

## **Agricultural Dust Explosions in 2012\***

There were 10 dust explosions reported in the U.S. in 2012 according to Kingsly Ambrose, Assistant Professor, Kansas State University. This compares to 9 in 2011 and a ten-year average of 10.0 explosions.

There were 0 fatalities and 8 injured.

The explosions were in 8 grain elevators, 1 feed mill, and 1 soybean processing plant.

The **probable ignition source** was identified in 1 case as a spark, 1 from a flame, 1 from a motor error, 1 electrical, and 6 were unknown.

**Fuel sources** were identified as 6 from corn, 1 was mixed feed, and 3 were soybean.

**Dust explosions** occurred in nine different states: 3 in Minnesota, 1 in Kansas, 1 each in Illinois, Louisiana, Missouri, South Dakota, Michigan and North Dakota.

Contact Dr. Kingsly Ambrose by e-mail ([kingsly@ksu.edu](mailto:kingsly@ksu.edu)) or telephone (785-532-4091). Address: 312 Shellenberger Hall, Manhattan, KS 66506

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

REPORTED DUST EXPLOSIONS IN U.S. 2012

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALIES</u>	<u>INJURED</u>
1	2012/01/06	North Central Farmers Elevator	Faulkton, SD	Grain elevator	0	1
2	2012/02/02	Cairo Coop	Arlington, KS	Grain elevator	0	1
3	2012/08/06	CHS, Inc.	Tracy, MN	Feed mill	0	2
4	2012/08/06	CHS, Inc.	Fairmont, MN	Soybean processing plant	0	3
5	2012/08/09	Greenway Co-Op	Kasson, MN	Grain elevator	0	0
6	2012/08/12	Bunge Grain elevator	Madison Parish, LA	Grain elevator	0	1
7	2012/08/22	Bunge Oil Processing Plant	Cairo, IL	Grain elevator	0	0
8	2012/08/23	Citizens LLC	Charlotte, MI	Grain elevator	0	0
9	2012/10/22	Berthold Farmers Elevator	Carpio, ND	Grain elevator	0	0
10	2012/12/20	MFA Agri Services Center and Grain	Lexington, MO	Grain elevator	0	0

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	<u>TEN YEAR TOTAL</u>
Number	8	6	13	9	7	19	8	11	9	10	100
Fatalities	2	0	2	0	0	0	0	0	6	0	10
Injured	8	4	11	8	6	9	12	17	4	8	88
Type of Facility											
Grain elevator	4	1	7	5	5	14	4	7	5	8	60
Feed mill	2	2*	5	2	1	3	2	2	2	1	22
Flour Mill	1	0	1**	0	0	0	0	0	1	0	3
Other:											
Corn Milling, Dry	0	0	0	0	0	0	0	0	0	0	0
Corn Milling, Wet	0	1*	0	0	0	0	0	1	0	0	2
Rice Mill	0	0	0	0	0	0	0	0	0	0	0
Other	1	2	0	2	1	2	2	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 2003-2012

<u>COMMODITY</u>	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	<u>TEN YEAR TOTAL</u>
Corn	6	3	7	5	4	14	4	8	3	6	60
Soybeans	0	0	0	0	0	0	0	0	0	3	3
Wheat	1	0	2	0	0	0	0	0	0	0	3
Barley (malted)	0	0	0	0	1	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	1	0	1	2	1	5	2	3	2	1	18
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	0	0	0	0
Wheat Flour	0	0	1	0	0	0	1	0	1	0	3
Wheat (Starch)(Gluten)	0	1	0	1	0	0	0	0	0	0	2
Other	0	2	2	1	1	0	1	0	3	0	10
TOTAL EXPLOSIONS	8	6	13	9	7	19	8	11	9	10	100

Source: Dr. Kingsly Ambrose, Kansas State University

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

<u>STATE</u>	1958-2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	10-YEAR TOTAL	1958-2012
Iowa	75	1	2	1	1	1	4	3	1	1	0	15	90
Illinois	67	1	0	0	0	1	3	2	4	0	1	12	79
Minnesota	49	0	1	3	1	0	4	1	0	0	2	12	61
Kansas	79	0	1	0	1	1	0	0	0	1	1	5	84
Ohio	29	2	1	1	0	0	1	0	1	0	0	6	35
Nebraska	72	0	0	0	0	0	1	1	0	2	0	4	76
Missouri	28	0	0	0	1	1	1	0	0	0	1	4	32
South Dakota	11	1	0	0	0	0	1	0	1	0	1	4	15
Texas	44	0	0	0	0	1	1	0	0	0	0	2	46
Indiana	26	0	0	0	0	1	0	0	0	0	0	1	27
Louisiana	17	0	0	0	0	0	1	0	0	0	0	1	18
Washington	7	0	0	0	0	0	0	0	0	0	0	0	7

Source: Dr. Kingsly Ambrose, Kansas State University