

Agricultural Dust Explosions in 2016*

There were five dust explosions reported in the U.S. in 2016 according to Kingsly Ambrose, Assistant Professor, Purdue University. This compares to 8 in 2015 and a ten-year average of 9.2 explosions.

There were 3 fatalities and 8 injured.

The explosions were in 1 feed mill, 2 grain mills and 2 grain elevators.

The **probable ignition source** was identified in 1 case as a spark, 2 cases as overheating, and 2 unknowns.

Fuel sources were identified as 3 from grain dust, and 2 unknowns.

Dust explosions occurred in five different states: 1 each in Iowa, Kansas, Indiana, Georgia, and Wisconsin

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

REPORTED DUST EXPLOSIONS IN U.S. 2016

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	2015/3/11	JCG Farms	Rockmart, GA	Feed mill	1	5
2	2015/3/23	Central Valley Ag	Hintion, IA	Grain elevator	0	2
3	2015/4/16	FS co-op	Ixonia, WI	Grain mill	0	1
4	2015/5/2	Tate & Lyle grain elevator	Francesville, IN	Grain elevator	2	0
5	2015/7/26	White Energy's gluten plant	Russell, KS	Grain mill	0	0

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	TEN YEAR TOTAL
Number	7	19	8	11	9	10	7	7	8	5	91
Fatalities	0	0	0	0	6	0	1	0	0	3	10
Injured	6	9	12	17	4	8	7	14	10	8	95
Type of Facility											
Grain Elevator	5	14	4	7	5	8	3	5	2	2	55
Feed Mill	1	3	2	2	2	1	2	1	4	1	19
Flour Mill	0	0	0	0	1	0	1	0	0	2	4
Other:											
Corn Milling, Dry	0	0	0	0	0	0	0	0	0	0	0
Corn Milling, Wet	0	0	0	1	0	0	0	0	0	0	1
Rice Mill	0	0	0	0	0	0	0	0	0	0	0
Other	1	2	2	1	1	1	1	1	2	0	12

Source: Dr. Kingsly Ambrose, Purdue University

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

<u>COMMODITY</u>	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	<u>TEN YEAR TOTAL</u>
Corn	4	14	4	8	3	6	5	3	2	1	50
Soybeans	0	0	0	0	0	3	0	0	0	0	3
Wheat	0	0	0	0	0	0	1	0	0	0	1
Barley (malted)	1	0	0	0	0	0	0	0	1	0	2
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	1	5	2	3	2	1	0	2	3	1	20
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	0	0	0	0
Wheat Flour	0	0	1	0	1	0	0	0	0	0	2
Wheat (Starch)(Gluten)	0	0	0	0	0	0	0	0	0	1	1
Other	1	0	1	0	3	0	1	2	2	2	12
TOTAL EXPLOSIONS	7	19	8	11	9	10	7	7	8	5	91

Source: Dr. Kingsly Ambrose, Purdue University

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

<u>STATE</u>	1958-2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	10-YEAR TOTAL	1958-2016
Iowa	95	1	4	3	1	1	0	0	0	0	1	11	106
Illinois	68	1	3	2	4	0	1	0	1	1	0	13	81
Nebraska	72	0	1	1	0	2	0	2	0	0	0	6	78
Minnesota	54	0	4	1	0	0	2	0	0	0	0	7	61
Kansas	51	1	0	0	0	1	1	1	0	0	1	5	56
Texas	44	1	1	0	0	0	0	0	0	0	0	2	46
Ohio	33	0	1	0	1	0	0	0	0	1	0	3	36
Missouri	29	1	1	0	0	0	1	0	3	1	0	8	36
Indiana	26	1	0	0	0	0	0	1	0	1	1	4	30
Louisiana	17	0	1	0	0	0	0	0	0	0	0	1	18
South Dakota	12	0	1	0	1	0	1	1	0	0	0	4	16
Wisconsin	7	0	0	0	0	0	0	1	0	0	1	2	9

Source: Dr. Kingsly Ambrose, Purdue University