

Molecular Sample Report

Beekeeper ID: **UMD Lab**

Report Date: **01/21/26**

Collection Date	Location Name	Sample Info	Lab ID	Number of Molecular Targets Detected	Molecular Targets Detected
April 10, 2025	Clover	Clover April	M-01-2025	4	BQCV, CBPV, <i>Nosema ceranae</i> , DWV-B
April 25, 2025	Watertower	Watertower April	M-11-2025	3	BQCV, DWV-A, DWV-B
May 8, 2025	Watertower	Watertower May	M-12-2025	3	BQCV, CBPV, DWV-B
May 2, 2025	Clover	Clover May	M-02-2025	4	BQCV, CBPV, <i>Nosema ceranae</i> , DWV-B
May 8, 2025	Greenhouse	GreenHouse May	M-05-2025	6	BQCV, CBPV, LSV2, <i>Nosema ceranae</i> , DWV-B, SBV
June 11, 2025	Greenhouse	GreenHouse June	M-09-2025	7	BQCV, CBPV, DWV-A, <i>Nosema ceranae</i> , DWV-B, SBV, AMSV1
June 12, 2025	Clover	Clover June	M-03-2025	5	BQCV, CBPV, <i>Nosema ceranae</i> , DWV-B, AMSV1
June 13, 2025	Watertower	Watertower June	M-13-2025	5	BQCV, <i>Nosema ceranae</i> , DWV-B, SBV, AMSV1

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July 14, 2025	BH	berwyn Heights july	M-08-2025	3	BQCV, <i>Nosema ceranae</i> , DWV-B
July 18, 2025	Greenhouse	GreenHouse July	M-10-2025	5	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B, SBV
July 24, 2025	Clover	Clover July	M-04-2025	4	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B
July 22, 2025	Watertower	Watertower July	M-14-2025	3	BQCV, <i>Nosema ceranae</i> , DWV-B
Aug. 11, 2025	Greenhouse	Greenhouse August	M-16-2025	4	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B
Aug. 11, 2025	Clover	Clover August	M-15-2025	4	BQCV, CBPV, DWV-A, DWV-B
Aug. 11, 2025	Watertower	Watertower August	M-17-2025	3	CBPV, DWV-A, DWV-B
May 19, 2025	BH	BH1 3703	M-06-2025	2	BQCV, DWV-B
May 19, 2025	BH	BH2 3701	M-07-2025	5	BQCV, CBPV, DWV-A, <i>Nosema ceranae</i> , DWV-B
Aug. 20, 2025	BH	Berwyn Heights August	M-18-2025	2	<i>Nosema ceranae</i> , DWV-B
Sept. 24, 2025	BH	Berwyn Heights September	M-22-2025	4	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B
Oct. 15, 2025	BH	Berwyn Heights October	M-25-2025	4	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B

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Sept. 18, 2025	Clover	Clover September	M-19-2025	4	CBPV, DWV-A, <i>Nosema ceranae</i> , DWV-B
Oct. 16, 2025	Clover	Clover October	M-24-2025	4	CBPV, DWV-A, <i>Nosema ceranae</i> , DWV-B
Sept. 18, 2025	Watertower	Watertower September	M-20-2025	3	BQCV, DWV-A, DWV-B
Oct. 16, 2025	Watertower	Watertower October	M-23-2025	3	CBPV, DWV-A, DWV-B
Sept. 19, 2025	Greenhouse	Greenhouse September	M-21-2025	4	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B
Oct. 15, 2025	Greenhouse	Greenhouse October	M-26-2025	4	BQCV, DWV-A, <i>Nosema ceranae</i> , DWV-B

Molecular Targets

Abbreviation	Full Name	Occurrence	Signs and description ¹
ABPV	Acute Bee Paralysis Virus	Rare	Trembling, inability to fly, gradual darkening and loss of hair from the thorax and abdomen, crawling on the ground and upward on grass, rapid death for highly infected bees. Transmission routes: Oral-fecal, Varroa, Vertical, Environment.
BQCV*	Black Queen Cell Virus	Very common	Yellowish queen larvae with sac-appearance that resembles SBV and with time evolves to dark brown, infected pupae turn brown and die, dark brown to black colored walls in queen cells, significantly shortened life span in adult bees. Transmission routes: Oral-fecal, Vertical, Environment.

Molecular Targets

Abbreviation	Full Name	Occurrence	Signs and description ¹
CBPV	Chronic Bee Paralysis Virus	Rare	Syndrome 1: trembling of the wings and bodies, bloated abdomen, inability to fly, crawling on the ground and upward on grass, gather in groups in the warmest areas of the nest, death within few days Syndrome 2 ('black robbers'): hairless (thus appearing smaller), darker, greasy in appearance, shiny, suffer nibbling attacks by the healthy bees, death within few days. Transmission routes: Oral-fecal, Contact, Environment.
DWV-A	Deformed Wing Virus	Very common	Crumpled or aborted wings, shortened abdomens, paralysis, severely shortened adult life span for emerging worker and drone bees, modified responsiveness to sucrose, impaired learning, impaired foraging behavior. Transmission routes: Oral-fecal, Varroa, Vertical, Environment.
DWV-B	Varroa Destructor Virus	Very common	Newly discovered recombinant of DWV (previously called "Varroa Destructor Virus") Crumpled or aborted wings, shortened abdomens, paralysis, severely shortened adult life span for emerging worker and drone bees, modified responsiveness to sucrose, impaired learning, impaired foraging behavior. Transmission routes: Oral-fecal, Varroa, Vertical, Environment.
IAPV	Israeli Acute Paralysis Virus	Rare	Strain of Acute bee paralysis Trembling, inability to fly, gradual darkening and loss of hair from the thorax and abdomen, crawling on the ground and upward on grass, rapid death for highly infected bees. Transmission routes: Oral-fecal, Varroa, Vertical, Environment.
KBV	Kashmir Bee Virus	Very rare	Strain of Acute bee paralysis Trembling, inability to fly, gradual darkening and loss of hair from the thorax and abdomen, crawling on the ground and upward on grass, rapid death for highly infected bees.

Molecular Targets

Abbreviation	Full Name	Occurrence	Signs and description ¹
			Transmission routes: Oral-fecal, Varroa, Vertical, Environment.
LSV-2	Lake Sinai Virus 2	Common	Shortened lifespan of adult bees. Transmission routes: Environment.
MKV	Moku Virus	Extremely rare	Newly discovered in honey bees and closely related to SBPV.
SBPV	Slow Bee Paralysis Virus	Not known to be in the U.S.	Part of surveillance monitoring for early detection. Paralysis of the two anterior legs a day or two before death. Transmission routes: Oral-fecal, Varroa, Environment.
SBV	Sacbrood Virus	Common	Pupation failure, 'sac' phenotype: swollen larvae filled with ecdysial fluid full of viral particles, precocious foraging, reduction of adult life span and metabolic activities, impaired foraging activity. Transmission routes: Oral-fecal, Environment.
<i>Nosema ceranae</i>	<i>Nosema ceranae</i>	Common	Unicellular fungal gut parasite that causes <i>Nosema</i> disease

1. Routes of transmission and signs of viral infection reviewed in : Beaurepaire, Alexis, Niels Piot, Vincent Doublet, Karina Antunez, Ewan Campbell, Panuwan Chantawannakul, Nor Chejanovsky, et al. "Diversity and Global Distribution of Viruses of the Western Honey Bee, *Apis Mellifera*." *Insects* 11, no. 4 (April 2020): 239.
<https://doi.org/10.3390/insects11040239>.

Sample Information	ABPV	AMSV1	BQCV	CBPV	DWV-A	IAPV	KBV	LSV2	NOSEMA_APIS	<i>Nosema ceranae</i>	SBPV	SBV	DWV-B
Clover April M-01-2025	-	-	+ 2.4 billion rank:93	+ 21.8 million rank:51	-	-	-	-	-	+ 136.2 billion rank:66	-	-	+ 2.9 billion rank:46
Watertower April M-11-2025	-	-	+ 1.6 million rank:28	-	+ 5.9 million rank:16	-	-	-	-	-	-	-	+ 6.8 billion rank:52
Watertower May M-12-2025	-	-	+ 722.3 million rank:88	+ 11.2 million rank:46	-	-	-	-	-	-	-	-	+ 58.5 million rank:29
Clover May M-02-2025	-	-	+ 112.9 million rank:72	+ 6.3 billion rank:81	-	-	-	-	-	+ 97.1 billion rank:60	-	-	+ 1.1 billion rank:41
GreenHouse May M-05-2025	-	-	+ 102.8 million rank:71	+ 9.4 million rank:44	-	-	-	+ 178.6 million rank:42	-	+ 167.5 million rank:14	-	+ 12.1 million rank:12	+ 467,332 rank:11
GreenHouse June M-09-2025	-	+ 61,241 rank:18	+ 27.1 million rank:58	+ 509,737 rank:8	+ 2.6 million rank:12	-	-	-	-	+ 332.2 billion rank:80	-	+ 187.0 million rank:31	+ 4.2 million rank:19
Clover June M-03-2025	-	+ 1.9 million rank:55	+ 18.4 million rank:54	+ 13.2 million rank:47	-	-	-	-	-	+ 263.7 billion rank:77	-	-	+ 37.0 billion rank:68

Sample Information	ABPV	AMSV1	BQCV	CBPV	DWV-A	IAPV	KBV	LSV2	NOSEMA_APIS	<i>Nosema ceranae</i>	SBPV	SBV	DWV-B
Watertower June M-13-2025	-	+	+	-	-	-	-	-	-	+	-	+	+
		5.1 million rank:61	8.0 million rank:45							20.8 billion rank:38		18.0 million rank:15	6.0 million rank:20
berwyn Heights july M-08-2025	-	-	+	-	-	-	-	-	-	+	-	-	+
			17.7 million rank:54							942.8 billion rank:90			528.3 billion rank:92
GreenHouse July M-10-2025	-	-	+	-	+	-	-	-	-	+	-	+	+
			46.1 million rank:63		6.3 million rank:16					6779.2 billion rank:98		10.3 billion rank:73	600.1 billion rank:93
Clover July M-04-2025	-	-	+	-	+	-	-	-	-	+	-	-	+
			1.7 million rank:28		9.2 million rank:18					339.3 billion rank:80			1422.5 billion rank:96
Watertower July M-14-2025	-	-	+	-	-	-	-	-	-	+	-	-	+
			25.7 million rank:57							493.6 billion rank:84			2.6 billion rank:46
Greenhouse August M-16-2025	-	-	+	-	+	-	-	-	-	+	-	-	+
			2.0 million rank:30		1.7 billion rank:42					335.3 billion rank:80			150.4 billion rank:82
Clover August M-15-2025	-	-	+	+	+	-	-	-	-	-	-	-	+
			194.8 million rank:77	2.0 million rank:25	2.9 billion rank:47								1874.6 billion rank:97

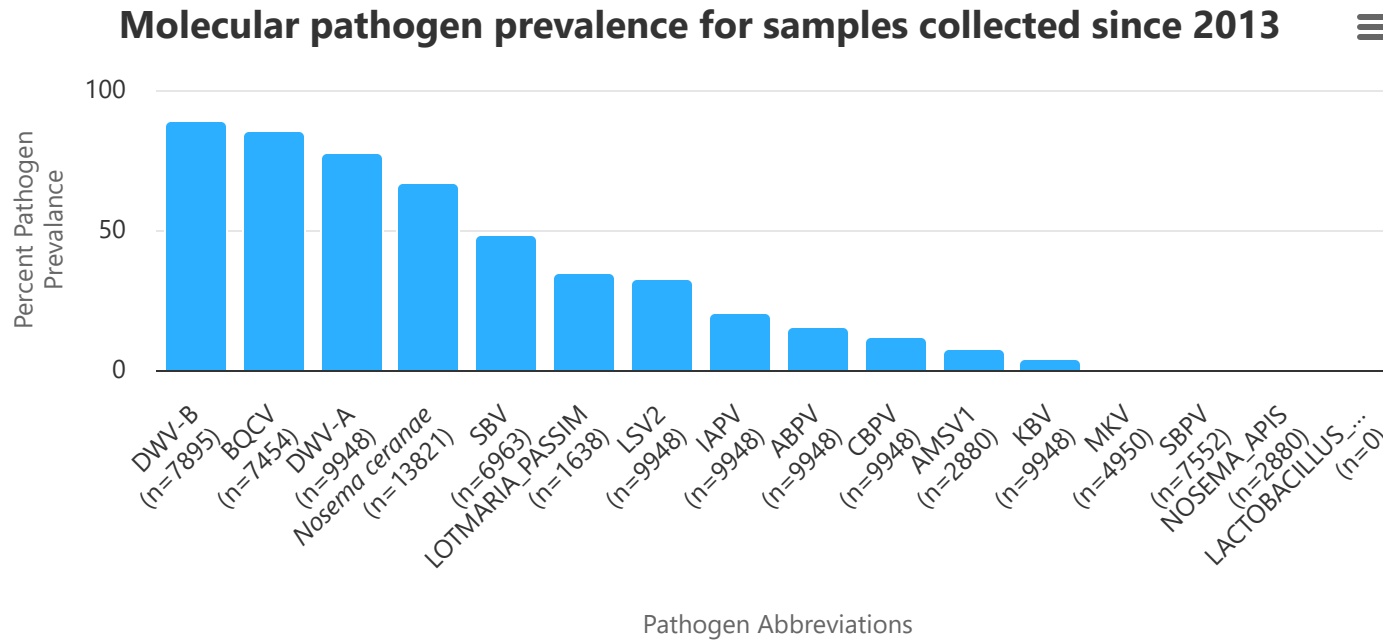
Sample Information	ABPV	AMSV1	BQCV	CBPV	DWV-A	IAPV	KBV	LSV2	NOSEMA_APIS	<i>Nosema ceranae</i>	SBPV	SBV	DWV-B
Watertower August M-17-2025	-	-	-	+	+	-	-	-	-	-	-	-	+
				12.6 million rank:47	995.9 million rank:39								3333.1 billion rank:98
BH1 3703 M-06-2025	-	-	+	-	-	-	-	-	-	-	-	-	+
			14.2 million rank:51										215,751 rank:7
BH2 3701 M-07-2025	-	-	+	+	+	-	-	-	-	+	-	-	+
			7.6 billion rank:97	794,879 rank:13	5.1 million rank:15					68.3 million rank:12			2.1 million rank:17
Berwyn Heights August M-18-2025	-	-	-	-	-	-	-	-	-	+	-	-	+
										4731.8 billion rank:97			32.9 billion rank:67
Berwyn Heights September M-22-2025	-	-	+	-	+	-	-	-	-	+	-	-	+
			323,371 rank:12		33.1 million rank:23					214.6 billion rank:74			30.3 billion rank:66
Berwyn Heights October M-25-2025	-	-	+	-	+	-	-	-	-	+	-	-	+
			2.1 million rank:31		89,826 rank:1					320.9 billion rank:79			656.5 million rank:39
Clover September M-19-2025	-	-	-	+	+	-	-	-	-	+	-	-	+
				322,155 rank:4	184.7 million rank:30					101.2 billion rank:61			47.9 billion rank:71

Sample Information	ABPV	AMSV1	BQCV	CBPV	DWV-A	IAPV	KBV	LSV2	NOSEMA_APIS	<i>Nosema ceranae</i>	SBPV	SBV	DWV-B
Clover October M-24-2025	-	-	-	+	+	-	-	-	-	+	-	-	+
				210,343 rank:3	364.9 million rank:33					96.2 billion rank:60			23.1 billion rank:63
Watertower September M-20-2025	-	-	+	-	+	-	-	-	-	-	-	-	+
			87,074 rank:4		2.4 billion rank:45								260.4 billion rank:87
Watertower October M-23-2025	-	-	-	+	+	-	-	-	-	-	-	-	+
				71,172 rank:1	276,632 rank:5								1.6 billion rank:43
Greenhouse September M-21-2025	-	-	+	-	+	-	-	-	-	+	-	-	+
			5.6 million rank:41		2.6 million rank:12					160.8 billion rank:69			12.3 billion rank:57
Greenhouse October M-26-2025	-	-	+	-	+	-	-	-	-	+	-	-	+
			33.5 million rank:60		43,836 rank:1					60.8 billion rank:53			448.4 million rank:37

The table above indicates which pathogens are present in your apiary in terms of percentiles. The following page indicates the same information visually. **These percentiles allow you to compare your apiary values to national values.** The smaller your number and percentile, the better. Higher percentile values in the column “Your Percentile” represent higher pathogen or viral loads (higher counts of the pathogen or virus) than compared to other samples where that pathogen or virus was present.

Samples without the virus or pathogen are not included in the percentile calculation. Individual detections of a particular virus or pest may not be indicative of a problem, but will help in our understanding of national disease and pest trends. Honey bee viruses are very common, and no treatments are currently available.

Figure: Pathogen prevalence nationally



The figure above indicates sample results inclusive of all data collected from Jan 01, 2013 to present. It illustrates the percentage (prevalence) of the samples that tested positive for the indicated molecular pathogen out of 13821 samples.