



Cooperative Extension Service

Extension Grain Science and Industry
Shellenberger Hall
Manhattan, Kansas 66506
913-532-6161

GRAIN DUST EXPLOSIONS UP SHARPLY IN 1984 OVER 1983

Twenty grain dust explosions were reported in the U.S. to Ralph Regan, F.G.I.S. Safety Director, and Robert W. Schoeff, Extension Marketing and Safety Specialist, Kansas State University. This was a 53% increase over the 1983 low and equal to the 10 year average of 20 explosions.

There were 9 fatalities and 29 injured. Fortunately there were some employees who escaped with only minor injuries. Property damage ranged from none to \$10 million or more. Two grain processing plants were a total loss as were several elevators.

In 8 out of 20 cases the causes were unknown. Fire from various sources, hot bearings and sparks from foreign material were major probable causes. No reports of welding and cutting causing an explosion were welcome news.

Corn was being handled in 12 of the 20 explosions, wheat in four, soybeans in two, corn gluten meal in one and the elevator was closed for a holiday in one case.

Nebraska was the leading state in 1984 with six followed by Illinois with two, Louisiana two, North Dakota two and eight other states with one each.

A breakdown by type of facility shows 12 occurred in grain elevators, five in feed mills, one each in a flour mill, soybean processing plant, corn gluten pelleting plant and a transfer leg between storage and processing facilities. One firm had the primary explosion in the feed mill and secondary in the adjacent grain elevator.

There can be no relaxation in everyone's efforts to reduce the number of explosions, loss of lives and property and crippling injuries below current levels.

Appreciation is expressed to many who helped provide these data and cooperation of the entire industry and government is solicited in building a more accurate data base on grain dust explosions.

Robert W. Schoeff
Extension State Leader
Dept. of Grain Science & Industry
Shellenberger Hall
Kansas State University
Manhattan, KS 66506
January 23, 1985



Cooperative Extension Service

Extension Grain Science and Industry
 Shellenberger Hall
 Manhattan, Kansas 66506
 913-532-6161

REPORTED GRAIN DUST EXPLOSIONS, U.S. - 1984

<u>NUMBER</u>	<u>DATE</u>	<u>FIRM AND LOCATION</u>	<u>FACILITY</u>	<u>DAMAGE*</u>	<u>KILLED</u>	<u>INJURED</u>
1	Jan. 20	Lubbock Feedlot Lubbock, TX	Elevator	Moderate	0	1
2	Feb. 4	Epstein-Harris Feedyard Ft. Morgan, CO	Feedmill	Moderate	0	1
3	Feb. 12	Norman-Heartwell Grain Co. Norman, NE	Elevator	Minor	0	0
4	Feb. 20	Owensboro Grain Co. Owensboro, KY	Soybean Processing	Minor	0	1
5	Feb. 25	Castlewood Farmers Elevator Castlewood, SD	Feedmill	Moderate	0	1
6	March 14	Chester Farmers Grain Inc. Chester, NE	Elevator	Minor	0	0
7	March 15	Monroe Grain Co. Monroe, NE	Elevator	Moderate	0	2
8	May 11	Farmers Co-op Elevator Lake Lillian, MN	Feedmill Elevator	Moderate	2	4
9	May 30	Blue Valley Co-op Tamora, NE	Elevator	Moderate	2	0
10	June 8	A.D.M. Company Decatur, IL	Corn Gluten Pelleting Plant	Moderate	1	3
11	June 26	Community Grain Company Galesville, IL	Elevator	Moderate	0	1
12	July 31	Juniata Farmers Co-op Juniata, NE	Feed Mill	Minor	0	0
13	Aug. 28	Pettibone Grain Co. Pettibone, ND	Elevator	Moderate	0	0

KSU, County Extension
 Councils and U.S. Department
 of Agriculture Cooperating.

All educational programs and
 materials available without
 discrimination on the basis
 of race, color, national
 origin, sex, or handicap.

*Minor - Less than \$50,000
 Moderate - 50,000 - \$500,000
 Severe - Over \$500,000

Robert W. Schoeff
 in cooperation with
 Ralph Regan, FGIS - USDA
 Washington, D.C.
 January 23, 1985

<u>NUMBER</u>	<u>DATE</u>	<u>FIRM AND LOCATION</u>	<u>FACILITY</u>	<u>DAMAGE*</u>	<u>KILLED</u>	<u>INJURED</u>
14	Sept. 16	St. Elmo Terminal Elevator Paulina, LA	Elevator	Minor	0	0
15	Sept. 19	ConAgra, Inc. Knoxville, TN	Feedmill	Severe	3	11
16	Sept. 21	Indiana Grain Logansport, IN	Elevator	Moderate	0	0
17	Nov. 18	Bay State Milling Co. Clifton, NJ	Flour Mill	Severe	1	2
18	Dec. 4	St. Charles Elevator (ADM Flour Mill) Destrehan, LA	Misc.*	Minor	0	0
19	Dec. 7	Haveman Grain Co., Inc. Murray, NE	Elevator	Minor	0	2
20	Dec. 26	Southwest Grain Co-op Dickinson, ND	Elevator	Severe	<u>0</u>	<u>0</u>
TOTAL					9	29

*Minor - Less than \$50,000
Moderate - 50,000 - \$500,000
Severe - Over \$500,000

Robert W. Schoeff
Kansas State University
Manhattan, KS 66506
January 23, 1985
in cooperation with
Ralph Regan, FGIS,
USDA, Washington, D.C.

*Placed in Miscellaneous Category since it involved a transfer elevator leg only

DUST EXPLOSION STATISTICS - U.S.

	1990- 1956 ¹	1958 - 1975 ²	1976	1977	1978	1979	1980	1981	1982	1983	1984	5 Years 1980-1984	10 Years 1975-1984
Number	490	192	22	20	19	19	44	21	14	13	20	112	201
Dead	381	68	22	65	8	2	10	13	6	-	9	38	139
Injured	991	346	82	84	36	18	47	62	34	14	29	185	425
Est. Damage to facilities (\$ Mil.)	\$ 70.0	\$ 55.0	\$ 60.0	\$ 75.0	\$ 5.0	\$ 8.0	\$ 10.0	\$ 29.0	\$ 15.0	\$ 3.6	\$ 19.8	\$ 77.4	
Type of Facility:													
Grain Elevator				13	13	16	27	19	11	9	12	79	
Feed Mill				1	3	2	8	1	2	4	5	18	
Flour Mill				1	-	1	1	-	-	-	1	2	
Other:													
Corn Processor				3	2	-	2	-	-	-	1	3	
Brewery				-	-	-	2	-	-	-	-	2	
Soybean				-	-	-	1	-	-	-	1	2	
Alfalfa Dehy.				-	-	-	1	-	-	-	-	1	
Rice Mill				1	-	-	-	1	-	-	-	1	
Starch Plant				-	-	-	-	-	1	-	-	1	
Starea Plant				-	1	-	-	-	-	-	-	-	
Pet Food				1	-	-	-	-	-	-	-	-	
Other				-	-	-	-	-	-	-	1	1	

¹ N.F.P.A. [no report for 1957]

² U.S.D.A. Task Force Report

Source: Robert W. Schoeff, Dept. of Grain Science & Industry
 Kansas State University, January 23, 1985 in cooperation
 with Ralph Regan, FGIS, USDA