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# Quality of western Canadian oats 2023

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# Introduction

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This report presents information on the quality and production of oats grown in western Canada in 2023.

## Annual harvest survey of oats

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### Sample collection and general quality trends

The annual oats survey is based on samples of oats received by the Canadian Grain Commission's Harvest Sample Program. In 2023, 174 samples were received from various growing districts in Manitoba, Saskatchewan, Alberta, and British Columbia (Figure 1). The majority of samples received in 2023 were graded No. 2 Canada Western (CW) based on their test weight (Figure 2). The protein content of oats in 2023 was close to the 5-year average for each grade (Figure 3). A comparison of the average protein content (% dry basis) of oats grown in each province in 2023 is given in Figure 4.

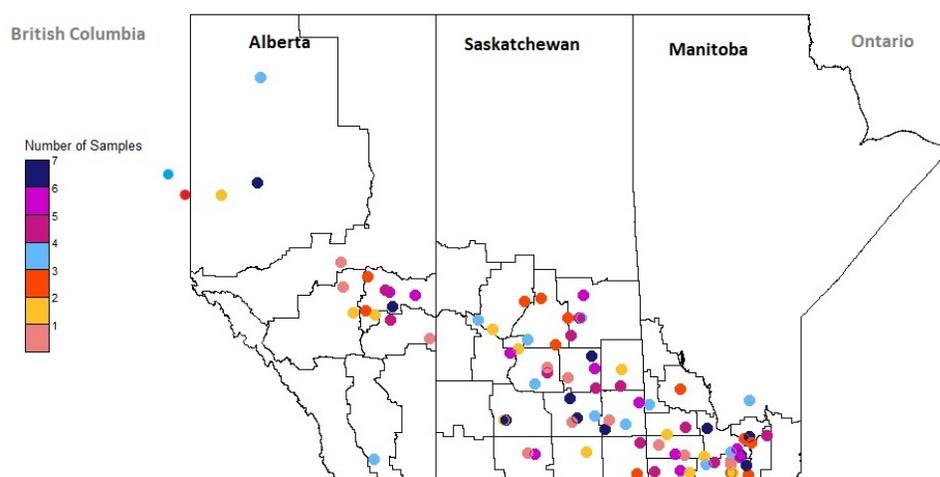


Figure 1 Origin and number of oat samples collected through the Canadian Grain Commission's Harvest Sample Program in 2023.

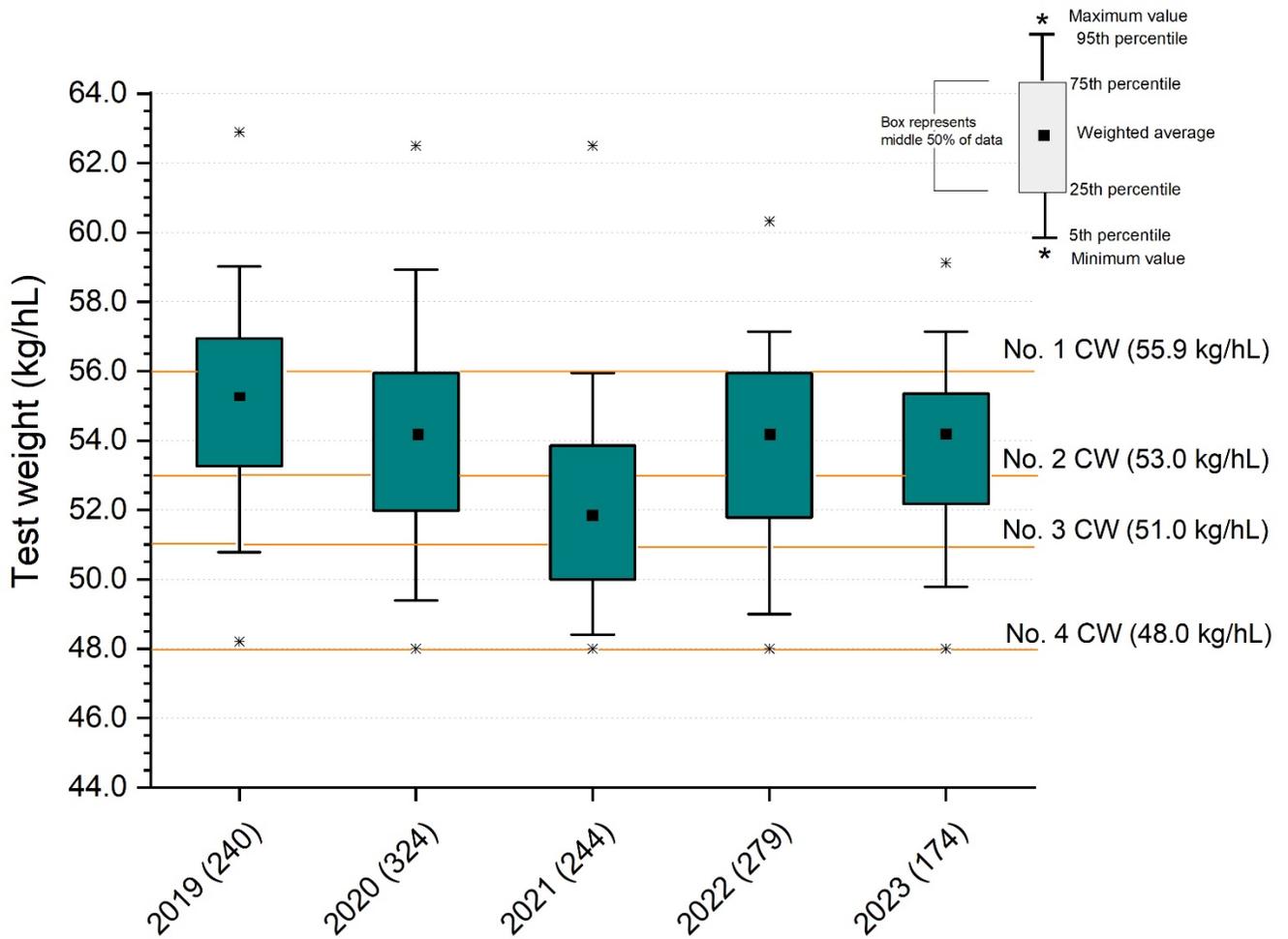


Figure 2 Comparison of test weight (kg/hL) ranges of oat samples collected through the Canadian Grain Commission’s Harvest Sample Program from 2019 to 2023. The number of samples for each year is in parentheses.

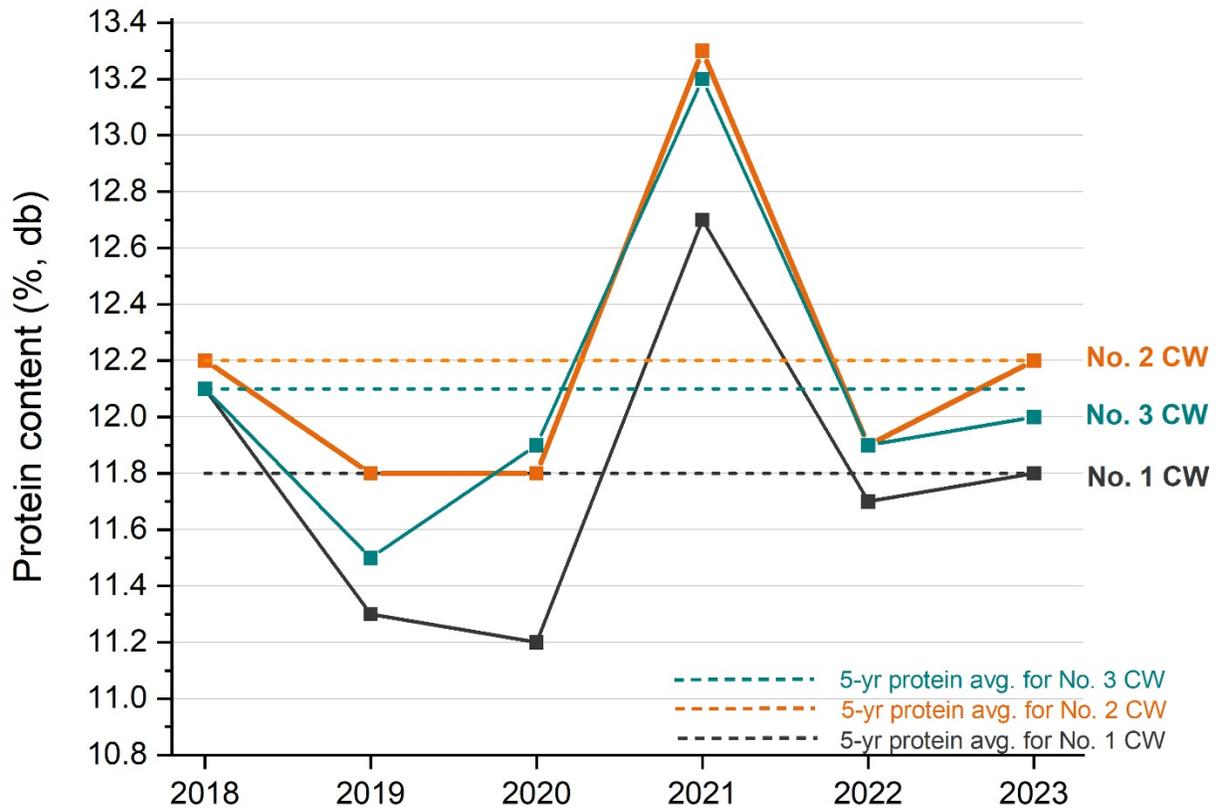


Figure 3 Average protein content<sup>1</sup> (% db) of oats of different grades collected through the Canadian Grain Commission’s Harvest Sample Program for each year from 2018 to 2023.

<sup>1</sup> Protein content in oats was determined using the Foss Infratec™ 1241 whole grain analyzer using near-infrared (NIR) transmittance technology. NIR calibration was verified by the Combustion Nitrogen Analysis reference method. Protein is expressed as Nitrogen x 6.25 on a dry weight basis (db).

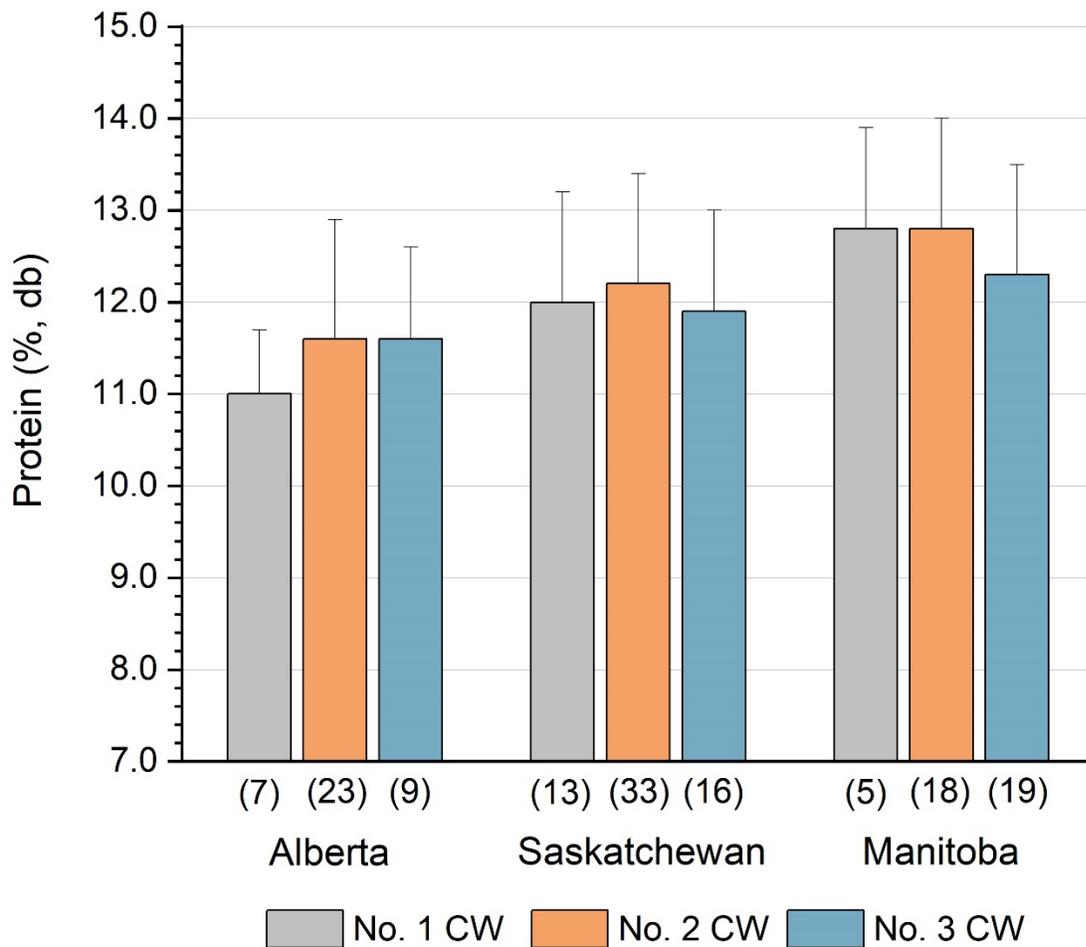


Figure 4 Comparison of average protein content<sup>1</sup> (% db) of oats grown in different provinces in 2023. The number of samples for each grade is in parentheses.

<sup>1</sup> Protein content in oats was determined using the Foss Infratec™ 1241 whole grain analyzer using near-infrared (NIR) transmittance technology. NIR calibration was verified by the Combustion Nitrogen Analysis reference method. Protein is expressed as Nitrogen x 6.25 on a dry weight basis (db).

Table 1 Protein content (% db) and test weight (kg/hL) of oat varieties collected through the Canadian Grain Commission's Harvest Sample Program in 2023

Variety	Grade	Number of samples	Protein content, % db		Test weight, kg/hL	
			Mean	SD	Mean	SD
AAC Douglas	No. 1 CW	0	-	-	-	-
	No. 2 CW	4	12.6	1.6	54.2	0.6
	No. 3 CW	3	12.7	0.7	51.6	0.6
AC Morgan	No. 1 CW	4	10.9	0.7	56.2	0.3
	No. 2 CW	10	11.1	1.3	54.6	1.0
	No. 3 CW	8	11.7	1.1	55.4	2.5
	No. 4 CW	4	11.8	0.9	52.0	4.8
CDC Arborg	No. 1 CW	5	11.9	1.2	56.7	1.2
	No. 2 CW	14	12.1	1.3	54.4	1.2
	No. 3 CW	5	12.2	1.6	51.8	0.8
	No. 4 CW	4	11.4	1.8	49.8	0.8
CDC Dancer	No. 1 CW	2	12.3	0.4	57.2	1.3
	No. 2 CW	3	11.1	1.1	53.6	0.8
	No. 3 CW	1	12.0	-	55.4	-
CDC Endure	No. 1 CW	1	13.6	-	56.7	-
	No. 2 CW	13	11.9	1.1	54.0	0.9
	No. 3 CW	4	12.0	2.1	52.8	2.2
	No. 4 CW	4	12.3	1.6	51.8	2.9
CS Camden	No. 1 CW	3	12.7	0.9	56.5	0.5
	No. 2 CW	15	13.1	0.8	53.9	0.8
	No. 3 CW	9	12.2	0.5	52.2	0.9
	No. 4 CW	5	12.3	0.9	49.7	0.5
Leggett	No. 1 CW	1	12.4	-	55.9	-
	No. 2 CW	0	-	-	-	-
	No. 3 CW	2	11.0	0.3	52.7	2.4
	No. 4 CW	1	11.8	-	50.0	-
ORe3542M	No. 1 CW	2	11.9	2.3	56.1	0.3
	No. 2 CW	4	12.4	0.8	53.7	0.7
	No. 3 CW	1	12.0	-	53.4	-
	No. 4 CW	1	12.2	-	53.6	-
Souris	No. 1 CW	2	10.6	0.6	56.7	1.1
	No. 2 CW	2	12.3	1.9	53.5	0.7
	No. 3 CW	1	12.3	-	57.1	-
Summit	No. 1 CW	4	12.9	0.7	56.3	0.3
	No. 2 CW	8	12.4	1.2	54.2	1.0
	No. 3 CW	1	9.9	-	51.2	-
	No. 4 CW	4	12.5	1.1	50.0	0.9

Table 2 Percentage of samples containing different levels of deoxynivalenol (DON) (ppm) for all grades of oat samples collected through the Canadian Grain Commission's Harvest Sample Program in 2023.

	Western Canada	British Columbia	Alberta	Saskatchewan	Manitoba
<b>Number of samples</b>	<b>192</b>	<b>4</b>	<b>46</b>	<b>89</b>	<b>53</b>
<b>DON values (ppm)</b>			%		
<b>Below limit (&lt; 0.3 ppm)</b>	65.1	50.0	73.9	60.7	66.0
<b>0.3 to 0.5</b>	24.5	50.0	26.1	21.3	26.4
<b>0.6 to 1.0</b>	7.3	0	0	12.4	5.7
<b>1.1 to 2.0</b>	3.1	0	0	5.6	1.9
<b>2.1 to 5.0</b>	0	0	0	0	0
<b>5.1 to 6.0</b>	0	0	0	0	0
<b>Above limit (&gt; 6.0 ppm)</b>	0	0	0	0	0

# Content of proteins, beta-glucans, lipids, and ash in groats of selected oat varieties grown in 2023

Figures 5 to 8 give the content of proteins, beta-glucans, lipids, and ash in the groats of selected oat varieties grown in the Prairies in 2023. The groats were obtained by dehulling. All oat samples were graded No. 2 CW based on their test weight; no other degrading factors were identified in the samples used for dehulling.

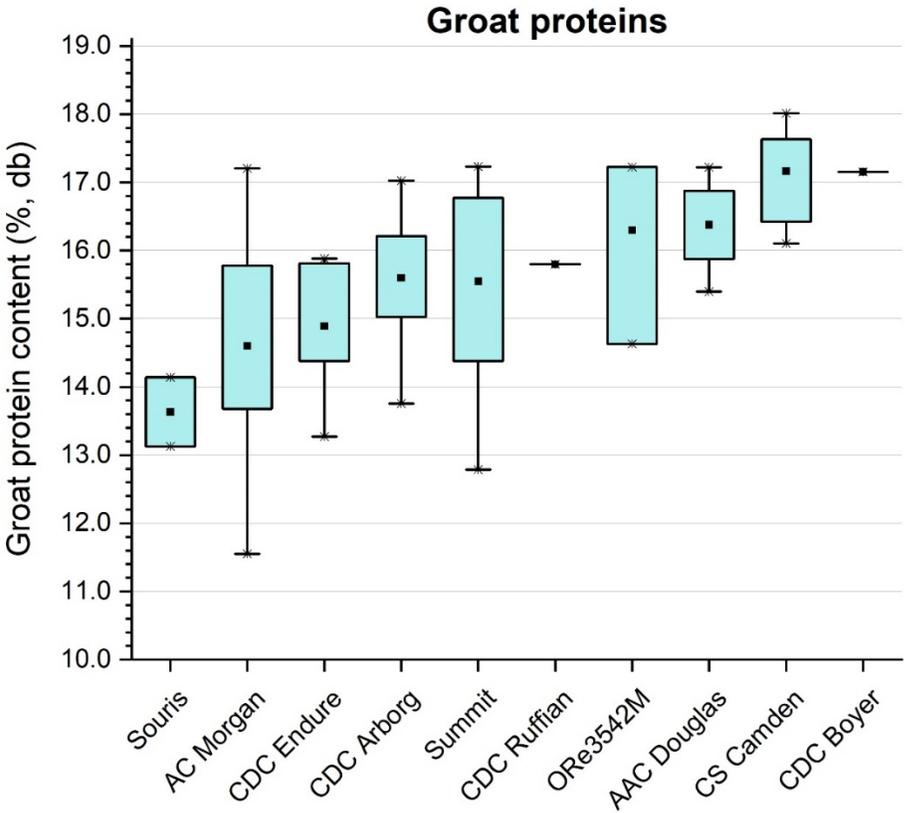


Figure 5 Protein content (% db) of groats obtained after dehulling selected varieties of oats grown in the Prairies in 2023<sup>2</sup>.

<sup>2</sup> All oat samples were graded No. 2 CW based on their test weight.

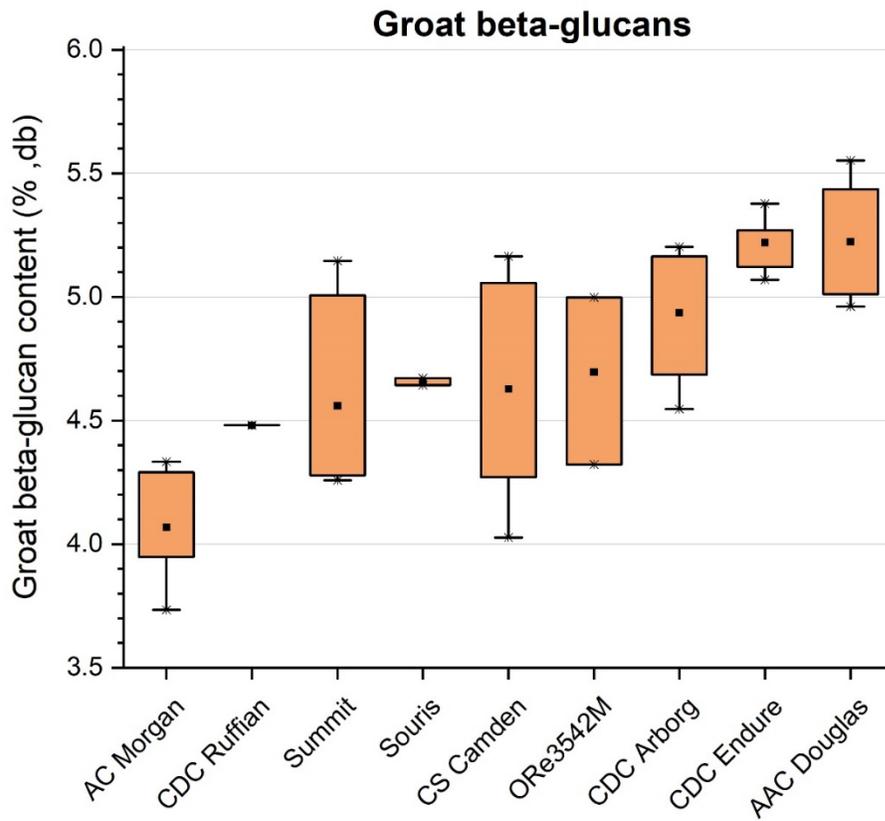


Figure 6 Beta-glucan content (% ,db) of groats obtained after dehulling selected varieties of oats grown in the Prairies in 2023<sup>2</sup>.

<sup>2</sup> All oat samples were graded No. 2 CW based on their test weight.

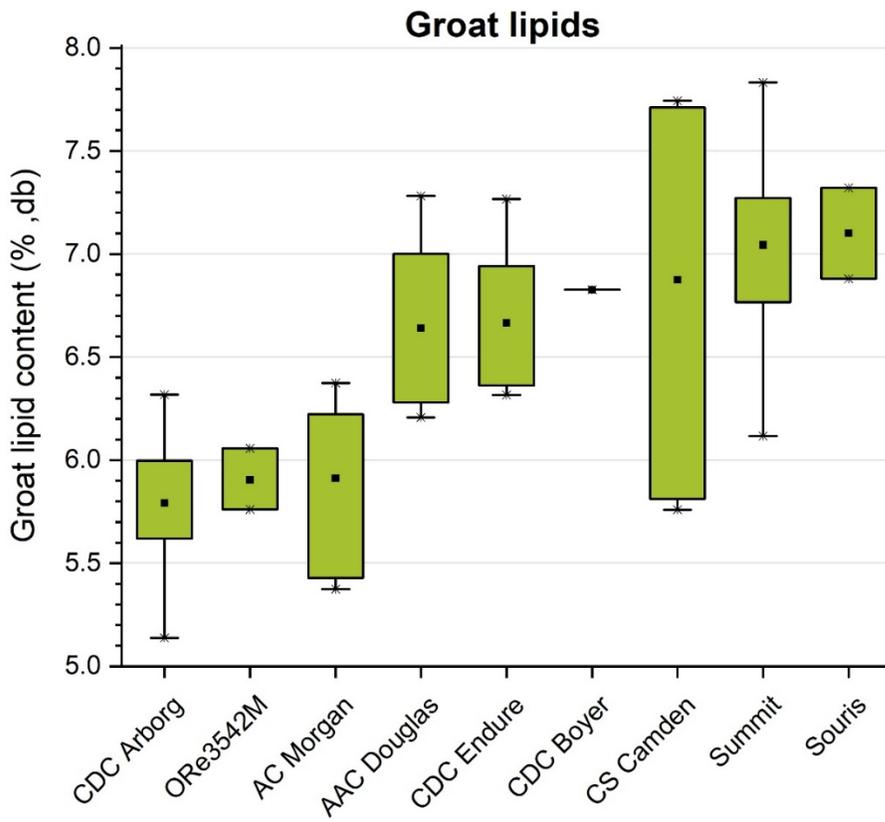


Figure 7 Lipid content (% db) of groats obtained after dehulling selected varieties of oats grown in the Prairies in 2023<sup>2</sup>.

<sup>2</sup> All oat samples were graded No. 2 CW based on their test weight.

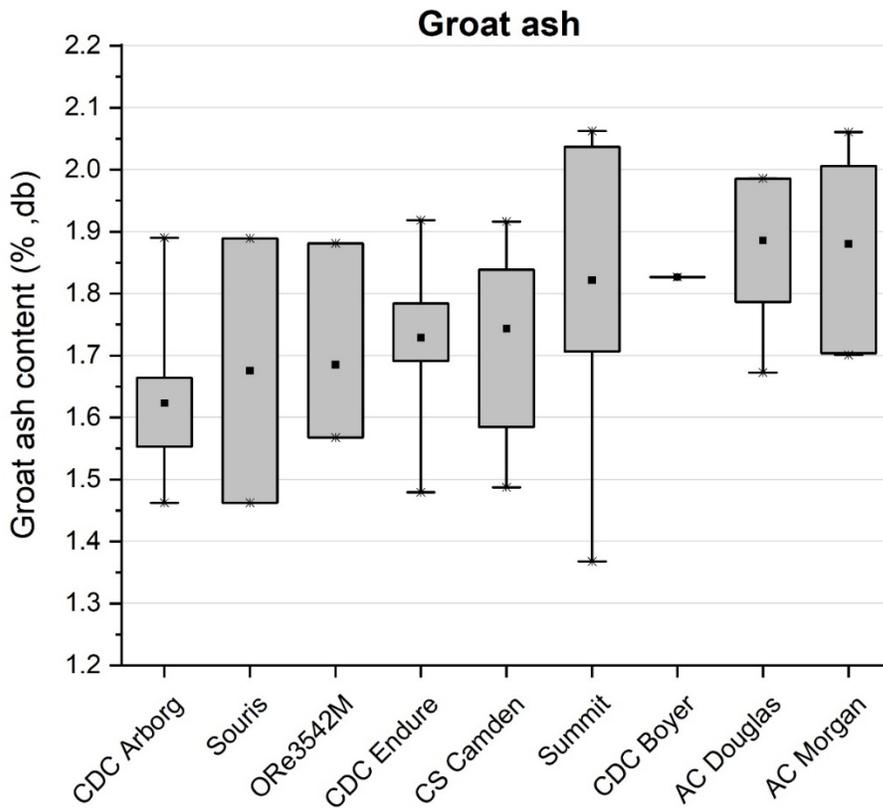


Figure 8 Ash content (% db) of groats obtained after dehulling selected varieties of oats grown in the Prairies in 2023<sup>2</sup>.

<sup>2</sup> All oat samples were graded No. 2 CW based on their test weight.

# Production statistics

Table 3 Area (million hectares) seeded with oats in Canada <sup>3</sup>

Location	2023	2022	5-year average <sup>4</sup>
Manitoba	0.192	0.282	0.255
Saskatchewan	0.418	0.764	0.700
Alberta	0.283	0.382	0.356
British Columbia	0.033	0.035	0.031
Western Canada	0.926	1.463	1.342
Canada	1.023	1.593	1.468

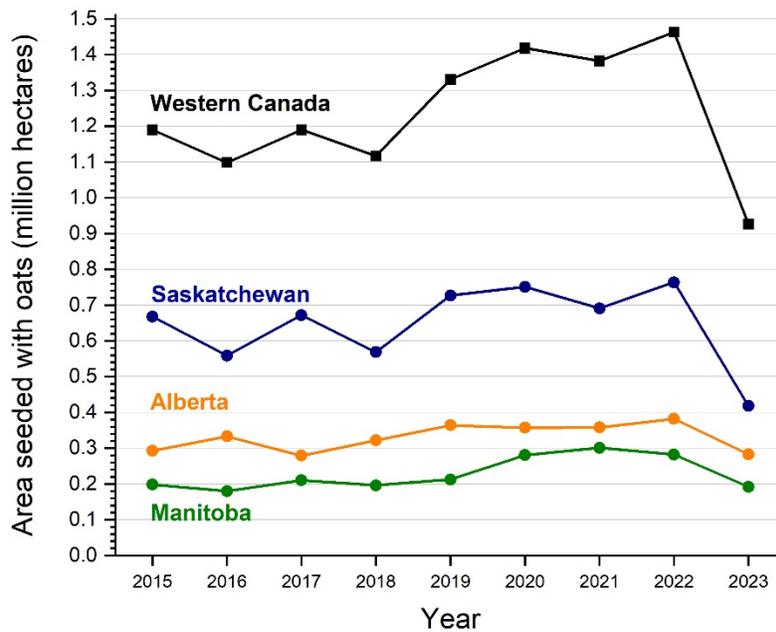


Figure 9 Comparison of area (million hectares) seeded with oats in western Canada from 2015 to 2023.

<sup>3</sup> Source: Statistics Canada, estimated as of December 4, 2023

<sup>4</sup> 5-year average from 2018 to 2022

Table 4 Oat production (million tonnes) in Canada<sup>3</sup>

Location	2023	2022	5-year average <sup>4</sup>
Manitoba	0.653	1.169	0.911
Saskatchewan	1.034	2.567	1.984
Alberta	0.642	1.055	0.788
British Columbia	0.067	0.067	0.068
Western Canada	2.396	4.857	3.750
Canada	2.643	5.226	4.073

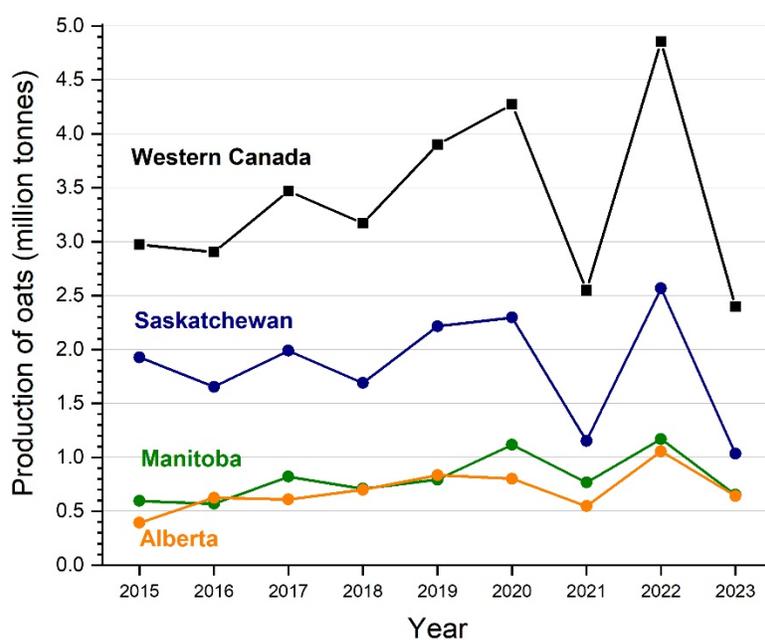


Figure 10 Comparison of oat production (million tonnes) in western Canada from 2015 to 2023.

<sup>3</sup> Source: Statistics Canada, estimated as of December 4, 2023

<sup>4</sup> 5-year average from 2018 to 2022

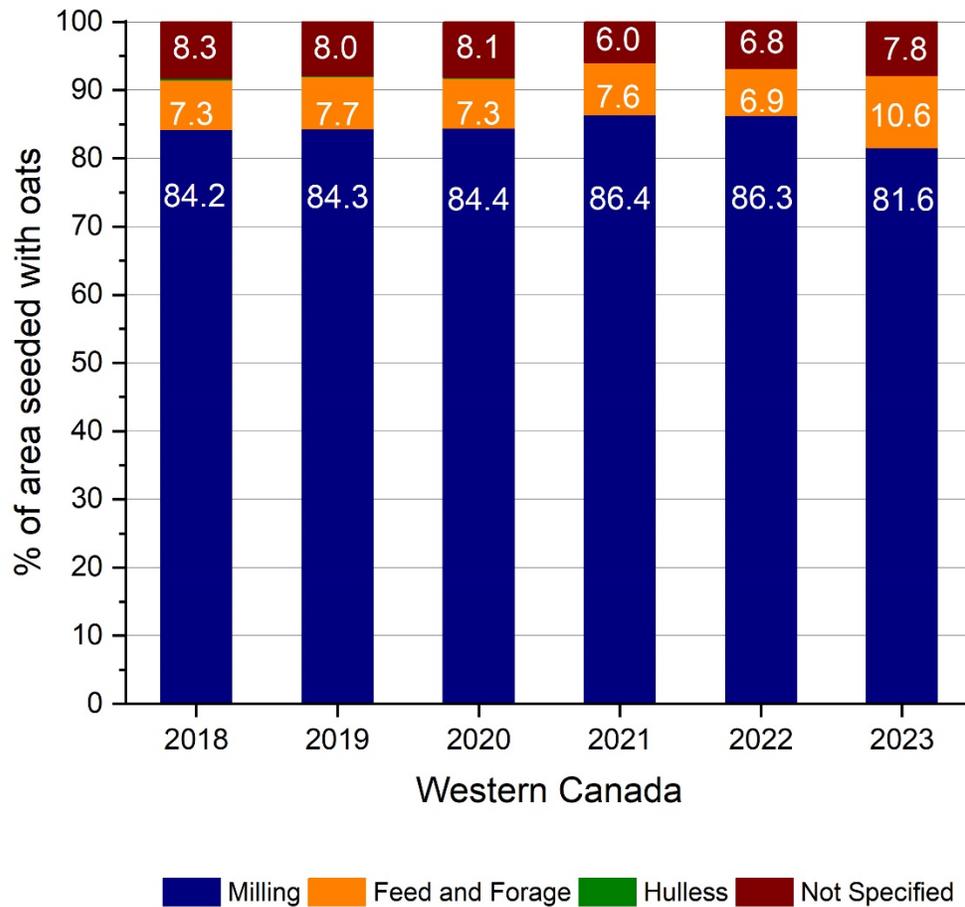


Figure 11 Distribution of oat classes as percentage (%) of area seeded with oats in western Canada from 2018 to 2023<sup>5</sup>.

<sup>5</sup> Data based on crop insurance statistics from [Saskatchewan Crop Insurance Corporation](#), [Agriculture Financial Services Corporation](#), [Manitoba Agricultural Services Corporation](#) and [British Columbia AgriStability and Production Insurance](#).

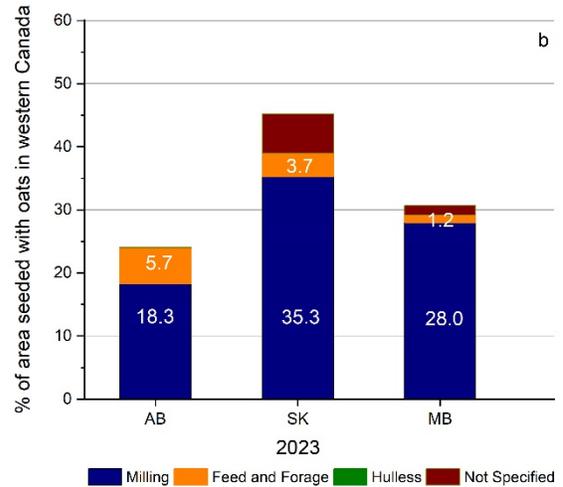
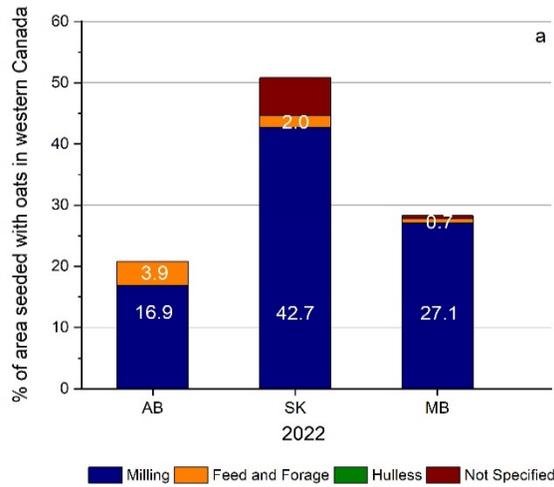


Figure 12 Distribution of oat classes in each province as percentage (%) of area seeded with oats in western Canada in 2022 and 2023<sup>5</sup>.

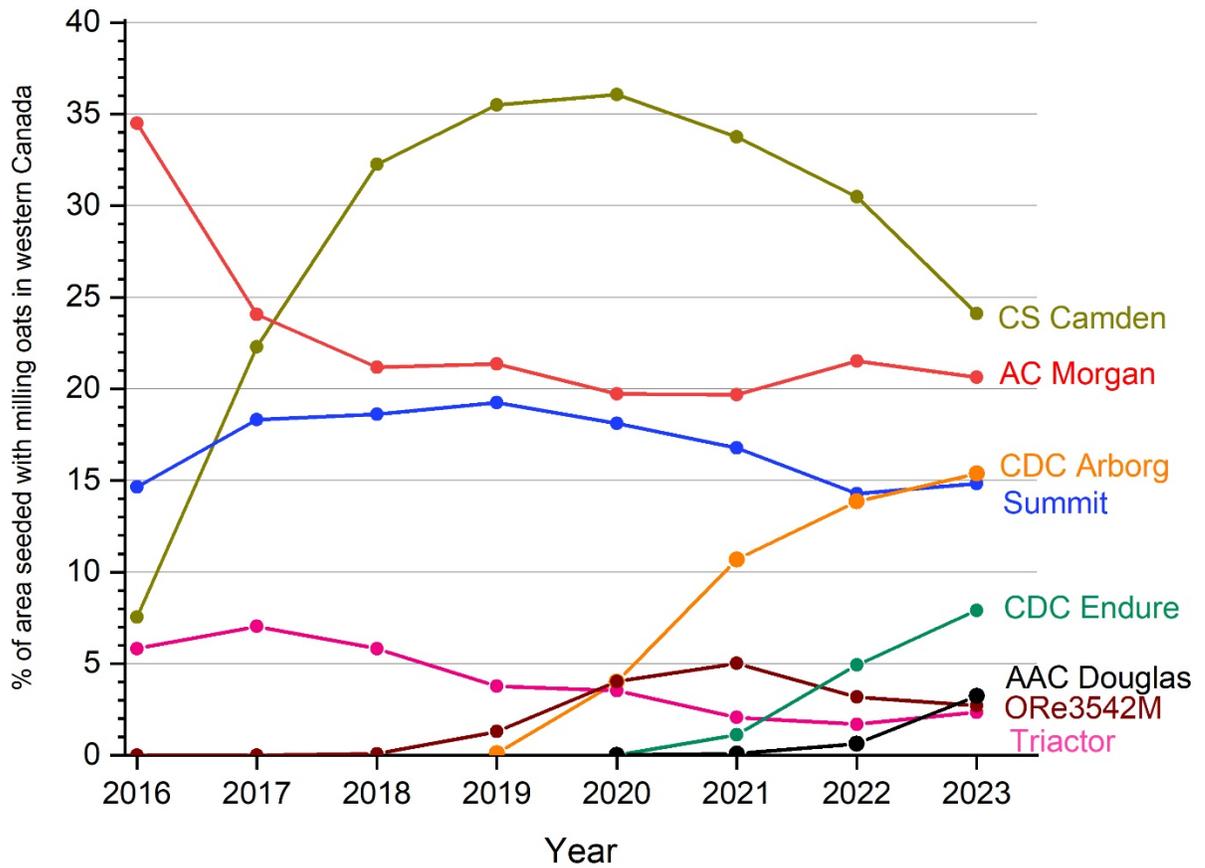


Figure 13 Comparison of area seeded with the top eight milling oat varieties each year in western Canada from 2016 to 2023. Varieties and their registration dates include: CS Camden (2014), AC Morgan (2000), Summit (2008), ORe3542M (2017), CDC Arborg (2017), Triactor (2007), CDC Endure (2019), AAC Douglas (2019) <sup>5</sup>.

<sup>5</sup> Data based on crop insurance statistics from [Saskatchewan Crop Insurance Corporation](#), [Agriculture Financial Services Corporation](#), [Manitoba Agricultural Services Corporation](#) and [British Columbia AgriStability and Production Insurance](#).

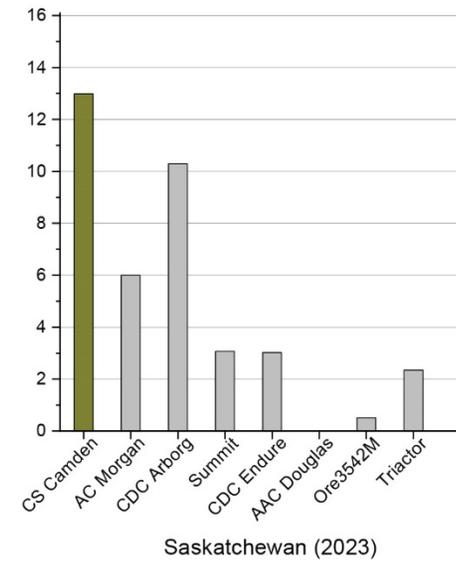
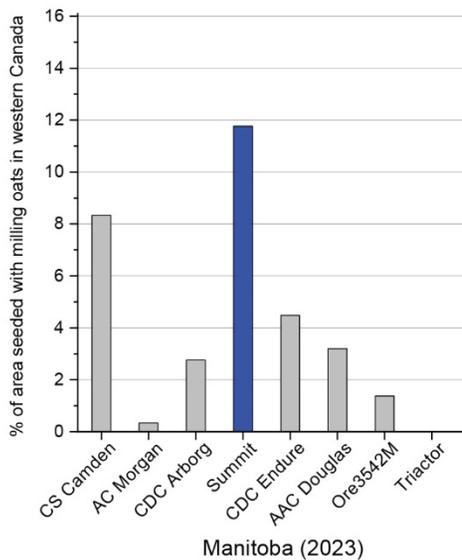
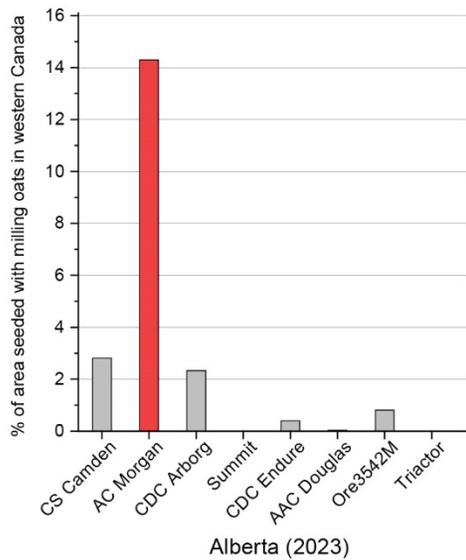


Figure 14 Area seeded with the top eight milling oat varieties in Alberta, Manitoba and Saskatchewan as percentage (%) of area seeded with milling oats in western Canada in 2023<sup>5</sup>.

<sup>5</sup> Data based on crop insurance statistics from [Saskatchewan Crop Insurance Corporation](#), [Agriculture Financial Services Corporation](#), [Manitoba Agricultural Services Corporation](#) and [British Columbia AgriStability and Production Insurance](#).

Table 5 Distribution of milling oat varieties as a percentage (%) of the total area seeded with milling oats in western Canada in 2023<sup>5</sup>

% of area seeded with milling oats in western Canada in 2023				
Milling oat variety	Alberta	Saskatchewan	Manitoba	Western Canada
	%	%	%	%
CS Camden	2.81	12.99	8.33	24.10
AC Morgan	14.30	6.00	0.33	20.64
CDC Arborg	2.33	10.29	2.76	15.38
Summit	0.00	3.07	11.77	14.83
CDC Endure	0.40	3.02	4.48	7.91
AAC Douglas	0.04	0.00	3.19	3.23
ORe3542M	0.81	0.51	1.38	2.71
Triactor	0.00	2.35	0.00	2.35
Derby	1.23	0.32	0.00	1.55
Souris	0.02	0.36	0.87	1.25
CDC Ruffian	0.02	1.20	0.00	1.22
CDC Dancer	0.04	0.91	0.00	0.95
CDC Morrison	0.02	0.61	0.16	0.79
ORe3541M	0.07	0.08	0.47	0.62
Pinnacle	0.00	0.42	0.08	0.50
Leggett	0.00	0.25	0.19	0.44
CDC Minstrel	0.11	0.29	0.00	0.40
CDC Orrin	0.02	0.31	0.00	0.33
CDC Boyer	0.02	0.13	0.00	0.15
Triple Crown	0.00	0.00	0.14	0.14
SW Betania	0.00	0.13	0.00	0.13
Furlong	0.00	0.00	0.12	0.13
Other	0.15	0.06	0.00	0.22
<b>Total milling</b>	<b>22.4</b>	<b>43.3</b>	<b>34.3</b>	<b>100</b>

<sup>5</sup> Data based on crop insurance statistics from [Saskatchewan Crop Insurance Corporation](#), [Agriculture Financial Services Corporation](#), [Manitoba Agricultural Services Corporation](#) and [British Columbia AgriStability and Production Insurance](#).