



Lentil can be impacted by Sclerotinia white mold

CATEGORY [disease](#) | March 31, 2022

Ten lentil cultivars were found to be susceptible to Sclerotinia white mold and Botrytis grey mold. The highest yields were found on dryland plots at a seeding rate of 16 seeds/ft². Irrigated plots yielded significantly less, and had significantly higher disease incidence.

Sclerotinia white mold, caused by the fungus *Sclerotinia sclerotiorum*, and Botrytis grey mold, caused by the fungus *Botrytis cinerea*, can impact lentil production in wetter areas of the Prairies. However, the susceptibility of lentil to these diseases was unknown in Alberta.

The objectives of this study were to determine cultivar responses to Sclerotinia white mold and Botrytis grey mold in irrigated and dryland conditions and variable disease pressure, and the influence of plant density on disease pressure.

Field trials were conducted from 2013 to 2015 at the Agriculture and Agri-Food Canada Lethbridge Research and Development Centre, Alberta. Ten lentil cultivars from five market classes were planted at either 12 or 16 seeds/ft² (120 and 160 plants/m²) under irrigation and dryland plots. The ten lentil cultivars, provided by the Crop Development Centre (CDC), University of Saskatchewan were CDC Dazil, CDC Imax, CDC Imigreen, CDC Impact, CDC Impala, CDC Imperial, CDC Impower, CDC Improve, CDC Invincible and CDC Maxim.

Irrigation was applied starting in early July, with 1.5 cm applied three times per week, unless there was a rain event.

Total precipitation was above average in 2013 at 11 inches (281 mm) and also above average in 2014 at 11.4 inches (290 mm) but below average in 2015 with 4.2 inches (106 mm), compared to the 30 year average of 8.5 inches (215 mm).

Sclerotinia white mold worse under wet conditions

Sclerotinia white mold incidence varied significantly between cultivars under irrigated and dryland conditions, but there was no consistent trend in cultivar performance. Under irrigation, Sclerotinia white mold incidence was highest in 2013 at up to 87% incidence with less severe incidence in 2014, and less than 8% incidence in 2015. Under dryland, incidence was the highest in 2013, but still less than 25%, and negligible in 2014 and 2015.

Planting density did not significantly affect Sclerotinia white mold incidence under irrigated or dryland conditions.

Botrytis grey mold incidence was similar across the cultivars. Under dryland conditions, the disease was almost undetectable at either planting density.

Under irrigation, Botrytis grey mold was highest in 2015 at 22% incidence in the 16 seeds/ft² seeding rate, and 15% incidence at the lower seeding rate. In 2014, incidence was 10.6% with the low seeding rate and 8.4% at the higher seeding rate. In 2013, very low disease was observed. Botrytis grey mold incidence was also significantly higher at the 16 seeds/ft² planting density compared to 12 seeds/ft².

Lentil yield under dryland conditions were usually significantly higher than irrigated conditions. Other research in Alberta has found that precipitation levels of 150 to 250 mm during the growing season produce maximum yield, and these conditions were present in the 2013 and 2014 dryland trials.

The highest lentil yields were generally on dryland plots with a seeding density of 16 seeds/ft². For example, in 2014, the dryland plots planted with 16 seeds/ft² yielded 1709 lbs/ac (1920 kg/ha) compared to 1554 lbs/ac (1746 kg/ha) at the 12 seeds/ft² seeding rate. These yields compared to an irrigated yield of 990 lbs/ac (1112 kg/ha) at the 12 seeds/ft² rate and 905 lbs/ac (1017 kg/ha) at the 16 seeds/ft² rate in 2014.

Overall, lentil yield was significantly higher at a density of 16 plants/ft² compared with 12 plants/ft² except in 2013 and 2014 under irrigated conditions. The lower irrigated lentil yields in 2013 and 2014 were likely due to the high levels of Sclerotinia white mold in the plots.

The results of the study showed that Sclerotinia white mold may be a limiting factor in wetter and cooler areas of the Prairies. While there were differences in lentil susceptibility to Sclerotinia white mold, it was not consistent across the years, possibly due to differences in the growing seasons between the years. The cultivars showed moderate to high susceptibility to Sclerotinia white mold, and would not be suitable for areas where the disease is present in wetter areas.

Similarly, Botrytis grey mold may be a problem in dense stands that are lodged due to wet and cool weather.

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Kazi A. Kader, R. Scott Erickson, Robyne Bowness (Davidson), Mark Olson, and Syama Chatterton. Response of lentil cultivars to Sclerotinia white mold and Botrytis grey mold infection under irrigated and dryland conditions. *Canadian Journal of Plant Science*. e-**First** <https://doi.org/10.1139/cjps-2020-0335>

Photo by Robyne Davidson