

The West Nile Weekly

SUMMARY: Four to ten counties are expected to report cases in the week of July 25th - August 1st. We continue to see evidence that 2016 will be an above-average year for WNV in SD; specifically, additional human cases and positive mosquitoes have been reported. Other states are observing early cases.

Six human disease cases and one infected blood donor have been reported by the SDDOH as of July 13th in Brown County (2 cases), Brookings, Minnehaha, Grant, and Todd (1 each).

The first three counties are known historically for having cases, due to their large populations. Grant and Todd rank 35th and 37th out of our 66 counties in terms of total cases ever reported, where Brown is first. Grant has had 7 cases since 2012, so a cases there is not necessarily surprising. Todd, however, had only reported one case since 2008 - now two.

Four of these cases began showing symptoms by June 15th, which is early: only 0.9% of all cases in our records have begun before that date. Keeping in mind that this is probably not the final count - testing, diagnosis, and reporting may take some time - this is another piece of evidence that 2016 will be an above-average year for WNV.

How are the mosquitoes?

Culex tarsalis numbers are on an upward trend, but 2016 is average compared to all other years (Figure 1). We note that large collections of this WNV vector do not necessarily mean lots of human disease - relatively few were collected in 2012, but there were more than 200 human cases in SD that year.

At the same time, nuisance mosquitoes (here we mean *Aedes vexans*) are near their peak for 2016 and will soon begin declining (Figure 2). The danger for public health is that spraying will also decline in response. Certainly, nuisance mosquitoes are bother-

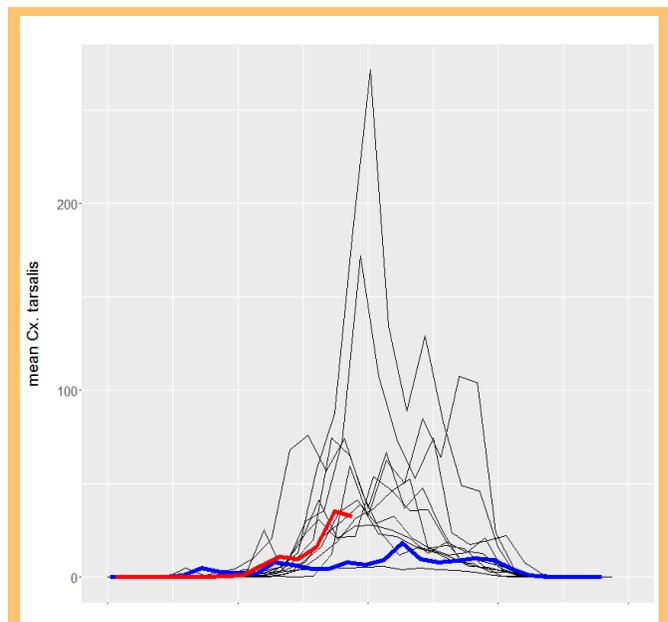


Figure 1: Average *Cx. tarsalis* collections by week. 2016 (red) is average compared to all other years (black), and exceeds 2012 (blue).

some and a control group can spray for them, especially if complaints are received, but even in the absence of complaints we encourage continued larvaciding and adultciding to limit human cases caused by the WNV vector *Cx. tarsalis*.

This vector species may be less aggravating and fewer complaints may be received about it, but it is just now ramping up and collections show that it continues to represent a threat in 2016. Namely, as of July



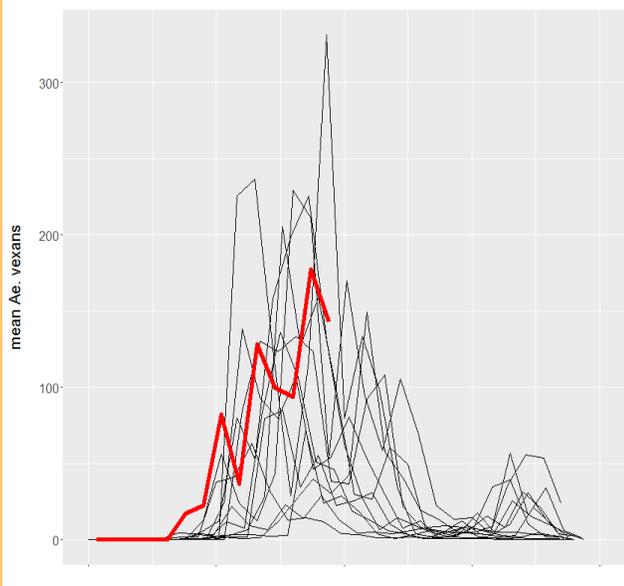


Figure 2: Average *Ae. vexans* collections by week. 2016 (red) is slightly above average compared to all other years (black).

17th we have received reports of 13 positive mosquito pools out of 751 tested; only vectors are tested, as nuisance mosquitoes do not transmit the virus. This means that 1.7% of all pools tested were positive for the virus, and we estimate that at least 1 per 1,000 vector mosquitoes carry the virus statewide.

Six positive pools have been reported by Brown County, three positive pools by Brookings, two by Minnehaha, and one each by Edmunds and Hughes (Figure 3). These counties are all east of the Missouri, but this is where most of the testing takes place - reports from states on our western border indicate that WNV is almost certainly present in our western counties too, even if it has not yet been detected there.

What to expect?

Estimated statewide risk has risen to 9.5% of all counties in the week of July 25th - August 1st, so that four to ten counties are expected to report cases during this week. For comparison, 37 counties were positive during this week in the epidemic year 2003. In 2014 and 2015, only 3 and 2 counties reported any cases during this week.

Brown County has an estimated 49.6% chance of reporting at least one human case during this week. Some counties had previously fallen in risk due to

lower temperatures, but all are now climbing again. Historically, 8.6% of cases occur in this week. That is, one out of every twelve cases began showing symptoms this week. Of all cases, 21% occur before August 1st. If we measure the WNV season by cases, by the beginning of August we will probably be 1/5 through 2016's human cases. Hence, spraying now is vital for prevent cases in the week of July 25th.

What's going on elsewhere?

[CA](#), [NJ](#) have reported their first human cases, [TX](#) its second. [NV](#) is reporting an early human case and positive mosquitoes. Many reports from mosquito control districts around the country use words like "early."

One [study](#) of WNV in horses in France found that areas around wetlands in which water levels tend to rise and fall frequently are particularly risky for horses. It is not coincidental that our areas of highest risk are in the [Prarie Pothole Region](#), which covers much of eastern SD and is known for temporary, shallow wetlands that alternate between wet and dry periods.

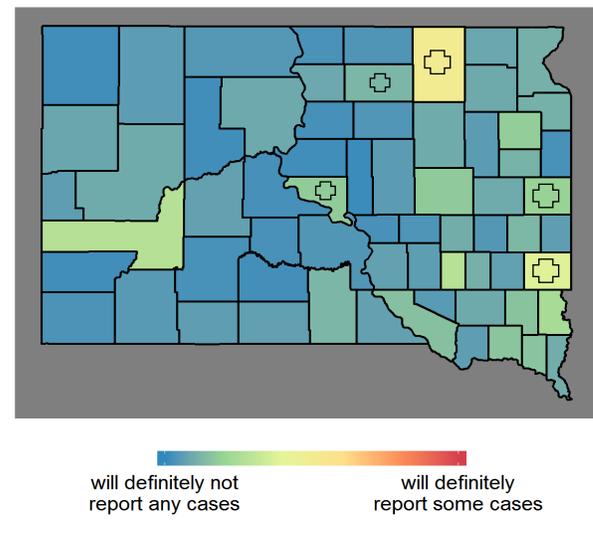


Figure 3: Estimated per-county risk for the week of July 25th. The + indicates that we have received reports of positive mosquitoes.

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