

Tarrant County Public Health

Weekly Arbovirus Surveillance Report: MMWR Week Oct 15-Oct 21, 2023



Week 42 Summary

- 172 mosquito pools* have been tested in NTRL from week 42
 - Year-to-date NTRL has tested a total of 4659 mosquito pools
- 9 mosquito pools tested positive for WNV this week:
 - Arlington (1) Fort Worth* (2) Grapevine (1) Keller (1) Southlake (1) Unincorporated (3)
- There have been 0 imported human cases of SLE or Zika in 2023. There has been 5 cases of Dengue Fever.
 - There have been 11 human cases of West Nile disease.
- Average number of mosquitoes/trap include:
 - *Culex* spp: 59.1
 - *Aedes aegypti*: 9.8
 - *Aedes albopictus*: 4.4

NTRL– North Texas Regional Lab

WNV= West Nile virus; CHIKV= chikungunya virus; DENV= dengue virus; SLEV St. Louis encephalitis virus * May include data from outside Tarrant County

Cumulative Positive WNV Pools per Municipality

There have been a total of 238 positives in 2023

Arlington (56) Bedford (7) Benbrook (1) Burleson *(10) Colleyville (9) Crowley (1) Euless (16) Fort Worth* (52) Grapevine (16) Haltom City (4) Hurst (9) Keller (7) Mansfield* (7) North Richland Hills (5) Pantego (1) River Oaks (4) Southlake (10) Unincorporated** (21) Watauga (2)

* May include data from outside Tarrant County ** Includes 2 positives from winter surveillance

Table 1. MLE⁽¹⁾ and VI⁽²⁾ for County Quadrants, Weeks 41 and 42

	County Quadrant	# Gravid traps	Ave F <i>Culex</i> spp	Positive pools	MLE (Lower-Upper Limit)	VI
Week 41	Northeast	71	83.1	4.0	1.60 (0.52-3.86)	0.133
	Northwest	27	55.2	0.0	0.00 (0.00-4.14)	0.000
	Southeast	40	77.4	1.0	0.74 (0.04-3.63)	0.058
	Southwest	27	76.0	2.0	1.90 (0.34-7.75)	0.152
Week 42	Northeast	72	48.3	4.0	2.06 (0.67-5.72)	0.101
	Northwest	23	79.3	2.0	2.39 (0.43-9.69)	0.201
	Southeast	39	76.3	1.0	0.77 (0.04-4.86)	0.059
	Southwest	27	64.3	2.0	2.41 (0.15-14.50)	0.130

Data

source: Tarrant County Public Health

1. MLE= Maximum Likelihood Estimate or the estimate of the mosquito infection rate per mosquito species. 2. VI= Vector Index which is a measure of infectivity accounting for vector species composition, vector species population density, and proportion of vector population infected with WNV

Averages, MLE, and limits will be given for species with identified infection rates only and only for the latest two week. MLE, Lower and Upper Limits are based on a 95% confidence interval. All data in this table is based on collection date.

Calculated using a Maximum Likelihood Estimation (MLE). Biggerstaff, Brad J. PooledInRate, Version 4.0: a Microsoft® Office Excel® Add-In to compute prevalence estimates

Cumulative Data for the Tarrant County Region, Weeks 39-42

Week	Sep 24- Sep 30	Oct 1- Oct 7	Oct 8- Oct 14	Oct 15- Oct 21	YTD
MMWR Week	39	40	41	42	
Total number of gravid traps set in Tarrant Region	162	159	165	161	4416
Average number of <i>Culex</i> spp per gravid trap	109.1	106.5	71.5	59.1	147.4
Number of mosquito pools tested ¹ (NTRL; non-NTRL)	170;16	168;16	170;13	172;5	4659;331
Number of positive mosquito pools (NTRL; non-NTRL) ¹	8;0	16;0	9;0	9;0	238;0
Confirmed WNV human cases (WNF; WNND) ²	0;0	0;0	0;0	0;0	1;11
WNV infection rate per 1,000 <i>Culex</i> spp ³	1.34	2.55	1.23	1.84	
Weekly vector index ⁴	0.139	0.310	0.101	0.129	
Total BG Sentinel traps set in Tarrant Region	17	20	22	25	645
Average number of female <i>Aedes aegypti</i> per BG trap	11.2	8.3	14.3	9.8	4.0
Average number of female <i>Aedes albopictus</i> per BG trap	1.3	1.8	3.5	4.4	2.9

¹ Based on mosquito collection date; NTRL = North Texas Regional Laboratory

² Based on onset of illness date for cases reported to Tarrant County Public Health; WNF=West Nile Fever; WNND = West Nile Neuroinvasive Disease

³ Calculated using a Maximum Likelihood Estimation (MLE). Biggerstaff, Brad J. PooledInfRate, Version 4.0: a Microsoft® Office Excel® Add-In to compute prevalence estimates from pooled samples. Centers for Disease Control and Prevention, Fort Collins, CO, U.S.A., 2009 *Culex* spp includes pools of both *Cx restuans* and *Cx quinquefasciatus*. These MLEs are calculated separately, per species and added together as per instructions by CDC.

⁴ Vector Index is a measure of infectivity accounting for vector species composition, vector species population density, and proportion of vector population infected with WNV
Note: Infection rate and vector index calculations now includes pools from outside laboratories; Data subject to change due to on-going case investigations, mosquito collection, and testing. Data source: Tarrant County Public Health

Figure 1. Average Number of Female *Culex* Species Per Trap and Vector Index by Collection Date, Tarrant County, 2022-2023

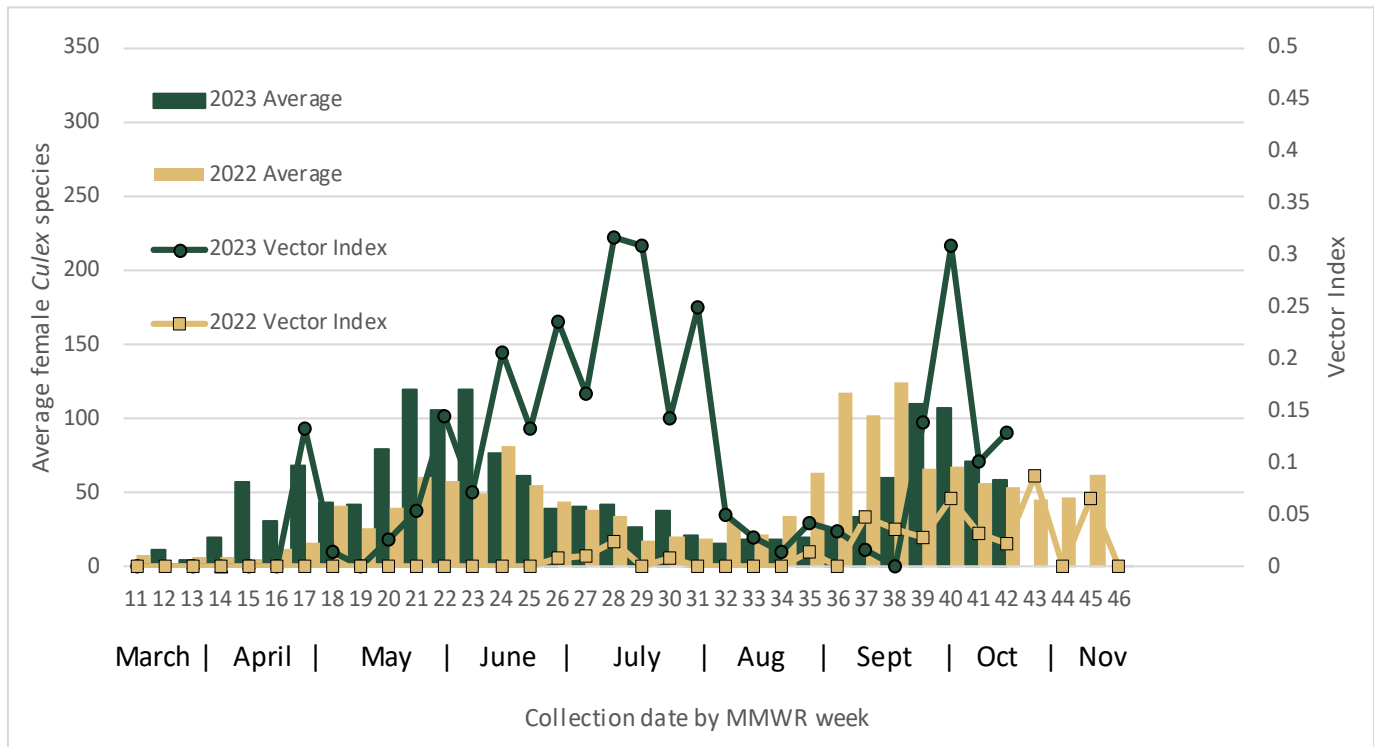
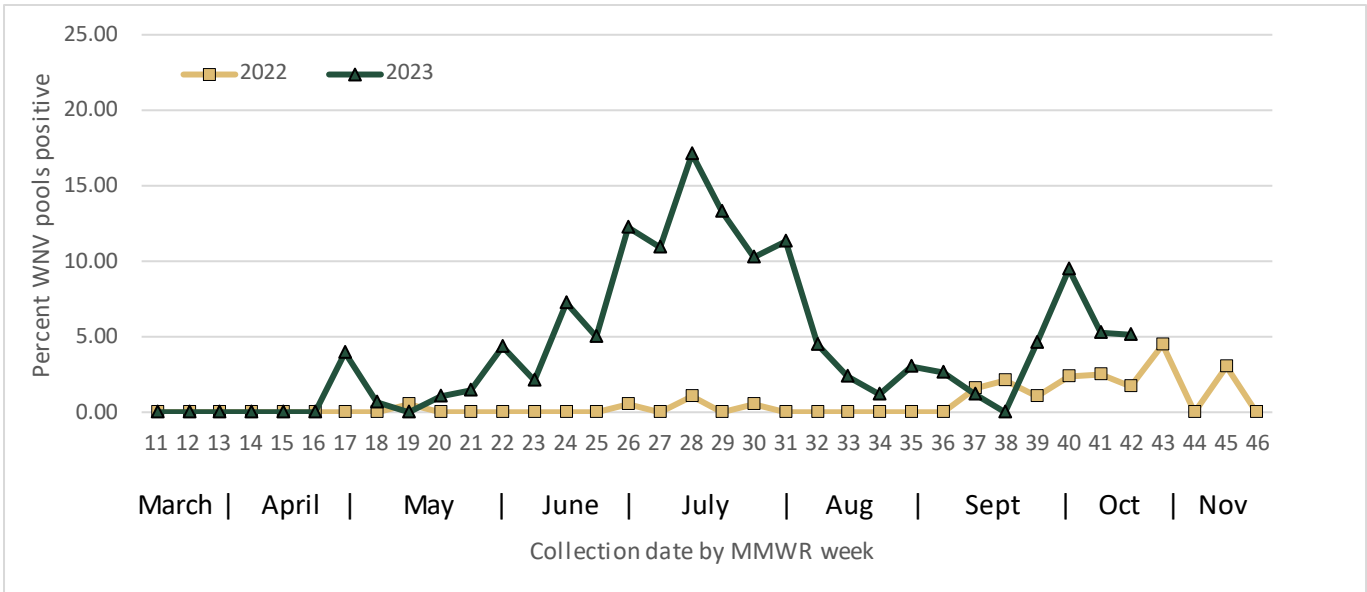


Figure 2. Percentage of Mosquito Pools Positive for WNV by Collection Date, Tarrant County, 2022-2023



Data Source: Tarrant County Public Health

Table 3. North Texas Arbovirus Activity as Reported by Texas DSHS on October 24, 2023

North Texas Counties	WNV		CHIKV		DENV		SLEV		Zika	
	Positive Mosquito Pools	Human cases	Positive Mosquito Pools	Human Cases	Positive Mosquito Pools	Human Cases	Positive Mosquito Pools	Human Cases	Positive Mosquito Pools	Human Cases
Collin	14	1 WNF; 0 WNND	0	0	0	3	0	0	0	0
Dallas	210	5 WNF; 14 WNND	0	0	0	4	0	0	0	0
Denton	17	0 WNF; 2 WNND	0	0	0	1	0	0	0	0
Johnson	9	0 WNF; 0 WNND	0	0	0	0	0	0	0	0
Non-Tarrant North Texas	250	6	16	0	0	8	0	0	0	0
All Texas Counties	862	15	52	0	0	23	12	0	0	0

*All reported CHIKV, DENV, & Zika human cases are travel-related
WNV– West Nile virus; WNF– West Nile fever; WNND– West Nile neuroinvasive disease; CHIKV– Chikungunya virus;
DENV– Dengue virus; SLEV– St. Louis encephalitis virus

For Additional Information Please Visit The Links Below:

- | | |
|--|---|
| Department of State Health Services: <ul style="list-style-type: none"> Arbovirus Activity Reports Texas Zika Tarrant County educational videos and documents: <ul style="list-style-type: none"> Eliminating Mosquito Breeding Sites Barrier Treatments for Mosquitoes Mosquitoes Love Water Mosquito Prevention Tool Kit | Tarrant County web pages: <ul style="list-style-type: none"> Be Mosquito Free Zika Vector Control WNV Interactive Mapping Tool Environmental Protection Agency: <ul style="list-style-type: none"> Insect Repellent Information Center for Disease Control and Prevention: <ul style="list-style-type: none"> Zika Travel Information |
|--|---|