

Soilborne wheat mosaic virus post-harvest update

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Soilborne wheat mosaic virus (SBWMV) kept us busy this spring and harvest season. We worked on our **Oregon Wheat Commission** funded study to quantify yield loss associated with SBWMV under dryland conditions, investigate the efficacy of variety blends under heavy SBWMV disease pressure, and screen new OSU and Industry material for resistance to SBWMV.

The evaluation of yield loss to SBWMV was conducted at two locations in Walla Walla county: a “severe” SBWMV location (Fig. 1), and a “moderate” SBWMV location (not shown). At the moderate SBWMV location, no yield loss was detected in association with SBWMV ($p=0.48$). At the severe SBWMV location, yield was reduced by an average of 37.3 bu/A ($p < 0.001$).

Over the course of the spring season, we were consistently impressed with the SY Ovation (SBWMV resistant) and LCS Art Deco (SBWMV susceptible) blend. We documented less than 50% disease in the 50/50 SY Ovation/Art Deco blend, and less than 25% disease in the 75/25 Ovation/Art Deco blend. Preliminary results indicate the resistant/susceptible variety blends do not significantly differ in yield compared to pure stand resistant SY Ovation (Fig. 2). However, susceptible LCS Art Deco yielded 31.2 bu/A less than pure stand resistant SY Ovation ($p=0.003$).

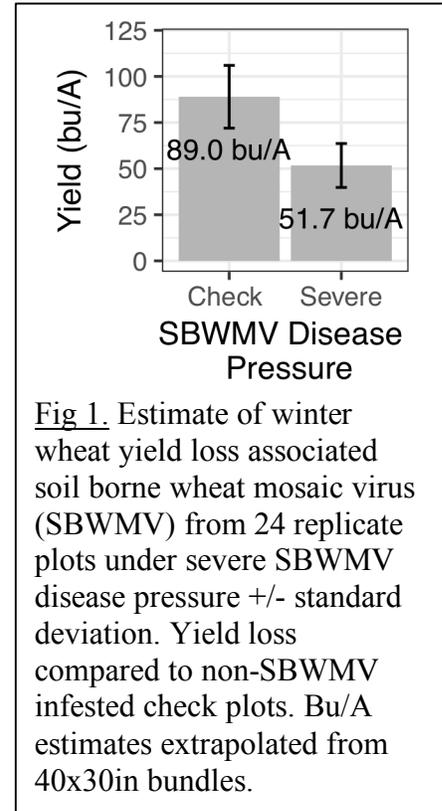


Fig 1. Estimate of winter wheat yield loss associated soil borne wheat mosaic virus (SBWMV) from 24 replicate plots under severe SBWMV disease pressure +/- standard deviation. Yield loss compared to non-SBWMV infested check plots. Bu/A estimates extrapolated from 40x30in bundles.

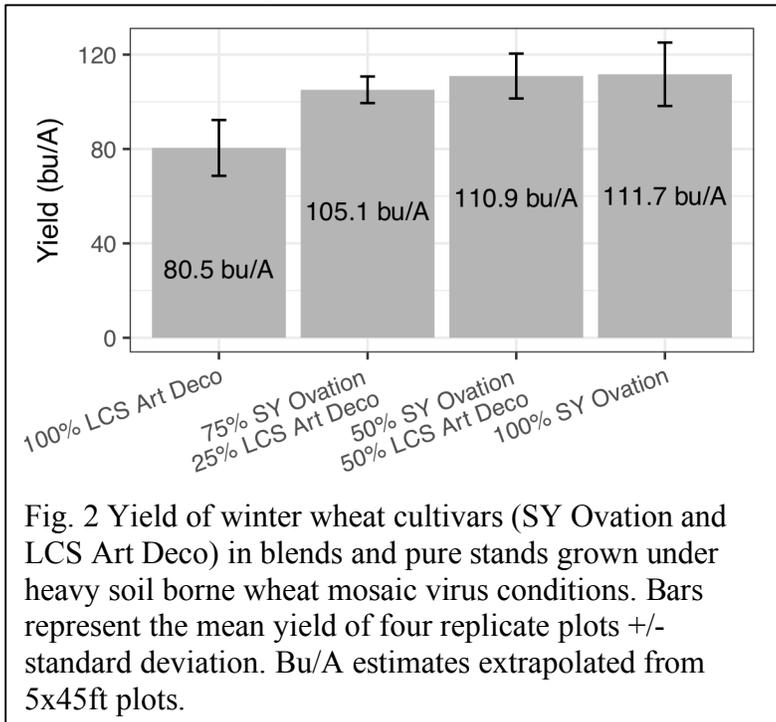


Fig. 2 Yield of winter wheat cultivars (SY Ovation and LCS Art Deco) in blends and pure stands grown under heavy soil borne wheat mosaic virus conditions. Bars represent the mean yield of four replicate plots +/- standard deviation. Bu/A estimates extrapolated from 5x45ft plots.

Take home messages from 2017 harvest season: 1. Significant yield loss (37.3 bu/A yield penalty) was documented in association with dryland SBWMV. 2. Preliminary data suggests resistant/susceptible variety blends may be a good option to prevent yield loss from SBWMV.

We will continue to screen new varieties for resistance to SBWMV, and we are excited to expand the variety blend work. Genetic resistance continues to be the most economic method of disease control; we will see more options for resistant varieties in the marketplace soon. For an updated list of resistant lines please visit the website: agcilabs.oregonstate.edu/cerealpathology

Please reach out to discuss these preliminary results or ask any questions. Please note all results are preliminary and are based on only one season. Many thanks to the Oregon Wheat

Commission for funding this work, and to the farmers who hosted trials. Have a great planting season!



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