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Quality of western Canadian mustard seed 2025

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Summary

In 2025, the mean oil content values for oriental, brown and yellow mustard seed graded No. 1 were 40.2%, 34.9% and 30.4%, respectively. These values are significantly higher than the 2024 means (34.2%, 32.1% and 24.1%, respectively) and the 5-year means (36.3%, 33.3% and 25.7%, respectively) (Figure 8, Figure 9 and Figure 10). In contrast, the 2025 mean protein content values for oriental, brown and yellow mustard seed graded No. 1 (27.9%, 30.3% and 32.2%, respectively) were lower than the 2024 means (31.1%, 32.0% and 36.5%, respectively) and the 5-year means (30.0%, 31.1% and 35.3%, respectively). The mean total glucosinolate content was 142 micromoles per gram (µmol /g) for No. 1 oriental mustard seed, 136 µmol/g for No. 1 brown mustard seed and 157 µmol/g for No. 1 yellow mustard seed. These values were higher than the 5-year means for oriental mustard seed (139 µmol/g), brown mustard seed (133 µmol/g) and yellow mustard seed (150 µmol/g) (Figure 11). Oil, protein, and total glucosinolate content are reported on a dry matter basis in this report.

Introduction

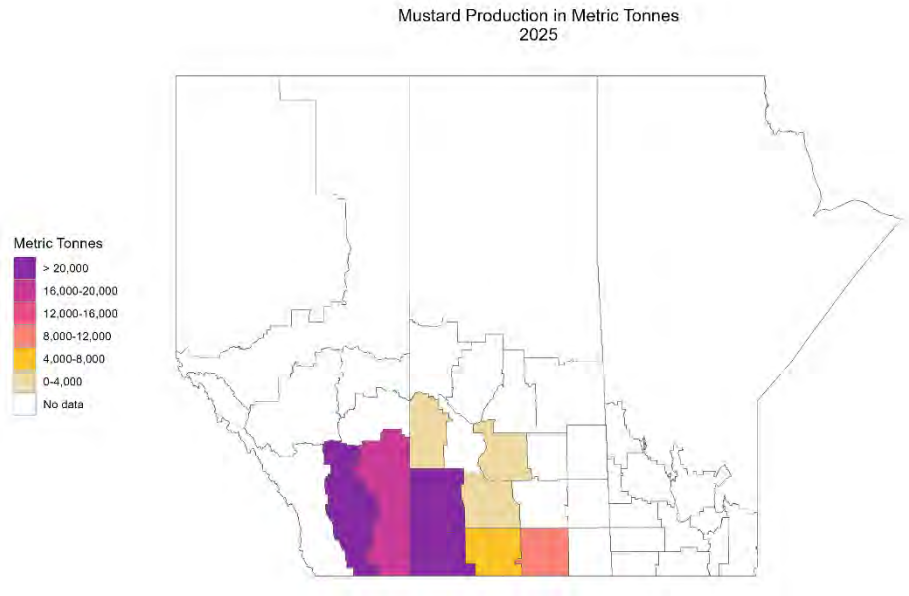
This report presents harvest quality data for oriental mustard seed (*Brassica juncea*), brown mustard seed (*Brassica juncea*), and yellow mustard seed (*Sinapis alba*) grown in western Canada in 2025 (Figure 1). Mustard seed samples were submitted to the Canadian Grain Commission's Harvest Sample Program by producers and grain processing companies. Quality data are compiled from the results of analytical tests performed by the Grain Research Laboratory.

Figure 1 Mustard seed grown in western Canada

Oriental mustard (*Brassica juncea*) Brown mustard (*Brassica juncea*) Yellow mustard (*Sinapis alba*)

The map in Figure 2 shows the estimated mustard seed production in metric tonnes (MT) by Small Area Data Regions for 2025 from Statistics Canada. The map also shows that the main mustard seed growing areas are southeastern Alberta and southwestern Saskatchewan.

Figure 2 Estimated mustard seed production in 2025 by Small Area Data Regions



Source: Statistics Canada

Weather and production review

Seeding and growing conditions

By the end of April, soil moisture conditions were significantly better than the previous year on the Canadian Prairies. Most mustard seed growing regions reported favorable moisture levels, with abnormally dry conditions limited to southern Saskatchewan (Figure 3). Seeding began early in Saskatchewan, as temperatures were warmer than normal (Figure 4). By May 5, approximately 21% of the mustard crop had been seeded, well ahead of the five-year average. Seeding progress at this point was most advanced in southwestern Saskatchewan (33% completed), while no seeding had yet occurred in the eastern region. Seeding continued steadily through May but advanced more quickly in western Saskatchewan than in eastern regions. By May 26, 92% of the mustard crop had been seeded. The southwestern region was nearly finished (98%), while eastern regions lagged (73% for the southeast, 60% for east central, and 28% for the northeast). Seeding was considered essentially completed by the second week of June, with 98% of the provincial crop in the ground. However, the southeast and northeast still had unseeded acres, with 89% and 69% completion, respectively.

In Alberta, mustard seeding also started early. By May 6, 48.4% of the crop was in the ground, well ahead of the 5-year average. Rain delayed seeding at times, but mustard seeding was considered completed in Alberta by June 3.

Moisture conditions in May and June varied across the growing region (Figure 5). Early in May, soil moisture supported good crop development, but conditions deteriorated later in May and June despite scattered thundershowers. By late June, southwestern Saskatchewan and southeastern Alberta saw severe drought conditions (Figure 3). At that time, only 38% of the mustard seed crop was rated excellent to good, while 51% was rated fair.

July brought sporadic rainfall (Figure 5), but soil moisture continued to be problematic. Much of northern Saskatchewan and northern Alberta experienced severe to extreme drought by the end of July, although a slight improvement was experienced in the south (Figure 3). July was cooler than normal on the Prairies, but low moisture levels caused crop stress in some fields. By the end of July, the Saskatchewan Crop Report indicated an improvement, with 54% of the mustard seed crop rated excellent to good and 32% rated fair. August saw variable precipitation (Figure 5) with warmer temperatures (Figure 4), but the moisture might have arrived too late to benefit early-seeded fields which were already past the grain-filling stage. By the end of August, dry conditions were no longer reported in southern Saskatchewan and Alberta (Figure 3).

Crops developed more slowly than last year due to the growing conditions. In Saskatchewan, rain in August and September made it difficult for producers to get onto the fields, delaying the mustard seed harvest (Figure 7). Harvest began in the final week of August, much later than the previous year, and concluded in the third week of October, approximately three weeks later than last year (Figure 7). In Alberta, the mustard seed harvest started around the third week of August (10.4% of the crop was combined by August 26) and was considered completed by October 14.

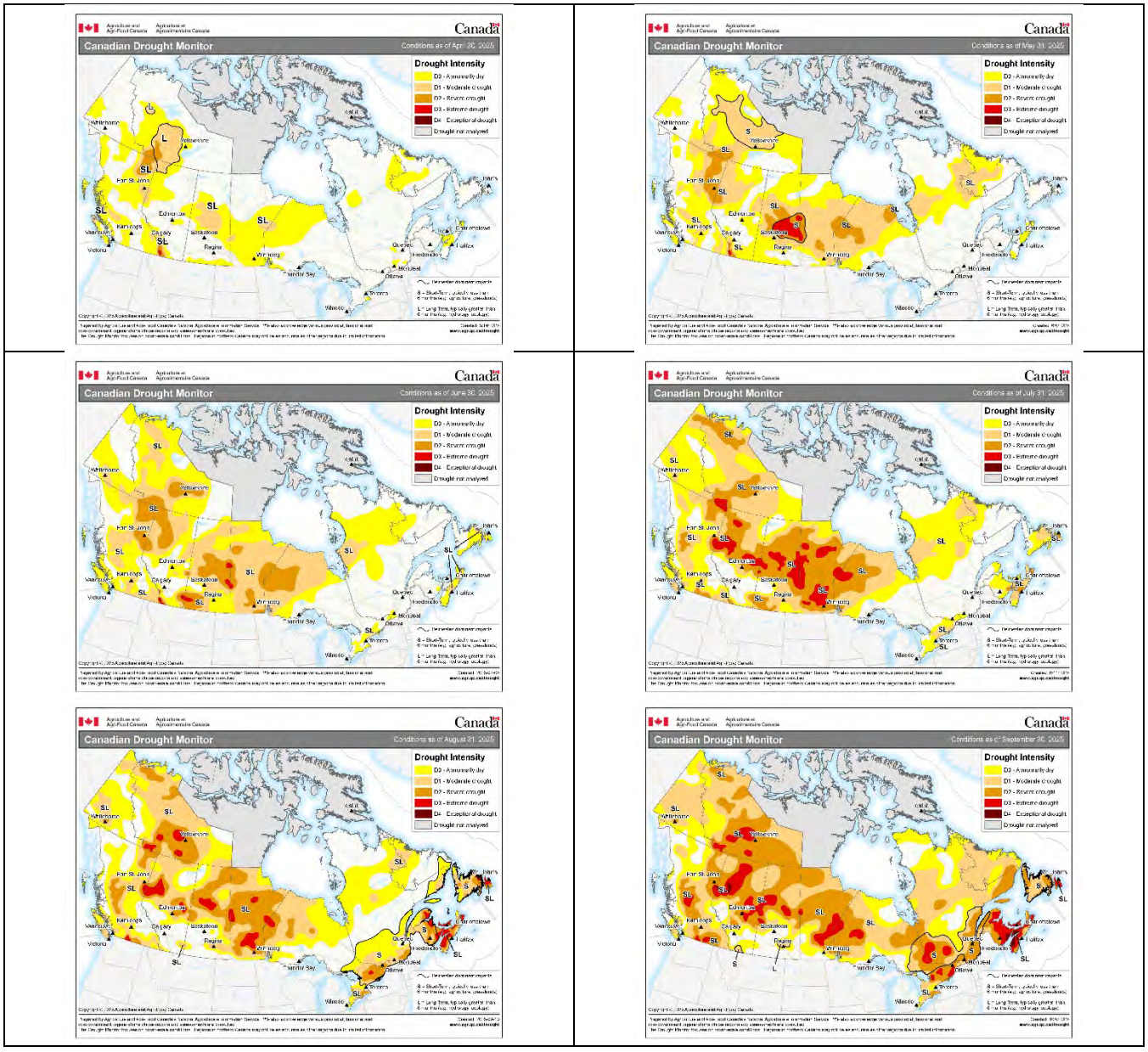
Persistent wildfire smoke covered the Prairies during much of the 2025 growing season. The wildfire season began early, with more than 160 wildfires reported in May across Manitoba, Saskatchewan and Ontario. Both Saskatchewan and Manitoba declared states of emergency at the end of May as conditions worsened. Later in the summer, severe wildfires developed in Alberta and British Columbia, adding to the regional smoke burden.

Given the extent and duration of these events, it is likely that the mustard seed growing conditions in 2025 were affected by wildfire activity. This might also have contributed to slower crop development compared to last year, leading to a delayed harvest.

More detailed information can be found in the following online reports:
Saskatchewan 2025 crop report
Alberta crop report (2025)

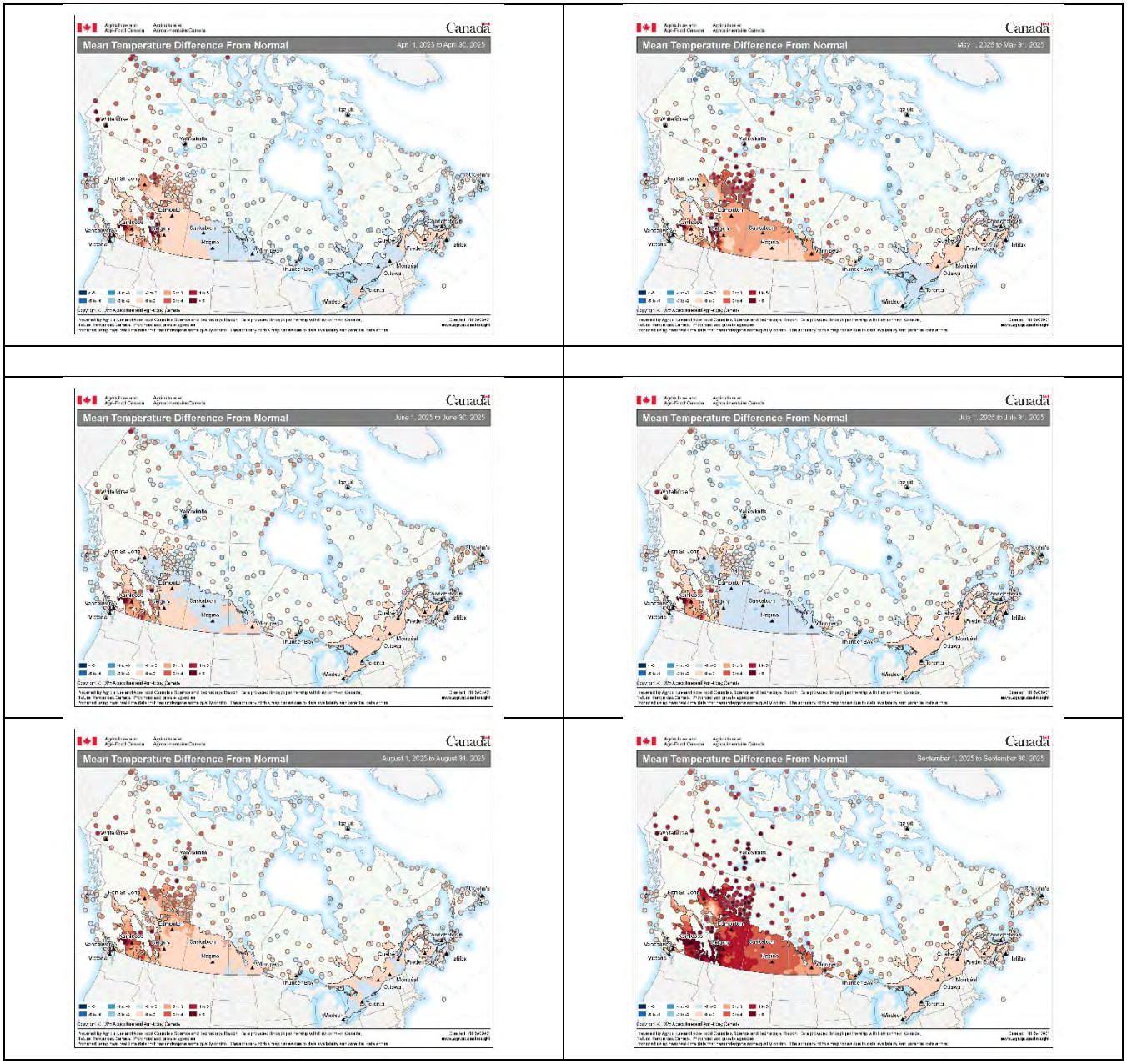
Maps of temperature and precipitation patterns from the 2025 growing season in western Canada can be obtained from Agriculture and Agri-Food Canada.

Figure 3 Extent and intensity of drought between April 30 and September 30, 2025



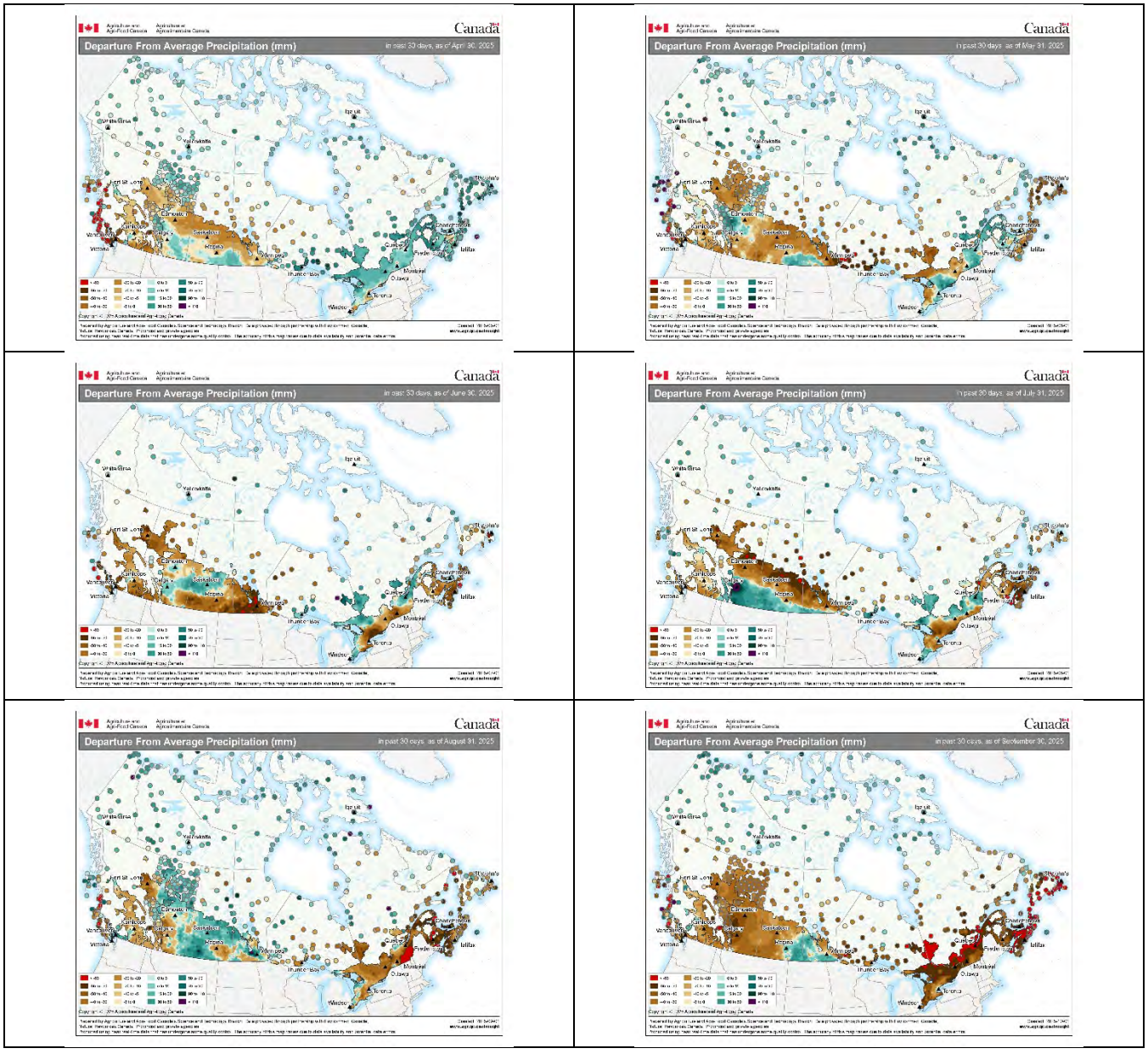
Source: [Agriculture and Agri-foods Canada]

Figure 4 Mean temperature difference from normal between April 1 and September 30, 2025



Source: [Agriculture and Agri-Food Canada]

Figure 5 Departure from average precipitation between April 1 and September 30, 2025



Source: [Agriculture and Agri-Food Canada]

Production and grade distribution

In 2025, the estimated production of mustard seed in western Canada was 139,802 metric tonnes (MT). This is lower than the 2024 production of 192,297 MT (Figure 6) and the 10-year mean (2015 to 2024) of 147,412 MT, but slightly higher that the 5-year mean (2020 to 2024) of 137,064 MT. The decrease in production in 2025 was due to a decrease in hectares (ha) seeded with mustard (146,200 ha in 2025 versus 245,400 ha in 2024) that was not compensated for by a significantly larger yield (Figure 6). The estimated yield in western Canada in 2025 was 966 kilograms per hectare (kg/ha) versus 792 kg/ha in 2024. The 2025 yield was significantly higher than the 5-year mean (750 kg/ha) and the 10-year mean (844 kg/ha) but well below the record yield of 2016 (1,210 kg/ha). The estimated yield was 949 kg/ha (829 kg/ha in 2024) in Saskatchewan and 998 kg/ha (710 kg/ha in 2024) in Alberta.

Saskatchewan accounted for 64.7% (67.6% in 2024) of western Canada's total area seeded with mustard and 64.2% (70.8% in 2024) of western Canada's mustard seed production. Most of the remaining seeded area and production were in Alberta (Figure 2 and Figure 6). Some mustard seed was grown in Manitoba, but it represented less than 1% of the hectares seeded in western Canada. All production data are available from Statistics Canada.

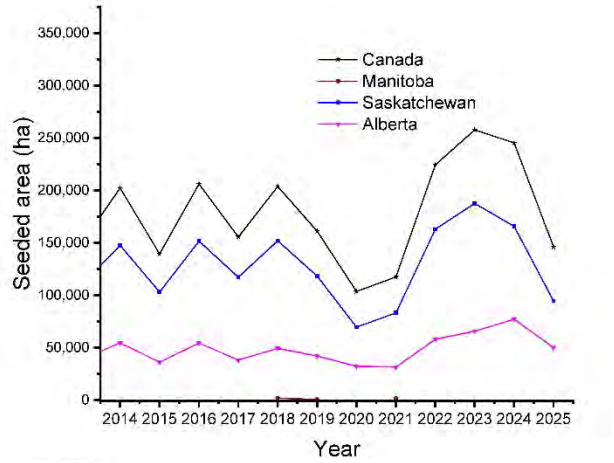
In 2025, only 44.6% of all mustard seed samples received by the Harvest Sample Program were graded Domestic Mustard Seed No. 1, Canada. This is much lower than what was recorded in 2024 (73.4%) and lower than the 5-year and 10-year means (58.7% and 59.3%, respectively). Oriental mustard seed had the lowest percentage of samples graded No. 1 (37.0% in 2025 versus 75.0% in 2024), followed by yellow mustard seed (45.3% in 2025 versus 68.7% in 2024). Samples of brown mustard seed had the least damage, with 61.2% graded No. 1 in 2025 (63.4% in 2024).

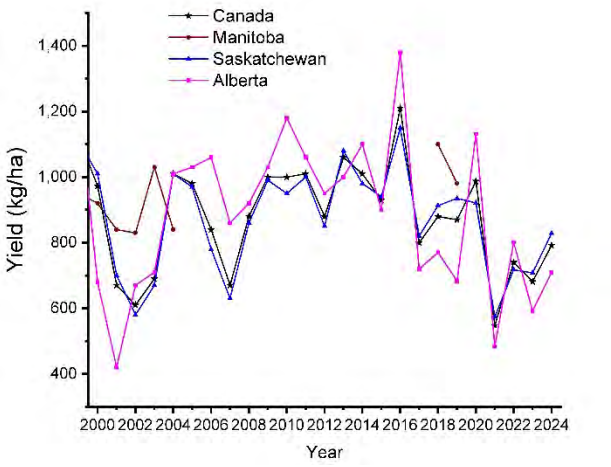
In 2025, mustard seed samples were downgraded primarily due to:

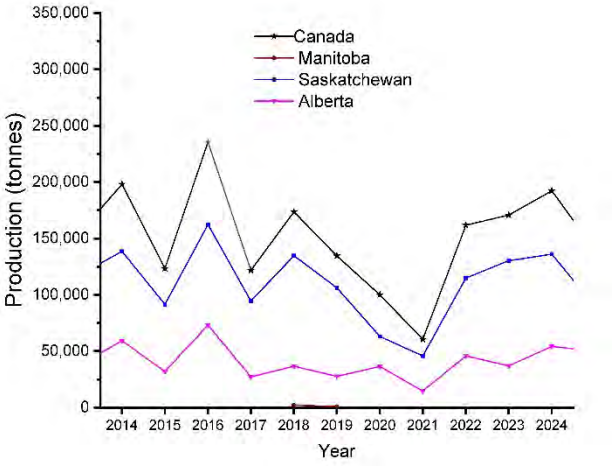
- distinctly detrimental sclerotia and seeds (33.3% of samples contained mixtures of sclerotinia, cow cockle and other detrimental seeds)
- conspicuous admixture (29.2% of samples contained easily identified seeds of other grains or weeds that were inseparable)
- green seeds (19.8% of samples had distinctly green seeds)
- sprouting (2.5% of samples had a ruptured seed coat in combination with either a sprout or distinct swelling of the seed)
- inconspicuous admixture (2.1% of the samples contained seeds that were difficult to distinguish from mustard seeds).

Sprout damage was mainly observed in brown mustard seed samples.

Figure 6 Seeded area, production and yield for mustard seed in western Canada from 2014 to 2025[1]

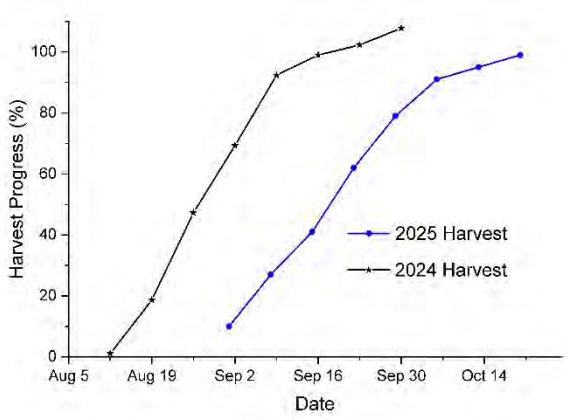






[1] Data from Statistics Canada Table 32-10-0359-01 Estimated areas, yield, production, average farm price and total farm value of principal field crops, in metric and imperial units

Figure 7 Progress of mustard seed harvest in Saskatchewan in 2024 and 2025



Harvest samples

In 2025, the Harvest Sample Program received 242 mustard seed samples from producers and grain companies. This is very similar to the 2024 number (239) and the 5-year mean (249) but lower than the 10-year mean (264). We analyzed 157 samples of yellow mustard seed (131 in 2024), 54 samples of brown mustard seed (64 in 2024) and 31 samples of oriental mustard seed (44 in 2024). Most of the samples (65.3%) came from Saskatchewan (84.9% in 2024), while 23.1% came from Alberta (11.7% in 2024) and 1.2% came from Manitoba (3.4% in 2023). Individual samples were cleaned to remove dockage and were graded by grain inspectors according to Chapter 12 of the Official Grain Grading Guide.

We used a FOSS NIRS™ DS2500 spectrophotometer, calibrated to and verified against the appropriate reference methods, to determine the oil and protein content of all individual whole-seed samples. The total glucosinolate content was determined on individual brown mustard seeds and oriental mustard seeds using NIR spectroscopy and all composite samples were analyzed using the high-performance liquid chromatography reference method. All oilseed methods and test procedures are detailed on our website.

Composites of No. 1 mustard seed were prepared by combining samples of each type of mustard for western Canada and for each province. Composites of lower grade mustard seed (No. 2, No. 3, No. 4, and Sample) were prepared by combining samples of each type for western Canada. Composites of mustard seed varieties were also prepared by combining only samples of the most common varieties graded No. 1. Composites were analyzed for oil, protein, total glucosinolate and chlorophyll content, as well as fatty acid composition.

Quality of the 2025 mustard seed crop

The mustard seed crop grown in western Canada in 2025 had the general characteristics of a well matured crop, with downgrading due mainly to distinctly detrimental seeds and sclerotia, and total conspicuous inseparable seeds. Historical data from the Harvest Sample Program indicate that warm and dry growing conditions tend to produce oilseed crops with higher protein and lower oil content. Scientific literature also suggests that total glucosinolate levels increase in rapeseed when crops are exposed to dry conditions after flowering.

Oil, protein, total glucosinolate and chlorophyll content

Table 1 contains a summary of the 2025 data for oil, protein and total glucosinolate content in oriental, brown, and yellow mustard seed samples according to grade. Comparisons of the quality of oriental, brown, and yellow mustard seed from previous years can be found in Figure 8, Figure 9 and Figure 10.

Oriental mustard seed graded No. 1 had a mean oil content of 40.2% in 2025, much higher than the 2024 mean (34.2%), the 5-year mean (36.3%) and the 10-year mean (38.8%). The mean protein content was noticeably lower in 2025 (27.9%) when compared to 2024 (31.1%) and the 5-year mean (30.0%) but slightly higher than the 10-year mean (28.4%) (Figure 8). The oil content ranged from 33.4% to 43.1% (30.8% to 38.7% in 2024) and the protein content ranged from 25.7% to 31.1% (28.0% to 32.7% in 2024) (Table 1).

In 2025, brown mustard seed graded No. 1 also had a mean oil content (34.9%) that was higher than the 2024 mean (32.1%) and the 5-year mean (33.3%) but similar to the 10-year mean (34.8%). The mean protein content in 2025 (30.3%) was significantly lower than the 2024 mean (32.0%) and the 5-year mean (31.1%) but similar to the 10-year mean (30.0%) (Figure 9). The oil content ranged from 30.6% to 41.1% (27.8% to 39.0% in 2024) and the protein content ranged from 26.4% to 33.4% (27.3% to 35.3% in 2024) (Table 1).

Yellow mustard seed is characteristically lower in oil and higher in protein content than oriental and brown mustard seed (Table 1). The mean oil content of yellow mustard seed graded No. 1 in 2025 (30.4%) was significantly higher than the 2024 mean (24.1%), the 5-year mean (25.7%) and 10-year mean (27.0%). The mean protein content in 2025 (32.2%) was significantly lower than the 2024 mean (36.5%), the 5-year mean (35.3%) and the 10-year mean (34.2%) (Figure 10). The oil content ranged from 20.9% to 35.7% (21.3% to 30.2% in 2024) and the protein content ranged from 25.9% to 40.7% (28.9% to 39.8% in 2023) (Table 1).

The mean total glucosinolate content of oriental mustard seed graded No. 1 was 142 µmol/g, lower than the 2024 mean (148 µmol/g) but higher than the 5-year mean (139 µmol/g) and the 10-year mean (128 µmol/g). The mean total glucosinolate content of No. 1 brown mustard seed in 2025 was 136 µmol/g, lower than the 2024

mean (150 µmol/g), similar to the 5-year mean (133 µmol/g) and higher than the 10-year mean (120 µmol/g). The mean total glucosinolate content of yellow mustard seed graded No. 1 was 157 µmol/g, lower than the 2024 mean (164 µmol/g) but higher than 5-year mean (150 µmol/g).

In comparison to 2024, the mean protein content decreased in 2025 for oriental mustard seed (minus 3.2%), brown mustard seed (minus 1.7%) and yellow mustard seed (minus 4.3%). The protein content for No. 1 mustard seed in 2025 was lower than the 5-year means and 10-year means for oriental mustard seed and yellow mustard seed. The opposite was observed for oil content, with each of the 2025 means being significantly higher than in 2024. The difference in mean oil content was plus 6.0% for oriental mustard seed, plus 2.8% for brown mustard seed and plus 6.3% for yellow mustard seed. This resulted in mean oil content values significantly higher than the 5-year mean and the 10-year mean for oriental and yellow mustard seeds, whereas the 2025 oil content for brown mustard seed was higher than the 5-year mean but similar to the 10-year-mean. June temperatures were slightly higher than normal, while July temperatures were lower than normal (Figure 4). Unlike 2024, the number of days over 30˚C reported in the Prairie provinces by end of July was one or zero. The smoke that covered the Prairies during most of the 2025 growing season acted as a blanket, likely contributing to cooler daytime temperatures by blocking the sunlight while maintaining warmer temperatures at night. The overall effect was much cooler growing conditions compared to 2024, which resulted in higher oil content and lower protein content in 2025 compared to 2024.

Data on the chlorophyll content of oriental, brown and yellow mustard seed samples from 2025 are given in Table 2. The chlorophyll content for No. 1 oriental mustard seed was 0.6 milligrams per kilogram (mg/kg), which was very similar to the 2024 value (0.5 mg/kg). The chlorophyll content for No. 1 brown mustard seed was 4.3 mg/kg, much higher than the 2024 value (1.3 mg/kg). The chlorophyll content for No. 1 yellow mustard seed was 1.8 mg/kg, also much higher than the 2024 value (0.5 mg/kg). These 2025 values exceed the 5-year means and the 10-year means for No. 1 brown mustard seed and No. 1 yellow mustard seed.

Chlorophyll levels indicate the presence of green or immature seeds within a sample. For brown mustard, chlorophyll content increased slightly in No. 2 samples (5.7 mg/kg) compared to No. 1 samples (4.3 mg/kg) and rose sharply in No. 3 samples (8.4 mg/kg) (Table 2). This pattern aligned with the percentages of distinctly green seed in No. 1, No. 2, and No. 3 brown mustard seed (0.5%, 0.5%, and 1.4%, respectively). The elevated chlorophyll values suggest that environmental conditions in 2025 may have slowed mustard seed maturation compared to the 2024 growing season.

Fatty acid composition

Table 2 contains the fatty acid composition data for samples of brown, oriental and yellow mustard seed received in 2025.

Yellow mustard seed oil had more oleic acid (C18:1) and erucic acid (C22:1) than brown mustard seed oil and oriental mustard seed oil. Concurrently, the amount of linoleic acid (C18:2) and α-linolenic acid (C18:3) was higher in brown mustard seed oil and oriental mustard seed oil than in yellow mustard seed oil. The mean erucic acid content for yellow mustard seed oil was 32.7% (30.8% in 2024), while the mean erucic acid content was 23.2% (22.7% in 2024) for brown mustard seed oil and 21.9% (22.0% in 2024) for oriental mustard seed oil. The

oleic acid content of the oil was similar in 2025 and 2024 for oriental mustard seed (21.6% and 21.9%, respectively) whereas it decreased for brown mustard seed oil (19.6% in 2025 versus 20.6% in 2024) and yellow mustard seed oil (27.6% in 2025 versus 28.7% in 2024). Across all mustard types, linoleic acid (C18:2) levels declined from 2024 to 2025, dropping from 24.0% to 22.3% in oriental mustard seed oil, from 22.0% to 20.9% in brown mustard seed oil, and from 11.1% to 9.2% in yellow mustard seed oil. In contrast, α-linolenic acid levels increased over the same period, rising from 10.1% to 11.6% in oriental mustard seed oil, from 12.3% to 13.8% in brown mustard seed oil, and from 9.5% to 10.4% in yellow mustard seed oil. This resulted in higher iodine values for oriental mustard seed oil (116.6 units in 2025 versus 115.1 units in 2024) and brown mustard seed oil (119.5 units in 2025 versus 117.5 units in 2024) and similar iodine value for yellow mustard seed oil (101.9 units in 2025 versus 102.0 units in 2024). The percentage of total saturated fatty acids was 5.3% for yellow mustard seed oil (5.5% in 2024), 6.3% for oriental mustard seed oil (7.0% in 2024) and 6.0% for brown mustard seed oil (6.6% in 2024).

Year-to-year variation in oil composition is well documented in the scientific literature. It has been shown that increases in oil unsaturation, reflected by higher iodine values, are typically associated with cooler temperatures during the growing season. These results align with the higher oil content of the mustard seed crop observed in 2025 compared to 2024.

Free fatty acid (FFA) content is an indicator of seed stress and oil degradation. In 2025, the mean FFA content of No. 1 mustard seed was low (0.05% to 0.14%), similar to what was observed in 2024 (0.05% to 0.08%).

Variety information

In 2025, as in 2024, Centennial Brown was the main variety of brown mustard seed, and Andante and AAC Yellow 80 were the two main varieties of yellow mustard seed. Forge was the main variety of oriental mustard seed in 2025, while Cutlass was the main variety in 2024. However, because not all Harvest Sample Program samples are identified by variety, the distribution of varieties that we recorded may not fully represent the actual distribution.

The oil content of Adante (30.2%) was lower than that for AAC Yellow 80 (31.1%) but their protein content values were similar (31.6% for Andante and 31.5% for AAC Yellow 80). Their total glucosinolate content values were identical (141 µmol/g) in 2025. The fatty acid compositions of their oils were similar for total saturates, α-linolenic acid and linoleic acid (Table 2). Andante oil contained more erucic acid and less oleic acid than AAC Yellow 80 oil (Table 2). This resulted in a slightly higher iodine value for AAC Yellow 80 oil when compared to Andante oil.

Table 1 Oil, protein and total glucosinolate content of 2025 western Canadian mustard seed

			Oil content[1] %			Protein content[2] %			Glucosinolate content µmol/g[3]		
Grade	**Location**	**Number of samples**	**Mean**	**Min[4]**	**Max[5]**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
Domestic Mustard Seed, Oriental, Canada											
No. 1	**Western Canada**	**10**	**40.2**	**33.4**	**43.1**	**27.9**	**25.7**	**31.1**	**142**	**82**	**159**
	Saskatchewan	6	41.3	37.6	43.1	27.4	25.7	30.1	147	121	157
	Alberta	4	38.5	33.4	41.2	28.7	27.1	31.1	135	82	161
Forge, No. 1	Western Canada	3	40.1	39.7	41.2	27.6	27.1	27.6	143	82	158
Domestic Mustard Seed, Brown, Canada											
No. 1	**Western Canada**	**30**	**34.9**	**30.6**	**41.1**	**30.3**	**26.4**	**33.4**	**136**	**100**	**161**
	Saskatchewan	27	35.0	30.6	41.1	30.2	29.5	32.7	135	100	161
	Alberta	3	33.6	31.8	35.1	31.3	29.5	32.7	144	128	149
No. 2	Canada	9	33.8	32.2	37.9	31.9	27.9	33.0	146	107	159
No. 3	Canada	10	34.7	31.5	36.8	31.0	29.3	32.5	138	97	158
Centennial Brown, No. 1	Western Canada	4	33.3	32.2	36.4	32.5	29.3	33.4	144	121	150
Domestic Mustard Seed, Yellow, Canada											
No. 1	**Western Canada**	**68**	**30.4**	**20.9**	**35.7**	**32.2**	**25.9**	**40.7**	**157**	**n/a[6]**	**n/a**
	Saskatchewan	43	30.2	20.9	35.7	32.5	25.9	40.7	159	n/a	n/a
	Alberta	25	30.6	24.3	34.3	31.8	25.9	37.3	155	n/a	n/a
No. 2	Western Canada	41	27.8	22.2	33.2	35.7	29.5	41.2	150	n/a	n/a
No. 3	Western Canada	19	28.1	24.6	33.4	34.8	27.5	38.2	144	n/a	n/a
No. 4	Western Canada	22	28.9	23.6	33.0	33.4	27.7	38.9	140	n/a	n/a
Sample	Western Canada	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Andante, No. 1	**Western Canada**	**19**	**30.2**	**23.7**	**34.3**	**31.6**	**25.9**	**36.5**	**141**	**n/a**	**n/a**
	Saskatchewan	12	29.7	23.7	32.5	32.0	28.5	36.5	139	n/a	n/a
	Alberta	7	31.1	29.0	34.3	31.1	25.9	34.0	144	n/a	n/a
AAC Yellow 80, No. 1	**Western Canada**	**9**	**31.1**	**25.3**	**33.7**	**31.5**	**27.9**	**37.7**	**141**	**n/a**	**n/a**
	Saskatchewan	6	30.2	25.3	31.2	32.5	30.7	37.7	143	n/a	n/a
	Alberta	3	32.8	29.9	33.7	29.6	27.9	33.0	136	n/a	n/a

[1] Determined on a dry matter basis.
[2] Protein content calculated from nitrogen (N) content using N x 6.25 on a dry matter basis.
[3] µmol/g = micromoles per gram; total glucosinolate content was calculated on a dry matter basis.
[4] Min = minimum obtained from the NIR predictions.
[5] Max = maximum obtained from the NIR predictions.
[6] n/a = not available.

Table 2 Relative fatty acid composition of the oil, chlorophyll content and free fatty acid content of 2025 western Canadian mustard seed

Grade	Location	Relative fatty acid composition (%)[1]					Iodine value (units)	Chlorophyll content (mg/kg)[2]	FFA[3] (%)
		C18:1	C18:2	C18:3	C22:1[4]	Total SFA[5]			
Domestic Mustard Seed, Oriental, Canada									
No. 1	**Western Canada**	**21.8**	**22.3**	**11.6**	**21.9**	**6.3**	**116.6**	**0.6**	**0.14**
	Saskatchewan	20.5	21.4	11.9	23.6	6.1	116.2	0.7	0.12
	Alberta	23.9	23.8	11.0	19.4	6.6	117.1	0.5	0.15
Forge, No. 1	Western Canada	23.6	23.1	11.7	19.8	6.3	117.6	0.8	0.17
Domestic Mustard Seed, Brown, Canada									
No. 1	**Western Canada**	**19.6**	**20.9**	**13.8**	**23.2**	**6.0**	**119.5**	**4.3**	**0.10**
	Saskatchewan	19.7	20.9	13.8	23.1	6.0	119.5	4.2	0.10
	Alberta	18.5	20.8	13.9	24.0	5.9	119.3	4.4	0.11
No. 2	Western Canada	19.4	20.9	14.9	22.5	5.9	121.5	5.7	0.09
No. 3	Western Canada	22.7	22.8	14.5	18.7	6.3	122.8	8.4	0.15
Centennial Brown, No. 1	Western Canada	18.0	20.6	14.8	24.0	5.9	120.8	4.4	0.16
Domestic Mustard Seed, Yellow, Canada									
No. 1	**Western Canada**	**27.6**	**9.2**	**10.4**	**32.7**	**5.3**	**101.9**	**1.8**	**0.05**
	Saskatchewan	28.3	9.3	10.4	31.8	5.3	102.0	2.5	0.06
	Alberta	26.4	9.1	10.5	34.1	5.2	101.6	0.7	0.03
No. 2	Western Canada	26.3	9.4	10.8	33.7	5.1	102.6	2.7	0.1
No. 3	Western Canada	25.7	9.3	11.2	34.0	5.1	103.2	2.8	0.1
No. 4	Western Canada	26.1	9.5	10.8	33.9	5.1	102.5	3.0	0.07
Sample	Western Canada	n/a[6]	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Andante, No. 1	**Western Canada**	**26.8**	**9.2**	**10.3**	**33.6**	**5.2**	**101.4**	**0.9**	**0.06**
	Saskatchewan	27.4	9.3	10.2	33.0	5.2	101.5	0.9	0.05
	Alberta	25.9	9.0.	10.4	34.7	5.2	101.4	0.9	0.07
AAC Yellow 80, No. 1	**Western Canada**	**29.2**	**9.5**	**10.3**	**30.8**	**5.3**	**102.1**	**0.9**	**0.06**
	Saskatchewan	29.6	9.7	10.1	30.4	5.3	102.1	1.0	0.08
	Alberta	28.4	9.2	10.5	31.6	5.3	102.0	0.7	0.03

[1] Total fatty acids includes oleic (C18:1), linoleic (C18:2), α-linolenic (C18:3) and erucic (C22:1).

[2] mg/kg = milligrams per kilogram.

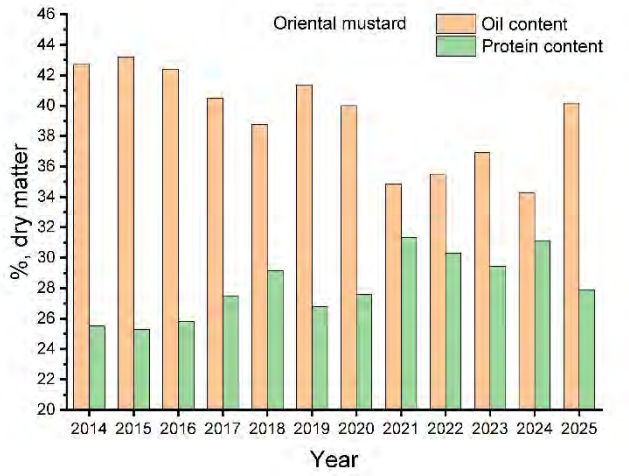
[3] FFA = free fatty acids.

[4] Erucic acid (grams per kilogram of seeds) was calculated using oil content and the erucic acid relative content, on a dry matter basis.

[5] SFA = saturated fatty acids; total SFA is the sum of palmitic (C16:0), stearic (C18:0), arachidic (C20:0), behenic (C22:0) and lignoceric (C24:0).

[6] n/a = not available.

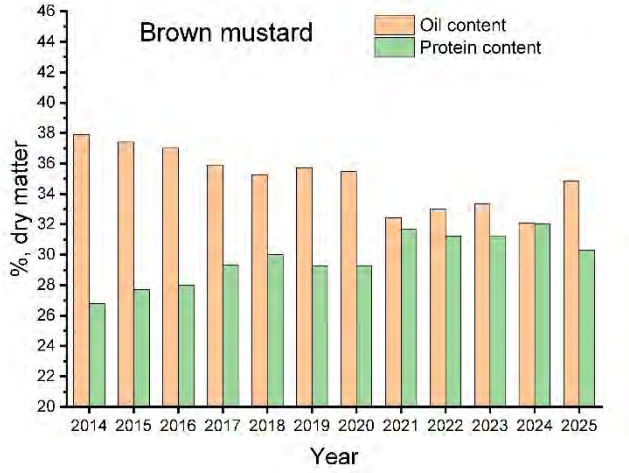
Figure 8 Oil and protein content for harvest samples of oriental Domestic Mustard Seed, No. 1 Canada, from 2014 to 2025



2025 oil content 40.2%
2024 oil content 34.2%
2020 to 2024 mean oil content 36.3%

2025 protein content 27.9%
2024 protein content 31.1%
2020 to 2024 mean protein content 30.0%

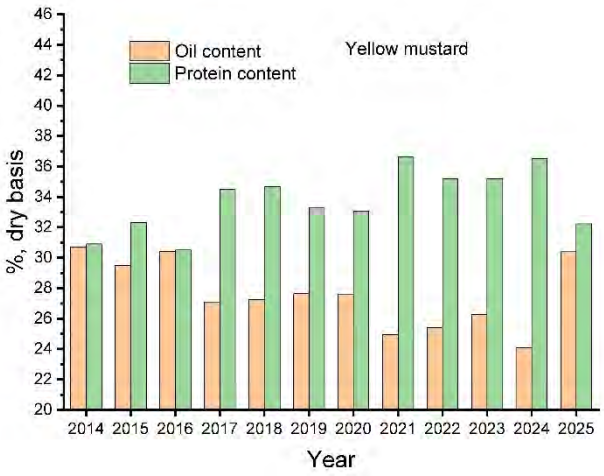
Figure 9 Oil and protein content for harvest samples of brown Domestic Mustard Seed, No. 1 Canada, from 2014 to 2025



2025 oil content 34.9%
2024 oil content 32.1%
2015 to 2024 mean oil content 34.8%

2025 protein content 30.3%
2024 protein content 32.0%
2015 to 2024 mean protein content 30.0%

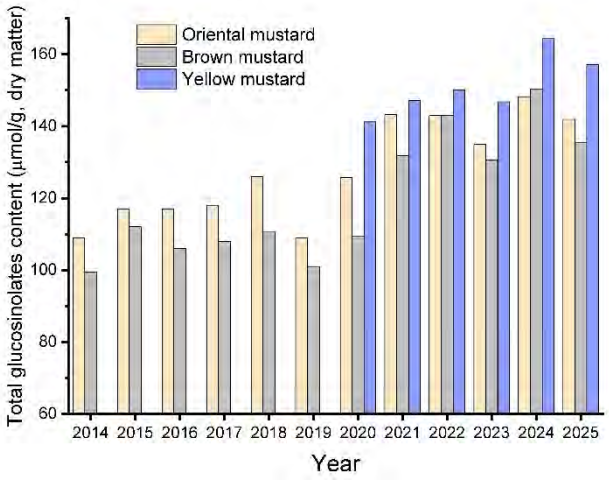
Figure 10 Oil and protein content for harvest samples of yellow Domestic Mustard Seed, No. 1 Canada, from 2014 to 2025



2025 oil content 30.4%
2024 oil content 24.1%
2015 to 2024 mean oil content 27.0%

2025 protein content 32.2%
2024 protein content 36.5%
2015 to 2024 mean protein content 34.2%

Figure 11 Total glucosinolate content for harvest samples of oriental, brown and yellow[1] Domestic Mustard Seed, No. 1 Canada, from 2014 to 2025



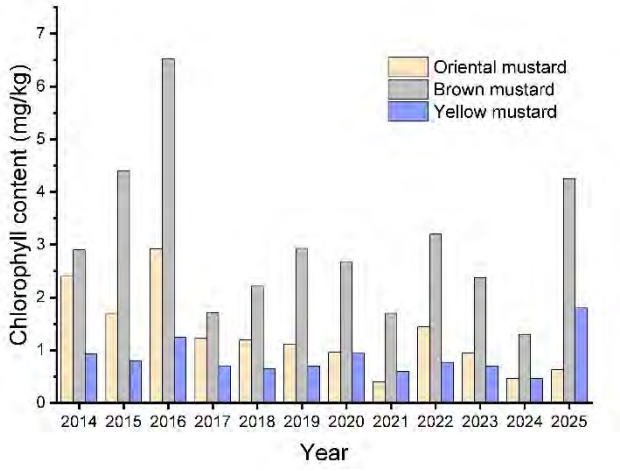
2025 total glucosinolate content of oriental mustard seed ..... 142 µmol/g
2024 total glucosinolate content of oriental mustard seed ..... 148 µmol/g
2020 to 2024 mean total glucosinolate content of oriental mustard seed ..... 139 µmol/g

2025 total glucosinolate content of brown mustard seed ..... 136 µmol/g
2024 total glucosinolate content of brown mustard seed ..... 150 µmol/g
2020 to 2024 mean total glucosinolate content of brown mustard seed ..... 133 µmol/g

2025 total glucosinolate content of yellow mustard seed ..... 157 µmol/g
2024 total glucosinolate content of yellow mustard seed ..... 164 µmol/g
2020-2024 mean total glucosinolate content of yellow mustard seed ..... 150 µmol/g

[1] Data from 2020 to 2025

Figure 12 Chlorophyll content for harvest samples of oriental, brown and yellow Domestic Mustard Seed, No. 1 Canada, from 2014 to 2025



2025 chlorophyll content of oriental mustard seed ..... 0.6 mg/kg
2025 chlorophyll content of brown mustard seed ..... 4.3 mg/kg
2025 chlorophyll content of yellow mustard seed ..... 1.8 mg/kg

2020 to 2024 mean chlorophyll content of oriental mustard seed ..... 0.8 mg/kg
2020 to 2024 mean chlorophyll content of brown mustard seed ..... 2.2 mg/kg
2020 to 2024 mean chlorophyll content of yellow mustard seed ..... 0.7 mg/kg

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