvement activities to identify any shortcomings in the food manufacturing process.

### **Lessons Learned:**

Firstly, we got a better understanding of why certain recalls get terminated, and other ones do not. We also learned that even though the FDA improved their recall strategies, they still have a lot of work to do, since the percentage of terminated recalls for both years should be farther apart (38.2% and 67.75%). The third thing we realized is that working together was great and everything went by smoothly since we agreed on everything, including the topic we picked for this project. We are all independent, making it easier to complete since all we had to do was pick our parts, and complete them without having to meet up on zoom or anywhere else.

One question we got after our presentation was whether COVID-19 impacted the difference in the percentage of terminated recalls between 2020-2021, and it did not. We can see this through the spreadsheet provided by the FDA where the terminated recalls in 2017-2018 were still drastically higher than those of 2020-2021.

A	B	C	D	E	F	G
1110	02/06/2018 Golden Temple*, Swat*, and Maza*	Flour	Food & Beverages, Bakery Product/Mix	E.coli	Smucker Foods of Canada Corp.	Terminated
1111	02/06/2018 Southern Grove	Unsalted Almonds	Food & Beverages, Allergens	Undeclared Wheat and Soy	Kawan Enterprises, Inc.	Terminated
1112	02/06/2018 Delishio	Kinchi's Hot Pot Soup Base	Food & Beverages, Allergens	Undeclared Cucumber (Shimizu, Culi)	JC International Inc.	Terminated
1113	01/29/2018 Paves	Cream Cheese	Food & Beverages, Foodborne Illness, Cheese/Cheese Product	Potential to be contaminated with Listeria monocytogenes	Paves	Terminated
1114	01/29/2018 Butternut	Collagen Protein Dietary Supplement	Dietary Supplements, Food & Beverages, Allergens	Undeclared milk	Butternut 360, Inc.	Terminated
1115	01/24/2018 Sun Noofa	Turkish Kebab	Food & Beverages, Allergens	Undeclared Fish	Sun Noofa	Terminated
1116	01/24/2018 Multiple brands	Frozen green beans and mixed vegetables	Food & Beverages, Foodborne Illness	Potential to be contaminated with Listeria monocytogenes	National Frozen Foods Corporation	Terminated
1117	01/23/2018 Several brands	Cheeses, breads, and desserts	Food & Beverages, Allergens	Undeclared Wheat, Soy, Egg, Milk and Undeclared Artificial Coloring	Producers Pacheo Inc.	Terminated
1118	01/22/2018 Several brands	Dog food	Animal & Veterinary, Food & Beverages, Foodborne Illness, Pet Food	Potential to be contaminated with Listeria monocytogenes	Producers Pacheo Inc.	Terminated
1119	01/22/2018 Several brands	Cheeses, breads, and desserts	Food & Beverages, Allergens	Undeclared Wheat, Soy, Egg, Milk and Undeclared Artificial Coloring	Producers Pacheo Inc.	Terminated
1120	01/21/2018 Artini-D	Dietary Supplement	Dietary Supplements, Food & Beverages, Foodborne Illness	Potential to be contaminated with Salmonella	Artini-D, LLC	Terminated
1121	01/21/2018 Artini-D	Dietary Supplement	Food & Beverages, Foodborne Illness	Potential to be contaminated with Salmonella	Artini-D, LLC	Terminated
1122	01/19/2018 Whole Foods Market	Sea Salt Caramel Hearts	Food & Beverages, Allergens	Undeclared peanut	Palmer Candy Company	Terminated
1123	01/19/2018 Palmer Bakery Delights	Rice Cake Soup	Food & Beverages, Allergens	Undeclared milk	Olney America, Inc.	Terminated
1124	01/19/2018 Whole Foods Market	Chewable bars	Food & Beverages, Allergens	Undeclared Almond Flour	Whole Foods Market	Terminated
1125	01/17/2018 Coconut Tree	Shredded Coconut	Food & Beverages, Foodborne Illness	Potential to be contaminated with salmonella	Beehive International Trading Company	Terminated
1126	01/17/2018 Michelina's	Intestine Alfredo	Food & Beverages, Allergens, Food & Beverage Safety, Prepared food	Undeclared Soy	Michellina Foods, Inc.	Terminated
1127	01/15/2018 Highland Dairy, Tampico	Orange Juice, Citrus Punch	Food & Beverages, Allergens	Undeclared Soy	Highland Dairy	Terminated
1128	01/12/2018 Rice	Tofu, Instant Ramen	Food & Beverages, Allergens	Undeclared Soy	Rice Brand	Terminated
1129	01/12/2018 Top's, Purple Cow	Orange Cream Bars	Food & Beverages, Foodborne Illness, Ice Cream/Frozen Dairy	Potential to be contaminated with Listeria monocytogenes	Fredrick Foods Corporation	Terminated
1130	01/12/2018 Various brands: Lucerne, Kruger, Sundae Shopp.	Orange cream bars and chocolate coated vanilla ice cream bars	Food & Beverages, Foodborne Illness, Ice Cream/Frozen Dairy	Potential to be contaminated with Listeria monocytogenes	Fredrick Foods Corporation	Terminated
1131	01/12/2018 Sundae Shopp	Raspberry Cream Bars	Food & Beverages, Foodborne Illness, Ice Cream/Frozen Dairy	Potential to be contaminated with Listeria monocytogenes	Fredrick Foods Corporation	Terminated
1132	01/11/2018 Mary B's*	Risottos	Food & Beverages, Foodborne Illness	Potential to be contaminated with Listeria monocytogenes	Hem/Ada Foods, Inc.	Terminated
1133	01/11/2018 Essential Everyday*	Coat & Bake Original Chicken Coating	Food & Beverages, Allergens	Undeclared milk	Gilster - Mary Lee Corp.	Terminated
1134	01/10/2018 Pety	Dried Longan Lily	Food & Beverages, Allergens	Undeclared Sulfites	Nolly Collection Inc.	Terminated
1135	01/05/2018 Chic Cafe	Instant coffee	Food & Beverages, Allergens	Undeclared milk	Hong Lee Trading, Inc.	Terminated
1136	01/04/2018 Candies Foods	Rait cup	Food & Beverages, Allergens, Produce	Undeclared milk and egg allergen	Candies Foods	Terminated
1137	01/03/2018 Philly Ann	Ice Bars	Food & Beverages, Allergens, Ice Cream/Frozen Dairy	Undeclared milk	California Popcorn, Inc.	Terminated
1138	01/02/2018 Southern Home, Shur Fine, Valu Time, more	Risottos	Food & Beverages, Food & Beverage Safety, Bakery Product/Mix	Undeclared Milk	T. Marretti Company	Terminated
1139	01/02/2018 New Seasons Market Oak and Go	Macaroni and Cheese	Food & Beverages, Allergens, Food & Beverage Safety	Undeclared egg	New Seasons Market	Terminated
1140	01/02/2018 Blue Marble, Round's Select, and Hwy	Dark Chocolate Products	Food & Beverages, Allergens, Food & Beverage Safety, Chocolate/Cocoa Product	Undeclared milk	Blue Marble LLC	Terminated
1141	12/29/2017 Uncle Buck's and Family Choice	Dark Chocolate Peanuts	Food & Beverages, Allergens, Food & Beverage Safety, Chocolate/Cocoa Product	Undeclared milk	Hucker's Wholesale and Service Co	Terminated
1142	12/29/2017 Wiggins, Alpine Valley, Circle K and others	Dark Chocolate Products	Food & Beverages, Allergens, Food & Beverage Safety	Undeclared milk	First Source	Terminated
1143	12/29/2017 100 Merchandisers, Inc.	Dark Chocolate Almond Products	Food & Beverages, Allergens, Food & Beverage Safety	Undeclared milk	100 Merchandisers, Inc.	Terminated
1144	12/29/2017 Hot Pockets	Cheese Pizza Snack Bites	Food & Beverages, Allergens, Food & Beverage Safety	Undeclared Allergens egg, milk, soy, and wheat	Nettle USA	Terminated
1145	12/29/2017 Shoreline Fruit and Cherry Bay Orchards	Dark Chocolate Covered Cherry Products	Food & Beverages, Allergens, Food & Beverage Safety, Snack Food Item	Milk Allergen	Shoreline Fruit LLC	Terminated
1146	12/29/2017 CVS Food Stores, Owen State Center, Harlandford Seafood, Market Basket, & others	Dark Chocolate Products	Food & Beverages, Allergens, Food & Beverage Safety	Undeclared Milk	New American Food Products, LLC	Terminated
1147	12/29/2017 Aunon, AG Supermarkets, Belmont Market, and others	Dark Chocolate Products	Food & Beverages, Chocolate/Cocoa Product	Undeclared Milk	Aunon Products, Inc.	Terminated
1148	12/29/2017 Woodstock, Market Basket, Lunds & Byerly	Dark Chocolate Almonds and Cakes	Food & Beverages, Allergens, Food & Beverage Safety, Chocolate/Cocoa Product	Undeclared Milk	United Natural Trading LLC	Terminated
1149	12/29/2017 Dittler's Chocolates	Biscuits Bars	Food & Beverages, Allergens, Food & Beverage Safety, Coffee/Tea	Undeclared almonds	Seattle Gourmet Foods	Terminated
1150	12/29/2017 Casa Sanchez	Guacamole	Food & Beverages, Food & Beverage Safety	Undeclared milk	Casa Sanchez Foods	Terminated
1151	12/29/2017 Casa Sanchez	Guacamole	Food & Beverages, Food & Beverage Safety	Foreign matter: small piece of yellow plastic	Casa Sanchez Foods	Terminated
1152	12/29/2017 Nature's Touch	Frozen Green Beans	Food & Beverages, Food & Beverage Safety, Produce	Undeclared milk	Nature's Touch Frozen Foods LLC	Terminated
1153	12/29/2017 21st Century Snack Foods	Dark Chocolate Almonds	Food & Beverages, Allergens, Food & Beverage Safety, Snack Food Item	Undeclared Milk Allergen	21st Century Snack Foods	Terminated
1154	12/29/2017 Gemack	Dark Chocolate Almond Bark	Food & Beverages, Allergens, Food & Beverage Safety	Undeclared Milk	Gemack Roasting Co.	Terminated
1155	12/29/2017 Casa Sanchez	Guacamole	Food & Beverages, Food & Beverage Safety	Undeclared milk	Casa Sanchez Foods	Terminated
1156	12/29/2017 Seton Farms	Dark Chocolate Products	Food & Beverages, Food & Beverage Safety	Undeclared Milk	Seton International Foods, Inc.	Terminated
1157	12/29/2017 Fig's	Bulk dark chocolate ginger snaps and Christmas ginger snap variety	Food & Beverages, Allergens, Food & Beverage Safety, Chocolate/Cocoa Product	Undeclared Allergen (Milk)	Fig's Companies	Terminated
1158	12/29/2017 Yogi's, Trader Joe's	Hummus, white sauce, yogurt dips, more	Food & Beverages, Food & Beverage Safety	Undeclared milk	Yogi's Foods, Inc.	Terminated
1159	12/29/2017 Giant	Delectious Corn	Food & Beverages, Food & Beverage Safety	Undeclared milk	Giant Food, LLC	Terminated
1160	12/29/2017 Stop & Shop	Corn	Food & Beverages, Food & Beverage Safety	Undeclared milk	The Stop & Shop Supermarket Company LLC	Terminated

Figure 1: FDA Terminated Recalls 2017-2018

A	B	C	D	E	F	G
245	02/15/2021 Aaron's Gourmet Smoked Fish	Smoked fish products	Food & Beverages, Food Compliance Programs, Fish	Lack of inspection and regulatory oversight by the state agency	Aaron's Gourmet Smoked Fish	Terminated
246	02/15/2021 Kowalski's Markets	Butter, Cauliflower Bites	Food & Beverages, Allergens	Undeclared Fish (Bacon)	Ross Dairy Wholesale	Terminated
247	02/15/2021 Brita Harbor	Cesar Dressing & Dip	Food & Beverages, Allergens	Undeclared Anchovies	UtahSource Inc.	Terminated
248	02/15/2021 Dale	Surfround Crunch Chopped Salad Kit	Food & Beverages	Undeclared wheat and tree nuts	Dole Fresh Vegetables	Terminated
249	02/09/2021 Sprink	Vanilla Yogurt Covered Caramels	Food & Beverages, Allergens	Undeclared Almonds	Hickory Haven Foods	Terminated
250	02/09/2021 Delicase	Thai Peanut Sauce, Spicy Red Curry Sauce	Food & Beverages, Allergens, Gavy/Sauces	Undeclared Shrimp	Delicase Gourmet LLC	Terminated
251	02/08/2021 Simple Truth, That's Tasty, Sherrardish Growers	Basil	Food & Beverages	Potential <i>Campylobacter</i> contamination	Sherrardish Growers, Inc.	Terminated
252	02/08/2021 Publix	Pearman-Crusted Wild Alaskan Salmon Fillets	Food & Beverages	Undeclared milk	Hickory Haven Foods	Terminated
253	01/29/2021 Dole*	Dole® Endless Summer Salad Kit	Food & Beverages	Due to possible undeclared allergens (fish and egg)	Dole Fresh Vegetables, Inc.	Terminated
254	01/29/2021 Golden Boy	Custard Muffin Biscuits	Food & Beverages, Allergens, Dairy	May contain undeclared milk	Hong Thai Foods Corp.	Terminated
255	01/29/2021 Hissel	Protein Bar: natural farmer's market berry crumble	Food & Beverages	Due to undeclared almonds and peanuts	Hissel and Inspire Technologies, Inc.	Terminated
256	01/27/2021 Maine Grains, GrowNYC	Organic yellow peas	Food & Beverages	Undeclared soy	Main Grains, Inc.	Terminated
257	01/25/2021 Broker's Snack Foods	Butter Flavored Popcorn	Food & Beverages, Allergens	Undeclared Milk	Broker's Snack Foods, Inc.	Terminated
258	01/23/2021 Deer County Coffee & Tea Co.	French Vanilla Flavored Cappuccino Single Serve Cups	Food & Beverages, Allergens, Food & Beverage Safety	Product may contain undeclared milk and soy.	Deer County Coffee & Tea Co.	Terminated
259	01/22/2021 HouseAutry	Tartar Sauce	Food & Beverages	Spoilage	HouseAutry Mills, Inc.	Terminated
260	01/21/2021 Publix	Steak in bag products containing butternut squash	Food & Beverages	Undeclared milk	Publix Super Markets, Inc.	Terminated
261	01/21/2021 Puffies	Potato Chips	Food & Beverages, Allergens, Snack Food Item	Undeclared milk	Puffies	Terminated
262	01/18/2021 Fero Family Farms	Butternut squash cubes, chunks, and spirals	Food & Beverages	Undeclared milk	Fero Family Farms Food Company, LLC	Terminated
263	01/17/2021 Lancaster Foods	Butternut squash noodles, plants, chunks and butternut squash containing mealings and blends	Food & Beverages	Undeclared milk	Lancaster Foods, LLC	Terminated
264	01/17/2021 Hissel Dairy	1% low fat chocolate milk	Food & Beverages, Contaminants, Milk/Milk Product	May contain food-grade sanitizers	Hissel Dairy	Terminated
265	01/16/2021 Champlain Chocolate Company	Select LCC Milk Chocolate Products	Food & Beverages, Chocolate/Cocoa Product	Potential Foreign Objects: Brittle Plastic Pieces	Champlain Chocolate Company	Terminated
266	01/15/2021 JAVIA	Blueberry Plant-Based Yogurt	Food & Beverages	Potential for Mold	JAVIA	Terminated
267	01/15/2021 Spinnies, Nuno Better, ProPac, and Others	Dog and Cat Pet Food	Animal & Veterinary, Food & Beverages, Pet Food	Adverse Levels Exceed Acceptable Levels	Midwestern Pet Foods Inc.	Terminated
268	01/16/2021 Wen, Klein's, Nelson's	Ice cream products	Food & Beverages	May be contaminated with extraneous material	Wen's Markets	Terminated
269	01/05/2021 Dale	Seamo Asian Chopped Salad Kit	Food & Beverages, Allergens, Prepared Food	Undeclared eggs	Dole Fresh Vegetables, Inc.	Terminated
270	12/15/2020 Redwood Country	Spicy Cajun Mix	Food & Beverages, Allergens, Snack Food Item	Undeclared milk	Lipari Foods	Terminated
271	12/11/2020 Drives	Vanilla Cupcakes	Food & Beverages, Allergens, Bakery Product/Mix	Undeclared milk and eggs	Drives, LLC	Terminated
272	12/10/2020 Spinnies	Dog and Cat Food	Animal & Veterinary, Food & Beverages, Pet Food	Exceed levels of aflatoxin	Spinnies	Terminated
273	12/10/2020 Canyon Bakehouse	Canyon Bakehouse Everything Bagels	Food & Beverages	Potential presence of gluten	Canyon Bakehouse, Inc.	Terminated
274	12/28/2020 Legendary Baking	French Silk Pie	Food & Beverages	May contain undeclared peanuts	Legendary Baking	Terminated
275	12/24/2020 Vitals	Herring in oil	Food & Beverages, Foodborne Illness, Fish	Undeclared milk	Vital's	Terminated
276	12/23/2020 Food Club	Garden of Eatin'	Food & Beverages	Undeclared Soy	Food Club	Terminated
277	12/22/2020 SE Grocers	Party Toy Vegetables with Ranch Dip	Food & Beverages	Undeclared Egg	SE Grocers	Terminated
278	12/18/2020 O&H Danish Bakery	Almond Kringles	Food & Beverages	May contain undeclared peanuts	O&H Danish Bakery, Inc.	Terminated
279	12/18/2020 Trader Joe's	Frozen Lightly Salted Salmon	Food & Beverages, Foodborne Illness, Vegetable Protein Product	Potential to be contaminated with Listeria monocytogenes	Traders Trading Company	Terminated
280	12/08/2020 Publix	Publix Bakery 20 Oz Holiday Cookie Platters	Food & Beverages, Allergens, Bakery Product/Mix	May contain undeclared peanuts	Publix	Terminated
281	12/04/2020 Market of Choice	Soft Cherry Baked Bites	Food & Beverages	Undeclared almonds	Market of Choice	Terminated
282	12/04/2020 Canyon Bakehouse	Canyon Bakehouse Mountain White Bread and Canyon Bakehouse Everything Bagels	Food & Beverages	Potential presence of gluten.	Canyon Bakehouse, Inc.	Terminated
283	12/01/2020 Canyon Bakehouse	Dark Chocolate Pearls	Food & Beverages, Chocolate/Cocoa Product	Undeclared milk	Canyon Bakehouse, Inc.	Terminated
284	12/01/2020 Golden Boy	Custard Muffin Original	Food & Beverages	Undeclared milk	Golden Boy	Terminated
285	12/01/2020 Golden Boy	Custard Muffin Pardon	Food & Beverages	Undeclared milk	Golden Boy	Terminated
286	12/28/2020 Fresh Abundance	Baby spinach	Food & Beverages	Salmonella	Fresh Abundance	Terminated
287	12/25/2020 Good & Gather	Barbecue Chocolate Chip Date & Nut Bar	Food & Beverages, Allergens	Undeclared almonds	Good & Gather	Terminated
288	12/24/2020 Panna Fama	Chocolate milk	Food & Beverages, Allergens, Milk/Milk Product	Undeclared egg	Panna Fama	Terminated
289	12/24/2020 The Fresh Market, Good & Gather and more	Organic Basil	Food & Beverages, Foodborne Illness	Possible <i>Campylobacter</i> contamination	Sherrardish Growers, Inc.	Terminated
290	12/24/2020 NYVE	Short Cuts vegetable mix products	Food & Beverages	Potential to be contaminated with Listeria monocytogenes	NYVE, Inc.	Terminated
291	11/29/2020 Whole Foods Market	Peppercorn chicken with sweet chili sauce	Food & Beverages	Undeclared shellfish (shrimp)	Whole Foods Market	Terminated
292	11/21/2020 Dole and Wild Harvest	Organic Romaine Hearts	Food & Beverages, Foodborne Illness, Produce	Potential for <i>Pathogenic</i> , non-O157 E. coli	Dole Fresh Vegetable Inc.	Terminated
293	11/21/2020 Fresh Express	Fresh Express Kit Caesar Supreme	Food & Beverages, Foodborne Illness	<i>Escherichia coli</i> STC 025 bacteria	Fresh Express	Terminated
294	11/13/2020 Albright's	Raw Dog Food Chicken Recipe for Dogs	Animal & Veterinary, Food & Beverages, Foodborne Illness, Pet Food	Potential to be contaminated with Salmonella	Albright's Raw Dog Food	Terminated
295	11/12/2020 Aldi, Southern Grove	On the Go Sweet & Sticky Trail Mix	Food & Beverages, Allergens, Snack Food Item	Undeclared Almonds	Kawan Enterprises	Terminated

Figure 2: FDA Terminated Recalls 2020-2021