

Agricultural Dust Explosions in 2020*

There were 8 grain dust explosions reported in the U.S. in 2020 according to Kingsly Ambrose, Associate Professor, Purdue University. This compares to 8 in 2019 and a ten-year average of 8.1 explosions.

There were 0 fatalities and 9 injuries.

The explosions were in 1 feed mill, 3 grain processing mills, and 4 grain elevators.

The **probable ignition sources** were identified in 1 case as fire, 2 as hot bearing and 5 unknowns.

Fuel sources were identified as 2 from grain dust and 6 unknowns.

Grain types were identified in 2 cases as corn, 2 as wheat, 2 as mixed feed, 1 as rice, and 1 as dietary fiber.

Dust explosions occurred in 8 different states: 1 each in Kansas, Iowa, Illinois, Ohio, Texas, Nebraska, Missouri, and Arkansas.

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

REPORTED DUST EXPLOSIONS IN U.S. 2020

<u>No</u>	<u>DATE</u>	<u>COMPANY</u>	<u>ADDRESS</u>	<u>FACILITY</u>	<u>TYPE OF GRAIN</u>	<u>FATALITIES</u>	<u>INJURED</u>
1	4/22/2020	Mennel Milling Company	Nevada, OH	Grain elevator	Wheat	0	0
2	7/24/2020	Innovation Production USA	Galesburg, IL	Grain processor (food)	Dietary fiber	0	2
3	8/25/2020	Ag Partners, LLC	Royal, IA	Grain elevator	Mixed feed (Corn and Soybeans)	0	0
4	10/15/2020	Riceland	Stuttgart, AR	Grain processor (rice)	Rice	0	3
5	11/1/2020	Aurora Co-Op	Superior, NE	Grain elevator	Corn	0	3
6	11/27/2020	MGP Ingredients Inc.	Atchison, KS	Grain processor (wheat)/distillery	Wheat	0	0
7	12/28/2020	M-G Inc.	Weimar, TX	Feed mill	Mixed feed	0	0
8	12/31/2020	West Central Agri Services	Adrian, MO	Grain elevator	Corn	0	1

TABLE 1. U.S. AGRICULTURAL DUST EXPLOSION STATISTICS

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	TEN YEAR TOTAL
Number	9	10	7	7	8	5	7	12	8	8	81
Fatalities	6	0	1	0	0	3	5	1	1	0	17
Injured	4	8	7	14	10	8	12	2	7	9	81
Type of Facility											
Grain Elevator	5	8	3	5	2	2	5	8	4	4	46
Feed Mill	2	1	2	1	4	1	0	2	2	1	16
Flour Mill	1	0	1	0	0	2	0	0	0	0	4
Other:											
Corn Milling, Dry	0	0	0	0	0	0	1	0	1	0	2
Corn Milling, Wet	0	0	0	0	0	0	0	0	0	1	1
Rice Mill	0	0	0	0	0	0	0	0	0	1	1
Other	1	1	1	1	2	0	1	2	1	1	11

Source: Dr. Kingsly Ambrose, Purdue University

TABLE 2. AGRICULTURAL DUST EXPLOSIONS BY COMMODITY HANDLED AT TIME OF EXPLOSION 2011-2020

<u>COMMODITY</u>	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	TEN YEAR TOTAL
Grain:											
Corn	3	6	5	3	2	1	6	6	5	2	39
Soybeans	0	3	0	0	0	0	0	2	0	0	6
Wheat	0	0	1	0	0	0	0	0	0	2	2
Barley (malted)	0	0	0	0	1	0	0	0	0	0	1
Oats	0	0	0	0	0	0	0	0	0	0	0
Other commodities:											
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	2	1	0	2	3	1	0	4	2	2	19
Rice (Bran)(Flour)(Hulls)	0	0	0	0	0	0	0	0	0	1	1
Wheat Flour	1	0	0	0	0	0	0	0	0	0	1
Wheat (Starch)(Gluten)	0	0	0	0	0	1	0	0	0	0	1
Other	3	0	1	2	2	2	1	2	1	1	16
TOTAL EXPLOSIONS	9	10	7	7	8	5	7	12	8	8	81

Source: Dr. Kingsly Ambrose, Purdue University

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

<u>STATE</u>	1958-2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	10-YEAR TOTAL	1958-2020
Iowa	89	1	0	0	0	0	1	1	2	3	1	9	98
Illinois	79	0	1	0	1	1	0	0	2	1	1	7	86
Nebraska	74	2	0	2	0	0	0	1	1	1	1	8	82
Minnesota	59	0	3	0	0	0	0	1	2	1	0	7	66
Kansas	52	1	1	1	0	0	1	0	1	0	1	6	58
Texas	47	0	0	0	0	0	0	0	1	0	1	2	49
Ohio	35	0	0	0	0	1	0	0	0	1	1	3	38
Missouri	30	0	1	0	3	1	0	0	0	0	1	6	36
Indiana	27	0	0	1	0	1	1	1	1	1	0	6	33
Louisiana	18	0	0	0	0	0	0	0	1	0	0	1	19
South Dakota	14	0	1	1	0	0	0	0	0	0	0	2	16
Wisconsin	7	2	0	1	1	0	1	2	1	0	0	8	15
Oklahoma	10	0	0	0	1	2	0	0	0	0	0	3	13
North Carolina	10	0	1	1	0	0	0	0	0	0	0	2	12

Source: Dr. Kingsly Ambrose, Purdue University