

INREC 2017-2022 Crop Year Surveys Data Extrapolation

Corn & Soy Acreages	2017	2018	2019	2020	2021	2022	Average
Corn acreage (CDL)	13,212,913	13,012,207	13,648,497	13,793,805	12,826,886	12,686,886	13,196,866
Soy acreage (CDL)	9,782,215	9,956,734	9,275,193	9,553,928	10,150,325	10,046,351	9,794,124
Corn & soy acreage total (CDL)	22,995,128	22,968,941	22,923,690	23,347,733	22,977,211	22,733,237	22,990,990

CDL = USDA Cropland Data Layer

Commercial Only Nitrogen Rates (lb/ac)	2017	2018	2019	2020	2021	2022	Average
Average commercial N rate on corn in rotation	170.0	172.3	177.5	183.4	170.9	173.4	174.6
Average commercial N rate on continuous corn	200.4	201.9	200.4	208.9	199.9	192.6	200.7

	Percentage							Acreage							Extrapolation
Cover Crop Practices:	2017	2018	2019	2020	2021	2022	Average	2017	2018	2019	2020	2021	2022	Average	Extrapolated Using
Cover crop planted	6.9%	8.8%	9.5%	13.3%	12.1%	16.6%	11.2%	1,597,614	2,015,688	2,180,043	3,107,063	2,768,754	3,773,717	2,573,813	Corn & soy acres
Rye cover crop	69.4%	82.8%	81.3%	90.9%	80.8%	81.8%	81.2%	1,108,954	1,669,641	1,771,503	2,823,418	2,236,599	3,086,901	2,116,169	Cover crop acres
Oat cover crop	9.1%	9.8%	2.8%	1.3%	5.5%	4.4%	5.5%	144,610	197,070	61,041	41,452	151,174	166,044	126,898	Cover crop acres
Species mix	NA	NA	11.2%	6.7%	12.3%	8.5%	9.6%	NA	NA	243,293	207,104	339,449	320,766	277,653	Cover crop acres
Other cover crop	21.5%	7.4%	4.8%	1.1%	1.5%	5.3%	6.9%	344,051	148,977	104,206	35,089	40,978	200,007	145,551	Cover crop acres
Commercial Nitrogen Application Practices:	2017	2018	2019	2020	2021	2022	Average	2017	2018	2019	2020	2021	2022	Average	Extrapolated Using
Fall anhydrous ammonia applied	38.9%	24.1%	23.5%	28.9%	43.1%	50.3%	34.8%	5,136,775	3,135,808	3,210,126	3,980,920	5,532,236	6,381,504	4,562,895	Corn acres
Nitrapyrin inhibitor with anhydrous ammonia	72.6%	73.9%	84.8%	83.8%	86.0%	64.7%	77.7%	3,731,524	2,318,399	2,722,508	3,337,435	4,759,936	4,128,833	3,499,773	Fall anhydrous ammonia acres
Fall only	NA	NA	14.0%	17.4%	22.4%	27.8%	20.4%	NA	NA	1,916,249	2,396,375	2,871,940	3,526,954	2,677,880	Corn acres
Spring pre-plant only	42.1%	56.3%	50.9%	46.7%	40.3%	33.8%	45.0%	5,563,671	7,331,631	6,949,814	6,443,443	5,165,387	4,288,167	5,957,019	Corn acres
Spring pre-plant & in-season	9.9%	15.4%	16.9%	13.8%	13.2%	14.5%	13.9%	1,307,086	2,004,263	2,299,772	1,907,536	1,691,866	1,839,598	1,841,687	Corn acres
In-season only	2.1%	1.1%	1.1%	3.8%	1.7%	1.0%	1.8%	281,723	137,166	147,404	529,108	219,340	126,869	240,268	Corn acres
Fall & spring pre-plant	NA	NA	11.6%	9.7%	14.3%	14.4%	12.5%	NA	NA	1,581,861	1,335,708	1,835,527	1,826,912	1,645,502	Corn acres
Fall & in-season	NA	NA	3.2%	5.4%	4.7%	6.1%	4.8%	NA	NA	434,022	738,667	596,450	773,900	635,760	Corn acres
Fall & spring & in-season	NA	NA	2.3%	3.2%	3.4%	2.3%	2.8%	NA	NA	319,375	442,967	441,245	291,798	373,846	Corn acres
Variable rate applied	NA	NA	8.7%	10.1%	16.1%	9.8%	11.1%	NA	NA	1,180,595	1,386,830	2,058,715	1,243,315	1,467,364	Corn acres
Manure Practices:	2017	2018	2019	2020	2021	2022	Average	2017	2018	2019	2020	2021	2022	Average	Extrapolated Using
No manure used	81.5%	81.4%	80.8%	82.0%	79.7%	78.8%	80.7%	10,765,242	10,590,004	11,030,715	11,310,374	10,223,669	9,997,266	10,652,878	Corn acres
Beef manure used	6.8%	10.3%	8.8%	6.3%	9.5%	9.0%	8.4%	900,069	1,343,993	1,194,243	864,553	1,212,141	1,141,820	1,109,470	Corn acres
Beef & poultry manure used	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0	0	0	12,388	0	0	2,065	Corn acres
Beef & liquid swine manure used	0.0%	0.0%	0.3%	0.1%	0.1%	0.2%	0.1%	0	0	38,216	19,715	11,416	25,374	15,787	Corn acres
Liquid swine manure used	7.6%	5.4%	7.4%	8.1%	8.1%	8.9%	7.6%	998,307	700,854	1,011,354	1,123,205	1,035,130	1,129,133	999,664	Corn acres
Liquid swine & dairy manure used	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0	0	0	8,585	0	0	1,431	Corn acres
Poultry manure used	1.6%	1.7%	1.9%	1.2%	1.6%	1.4%	1.5%	207,798	215,760	262,051	159,361	202,665	177,616	204,209	Corn acres
Dairy manure used	2.5%	1.1%	0.8%	2.1%	1.1%	1.7%	1.5%	324,858	141,833	111,918	295,623	138,530	215,677	204,740	Corn acres
Dairy & beef manure used	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	16,638	19,763	0	0	0	0	6,067	Corn acres
Liquid swine manure fall applied	94.7%	84.2%	78.5%	87.3%	82.4%	91.8%	86.5%	945,796	590,008	823,597	1,004,791	862,040	1,059,837	881,011	Swine manure acres
Liquid swine manure spring applied	1.8%	2.5%	11.7%	3.4%	7.0%	4.7%	5.2%	17,504	17,446	122,590	38,639	73,447	54,262	53,981	Swine manure acres
Liquid swine manure fall & spring applied	3.5%	13.3%	9.9%	9.4%	10.6%	3.6%	8.4%	35,007	93,400	103,488	108,076	111,028	41,562	82,094	Swine manure acres
Phosphorus Application Practices:	2017	2018	2019	2020	2021	2022	Average	2017	2018	2019	2020	2021	2022	Average	Extrapolated Using
Commercial P incorporated with planter	11.0%	3.8%	1.2%	2.7%	0.6%	0.7%	3.3%	2,523,799	862,841	270,500	639,271	144,756	159,133	766,717	Corn & soy acres
Commercial P applied in knifed bands	2.9%	2.7%	2.7%	3.0%	2.7%	1.1%	2.5%	656,919	627,900	618,940	692,078	625,440	250,066	578,557	Corn & soy acres
Commercial P broadcast & incorporated in 1 week	47.0%	70.3%	69.1%	40.4%	43.2%	37.9%	51.3%	10,807,030	16,143,905	15,847,147	9,440,934	9,916,964	8,615,897	11,795,313	Corn & soy acres
Liquid P (commercial/manure) injected	1.8%	3.8%	8.9%	7.8%	5.0%	6.8%	5.7%	416,049	865,364	2,049,378	1,825,232	1,155,754	1,545,860	1,309,606	Corn & soy acres
Other P application type (unincorporated)	37.4%	19.5%	18.1%	46.0%	48.4%	53.5%	37.1%	8,591,331	4,468,931	4,137,726	10,750,218	11,130,161	12,162,282	8,540,108	Corn & soy acres
Variable rate applied	NA	NA	49.6%	45.7%	57.0%	52.8%	51.3%	NA	NA	11,358,688	10,677,472	13,106,201	12,003,149	11,786,378	Corn & soy acres
Soil testing for P	81.2%	72.1%	85.5%	80.6%	81.2%	79.6%	80.0%	18,682,577	16,563,845	19,602,047	18,818,176	18,662,091	18,095,657	18,404,065	Corn & soy acres
P application only when at or below optimum levels	74.3%	94.4%	94.3%	99.1%	98.2%	95.4%	92.6%	13,875,230	15,636,269	18,482,770	18,653,889	18,329,906	17,263,256	17,040,220	Soil test phosphorus acres
Tillage Practices:	2017	2018	2019	2020	2021	2022	Average	2017	2018	2019	2020	2021	2022	Average	Extrapolated Using
Conservation tillage before corn	56.3%	52.3%	46.5%	23.0%	25.4%	29.7%	38.9%	7,441,970	6,805,748	6,341,092	3,171,203	3,260,594	3,768,005	5,131,435	Corn acres
No-till before corn	26.4%	22.2%	29.4%	29.5%	31.6%	29.6%	28.1%	3,486,345	2,890,908	4,018,117	4,071,389	4,052,013	3,755,318	3,712,349	Corn acres
Conventional tillage before corn	NA	25.4%	24.1%	47.5%	43.0%	40.6%	36.1%	NA	3,299,680	3,289,288	6,551,214	5,512,867	5,150,876	4,760,785	Corn acres
Conservation tillage before soy	42.6%	34.6%	33.8%	18.5%	19.6%	27.7%	29.5%	4,169,316	3,441,481	3,134,088	1,764,290	1,993,219	2,782,839	2,880,872	Soy acres
No-till before soy	43.2%	41.0%	44.6%	47.3%	53.3%	46.9%	46.0%	4,221,350	4,081,526	4,134,881	4,517,853	5,409,108	4,711,739	4,512,743	Soy acres
Conventional tillage before soy	NA	24.4%	21.6%	34.2%	27.1%	25.5%	26.6%	NA	2,433,727	2,006,224	3,271,784	2,746,678	2,561,820	2,604,047	Soy acres
Combined corn & soy conservation tillage acreage	50.5%	44.6%	41.3%	21.1%	22.9%	28.8%	34.9%	11,611,287	10,247,229	9,475,179	4,935,493	5,253,814	6,550,844	8,025,308	Corn & soy conservation tillage acres
Combined corn & soy no-till acreage	33.5%	30.4%	35.6%	36.8%	41.2%	37.2%	35.8%	7,707,695	6,972,434	8,152,999	8,589,242	9,461,121	8,467,057	8,212,091	Corn & soy no-till acres
Combined corn & soy conventional tillage acreage	NA	25.0%	23.1%	42.1%	35.9%	33.9%	32.0%	NA	5,733,407	5,295,512	9,822,998	8,259,545	7,712,695	7,364,831	Corn & soy conventional tillage acres