

Agricultural Dust Explosions in 2022*

There were 9 grain dust explosions reported in the U.S. in 2022 according to Kingsly Ambrose, Professor, Purdue University. This compares to 7 in 2021 and a ten-year average of 7.8 explosions.

There were no fatalities and 18 injuries.

The explosions were in 1 ethanol plant, 2 feed mills, 2 grain elevators, 2 rice mills, and 2 grain processing plants.

The **probable ignition sources** were identified in 3 cases as fire, 1 as welding and 5 unknowns.

Fuel sources were identified as 9 from grain dusts.

Dust explosions occurred in 7 different states: 2 each in Arkansas and Louisiana, and 1 each in New Mexico, Illinois, Iowa, Kansas, Ohio.

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

REPORTED DUST EXPLOSIONS IN U.S. 2022

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	01/13/2022	Cargill-Nutrena	Lecompte, LA	Feed mill	0	0
2	02/02/2022	Gavilon Grain LLC	Clovis, NM	Grain elevator	0	1
3	05/11/2022	BioUrja Renewables	Peoria, IL	Ethanol	0	2
4	05/12/2022	Farmers Co-op Equity	Sawyer, KS	Grain elevator	0	0
5	05/23/2022	OK Feed Mills	Fort Smith, AR	Feed mill	0	0
6	08/20/2022	Riceland Foods Inc.	Stuttgart, AR	Rice milling	0	0
7	11/10/2022	Farmers Rice Milling Company	Lake Charles, LA	Rice milling	0	0
8	12/2/2022	Star of The West Milling Company	Kent, OH	Grain processing	0	0
9	12/8/2022	Heartland Crush	Marengo, IA	Grain processing	0	15

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	TEN YEAR TOTAL
Number	7	7	8	5	7	12	11	8	7	9	81
Fatalities	1	0	0	3	5	1	1	1	1	0	13
Injured	7	14	10	8	12	2	8	6	5	18	90
Type of Facility											
Grain Elevator	3	5	2	2	5	8	4	4	4	2	39
Feed Mill	2	1	4	1	0	2	4	1	1	2	18
Flour Mill	1	0	0	2	0	0	0	0	0	0	3
Other:											
Corn Milling, Dry	0	0	0	0	1	0	1	0	0	1	3
Corn Milling, Wet	0	0	0	0	0	0	0	1	1	0	2
Rice Mill	0	0	0	0	0	0	0	1	0	2	3
Other	1	1	2	0	1	2	2	1	1	2	13

Source: Dr. Kingsly Ambrose, Purdue University

TABLE 2. AGRICULTURAL DUST EXPLOSIONS BY COMMODITY HANDLED AT TIME OF EXPLOSION 2013-2022

<u>COMMODITY</u>	2013	2014	2015	2016	2017	2018	2019	2020	2021	2021	TEN YEAR TOTAL
Corn	5	3	2	1	6	6	5	2	3	2	35
Soybeans	0	0	0	0	0	0	1	0	0	1	2
Wheat	1	0	0	0	0	0	0	1	0	0	2
Barley (malted)	0	0	1	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	0	2	3	1	0	4	3	3	3	1	20
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	1	0	2	3
Wheat Flour	0	0	0	0	0	0	0	0	0	0	0
Wheat (Starch)(Gluten)	0	0	0	1	0	0	0	0	0	0	1
Other	1	2	2	2	1	2	2	1	1	3	17
TOTAL EXPLOSIONS	7	7	8	5	7	12	11	8	7	9	81

Source: Dr. Kingsly Ambrose, Purdue University

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

<u>STATE</u>	1958-2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10-YEAR TOTAL	1958-2021
Iowa	87	0	0	0	1	1	2	3	1	1	1	10	97
Illinois	77	0	1	1	0	0	2	1	1	0	1	7	84
Nebraska	75	2	0	0	0	1	1	1	1	0	0	6	81
Minnesota	60	0	0	0	0	1	2	1	0	2	0	6	66
Kansas	54	1	0	0	1	0	1	0	1	0	1	5	59
Texas	46	0	0	0	0	0	1	0	1	0	0	2	48
Ohio	35	0	0	1	0	0	0	1	1	0	1	4	39
Missouri	32	0	3	1	0	0	0	0	1	0	0	5	37
Indiana	27	1	0	1	1	1	1	1	0	1	0	7	34
Louisiana	18	0	0	0	0	0	1	0	0	0	2	3	21
South Dakota	15	1	0	0	0	0	0	0	0	0	0	1	16
Wisconsin	7	1	0	0	1	2	1	1	0	0	0	6	13