

APPENDIX A: Summary Statistics

Air Concentrations

Table A.1 Summary statistics for airborne chlorpyrifos concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
NHEXAS-AZ	Indoor	14	50	25.9	44.6	8.13	4.7	<3.2	<3.2	3.37	31.6	165	165
	Outdoor	3	0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
MNCPEs	Personal	61	95	6.05	17.6	1.91	4.2	<0.10	0.93	1.52	4.61	16.9	135
	Indoor	80	93	5.61	10.1	1.71	5.1	<0.10	0.50	1.85	4.40	30.3	49.5
	Outdoor	52	6	0.09	NC	NC	NC	<0.10	<0.10	<0.10	<0.10	0.19	0.91
CTEPP-NC	Indoor	148	100	17.5	39.3	6.45	4.0	0.31	2.26	6.07	17.3	62.2	391
	Outdoor	140	83	1.00	4.02	0.30	3.6	<0.10	0.11	0.28	0.64	3.99	45.9
CTEPP-OH	Indoor	147	98	6.24	13.8	2.26	3.7	<0.10	0.93	1.75	5.82	21.7	98.0
	Outdoor	126	75	0.39	0.75	0.21	2.7	<0.10	0.07	0.20	0.39	1.13	6.50
JAX	Indoor	9	100	30.0	23.3	24.3	1.9	9.81	18.3	20.4	32.4	84.9	84.9
	Outdoor	9	56	3.05	2.35	2.06	2.8	<1.0	<1.0	3.77	4.94	6.62	6.62
CHAMACOS	Indoor	20	100	2.0	1.1	1.8	1.6	0.6	1.5	1.9	2.3	4.4	5.9
	Outdoor	19	84	1.2	1.1	0.8	2.3	<0.3	0.5	0.90	1.5	5.5	5.5
CPPAES (Day 1)	Indoor	10	100	204	247	86.3	5.1	4.55	23.9	150	312	816	816
Test House (Day 1)	Indoor	6	100	431	376	301	2.6	100	115	290	790	1000	1000

NC, not calculated due to low detection frequency

Table A.2 Summary statistics for airborne diazinon concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
NHEXAS –AZ	Indoor	14	64	30.9	61.4	7.22	5.4	<2.0	<2.0	5.59	12.0	220	220
	Outdoor	3	0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
MNCPEs	Personal	48	65	1.88	7.86	0.34	4.5	<0.10	<0.10	0.28	0.82	4.66	54.5
	Indoor	73	66	1.68	5.76	0.35	4.7	<0.10	<0.10	0.27	0.81	8.59	47.1
	Outdoor	52	12	0.29	NC	NC	NC	<0.10	<0.10	<0.10	<0.10	0.22	10.2
CTEPP-NC	Indoor	148	100	36.4	202	2.42	6.0	0.14	0.66	2.03	5.09	63.7	1780
	Outdoor	140	52	0.59	3.70	0.13	3.0	<0.10	<0.10	0.09	0.22	0.98	42.8
CTEPP-OH	Indoor	147	98	11.8	48.0	1.41	5.3	<0.10	0.51	0.97	2.41	56.9	482
	Outdoor	143	74	1.09	6.91	0.19	3.3	<0.10	<0.10	0.15	0.33	1.49	78.9
JAX	Indoor	9	78	7.18	8.45	3.43	4.7	<0.40	3.43	4.64	8.05	28.0	28.0
	Outdoor	9	67	3.45	2.63	1.89	4.2	<0.40	<0.40	3.53	5.78	6.76	6.76
CHAMACOS	Indoor	20	100	5.2	9.8	2.5	2.8	1.0	1.3	1.8	2.8	29	44
	Outdoor	19	100	5.3	6.1	3.3	2.6	1.0	1.4	2.8	5.3	21	21
DIYC	Indoor	16	100	2280	1790	1470	3.0	245	541	1840	4060	4900	4900
PET	Indoor	60	77	127	196	25.8	10.7	<0.85	7.60	45.6	163	562	1040

NC, not calculated due to low detection frequency

Table A.3 Summary statistics for airborne malathion concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
NHEXAS-AZ	Indoor	14	14	NC	NC	NC	NC	<3.0	<3.0	<3.0	<3.0	5.61	5.61
	Outdoor	3	33	NC	NC	NC	NC	<3.0	<3.0	<3.0	6.85	6.85	6.85
MNCPEs	Indoor	88	67	1.53	1.87	0.59	5.3	<0.10	<0.10	1.18	2.11	4.82	13.0
	Outdoor	51	12	NC	NC	NC	NC	<0.10	<0.10	<0.10	<0.10	0.76	1.95
JAX	Indoor	9	0	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
	Outdoor	9	11	NC	NC	NC	<1.4	<1.4	<1.4	<1.4	<1.4	6.57	6.57
CHAMACOS	Indoor	20	15	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	5.6	7.8
	Outdoor	19	37	NC	NC	NC	NC	<0.5	<0.5	<0.5	2.6	17	17

NC, not calculated due to low detection frequency

Table A.4 Summary statistics for airborne *cis*-permethrin concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNCPEs	Personal	64	86	0.78	2.21	0.23	4.1	<0.09	0.09	0.20	0.61	2.07	15.7
	Indoor	89	69	0.53	2.34	0.11	3.8	<0.09	<0.09	0.09	0.18	1.26	20.9
	Outdoor	51	43	NC	NC	NC	NC	<0.04	<0.04	<0.04	0.06	0.15	0.23
CTEPP-NC	Indoor	148	65	1.91	4.83	0.42	5.5	<0.10	<0.10	0.41	1.43	7.79	34.4
	Outdoor	140	19	NC	NC	NC	NC	<0.10	<0.10	<0.10	<0.10	0.47	1.62
CTEPP-OH	Indoor	147	22	NC	NC	NC	NC	<0.40	<0.40	<0.40	<0.40	1.63	6.50
	Outdoor	143	21	NC	NC	NC	NC	<0.40	<0.40	<0.40	<0.40	0.95	1.78
JAX	Indoor	9	44	NC	NC	NC	NC	<1.0	<1.0	<1.0	2.21	92.5	92.5
	Outdoor	9	56	1.55	0.80	1.34	1.8	<1.0	<1.0	2.13	2.22	2.29	2.29
CHAMACOS	Indoor	20	40	NC	NC	NC	NC	<0.6	<0.6	<0.6	0.77	1.2	1.3
	Outdoor	20	32	NC	NC	NC	NC	<0.6	<0.6	<0.6	1.1	1.4	1.4

NC, not calculated due to low detection frequency

Table A.5 Summary statistics for airborne *trans*-permethrin concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNCPEs	Personal	68	63	0.61	1.95	0.11	5.3	<0.09	<0.09	<0.09	0.38	1.72	13.9
	Indoor	96	42	NC	NC	NC	NC	<0.09	<0.09	<0.09	0.09	1.26	18.0
	Outdoor	51	14	NC	NC	NC	NC	<0.09	<0.09	<0.09	<0.09	0.48	8.12
CTEPP-NC	Indoor	148	63	1.72	4.89	0.35	5.3	<0.10	<0.10	0.27	1.16	7.16	40.9
	Outdoor	140	19	NC	NC	NC	NC	<0.10	<0.10	<0.10	<0.10	0.30	1.01
CTEPP-OH	Indoor	147	19	NC	NC	NC	NC	<0.40	<0.40	<0.40	<0.40	1.04	6.84
	Outdoor	143	17	NC	NC	NC	NC	<0.40	<0.40	<0.40	<0.40	0.66	1.32
JAX	Indoor	9	67	17.8	43.7	3.49	5.3	<1.0	<1.0	3.06	6.38	134	134
	Outdoor	9	78	3.51	3.01	2.54	2.4	<1.0	2.08	2.50	4.55	10.2	10.2
CHAMACOS	Indoor	19	16	NC	NC	NC	NC	<0.6	<0.6	<0.6	<0.6	1.8	1.8
	Outdoor	18	0	NC	NC	NC	NC	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6

NC, not calculated due to low detection frequency

Table A.6 Summary statistics for airborne TCPy concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP-NC	Indoor	148	99	4.68	12.47	1.78	3.8	<0.09	0.81	1.77	3.99	14.3	1040
	Outdoor	140	88	0.44	0.91	0.24	2.6	<0.09	0.13	0.22	0.40	1.57	9.06
CTEPP-OH	Indoor	144	100	1.97	4.62	0.84	3.1	0.09	0.43	0.65	1.74	8.60	42.0
	Outdoor	133	88	0.32	0.48	0.22	2.2	<0.09	0.13	0.21	0.36	0.88	4.86

Table A.7 Summary statistics for airborne IMP concentrations (ng/m³) by study.

Study	Location	N	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP-OH	Indoor	147	95	1.52	3.62	0.64	3.1	<0.09	0.35	0.53	1.04	5.68	27.4
	Outdoor	141	86	1.48	5.93	0.36	3.7	<0.09	0.14	0.33	0.77	2.44	49.6

Dust and Soil Concentrations and Loadings

Table A.8 Summary statistics for chlorpyrifos concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNCPEs	Soil	Home	102	3	NC	NC	NC	NC	<10	<10	<10	<10	<10	24.9
CTEPP (NC)	Soil	Home	128	19	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	16.7	1170
		Daycare	13	8	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	0.76	0.76
CTEPP (OH)	Soil	Home	127	39	NC	NC	NC	NC	<0.5	<0.5	<0.5	3.92	13.8	2930
		Daycare	16	38	NC	NC	NC	NC	<0.5	<0.5	<0.5	1.32	6.16	6.16
CCC	Soil	Daycare	117	23	NC	NC	NC	NC	<5	<5	<5	<5	26.8	1150

NC, Not calculated

Table A.9 Summary statistics for chlorpyrifos measured in dust, presented as both loading (ng/cm²) and concentration (ng/g).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Loading (ng/cm ²)	NHEXAS-AZ	Vacuum	Children ≤ 12	13	77	0.34	0.80	0.012	23	<0.002	0.002	0.007	0.086	2.81	2.81
	CTEPP (NC)	Floor Dust	Home	121	100	0.14	0.63	0.140	7.3	0.0001	0.0034	0.0094	0.056	0.42	5.16
			Daycare	19	100	0.21	0.37	0.055	6.4	0.0009	0.014	0.057	0.18	1.32	1.32
	CTEPP (OH)	Floor Dust	Home	120	100	0.106	0.54	0.008	6.9	0.0001	0.002	0.006	0.02	0.35	5.41
			Daycare	23	100	0.19	0.33	0.044	6.8	0.003	0.008	0.045	0.19	0.89	1.34
CHAMACOS	House Dust	All	20	95	0.014	0.030	0.005	4.2	<0.001	0.004	0.005	0.008	0.098	0.12	
Concentration (ng/g)	CTEPP (NC)	Floor Dust	Home	121	100	413	1430	137	3.7	11.5	47.5	135	281	1180	15100
			Daycare	19	100	237	256	132	3.5	12.4	94.2	142	254	921	921
	CTEPP (OH)	Floor Dust	Home	120	100	871	5030	70.4	5.1	3.62	23.1	52.0	149	1410	49600
			Daycare	23	100	272	285	168	2.7	40.6	67.0	174	430	897	1110
	CHAMACOS	House Dust	All	20	95	370	684	128	4.7	<4	78.5	120	242	2180	2840

Table A.10 Summary statistics for diazinon concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNCPEs	Soil	Home	102	4	NC	NC	NC	NC	<10	<10	<10	<10	<10	24.9
CTEPP (NC)	Soil	Home	129	18	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	4.24
		Daycare	13	0	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CTEPP (OH)	Soil	Home	127	34	NC	NC	NC	NC	<0.5	<0.5	<0.5	0.99	4.72	28500
		Daycare	16	19	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	7.07	7.07
CCC	Soil	Daycare	117	20	NC	NC	NC	NC	<2	<2	<2	<2	21.9	110000
PET	Soil	Home	4	100	16900	6140	16000	1.45	10100	12600	16200	21100	24900	2490

NC, Not calculated

Table A.11 Summary statistics for diazinon measured in dust, presented as both loading (ng/cm²) and concentration (ng/g).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Loading (ng/cm ²)	NHEXAS-AZ	Vacuum	Children ≤ 12	13	54	0.035	0.062	0.007	7.1	<0.002	<0.002	0.002	0.035	0.18	0.18
	CTEPP (NC)	Floor Dust	Home	121	96	0.0964	0.638	0.0025	8.8	<0.0003	0.0006	0.0016	0.0106	0.123	5.63
			Daycare	19	100	0.571	2.25	0.0235	11	0.0002	0.0032	0.0177	0.154	9.86	9.86
	CTEPP (OH)	Floor Dust	Home	9120	96	0.094	0.59	0.004	7.5	<0.0003	0.001	0.002	0.01	0.31	6.24
			Daycare	23	100	0.1	0.27	0.02	5.9	0.001	0.004	0.022	0.06	0.39	1.25
	CHAMACOS	House Dust	All	20	100	0.0065	0.018	0.0022	3.2	0.0004	0.0010	0.0021	0.0032	0.048	0.081
PET	Floor Dust	All	17	100	5.72	16.5	0.44	2.4	0.005	0.092	0.35	1.4	68	68	
Concentration (ng/g)	CTEPP (NC)	Floor Dust	Home	121	96	282	1380	24.4	5.1	<2	7.90	17.5	54.4	388	11000
			Daycare	19	100	439	1560	58.6	5.6	3.06	26.0	65.2	138	6880	6880
	CTEPP (OH)	Floor Dust	Home	120	96	1360	8470	34.3	7.2	<2	9.72	19.8	73.2	1710	79900
			Daycare	23	100	260	472	73.7	4.8	5.08	28.4	40.0	210	1610	1630
	CHAMACOS	House Dust	All	20	100	202	562	53.9	3.9	7.75	21.3	58.8	74.4	1470	2550
	PET	Floor Dust	All	17	100	29200	53000	4990	2.1	256	654	312	18500	149000	149000

NC, Not calculated

Table A.12 Summary statistics for *cis*-permethrin concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max	
MNCPES	Soil	Home	102	3	NC	NC	NC	NC	<10	<10	<10	<10	<10	24.9	
CTEPP (NC)	Soil	Home	128	19	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	1170	
		Daycare	13	8	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	0.76	0.76
CTEPP (OH)	Soil	Home	127	39	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	13.8	2930
		Daycare	16	0	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CCC	Soil	Daycare	117	23	NC	NC	NC	NC	<5	<5	<5	<5	<5	26.8	1150

NC, Not calculated

Table A.13 Summary statistics for *cis*-permethrin measured in dust, presented as both loading (ng/cm²) and concentration (ng/g).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Loading (ng/cm ²)	CTEPP (NC)	Floor Dust	Home	121	100	0.975	3.02	0.104	8.8	0.0012	0.026	0.103	0.411	4.94	23.0
			Daycare	20	100	5.44	19.6	0.507	8.3	0.005	0.181	0.694	1.78	46.9	88.3
	CTEPP (OH)	Floor Dust	Home	120	100	0.83	4.32	0.063	7.5	0.002	0.015	0.045	0.25	3.85	45.4
			Daycare	23	100	0.78	1.36	0.26	5.0	0.01	0.07	0.27	0.68	4.82	5.03
CHAMACOS	House Dust	All	20	100	0.030	0.063	0.013	3.4	0.0013	0.0057	0.015	0.021	0.17	0.29	
Concentration (ng/g)	CTEPP (NC)	Floor Dust	Home	121	100	6080	29400	995	4.6	67.1	347	804	1850	21100	311000
			Daycare	20	100	3500	6760	1140	4.3	113	455	806	2230	19700	29000
	CTEPP (OH)	Floor Dust	Home	120	100	2320	8050	572	4.3	16.6	197	470	1550	7630	79600
			Daycare	23	100	1460	1300	968	2.6	127	418	1010	1850	3830	4630
	CHAMACOS	House Dust	All	20	100	923	2010	317	4.2	25.6	113	345	598	5810	9070

Table A.14 Summary statistics for *trans*-permethrin concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Soil	Home	129	22	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	17.9	1610
		Daycare	13	8	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	2.20	2.20
CTEPP (OH)	Soil	Home	124	6	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	2.06	1400
		Daycare	14	0	NC	NC	NC	NC	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CCC	Soil	Daycare	117	16	NC	NC	NC	NC	<5	<5	<5	<5	12.0	136

NC, Not calculated

Table A.15 Summary statistics for *trans*-permethrin measured in dust, presented as both loading (ng/cm²) and concentration (ng/g).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Loading (ng/cm ²)	CTEPP (NC)	Floor Dust	Home	121	100	0.94	2.99	0.09	10	0.0006	0.015	0.09	0.38	4.42	22.6
			Daycare	20	100	5.59	20.2	0.49	8.2	0.005	0.137	0.41	1.38	48.8	91.2
	CTEPP (OH)	Floor Dust	Home	118	100	0.76	4.26	0.05	8.2	0.002	0.010	0.03	0.14	3.86	45.0
			Daycare	22	100	0.73	1.40	0.20	6.0	0.007	0.047	0.26	0.57	4.72	5.17
	CHAMACOS	House Dust	All	20	100	0.06	0.13	0.03	3.4	0.002	0.014	0.02	0.06	0.38	0.58
Concentration (ng/g)	CTEPP (NC)	Floor Dust	Home	121	100	6120	30400	835	5.0	51.3	267	629	1850	19400	322000
			Daycare	20	100	3600	7120	1110	4.5	125	542	856	1830	20900	29900
	CTEPP (OH)	Floor Dust	Home	118	100	2340	8320	453	5.0	16.5	132	344	1270	9210	78800
			Daycare	22	100	1260	1220	784	2.7	126	362	554	1860	3420	3950
	CHAMACOS	House Dust	All	20	100	1860	4030	655	4.0	43.2	310	608	1250	11300	18200

Table A.16 Summary statistics for cyfluthrin concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Soil	Home	129	12	NC	NC	NC	NC	<5	<5	<5	<5	32.1	187
		Daycare	13	8	NC	NC	NC	NC	<5	<5	<5	<5	42.2	42.2
CTEPP (OH)	Soil	Home	127	17	NC	NC	NC	NC	<5	<5	<5	<5	64.2	644
		Daycare	16	25	NC	NC	NC	NC	<5	<5	<5	<5	42.2	42.2
CCC	Soil	Daycare	117	10	NC	NC	NC	NC	<6	<6	<6	<6	8.58	11000

NC, Not calculated

Table A.17 Summary statistics for cyfluthrin measured in dust, presented as both loading (ng/cm²) and concentration (ng/g).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Loading (ng/cm ²)	CTEPP (NC)	Floor Dust	Home	121	48	NC	NC	NC	NC	<0.0003	<0.0003	<0.0003	0.04	0.16	2.14
			Daycare	19	42	NC	NC	NC	NC	<0.0003	<0.0003	<0.0003	0.31	0.78	0.78
	CTEPP (OH)	Floor Dust	Home	119	74	0.056	0.10	0.016	5.6	<0.0003	<0.0003	0.018	0.054	0.25	0.66
			Daycare	23	74	0.37	0.5	0.059	14	<0.0003	<0.0003	0.14	0.74	1.1	1.9
	CHAMACOS	House Dust	All	20	10	NC	NC	NC	NC	<0.005	<0.005	<0.005	<0.005	0.027	0.030
Concentration (ng/g)	CTEPP (NC)	Floor Dust	Home	121	48	NC	NC	NC	NC	<10	<10	<10	248	1660	4100
			Daycare	19	42	NC	NC	NC	NC	<10	<10	<10	329	1750	1750
	CTEPP (OH)	Floor Dust	Home	119	74	329	482	148	3.9	<10	<10	195	384	1280	3040
			Daycare	23	74	389	323	221	3.7	<10	<10	336	648	890	1010
	CHAMACOS	House Dust	All	20	10	NC	NC	NC	NC	<100	<100	<100	<100	828	949

NC, Not calculated

Table A.18 Summary statistics for TCPy concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Soil	Home	129	71	3.61	14.9	0.62	4.22	<0.2	<0.2	0.57	1.25	10.7	111
		Daycare	13	46	NC	NC	NC	NC	<0.2	<0.2	<0.2	0.35	1.70	1.70
CTEPP (OH)	Soil	Home	127	80	3.99	15.3	0.82	4.35	<0.2	0.23	0.70	2.02	8.86	127
		Daycare	16	81	1.15	1.57	0.60	3.17	<0.2	0.22	0.63	1.35	6.30	6.30

NC, Not calculated

Table A.19 Summary statistics for IMP concentrations measured in soil (ng/g).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (OH)	Soil	Home	125	41	NC	NC	NC	NC	<0.2	<0.2	<0.2	0.43	2.07	162
		Daycare	16	38	NC	NC	NC	NC	<0.2	<0.2	<0.2	0.44	1.43	1.43

NC, Not calculated

Total Available Surface Residue Loadings

Table A.20 Summary statistics for chlorpyrifos in Total Available Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
NHEXAS-AZ	Surface Wipe	Window Sill	6	17	NC	NC	NC	NC	<0.07	<0.07	<0.07	<0.07	7.49	7.49
MNCPEs	LWW	Floor	99	62	1.04	0.41	0.83	1.4	<1.15	<1.15	<1.15	1.15	1.51	3.64
CCC	Surface Wipe	Floor	168	64	0.38	2.28	0.027	7.7	<MDL	<MDL	0.02	0.13	0.97	27.58
		Desk/Table	80	73	0.18	0.53	0.036	6.4	<MDL	0.004	0.04	0.13	0.67	4.29
JAX	Surface Wipe	Floor (Screening)	46	87	4.87	20.32	0.44	12.5	<MDL	0.16	0.50	2.71	10.22	138.4
		Floor	9	78	0.85	1.11	0.21	12.0	<MDL	0.16	0.39	0.72	3.12	3.12
		Play Area	9	67	0.32	0.77	0.014	17.0	<MDL	<MDL	0.006	0.04	2.33	2.33
CHAMACOS	Surface Wipe	All	20	95	0.060	0.057	0.037	2.96	<MDL	0.017	0.046	0.079	0.19	0.20
CPPAES	LWW	Living Area/Kitchen (Pre-application)	20	60	0.29	0.38	0.1	4.91	0.02	0.02	0.099	0.57	1.04	1.22
		Living Area/Kitchen	97	100	2.39	4.30	0.95	3.68	0.07	0.43	0.82	1.96	10.85	24.64
		Bedroom (Pre-application)	20	65	0.41	0.48	0.16	5.24	0.02	0.02	0.26	0.61	1.57	1.90
		Bedroom	64	100	1.97	4.84	0.52	4.40	0.031	0.18	0.35	1.42	6.57	23.76
	Deposition Coupons	Cumulative	39	100	2.12	2.66	0.99	4.17	0.03	0.34	1.4	2.19	9.57	9.83
		Interval	40	100	1.24	1.59	0.62	3.96	0.025	0.30	0.89	1.37	5.40	7.61
Test House	Deposition Coupons	Bedroom	5	100	1.89	2.12	1.07	3.81	0.14	0.83	1.26	1.70	5.54	5.54
		Den	28	100	2.23	2.57	1.64	2.07	0.63	0.79	1.68	2.65	3.77	14.4
		Kitchen	24	100	31.6	56.4	11.5	4.16	1.0	5.00	9.12	25.2	179	229
		All	57	100	14.6	39.0	3.58	4.46	0.14	1.26	2.82	8.66	61.0	229
	Surface Wipe	Kitchen	9	100	1548	2793	627	3.71	120	270	470	1370	8880	8880

NC, Not calculated

LWW, Lioy-Weisel-Wainman sampler

Table A.21 Summary statistics for diazinon in Total Available Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
NHEXAS-AZ	Surface Wipe	Window Sill	6	0	NC	NC	NC	NC	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
MNCPEs	LWW	Floor	99	7	NC	NC	NC	NC	<3.5	<3.5	<3.5	<3.5	3.55	7.01
CCC	Surface Wipe	Floor	168	54	0.21	1.44	0.011	9.1	0.001	0.002	0.004	0.06	0.53	18.3
		Desk/Table	80	41	NC	NC	NC	NC	0.001	0.002	0.002	0.02	0.28	2.40
JAX	Surface Wipe	Floor (Screening)	46	89	1.35	5.07	0.11	10.5	<0.002	0.03	0.11	0.52	3.33	32.9
		Floor	9	44	NC	NC	NC	NC	<0.002	<0.002	<0.002	0.34	1.43	1.43
		Play Area	9	33	NC	NC	NC	NC	<0.002	<0.002	<0.002	0.002	3.99	3.99
CHAMACOS	Surface Wipe	All	20	95	0.041	0.033	0.024	3.73	<0.005	0.011	0.038	0.066	0.093	0.096
DIYC	Surface Wipe	Floor (Pre-application)	7	86	7.06	6.87	4.71	2.7	<0.3	2.61	3.85	10.3	20.8	20.8
		Floor	35	100	12.7	20.4	6.35	2.9	0.71	3.93	5.54	7.54	71.6	85.1

NC, Not calculated

LWW, Liroy-Weisel-Wainman sampler

Table A.22 Summary statistics for cis-permethrin in Total Available Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CCC	Surface Wipes	Floor	168	60	0.14	0.36	0.022	6.3	0.002	0.004	0.02	0.08	0.79	2.81
		Surfaces	80	44	1.55	10.5	0.015	8.4	<0.005	<0.005	<0.005	0.06	0.46	89.8
JAX	Surface Wipes	Floor (Screening)	46	87	8.46	15.5	0.93	19.9	<0.005	0.19	2.22	10.0	32.2	75.8
		Floor	9	78	8.56	16.4	0.35	28.3	<0.005	0.13	0.24	1.69	42.4	42.4
		Play Area	9	67	1.57	3.2	0.09	23.3	<0.005	<0.005	0.04	0.89	9.77	9.77
CHAMACOS	Surface Wipe	All	20	85	0.21	0.36	0.1	6.8	<0.005	0.053	0.10	0.21	1.1	1.7

Table A.23 Summary statistics for trans-permethrin in Total Available Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CCC	Surface Wipe	Floor	168	62	0.25	0.71	0.031	8.1	<0.005	<0.005	0.03	0.17	1.17	6.96
		Desk/Table	80	60	3.23	24.7	0.027	9.0	<0.005	<0.005	0.02	0.11	0.92	219
JAX	Surface Wipe	Floor (Screening)	46	89	10.2	19.4	1.18	19.3	<0.005	0.26	2.93	11.7	40.0	94.3
		Floor	9	78	12.9	24.9	0.44	34.1	<0.005	0.12	0.34	3.48	66.6	66.6
		Play Area	9	89	2.06	4.41	0.14	19.8	<0.005	0.02	0.05	1.45	13.6	13.6
CHAMACOS	Surface Wipe	All	20	95	0.43	0.77	0.18	5.1	<0.002	0.14	0.23	0.39	2.3	3.6

Table A.24 Summary statistics for cyfluthrin in Total Available Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CCC	Surface Wipe	Floor	168	7	NC	NC	NC	NC	<0.006	<0.006	<0.006	<0.006	0.4	6.87
		Desk/Table	80	1	NC	NC	NC	NC	<0.006	<0.006	<0.006	<0.006	<0.006	0.80
JAX	Surface Wipe	Floor (Screening)	46	20	NC	NC	NC	NC	<0.006	<0.006	<0.006	<0.006	4.33	13.8
		Floor	9	33	NC	NC	NC	NC	<0.006	<0.006	<0.006	0.04	10.1	10.1
		Play Area	9	11	NC	NC	NC	NC	<0.006	<0.006	<0.006	<0.006	3.45	3.45
CHAMACOS	Surface Wipe	All	20	5	NC	NC	NC	NC	<0.05	<0.05	<0.05	<0.05	<0.05	0.40

NC, Not calculated

Transferable Surface Residue Loadings

Table A.25 Summary statistics for chlorpyrifos in Transferable Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNCPEs	C18 Press	Floor	102	8	NC	NC	NC	NC	<0.33	<0.33	<0.33	<0.33	0.44	63.5
		Surface	102	5	NC	NC	NC	NC	<0.33	<0.33	<0.33	<0.33	<0.33	0.70
CTEPP (NC)	Surface Wipe	Home Floor	28	89	0.02	0.05	0.0063	4.6	<0.0007	0.0031	0.0066	0.012	0.15	0.21
		Kitchen Counter	18	89	0.03	0.04	0.008	5.8	<0.0007	0.003	0.007	0.045	0.14	0.14
	PUF Roller	Home	18	94	0.01	0.023	0.005	4.5	<0.0004	0.0015	0.0035	0.009	0.072	0.072
CTEPP (OH)	Surface Wipe	Home Floor	21	86	0.19	0.84	0.0043	8.8	<0.0007	0.001	0.003	0.013	0.11	3.86
		Kitchen Counter	13	62	0.068	0.21	0.0025	10	<0.0007	<0.0007	0.001	0.006	0.76	0.76
	PUF Roller	Home	13	85	0.25	0.89	0.0026	11	<0.0004	0.001	0.002	0.004	3.22	3.22
CHAMACOS	C18 Press	All	20	0	NC	NC	NC	NC	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
CPPAES	Surface Wipe	Floor	41	100	0.052	0.054	0.026	4.02	0.002	0.014	0.031	0.074	0.163	0.179
Test House	C18 Press	Den/Kitchen	16	94	1.02	2.06	0.26	5.13	<0.03	0.11	0.23	0.52	6.86	6.86
	PUF Roller	Den/Kitchen	6	100	0.030	0.059	0.007	5.97	0.001	0.002	0.0045	0.017	0.15	0.15

NC, Not calculated

Table A.26 Summary statistics for diazinon in Transferable Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNCPEs	C18 Press	Floor	102	8	NC	NC	NC	NC	<0.14	<0.14	<0.14	<0.14	0.55	13.0
		Surface	102	8	NC	NC	NC	NC	<0.14	<0.14	<0.14	<0.14	1.13	2.68
CTEPP (NC)	Surface Wipe	Home Floor	28	68	0.056	0.19	0.002	8.4	<0.0007	<0.0007	0.001	0.003	0.51	0.91
		Kitchen Counter	18	61	0.063	0.21	0.003	8.8	<0.0007	<0.0007	0.002	0.008	0.87	0.87
	PUF Roller	Home	18	67	0.075	0.22	0.004	13	<0.0004	<0.0004	0.003	0.034	0.93	0.93
CTEPP (OH)	Surface Wipe	Home Floor	21	38	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	0.001	0.01	0.05
		Kitchen Counter	13	31	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	0.001	0.21	0.21
	PUF Roller	Home	13	54	0.01	0.03	0.001	1.71	<0.0004	<0.0004	0.001	0.002	0.11	0.11
CHAMACOS	C18 Press	All	20	0	NC	NC	NC	NC	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
DIYC	C18 Press	Floor	9	89	10.9	9.11	6.5	3.5	<1.2	1.24	3.78	11.7	23.9	23.9
		Counter	3	67	NC	NC	NC	NC	<1.2	NC	3.18	NC	NC	9.46
		Play Area	3	33	NC	NC	NC	NC	<1.2	NC	<1.2	NC	NC	3.89

NC, Not calculated

Table A.27 Summary statistics for *cis*-permethrin in Transferable Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Surface Wipe	Home Floor	28	93	0.161	0.263	0.034	8.6	<0.0007	0.0071	0.0443	0.192	0.832	0.874
		Kitchen Counter	18	83	3.05	11.7	0.044	24	<0.0007	0.0062	0.0596	0.361	50.1	50.1
	PUF Roller	Home	18	83	0.164	0.319	0.020	13	<0.0004	0.0038	0.0229	0.139	1.13	1.13
CTEPP (OH)	Surface Wipe	Home Floor	21	71	0.28	1.13	0.011	12	<0.0007	<0.0007	0.009	0.064	0.19	5.2
		Kitchen Counter	13	39	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	0.006	0.78	0.78
	PUF Roller	Home	13	69	0.035	0.08	0.004	9.3	<0.0004	<0.0004	0.004	0.012	0.29	0.29
CHAMACOS	C18 Press	All	20	0	NC	NC	NC	NC	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

NC, Not calculated

Table A.28 Summary statistics for trans-permethrin in Transferable Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Surface Wipe	Home Floor	28	93	0.157	0.268	0.027	9.8	<0.0007	0.005	0.04	0.19	0.83	1.01
		Kitchen Counter	18	83	3.48	13.5	0.041	26	<0.0007	0.006	0.026	0.375	57.4	57.4
	PUF Roller	Home	18	83	0.18	0.34	0.018	14	<0.0004	0.003	0.02	0.17	1.16	1.16
CTEPP (OH)	Surface Wipe	Home Floor	21	71	0.28	1.12	0.011	13	<0.0007	<0.0007	0.01	0.07	0.2	5.18
		Kitchen Counter	13	39	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	0.005	0.79	0.79
	PUF Roller	Home	13	69	0.03	0.08	0.003	8.2	<0.0004	<0.0004	0.003	0.008	0.29	0.29
CHAMACOS	C18 Press	All	20	0	NC	NC	NC	NC	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

NC, Not calculated

Table A.29 Summary statistics for cyfluthrin using in Transferable Residue (ng/cm²).

Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Surface Wipe	Home Floor	28	7	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	<0.0007	0.05	0.13
		Kitchen Counter	18	0	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
	PUF Roller	Home	18	78	0.11	0.10	0.05	5.4	<0.0004	0.02	0.10	0.16	0.41	0.41
CTEPP (OH)	Surface Wipe	Home Floor	21	10	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	<0.0007	0.041	0.078
		Kitchen Counter	13	0	NC	NC	NC	NC	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007
	PUF Roller	Home	13	0	NC	NC	NC	NC	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
CHAMACOS	C18 Press	All	20	0	NC	NC	NC	NC	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2

NC, Not calculated

Solid Food Concentrations and Intakes

Table A.30 Summary statistics for chlorpyrifos measured in solid food, presented as both intake ($\mu\text{g}/\text{day}$) and concentration ($\mu\text{g}/\text{kg}$).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Intake ($\mu\text{g}/\text{day}$)	MNCPEs	Dup Diet	All	96	91	0.42	0.64	0.24	2.9	<0.12	0.14	0.26	0.38	1.6	4.8
	CTEPP-NC	Dup Diet/ Dup Plate	All	129	75	0.20	0.66	0.079	3.3	<0.024	0.029	0.093	0.18	0.64	7.3
	CTEPP-OH	Dup Diet/ Dup Plate	All	125	78	0.13	0.18	0.073	2.7	<0.024	0.035	0.071	0.13	0.40	1.3
	JAX	Dup Diet	All	9	100	1.3	1.6	0.76	3.0	0.12	0.48	1.1	1.2	5.2	5.2
Concentration ($\mu\text{g}/\text{kg}$)	NHEXAS-AZ	Dup Diet	≤ 12 years	20	15	NC	NC	NC	NC	<1.0	<1.0	<1.0	<1.0	5.7	7.2
	MNCPEs	Dup Diet	All	96	88	0.79	1.2	0.51	2.3	<0.26	0.29	0.53	0.81	2.4	7.1
	CTEPP (NC)	Dup Diet/ Dup Plate	Home	129	65	0.57	1.8	0.20	3.4	<0.08	<0.08	0.19	0.39	2.1	20
			Daycare	24	54	0.23	0.25	0.14	2.7	<0.08	<0.08	0.10	0.35	0.85	0.95
	CTEPP (OH)	Dup Diet/ Dup Plate	Home	125	66	0.38	0.61	0.19	3.0	<0.08	<0.08	0.19	0.39	1.6	3.5
			Daycare	29	69	0.20	0.19	0.15	2.3	<0.08	<0.08	0.14	0.24	0.56	0.88
	JAX	Dup Diet	All	9	100	1.3	2.3	0.51	4.2	0.050	0.25	0.38	1.5	7.4	7.4
CHAMACOS	Dup Diet	All	17	6	NC	NC	NC	NC	<1.0	<1.0	<1.0	<1.0	1.4	1.4	

Dup Diet, Duplicate Diet; Dup Plate, Duplicate Plate

NC, Not calculated

Table A.31 Summary statistics for diazinon measured in solid food, presented as both intake ($\mu\text{g}/\text{day}$) and concentration ($\mu\text{g}/\text{kg}$).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Intake ($\mu\text{g}/\text{day}$)	MNC PES	Dup Diet	All	101	20	NC	NC	NC	NC	<0.019	<0.019	<0.019	<0.019	0.12	0.64
	CTEPP-NC	Dup Diet/ Dup Plate	All	128	32	NC	NC	NC	NC	<0.024	<0.024	<0.024	0.040	0.095	1.3
	CTEPP-OH	Dup Diet/ Dup Plate	All	125	23	NC	NC	NC	NC	<0.024	<0.024	<0.024	<0.024	0.073	0.21
	DIYC	Dup Diet	All	16	100	0.42	0.29	0.34	2.0	0.095	0.23	0.30	0.51	1.1	1.1
	JAX	Dup Diet	All	9	11	NC	NC	NC	NC	<0.35	<0.35	<0.35	<0.35	0.67	0.67
Concentration ($\mu\text{g}/\text{kg}$)	NHEXAS-AZ	Dup Diet	≤ 12 years	20	10	NC	NC	NC	NC	<0.7	<0.7	<0.7	<0.7	1.8	1.9
	MNC PES	Dup Diet	All	101	6	NC	NC	NC	NC	<0.2	<0.2	<0.2	<0.2	0.22	2.0
	CTEPP (NC)	Dup Diet/ Dup Plate	Home	128	22	NC	NC	NC	NC	<0.08	<0.08	<0.08	<0.08	0.41	6.7
			Daycare	24	25	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.08	0.17	0.89
	CTEPP (OH)	Dup Diet/ Dup Plate	Home	125	15	NC	NC	NC	NC	<0.08	<0.08	<0.08	<0.08	0.18	0.72
			Daycare	29	24	NC	NC	NC	NC	<0.08	<0.08	<0.08	<0.08	0.20	0.23
	DIYC	Dup Diet	All	16	100	0.29	0.25	0.23	1.9	0.12	0.15	0.17	0.31	1.01	1.01
	JAX	Dup Diet	All	9	44	NC	NC	NC	NC	<0.04	<0.04	<0.04	0.080	1.05	1.05
CHAMACOS	Dup Diet	All	17	12	NC	NC	NC	NC	<1	<1	<1	<1	1.0	1.0	

Dup Diet, Duplicate Diet; Dup Plate, Duplicate Plate

NC, Not calculated

Table A.32 Summary statistics for *cis*-permethrin measured in solid food, presented as both intake ($\mu\text{g}/\text{day}$) and concentration ($\mu\text{g}/\text{kg}$).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Intake ($\mu\text{g}/\text{day}$)	MNCPES	Dup Diet	All	100	30	NC	NC	NC	NC	<0.019	<0.019	<0.019	<0.019	0.92	2.6
	CTEPP-NC	Dup Diet	All	129	50	2.7	14	0.10	7.3	<0.024	<0.024	0.060	0.23	6.8	93
	CTEPP-OH	Dup Diet	All	125	38	NC	NC	NC	NC	<0.024	<0.024	<0.024	0.090	4.8	113
Concentration ($\mu\text{g}/\text{kg}$)	MNCPES	Dup Diet	All	100	20	NC	NC	NC	NC	<0.024	<0.024	<0.024	0.14	1.5	4.9
	CTEPP (NC)	Dup Diet/ Dup Plate	Home	129	46	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.59	16	81
			Daycare	24	25	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.22	5.2	218
	CTEPP (OH)	Dup Diet/ Dup Plate	Home	125	31	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.19	8.8	560
			Daycare	29	24	NC	NC	NC	NC	<0.08	<0.08	<0.08	<0.08	2.2	31
JAX	Dup Diet	All	9	78	1.6	4.2	0.19	7.9	<0.02	0.080	0.29	0.35	13	13	

Dup Diet, Duplicate Diet; Dup Plate, Duplicate Plate
NC, Not calculated

Table A.33 Summary statistics for *trans*-permethrin measured in solid food, presented as both intake ($\mu\text{g}/\text{day}$) and concentration ($\mu\text{g}/\text{kg}$).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Intake ($\mu\text{g}/\text{day}$)	MNCPES	Dup Diet	All	101	13	NC	NC	NC	NC	<0.01	<0.01	<0.01	<0.01	0.15	1.4
	CTEPP-NC	Dup Diet/ Dup Plate	All	128	50	1.5	8.0	0.087	6.1	<0.024	<0.024	0.051	0.19	4.6	65
	CTEPP-OH	Dup Diet/ Dup Plate	All	125	38	NC	NC	NC	NC	<0.024	<0.024	<0.024	0.069	4.2	90
Concentration ($\mu\text{g}/\text{kg}$)	MNCPES	Dup Diet	All	101	7	NC	NC	NC	NC	<0.08	<0.08	<0.08	<0.08	0.33	1.9
	CTEPP (NC)	Dup Diet/ Dup Plate	Home	128	46	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.58	8.7	70
			Daycare	24	25	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.18	3.0	149
	CTEPP (OH)	Dup Diet/ Dup Plate	Home	125	31	NC	NC	NC	NC	<0.08	<0.08	<0.08	0.18	8.0	448
			Daycare	29	24	NC	NC	NC	NC	<0.08	<0.08	<0.08	<0.08	1.4	27
JAX	Dup Diet	All	9	78	2.8	7.3	0.27	9.8	<0.02	0.17	0.22	0.45	22	22	

Dup Diet, Duplicate Diet; Dup Plate, Duplicate Plate
NC, Not calculated

Table A.34 Summary statistics for TCPy measured in solid food, presented as both intake ($\mu\text{g}/\text{day}$) and concentration ($\mu\text{g}/\text{kg}$).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Intake ($\mu\text{g}/\text{day}$)	CTEPP-NC	Dup Diet/ Dup Plate	All	128	99	1.4	0.97	0.99	2.6	<0.038	0.71	1.2	1.8	3.4	5.5
	CTEPP-OH	Dup Diet/ Dup Plate	All	127	100	1.0	0.90	0.70	2.5	0.038	0.41	0.77	1.4	2.3	7.8
Concentration ($\mu\text{g}/\text{kg}$)	CTEPP (NC)	Dup Diet/ Dup Plate	Home	128	98	3.1	2.8	2.1	2.6	<0.12	1.5	2.3	3.8	8.6	18
			Daycare	24	100	3.8	3.3	2.8	2.3	0.25	2.3	2.9	4.5	6.6	18
	CTEPP (OH)	Dup Diet/ Dup Plate	Home	127	99	2.6	2.6	1.7	2.7	<0.13	1.0	1.9	3.3	5.8	23
			Daycare	29	100	2.8	5.0	1.7	2.4	0.38	0.98	1.5	2.5	8.1	27
JAX	Dup Diet	All	9	100	5.0	3.7	4.0	1.9	2.0	2.4	3.2	7.1	12	12	

Dup Diet, Duplicate Diet; Dup Plate, Duplicate Plate
 NC, Not calculated

Table A.35 Summary statistics for IMP measured in solid food, presented as both intake ($\mu\text{g}/\text{day}$) and concentration ($\mu\text{g}/\text{kg}$).

	Study	Method	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
Intake ($\mu\text{g}/\text{day}$)	CTEPP-OH	Dup Diet/ Dup Plate	All	32	97	0.19	0.17	0.14	2.2	<0.024	0.093	0.12	0.20	0.58	0.63
Concentration ($\mu\text{g}/\text{kg}$)	CTEPP (OH)	Dup Diet/ Dup Plate	Home	40	88	0.52	0.54	0.36	2.4	<0.12	0.26	0.33	0.63	1.6	2.7
			Daycare	29	83	0.40	0.29	0.30	2.3	<0.13	0.14	0.35	0.58	0.90	1.2

Dup Diet, Duplicate Diet; Dup Plate, Duplicate Plate
 NC, Not calculated

Hand Loadings

Table A.36 Summary statistics for chlorpyrifos hand loadings (ng/cm²).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
MNC PES	Rinse	97	39	NC	NC	NC	NC	<0.07	<0.07	<0.07	0.094	0.27	3.1
CTEPP (NC)	Home	96	78	0.053	0.11	0.020	3.9	<0.007	0.0082	0.020	0.046	0.28	0.74
	Daycare	31	68	0.023	0.022	0.013	3.4	<0.007	<0.007	0.017	0.036	0.073	0.077
CTEPP (OH)	Home	97	55	0.18	1.5	0.011	4.8	<0.007	<0.007	0.011	0.029	0.17	15
	Daycare	29	55	0.036	0.11	0.010	4.0	<0.007	<0.007	0.010	0.021	0.075	0.58
CPPAES	Rinse	38	100	2.8	3.1	1.6	3.2	0.09	0.74	1.9	3.7	11	18
	Wipe	44	100	0.32	0.29	0.19	3.3	0.016	0.87	0.30	0.42	0.77	1.5

NC, Not calculated

Table A.37 Summary statistics for diazinon hand loadings (ng/cm²).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Home	96	36	NC	NC	NC	NC	<0.005	<0.005	<0.005	0.011	0.084	1.6
	Daycare	31	55	0.015	0.032	0.0069	3.0	<0.005	<0.005	0.0065	0.014	0.051	0.17
CTEPP (OH)	Home	97	31	NC	NC	NC	NC	<0.005	<0.005	<0.005	0.0068	0.075	3.8
	Daycare	29	31	NC	NC	NC	NC	<0.005	<0.005	<0.005	0.0071	0.043	0.093
PET	Feasibility	15	100	0.32	0.29	0.19	3.6	<0.005	<0.005	<0.005	<0.005	0.94	0.94
DIYC	All	13	100	0.12	0.063	0.092	2.3	<0.005	<0.005	<0.005	<0.005	0.21	0.21

NC, Not calculated

Table A.38 Summary statistics for *cis*-permethrin hand loadings (ng/cm²).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Home	96	86	0.92	6.5	0.071	6.7	<0.005	0.026	0.062	0.26	1.5	64
	Daycare	31	94	0.17	0.38	0.067	3.9	<0.005	0.035	0.073	0.15	0.31	2.2
CTEPP (OH)	Home	97	88	0.14	0.30	0.039	4.9	<0.005	0.017	0.033	0.095	0.88	2.1
	Daycare	29	79	0.15	0.29	0.034	6.5	<0.005	0.010	0.035	0.14	0.65	1.4

NC, Not calculated

Table A.39 Summary statistics for *trans*-permethrin hand loadings (ng/cm²).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Home	96	86	0.93	6.8	0.055	6.9	<0.005	0.015	0.049	0.18	1.3	67
	Daycare	31	94	0.14	0.38	0.046	4.0	<0.005	0.020	0.036	0.12	0.26	2.1
CTEPP (OH)	Home	97	88	0.13	0.34	0.032	4.9	<0.005	0.013	0.027	0.072	0.77	2.1
	Daycare	29	79	0.15	0.33	0.030	6.5	<0.005	0.011	0.028	0.087	0.83	1.5

NC, Not calculated

Table A.40 Summary statistics for TCPy hand loadings (ng/cm²).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (NC)	Home	99	100	0.023	0.022	0.018	1.9	0.0041	0.012	0.019	0.026	0.054	0.17
	Daycare	32	94	0.012	0.0076	0.010	2.0	<0.003	0.0066	0.010	0.017	0.029	0.032
CTEPP (OH)	Home	98	98	0.015	0.012	0.012	2.0	<0.003	0.0079	0.012	0.019	0.033	0.067
	Daycare	29	90	0.012	0.0075	0.010	1.9	<0.003	0.0062	0.011	0.015	0.030	0.036

NC, Not calculated

Table A.41 Summary statistics for IMP hand loadings (ng/cm²).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP (OH)	Home	98	49	NC	NC	NC	NC	<0.003	<0.003	<0.003	0.0040	0.017	0.064
	Daycare	29	31	NC	NC	NC	NC	<0.003	<0.003	<0.003	0.0031	0.017	0.043

NC, Not calculated

Urinary Metabolite Concentrations

Table A.42 Summary statistics for TCPy measured in urine (ng/mL).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
NHEXAS-AZ	≤12 years	21	100	12	7.6	9.3	2.2	2.0	5.7	12	14	26	30
MNCPEs	All	263	92	9.2	7.7	6.6	2.3	<1.4	4.0	7.2	12	23	45
CTEPP-NC	All	129	98	7.5	10	5.5	2.1	<1.0	3.8	5.3	8.4	16	100
CTEPP-OH	All	123	100	5.9	3.5	4.9	1.9	1.2	3.1	5.2	7.8	12	15
JAX	All	9	100	11	6.4	9.1	2.1	2.9	7.5	9.8	15	21	21
CPPAES	All	81	93	8.0	4.7	6.4	2.1	<1.0	4.5	7.7	11	18	20
NHANES	≤12 years	1245	90	4.7	6.1	2.6	3.2	<0.4	1.3	2.8	6.0	15	64

Table A.43 Summary statistics for 3-PBA measured in urine (ng/mL).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
CTEPP-OH	All	126	68	0.81	3.0	0.38	2.6	<0.20	<0.20	0.32	0.69	1.9	34
JAX	All	9	100	19.6	33	3.9	7.5	0.39	0.76	2.2	29	99	99
NHANES	≤12 years	679	79	1.4	10	0.36	3.7	<0.10	0.13	0.34	0.78	3.8	254

Table A.44 Summary statistics for IMP measured in urine (ng/mL).

Study	Group	n	%Det	Mean	SD	GM	GSD	Min	25th	50th	75th	95th	Max
PET	All	30	77	1.3	1.6	0.75	2.8	<0.22	0.39	0.62	1.5	5.5	6.2
DIYC	All	41	100	9.0	6.9	7.1	2.0	1.7	4.4	7.1	10	27	29
NHANES	≤12 years	1220	15	NC	NC	NC	NC	<0.7	<0.7	<0.7	<0.7	3.0	145

NC, Not calculated

APPENDIX B: Individual Study Details

National Human Exposure Assessment Survey in Arizona (NHEXAS-AZ)

Collaborators: University of Arizona, Battelle Memorial Institute, and the Illinois Institute of Technology

Study Design:

- Type: Observational exposure measurement study with probability-based sample
- Location: Each of the 15 counties in Arizona
- Monitoring period: December 1995 to March 1997
- Study population: 176 households (this report only includes data from 21 households in which the primary participants were children, ages 6-12)
- Pesticide Use: Participants did not report use prior to the study

Monitoring Protocol:

- Indoor and Outdoor air: 3-day integrated samples; Personal air: 1-day sample
- Surface Dust Loading: Modified Hoover “Port-a-Power” vacuum, center and corner of living room and bedroom; Window sill wipes
- Soil: Yard surface soil composite sample
- Beverages and solid food: 24-hour duplicate diet
- Hand wipes: 4-mL IPA wipes of both hands
- Urine: First morning void samples
- Activities: Baseline and follow-up questionnaires, time-activity diary
- Analytes (Pesticides):
 - Two pesticides of primary interest (and metabolites), namely chlorpyrifos (TCPy) and diazinon, and 14 secondary pesticides, including malathion (MDA) and carbaryl (1-naphthol)

Key Outputs:

- Occurrence, distributions, and determinants of total exposure to the general population
- Geographic trends in multimedia exposure
- Total exposures in minority and disadvantaged subsets of the population

Minnesota Children's Pesticide Exposure Study (MNCPEs)

Collaborators: RTI, EOHSI, University of Minnesota, and Minnesota Department of Health

Study Design:

- Type: Observational exposure measurement study with probability-based sample
- Location: Minneapolis/St. Paul (urban) and Goodhue and Rice counties (rural)
- Monitoring period: Summer 1997
- Study population: 102 children, ages 3-13
- Pesticide Use: Households reporting a history of more frequent pesticide use were oversampled

Monitoring Protocol:

- Environmental samples:
 - Personal, indoor, and outdoor air: Integrated samples, days 1-7 (outdoor air for only 10% of urban homes)
 - Surface dust loading: Wipe and press, 2 indoor locations (main play area and family room), day 4
 - Soil: Surface soil grab sample, day 4
 - Beverages and solid food: Duplicate diet, 4-d composite, days 3-6
 - Tap water: Grab sample (10% urban homes), day 4
- Biological/Personal samples:
 - Hand rinse, day 3
 - Urine: First morning void samples (88%) 3 samples per child, days 3, 5, and 7
- Activities:
 - Baseline and follow-up questionnaires, time-activity diary
 - Videotape (4-h, about 20 homes)
- Analytes (Pesticides and PAHs):
 - Pesticides: 4 Primary pesticides and metabolites, namely chlorpyrifos (TCPy), atrazine (atrazine mercapturate), malathion (malathion dicarboxylic acid), and diazinon, and 14 secondary pesticides
 - PAHs: 13 PAHs including fluoranthene, phenanthrene, and pyrene

Key Outputs:

- An "inverse" PK model to predict chlorpyrifos dose resulting both from specific pesticide applications and from average low-level exposures
- Distributions and correlations in environmental and biological media (Adgate *et al.*, 2001; Clayton *et al.*, 2003)
- Evaluation of pathways of exposure

Children's Total Exposure to Persistent Pesticides and Other Persistent Organic Pollutants Study (CTEPP)

Collaborators: Battelle

Study Design:

- Type: Observational exposure measurement study with probability-based sample in homes and child care centers
- Location: North Carolina (NC) and Ohio (OH)
- Monitoring period: NC (July 2000 to March 2001); OH (April 2001 to November 2001)
- Study population: 257 children, ages 18 months to five years, and their primary adult caregivers (NC = 130 children, 130 homes, 13 daycare centers; OH = 127 children; 127 homes, 16 daycare centers)
- Pesticide use: Use during previous seven days were reported by a subset (n=38) of families in their homes

Monitoring Protocol:

- Sampling times: Samples collected over a 48-hr period at a home and/or daycare center:
- Samples/data collected: Soil, outdoor air, indoor air, indoor floor dust, hand wipe, liquid food, solid food, urine
- Supplemental information:
 - Recruitment survey, house/building characteristics survey, pre- and post monitoring questionnaires, activity and food diaries
 - In addition, 20% of the participants from OH were videotaped about 2 hours at their homes
 - Additional samples were collected if a pesticide was reported by the participant as having been applied indoors or outdoors at a home or daycare center within 7 days of previously scheduled field sampling or during the 48-hr monitoring period (hard floor surface wipe, food preparation surface wipe, and transferable residue)
- Analytes of interest: Chlorpyrifos, diazinon, and *cis-/trans*-permethrin

Key Outputs:

- Pesticide distributions in microenvironments where children spend time
- Transfer of pesticides from microenvironmental media to child and factors that affect transfer
- Evaluation of pathways of exposure
- Evaluation of important factors that affect exposure

First National Environmental Health Survey of Child Care Centers (CCC)

Collaborators: HUD, CPSC (US Department of Housing and Urban Development, US Consumer Product Safety Commission)

Study Design:

- Type: Observational study with probability-based sample of licensed child care centers
- Location: Nationwide
- Monitoring period: August 2001 to October 2001
- Study population: 168 child care centers; no children or adults participated in the study
- Pesticide use: Child care center directors reported on the professional or center staff applications during the previous 12 months

Monitoring Protocol:

- One time visit by field technicians to each child care center
- Samples collected: Soil, surface wipes, transferable residues (surface press)
- Analytes: Current-use pesticides – organophosphates and pyrethroids

Key Outputs:

- Data relating to pesticide use practices in child care centers across the US
- Characterization of spatial distribution and magnitude of pesticide concentrations on surfaces in a sample of U.S. child care centers

Biological and Environmental Monitoring for Organophosphate and Pyrethroid Pesticide Exposures in Children Living in Jacksonville, Florida (JAX)

Collaborators: CDC (Centers for Disease Control and Prevention), DCHD (Duval County Health Department)

Study Design:

- Type: Observational pilot exposure measurement study
- Location: Jacksonville, Florida (Duval County)
- Monitoring period: August to October 2001
- Study population: Nine children 4-6 years of age
- Pesticide use: Participants report recent pesticide use in the residences

Monitoring Protocol:

- Sampling times: One-time sample collection with 24-hour air samples
- Samples collected:
 - Surface wipe
 - Indoor/outdoor air
 - Duplicate diet
 - Transferable residues
 - Cotton garments
 - Urine
- Questionnaires:
 - Pesticide screening inventory
 - Time activity diary
- Analytes: OP, pyrethroid pesticides, metabolites in urine

Key Outputs:

- The CDC component of the study determined the distribution of urinary metabolite levels of organophosphate and pyrethroid pesticides in a group of 4-6 year old children living in the greater Jacksonville, Florida area
- The DCHD component of the study evaluated the use of screening wipes and pesticide inventories to identify homes with potentially elevated pesticide levels and to identify potential household sources for pesticides
- The EPA nine-home study was performed to evaluate methods for aggregate exposure measurements, to determine whether environmental measures of pesticide exposure are correlated with biological samples for a sub-sample of homes using pesticide inventories and screening measurements, to evaluate if information collected from pesticide screening inventories about pesticides used in the home correlates with environmental measures found in the same homes, and to evaluate pathways of exposure and the important factors that affect exposure

Center for the Health Assessment of Mothers and Children of Salinas Quantitative Exposure Assessment Study (CHAMACOS)

Collaborator: University of California at Berkeley

Study Design:

- Type: Observational pilot exposure measurement study
- Location: Salinas, California
- Monitoring period: June 2002 to October 2002
- Study population: Twenty children ages 5 to 35 months old, 10 female, 10 male
- Pesticide use: Incidental for farmworker children

Monitoring Protocol:

- Sampling times: 24-hour monitoring
- Samples collected:
 - Indoor and outdoor air
 - House dust
 - Transferable residues from floors (surface wipes and press samples)
 - Transferable residues from toys (surface wipes)
 - Cotton union suits and socks
 - Urine
- Activities
 - Videotaping
 - Time-activity diary
- Analytes: acephate, azinphos methyl, bifenthrin, chlorpyrifos, chlorpyrifos oxon, *cis*-allethrin, *trans*-allethrin, *cis*-permethrin, *trans*-permethrin, cyfluthrin (I, II, III, IV), cypermethrin (I, II, III, IV), dacthal, deltamethrin (I, II), diazinon, dimethoate, esfenvalerate, fonofos, iprodione, *lambda*-cyhalothrin, malathion, methidathion, naled, p,p'-DDE, p,p'-DDT, phosmet, resmethrin, sumithrin, tetramethrin (I, II), vincloziline

Key Outputs:

- Evaluation of methods for aggregate exposure measurements
- Pesticide distributions in microenvironments where children spend time
- Transfer of pesticides from microenvironmental media to child and factors that affect transfer
- Evaluation of pathways of exposure and important factors that affect exposure

Children's Pesticide Post-Application Exposure Study (CPPAES)

Collaborator: EOHSI (Environmental and Occupational Health Sciences Institute)

Study Design:

- Type: Observational pilot exposure measurement study
- Location: Urban New Jersey
- Monitoring period: April 1999 to March 2001
- Study population: 10 homes; children 2-5 years of age
- Pesticide use: Crack and crevice application of chlorpyrifos was applied by a professional applicator in these homes

Monitoring Protocol:

- Sampling times: 1 day prior to application, 1, 2, 3, 5, 7, 9, and 11 days after application
- Samples collected:
 - All sampling days: indoor air, deposition coupons, surface samples (LWW), toys, hand wipes, urine, air exchange rate, time activity diary
 - Additional day 2 samples - surface wipes, hand wipes, dermal wipes, cotton garments, videotaping
- Analyte: Chlorpyrifos, TCPy in urine

Key Output:

- Pesticides distributions in microenvironments where children spend time
- Transfer of pesticide from microenvironmental media to child and factors that affect transfer
- Evaluation of pathways of exposure
- Evaluation of important factors that affect exposure

The Distribution of Chlorpyrifos Following a Crack and Crevice Type Application in the US EPA Indoor Air Quality Research Test House (Test House)

Collaborator: National Risk Management Research Laboratory

Study Design:

- Type: Field laboratory (Indoor Air Quality Research Test House)
- Location: Cary, NC
- Monitoring period: 3 weeks during November 2000
- Study population: Single residential house; no occupants in the test house
- Pesticide use: Chlorpyrifos, EC formulation, crack and crevice application in kitchen area (floor and cabinetry)

Monitoring Protocol:

- Sampling intervals: Pre, 1, 3, 7, 14 and 21 days post application
- Sample types:
 - Application formulation concentration
 - Air (kitchen, den and master bedroom)
 - PUF-skin roller (den and kitchen)
 - Carpet sections (den and master bedroom)
 - 10-min C18 surface press (den carpet and kitchen vinyl floor), wipes (kitchen floor and counter)
- Analyte: Chlorpyrifos

Key Outputs:

- Translocation and exposure pathways
- Inputs to algorithms and SHEDS
- Temporal and spatial variability over sampling period

A Pilot Study Examining Translocation Pathways Following a Granular Application of Diazinon to Residential Lawns (PET)

Collaborators: None

Study Design:

- Preceded by a 1-home feasibility study
- Type: Observational pilot exposure measurement study residential homes
- Location: 50 mile radius of Durham, NC
- Monitoring period: Ten days in Spring 2001
- Study population: 6 homes, 1 child and care giver (typically mother)
- Pesticide use: Homeowner applied diazinon, granular formulation, residential lawns (turf)

Monitoring Protocol:

- Sampling intervals: Pre, 1, 2, 4 and 8 days post application
- Sample types:
 - Application formulation concentration
 - Air (living room and child's bedroom)
 - PUF roller (lawn and indoor floor)
 - Soil
 - Entryway doormat
 - HVS3
 - Cotton gloves (technician and child)
 - Urine (adult and child)
 - Dog fur clippings
 - Dog paw wipes
 - Dog blood
 - Videography (15-min)

Key Outputs:

- Methods evaluation
- Translocation and exposure pathways
- Decay rates over sampling period
- Inputs to algorithms and SHEDS

Dietary Intake of Young Children (DIYC)

Collaborator: RTI

Study Design:

- Type: Observational pilot exposure measurement study
- Location: Raleigh, NC area
- Monitoring period: November 1999 to January 2000
- Study population: 3 homes; children 1-3 years old
- Pesticide use: Diazinon applications reported by homeowner - commercial crack and crevice (2 homes) or applied by resident (1 home)

Monitoring Protocol:

- Sampling times: Pre-application to 8 days post-application (7 visits total)
- Samples collected:
 - Indoor and outdoor air
 - Surface wipes (isopropanol)
 - Entry wipe
 - PUF roller
 - Surface press
 - Hand wipes
 - Food press
 - Food samples
 - Urine
- Analyte: Diazinon

Key Outputs:

- Evaluation of methods to measure excess dietary exposures that occur from activities by young children during eating
- Children's dietary intake model accurately represents total dietary exposures of children
- Model predictions are closest to measured results with the highest measured environmental diazinon concentrations
- Refinements for transfer and activity parameters within model are needed
- Categories of transfers and activities for highly exposed vs. less exposed are needed

Characterizing Pesticide Residue Transfer Efficiencies (Transfer)

Collaborator: Battelle

Study Design:

- Type: Controlled laboratory study
- Objective: Evaluate parameters that affect residue transfer from surface-to-skin, skin-to-other objects, skin-to-mouth, and object-to-mouth
- Monitoring period: not applicable
- Study population: not applicable
- Pesticide use: Nontoxic fluorescent tracers used as surrogates for pesticides

Monitoring Protocol:

- Conduct study using nontoxic fluorescent tracers as a surrogate for pesticide residues
- Apply fluorescent tracer as a residue at levels typical of residential pesticide applications to surfaces of interest
- Conduct controlled transfer experiments varying parameters in a systematic fashion
- Hand Contact Trials
 - Systematically varied six parameters
 - Repetitive contacts with contaminated surface
- Transfer off skin
 - Hand to clean surface
 - Hand to washing solution
 - Hand to mouth
- Mouthing Trials
 - Varied 5 parameters
 - Simulated mouthing using saliva moistened PUF
 - Measured mass of tracer transferred and estimated contact surface area using video imaging techniques
- Conduct laboratory evaluations to relate transfer of tracer to transfer of pesticides

Key Outputs:

- Transfer efficiency data
- Information on type of microactivity data needed to estimate dermal exposure
- Inputs for multipathway exposure models

Feasibility of Macroactivity Approach to Assess Dermal Exposure (Daycare)

Collaborator: RTI

Study Design:

- Type: Observational pilot exposure measurement study
- Location: North Carolina
- Monitoring period: Three occasions, twice per occasion
- Study population: Infants and toddlers at daycare centers
- Pesticide use: Professional crack and crevice applications as contracted by the daycare center

Monitoring Protocol:

- Identify up to 9 daycare centers with previously established contracts for routine monthly pesticide applications
- In each daycare, conduct screening sampling to evaluate the distribution of transferable pesticide residue on floor surfaces in the area where children spend the most time
- Select one daycare for intensive measurements
- Children from different age groups volunteered to wear full-body cotton bodysuits for short time periods
- Conduct surface sampling and videotaping of activities simultaneously with dermal loading sampling
- Calculate dermal transfer coefficients

Key Outputs:

- Pesticide distributions in nine daycare centers
- Verified protocol for collecting aggregate surface measurement
- Verified protocol for collecting transfer coefficients
- Dermal transfer coefficients developed with children (to evaluate default assumptions used in OPP's SOPs)

Food Transfer Studies, also known as Press Evaluation Studies (Food)

Collaborator: RTI

Study Design:

- Type: Controlled laboratory study
- Location: NERL Cincinnati
- Study period: Not applicable
- Study population: Not applicable
- Pesticide use: Organophosphate, pyrethroid, and pyrazole insecticides on various household surfaces

Monitoring Protocol:

- Surfaces:
 - Surface Treatment: A customized spray chamber was used to spray Pesticide Spray Solution (PSS) onto the ceramic tiles
 - Surface Drying: Following spraying, each ceramic tile was transferred to a glove box where it was air dried for an hour at constant temperature and humidity
 - Surface Wipes: Pesticide transfer to foods were compared to the pesticides removed using surface wipes (isopropanol moistened gauze pads), which were wiped across the ceramic tile in both the horizontal and vertical direction
- Food Items:
 - Moisture Content: Moisture (%) content measured with a Denver Instrument IR-30 moisture meter
 - Fat Content: Fat (%) content determined from each food's Nutrition Facts label; $\% \text{ fat} = [\text{total fat (g)} / \text{food serving size (g)}] * 100$
 - Food Items: Pesticide transfer efficiencies were measured for three different foods, with standardized surface contact area; the foods were Fruit Roll-Ups Blastin' Berry Hot Colors® (Betty Crocker®), thinly sliced bologna (made with chicken & pork), and Red Delicious apple slices
- Transfer Efficiency (TE): TE is defined as the amount of pesticide recovered from the food item divided by the pesticide concentration or loading level
- Analytes: Malathion, Chlorpyrifos, Fipronil, Permethrin, Cyfluthrin, Cypermethrin, Deltamethrin

Key Outputs:

- Determine the extent of pesticide transfer from household surfaces to foods
- Evaluate factors that have been identified as important, including surface type, duration of contact, surface loading, and contact pressure (applied force or weight per area)
- Compared surface wipes using cotton gauze pads with the pesticide transfer to the foods



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