

Agricultural Dust Explosions in 2017*

There were seven grain dust explosions reported in the U.S. in 2017 according to Kingsly Ambrose, Assistant Professor, Purdue University. This compares to 5 in 2016 and a ten-year average of 9.1 explosions.

There were 5 fatalities and 12 injured.

The explosions were in 1 pet food plant, 1 grain mill, and 5 grain elevators.

The **probable ignition sources** was identified in 1 case each as hot bearing and electric spark, and 5 unknowns.

Fuel sources were identified as 2 from grain dust and 5 unknowns.

Dust explosions occurred in seven different states: 2 in Wisconsin and 1 each in Iowa, Indiana, Nebraska, Oregon, and Minnesota.

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* This report subject to revision as additional information is received.

REPORTED DUST EXPLOSIONS IN U.S. 2017

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	5/31/2017	Didion Mill	Cambria, WI	Corn mill	5	11
2	6/2/2017	Dunkerton Co-op	Dunkerton, IA	Grain elevator	0	0
3	6/30/2017	Frontier Co-op	Mead, NE	Grain elevator	0	0
4	7/18/2017	Farm-City Elevator Inc.	Brodhead, WI	Grain elevator	0	0
5	7/26/2017	3D Idapro Solutions, LLC	Stanfield, OR	Pet food	0	1
6	7/31/2017	White Farms	Switz City, IN	Grain elevator	0	0
7	12/28/2017	LB Pork	Northrop, MN	Grain elevator	0	0

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	TEN YEAR TOTAL
Number	19	8	11	9	10	7	7	8	5	7	91
Fatalities	0	0	0	6	0	1	0	0	3	5	15
Injured	9	12	17	4	8	7	14	10	8	12	101
Type of Facility											
Grain Elevator	14	4	7	5	8	3	5	2	2	5	55
Feed Mill	3	2	2	2	1	2	1	4	1	0	18
Flour Mill	0	0	0	1	0	1	0	0	2	0	4
Other:											
Corn Milling, Dry	0	0	0	0	0	0	0	0	0	1	1
Corn Milling, Wet	0	0	1	0	0	0	0	0	0	0	1
Rice Mill	0	0	0	0	0	0	0	0	0	0	0
Other	2	2	1	1	1	1	1	2	0	1	12

Source: Dr. Kingsly Ambrose, Purdue University

TABLE 2. AGRICULTURAL DUST EXPLOSIONS BY COMMODITY HANDLED AT TIME OF EXPLOSION 2007-2016

<u>COMMODITY</u>	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	<u>TEN YEAR TOTAL</u>
Corn	14	4	8	3	6	5	3	2	1	6	52
Soybeans	0	0	0	0	3	0	0	0	0	0	3
Wheat	0	0	0	0	0	1	0	0	0	0	1
Barley (malted)	0	0	0	0	0	0	0	1	0	0	1
Oats	0	0	0	0	0	0	0	0	0	0	0
Beet pulp	0	0	0	0	0	0	0	0	0	0	0
Corn starch	0	0	0	0	0	0	0	0	0	0	0
Sugar	0	0	0	0	0	0	0	0	0	0	0
Mixed feed	5	2	3	2	1	0	2	3	1	0	19
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	0	0	0	0
Wheat Flour	0	1	0	1	0	0	0	0	0	0	2
Wheat (Starch)(Gluten)	0	0	0	0	0	0	0	0	1	0	1
Other	0	1	0	3	0	1	2	2	2	1	12
TOTAL EXPLOSIONS	19	8	11	9	10	7	7	8	5	7	91

Source: Dr. Kingsly Ambrose, Purdue University

TABLE 3. U. S. AGRICULTURAL DUST EXPLOSIONS LEADING STATES - 1958 to Date

<u>STATE</u>	1958-2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	10-YEAR TOTAL	1958-2017
Iowa	81	4	3	1	1	0	0	0	0	1	1	11	92
Illinois	69	3	2	4	0	1	0	1	1	0	0	12	81
Nebraska	72	1	1	0	2	0	2	0	0	0	1	7	79
Minnesota	54	4	1	0	0	2	0	0	0	0	1	8	62
Kansas	52	0	0	0	1	1	1	0	0	1	0	4	56
Texas	45	1	0	0	0	0	0	0	0	0	0	1	46
Ohio	33	1	0	1	0	0	0	0	1	0	0	3	36
Missouri	30	1	0	0	0	1	0	3	1	0	0	6	36
Indiana	27	0	0	0	0	0	1	0	1	1	1	4	31
Louisiana	17	1	0	0	0	0	0	0	0	0	0	1	18
South Dakota	12	1	0	1	0	1	1	0	0	0	0	4	16
Wisconsin	7	0	0	0	0	0	1	0	0	1	2	4	11