

Alberta Feed Barley Survey 2018



Alberta
Barley

Barley plays a prominent role as a source of feed for both ruminants and monogastric farm animals in Western Canada.

According to data from Agriculture and Agri-Food Canada in their Outlook for Principal Field Crops, released in January 2019, barley production in Canada increased in 2018 by 6% to 8.4 million tonnes, 50% of which was produced in Alberta. Being an important source of feed, it is therefore useful to know the nutritional profiles of barley grains grown in Alberta. The feed barley survey was initiated to know the nutritional profile of barley produced in Alberta and to build a source of data over time as barley is the main feed source for the beef industry in Western Canada.

In the fall of 2018, Alberta Barley randomly collected 31 barley samples from a number of fields covering the length and breadth of the province. The samples were sent to A&L labs for standard analysis of their nutritional profiles. The results are shown in the tables below.

KEY POINTS



The amount of calcium found in barley samples surveyed is lower than the amount required to meet the nutritional needs of beef cattle (NRC 2000). The non-detectable levels of selenium indicates that the amount of selenium required by the animals should be included in the diets if they are fed barley alone. However, as barley grains are fed in a mix with other additives which increase the feed nutrient contents.



The average % crude proteins found in the survey (13.3%) is higher than the average found in corn (10.3%), rye (11.8%) and oats (11.6%) but lower than crude proteins found in wheat (15.9%) and triticale (15.7%) (BCRC 2017).



Crude protein for backgrounding diets for beef cattle requires 12.5% to 13.5%. Most the samples (except for one malt grade barley) surveyed met this requirement. However, the CP contents didn't meet the requirements for early lactating dairy cattle which typically require 17.0% to 19.0% CP. It should be noted that beef cattle backgrounding diet and lactating dairy cattle diets are not composed of barley grains alone. Barley grains plays a greater role in finishing diets used in feedlots which is usually composed of other additives which increase the nutrient content.



The starch content of the barley grains is proportional to the total digestible nutrients (TDN). The higher the starch content, the higher the TDN. The average TDN and average net energy maintenance (NEM) found in this study exceeds the recommended TDN range of 55-65% and NEM range of 0.90-1.32 Mcal kg⁻¹ recommended for beef cows (NRC, 2000).



NUTRITIONAL COMPOSITION AND FEED VALUE

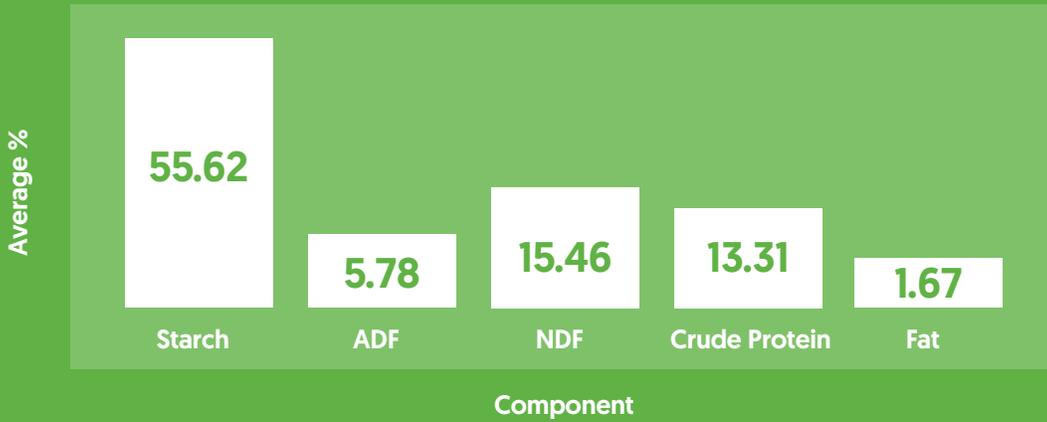
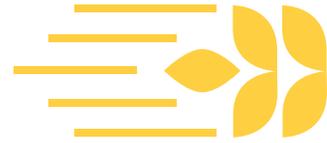


Figure 1. Chemical composition of barley grains harvested from Alberta in the fall of 2018

(ADF)
Acid detergent Fibre

(NDF)
Neutral detergent fibre

TABLE 2

Mineral	Average
Calcium %	0.06
Phosphorous %	0.37
Potassium %	0.50
Magnesium %	0.13
Sodium %	0.04
Sulphur %	0.16
Copper µg/g	3.80
Iron µg/g	63.9
Zinc µg/g	39.6
Manganese µg/g	21.06

Table 2.

Mineral content of barley grains harvested from Alberta in the fall of 2018

The range of mineral content of barley harvested from Alberta in 2018 is shown in Table 2. Of significance are the very low levels of calcium found in the barley sampled. Selenium was also tested but values were lower than the detectable limit.

Total digestible nutrient [TDN] was found to have a mean of 84.4% [Table 3]. The mean net energy for lactation, net energy for gain and net energy for maintenance were found to be 1.95, 1.44 and 2.16 Mcal/Kg, respectively [Table 3].

Table 3.

Energy values in barley grains harvested from Alberta in the fall of 2018

(TDN)
Total digestible nutrients

(NE_L)
Net energy for lactation

(NE_G)
Net energy for gain

(NE_M)
Net energy for maintenance

TABLE 3

	Average
TDN, %	84.40
NE _L Mcal/Kg	1.95
NE _G Mcal/Kg	1.44
NE _M Mcal/Kg	2.16

References

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