Dallas County Health and Human Services
Arbovirus Surveillance Report

Week 42 ending October 17, 2020

- In week 42, eight mosquito traps tested positive for West Nile Virus (WNV). A total of 473 mosquito traps have tested positive for WNV to date in 2020.

- Eighteen human WNV cases have been reported to date for 2020, including 5 deaths.

- No chikungunya or Zika cases have been reported year to date in 2020 in Dallas County.

- *Aedes albopictus* and *Aedes aegypti* are currently circulating in the area.

Table 1. Mosquito Laboratory and Human Case Surveillance Data for WNV, Dallas County

Week Ending	9/5	9/12	9/19	9/26	10/3	10/10	10/17	YTD
MMWR Week	36	37	38	39	40	41	42*	
Total Traps Placed in Dallas County [a]	238	217	250	241	251	207	200	6,778
Number of Positive Mosquito Traps (PHL; IL) [c]	31;1	27;2	24;2	11;1	8;0	9;2	6;2	451;22
Number of Pools Tested (PHL; IL) [b,c]	212;15	179;17	227;28	219;20	245;16	197;18	181;19	6,029;458
Number of Trap Results Currently Pending	0	0	0	0	0	0	0	
Average Number of *Cx. quinquefasciatus* per Trap [d]	27.2	36.6	47.8	38.9	52.2	58.2	49.1	44.1
Total Number of *Cx. quinquefasciatus* Trapped and Tested	4,510	5,152	7,410	6,248	7,558	7,137	5,765	178,449
Number of Positive Mosquito Pools (PHL; IL) [c]	33;1	27;2	25;2	11;1	8;0	9;2	6;2	463;2
WNV Infection Rate per 1,000 *Cx. quinquefasciatus* [e]	8.50	6.27	3.89	1.97	1.08	1.57	1.40	
Weekly Vector Index (VI) [f]	0.23	0.23	0.19	0.08	0.06	0.09	0.07	
Presumptive WNV Viremic Blood Donors	0	0	0	1	0	0	0	5
WNV Human Cases (WNND; WNF) [g]	5;0	4;1	2;1	0;1	1;0	0;1	0;0	14;4

Table 2. Mosquito Laboratory and Human Case Surveillance Data for chikungunya, dengue and Zika virus, Dallas County

Week Ending	9/5	9/12	9/19	9/26	10/3	10/10	10/17	YTD
MMWR Week	36	37	38	39	40	41	42*	
Total Biogents Sentinel-Traps Placed in Dallas County [h]	4	4	4	4	4	4	4	108
Average Number of *Aedes per* Trap [i]	0.3	4	6	0.8	4.5	3.5	0	1.5
Chikungunya Human Cases (Confirmed & Probable) [j]	0	0	0	0	0	0	0	0
Dengue Human Cases (Confirmed & Probable) [k]	0	0	0	0	0	0	0	1
Zika Human Cases (Confirmed & Probable) [l]	0	0	0	0	0	0	0	0
Pregnant Women with Possible Zika Infection [m]	0	0	0	0	0	0	0	0

*Data for most recent 2 weeks are preliminary, and reflect results reported as of 4:30 p.m. October 17, 2020.

a. All traps deployed in municipalities submitting data to DCHHS since January 1, 2020. Includes traps without mosquitoes, malfunctioning traps and traps with pending results
b. Excludes traps without female *Culex quinquefasciatus* identified. Maximum of 50 female *Culex quinquefasciatus* per pool; more than 1 pool may be tested per trap
c. PHL = Public health laboratory (DSHS, DCHHS) testing performed by viral culture or CDC RT-PCR protocol; IL = Testing from independent labs by alternate methods
d. Average abundance of female *Culex quinquefasciatus* mosquitoes per trap night/week (excludes non-working traps)
e. WNV Infection rates calculated using a Maximum Likelihood Estimation (MLE). *Biggerstaff BJ. PooledInfRate, version 4.0; Microsoft Excel Add-In; CDC 2007*
f. The Vector Index (VI) reflects the MLE adjusted for *Culex quinquefasciatus* abundance. VI= $\sum_{i=species} \bar{N}i\hat{P}i$, where N is the average number of *Culex quinquefasciatus* mosquitoes collected per trap night and $\hat{P}$ is the estimated infection rate
g. Human cases by week of report to health department. WNND = West Nile Neuroinvasive Disease; WNF = West Nile Fever
h. All Biogents (BG) Sentinel traps deployed in municipalities submitting data to DCHHS since Week 15.
i. Average abundance of *Aedes albopictus* and A*edes aegypti* mosquitoes per night/trap in BG-Traps (excludes non-working traps)
j. Human CHKV cases by week of report to health department (AT : Autochthonous case; I : imported)
k. Human Dengue cases by week of report to the health department
l. Confirmed and probable human Zika cases by week of specimen collection date
m. Possible Zika Virus Infection Among Pregnant Women — United States and Territories, May 2016, http://www.cdc.gov/mmwr/volumes/65/wr/mm6520e1.htm/

Table 3. WNV Positive Gravid Mosquito Traps and Human WNV Cases by City, Dallas County, 2020

Week Ending			9/5	9/12	9/19	9/26	10/3	10/10	10/17	YTD
MMWR Week			36	37	38	39	40	41	42*	
	# Human Cases	Range Total # of Traps/Week	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	# WNV+ Traps	
Addison	0	2-5	0	0	0	0	0	0	0	4
Balch Springs	0	3	0	0	0	0	0	0	1	13
Carrollton	0	4-7	1	0	0	0	0	0	0	8
Cedar Hill	0	0-5	0	0	0	0	1	1	0	11
Cockrell Hill	0	0-1	1	0	0	0	0	0	0	5
Coppell	0	0-8	4	1	1	1	0	0	0	12
Dallas	15	53-86	5	8	6	1	4	4	1	175
DeSoto	0	0-6	1	0	1	0	1	1	0	17
Duncanville	0	0-5	4	0	0	0	0	0	0	23
Farmers Branch	0	3-5	1	4	1	2	0	0	0	17
Garland	0	27-31	0	1	1	1	0	0	0	11
Glenn Heights	0	0-2	2	0	0	0	0	0	0	5
Grand Prairie	0	24-27	2	2	1	0	2	2	2	22
Highland Park	1	0-3	0	1	0	0	0	0	0	2
Hutchins	0	0-3	0	0	0	0	0	0	0	2
Irving	1	18-19	0	1	0	0	0	0	1	17
Lancaster	0	0-4	3	1	0	0	1	1	0	20
Mesquite	0	21-25	5	3	0	0	1	1	1	83
Richardson	1	12	0	1	1	1	0	0	1	12
Rowlett	0	7	0	0	0	0	0	0	1	2
Sachse	0	3	0	0	0	1	1	1	0	2
Seagoville	0	1-2	0	0	0	0	0	0	0	1
Sunnyvale	0	2	0	1	0	0	0	0	0	1
Unincorporated County	0	1-4	0	0	0	0	0	0	0	1
University Park	0	0-4	0	2	0	1	0	0	0	7
Wilmer	0	1	0	0	0	0	0	0	0	0
Total	**18**		**32**	**29**	**26**	**12**	**8**	**11**	**8**	**473**

*Data for most recent 2 weeks are preliminary, and reflect results reported as of 4:30 p.m. October 17, 2020. ¹Range of numbers of traps placed weekly, in weeks 1 – 42.

Figure 1: All WNV Negative and Positive Mosquito Traps Collected During 2020: Weeks 1-42* (N=6,778)
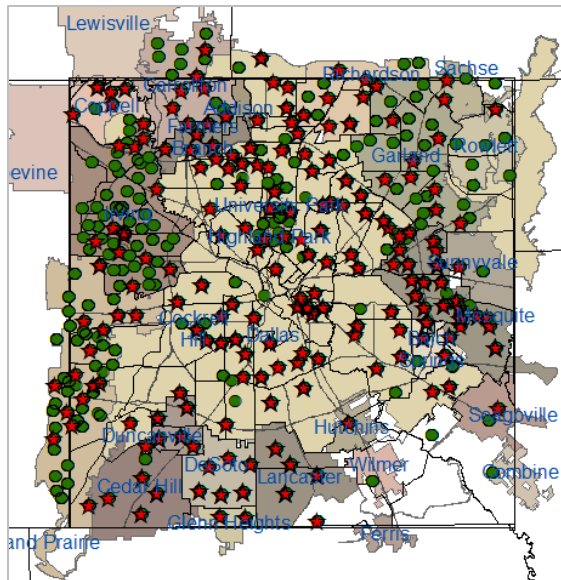
Figure 2: Cumulative WNV Positive Mosquito Traps Collected: Weeks 1-42* (N=473)
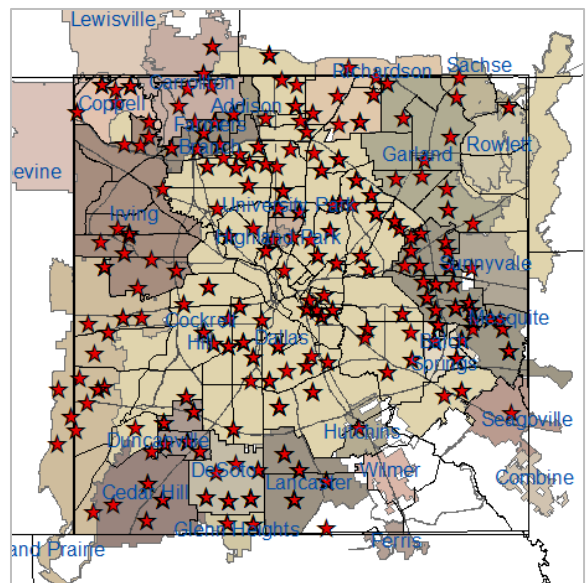
★ Positive Traps   ● Negative Traps   ● Pending Traps
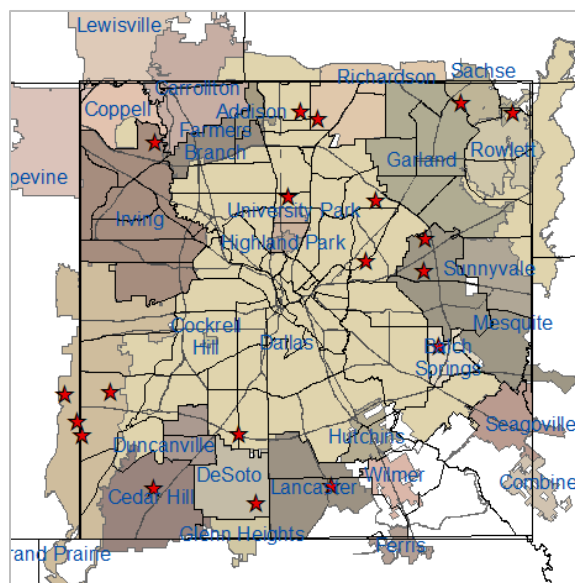
*Data for most recent 2 weeks are preliminary.
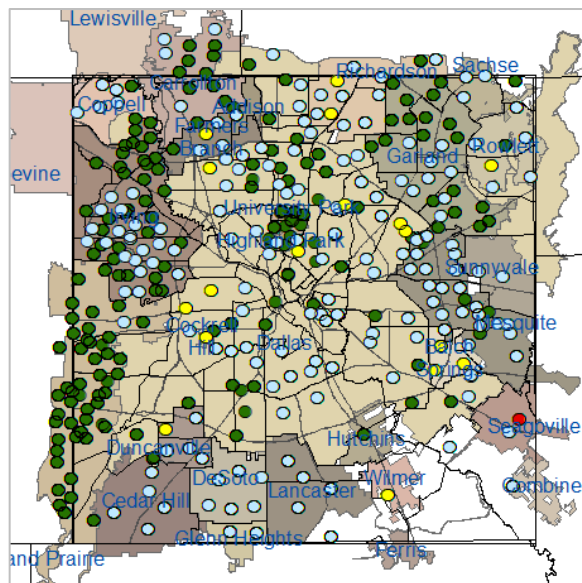
Figure 3: WNV Positive Mosquito Traps Collected During 2020: Weeks 41 and 42* (N=19)

★ Positive Traps

**Figure 4**: Trap Counts of Female *Cx. quinquefasciatus* from 2020 Season: Weeks 1-42*

● < 100 Mosquitoes/Trap   ○ 100 - 499 Mosquitoes/Trap
○ 500 - 1000 Mosquitoes/Trap   ● >1000 Mosquitoes/Trap

*Figure 4 only shows traps for which results were available; malfunctioning traps were excluded. Almost all traps are at fixed sites.
<u>*Note*</u>: Most recent 1-2 weeks data are preliminary and subject to change following receipt of data still pending.

Figure 5: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night and WNV Vector Index by Week: 2012 Season and 2020 Season (through Week 42*)
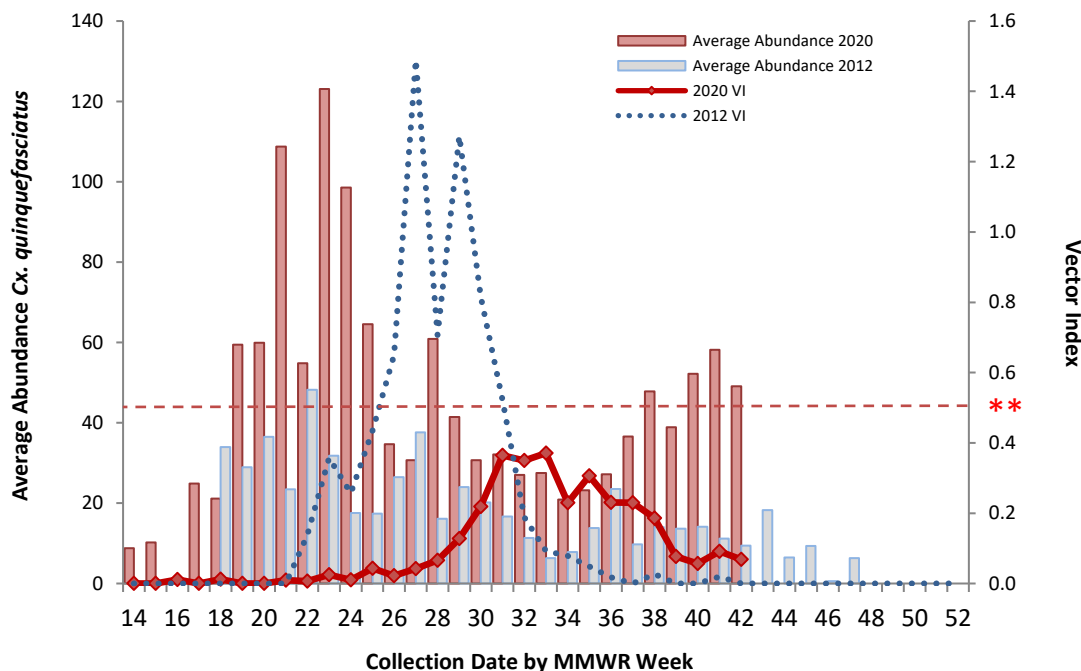
** Vector Index of 0.50 is the historical threshold associated with larger local epidemics of WNV illnesses in humans.
<u>*Note*</u>: Most recent 1-2 weeks data are preliminary and subject to change following receipt of data still pending.

Figure 6: WNV Vector Index by Week: 2012 - 2020 Seasons

The Vector Index (VI) reflects the MLE adjusted for *Cx. quinquefasciatus* abundance. VI= $\sum_{i=species} \bar{N}i\hat{P}i$, where *N* is the average number of *Cx. quinquefasciatus* mosquitoes collected per trap night and $\hat{P}$ is the estimated infection rate
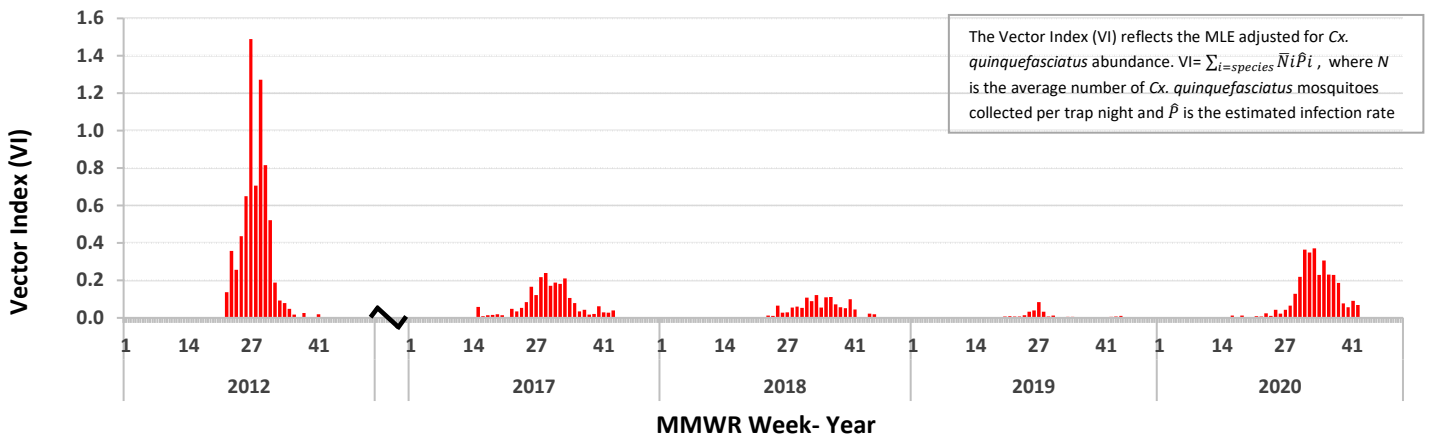
Figure 7: Average Numbers of Female *Cx. quinquefasciatus* per Trap-night by Week: 2012 - 2020 Seasons
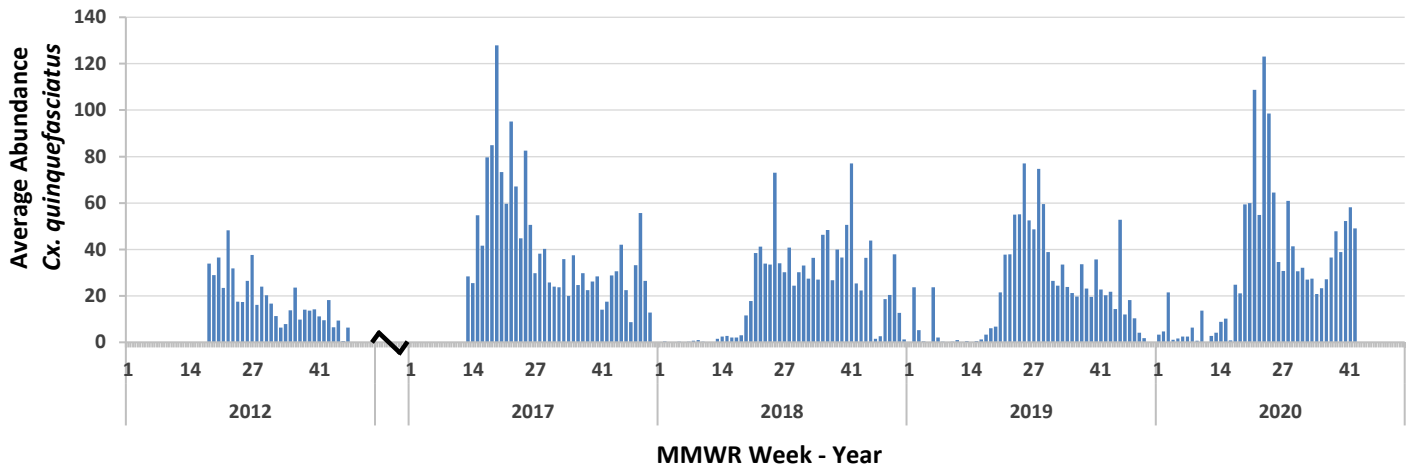
Figure 8: MLE (WNV Infection Rate per 1,000 *Cx. quinquefasciatus*) by Week: 2012 - 2020 Seasons
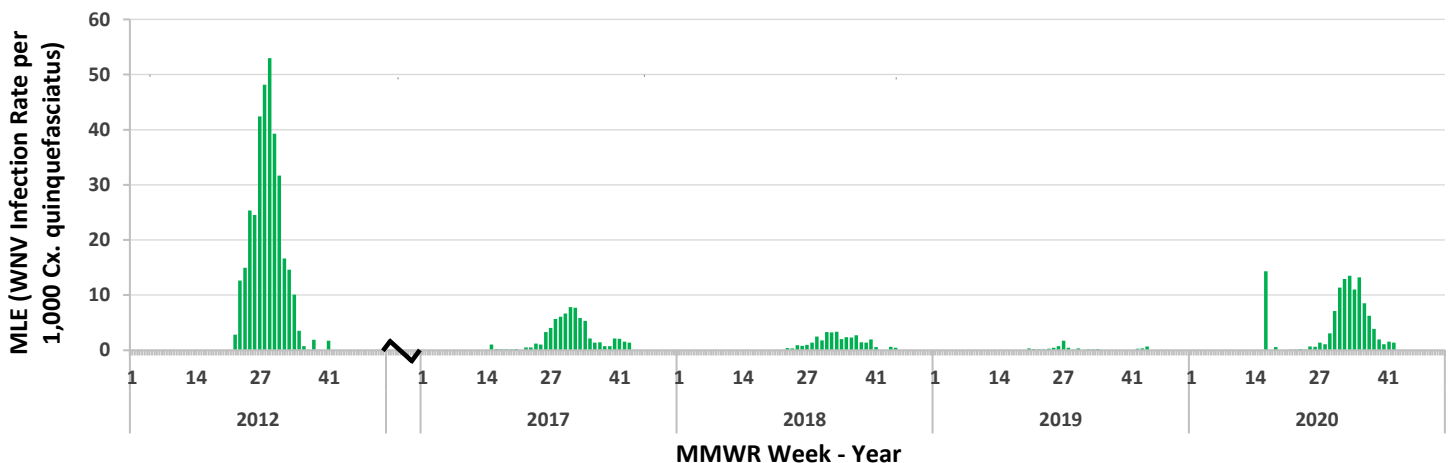
Figure 9: BG-Sentinel Trap Counts of Female *Aedes aegypti* and *Aedes albopictus* during 2020: Weeks 15 through 42[†]

● 0 Mosquitoes/Trap	○ <10 Mosquitoes/Trap
○ 10-30 Mosquitoes/Trap	● >30 Mosquitoes/Trap
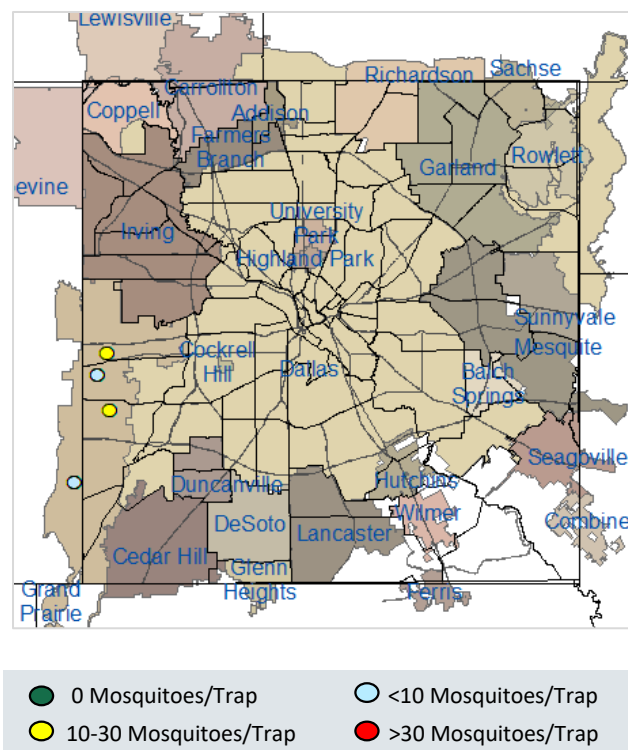
Figure 10: Average Numbers of *Ae. aegypti* per Trap-night: 2019 and 2020 Seasons*,[†]
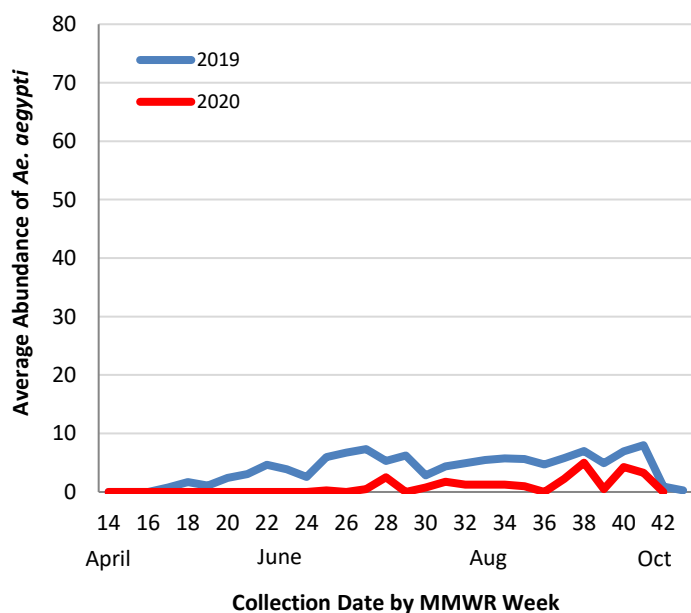
Figure 11: Average Numbers of *Ae. albopictus* per Trap-night: 2019 and 2020 Seasons*,[†]
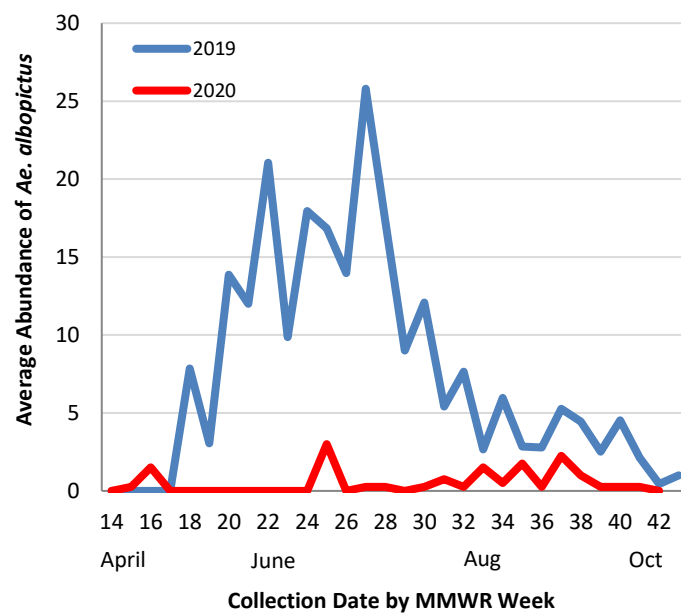
*Data for most recent 2 weeks are preliminary
[†]Routine *Aedes* BG-Sentinel trapping was conducted during week 15 - 42 in 2020