

## High Moisture Canola in Bags

**Tom Boyle, Kim Stonehouse, Saskatchewan Ministry of Agriculture, Tiffany Martinka, Canola Council of Canada, and Pat Flaten, Saskatchewan Canola Development Commission**  
**Project Code: CARP SCDC 2010-1**  
**Final Report: July 2010**

*In 2009, weather conditions during the cropping season delayed canola development and fall harvest into October and November. Delayed harvest and high moisture conditions raised concerns about storage, leading some producers and organizations in north-central Saskatchewan to test the potential value of storing canola in grain storage bags. Through project monitoring and testing, previously known recommendations were confirmed and more information was gathered about the use of grain storage bags.*

Weather conditions during the 2009 cropping season delayed the development of Saskatchewan crops from establishment through to fall. Fall harvest, particularly canola, was pushed into October and November. Unusually snowy, wet and cool conditions in October resulted in pressure to harvest canola at much higher than usual moisture contents, in some cases as high as 15-22%. By November 1, about 80% of the canola remained in swath.

With canola being considered 'dry' and therefore 'safe to store' at 10% or less moisture content, these high moisture contents raised concerns about how to safely store this record canola crop. By early November, unusually sunny, warm and dry weather dried the canola somewhat in the field and allowed harvest to restart. The majority of the canola was harvested, much still at greater than 10% but most at less than 13% moisture, so storage remained a concern.



Source: Tom Boyle

Some producers were tempted to use bag storage given rumors that canola would store better there than in bins, and other advantages due to their portable nature and providing time and labor efficiencies during a high-pressure season. No known data had been published to support the perceived effectiveness of bags. A group of interested individuals and organizations came together to take the opportunity to use and monitor some canola storage bags in north-central Saskatchewan. The goal was to gain

knowledge as to the potential value of storing canola in bags.

Several sites were selected, grain storage bags filled in November and monitored over the winter. Air temperatures at the time of filling were relatively cool (2-16 C), which helped to maintain and cool the canola. At other times when temperatures are typically warmer, such as in September or October, it may have been much more difficult to cool down the bags. During monitoring, canola temperatures in the grain storage bags did rise with increasing temperatures. In two side-by-side bags with moisture contents of 12 and 14% respectively, the higher moisture content canola did not decrease in temperature to the same degree. When canola temperatures were seen to either increase or remain constant, participating producers moved the canola for sale or drying to prevent spoilage.



Source: Tiffany Martinka



Source: Tom Boyle

Overall, the project helped discover more about the use of grain storage bags and confirmed many previously known recommendations. Temperatures must be monitored at least twice per week, until temperatures stabilize or decrease to safe levels, for all storage options. Monitor several locations (e.g. every 25 feet may be adequate for storage bags) within the volume of grains or oilseeds and do not assume similar conditions among multiple bags nor for an entire single bag. Keep records when filling the bag, including field location, filling times, grain and air conditions, and continue recording temperatures throughout monitoring to guide monitoring points within the bag and to help with decisions for moving and drying crops. There may be advantages to separating grains or oilseeds based on qualities such as moisture content or dockage to reduce the risk of spoiling larger quantities of product in a large single container.

Cool air temperatures at the time of combining and storage are of tremendous value to prolonging safe storage of canola. More detailed research projects are underway to compare bin and bag storage of canola and to revisit recommendations, given the increasing oil content of new varieties.