



In this issue

- **Storage of Pulse Crops**
-

Pulse Crop Storage 2006

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Pulse crops advanced rapidly throughout most of the Prairies in 2006. Because pulses (other than beans and soybeans) are often planted first, this year's early spring conditions in areas other than north-eastern Saskatchewan saw early-seeded crops take advantage of warm soils and good rainfall in June. Many pea and lentil crops matured quickly in the heat of July and some were ready to be harvested in early August.

Drought conditions in south-western Saskatchewan and south-eastern Alberta caused harvest to be started and finished very early. A lot of pulse crops were put into storage at low moisture content and high temperature. Pulses stored at high temperature are more prone to bleaching and oxidization. A very positive factor this year is the high quality of the pulse crop. Processors report over 90% of lentils, peas and chickpeas should be in the top 2 grades.

Monitoring stored grain during and after harvest is an important part of a grower's day to day activities. The safe storage of pulse crops is important every year, and the key to avoiding mould and other storage problems is the use of aeration to cool and dry the seed. Testing with a moisture meter should be carried out several times after the crop is binned.

Now that we have had some wet weather in September, producers should monitor their stored crops immediately to prevent any losses due to spoilage. The risk of spoilage becomes more important if the crop was harvested following wet weather. This risk is greatly reduced if foreign material is removed.

Because of their large seed, stored chickpeas and peas need time for the moisture to equalize throughout the seed. Chickpeas harvested at high temperatures will most likely sweat in the bin. This occurs as the moisture migrates within the bin.

For prolonged safe storage, pulse crops should be cooled to less than 15 degrees C and dried to less than 14 per cent moisture. Seed that is cooled to 10 degrees C will store well for long periods. The Saskatchewan Pulse Growers Pulse Production Manual

<http://www.saskpulse.com/media/pdfs/ppm-field-pea.pdf>

contains a table outlining the number of weeks for safe storage of peas at specified moisture content and temperature. For example, peas stored at 14 per cent moisture and 10 degrees C can be safely stored for about 95 weeks. Peas stored at 18 per cent moisture and 20 degrees C has a safe storage limit of only 7 weeks. Other pulse crops will be similar.

Different moisture content levels must be taken into consideration for red lentils. Red lentils are considered to be dry at 13 per cent moisture content. Red lentil buyers around the world prefer

the crop to be at 13 per cent or lower moisture content and growers should work to achieve that level. This year's hot dry summer has allowed most lentils to be harvested dry.

Pulse crops at 12 per cent moisture or lower are more prone to chipping and peeling during handling, especially when the temperature has dropped below minus 20 degrees C.

A bin equipped with an aeration fan can provide both cooling and drying. But, while cooling may be completed in one day, drying can take three to four weeks. To do this, the aeration fan must have adequate power to provide air flow through the grain: the recommended requirement for aeration drying of a pulse crop is about one to two cubic feet of air per minute per bushel; about 2,000 to 4,000 cubic feet per minute for a 2,000-bushel bin.

With the recent harvest delays due to rain, supplemental heat drying may be required. With pulses, air temperatures should not exceed 45°C to preserve germination, and the sample should not be dried more than 4-5 percentage points per pass through the drier. The product should be allowed to temper in an aeration bin between passes. Remember, the augers within a grain dryer can increase seed coat peeling and cracking.

Growers who use long-term storage to help their pulse marketing plan can also make good use of a belt conveyor. Pulse crops often need to be given a rotation in the bin to prevent spoilage, and the use of a conveyor can accomplish this with very little seed damage. Growers in the need of a new auger should investigate the idea of moving to a belt system.