Blueberry Shock Virus

a. **Virus/pathogen name**, including accepted acronyms and synonyms

Blueberry scorch virus, BlScV; Sheep pen hill disease, genus *Ilarvirus*, family *Bromoviridae*

b. **Host range**, including resistance or tolerance within the crop hosts, alternate hosts *Vaccinium* spp. reported in *V. corymbosum*, (northern highbush blueberry), V. macrocarpon (cranberry) (MacDonald et al., 1991 and Wells-Hansen et al., 2016).

c. Symptoms on crop host including varietal differences with images of symptoms when available

BlShV can cause a complete flower and leaf necrosis of highbush blueberry plants during the bloom period. Affected plants produce a second flush of leaves after flowering and appeared normal by late summer except for the lack of fruit. In most cases affected plants flower and fruit normally after 1-3 years and do not exhibit any additional symptoms (Bristow and Martin, 2002). However, during the long cool spring conditions of 2010-2plants of several cultivars that had recovered from the shock symptoms exhibited a leaf reddening in the PNW. The impact on yield if any with the leaf reddening symptoms is unknown. The virus is pollen-borne and infection only occurs during the bloom period, as determined with trap plants placed bi-weekly in diseased fields throughout two growing seasons (Martin and Bristow, 1999). Symptoms are observed the year after infection occurs. Fruit loss is correlated with the extent of blighting in the spring. In some bushes, only one or a few branches will show symptoms, whereas in others the entire bush blights. Bushes, where only partial blighting occurs, will usually show symptoms the following year on previously symptomless wood.
In cranberry, BlShV causes scarred berries similar to symptoms caused by tobacco streak virus in cranberry (Wells-Hansen et al., 2016).

d. **Geographic distribution**: BlShV is mostly limited to the Pacific Northwest in highbush blueberry. It has been reported in Michigan, but has not been detected there after the field with the infected plants was completely removed (Shcilder, 2009). It has also been reported on cranberry imported into Europe (Jones et al., 2001) and in commercial fields in Wisconsin (Hansen-Wells, 2016), but testing in other areas has not been carried out. The distribution and impact of BlShV in cranberries is unknown. Transmission between blueberry and cranberry has not been studied.

e. **Means of spread**: BlShV is pollen-borne and spread within a field varies greatly depending on cultivar (Bristow et al., 1999). It is also spread via pollen-associated arthropods and planting stock

f. **Recognized diagnostic tests with cited references**:

BlShV can be detected readily by ELISA (MacDonald et al., 1991); or RT-PCR, (Kim et al., 2025)

g. **Sampling recommendations** for each pathogen including timing and tissue to be sampled

Leaf tissue collected from late spring through early fall is ideal tissue for sampling. The youngest but fully expanded leaves provide optimal tissue for sampling.

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h. **Management strategies** for the pathogen and the vector(s) of the pathogen

BlShV is symptomless in recovered bushes, but pollen produced from these bushes are a source of inoculum for virus spread to healthy plants in nearby fields. The most important control measure is to start with BlShV-free planting stock, also if planting adjacent to other blueberries or cranberries it is advisable to test these adjacent plants for BlShV infection prior to planting to determine whether they pose a risk of virus infection in the planned planting.

i. References

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Jones, A. T., McGavin, W. J. and Dolan, A. 2001. Detection of tobacco streak virus isolates in North American cranberry (*Vaccinium macrocarpon* Ait.). Plant Health Progress. doi:10.1094/PHP-2001-0717-01-RS.

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