



Iowa Ag News – Chemical Use

Soybeans: Fall 2020

Upper Midwest Regional Field Office · 210 Walnut Street Ste 833 · Des Moines IA 50309 · (515) 776-3400 · (800) 772-0825
fax (855) 281-9802 · www.nass.usda.gov/ia

Cooperating with the Iowa Department of Agriculture and Land Stewardship

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Media Contact: Greg Thessen

The National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program is the U.S. Department of Agriculture’s official source of statistics about on-farm and post-harvest fertilizer and pesticide use and pest management practices.

In the fall of 2020, NASS collected data for the 2020 crop year, the one-year period beginning after the 2019 harvest and ending after the 2020 harvest, about chemical use and pest management practices used on soybean production. The data was collected as part of the Agricultural Resource Management Survey (ARMS) and the results are presented here.

The 2020 Agricultural Chemical Use Survey of soybean producers collected data about fertilizer and pesticide use as well as pest management practices in growing soybeans.

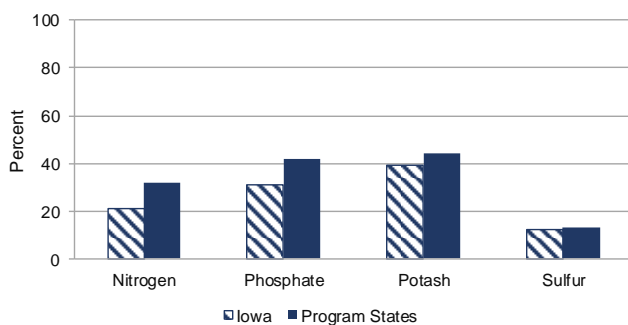
Fertilizer Use

Fertilizer refers to a soil-enriching input that contains one or more plant nutrients, primarily nitrogen (N), phosphate (P₂O₅), and potash (K₂O). Of the three primary macronutrients, potash was the most widely used on soybean acres planted in Iowa. Farmers applied potash to 39% of planted acres at an average rate of 86 pounds per acre per year. Macronutrients nitrogen and phosphate were applied at an average rate of 21 and 58 pounds per acre per year, respectively. The secondary macronutrient, sulfur, was applied to 12% of acres planted to soybeans.

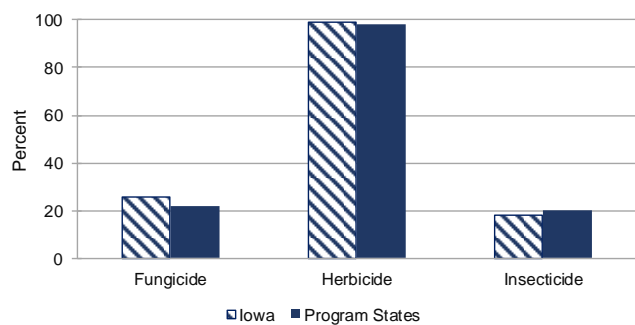
Pesticide Use

The pesticide active ingredients used on soybeans are classified in this report as herbicides (targeting weeds), insecticides (targeting insects), and fungicides (targeting fungal disease). Herbicide active ingredients were applied to 99% of the soybean acres planted. Glyphosate potassium salt was the most widely used pesticide on soybean acres and was the active ingredient with the greatest total amount applied. Fungicides were applied to 26% of soybean acres planted in Iowa, while insecticides were applied to 18% of Iowa soybean acres.

Fertilizers, Percent of Soybean Planted Acres Treated
Iowa and Program States: 2020



Pesticides, Percent of Soybeans Planted Acres Treated
Iowa and Program States: 2020



Fertilizer Use on Soybeans – Iowa and Program States: 2020

Active ingredient	Iowa			Program states ¹		
	Planted acres treated (percent)	Yearly rate (lbs per acre)	Total applied (1,000 lbs)	Planted acres treated (percent)	Yearly rate (lbs per acre)	Total applied (1,000 lbs)
Nitrogen	21	21	40,100	32	17	449,900
Phosphate	31	58	167,000	42	55	1,878,300
Potash	39	86	315,300	44	89	3,150,500
Sulfur	12	14	15,700	13	13	137,800

Pesticide Use on Soybeans – Iowa and Program States: 2020

Active ingredient	Iowa			Program states ¹		
	Planted acres treated (percent)	Yearly rate (lbs per acre)	Total applied (1,000 lbs)	Planted acres treated (percent)	Yearly rate (lbs per acre)	Total applied (1,000 lbs)
Fungicide:						
Azoxystrobin	12	0.095	110	7	0.113	597
Chlorantraniliprole	4	0.070	29	2	0.086	128
Propiconazole	16	0.091	133	7	0.105	582
Total ²	26		427	22		3,550
Herbicide ³:						
2, 4-D, 2-EHE	11	0.599	645	13	0.630	6,349
2, 4-D, choline salt	13	0.825	1,005	10	0.704	5,614
Acetochlor	13	1.106	1,348	9	1.094	8,070
Clethodim	34	0.096	305	17	0.119	1,597
Cloransulam-methyl	12	0.026	29	7	0.026	152
Dicamba, digly. salt	29	0.499	1,340	18	0.560	8,299
Fluazifop-p-butyl	10	0.102	100	4	0.089	307
Fomesafen sodium	18	0.196	324	13	0.258	2,629
Glufosinate-ammonium	16	0.492	753	17	0.545	7,225
Glyphosate	17	1.027	1,643	7	1.112	6,538
Glyphosate iso. salt	30	0.814	2,314	38	1.079	32,569
Glyphosate pot. salt	35	1.119	3,731	40	1.556	50,180
Imazethapyr	24	0.050	111	13	0.053	528
Metolachlor	10	1.291	1,202	5	1.106	4,596
Metribuzin	14	0.249	339	18	0.274	4,049
Pyroxasulfone	24	0.105	234	16	0.132	1,728
S-Metolachlor	19	1.148	2,077	19	1.307	20,098
Saflufenacil	16	0.021	33	10	0.024	191
Sulfentrazone	28	0.210	556	21	0.200	3,362
Total ²	99		20,887	98		191,190
Insecticide:						
Bifenthrin	8	0.050	37	5	0.073	286
Lambda-cyhalothrin	7	0.020	12	8	0.027	180
Total ²	18		104	20		2,639

¹The 19 program states surveyed about soybeans in the 2020 ARMS were Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Pennsylvania, South Dakota, Tennessee, and Wisconsin.

²Total Fungicide, Herbicide, and Insecticide includes pesticides that are not listed in this table.

³ Given the large number of herbicides applied to row crops, active ingredients that were applied to less than 10 percent of planted acres in Iowa are not included in this table but can be found at www.nass.usda.gov.

Scouting for weeds was the top pest management practice on **soybean** acreage.

Pest Management Practices on Soybeans – Iowa and Program States: 2020

	Iowa		Program states	
	% of area planted	% of operations	% of area planted	% of operations
Avoidance				
Crop or plant variety chosen for specific pest resistance	66	66	58	57
Planting locations planned to avoid cross infestation of pests	14	19	22	21
Planting or harvesting dates adjusted	23	26	19	19
Rotated crops during past 3 years	88	91	87	86
Row spacing, plant density, or row directions adjusted	27	31	25	26
Monitoring				
Diagnostic laboratory services used for pest detection via soil or plant tissue analysis	2	2	7	6
Field mapping data used to assist decisions	24	25	25	21
Scouted-				
established process used	20	20	22	19
for pests due to a pest advisory warning	14	10	8	8
for pests due to a pest development model	11	8	9	9
for pests or beneficial organisms-not scouted	3	4	5	7
for pests or beneficial organism by conducting general observations while performing routine tasks	29	33	27	30
for pests or beneficial organism by deliberately going to the crop acres or growing areas	69	64	68	63
Scouted for diseases				
by employee	75	77	81	76
by farm supply company or chemical dealer	0	0	2	1
by independent crop consultant or commercial scout	18	20	13	14
by operator, partner, or family member	10	12	18	16
Scouted for insects & mites				
by employee	72	68	67	69
by farm supply company or chemical dealer	79	81	83	79
by independent crop consultant or commercial scout	0	0	2	1
by operator, partner, or family member	19	19	13	14
Scouted for weeds				
by employee	12	15	18	16
by farm supply company or chemical dealer	69	66	67	69
by independent crop consultant or commercial scout	96	95	94	91
by operator, partner, or family member	0	0	2	1
Weather data used to assist decisions	18	20	12	13
Written or electronic records kept to track pest activity	11	14	16	14
	70	66	70	72
	75	75	76	74
	56	55	52	45
Prevention				
Beneficial insect or vertebrate habitat maintained	19	19	14	14
Crop residues removed or burned down	(Z)	1	15	17
Equipment & implements cleaned after field work to reduce spread of pests	43	46	52	49
Field edges, ditches, or fence lines were chopped, sprayed, mowed, plowed, or burned	68	69	56	51
Field left fallow previous year to manage insects	0	0	1	1
Flamer used to kill weeds	0	0	1	1
No-till or minimum-till used	61	61	69	73
Plowed down crop residue using conventional tillage	23	28	25	23
Seed treated for insect or disease control after purchase	56	56	44	39
Water management practices used	2	3	7	6
Suppression				
Beneficial organisms applied or released	0	0	2	2
Biological pesticides applied	5	5	4	3
Buffer strips or border rows maintained to isolate organic from non-organic crops	14	17	12	12
Floral lures, attractants, repellants, pheromone traps, or biological pest controls used	0	0	(Z)	(Z)
Ground covers, mulches, or other physical barriers maintained	56	57	48	47
Pesticides with different mechanisms of action to keep pest from becoming resistant to pesticides	55	51	53	49
Scouting data compared to published information to assist decisions	33	32	34	30
Trap crop grown to manage insects	0	0	(Z)	(Z)

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(Z) Less than half the rounding unit.