

Agricultural Dust Explosions in 2024*

There were 9 grain dust explosions reported in the U.S. in 2024 according to Kingsly Ambrose, Professor, Purdue University. This compares to 9 in 2023 and a ten-year average of 8.6 explosions.

There were no fatalities and 2 injuries.

The explosions were in 4 feed mills, 3 grain elevators, 1 ethanol plant, and 1 corn processing plant.

The **probable ignition sources** were identified in 2 cases as smoldering grain, 2 as equipment malfunction, 1 as welding work, 1 as cutting work, and 3 unknowns.

Fuel sources were identified as 6 from grain dusts, 2 as smoldering grain, and 1 as smoldering feed.

Dust explosions occurred in 9 different states: 1 each in Illinois, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Carolina, Tennessee, and Wisconsin.

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

REPORTED DUST EXPLOSIONS IN U.S. 2024

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	1/23/2024	New Cooperative	Red Oak, IA	Grain elevator	0	0
2	4/4/2024	Alliance Ag and Grain	Protection, KS	Grain elevator	0	0
3	6/8/2024	Son-D-Farms	Adrian, MN	Feed mill	0	0
4	7/28/2024	ADM	Decatur, IL	Grain processing	0	0
5	7/29/2024	Nash Johnson and Son's	Rose Hill, NC	Feed mill	0	0
6	8/31/2024	Tyson Foods	Estill Springs, TN	Feed mill	0	1
7	10/15/2024	KAAPA Partners	Aurora, NE	Ethanol plant	0	0
8	11/19/2024	Viterra	Superior, WI	Grain elevator	0	0
9	11/22/2024	Community Mills	Cassopolis, MI	Feed mill	0	1

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	TEN YEAR TOTAL
Number	8	5	7	12	11	8	7	10	9	9	86
Fatalities	0	3	5	1	1	1	1	0	0	0	12
Injured	10	8	12	2	8	6	5	18	12	2	83
Type of Facility											
Grain Elevator	2	2	5	8	4	4	4	2	2	3	36
Feed Mill	4	1	0	2	4	1	1	2	0	4	19
Flour Mill	0	2	0	0	0	0	0	0	1	0	3
Other:											
Corn Milling, Dry	0	0	1	0	1	0	0	2	2	0	6
Corn Milling, Wet	0	0	0	0	0	1	1	0	1	1	4
Rice Mill	0	0	0	0	0	1	0	2	0	0	3
Other	2	0	1	2	2	1	1	2	3	1	15

Source: Dr. Kingsly Ambrose, Purdue University

TABLE 2. AGRICULTURAL DUST EXPLOSIONS BY COMMODITY HANDLED AT TIME OF EXPLOSION 2015-2024

<u>COMMODITY</u>	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	TEN YEAR TOTAL
Corn	2	1	6	6	5	2	3	2	5	5	37
Soybeans	0	0	0	0	1	0	0	1	2	0	4
Wheat	0	0	0	0	0	1	0	0	1	0	2
Barley (malted)	1	0	0	0	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	3	1	0	4	3	3	3	1	0	1	19
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	1	0	2	0	0	3
Wheat Flour	0	0	0	0	0	0	0	0	0	0	0
Wheat (Starch)(Gluten)	0	1	0	0	0	0	0	0	0	0	1
Other	2	2	1	2	2	1	1	4	1	3	19
TOTAL EXPLOSIONS	8	5	7	12	11	8	7	10	9	9	86

Source: Dr. Kingsly Ambrose, Purdue University

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

<u>STATE</u>	1958-2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	10-YEAR TOTAL	1958-2024
Iowa	87	0	1	1	2	3	1	1	1	2	1	13	100
Illinois	78	1	0	0	2	1	1	0	1	3	1	10	88
Nebraska	77	0	0	1	1	1	1	0	1	0	1	6	83
Minnesota	60	0	0	1	2	1	0	2	0	3	1	10	70
Kansas	55	0	1	0	1	0	1	0	1	0	1	5	60
Texas	46	0	0	0	1	0	1	0	0	0	0	2	48
Ohio	35	1	0	0	0	1	1	0	1	0	0	4	39
Missouri	35	1	0	0	0	0	1	0	0	0	0	2	37
Indiana	28	1	1	1	1	1	0	1	0	1	0	7	35
Louisiana	18	0	0	0	1	0	0	0	2	0	0	3	21
South Dakota	16	0	0	0	0	0	0	0	0	0	0	0	16
Wisconsin	8	0	1	2	1	1	0	0	0	0	1	6	14