

Nut Recalls and Food Borne Illness Outbreaks in North America

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All raw agricultural commodities are exposed to microbial contamination in the environment. Among them pathogens such as Salmonella and E.Coli O157:H6 are harbored by animals such as birds, frogs and other wildlife. Field sampling programs show that a contamination level of 2% is not uncommon across all commodities.

Once harvested the commodities are dried down to moisture levels where microorganisms can't grow. However research has shown that pathogens can survive for years in this dry state. Some products undergo cooking processes that eliminate the pathogens. Others are consumed raw for example nuts.

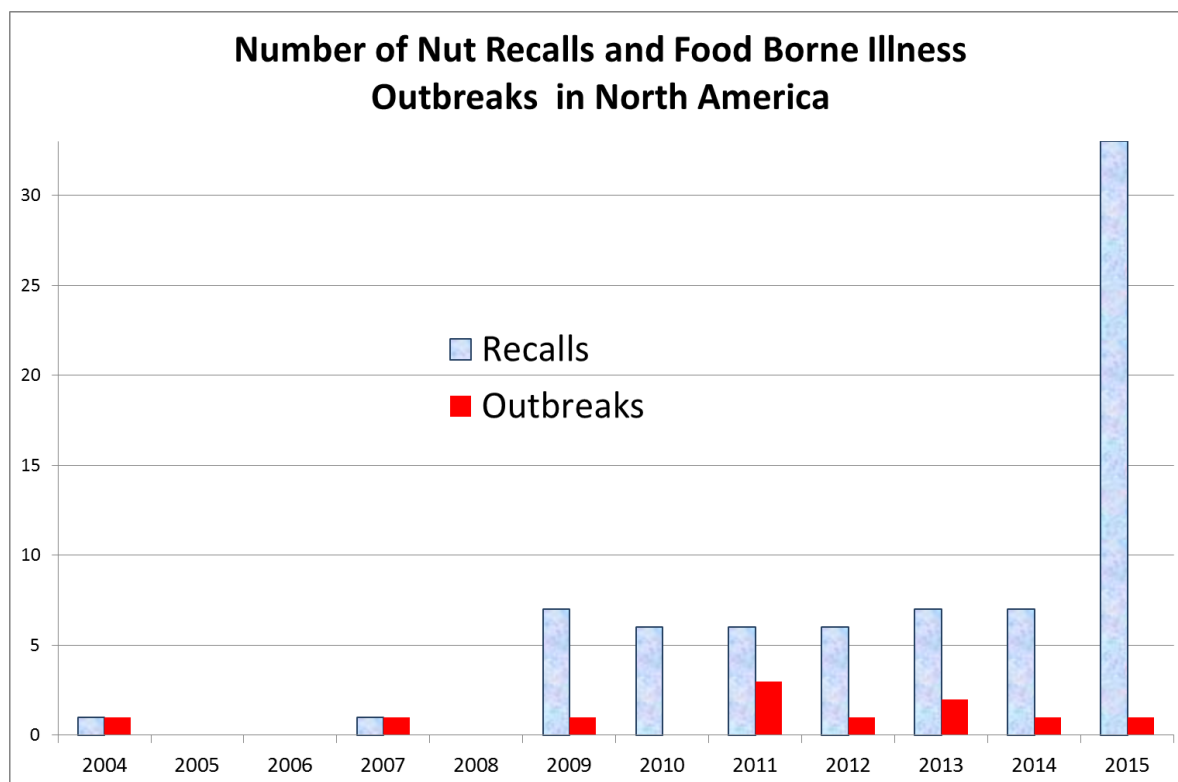
A food borne illness outbreak is identified when a cluster of patients exhibit symptoms of a food related microbiological infection that is common to all of them. In the USA the Center for Disease Control coordinates the efforts of a network of laboratories, PulseNet, that compares the DNA fingerprint of outbreak strains to a fingerprint database. The data base accelerates the identification of the source of outbreaks because Salmonella strains are associated with specific geographic areas.

A product recall is initiated when a sample tests positive for a pathogen such as salmonella or E.Coli O157:H6. Consumer packs are routinely sampled as well as product in processing facilities. The entire lot of product from which a positive sample is found is removed from the market to prevent any illnesses.

The FDA is currently conducting a Risk Assessment on nuts with the objective of recommending microbial reduction steps in the nut processing industry. As a part of this risk assessment a large scale sampling program is under way. As a result of this intensive sampling the number of recalls has increased significantly. It is widely anticipated that the FDA will conclude the risk assessment with a recommendation for a microbial reduction step for nuts.



Evolution of Product recalls and food borne illness outbreaks over the last 12 years



Outbreaks trigger recalls

Until 2009 product recalls were very rare and always triggered by a **food borne illness outbreak**. For example in 2004 an almond outbreak that sickened 47 (Paramount) and in 2007 a peanut butter outbreak that sickened 628 (Con Agra).

The low number of product recalls is probably due to low sampling rates.

Increasing sampling increases the number of recalls

Food borne illnesses are increasingly reported through media emphasizing the scrutiny of authorities on the safety of nuts. Between 2009 and 2014 the frequency of recalls was stable with 6 to 7 recalls per year. Over that period there were one to 3 food borne illness outbreaks each year all associated with Salmonella except in 2011 where E.Coli O157:H6 was responsible for 3 distinct outbreaks on different nuts.

- In 2009 a food borne illness outbreak was associated with Peanut Butter sickening 529 (Peanut corporation of America)
- In 2010 there was no outbreak
- In 2011 Walnuts, Hazelnuts and Pine nuts sickened 74 people with **E.Coli O157:H6**



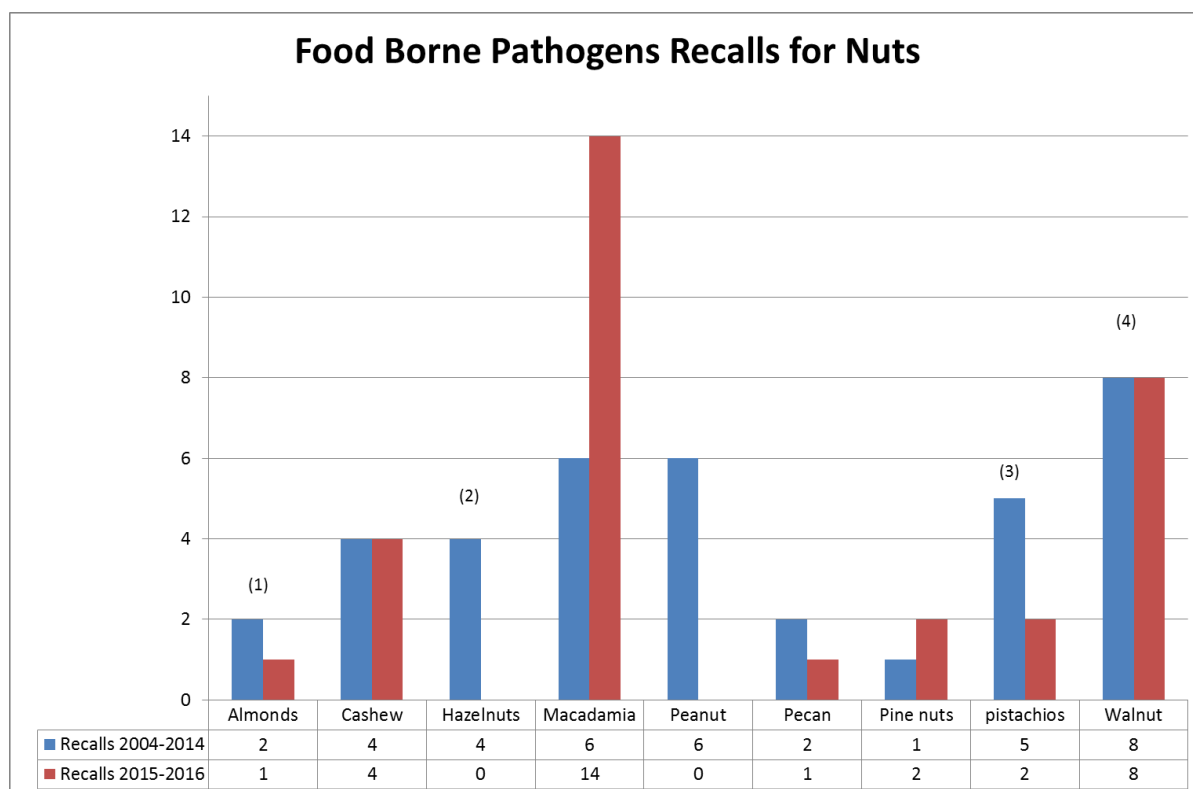
- In 2012 peanut butter (Sunland)sickened 42
- In 2013 Pistachio and Cashew were responsible for sickening 22
- In 2014 nut butters sickened another 15 in two outbreaks

FDA sampling program

In 2015 and thru February 2016, as the FDA implemented its sampling plan, the number of recalls exploded to 34 and there was one food borne illness outbreak linked to nut butters.

The FDA considers that there are microbial reduction processes available to the nuts industry (PPO, Steam pasteurization) which have been successfully applied to almonds and it is very likely that they would conclude their ongoing risk assessment with a recommendation to pasteurize all nuts.

Are some nuts a higher risk than others ?



(1) Almonds

Since 2007 there is a mandatory pasteurization program in place for Almonds (1) sold in North America. This explains why, despite almonds being the nut with the largest volume, there have been no almond recalls since then. Exported volumes are excluded from the mandatory pasteurization but the shipments need to be labeled “NOT PASTEURIZED”. The Almond Board of California is very concerned



that potentially contaminated product is shipped internationally and would like to see the pasteurization mandate expanded to exports.

(2) Hazelnuts

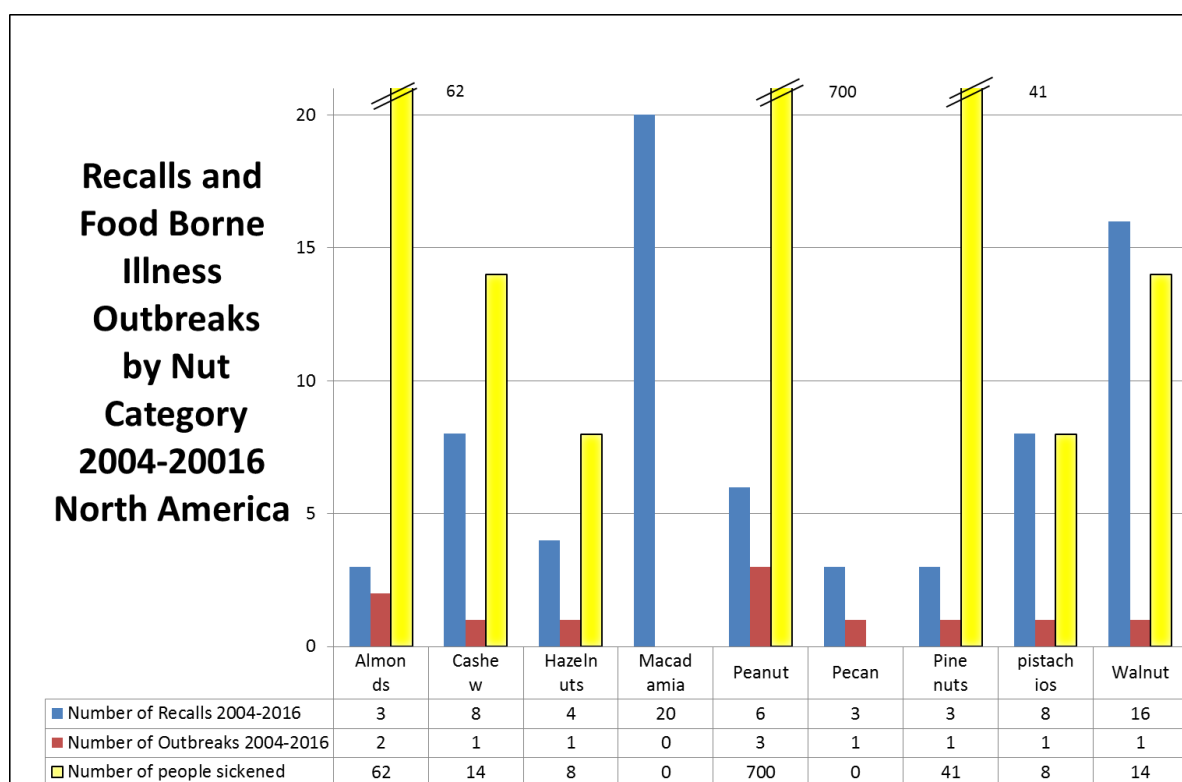
The Hazelnut Marketing Board has committed since 2012 to have all hazelnuts sold in North America pasteurized. A commodity risk assessment performed by the industry indicated a 20% contamination rate for the 2014 crop (sample size and analytical method different than for almonds). That explains why since 2013 there have been no more recalls for hazelnuts. Until 2015 PPO was the only pasteurization method. Exported product is not pasteurized.

(3) Pistachios

Pistachios continue to be involved in recalls despite a large proportion of the crop being pasteurized. For example the largest producer in the USA Paramount and Setton (caught up in a major recall in 2009) pasteurize their pistachios.

(4) Walnuts

The Walnut board has not yet issued recommendations pending the results of a risk assessment. PPO is widely used by the largest walnut producers in California. Currently there are investments in Napasol steam pasteurization units by 5 major Walnut processors in California.





Date	Product	Company	Pathogen
18.05.2004	Almond	Paramount	Salmonella
02.12.2015	almond, cashew, hazelnut butters	JEM Raw Bend OR	Salmonella
19.08.2014	Almons, Peanut butter	nSpired Natural Foods CA	Salmonella
04.06.2013	Assorted nuts	Lipari Foods	Salmonella
27.10.2014	Cashew	Chetack New York LLC NJ	Salmonella
27.06.2015	Cashew	Grand BK Corp NY	Salmonella
01.06.2015	Cashew	Hemisphere Group NY	Salmonella
10.07.2015	Cashew	Maya Overseas NY	Salmonella
19.11.2010	Cashew	Specialty Commodityes	Salmonella
23.01.2012	Cashew	Specialy Commodities	salmonella
31.12.2013	Cashew	The Cultured kitchen CA	Salmonella
15.01.2016	Cashew	Trader Joe's	Salmonella
04.05.2011	Hazelnuts	De franco and Sons	E.Coli O157:H8
17.12.2009	hazelnuts	Willamet Shelling	Salmonella
02.05.2013	Hazelnuts in shell	Hazelnut Growers of Oregon	Salmonella
02.12.2012	Hazelnuts in shell	Loblaws Companies Ltd	Salmonella
30.07.2010	Macadamia	Kenfoods USA LLC	Salmonella
05.02.2016	Macadamia	Living Tree Community Foods	Salmonella
21.01.2016	Macadamia	Mahina Mele HI	Salmonella
20.09.2013	Macadamia	Nature's Candy	Salmonella
22.10.2009	Macadamia	Specialty Commodityes	Salmonella
13.09.2012	Macadamia	Speciatly Commodities	salmonella
02.10.2015	Macadamia	Texas Star Nuts TX	Salmonella
15.05.2015	Macadamias	Aurora Products CT	Salmonella
05.08.2015	Macadamias	Mahina Mele HI	Salmonella
31.10.2014	Macadamias	Marathon Ventures NE	Salmonella
14.08.2009	Macadamias	Orchard valley Harvest	Salmonella
26.06.2015	Macadamias	Rocky Mountain CO	Salmonella
25.08.2015	Macadamias	Sid Wainer MA	Salmonella
02.09.2015	Macadamias	Sincerely nuts NY	Salmonella
20.03.2015	Macadamias	Texas Satr nuts TX	Salmonella
27.05.2015	Macadamias	Vitamin Cottage CO	Salmonella
27.05.2015	Macadamias	Vitamin Cottage CO	Salmonella
01.07.2015	Macadamias	Vitamin Cottage CO	Salmonella
03.02.2015	Macadamias	Whole Foods TX	Salmonella
25.06.2015	Macadamias	Whole Foods TX	Salmonella
14.02.2007	Peanut butter	Con Agra	Salmonella
16.11.2011	Peanut butter	J.M. Schmucker Co.	salmonella
22.03.2014	Peanut butter	Parker Farms	Listeria Monocytogens
10.01.2009	Peanut butter	Peanut Corporaitn of America	Salmonella
22.09.2012	Peanut butter	Sunland Inc	salmonella



04.03.2011	Peanut butter	Unilever united States Inc.	Salmonella
26.02.2010	Pecan	American Pecan Co	Salmonella
30.01.2015	Pecan	Stone Mountain Pecan GA	Salmonella
07.08.2009	Pecans	General Mills	Salmonella
06.07.2009	Pecans	John B. Sanfilippo & son IL	Salmonella
15.01.2010	Pine nuts	Hines Nut Co. TX	Salmonella
4.11.211	Pine nuts	Sunrise Commodities	salmonella
27.04.2015	Pine nuts	Waymouth Farms Inc. MN	Salmonella
06.11.2015	Pinenuts	World Variety Produce LA CA	Salmonella
04.06.2013	Pistachios	Aro Pistachios Inc	Salmonella
1.2.20116	Pistachios	Braga Organic farms	Salmonella
19.08.2010	Pistachios	California Delights inc	Salmonella
24.12.2012	Pistachios	Hoop Nuts LLC	Salmonella
12.02.2016	Pistachios	International Food source	Salmonella
30.03.2009	Pistachios	Setton Pistachio of Terra Bella	Salmonella
12.07.2013	Pistachios	Tom & Glasser Inc	Salmonella
10.07.2013	Pistachios	Western Mixers Produce and Nuts Inc	Salmonella
Date	Product	Firm	Cause
30.11.2016	Walnut	Atlas Walnut Inc	Salmonella
21.05.2014	Walnut	Sherman Produce MO	Listeria Monocytogens
03.04.2011	Walnuts	Amira Enterprise	E.Coli O157:H7
20.03.2015	Walnuts	Aurora Products CT	Salmonella
27.03.2015	Walnuts	Aurora Products CT	Salmonella
23.05.2014	Walnuts	Belleville IL	Listeria Monocytogens
15.01.1900	Walnuts	Eillieens Candies WI	Salmonella
21.03.2015	Walnuts	Hannaford Supermajets ME	Salmonella
10.02.2015	Walnuts	Hines Nut Co. TX	Salmonella
17.04.2015	Walnuts	Hines Nut Co. TX	Salmonella
09.10.2009	Walnuts	John B. Sanfilippo & son IL	Listeria Monocytogens
01.05.2015	Walnuts	John B. Sanfilippo & son IL	Salmonella
01.09.2011	Walnuts	Johnvince Foods	E.Coli O157:H6
17.03.2015	Walnuts	Trade Joe's CA	Salmonella
30.11.2012	Walnuts in shell	Compass Food sales	Salmonella
30.12.2014	Walnuts, pecan	John B. Sanfilippo & son IL	Salmonella