

Pesticide Detections from Resampling of Private Household Wells

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Overview of Data Presented

Rows in these tables represent samples grouped by well, then sorted in time order. Only wells that were sampled in later rounds than the original round in a county are covered; wells sampled solely in the original round are excluded. The original round results for included wells are provided for context.

Columns represent all analytes detected in any sample over all samples collected in the county. Empty cells mean that the analyte was not tested for in that sample. “<1.0” and similar are non-detects, thus somewhere below the indicated amount.

All units are micrograms per liter. All analyses are by NYSDEC’s pesticide laboratory (currently operated by the Division of Air) except ones with “(ELISA)” in the column heading which is by Cornell.

ELISA is not as quantitative below 0.10 thus detections below this value are considered “trace” level.

Detection limits changed quite a bit over time, as did the chemicals tested for, thus there is not a basis to determine trends for many chemicals. In general the analyte list narrowed over time, evolved to include more environmental degradation products (metabolites), and had a higher resolution (lower minimum detection limits). Thus at face value there is an increase in the number of detections as a proportion of tests. This leaves an incorrect impression of worsening conditions. I.e. we are looking more closely and becoming better at selecting what to test for.

Locations of private wells within a county are not disclosed to DEC by original agreement with the private landowners whose wells were sampled. This is not a “trackdown” investigation, it is a scan to help determine if routine use of certain pesticides, consistent with labels, is causing unexpectedly high concentrations at nearby wells. The anonymous well identifiers are consistent over time, thus changes over time are discernable.

Cortland County

The original sampling was in 2003, and a few wells were resampled one time in 2009. Then we resampled wells four times in 2013.

The only frequently detected analyte was metolachlor ESA, found in all four 2013 samples from all wells except well Y1-17. There was no apparent seasonality in this analyte.

Well ID	Sample Date	Atrazine (ELISA)	Atrazine	Desethyl atrazine	Metolachlor ESA
Y1-01	2003-06-04	0.07			
Y1-01	2009-08-04	0.07	<1.0		
Y1-04	2003-06-04	0.07	<4.76		
Y1-04	2009-08-04	<0.046	<1.0		
Y1-07	2003-06-11	<0.046	<4.76		
Y1-07	2009-08-04	<0.046	<1.0		
Y1-07	2013-07-02	<0.05	<0.1	<0.025	0.29
Y1-07	2013-08-06	0.06	<0.1	<0.025	0.29
Y1-07	2013-09-06	<0.05	<0.1	<0.025	0.38
Y1-07	2013-11-06	<0.05	<0.1	<0.025	0.33
Y1-09	2003-06-19	<0.046	<4.76		
Y1-09	2009-08-04	<0.046	<1.0		
Y1-09	2013-07-02	<0.05	<0.1	<0.025	0.55
Y1-09	2013-08-06	<0.05	<0.1	<0.025	0.61
Y1-09	2013-09-06	<0.05	<0.1	0.03	0.52
Y1-09	2013-11-06	<0.05	<0.1	<0.025	0.39
Y1-14	2003-07-01	0.07	<4.76		
Y1-14	2009-08-19	<0.046	<1.0		
Y1-14	2013-07-02	<0.05	<0.1	<0.025	0.62
Y1-14	2013-08-06	<0.05	<0.1	<0.025	0.76
Y1-14	2013-09-06	<0.05	<0.1	<0.025	0.54
Y1-14	2013-11-06	0.09	<0.1	<0.025	0.75
Y1-17	2003-07-24	0.07	<4.76		
Y1-17	2009-09-03	<0.046	<1.0		
Y1-17	2013-07-02	0.10	<0.1	<0.025	0.10
Y1-17	2013-08-06	<0.05	<0.1	<0.025	<0.1
Y1-17	2013-09-06	<0.05	<0.1	<0.025	<0.1
Y1-17	2013-11-06	<0.05	<0.1	<0.025	<0.1
Y1-25	2003-08-12	<0.046	<4.76		
Y1-25	2009-08-04	<0.046	<1.0		
Y1-39	2003-12-12	<0.046	<4.76		
Y1-39	2009-08-04	<0.046	<1.0		
Y1-39	2013-07-02	<0.05	<0.1	0.07	1.77
Y1-39	2013-08-06	0.06	<0.1	0.09	2.47
Y1-39	2013-09-06	0.07	<0.1	0.09	0.87
Y1-39	2013-11-06	0.11	<0.1	0.07	1.64

Orange County

Orange County wells were sampled in 2007 originally (round three), and resampled five times in 2011-2012. Detections in the original round were solely via ELISA, and all at trace levels. The 2011-2012 samples were also very clean (in pesticide terms) with one of 25 samples having a low level of dicamba, another having a low level of clethodim, and one with low levels of metolachlor ESA and dicamba.

Well ID	Sample Date	Atrazine (ELISA)	Metolachlor (ELISA)	Metolachlor ESA	Diazinon	Diazinon (ELISA)	Dicamba	Clethodim
OC-16	2007-07-17	<0.05	0.08		<0.7	<0.022	<0.44	<1.0
OC-16	2011-11-04	<0.05		<0.1	<0.1		<0.1	<0.2
OC-16	2012-03-29	<0.05		<0.1	<0.1		<0.1	<0.2
OC-16	2012-04-30	<0.05		<0.1	<0.1		<0.1	<0.2
OC-16	2012-05-25			<0.1	<0.1		<0.1	<0.2
OC-16	2012-06-25			<0.1	<0.1		0.13	<0.2

OC-20	2007-06-22	<0.05	0.08		<0.7	<0.022	<0.44	<1.0
OC-20	2011-11-03	<0.05		<0.1	<0.1		<0.1	<0.2
OC-20	2012-03-29	<0.05		<0.1	<0.1		<0.1	<0.2
OC-20	2012-04-30	<0.05		<0.1	<0.1		<0.1	<0.2
OC-20	2012-05-25			<0.1	<0.1		<0.1	0.27
OC-20	2012-06-25			<0.1	<0.1		<0.1	<0.2
OC-30	2007-08-03	0.14	<0.05		<0.7	<0.022	<0.44	<1.0
OC-30	2011-11-03	<0.05		<0.1	<0.1		<0.1	<0.2
OC-30	2012-03-29	<0.05		<0.1	<0.1		<0.1	<0.2
OC-30	2012-04-30	<0.05		<0.1	<0.1		<0.1	<0.2
OC-30	2012-05-25			<0.1	<0.1		<0.1	<0.2
OC-30	2012-06-25			0.20	<0.1		0.14	<0.2
OC-31	2007-07-17	0.27	<0.05		<0.7	<0.022	<0.44	<1.0
OC-31	2011-11-03	<0.05		<0.1	<0.1		<0.1	<0.2
OC-31	2012-03-29	<0.05		<0.1	<0.1		<0.1	<0.2
OC-31	2012-04-30	<0.05		<0.1	<0.1		<0.1	<0.2
OC-31	2012-05-25			<0.1	<0.1		<0.1	<0.2
OC-31	2012-06-25			<0.1	<0.1		<0.1	<0.2
OC-35	2007-08-17	<0.05	<0.05		<0.7	0.07	<0.44	<1.0
OC-35	2011-11-03	<0.05		<0.1	<0.1		<0.1	<0.2
OC-35	2012-03-29	<0.05		<0.1	<0.1		<0.1	<0.2
OC-35	2012-04-30	<0.05		<0.1	<0.1		<0.1	<0.2
OC-35	2012-05-25			<0.1	<0.1		<0.1	<0.2
OC-35	2012-06-25			<0.1	<0.1		<0.1	<0.2

Cayuga County

Cayuga County was sampled originally in 2008-2009, some wells were revisited once in mid 2009, and there were two rounds of seasonal sampling in 2014 and 2016-2017. (One location of the 2016-2017 round, CyC-08P, was a pond receiving tile drainage thus probably reflecting shallow groundwater.) As in Cortland the metolachlor ESA metabolite was the most commonly found analyte and the similar metolachlor OA was also found widely. Atrazine metabolites were present at lower levels in three locations in the 2016-2017 period, and the parent atrazine was present via both ELISA and DEC lab tests for three wells.

Well ID	Sample Date	Atrazine (ELISA)	Atrazine	Des-ethyl atrazine	Desiso-propyl atrazine	Hydroxy atrazine	Metolachlor (ELISA)	Metolachlor ESA	Metolachlor OA	Alachlor (ELISA)	Fome-safen
CyC-08	2008-05-14	<0.05	<1.0				0.08			0.18	
CyC-08	2014-06-05	<0.05	<0.005	<0.1		<0.025	8.02	1.44			
CyC-08	2014-07-24	<0.05	<0.005	<0.1		<0.025	9.31	1.78			
CyC-08	2014-09-12	<0.05	<0.005	<0.1		<0.025	7.66	1.19			
CyC-08	2014-10-17	0.10	<0.005	<0.1		<0.025	5.57	0.98			
CyC-08	2016-07-10		<0.025	0.07	0.06	<0.025	4.81	1.74			<0.1
CyC-08	2017-04-17		<0.025	0.01	<0.1	<0.1	1.70	0.80			<0.1
CyC-08	2017-11-01		<0.025	0.06	<0.1	<0.1	4.58	1.35			<0.1
CyC-08	2017-12-31		<0.025	0.03	<0.1	<0.1	1.75	0.78			<0.1
CyC-08P	2017-04-17		<0.025	0.01	<0.1	<0.1	1.55	0.92			<0.1
CyC-08P	2017-11-01		<0.025	0.01	<0.1	<0.1	0.91	0.81			0.81
CyC-08P	2017-12-31		<0.025	0.02	<0.1	<0.1	1.44	0.56			0.27
CyC-12	2008-06-23	<0.05	<1.0				0.08			0.08	
CyC-12	2009-06-17	<0.05	<1.0				<0.05				
CyC-12	2014-06-05	<0.05	<0.005	<0.1		<0.025		1.63	<0.1		
CyC-12	2014-07-24	<0.05	<0.005	<0.1		<0.025		1.09	<0.1		
CyC-12	2014-09-12	0.11	<0.005	<0.1		0.16		1.50	<0.1		
CyC-12	2014-10-17	<0.05	<0.005	<0.1		0.22		0.59	<0.1		

Well ID	Sample Date	Atrazine (ELISA)	Atrazine	Des-ethyl atrazine	Desisopropyl atrazine	Hydroxy atrazine	Metolachlor (ELISA)	Metolachlor ESA	Metolachlor OA	Alachlor (ELISA)	Fomesafen
CyC-24	2008-09-23	0.21	<1.0				<0.05			<0.05	
CyC-24	2009-06-17	0.11	<1.0				<0.05				
CyC-24	2014-06-05	0.17	0.03	<0.1		<0.025		3.88	0.65		
CyC-24	2014-07-24	0.11	0.06	<0.1		<0.025		2.64	0.34		
CyC-24	2014-09-12	0.11	0.05	<0.1		<0.025		1.67	<0.1		
CyC-24	2014-10-17	0.16	0.05	<0.1		<0.025		1.26	<0.1		
CyC-25	2008-09-23	0.26	<1.0				<0.05			<0.05	
CyC-25	2009-06-17	0.08	<1.0				<0.05				
CyC-25	2014-06-05	0.12	0.01	<0.1		<0.025		0.48	<0.1		
CyC-25	2014-07-24	0.11	0.01	<0.1		<0.025		0.40	<0.1		
CyC-25	2014-09-12	0.19	0.04	<0.1		<0.025		0.51	<0.1		
CyC-25	2014-10-17	0.15	0.02	<0.1		<0.025		0.51	<0.1		
CyC-30	2009-01-05	0.08	<1.0				<0.05			<0.05	
CyC-30	2009-06-17	<0.05	<1.0				<0.05				
CyC-37	2009-01-08	0.08	<1.0				<0.05			<0.05	
CyC-37	2009-06-17	<0.05	<1.0				<0.05				
CyC-37	2014-06-05	0.18	0.01	<0.1		0.06		0.13	<0.1		
CyC-37	2014-07-24	<0.05	0.02	<0.1		0.08		0.61	<0.1		
CyC-37	2014-09-12	0.11	0.03	<0.1		0.13		0.60	<0.1		
CyC-37	2014-10-17	0.11	0.02	<0.1		0.06		0.34	<0.1		
CyC-41	2016-07-10		<0.025	<0.025	<0.025	<0.025		<0.1	<0.1		<0.1
CyC-41	2016-08-30		<0.025	<0.025	<0.025	<0.025		<0.1	<0.1		<0.1
CyC-41	2017-03-30		<0.025	<0.01	<0.1	<0.1		<0.1	<0.1		<0.1
CyC-41	2017-11-01		<0.025	<0.01	<0.1	<0.1		<0.1	<0.1		<0.1
CyC-41	2017-12-14		<0.025	<0.01	<0.1	<0.1		<0.1	<0.1		<0.1
CyC-41A	2016-07-10		<0.025	<0.025	<0.025	<0.025		<0.1	<0.1		<0.1
CyC-41A	2016-08-30		<0.025	<0.025	<0.025	<0.025		<0.1	<0.1		<0.1
CyC-41A	2017-03-30		<0.025	<0.01	<0.1	<0.1		<0.1	<0.1		<0.1
CyC-41A	2017-11-01		<0.025	<0.01	<0.1	<0.1		<0.1	<0.1		<0.1
CyC-41A	2017-12-14		<0.025	<0.01	<0.1	<0.1		<0.1	<0.1		<0.1
CyC-42	2016-07-10		<0.025	<0.025	<0.025	<0.025		0.24	0.21		<0.1
CyC-42	2016-09-11		<0.025	<0.025	<0.025	<0.025		0.67	0.60		<0.1
CyC-42	2017-11-01		<0.025	<0.01	<0.1	<0.1		1.27	0.27		<0.1
CyC-42	2017-12-14		<0.025	<0.01	<0.1	<0.1		1.16	0.31		<0.1

Genesee County

Genesee County wells were sampled originally in 2009, and a few were resampled once in 2012 as part of a project focusing on Karst terrain. Well GC-07 sampled in 2009 had been resampled in 2009, then in 2010 because it had notable metolachlor. Then several wells were sampled four times in 2016-2017. As in Cayuga and Wayne Counties, the most common detections were the herbicides metolachlor and atrazine, and their environmental metabolites.

Well ID	Sample date	Atrazine (ELISA)	Atrazine	Desethyl atrazine	Metolachlor (ELISA)	Metolachlor	Metolachlor ESA	Metolachlor OA	Alachlor (ELISA)
GC-06	2009-06-02	<0.05	<1.0		<0.05	<1.0			
GC-06	2012-05-03	<0.05	<0.1	<0.1		<0.2	0.21	<0.1	
GC-06	2016-10-20		<0.025	<0.01		<0.1	<0.1	<0.1	
GC-06	2016-12-21		<0.025	0.03		<0.1	<0.1	<0.1	
GC-06	2017-02-13		<0.025	0.02		<0.1	0.34	0.19	
GC-06	2017-04-25		<0.025	0.01		<0.1	0.81	0.39	

GC-07	2009-06-02	<0.05	<1.0		2.00	3.70				
GC-07	2009-08-11	0.10	<1.0			2.00				
GC-07	2010-06-23	0.17			3.43					0.09
GC-07	2016-10-20		<0.025	0.03		0.26	0.34	<0.1		
GC-07	2016-12-20		<0.025	0.04		0.33	0.77	0.18		
GC-07	2017-02-15		<0.025	0.07		0.50	1.14	0.52		
GC-07	2017-04-25		<0.025	<0.01		<0.1	3.94	1.36		
GC-08	2009-06-03	<0.05	<1.0		<0.05	<1.0				
GC-08	2016-10-21		<0.025	<0.01		<0.1	<0.1	<0.1		
GC-08	2016-12-21		<0.025	0.06		<0.1	0.58	<0.1		
GC-08	2017-02-15		0.06	0.08		<0.1	<0.1	0.17		
GC-08	2017-04-27		<0.025	0.03		<0.1	0.37	0.18		
GC-14	2009-06-02	<0.05	<1.0		<0.05	<1.0				
GC-14	2012-05-03	<0.05	<0.1	<0.1		<0.2	<0.1	<0.1		
GC-19	2009-06-02	<0.05	<1.0		<0.05	<1.0				
GC-19	2012-05-03	<0.05	<0.1	<0.1		<0.2	<0.1	<0.1		
GC-25	2009-06-02	<0.05	<1.0		<0.05	<1.0				
GC-25	2012-05-03	<0.05	<0.1	<0.1		<0.2	<0.1	<0.1		
GC-27	2009-06-04	<0.05	<1.0		<0.05	<1.0				
GC-27	2012-05-03	<0.05	<0.1	<0.1		<0.2	0.48	<0.1		
GC-38	2009-06-05	<0.05	<1.0		<0.05	<1.0				
GC-38	2016-10-21		<0.025	0.01		<0.1	<0.1	<0.1		
GC-38	2016-12-20		<0.025	0.04		<0.1	<0.1	<0.1		
GC-38	2017-02-14		<0.025	<0.01		<0.1	<0.1	<0.1		
GC-38	2017-04-24		<0.025	<0.01		<0.1	<0.1	<0.1		
GC-66	2009-06-04	<0.05	<1.0		<0.05	<1.0				
GC-66	2012-05-03	<0.05	<0.1	<0.1		<0.2	<0.1	<0.1		

Wayne County

Wayne County wells had been sampled originally in 2009 and a few were resampled seasonally in 2015-2016. The most notable findings were metabolites of Metolachlor in the majority of resampled wells. Besides the usual atrazine and metolachlor findings, there were low level flickers of several pesticide active ingredients not found in our samples from any other county, including Simazine, Carbofuran, MCPP, and 2,4-D. Diazinon was found in Wayne and in one original-round Orange County sample (the latter only via ELISA).

Well ID	Sample date	Atrazine	Desethyl atrazine	Hydrox atrazine	Metolachlor	Metolachlor ESA	Metolachlor OA	Diazinon	2,4-D	Simazine	MCPP	Carbofuran
WAY-13	2009-12-08	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-13	2015-06-19	<0.1	<0.025	<0.025	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-13	2015-09-03	<0.1	<0.025	<0.025	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-13	2015-10-28	<0.1	<0.025	<0.025	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-13	2016-02-02	<0.1	<0.025	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-14B	2010-01-06	<0.1	<0.1	<0.1	<0.2	5.60	5.40	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-14B	2015-06-11	<0.1	<0.025	<0.025	<0.1	2.73	0.47	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-14B	2015-09-30	<0.1	<0.025	<0.025	<0.1	2.79	0.26	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-14B	2015-10-28	<0.1	<0.025	<0.025	0.58	3.09	0.27	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-14B	2016-02-02	0.13	<0.025	<0.025	0.70	3.17	0.58	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-37	2009-12-01	<0.1	<0.1	<0.1	<0.2	0.20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-37	2015-06-19	0.11	<0.025	<0.025	0.12	5.95	4.12	0.17	<0.1	<0.1	<0.1	<0.1
WAY-37	2015-09-30	<0.1	<0.025	<0.025	<0.1	3.93	2.35	<0.1	<0.1	<0.1	<0.1	<0.1
WAY-37	2015-10-28	<0.1	<0.025	<0.025	<0.1	3.77	1.61	<0.1	<0.1	<0.1	<0.1	<0.1

