

## Harvesting and using high moisture grain in cattle rations

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Mother Nature has been uncooperative this fall. Rain, snow and low temperatures have all contributed to a frustrating harvest season. There are many acres of crop remain to be combined in parts of the province. If cattle are needing grain supplementation this winter, using high moisture barley is an option.

Harvesting the barley crop at 25% moisture or higher and storing it in a grain bag or silage pit will result in the barley fermenting no different than a whole plant cereal silage. To have a high quality, palatable finished product, packing the grain to exclude air (oxygen) is key. If putting the grain into a bag, the brake on the bagging unit needs to be engaged sufficiently so that the grain is well packed. When the bag is being filled, the height of the bag should be constant without “hills and valleys” which is caused by the machine rolling too far at one time. The amount of air in the bag is higher when the uneven height is present which can cause problems during fermentation. If filling a silage pit, pack the grain with a tractor no different than whole crop silage. Cover with plastic and seal the pit as within three to four hours if possible.

High moisture barley is beneficial to improve animal performance. Higher moisture barley kernels are swollen due to the moisture present. The pericarp or hull on the outside of the kernel is not held as tightly to the seed compared to when the grain is dry. Rumen microbes and bacteria have an easier time breaking down the kernel and digestive efficiency is increased, by 8 to 10%. Some research indicates this eliminates the need to roll or process the grain before feeding. Average daily gains for growing or finishing animals is also improved by approximately 8% as well. If the barley is to be rolled, do it before the barley goes into the bag or pit. Rolling higher moisture grain when it is frozen will result in the kernels shattering and the amounts of fines can be high. This could lead to digestive upsets when it is fed.

The higher digestive efficiency creates a few problems. With a more complete and rapid fermentation, the starch in the grain is more readily available which can produce digestive upsets such as acidosis or bloat. If high levels of grain are fed in a straw – grain ration for pregnant cows, increase the grain content gradually to prevent problems. If the ration starts off with approximately six pounds of grain per day, increase the grain portion one pound every second day. This allows the rumen bacteria to adjust to the change which prevents problems.

To determine if the changes being made to the ration are not causing subclinical acidosis, evaluate the consistency of the manure. With a healthy rumen that is functioning properly, the manure “pie” is fairly flat in structure. If the grain is causing acidotic conditions, the manure

will become very wet and sloppy resulting in a “splatter” or “runny” consistency to the manure and it often has a “sour” smell. If this happens, reduce the amount of grain to allow the rumen to recover from the condition. Be sure to monitor the herd to ensure all the cows have access to the feed and the dominant cows aren’t pushing the younger or weaker cows out, resulting in the boss cows eating too much grain which causes acidosis.

A factsheet is available from Alberta Agriculture on the storage of high moisture barley.  
[https://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex101/\\$file/114\\_61-1.pdf?OpenElement](https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex101/$file/114_61-1.pdf?OpenElement)

With most grain – straw rations, calcium and magnesium are typically deficient and phosphorus is adequate. The use of a feedlot type mineral with roughly 20% calcium and 3 to 4 % magnesium is recommended to prevent downer cows or winter tetany. A 2 : 1 mineral will not supply sufficient amounts of calcium to the diet.