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Pesticide residue on flowering habitat near crops in rural Minnesota

Every plant tested for pesticide residue contained at least 1 pesticide and up to 15 pesticides

Flowering nectar and pollen plants were hand collected from 8 different habitat sites adjacent to crops in rural Minnesota: Potato (3 sites in Big Lake, Hastings during 2019), corn (4 sites in Alexandria during 2017), soy (1 site in North Branch during 2019). Leaves and flowers were analyzed for the presence of pesticide residues.

Number of wild plant samples possessing a given number of pesticide compound residues. Data labels indicate the number of additional samples for which trace amounts of pesticides were detected.



Results: All samples were processed by the USDA AMS Gastonia, NC (2020). Potato samples (n = 30) Soybean samples (n = 6), Corn samples (n = 28). **100% of potato and soy habitat site samples contained pesticides. 40% of corn habitat site samples contained the pesticide atrazine.**

	soybean		potato		corn			
	ppb	trace	ppb	trace	ppb	trace		
Insecticide								
clothianidin*	0	2	7/3, 3, 4, 4, 4, 4, 4 3.7 (<u>+</u> 0.17)	8	0	0	Insecticide Neonic	
coumaphos	0	1	0	0	0	0	Insecticide OP	
lambda cyhalothrin	0	0	0	17	0	0	Insecticide Pyrethroid	
DDE p,p'	0	0	0	9	0	0	Insecticide chlorinated hydrocarbon	
DEET	0	0	2/16, 21 18.5 (<u>+</u> 1.77)	10	0	0	Insecticide	
diflubenzuron	0	0	6/4,4,4,4,4,4 4.0 (<u>+</u> 0)	0	0	0	insecticide growth regulator	
malathion	0	0	11/2040, 2550, 27,	4	0	0	insecticide	

			3000, 34, 37,					
			383, 39, 4130 49 543					
			1166.55					
novaluron	0	6	(<u>+</u> 428.34)	1	0	0	incocticido	
novaluion	0	0	1110, 116, 1190, 1430, 155, 184,	-	0	U	growth regulator	
			1850, 215, 219, 258, 3540, 399, 448, 68, 739, 923, 931 823.61 (<u>+</u> 195.64)					
methidathion	0	2	0	0	0	0	insecticide	
permethrin	0	0	6/1020, 1550, 2310, 2900, 4030, 5850 2943.33 (+659.82)	0	0	0	insecticide	
thiamethoxam*	0	0	3/6, 7, 7 6.67 (<u>+</u> 0.27)	11	0	0	insecticide	
phorate	0	2	0	3	0	0	insecticide OP	
propargite	0	0	0	1	0	0	insecticide/miticide organosulphite	
Insecticide total		13	53	67	0	0		
			H	erbicide				
acetochlor	2/116, 133 124.5 (<u>+</u> 6.01)	4	0	16	0	0	herbicide	
atrazine	4/12, 7, 7, 8 8.5 (<u>+</u> 1.03)	2	23/62, 50, 65, 64, 10, 10, 3, 37, 38, 6, 7, 7, 7, 12, 8, 19, 6, 8, 8, 3, 3, 6, 4, 13, 9, 3, 4 19.04 (<u>+</u> 4.41)	2	11/8, 10, 19, 5, 7, 8, 16, 7, 12, 11, 11 10.36 (<u>+</u> 1.19)	3	herbicide	
carbenzadim	0	0	0	2	0	0	herbicide	
chlorthal- dimethyl	0	1	0	2	0	0	herbicide	
dimethenamid	0	0	0	2	0	0	herbcide	
metribuzin	0	0	6/14, 14, 16, 17, 21, 24 17.67 (<u>+</u> 1.50)	10	0	0	herbicide	
pendimethalin	0	0	4/25, 26, 26, 28 26.25 (<u>+</u> 0.54)	3	0	0	herbicide	
thymol	0	0	0	0	1/83	thymol	0	
Herbicide total	6	7	33	37	12	3		
	Fungicide							
azoxystrobin	0	5	7/13, 13, 14, 14, 16, 3, 8 11.57 (+1.58)	3	0	0	fungicide	

chlorothalonil	6/30, 31, 34, 35, 35, 36 33.5 33.5 (<u>+</u> 0.91)	0	28/108000, 129000, 136, 186, 267, 29, 30, 30, 30, 30, 31, 31, 31, 33, 34, 35, 35, 37, 39, 40, 51700, 54, 54, 58, 67300, 73900, 82, 91200 18658.29 (±7101.51)	0	0	0	fungicide
difenoconazole	0	0	2/99, 119 109 109 (<u>+</u> 7.07)	0	0	0	fungicide
diphenylamine	0	4	1/3 3 (<u>+</u> 0)	17	0	0	fungicide
famoxadone	0	3	16/1180, 1410, 151, 171, 172, 179, 199, 216, 323, 425, 469, 555, 60, 68, 85, 87 359.38 (<u>+</u> 95.81)	6	0	0	fungicide
fluopyram	0	0	10/185, 2, 210, 220, 331, 4, 4, 41, 5, 65 106.7 (+35.83)	5	0	0	fungicide
fluxaproxad	0	0	0	2	0	0	fungicide
mandipropamide	0	0	2/129, 135 132 (<u>+</u> 2.12)	0	0	1	
metalaxyl	0	0	0	2	0	0	fungicide
metconazole	0	0	1/12 12 (<u>+</u> 0)	3	0	0	fungicide
					0	0	
metolachlor	0	5	0	14	0	0	herbicide
propiconazole	0	0	6/11, 8, 15, 13, 11, 15 12.17 (<u>+</u> 1.01)		0	0	fungicide
pyraclostrobin	0	0	6/10, 14, 15, 21, 27, 8 15.83 (<u>+</u> 2.64)	1	0	0	fungicide
pyrimethanil	0	0	6/1150, 925, 512, 524, 37, 76 537 (<u>+</u> 165.80)		0	0	fungicide
trifloxystrobin	0	0	0	4	0	0	fungicide
Fungicide	6	17	85	57	0	1	
total	12	37	171	161			