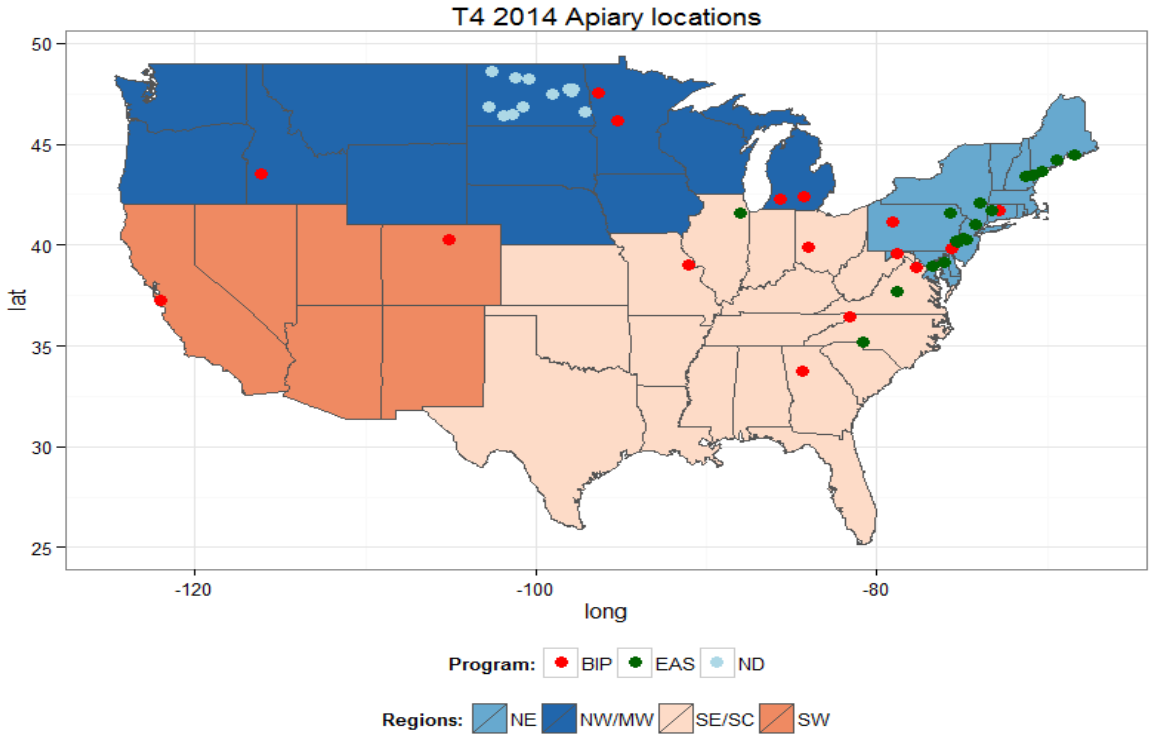
Bee Informed Partnership Tier 4: Real Time Disease Load Monitoring Report
Final Report 2014

Participant Demographics

Beekeepers		Program			
		BIP	ND	EAS	TOTAL
Backyard	*(less than 50 colonies)*	11	0	16	27
Sideline	*(50-500 colonies)*	5	0	2	7
Commercial	*(500 or more colonies)*	1	12	0	13
	TOTAL	17	12	18	47

Colonies		Program			
		BIP	ND	EAS	TOTAL
Backyard	*(less than 50 colonies)*	88	0	64	152
Sideline	*(50-500 colonies)*	40	0	8	48
Commercial	*(500 or more colonies)*	8	96	0	104
	TOTAL	136	96	72	304



* We grouped the beekeepers into four regional areas so that you could compare your results based on region.

Samples Received

	April	May	June	July	August	September	October	November	TOTAL
# Beekeeper sampling	7	34	44	46	44	37	27	6	**47**
% Beekeeper sampling	14.9%	72.3%	93.6%	97.9%	93.6%	78.7%	57.4%	12.8%	
# Colonies sampled	44	212	279	296	277	224	162	44	**1538**
% Colonies sampled	14.5%	69.7%	91.8%	97.4%	91.1%	73.7%	53.3%	14.5%	

	April	May	June	July	August	September	October	November
BIP	4	13	16	17	17	11	8	3
EAS	3	15	18	17	17	16	11	1
ND	0	6	10	12	10	10	8	2

	April	May	June	July	August	September	October	November
BIP	32	104	127	135	134	86	63	24
EAS	12	60	72	65	63	58	39	4
ND	0	48	80	96	80	80	60	16

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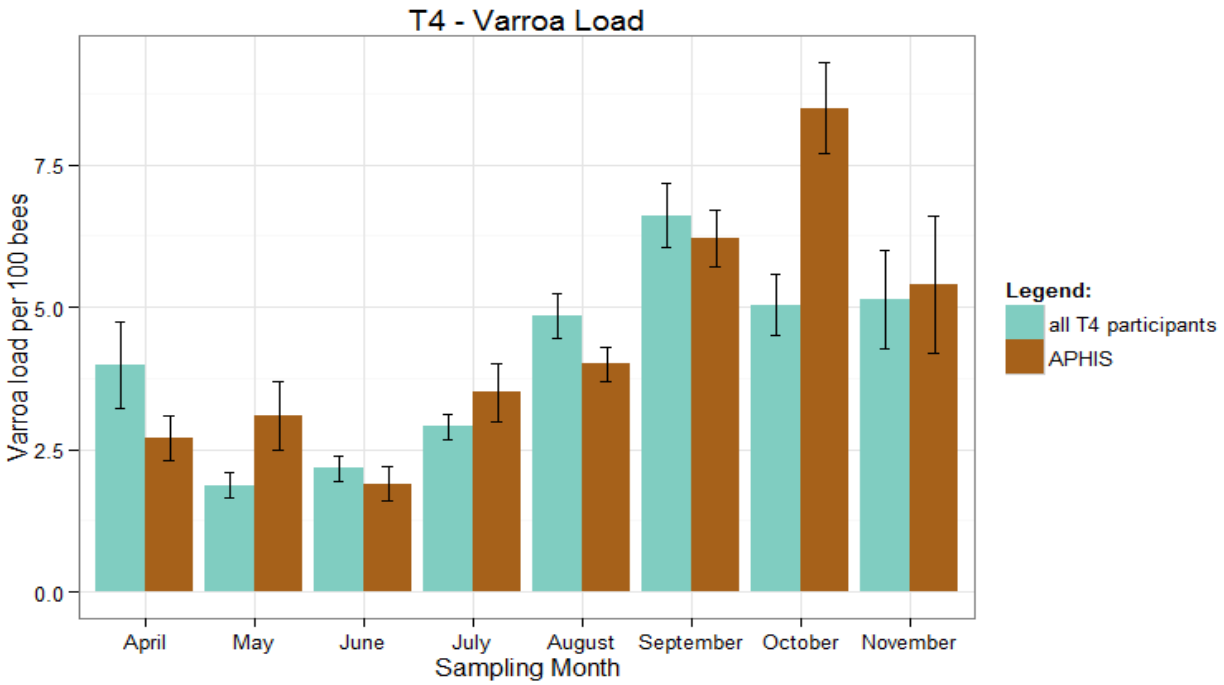
For all T4 Participants

Varroa mites (number of mites per 100 bees)

	April	May	June	July	August	September	October	November
All participants	3.99 (± 0.77)	1.88 (± 0.22)	2.17 (± 0.23)	2.9 (± 0.23)	4.86 (± 0.39)	6.61 (± 0.56)	5.04 (± 0.53)	5.14 (± 0.86)
BIP	4.06 (± 1.03)	2.24 (± 0.36)	2.94 (± 0.4)	3.51 (± 0.33)	5.45 (± 0.65)	5.85 (± 0.82)	7 (± 0.97)	6.45 (± 1.04)
EAS	3.78 (± 0.66)	2.51 (± 0.38)	2.75 (± 0.46)	3.27 (± 0.53)	2.97 (± 0.56)	4.85 (± 0.77)	5.95 (± 0.89)	14.29 (± 2.81)
ND		0.29 (± 0.08)	0.44 (± 0.09)	1.81 (± 0.35)	5.35 (± 0.67)	8.7 (± 1.15)	2.38 (± 0.74)	0.88 (± 0.47)

average of mites per 100 bees (± 1 standard error)



* APHIS Honey Bee Disease Survey is a national effort sponsored by USDA Animal and Plant Health Inspection Service (APHIS) in collaboration with the Agricultural Research Service (ARS) and University of Maryland (UMD). To date, the data provided for the APHIS monthly average are a composite of 5 years of data.

Data presented: average ± 1 standard error

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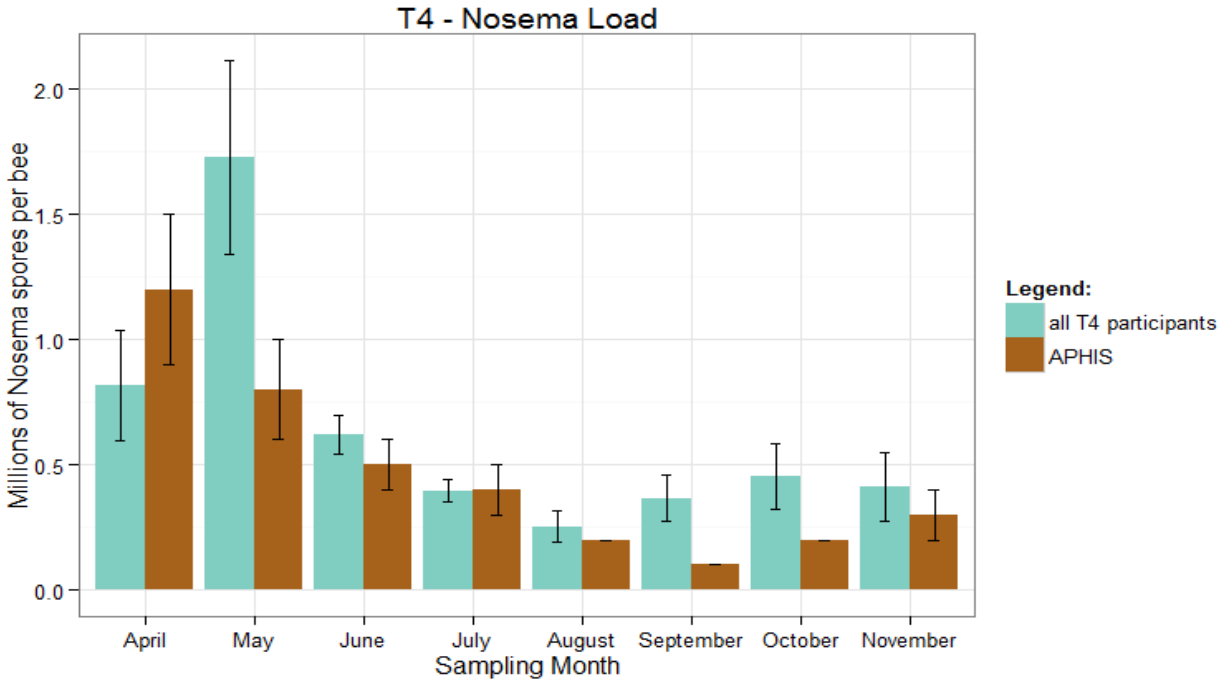
For all T4 Participants

Nosema spores (million of spores per bee)

	April	May	June	July	August	September	October	November
All participants	0.82 (± 0.22)	1.73 (± 0.39)	0.62 (± 0.08)	0.4 (± 0.05)	0.25 (± 0.06)	0.37 (± 0.09)	0.45 (± 0.13)	0.41 (± 0.14)
BIP	0.96 (± 0.27)	2.82 (± 0.77)	0.58 (± 0.11)	0.21 (± 0.06)	0.15 (± 0.05)	0.28 (± 0.13)	0.14 (± 0.05)	0.14 (± 0.06)
EAS	0.43 (± 0.32)	0.7 (± 0.12)	0.27 (± 0.06)	0.16 (± 0.09)	0.15 (± 0.04)	0.61 (± 0.3)	0.5 (± 0.27)	1.92 (± 1.13)
ND		0.65 (± 0.13)	1 (± 0.18)	0.83 (± 0.09)	0.51 (± 0.2)	0.29 (± 0.07)	0.75 (± 0.3)	0.44 (± 0.18)

average of million spores per bee (± 1 standard error)



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Data presented: average ± 1 standard error

For all T4 Participants

Varroa mites (number of mites per 100 bees)

Beekeeper	Region	Operation	April		May		June		July		August		September		October		November	
			Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error
AAAD	NE	Backyard	4.17	1.46	2.17	0.66	-	-	8.28	1.56	5.62	1.29	-	-	-	-	-	-
AABQ	NE	Backyard	-	-	3.75	1.85	0.74	0.34	0.53	0.12	1.25	0.69	-	-	8.92	2.52	4.62	2.07
EAAA	NE	Backyard	4.91	1.75	-	-	1.70	1.23	1.22	0.81	1.48	0.51	8.49	4.21	7.26	2.98	-	-
EAAD	NE	Backyard	-	-	0.56	0.40	1.12	0.47	3.11	1.04	2.36	0.57	4.10	1.25	10.73	4.88	-	-
EAAE	NE	Backyard	2.40	0.45	3.35	1.41	2.92	2.48	1.80	0.50	2.08	0.27	6.12	2.58	-	-	-	-
EAAF	NE	Backyard	-	-	2.24	0.92	1.51	0.52	1.32	0.32	1.21	0.41	9.02	4.31	7.73	3.30	-	-
EAAG	NE	Backyard	-	-	0.45	0.22	1.29	0.42	0.53	0.31	0.77	0.29	2.69	0.80	3.66	0.95	-	-
EAAH	NE	Backyard	-	-	-	-	0.29	0.29	0.23	0.23	1.75	1.00	-	-	-	-	-	-
EAAK	NE	Backyard	-	-	3.64	1.91	3.26	2.02	1.53	0.75	6.16	5.74	1.02	0.38	3.25	3.25	-	-
EAAL	NE	Backyard	-	-	7.66	1.86	9.85	4.20	19.74	-	8.97	-	0.00	-	0.00	-	-	-
EAAM	NE	Backyard	-	-	1.18	0.45	3.16	1.03	7.10	2.36	0.81	0.16	5.79	1.11	3.61	0.90	-	-
EAAN	NE	Backyard	-	-	4.28	1.60	8.56	2.51	7.74	1.83	8.12	2.43	0.26	-	-	-	-	-
EAAO	NE	Backyard	-	-	0.83	0.83	0.54	0.54	1.22	0.72	4.18	2.26	13.92	6.84	5.27	1.86	-	-
EAAQ	NE	Backyard	-	-	0.66	0.66	0.00	0.00	0.77	0.77	1.38	1.08	5.73	1.06	-	-	14.29	2.81
EAAR	NE	Backyard	-	-	-	-	1.24	0.71	-	-	-	-	-	-	-	-	-	-
EAAS	NE	Backyard	4.03	0.61	3.65	1.11	6.54	1.51	7.26	2.04	0.51	0.18	2.17	0.61	-	-	-	-
AAAQ	NE	Sideline	-	-	-	-	8.17	3.63	2.95	1.29	3.05	1.30	8.12	4.54	5.50	1.41	8.48	2.09
AAAR	NE	Sideline	-	-	-	-	8.33	1.94	2.96	1.52	1.80	0.80	2.24	0.64	6.17	1.49	6.26	0.93
AABI	NE	Sideline	-	-	0.71	0.28	1.25	0.36	3.61	1.03	4.97	1.06	2.51	0.81	2.38	0.70	-	-
EAAI	NE	Sideline	-	-	0.00	0.00	0.22	0.12	1.66	1.28	0.73	0.15	1.91	0.72	-	-	-	-
AABA	NW/MW	Backyard	0.05	0.05	0.43	0.15	0.59	0.22	0.54	0.22	1.76	0.44	1.35	0.71	-	-	-	-
AABK	NW/MW	Backyard	-	-	0.60	0.32	0.25	0.16	1.47	0.32	4.94	1.15	18.31	1.92	-	-	-	-
AABR	NW/MW	Backyard	-	-	-	-	2.27	0.89	4.08	0.83	5.48	1.34	-	-	-	-	-	-
AAAC	NW/MW	Commercial	-	-	-	-	0.50	0.15	3.10	0.96	6.22	1.74	-	-	-	-	-	-
AAAE	NW/MW	Commercial	-	-	0.53	0.26	0.26	0.17	0.98	0.46	6.31	1.28	-	-	12.05	4.06	-	-
AAAF	NW/MW	Commercial	-	-	0.62	0.32	0.67	0.47	1.01	0.30	4.41	1.23	15.16	2.79	0.63	0.39	-	-
AAAG	NW/MW	Commercial	-	-	-	-	0.18	0.09	0.39	0.16	2.97	1.04	14.14	2.93	-	-	-	-
AAAH	NW/MW	Commercial	-	-	0.09	0.09	0.00	0.00	0.07	0.07	0.44	0.37	1.20	0.70	0.48	0.48	-	-
AAAK	NW/MW	Commercial	-	-	-	-	1.57	0.34	2.99	0.73	5.23	0.86	21.05	5.36	3.52	1.14	-	-
AAAL	NW/MW	Commercial	-	-	0.17	0.12	0.00	0.00	0.23	0.23	-	-	-	-	0.34	0.17	-	-
AAAM	NW/MW	Commercial	-	-	-	-	0.59	0.28	0.26	0.17	4.81	1.59	9.35	2.98	-	-	0.70	0.53
AAAN	NW/MW	Commercial	-	-	-	-	-	-	3.41	0.63	14.91	3.26	0.81	0.41	-	-	1.06	0.80
AAAO	NW/MW	Commercial	-	-	-	-	-	-	0.54	0.23	2.47	0.72	16.38	4.06	0.00	0.00	-	-
AABM	NW/MW	Commercial	-	-	0.13	0.13	0.07	0.07	1.04	0.53	6.35	1.92	3.23	1.13	-	-	-	-
AABN	NW/MW	Commercial	-	-	0.22	0.16	0.62	0.45	2.83	1.27	5.63	3.10	5.57	2.00	1.27	0.78	-	-
AABU	NW/MW	Commercial	-	-	-	-	0.40	0.22	7.95	3.01	-	-	0.09	0.09	0.22	0.16	-	-
AAAA	NW/MW	Sideline	-	-	1.69	0.77	2.03	0.48	1.88	0.39	3.52	0.91	7.79	2.33	17.50	4.79	-	-
AABC	SE/SC	Backyard	-	-	1.07	0.26	0.56	0.29	0.92	0.53	2.00	0.54	3.47	0.66	9.08	1.93	-	-
AABD	SE/SC	Backyard	-	-	0.86	0.33	4.26	1.28	5.89	1.30	21.11	6.44	-	-	-	-	-	-
AABE	SE/SC	Backyard	2.08	0.70	4.65	2.09	3.19	1.34	5.30	1.46	5.07	3.02	3.11	2.60	-	-	-	-
AABG	SE/SC	Backyard	-	-	0.05	0.05	0.05	0.05	0.67	0.24	1.53	0.24	2.73	0.67	3.28	0.75	-	-
EAAB	SE/SC	Backyard	-	-	2.28	1.18	3.63	1.49	4.19	1.73	8.37	4.38	3.62	1.90	8.33	0.65	-	-
EAAJ	SE/SC	Backyard	-	-	4.93	2.05	2.61	0.80	7.96	3.52	5.58	2.84	1.51	0.50	2.15	0.87	-	-
AABB	SE/SC	Sideline	-	-	3.03	1.18	3.86	1.00	8.02	2.01	10.34	2.35	6.56	2.20	2.66	1.63	-	-
EAAU	SE/SC	Sideline	-	-	1.95	0.54	1.07	0.94	0.65	0.34	3.19	0.84	4.22	2.13	9.44	3.10	-	-
AAAB	SW	Backyard	9.96	2.89	6.58	2.00	7.64	1.78	4.70	1.15	6.78	2.54	8.38	3.34	-	-	-	-
AABJ	SW	Backyard	-	-	3.55	2.07	2.98	1.22	4.89	2.19	7.52	3.17	-	-	-	-	-	-

# Beekeeper ≥ 5 mites/100 bees			**1**	14.3%	**2**	5.9%	**6**	13.6%	**10**	21.7%	**18**	40.9%	**17**	45.9%	**12**	44.4%	**3**	50.0%
# Beekeeper < 5 mites/100 bees			6		32		38		36		26		20		15		3	

* We consider 5 mites per 100 bees as approaching a high threshold at or beyond where you may want to consider some varroa mite control strategy. This will fluctuate based on your bees' brood cycle.

For all T4 Participants

Nosema spores (number of millions of spores per bee)

Beekeeper	Region	Operation	April		May		June		July		August		September		October		November	
			Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error	Average	Sd.error
AAAD	NE	Backyard	0.11	0.09	0.13	0.02	-	-	0.09	0.07	0.06	0.04	-	-	-	-	-	-
AABQ	NE	Backyard	-	-	0.20	0.07	0.13	0.07	0.14	0.07	0.16	0.08	-	-	0.16	0.10	0.18	0.17
EAAA	NE	Backyard	1.30	0.85	-	-	0.80	0.37	0.23	0.16	0.01	0.01	0.20	0.10	0.13	0.06	-	-
EAAD	NE	Backyard	-	-	0.63	0.35	0.36	0.20	0.03	0.01	0.00	0.00	0.41	0.40	2.56	2.53	-	-
EAAE	NE	Backyard	0.00	0.00	0.09	0.07	0.19	0.09	0.23	0.13	0.28	0.23	0.15	0.15	-	-	-	-
EAAF	NE	Backyard	-	-	1.99	0.75	0.45	0.26	0.09	0.03	0.10	0.07	0.18	0.12	0.01	0.01	-	-
EAAG	NE	Backyard	-	-	1.50	0.86	0.19	0.06	0.11	0.08	0.06	0.06	0.76	0.66	0.40	0.13	-	-
EAAH	NE	Backyard	-	-	-	-	0.40	0.19	0.00	0.00	0.08	0.08	-	-	-	-	-	-
EAAK	NE	Backyard	-	-	0.39	0.12	0.88	0.29	0.14	0.14	0.74	0.24	1.55	0.18	0.16	0.09	-	-
EAAL	NE	Backyard	-	-	0.00	0.00	0.01	0.01	0.00	-	0.00	-	0.00	-	0.00	-	-	-
EAAM	NE	Backyard	-	-	0.43	0.13	0.21	0.17	0.03	0.01	0.04	0.04	0.10	0.02	0.30	0.19	-	-
EAAN	NE	Backyard	-	-	0.03	0.01	0.00	0.00	0.03	0.03	0.30	0.30	0.00	-	-	-	-	-
EAAO	NE	Backyard	-	-	1.65	0.47	0.78	0.64	0.00	0.00	0.00	0.00	0.08	0.04	0.00	0.00	-	-
EAAQ	NE	Backyard	-	-	1.05	0.32	0.09	0.05	0.05	0.05	0.36	0.19	0.00	0.00	-	-	1.92	1.13
EAAR	NE	Backyard	-	-	-	-	0.03	0.03	-	-	-	-	-	-	-	-	-	-
EAAS	NE	Backyard	0.00	0.00	0.01	0.01	0.01	0.01	0.03	0.01	0.15	0.12	0.00	0.00	-	-	-	-
AAAQ	NE	Sideline	-	-	-	-	0.83	0.72	0.14	0.11	0.03	0.02	0.04	0.03	0.06	0.03	0.18	0.10
AAAR	NE	Sideline	-	-	-	-	0.07	0.05	0.15	0.10	0.01	0.01	0.13	0.11	0.03	0.01	0.06	0.04
AABI	NE	Sideline	-	-	0.31	0.18	0.08	0.03	0.01	0.01	0.00	0.00	0.01	0.01	0.08	0.05	-	-
EAAI	NE	Sideline	-	-	0.54	0.14	0.28	0.08	0.05	0.02	0.01	0.01	0.01	0.01	-	-	-	-
AABA	NW/MW	Backyard	0.41	0.21	2.91	1.78	0.99	0.54	0.39	0.30	0.30	0.23	0.14	0.05	-	-	-	-
AABK	NW/MW	Backyard	-	-	22.25	6.72	1.08	0.62	0.11	0.07	0.01	0.01	0.39	0.35	-	-	-	-
AABR	NW/MW	Backyard	-	-	-	-	0.70	0.34	0.01	0.01	0.01	0.01	-	-	-	-	-	-
AAAC	NW/MW	Commercial	-	-	-	-	0.54	0.15	0.56	0.21	0.03	0.02	-	-	-	-	-	-
AAAE	NW/MW	Commercial	-	-	0.68	0.16	0.84	0.27	0.36	0.13	0.35	0.09	-	-	0.16	0.07	-	-
AAAF	NW/MW	Commercial	-	-	0.12	0.03	1.12	0.28	0.08	0.02	0.09	0.04	0.02	0.02	0.03	0.03	-	-
AAAG	NW/MW	Commercial	-	-	-	-	0.28	0.12	1.00	0.17	0.03	0.02	0.08	0.08	-	-	-	-
AAAH	NW/MW	Commercial	-	-	2.05	0.53	1.38	0.43	1.13	0.44	0.68	0.30	0.68	0.31	0.28	0.16	-	-
AAAK	NW/MW	Commercial	-	-	-	-	1.36	0.30	0.26	0.12	0.12	0.05	0.44	0.42	0.50	0.48	-	-
AAAL	NW/MW	Commercial	-	-	0.53	0.13	0.27	0.12	0.83	0.18	-	-	-	-	0.04	0.04	-	-
AAAM	NW/MW	Commercial	-	-	-	-	0.38	0.14	1.17	0.23	0.29	0.06	0.16	0.07	-	-	0.89	0.29
AAAN	NW/MW	Commercial	-	-	-	-	-	-	1.39	0.28	0.36	0.15	0.00	0.00	-	-	0.00	0.00
AAAO	NW/MW	Commercial	-	-	-	-	-	-	1.01	0.29	0.23	0.08	0.05	0.03	0.01	0.01	-	-
AABM	NW/MW	Commercial	-	-	0.47	0.14	0.74	0.39	2.16	0.36	2.85	1.80	0.35	0.10	-	-	-	-
AABN	NW/MW	Commercial	-	-	0.06	0.04	0.09	0.05	0.09	0.04	0.04	0.02	0.16	0.12	0.01	0.01	-	-
AABU	NW/MW	Commercial	-	-	-	-	3.55	1.35	0.45	0.21	-	-	0.94	0.26	4.69	1.66	-	-
AAAA	NW/MW	Sideline	-	-	2.91	0.90	0.61	0.17	0.13	0.04	0.08	0.05	0.01	0.01	0.18	0.10	-	-
AABC	SE/SC	Backyard	-	-	1.29	0.37	0.61	0.39	0.14	0.05	0.06	0.03	0.02	0.01	0.43	0.40	-	-
AABD	SE/SC	Backyard	-	-	1.03	0.22	0.14	0.12	0.01	0.01	0.02	0.01	-	-	-	-	-	-
AABE	SE/SC	Backyard	2.04	0.67	1.48	0.73	1.71	1.08	1.06	0.80	1.48	0.68	2.09	1.20	-	-	-	-
AABG	SE/SC	Backyard	-	-	0.01	0.01	0.19	0.10	0.04	0.02	0.06	0.04	0.04	0.03	0.08	0.03	-	-
EAAB	SE/SC	Backyard	-	-	0.60	0.44	0.04	0.04	1.53	1.44	0.31	0.31	4.93	4.07	0.03	0.03	-	-
EAAJ	SE/SC	Backyard	-	-	0.55	0.20	0.09	0.07	0.00	0.00	0.06	0.05	0.30	0.25	0.93	0.68	-	-
AABB	SE/SC	Sideline	-	-	0.02	0.02	0.00	0.00	0.01	0.01	0.04	0.02	0.04	0.03	0.09	0.07	-	-
EAAU	SE/SC	Sideline	-	-	1.00	0.38	0.11	0.10	0.06	0.06	0.00	0.00	0.15	0.11	0.38	0.30	-	-
AAAB	SW	Backyard	1.29	0.71	2.41	1.68	1.06	0.59	0.15	0.08	0.10	0.04	0.08	0.05	-	-	-	-
AABJ	SW	Backyard	-	-	1.76	0.47	0.58	0.12	0.39	0.25	0.06	0.04	-	-	-	-	-	-

# Beekeeper ≥ 1 million spores per bee			**3**	42.9%	**13**	38.2%	**7**	15.9%	**7**	15.2%	**2**	4.5%	**3**	8.1%	**2**	7.4%	**1**	16.7%
# Beekeeper < 1 million spores per bee			4		21		37		39		42		34		25		5	

* We consider one million spores per bee to be the acceptable threshold in a hive.
Your nosema levels will fluctuate with temperature and the hives sun exposure every month.

Management Practices

From DIS sheet (self-reported by beekeepers)

Chemical Method used for Varroa control
This table reports the use of chemical-based varroa control methods.

		April	May	June	July	August	September	October	November	Total
NW/MW	# Beekeeper	1	5	2	3	2	6	7	1	27
	# Hives	8	40	16	20	16	48	52	8	208
SW	# Beekeeper	0	1	1	0	2	0	N/A	N/A	4
	# Hives	0	8	3	0	9	0	N/A	N/A	20
SE/SC	# Beekeeper	1	3	3	2	2	3	5	N/A	19
	# Hives	4	7	7	8	7	9	27	N/A	69
NE	# Beekeeper	1	4	7	5	11	5	8	3	44
	# Hives	2	18	26	23	37	13	27	24	170
Total	# Beekeeper	3	13	13	10	17	14	20	4	94
	# Hives	14	73	52	51	69	70	106	32	467

note: 26 of the 37 unique beekeepers treated all sampled hives in the apiary at least once during the project.

Non-chemical Method used for Varroa control
This table reports the use of non-chemical-based varroa control (i.e. drone brood removal) methods.

		April	May	June	July	August	September	October	November	Total
NW/MW	# Beekeeper	1	1	1	2	1	1	0	0	7
	# Hives	8	8	8	16	8	8	0	0	56
SW	# Beekeeper	1	0	1	2	0	0	N/A	N/A	4
	# Hives	8	0	2	2	0	0	N/A	N/A	12
SE/SC	# Beekeeper	0	1	3	2	1	1	1	N/A	9
	# Hives	0	4	4	3	2	1	1	N/A	15
NE	# Beekeeper	0	2	4	4	3	4	2	1	20
	# Hives	0	3	8	8	6	9	2	1	37
Total	# Beekeeper	2	4	9	10	5	6	3	1	40
	# Hives	16	15	22	29	16	18	3	1	120

note: 5 of the 14 unique beekeepers treated all sampled hives in the apiary at least once during the project.

Chemical Treatment for Nosema
This table reports the use of Fumagillin treatments against Nosema.

		April	May	June	July	August	September	October	November	Total
NW/MW	# Beekeeper	0	2	0	1	0	1	2	0	6
	# Hives	0	16	0	8	0	8	16	0	48
SW	# Beekeeper	0	0	0	0	0	0	N/A	N/A	0
	# Hives	0	0	0	0	0	0	N/A	N/A	0
SE/SC	# Beekeeper	0	0	0	1	1	0	0	N/A	2
	# Hives	0	0	0	1	1	0	0	N/A	2
NE	# Beekeeper	1	2	1	0	0	1	1	0	6
	# Hives	1	5	1	0	0	8	4	0	19
Total	# Beekeeper	1	4	1	2	1	2	3	0	14
	# Hives	1	21	1	9	1	16	20	0	69

note: 8 of the 10 unique beekeepers treated all sample hives in the apiary at least once during the project.

Fed their colonies
This table includes feeding methods.

		April	May	June	July	August	September	October	November	Total
NW/MW	# Beekeeper	0	7	7	4	0	4	9	2	33
	# Hives	0	56	56	32	0	25	68	16	253
SW	# Beekeeper	1	1	0	0	0	0	N/A	N/A	2
	# Hives	3	3	0	0	0	0	N/A	N/A	6
SE/SC	# Beekeeper	1	6	1	3	3	3	5	N/A	22
	# Hives	5	29	4	7	6	12	18	N/A	81
NE	# Beekeeper	2	10	6	4	5	6	9	3	45
	# Hives	5	48	27	7	15	28	43	7	180
Total	# Beekeeper	4	24	14	11	8	13	23	5	102
	# Hives	13	136	87	46	21	65	129	23	520

Colonies Died During Project
This table shows all reported colonies that had to be replaced with a new colony during the project.

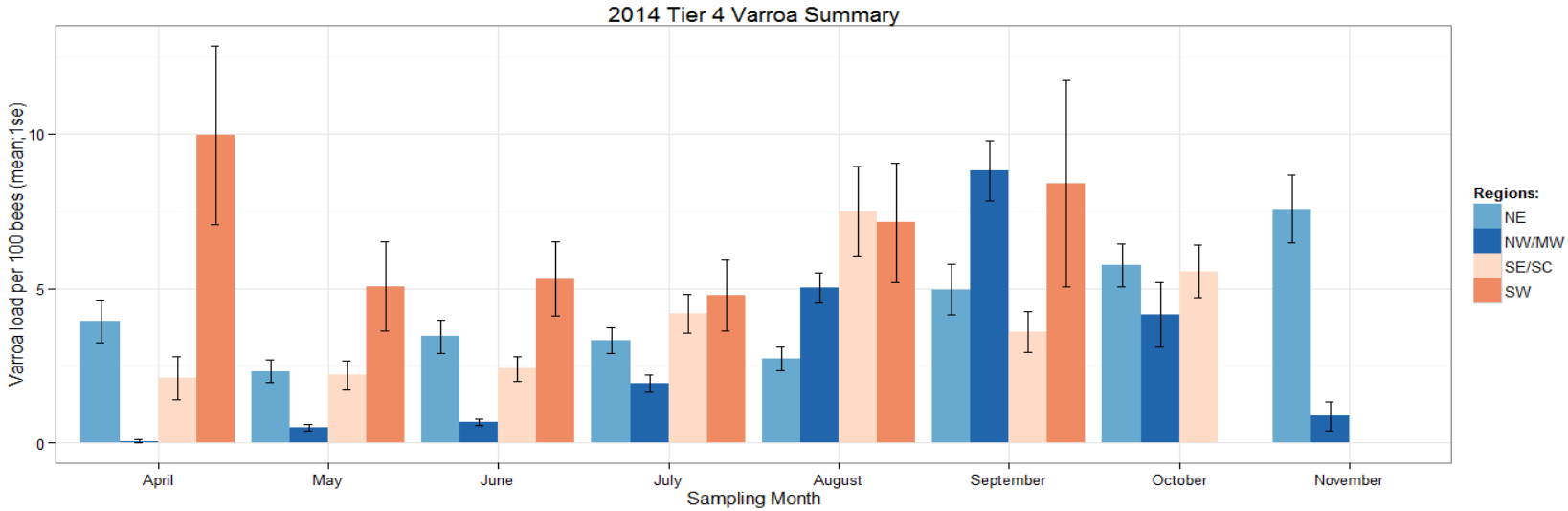
	April	May	June	July	August	September	October	November	Total
NW/MW	0	1	0	2	4	4	3	3	17
SW	0	0	1	2	2	2	N/A	N/A	7
SE/SC	0	0	1	1	3	3	3	N/A	11
NE	0	1	2	2	3	3	3	0	14
Total	0	2	4	7	12	12	9	3	49

Queen Found in Sample
This table shows all the queens we received from accidental sampling.

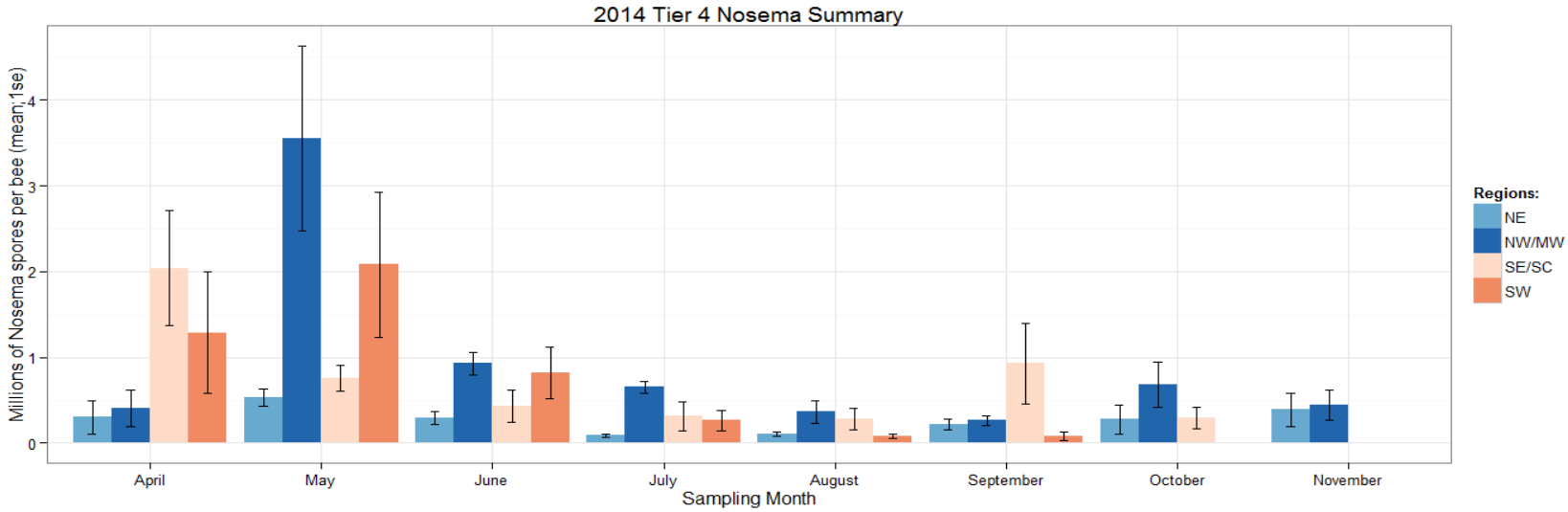
	April	May	June	July	August	September	October	November	Total
NW/MW	0	0	0	0	0	1	0	0	1
SW	0	0	0	0	0	0	N/A	N/A	0
SE/SC	0	0	0	0	0	0	0	N/A	0
NE	0	0	0	1	1	0	0	0	2
Total	0	0	0	1	1	1	0	0	3

By Regions

Varroa mites (number of mites per 100 bees)

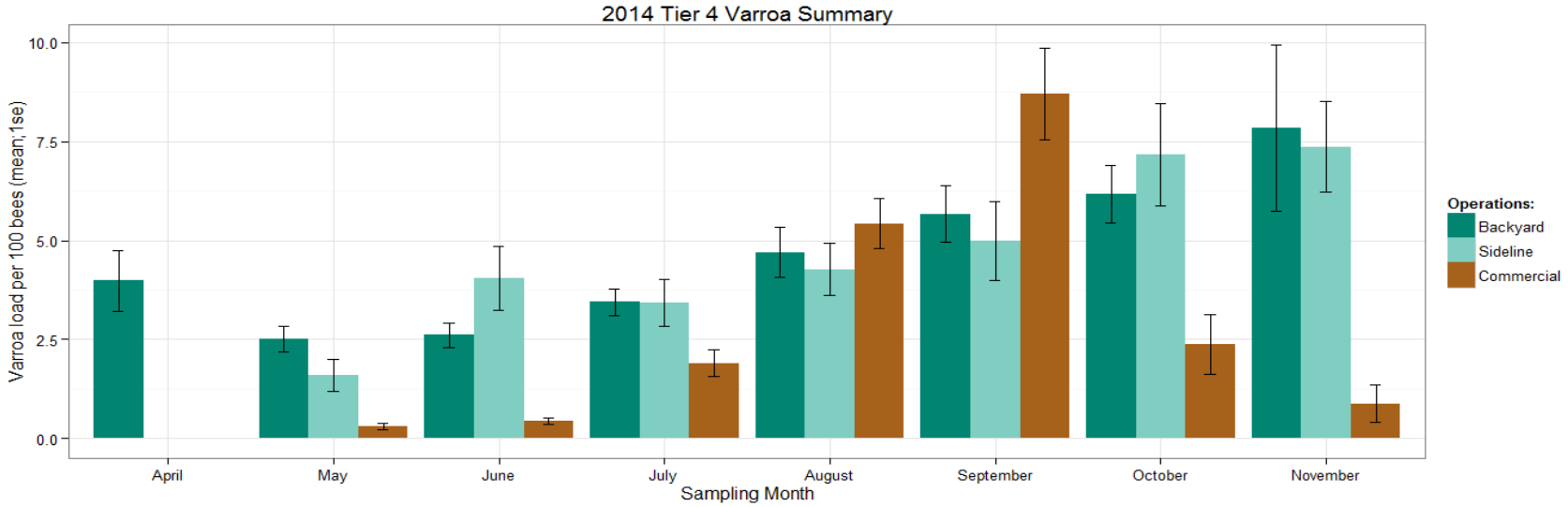
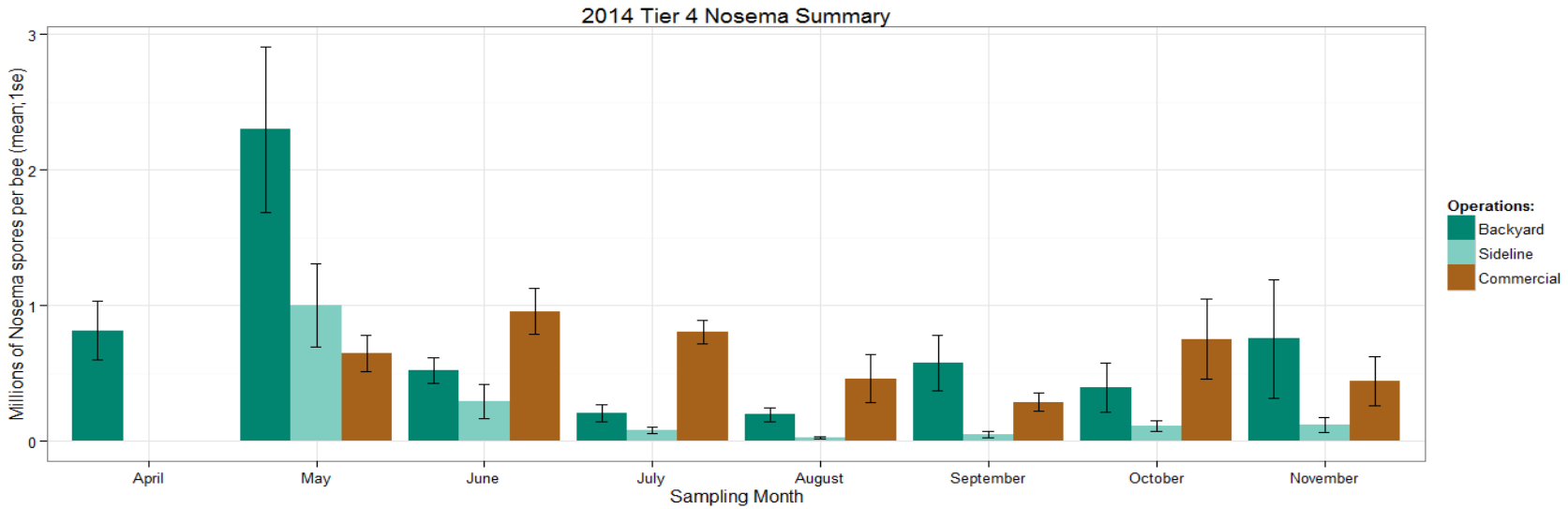


Nosema spores (million of spores per bee)



By Operation Size

Varroa mites (number of mites per 100 bees)



Nosema spores (million of spores per bee)