

Agricultural Dust Explosions in 2009*

There were 8 dust explosions reported in the U.S. in 2009 according to Kingsly Ambrose, Assistant Professor, Kansas State University. This compares to 19 in 2008 and a ten-year average of 9.5 explosions.

There were no fatalities and 12 injured.

The explosions were in 4 grain elevators, 1 feed mill, 1 food plant, 1 ethanol plant, and 1 pet food plant.

The **probable ignition source** was identified in 1 case as a spark and 7 were unknown.

Fuel sources were identified as 4 from corn, 2 were mixed feed, 1 was wheat flour, and 1 was unknown.

Dust explosions occurred in five different states: 2 in Illinois, 3 in Iowa, 1 each in Minnesota, Nebraska and Oregon.

Contact Dr. Kingsly Ambrose by e-mail (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. 2009

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	2009/02/24	Andersons	Champaign, IL	Elevator	0	0
2	2009/03/05	Chief Industries	Hastings, NE	Ethanol	0	2
3	2009/04/14	All Feed	Galva, IL	Pet Food	0	3
4	2009/06/24	West Central Co-op	Gowrie, IA	Elevator	0	2
5	2009/10/15	Farm Country Co-op	Pine Island, MN	Elevator	0	0
6	2009/11/16	West Central Co-op	Boxholm, IA	Elevator	0	2
7	2009/12/04	Land O'Lakes	Portland, OR	Feed Mill	0	0
8	2009/12/14	Quaker Oats	Cedar Rapids, IA	Food Plant	0	3

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TEN YEAR TOTAL
Number	8	9	8	8	6	13	9	7	19	8	95
Fatalities	1	1	1	2	0	2	0	0	0	0	7
Injured	12	7	8	8	4	11	8	6	9	12	85
Type of Facility											
Grain Elevator	2	4	6	4	1	7	5	5	14	4	52
Feed Mill	1	2	0	2	2*	5	2	1	3	2	20
Flour Mill	0	0	0	1	0	1**	0	0	0	0	2
Other:											
Corn Milling, Dry	0	0	0	0	0	0	0	0	0	0	0
Corn Milling, Wet	0	0	1	0	1*	0	0	0	0	0	2
Rice Mill	0	0	0	0	0	0	0	0	0	0	0
Other	5	3	1	1	2	0	2	1	2	2	19

* 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 2000-2009

<u>COMMODITY</u>	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	<u>TEN YEAR TOTAL</u>
Corn	2	5	5	6	3	7	5	4	14	4	55
Soybeans	0	0	1	0	0	0	0	0	0	0	1
Wheat	1	0	0	1	0	2	0	0	0	0	4
Barley (malted)	0	0	0	0	0	0	0	1	0	0	1
Oats	0	1	0	0	0	0	0	0	0	0	1
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
Mixed feed	1	1	0	1	0	1	2	1	5	2	14
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	0	0	0	0
Wheat Flour	1	0	0	0	0	1	0	0	0	1	3
Wheat (Starch)(Gluten)	0	1	1	0	1	0	1	0	0	0	4
Other	3	1	1	0	2	2	1	1	0	1	12
TOTAL EXPLOSIONS	8	9	8	8	6	13	9	7	19	8	95

Source: Dr. Kingsly Ambrose, Kansas State University

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

<u>STATE</u>	1958-1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	10-YEAR TOTAL	1958-2009
Iowa	72	2	0	1	1	2	1	1	1	4	3	16	88
Nebraska	72	0	0	0	0	0	0	0	0	1	1	2	74
Illinois	62	0	4	1	1	0	0	0	1	3	2	12	74
Minnesota	47	1	0	1	0	1	3	1	0	4	1	12	59
Kansas	45	0	2	2	0	1	0	1	1	0	0	7	52
Texas	43	1	0	0	0	0	0	0	1	1	0	3	46
Ohio	28	0	1	0	2	1	1	0	0	1	0	6	34
Missouri	28	0	0	0	0	0	0	1	1	1	0	3	31
Indiana	23	0	1	2	0	0	0	0	1	0	0	4	27
Louisiana	17	0	0	0	0	0	0	0	0	1	0	1	18
South Dakota	11	0	0	0	1	0	0	0	0	1	0	2	13
Washington	7	0	0	0	0	0	0	0	0	0	0	0	7

Source: Dr. Kingsly Ambrose, Kansas State University