

County Agent News
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Wheat Streak Mosaic

Wheat Streak Mosaic is usually thought of a “winter wheat’ disease but weather conditions last fall and this spring created the perfect storm for wheat streak mosaic problems in some spring wheat and durum fields.



Figure 1. WSMV-infected plant showing yellowing and stunting.
(Photo by Marcia McMullen, NDSU)

Wheat Streak Mosaic is a disease caused by a virus and spread by the wheat curl mite. The disease usually first appears at the edges of a field or as patches around volunteer wheat which was not controlled prior to seeding. Warm fall temperatures with good growing conditions with late killing frosts provide ideal conditions for increased populations of the wheat curl mite. Early and warm spring weather conditions also allow for excellent survival and increase of mite populations. The worst fields I have seen have been spring wheat or durum planted on canola stubble which had been in wheat or durum in 2014. Early harvest of canola and fall rains resulted in a late season flush of volunteer wheat in the canola stubble. A mild winter followed by an early spring with more volunteer wheat allowed the wheat curl mite populations to explode and spread the virus across the field. Then the preplant burndown with glyphosate was either too close to planting dates and thus did not provide the minimum two weeks of “breaking the green bridge” or did not provide adequate control of the volunteer grains present in the fields, resulting in very early infection of the newly seeded crop.

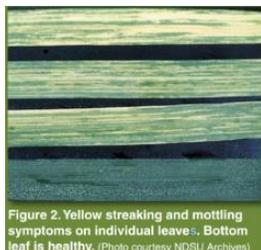


Figure 2. Yellow streaking and mottling symptoms on individual leaves. Bottom leaf is healthy. (Photo courtesy NDSU Archives)

The damage caused by wheat streak mosaic is very dependent on the crop stage at the time of infection. The earlier in the growth stage the infection occurs the greater the yield losses. An infection at the two leaf stage may result in the death of the plant whereas an infection at flag leaf will cause a yield reduction but will not kill the plant. Research on winter wheat in Oklahoma suggests yield losses averaging 62% when infection occurs in the fall compared to 15% when infection occurs in the spring.

Infections in spring wheat usually occur when the crop adjoins an infected winter wheat field and the mites carrying the virus are blown into the spring wheat by the wind.

The outbreak of wheat streak mosaic in spring wheat and durum this year reemphasizes the need to break the green bridge even with crop rotations which would normally stop the disease. It also raises some concerns about cover crops. Cover crops containing some grass species may contribute to mite survival. Mite survival on wheat or sorghum in a cover crop mix would be likely to increase mite populations. Mite population increase is poor on barley and rye. They do not increase on oat so that would be ok in a cover crop. Mite increase on corn is rated poor to fair so consider leaving that out as well if you’ve had a problem. Yellow and green foxtail can also be a problem although they are considered poor for mite increase. When conditions are right even these plants considered poor for mite increase can be a problem.



Figure 3. Mottling symptoms in WSMV-infected young winter wheat.
(Photo by Daniel Waldstein, NCREC)

Because the disease is a virus spread by a mite there are no fungicides or insecticides which are effective at stopping this disease.