

Agricultural Dust Explosions in 2013*

There were seven dust explosions reported in the U.S. in 2013 according to Kingsly Ambrose, Assistant Professor, Kansas State University. This compares to 10 in 2012 and a ten-year average of 9.9 explosions.

There was 1 fatality and 7 injured.

The explosions were in 2 grain elevators, 3 feed mills, 1 flour mill and a baking ingredient manufacturing plant.

The **probable ignition source** was identified in 2 as caused from electric equipment sparks, 1 from static electricity, 1 from a malfunctioning pulley, 1 is an ongoing investigation, and 2 were unknown.

Fuel sources were identified as 5 from corn dust, 1 was from wheat, and 1 was from bakery ingredients.

Dust explosions occurred in six different states: 2 were in Nebraska, 1 each in Kansas, South Dakota, Indiana, Washington state and North Carolina.

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

REPORTED DUST EXPLOSIONS IN U.S. 2013

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	2013/1/4	CHS Inc.	Corson, SD	Feed mill	0	0
2	2013/4/4	Dawson Feeders	Lexington, NE	Feed mill	0	1
3	2013/4/7	Bartlett Milling Company	Statesville, NC.	Flour mill	0	1
4	2013/6/24	Co-Alliance Cooperative	Union Mills, IN	Grain elevator	1	0
5	2013/7/8	Aurora Cooperative	Sedan,NE	Grain elevator	0	2
6	2013/10/9	EPL Feed	Sumas, WA	Feed mill	0	0
7	2013/12/6	Caravan Ingredients	Kansas City, KS	Baking manufacturing plant	0	3

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	<u>TEN YEAR TOTAL</u>
Number	6	13	9	7	19	8	11	9	10	7	99
Fatalities	0	2	0	0	0	0	0	6	0	1	9
Injured	4	11	8	6	9	12	17	4	8	7	85
Type of Facility											
Grain Elevator	1	7	5	5	14	4	7	5	8	3	59
Feed Mill	2*	5	2	1	3	2	2	2	1	2	22
Flour Mill	0	1**	0	0	0	0	0	1	0	1	3
Other:											
Corn Milling, Dry	0	0	0	0	0	0	0	0	0	0	0
Corn Milling, Wet	1*	0	0	0	0	0	1	0	0	0	2
Rice Mill	0	0	0	0	0	0	0	0	0	0	0
Other	2	0	2	1	2	2	1	1	1	1	13

* Explosion occurred in raw grain storage facilities.

**Explosion occurred in separate bulk flour storage facility.

Source: Dr. Kingsly Ambrose, Kansas State University

TABLE 2. AGRICULTURAL DUST EXPLOSIONS BY COMMODITY HANDLED AT TIME OF EXPLOSION 2004-2013

<u>COMMODITY</u>	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	<u>TEN YEAR TOTAL</u>
Corn	3	7	5	4	14	4	8	3	6	5	59
Soybeans	0	0	0	0	0	0	0	0	3	0	3
Wheat	0	2	0	0	0	0	0	0	0	1	3
Barley (malting)	0	0	0	1	0	0	0	0	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	0	1	2	1	5	2	3	2	1	0	17
Rice	0	0	0	0	0	0	0	0	0	0	0
(Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	0	0	0	0
Wheat Flour	0	1	0	0	0	1	0	1	0	0	3
Wheat (Starch)(Gluten)	1	0	1	0	0	0	0	0	0	0	2
Other	2	2	1	1	0	1	0	3	0	1	11
TOTAL EXPLOSIONS	6	13	9	7	19	8	11	9	10	7	99

Source: Dr. Kingsly Ambrose, Kansas State University

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

<u>STATE</u>	1958-2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10-YEAR TOTAL	1958-2013
Iowa	76	2	1	1	1	4	3	1	1	0	0	14	90
Kansas	79	1	0	1	1	0	0	0	1	1	1	6	85
Illinois	68	0	0	0	1	3	2	4	0	1	0	11	79
Nebraska	72	0	0	0	0	1	1	0	2	0	2	6	78
Minnesota	49	1	3	1	0	4	1	0	0	2	0	12	61
Texas	44	0	0	0	1	1	0	0	0	0	0	2	46
Ohio	31	1	1	0	0	1	0	1	0	0	0	4	35
Missouri	28	0	0	1	1	1	0	0	0	1	0	4	32
Indiana	26	0	0	0	1	0	0	0	0	0	1	2	28
Louisiana	17	0	0	0	0	1	0	0	0	0	0	1	18
South Dakota	12	0	0	0	0	1	0	1	0	1	1	4	16
Washington	7	0	0	0	0	0	0	0	0	0	1	1	8

Source: Dr. Kingsly Ambrose, Kansas State University