

## Wheat Flour – Outbreaks and Recalls: Tables and References

To repost or cite, please use the following citation: Harris, L. J., and S. Yada. 2017. Wheat flour and flour products: foodborne illness outbreaks and product recalls [Tables and references]. *In* Outbreaks and recalls from flour and flour products. Available at: [http://ucfoodsafety.ucdavis.edu/Low\\_Moisture\\_Foods/](http://ucfoodsafety.ucdavis.edu/Low_Moisture_Foods/).

**Table 1. Outbreaks of foodborne illness associated with the consumption of wheat flour and flour products**

Product (source)	Pathogen	Year	Number of cases	Isolated from product?	Outbreak location(s)	Source
<b>Wheat flour</b>						
Flour (New Zealand)	<i>Salmonella</i> Typhimurium phage type 42	2008–2009	67	yes	New Zealand	McCallum et al., 2013; NZFSA, 2008
Flour (General Mills, Kansas City, MO)	<i>E. coli</i> O121, <i>E. coli</i> O26	2015–2016	63	yes	USA (24 states)	CDC, 2016; US FDA, 2016
Flour (Arden Mills, Saskatoon, SK)	<i>E. coli</i> O121	2016–2017	30	yes	Canada (6 provinces: BC, SK, AB, ON, QC, NL)	PHAC, 2017
Flour (Rogers Foods, BC)	<i>E. coli</i> O121	2017	6	yes	Canada (1 province: BC)	BCCDC, 2017; Beach, 2017; News Desk, 2017
<b>Wheat flour product</b>						
Prepackaged, refrigerated cookie dough (USA)	<i>E. coli</i> O157:H7	2009	80	yes	USA (31 states)	CDC, 2009; Neil et al., 2012

L. J. Harris and S. Yada

Updated 10/2/2017. For updates:

<http://ucfoodsafety.ucdavis.edu/files/271162.pdf>

## References (Table 1)

- BC Centre for Disease Control (BCCDC). 2017. BCCDC advises British Columbians about a new outbreak of *E. coli* O121 associated with flour. May 19, 2017. Available at: <http://www.bccdc.ca/about/news-stories/news-releases/2017/bccdc-advises-british-columbians-about-a-new-outbreak-of-e-coli-o121-associated-with-flour>.
- Beach, C. 2017. Rogers flour sold by Costco in Canada linked to new outbreak. *Food Safety News*, 20 May. Available at: <http://www.foodsafetynews.com/2017/05/rogers-flour-sold-by-costco-in-canada-linked-to-new-outbreak/#.WSWPK-vytyz>.
- Centers for Disease Control and Prevention (CDC). 2009. Multistate outbreak of *E. coli* O157:H7 infections linked to eating raw refrigerated, prepackaged cookie dough. Updated August 7, 2009 (final web update). Available at: <https://www.cdc.gov/ecoli/2009/0807.html>.
- Centers for Disease Control and Prevention (CDC). 2016. Multistate outbreak of Shiga toxin-producing *Escherichia coli* infections linked to flour (final update). Available at: <https://www.cdc.gov/ecoli/2016/o121-06-16/>.
- McCallum, L., S. Paine, K. Sexton, M. Dufour, K. Dyet, M. Wilson, D. Campbell, D. Bandaranayake, and V. Hope. 2013. An outbreak of *Salmonella* Typhimurium phage type 42 associated with the consumption of raw flour. *Foodborne Pathogens and Disease* 10:159–164.
- Neil, K. P., G. Biggerstaff, J. K. MacDonald, E. Trees, C. Medus, K. A. Musser, S. G. Stroika, D. Zink, and M. J. Sotir. 2012. A novel vehicle for transmission of *Escherichia coli* O157:H7 to humans: multistate outbreak of *E. coli* O157:H7 infections associated with consumption of ready-to-bake commercial prepackaged cookie dough—United States, 2009. *Clinical Infectious Diseases* 54:511–518. Available at: <https://doi.org/10.1093/cid/cir831>.
- New Zealand Food Safety Authority (NZFSA). 2008. Flour batch believed linked to *Salmonella* outbreak. Available at: [http://foodsafety.govt.nz/elibrary/industry/Flour\\_Batch-Investigations\\_Into.htm](http://foodsafety.govt.nz/elibrary/industry/Flour_Batch-Investigations_Into.htm).
- Public Health Agency of Canada (PHAC). 2017. Public Health notice - Outbreak of *E. coli* infections linked to various flours and flour products. June 2, 2017 – Final update. Available at: <http://www.phac-aspc.gc.ca/phn-asp/2017/outbreak-ecoli-eng.php>.
- U.S. Food and Drug Administration (US FDA). 2016. FDA investigated multistate outbreak of Shiga toxin-producing *E. coli* infections linked to flour. Available at: <https://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm504192.htm>.

**Table 2. Recalls of wheat flour and flour products, 2009 to present**

Date of recall mm/dd/yyyy (Reference)	Recall class	Product	Recalling firm	Reason given	Brand	Sub- recalls	Illnesses
06/19/2017 (17)	II	Flour (20-kg bags), milled by Ardent Mills	Distributors: Flour Barrel (Guelph, ON); Hillcrest Home Baking (Floradale, ON)	Possible <i>E. coli</i> O121 contamination	Robin Hood - Super Keynote Strong Bakers Flour; Italian Style Flour		none reported
06/16/2017 (16)	II	Cookie dough, pie and tart shells	Various Canadian manufacturers	Possible <i>E. coli</i> O121 contamination	In-Dey-Go Fundraising Inc. (cookie dough); Apple Valley, Mildmay Cheese Haus		none reported
06/15/2017 (15)	II	All-purpose flour (bulk packs - various sizes)	Distributors: Country Bulk Inc. (Waterloo, ON) & Country Pantry Bulk Foods (Heidelberg, ON)	Possible <i>E. coli</i> O121 contamination	Robin Hood		none reported
06/15/2017 (14)	II	All-purpose flour (20-kg)	Ardent Mills (Brampton, ON)	Possible <i>E. coli</i> O121 contamination	Robin Hood - Baker's Hood	yes	none reported
06/07/2017 (12, 13)	II	All-purpose flour (10-kg bags)	Rogers Foods Ltd. (Armstrong, BC, Canada)	<i>E. coli</i> O121 contamination	Rogers		yes, 6 reported Feb–Apr 2017
05/31/2017 (11)	II	Durum wheat flour and wheat bran blends (20-lb bags)	Smucker Foods of Canada Corp. (Markham, ON)	Possible <i>E. coli</i> O121 contamination	Select Golden Temple, Swad, Maya		none reported
04/25/2017 (9, 10* recall list update to June 2, 2017)	II	Pie and tart shells (assorted sizes)	Harlan Bakeries (Edmonton, AB)	Possible <i>E. coli</i> O121 contamination	No name, Great Value, Apple Valley, Western Family		none reported

L. J. Harris and S. Yada

Updated 10/2/2017. For updates:

<http://ucfoodsafety.ucdavis.edu/files/271162.pdf>

Date of recall mm/dd/yyyy (Reference)	Recall class	Product	Recalling firm	Reason given	Brand	Sub- recalls	Illnesses
04/12/2017 (8)	II	Various flour and flour products	Ardent Mills (Saskatoon, SK, Canada)	<i>E. coli</i> O121 contamination; linked to outbreak	Brodie, Creative Baker, Golden Temple, Robin Hood	yes	yes, 30 reported in total: Nov 2016 – Apr 2017
04/04/2017 (7)	II	All-purpose flour (10-kg bags)	Smucker Foods of Canada Corp. (Markham, ON)	<i>E. coli</i> O121 contamination	Robin Hood	yes	yes, 1 reported March 2017
07/11/2016 (6)	II	Cake mix (2 flavors)	General Mills (Minneapolis, MN)	Made with affected flour recalled by General Mills	Betty Crocker Delights Super Moist		none reported
07/09/2016 (5)	II	Pancake mix (28-oz carton, 3.5-lb bag)	Continental Mills (Tukwila, WA)	Made with affected flour recalled by General Mills	Krusteaz (Blueberry)		none reported
07/01/2016 07/25/2016 (3, 4)	I	[expanded flour recalls]	General Mills (Minneapolis, MN)	<i>E. coli</i> O121 and/or O26 isolated from product; linked to multi-state outbreak	Gold Medal, Gold Medal Wondra, Signature Kitchens	yes	yes, 63 reported in total: Dec 2015 – Sep 2016
05/31/2016 (2)	I	All-purpose, quick- mixing, self-rising, or unbleached flour (13.5-oz carton; 2-, 4.25-, 5- and 10-lb bags)	General Mills (Minneapolis, MN)	<i>E. coli</i> O121 and/or O26 isolated from product; linked to multi-state outbreak	Gold Medal, Gold Medal Wondra, Signature Kitchens		yes, 38 reported Dec 2015 – May 2016
05/19/2009 (1)	I	Refrigerated cookie and brownie dough products	Nestlé USA (Solon, OH)	<i>E. coli</i> O157:H7 contamination; linked to outbreak	Toll House		yes, 80 reported

L. J. Harris and S. Yada

Updated 10/2/2017. For updates:

<http://ucfoodsafety.ucdavis.edu/files/271162.pdf>

## References (Table 2)

1. U.S. Food and Drug Administration. 2009. Nestlé USA's Baking Division initiates voluntary recall. Firm press release (original and archived). Available at: <https://wayback.archive-it.org/7993/20170112160304/http://www.fda.gov/Safety/Recalls/ArchiveRecalls/2009/ucm167954.htm>.
2. U.S. Food and Drug Administration. 2016. Gold Medal, Gold Medal Wondra, and Signature Kitchens flour recalled due to possible *E. coli* O121 contamination. Company announcement available at: <https://www.fda.gov/Safety/Recalls/ucm504235.htm>.
3. U.S. Food and Drug Administration. 2016. General Mills expands flour recall to include additional dates from last fall. Company announcement available at: <https://www.fda.gov/Safety/Recalls/ucm509693.htm>.
4. U.S. Food and Drug Administration. 2016. General Mills expands retail flour recall. Company announcement available at: <https://www.fda.gov/Safety/Recalls/ucm513288.htm>.
5. U.S. Food and Drug Administration. 2016. Continental Mills recalls blueberry pancake mix because of possible health risk. Company announcement available at: <https://www.fda.gov/Safety/Recalls/ucm510486.htm>.
6. U.S. Food and Drug Administration. 2016. Two flavors of Betty Crocker cake mix recalled. Company announcement available at: <https://www.fda.gov/Safety/Recalls/ucm510899.htm>.
7. Canadian Food Inspection Agency. 2017. Updated food recall warning - Robin Hood brand All Purpose Flour, Original recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-04-04/eng/1491342892732/1491342895825>.
8. Canadian Food Inspection Agency. 2017. Updated food recall warning - Various brands of flour and flour products recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-04-12/eng/1492038924857/1492038929165>.
9. Canadian Food Inspection Agency. 2017. Updated Food Recall Warning - Various brands of pie and tart shells recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-04-25/eng/1493171120459/1493171123038>
10. Canadian Food Inspection Agency. 2017. Canadian Food Inspection Agency's (CFIA) investigation into *E. coli* O121 in flour and flour products. Available at: <http://www.inspection.gc.ca/food/information-for-consumers/food-safety-investigations/e-coli-o121/eng/1492621159359/1492621214587>. [updated and complete list of recalled consumer products to 2 June 2017]
11. U.S. Food and Drug Administration. 2017. Smucker Foods of Canada Corp. announces a voluntary recall on select Golden Temple®, Swad®, and Maya® flour products in the U.S. due to possible *E. coli* O121 contamination. Company announcement available at: <https://www.fda.gov/Safety/Recalls/ucm561190.htm>.
12. Canadian Food Inspection Agency. 2017. Food recall warning - Rogers brand All Purpose Flour recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the->

L. J. Harris and S. Yada

Updated 10/2/2017. For updates:

<http://ucfoodsafety.ucdavis.edu/files/271162.pdf>

[cfia/newsroom/food-recall-warnings/complete-listing/2017-06-07/eng/1496896334668/1496896336875](http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-06-07/eng/1496896334668/1496896336875).

13. News Desk. 2017. Rogers flour recalled in Canada because of *E. coli* outbreak. *Food Safety News*, 9 June. Available at: <http://www.foodsafetynews.com/2017/06/rogers-flour-recalled-in-canada-because-of-e-coli-outbreak/#.WUAvuOvyupp>.
14. Canadian Food Inspection Agency. 2017. Updated food recall warning - Robin Hood brand Baker's Hood All Purpose Flour recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-06-15/eng/1497583899498/1497583903666>.
15. Canadian Food Inspection Agency. 2017. Updated food recall warning - Various brands of all-purpose flour recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-06-15/eng/1497579078951/1497579083323>.
16. Canadian Food Inspection Agency. 2017. Updated food recall warning - Certain cookie dough, pie shells and tart shells recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-06-16/eng/1497673150330/1497673155773>.
17. Canadian Food Inspection Agency. 2017. Updated food recall warning - Robin Hood brand Super Keynote Strong Bakers Flour and Italian Style Flour recalled due to *E. coli* O121. Available at: <http://www.inspection.gc.ca/about-the-cfia/newsroom/food-recall-warnings/complete-listing/2017-06-19/eng/1497911490268/1497911492853>.

### **Additional information**

Centers for Disease Control and Prevention. 2016. Say no to raw dough! Available at: <https://www.cdc.gov/features/no-raw-dough/index.html>.

Health Canada. 2017. Safe handling of flour. Information update, 27 June. Available at: <http://www.healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2017/63752a-eng.php#who-personnes>.

U.S. Food and Drug Administration. 2017. Raw dough's a raw deal and could make you sick. Available at: <https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm508450.htm>.

L. J. Harris and S. Yada

Updated 10/2/2017. For updates:

<http://ucfoodsafety.ucdavis.edu/files/271162.pdf>