

# Wisconsin Pest Survey Report

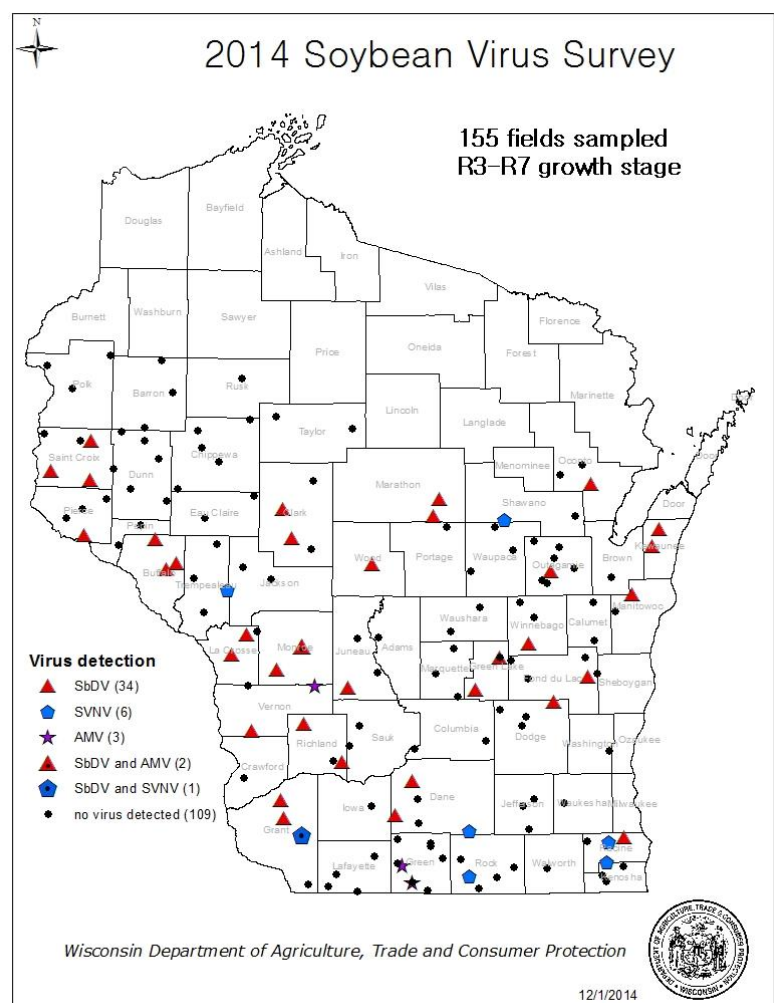
## 2014 SOYBEAN VIRUS SURVEY

<http://pestsurvey.wi.gov/>

Soybean fields were surveyed for viruses from July 28 to August 28, 2014. The pest survey team surveyed and sampled 155 fields for three viruses: **alfalfa mosaic virus (AMV)**, **soybean dwarf virus (SbDV)** and **soybean vein necrosis virus (SVNV)**. The map below shows the prevalence of all three viruses in Wisconsin in 2014.

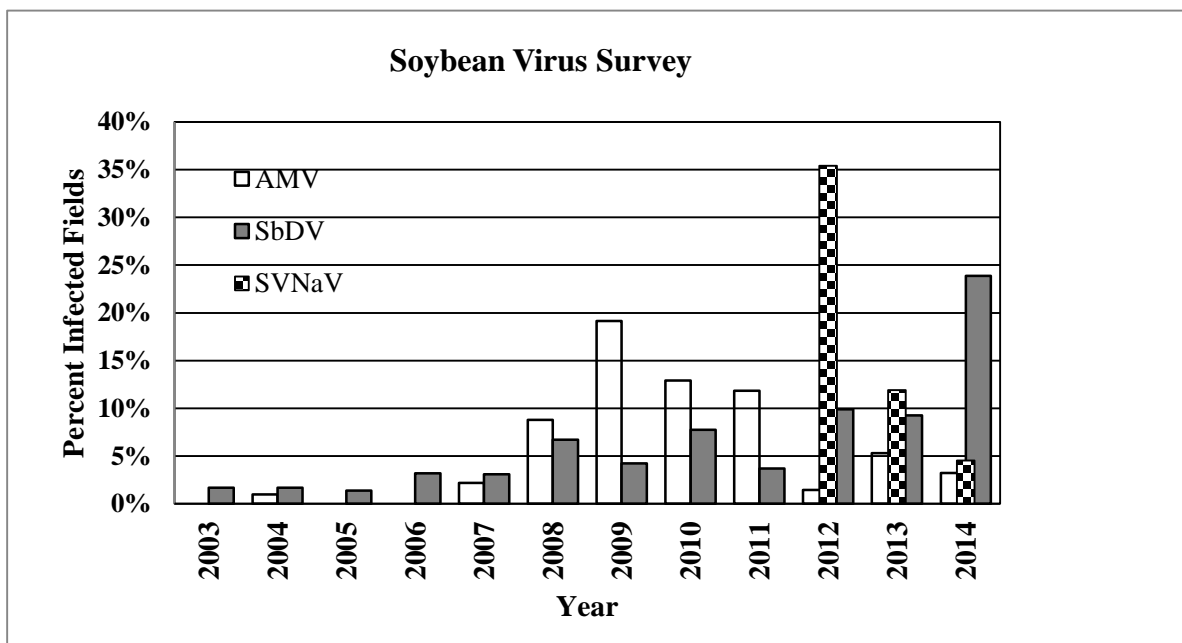
37 of 155 (23.87%) fields tested positive for **soybean dwarf virus**. That is more than a two-fold increase for SbDV from 2013 (9.27%). In two fields both SbDV and AMV were present, in one field SbDV and SVNV were found. The table on page 2 shows an upward trend of SbDV since the beginning of the survey in 2003, when SBDV was first detected in Wisconsin (Phibbs 2004).

This luteovirus causes significant damage in Japan, but has not been observed to have the same damaging effect on soybeans in the US. Several strains are known to exist. The dwarfing strain is the predominant strain in Wisconsin, with few yellowing strain isolates reported. Virus transmission relies on persistently feeding colonizing aphids, such as the soybean aphid in the Midwest. High levels of SBDV infection have been documented in clovers in Wisconsin, making it a possible reservoir for this virus. So far no significant damage to soybean has been associated with SbDV in Wisconsin.



**Soybean vein necrosis virus**, the causal agent for soybean vein necrosis disease, was detected in seven (4.52%) fields in 2014, which is less than half the number of fields that tested positive in 2013 (11.92%). The highest level with 35.40% fields infected was in 2012, the year SVNV was

first identified in Wisconsin (Smith 2013). Recent research has proven that SVNV is transmitted by soybean thrips (Zhou & Tzanetakis 2013). The arrival of soybean thrips in Wisconsin depends on wind patterns blowing the insects in from the south. While hot and dry weather in 2012 was very conducive to thrips reproduction, cold and wet conditions in 2014 kept thrips populations low. First detected in Tennessee in 2008, SVNV has quickly spread throughout the country's soybean production areas. Other susceptible hosts of SVNV are cowpea, mung beans and ivy-leaved morning glory, a common weed in soybean fields. Control treatment for SbDV or SVNV are not recommended at this time.



**Alfalfa mosaic virus** incidence decreased to 3.23% of tested soybean fields in 2014. Several aphid species including soybean aphid can transmit AMV from infected reservoirs such as alfalfa and clovers. AMV can also be introduced by infected seed.

The summer survey of soybean fields did not detect any **Asian soybean rust** (*Phakopsora pachyrhizi*) in Wisconsin in 2014. This rust disease, which has never been found in Wisconsin, was limited to eight states in the southern United States (AR, AL, GA, FL, OK, LA, MS, TX).

#### References

Phibbs A., Barta A., Domier L. L. First Report of *Soybean dwarf virus* on Soybean in Wisconsin. Plant Disease 2004, Vol. 88, No. 11, Page 1285.

Smith D. L., Fritz C., Watson Q., Willis D. K., T. L. German T. L., Phibbs A., Mueller D., Dittman J. D., Saalau-Rojas E., Whitham S. A. First Report of Soybean Vein Necrosis Disease Caused by *Soybean vein necrosis-associated virus* in Wisconsin and Iowa. Plant Disease, May 2013, Vol. 97, No. 5, p. 693.

Zhou J. and Tzanetakis, I. E. Epidemiology of Soybean vein necrosis-associated virus. Phytopathology 2013, Vol. 103, pp. 966-971.

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