

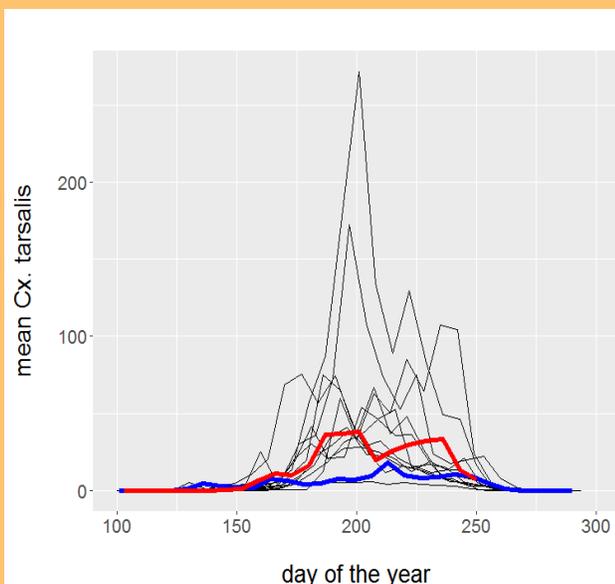
# The West Nile Weekly

**SUMMARY:** Three to eight counties are expected to report cases in the week of Sept. 19th - 25th. Brown County has a 1 in 2 chance of reporting a case, and all other counties are below this level of risk. Killing frosts may start to occur towards the end of this week.

## How are the mosquitoes?

The *Culex tarsalis* season is coming to a close, and in the previous week we have seen around 7 adults per trap night statewide (Figure 1). *Aedes vexans* have fallen to 83 per trap night, from nearly 100 last week; this is still high for this time of the year.

On Sept. 9th, there have been 242 positive pools, and 71,463 mosquitoes tested since the beginning of the year, and the MIR is estimated to be 3.4 positive vectors per 1,000 tested, up from 3.1 last week. We had anticipated that this number would fall, but there was a cluster of 26 positive pools from Minnehaha and Lincoln, including both *Cx. tarsalis* and *pipiens*.



**Figure 1:** Average *Culex tarsalis* collections in 2016 (red), 2012 (blue), and all other years (black).

Fall River, Grant, Lake, Lincoln, and Meade all have estimated MIRs above 5 positive vectors per 1,000 tested since the beginning of the year. Minnehaha and Brookings, having tested more than 30,000 mosquitoes together, have MIRs above 4. Positive pools have been reported as recently as Sept. 2nd - while the vectors are dying off, the virus is still circulating and human infections are still possible.

## What to expect?

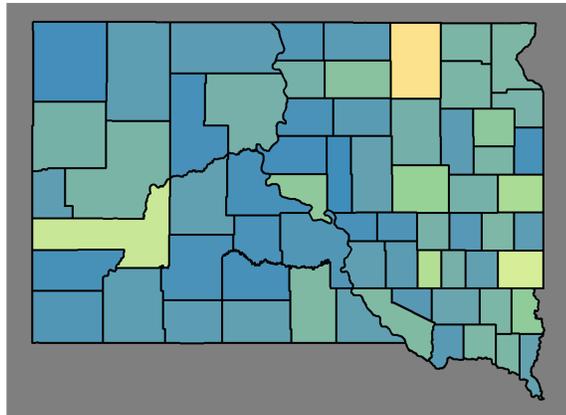
Last week we estimated 10.0% of counties would report cases, falling to 7.8% in the week beginning September 19th, which means that 3 to 8 counties are expected to report cases.

Brown County has a 51.4% chance (or 1 in 2 chance) of reporting a case (Figure 2); all other counties are below this level of risk. If temperatures remain below or at historical averages, we would not be surprised if no new human cases occurred after the 25th.

Historically, 2.9% of cases occur in the week of Sept. 19th - 25th. Of all cases, 97.8% tend to occur before the 18th, and only 1 out of 50 cases after.

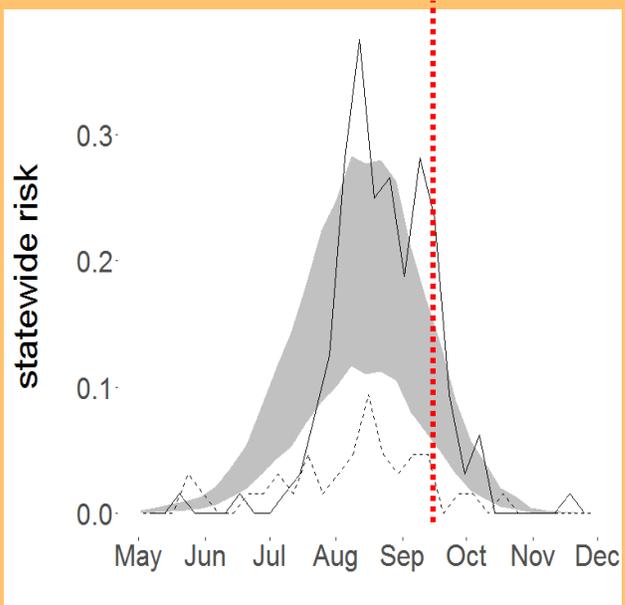
We estimate that there will have been at least 110 cases in SD in 2016 by September 25th, up from 105 last week, and we estimate that there will be at least 118 cases in SD in 2016. This is unchanged from our previous estimate.

The WNV season is winding down, but risk is not yet zero, and will not be zero for some time (Figure 3). First frosts in the state tend to occur at the earliest towards Sept. 20th, with an [average date](#) of the 27th. Most of the sources we read agree that the upcoming winter will [slightly colder than normal](#).



will definitely not report any cases      will definitely report some cases

**Figure 2:** Estimated per-county risk for the week beginning Sept. 19th. Brown County has a 1 in 2 chance of reporting at least one case.



**Figure 3:** Estimated statewide risk for 2016 (band), 2012 (solid), and 2015 (dashed). Sept. 19th is marked with the red dashed line.

We also note that heavy-WNV years are sometimes followed by low-WNV years, probably because susceptible birds die off and the populations that survive have some level of immunity to the virus.

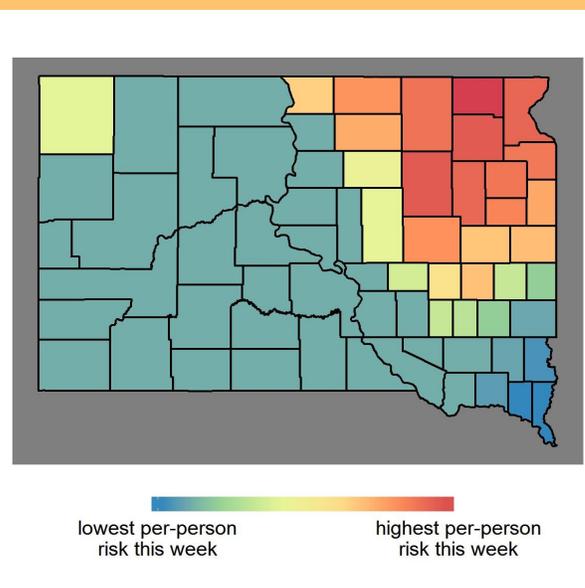
Since 2016 had more WNV than usual and Winter 2017 is expected to be cold, we begin to anticipate that 2017 will be a lower than average year for WNV.

The spatial pattern of per-person risk in the state is essentially unchanged in the state (Figure 4). In some years this pattern might shift over time but high temperatures, the major influence on WNV in SD this year, have been shared equally by everyone here.

### What’s going on elsewhere?

The CDC and USGS have updated the map of [WNV in the US](#). On Sept. 12th, 555 cases had been reported and are distributed roughly as we have come to expect. There is a cluster in the Upper Great Plains Region (mostly here in SD), with clusters of cases in AZ, CA, CO, and TX. [CA](#) reported 155 cases on Sept. 9th, 32% above its five year average of 117 cases by that date, and their positive mosquito count is up by 45%.

Being infected with WNV reduces the viral load of [HIV](#) infections, and researchers are considering the possibility of using viruses like WNV (but not WNV itself!) to prevent HIV infection.



lowest per-person risk this week      highest per-person risk this week

**Figure 4:** Estimated per-person risk for 2016 for the week beginning Sept. 19th.

All previous versions of the West Nile Weekly and other WNV documents are available at [mosquito.sdstate.edu](http://mosquito.sdstate.edu). Please email [michael.wimberly@sdstate.edu](mailto:michael.wimberly@sdstate.edu) or [michael.hildreth@sdstate.edu](mailto:michael.hildreth@sdstate.edu) for additional information.