



Storing tough and damp canola in grain bags

CATEGORY [agronomy](#) | October 23, 2019

Dry canola seeds can be safely stored for up to 6 to 8 months in grain bags, but 12% moisture canola should only be stored for less than 5 months. Canola seeds above 12% moisture content should only be stored for 3 to 4 weeks in harvest bags to avoid quality and quantity losses, and preferably should be dried prior to storage.

This research looked at the feasibility of grain bag storage for canola and the effects on seed quality when stored at different moisture contents and different lengths of storage time. In the first year of the study canola at three different moisture contents – 8.9 per cent (or “dry” based on grading standards), 10.5 per cent (“tough”) and 14.4 per cent (“damp”) – were stored in silo bags for 40 weeks (from autumn 2010 to summer 2011) at Winnipeg, Manitoba. Seed germination, free fatty acid value (FAV), and moisture content of canola at seven locations in each silo bag were analyzed every 2 weeks along with carbon dioxide concentrations of intergranular air and temperature of canola.

For Dry grade canola, germination was maintained above 90%, and FAV also stayed within 1.5 times the initial value during the 40-week storage. The germination of Tough grade canola maintained its

initial value in most parts of the silo bags, except at the top layer. However, germination of Damp canola dropped to below 80%, and FAV doubled its initial value within 8 weeks of storage. High levels of CO₂ and localized hotspots in damp canola indicated intense biological activity and degradation of seed quality.

Canola that graded Canada Grade 1 at the beginning of the storage remained Grade 1 for Dry canola, became Grade 2 for the Tough, and Feed Grade for the Damp grade canola. The results from this study indicate that Dry canola can be stored in silo bags for up to 40 weeks without seed quality loss, but tough and damp canola could not be safely stored that long.



14% moisture canola after 40 weeks

Use caution when storing tough and damp canola

Another study was conducted for two storage years (2011-12 and 2013-14) to determine the changes in grain quality for canola stored at around 12% moisture content. Canola was stored in three silo bags (67 tonnes /bag). One was unloaded after 20 weeks (the middle of winter), one at 28 weeks (the end of winter) and one at 40 weeks (in summer).

Canola seed quality parameters (germination, FAV, and moisture content), and intergranular composition (CO₂ and O₂ levels) at different locations in silo bags were analyzed every two weeks. Temperature of canola at various locations in the silo bags was recorded every 30 minutes for the duration of storage.

The canola showed no significant change in quality parameters up to 16 weeks of storage. Germination of canola at most parts of the silo bags stayed above a safe level up to the end of the winter season (20 weeks of storage). After 40 weeks of storage, germination of canola decreased to below 30% at the top layer of the silo bags.

The commercial grades after first, second and third unloading were Grade 1, Grade 2 and Feed Grade, respectively in year 1. In the second year, these were Grade 1, Grade 1 and Grade 2, respectively.

These experiments show that storing dry canola seeds for short duration was the best way of using harvest bags under prairie conditions. Dry canola seeds can be stored for up to 6 to 8 months, but 12% moisture canola should only be stored for up to 5 months to avoid significant change in quality or grade during autumn and winter. Canola seeds above 12% moisture content should be stored only for 3 to 4 weeks in the harvest bags to avoid quality and quantity losses, and preferably should be dried prior to storage.

Feasibility of Bag Storage System for Canola under Prairie Conditions, Digvir S. Jayas, University of Manitoba, Winnipeg, MB. Canola Council of Canada Research Hub.

<https://research.canolacouncil.org/research-summaries-details/56/feasibility-of-bag-storage-systems-for-canola-storage-under-prairie-conditions>

Jian, F., V. Chelladurai, D. S. Jayas, and N. D. G. White. 2015. Three-dimensional transient heat, mass and momentum transfer model to predict conditions of canola stored inside silo bags under Canadian Prairie conditions, Part I - soil temperature model. Transactions of the ASABE 2015. 58(4): 1127-1134. doi:10.13031/trans.58.11052

Jian, F., V. Chelladurai, D. S. Jayas, and N. D. G. White. 2015. Three-dimensional transient heat, mass and momentum transfer model to predict conditions of canola stored inside silo bags under Canadian Prairie conditions, Part II - model of canola bulk temperature and moisture content. Transactions of the ASABE 2015. 58(4): 1135-1144. doi:10.13031/trans.58.11053