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Agricultural Dust Explosions in 2003*

There were seven dust explosions reported in the U.S. in 2003 according to Robert W. Schoeff, Professor Emeritus, Kansas State University, and Mavis Rogers, FGIS-USDA. This compares to 8 in 2002 and a ten-year average of 11.5 explosions.

There were two fatalities and eight injured.

The location of the **primary explosion** was identified in 4 of the 7 incidents as a spout, conveyor, roller mill, and bag filter.

The **probable ignition source** was identified in only two cases as welding.

Fuel sources were identified as corn (6) and wheat.

Dust explosions occurred in six different states: Ohio(2), Iowa, Illinois, Michigan, North Carolina, and South Dakota (1 each).

This report is based on a variety of news sources and the voluntary cooperation of management as we seek to identify that agricultural dust explosions have occurred and what the causes might have been. The data is compiled as a service to the grain storage and processing and allied industries, trade associations, insurance companies, and government agencies.

Please give credit when using these data in your publications and electronic media.

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

REPORTED DUST EXPLOSIONS IN U.S. - 2003**

<u>NO</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>DAMAGE*</u>	<u>KILLED</u>	<u>INJURED</u>
1	Jan. 2	Dakota Mill & Grain	Belle Fourche, SD	Grain Elevator	Moderate	0	0
2	Feb. 20	Tomen Grain Co.	Pekin, IL	Grain Elevator	Severe	0	0
3	July 2	Michigan Ag. Commodities	Blissfield, MI	Grain Elevator	Minor	0	1
4	Aug. 10	ConAgra	Columbus, OH	Flour Mill	NA	2	4
5	Aug. 14	Auglaize Farmers	New Bremen, OH	Feed Mill	Minor	0	3
6	Aug. 26	House-Autry Mills	Four Oaks, NC	Food Processor	Moderate	0	0
7	Dec. 9	AGP Grain Cooperative	Klemme, IA	Grain Elevator	NA	0	0
TOTALS:						2	8

* Minor: Less than \$50,000; Moderate: \$50,000-\$500,000; Severe: over \$500,000
 ** Report is subject to revision as new information is received.
 in cooperation with FGIS-USDA, Washington, DC.

Robert W. Schoeff
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 April 5, 2004

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS*

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>TEN YEAR TOTAL</u>
Number	15	14	13	16	18	7	8	9	8	7	115
Dead	1	1	1	1	7	0	1	1	1	2	16
Injured	14	12	19	14	24	19	12	7	8	8	137
Est. Damage to Facility (\$ Mil.)	7.1	6.7	29.6	11.4	29.8	4.4	8.2	5.3	5.1	NA	--
Type of Facility:											
Grain Elevator	7	4	4	9	11	3	2	4	6	4	54
Feed Mill	3	4	4	2	3	4*	1	2	0	1	24
Flour Mill	2	0	1	1	0	0	0	0	0	1	5
Other:											
Corn Milling, Dry	0	1	1	0	0	0	0	0	0	0	2
Corn Milling, Wet	1	2	0	0	1	0	0	0	1	0	5
Rice Mill	0	2	1	0	0	0	0	0	0	0	3

* In 2 cases the explosion occurred in raw grain storage facilities.

Source: Robert W. Schoeff, Kansas State University, in cooperation with FGIS-USDA, April 5, 2004.

**TABLE 2. AGRICULTURAL DUST EXPLOSIONS
BY COMMODITY HANDLED AT TIME OF EXPLOSION
1994-2003**

<u>COMMODITY</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>TEN YEAR TOTAL</u>
Corn	8	3	5	8	9	7	2	5	5	6	58
Sorghum	1	0	0	0	0	0	0	0	0	0	1
Soybeans	0	1	2	2	1	0	0	0	1	0	7
Wheat	2	1	0	3	2	0	1	0	0	1	10
Barley (malted)	1	0	1	0	0	0	0	0	0	0	2
Oats	1	0	0	0	0	0	0	0	0	0	1
Beet Pulp	0	0	1	0	0	0	0	0	0	0	1
Corn Starch	0	2	0	0	1	0	0	0	0	0	3
Distillers Feed	0	1	0	0	0	0	0	0	0	0	1
Mixed Feed	0	2	1	0	0	0	0	1	0	0	4
Rice (Bran) (Flour) (Hulls)	1	3	1	0	0	0	0	0	0	0	5
Wheat Flour	0	0	1	1	1	0	0	0	0	0	3
Wheat (Starch) (Gluten)	0	0	0	0	1	0	0	1	1	0	3
Other	1	1	1	2	3	0	5	2	1	0	16
TOTAL EXPLOSIONS	15	14	13	16	18	7	8	9	8	7	115

Source: Robert W. Schoeff, Kansas State University, in cooperation with FGIS-USDA, April 5, 2004.

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

<u>STATE</u>	<u>1958- 1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>10-YEAR TOTAL</u>
Iowa	58	4	2	3	3	1	1	2	0	1	1	18
Illinois	54	1	3	1	1	1	1	0	4	1	1	14
Kansas	35	3	0	0	0	6	1	0	2	2	0	14
Nebraska	63	1	1	1	5	1	0	0	0	0	0	9
Minnesota	40	1	0	2	1	1	2	1	0	1	0	9
Ohio	25	0	1	0	1	1	0	0	1	0	2	6
Indiana	21	1	0	0	0	1	0	0	1	2	0	5
South Dakota	8	0	0	1	1	1	0	0	0	0	1	4
Texas	41	0	1	0	0	1	0	1	0	0	0	3
Louisiana	17	0	0	0	0	0	0	0	0	0	0	0
Washington	6	0	1	0	0	0	0	0	0	0	0	1
Missouri	27	0	0	0	0	1	0	0	0	0	0	1

Source: Robert W. Schoeff, Kansas State University, in cooperation with FGIS-USDA, April 5, 2004.