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# Quality of Canadian oilseed-type soybeans 2025

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# Summary

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Data on the quality of Canadian oilseed-type soybeans grown in 2025 are based on composites of the No. 1 and No. 2 soybean samples (Table 1 and Table 3). The mean oil content for the Canadian composite was 21.9% on a dry basis and 19.1% on a 13% moisture basis. The 2025 means for oil content were lower than the 2024 means of 22.4% (dry basis) and 19.5% (13% moisture basis), and slightly lower than the 5-year means (2020 to 2024) of 22.1% (dry basis) and 19.2% (13% moisture basis). The mean protein content for the Canadian composite was 37.9% on a dry basis and 33.0% on a 13% moisture basis. The 2025 means for protein content were similar to the 2024 means of 38.0% (dry basis) and 33.1% (13% moisture basis), but lower than the 5-year means of 38.5% (dry basis) and 33.5% (13% moisture basis).

The values for mean oil content and mean protein content varied between the western and eastern composites (Table 3). The western Canadian (Manitoba) composite had a mean oil content of 21.6% and a mean protein content of 37.9% on a dry basis, and a mean oil content of 18.8% and a mean protein content of 33.0% on a 13% moisture basis. The eastern Canadian (Ontario, Quebec and New Brunswick) composite had a mean oil content of 22.2% and a mean protein content of 37.9% on a dry basis, and a mean oil content of 19.4% and a mean protein content of 33.0% on a 13% moisture basis.

# Introduction

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Soybean production in Canada has expanded in recent years and soybeans are now grown from the Maritimes through to Saskatchewan (Figure 1). This report focuses on oilseed-type soybeans which are used in the crushing industry and for animal feed. Soybean oil is used in salad dressings, shortening, and margarine products, and the defatted meal, which is protein rich, is used to supplement livestock rations.

In 2025, 152 samples of oilseed-type soybeans were received by the Harvest Sample Program, much less than the 275 samples received in 2024. The soybean samples originated from Manitoba (63), Ontario (58), Quebec (26), and New Brunswick (5). Among these samples, 30% were graded No. 1, 58% were graded No. 2, and 12% were graded No. 3 or lower.

The oil, protein, free fatty acid and chlorophyll content and fatty acid composition were determined using composites of the No. 1 and No. 2 soybean samples. Table 1 compares the 2025 data, the 2024 data, and the 5-year means for the Canadian composites of No. 1 and No. 2 soybeans samples. Oil and protein content are provided on a dry basis (historical reference) and on a 13% moisture basis (commercial reference). Quality data for the No. 1 and No. 2 soybean composites from each location are given in Table 3 and Table 4.

**Table 1 Quality data for Soybeans, No. 1 Canada and Soybeans, No. 2 Canada composites in 2025 and 2024**

| Grade                                             | Quality parameter                                   | 2025  | 2024  | 2020 to 2024 mean |
|---------------------------------------------------|-----------------------------------------------------|-------|-------|-------------------|
| Soybeans, No. 1 Canada and Soybeans, No. 2 Canada | Oil content, %, dry basis                           | 21.9  | 22.4  | 22.1              |
|                                                   | Oil content, %, 13% moisture                        | 19.1  | 19.5  | 19.2              |
|                                                   | Protein content <sup>1</sup> , %, dry basis         | 37.9  | 38.0  | 38.5              |
|                                                   | Protein content <sup>1</sup> , %, 13% moisture      | 33.0  | 33.1  | 33.5              |
|                                                   | Protein content of defatted meal, %, 13% moisture   | 42.3  | 42.5  | 42.9              |
|                                                   | Chlorophyll content, mg/kg of seeds <sup>2</sup>    | 0.4   | 0.3   | 0.5               |
|                                                   | Free fatty acid content <sup>3</sup> , %            | 0.04  | 0.09  | 0.10              |
|                                                   | Oleic acid, % in oil                                | 19.5  | 20.4  | 20.3              |
|                                                   | Linoleic acid, % in oil                             | 55.0  | 54.2  | 54.3              |
|                                                   | Alpha-linolenic acid, % in oil                      | 8.9   | 9.0   | 8.8               |
|                                                   | Total saturated fatty acids <sup>4</sup> , % in oil | 15.7  | 15.5  | 15.4              |
|                                                   | Iodine value, units                                 | 135.7 | 135.3 | 135.1             |

<sup>1</sup> Protein content calculated from nitrogen (N) content using N x 6.25.

<sup>2</sup> mg/kg = milligrams per kilogram.

<sup>3</sup> Calculated as percentage of oleic acid.

<sup>4</sup> Total saturated fatty acids is the sum of all saturated fatty acids from C12:0 to C24:0.

Figure 1 Soybean production areas in Canada



Source: [Growing Areas - Soy Canada](#)

## Weather and production review

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### Seeding and growing conditions

In western Canada (Manitoba), the 2025 growing season was characterized by uneven precipitation along with warm temperatures. Most seeding (95%) was finished by early June, which was ahead of the 5-year average for that time (85%). Precipitation amounts varied across Manitoba, with many regions receiving more than 100% of the normal rainfall. However, the Interlake region of Manitoba and parts of the northwest remained significantly drier. By mid-October, 97% of the harvest had been completed.

The 2025 growing season in eastern Canada (Ontario and Quebec) was challenging due to on going moisture stress. Most of the soybean crop was not seeded until mid-June, significantly later than previous years. Soybeans seeded early struggled with cool temperatures, which delayed their emergence. Throughout the summer, inadequate rainfall contributed to widespread abortion of pods, resulting in reduced yield potential and overall soybean production across the region. By mid-October, most of the soybean crop had been harvested.

Source: [Prograin | Crop reports](#)

## Production

The seeded area and production data for 2025 and 2024 are given in Table 2. In 2025, the area seeded with soybeans increased to 2,315,300 hectares (ha) from 2,310,000 ha in 2024.

Soybean production in Canada has increased steadily from 2000 to 2025, primarily due to increased production in Ontario. In 2025, production in eastern Canada was 4,731,956 metric tonnes (MT). Production in western Canada peaked in 2017 at 2,742,300 MT. Production in the west has been slowly decreasing in recent years, mainly due to poor weather conditions and uncertainty in the market. In 2025, however, production increased to 2,014,349 MT, making 2025 the highest production year in western Canada since 2020.

Approximately 70% of Canadian soybeans were produced in eastern Canada and 30% in western Canada.

**Table 2 Seeded area and production for Canadian soybeans in 2025 and 2024<sup>1</sup>**

| Location              | Seeded area<br>(hectares) |                  | Production<br>(metric tonnes) |                  | Production, 5-year mean<br>(metric tonnes) |
|-----------------------|---------------------------|------------------|-------------------------------|------------------|--------------------------------------------|
|                       | 2025                      | 2024             | 2025                          | 2024             | 2020 to 2024                               |
| Manitoba              | 670,200                   | 576,900          | 1,906,154                     | 1,696,770        | 1,352,148                                  |
| Saskatchewan          | 38,600                    | 27,100           | 108,195                       | 45,488           | 48,066                                     |
| <b>Western Canada</b> | <b>708,000</b>            | <b>604,000</b>   | <b>2,014,349</b>              | <b>1,742,258</b> | <b>1,400,214</b>                           |
| Ontario               | 1,168,800                 | 1,262,000        | 3,560,610                     | 4,354,506        | 4,050,225                                  |
| Quebec                | 437,700                   | 419,300          | 1,171,346                     | 1,425,137        | 1,144,329                                  |
| <b>Eastern Canada</b> | <b>1,606,500</b>          | <b>1,681,300</b> | <b>4,731,956</b>              | <b>5,741,560</b> | <b>5,194,554</b>                           |
| <b>Total Canada</b>   | <b>2,315,300</b>          | <b>2,285,300</b> | <b>6,746,305</b>              | <b>7,483,818</b> | <b>6,594,768</b>                           |

<sup>1</sup> Statistics Canada Table 001-0010 - [Estimated areas, yield, production and average farm price of principal field crops, in metric and imperial units.](#)

# Harvest samples

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In 2025, the Canadian Grain Commission's Harvest Sample Program received 152 oilseed soybean samples. The distribution of samples was:

- 89 from eastern Canada (179 in 2024)
- 63 from western Canada (96 in 2024)

Canadian Grain Commission grain inspectors graded the samples according to the [Official Grain Grading Guide](#). In 2025, most of the submitted samples were graded as Soybeans, No. 1 Canada or Soybeans, No. 2 Canada, with a similar grade distribution observed in eastern and western Canada.

Key quality factors for oilseed-type soybeans are oil, protein, free fatty acid (FFA), chlorophyll and the composition of fatty acids. Oil content and protein content give quantitative estimates of the quality of soybean oil and of the defatted meal used for protein in animal feed. Fatty acid composition provides information about the nutritional, physical and chemical characteristics of soybean oil.

Individual samples were analyzed for oil content and protein content using a FOSS DS2500 near-infrared (NIR) spectrometer, which was calibrated and verified with appropriate samples analyzed by reference methods. Composites of No. 1 and No. 2 soybean samples were analyzed using reference methods for oil, protein, FFA, chlorophyll and fatty acid composition. More details on the [oilseed methods and tests](#) used to analyze soybean quality are available on our website.

## Oil and protein content

In 2025, the mean oil content for the No. 1 and No. 2 soybean Canadian composite was 21.9% on a dry basis and 19.1% on a 13% moisture basis (Table 1). The 2025 means for oil content were lower than the 2024 means (22.4% on a dry basis and 19.5% on a 13% moisture basis) and the 5-year means (22.1% on a dry basis and 19.2% on a 13% moisture basis). The oil content for individual samples from across Canada ranged from 19.7% to 24.5% on a dry basis (Table 3) and 17.1% to 21.3% on a 13% moisture basis. The mean oil content for samples from western Canada was 21.6% (dry basis) and 19.9% (13 % moisture) and the mean oil content for samples from eastern Canada was 22.2% (dry basis) and 19.7% (13 % moisture basis). Figure 4 shows the trends in oil content (dry basis) for eastern Canada, western Canada, and all of Canada since 2020.

The mean protein content for the No. 1 and No. 2 soybean Canadian composite was 37.9% on a dry basis and 33.0% on a 13% moisture basis (Table 1). The 2025 means for protein content were similar to the 2024 means (38.0% on a dry basis and 33.1% on a 13% moisture basis) but lower than the 5-year means (38.5% on a dry basis and 33.5% on a 13% moisture basis). The mean protein content (dry basis) was identical for samples from eastern Canada and western Canada (37.9%) (Table 3). The protein content for individual samples ranged from 32.6% to 40.7% on a dry basis (Table 3) and 28.4% to 35.4% on a 13% moisture basis. Figure 2 shows the trends in protein content (dry basis) for eastern Canada, western Canada and all of Canada since 2020.

Figure 3 shows the trends in protein content (dry basis) for fully defatted soybean meal for eastern Canada, western Canada and all of Canada since 2020. The 2025 mean protein content of defatted soybean meal for samples from western Canada (48.3%) was lower than the 2025 mean for samples from eastern Canada (48.7%).

Growing conditions are usually responsible for variations in oil content and protein content from year to year, whereas genetics or varietal differences are usually responsible for trends over several years. A combination of genetics and growing conditions are responsible for differences observed between eastern and western soybeans. Soybean breeding currently focuses mostly on yield and other agronomic factors. Quality factors, such as oil content or protein content, are not considered when registering new soybean varieties in Canada.

## Fatty acid composition

Table 4 contains the 2025 fatty acid composition data for the No. 1 and No. 2 soybean composites according to location. Linoleic acid (C18:2), the main fatty acid found in soybean oil, had a mean content value of 55.0% for the Canadian composite, higher than the 2024 mean (54.2%). Oleic acid (C18:1), the second most important fatty acid in soybeans, had a mean content value of 19.5% for the Canadian composite, lower than the 2024 mean (20.4%). The unsaturated fatty acid, alpha-linolenic acid (C18:3), had a mean content value of 8.9% for the Canadian composite, lower than the 2024 mean (9.0%). The 2025 mean for total saturated fatty acid content was 15.7% for the Canadian composite, slightly higher than the 2024 mean (15.5%). The western Canadian composite had a lower mean linoleic acid content (54.2%) than the composite from eastern Canada (55.6%) and higher means for oleic content (19.8%) and alpha-linolenic content (9.3%) than the composite from eastern Canada (19.4% for oleic acid and 8.7% for alpha-linolenic acid).

Iodine value in oil estimates the degree of unsaturation in fatty acids. The higher the number of double bonds in the oil, the higher the iodine value and degree of unsaturation. The 2025 mean alpha-linolenic acid content for the Canadian composite was slightly higher than the 2024 mean, while the 2025 mean linoleic acid content for the Canadian composite was similar to the 2024 mean. As a result, the mean iodine value in 2025 (135.7 units) was slightly higher than the 2024 mean (135.3 units) (Table 1). Figure 5 shows the trends in iodine value since 2020 for eastern Canada, western Canada, and all of Canada. The yearly variations reflect the environmental differences, including geographic factors and climatic factors, such as temperature and precipitation. The mean iodine values for the western Canadian composite (135.4 units) and the eastern Canadian composite (135.9 units) were similar.

There is no requirement to control the fatty acid composition in Canadian oilseed-type soybeans, which leads to important variations between varieties. Weather also plays an important role in the variability of fatty acid composition between years. In hot and dry conditions, soybean plants tend to produce seeds with oil that has more saturation. The seeds will have less polyunsaturated fatty acids, such as alpha-linolenic and linoleic acids, and more total saturates and oleic acid. The opposite is observed if soybeans are grown in cool conditions.

## Free fatty acid content

In 2025, the Canadian composite of No. 1 and No. 2 soybean samples had a mean free fatty acid (FFA) content of 0.04% (Table 1 and Table 3), which was lower than the 2024 mean (0.09%).

## Chlorophyll content

Chlorophyll content is an indicator of maturity in soybeans: the lower the chlorophyll, the more mature the seed. The 2025 mean chlorophyll content for the western Canadian composite and the eastern Canadian composite of No. 1 and No. 2 soybeans was 0.4 milligrams per kilogram (Table 3).

Figure 2 Protein content (% dry basis) for Canadian oilseed soybeans from 2020 to 2025

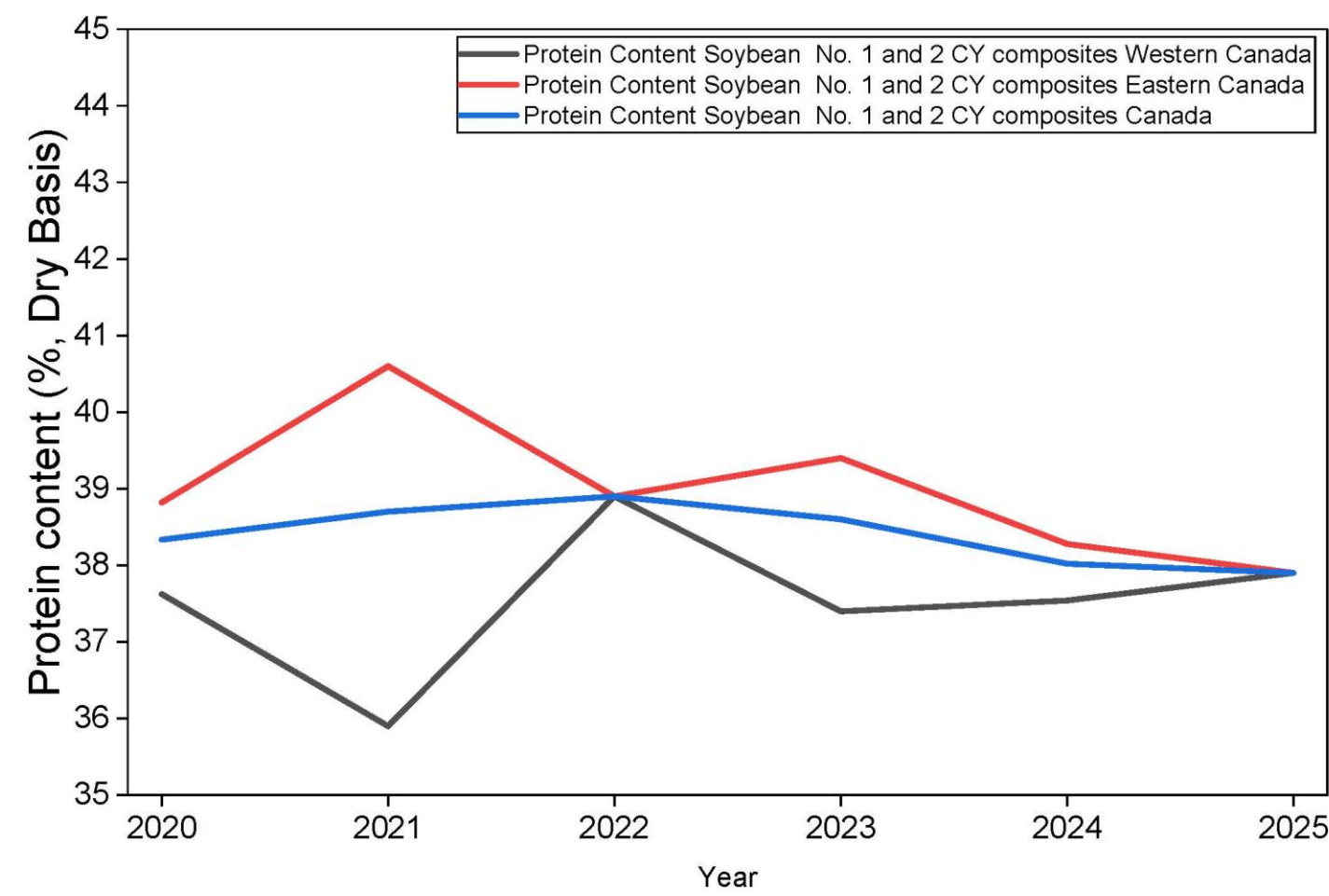


Figure 3 Protein content (% dry basis) of defatted meal for Canadian oilseed soybeans from 2020 to 2025

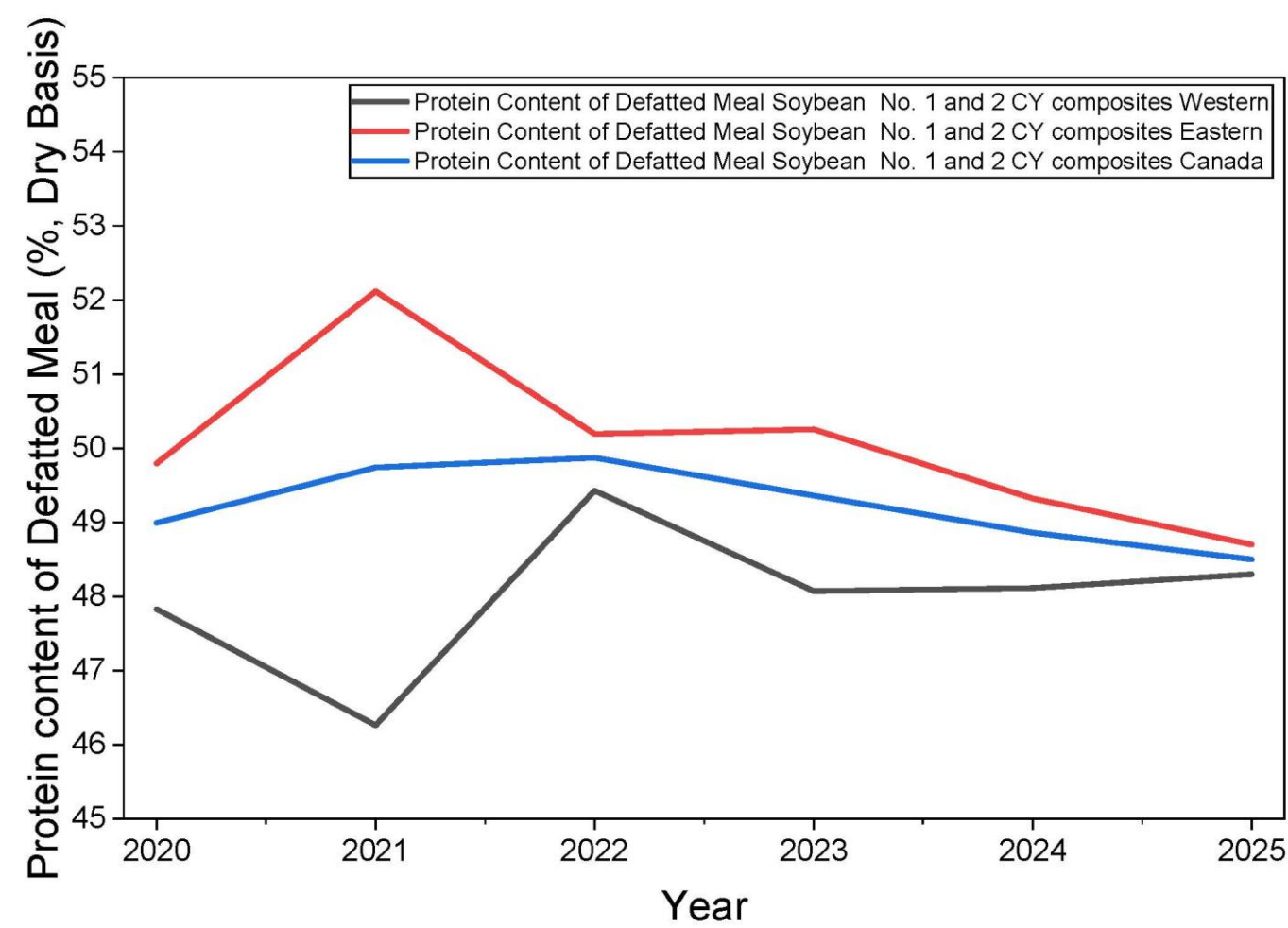


Figure 4 Oil content (% , dry basis) for Canadian oilseed soybeans from 2020 to 2025

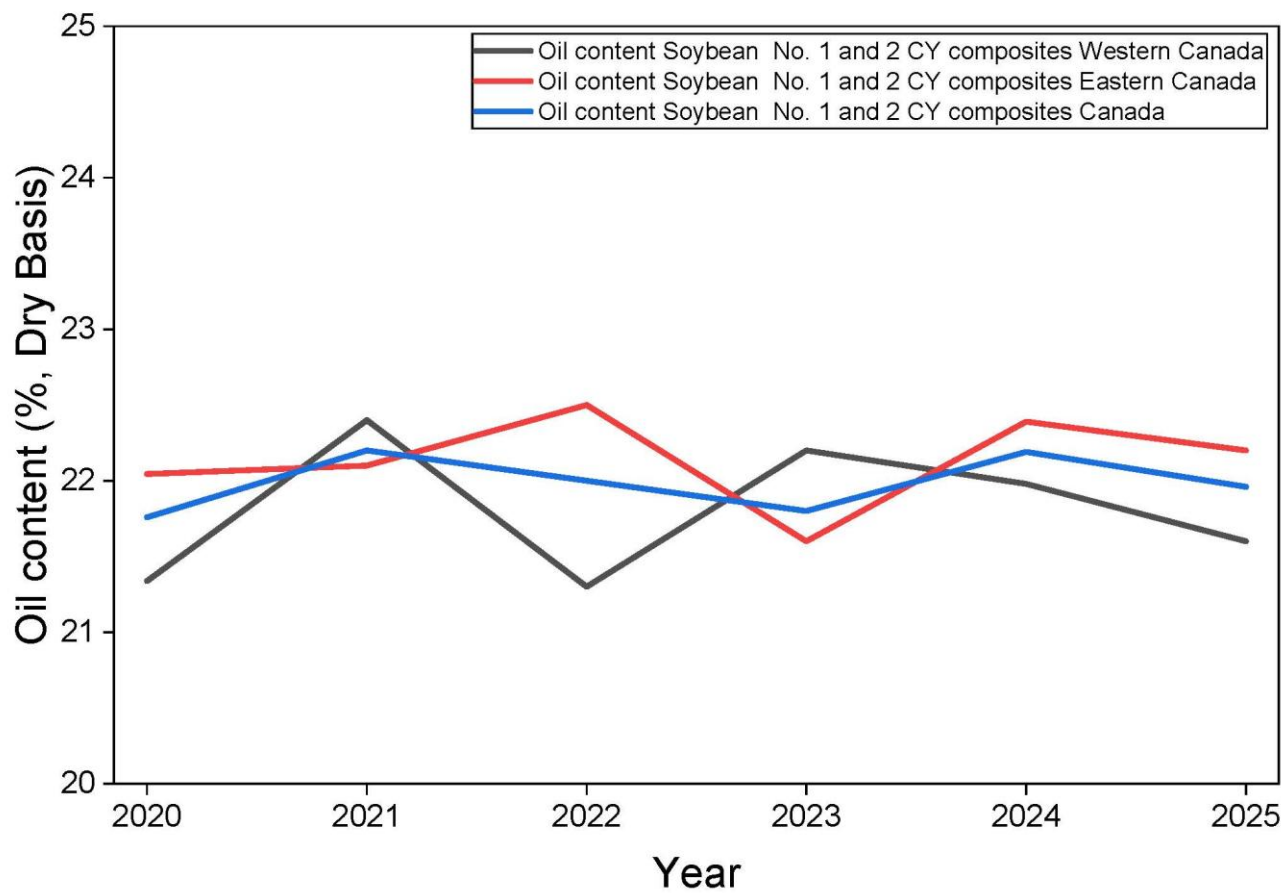


Figure 5 Iodine value of the oil (units) for Canadian oilseed soybeans from 2020 to 2025

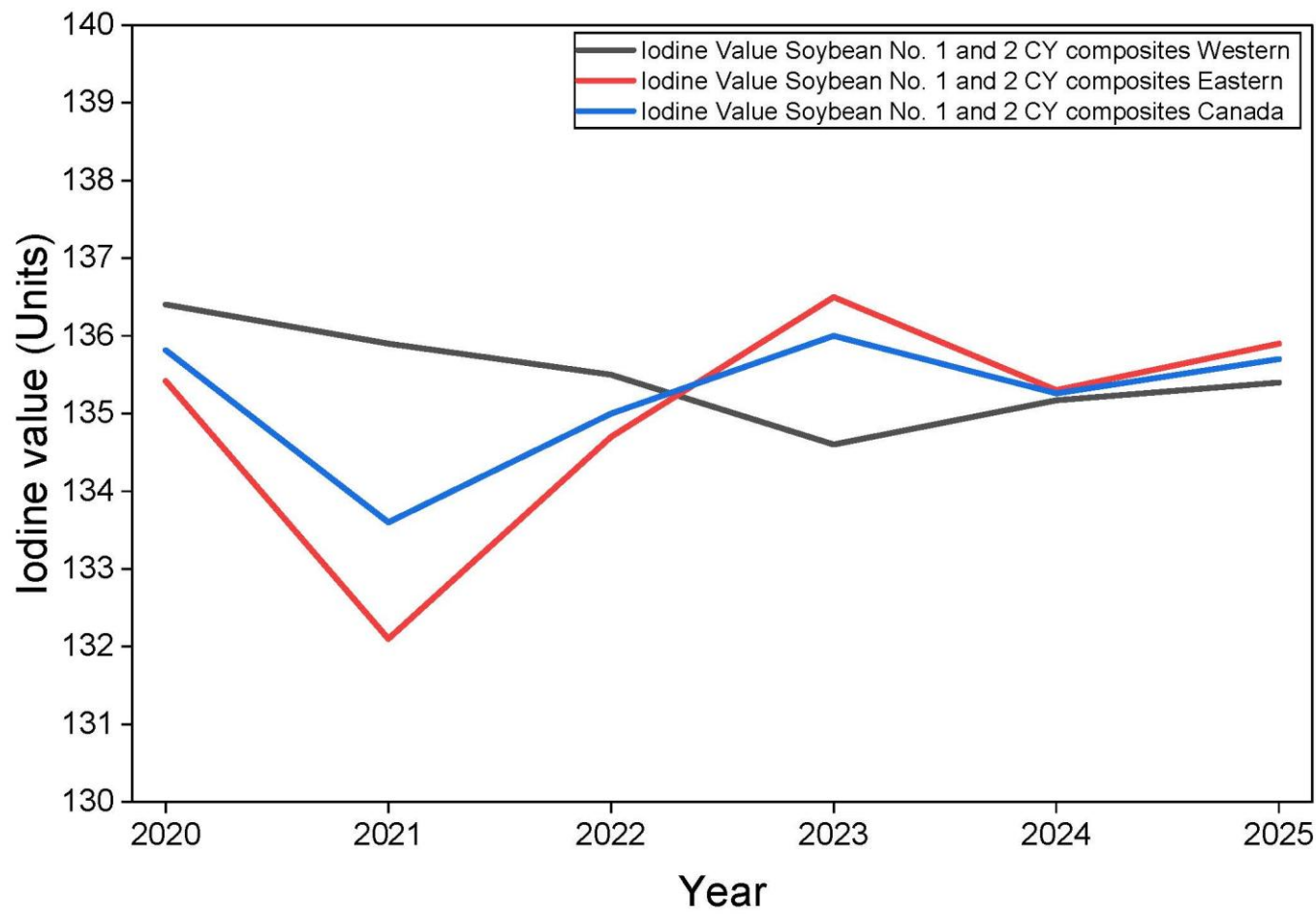


Table 3 Oil, protein, chlorophyll and free fatty acid content for composites of No. 1 and No. 2 Canadian oilseed soybeans in 2025

| Location              | Number of samples | Oil content, %, dry basis |                  |                  | Protein content <sup>1</sup> , %, dry basis |             |             | Chlorophyll content, mg/kg <sup>2</sup> | Free fatty acid content <sup>3</sup> , % |
|-----------------------|-------------------|---------------------------|------------------|------------------|---------------------------------------------|-------------|-------------|-----------------------------------------|------------------------------------------|
|                       |                   | Mean                      | Min <sup>4</sup> | Max <sup>5</sup> | Mean                                        | Min         | Max         |                                         |                                          |
| Manitoba              | 63                | 21.6                      | 19.9             | 23.5             | 37.9                                        | 37.0        | 40.6        | 0.40                                    | 0.50                                     |
| Saskatchewan          | 0                 | n/a <sup>6</sup>          | n/a              | n/a              | n/a                                         | n/a         | n/a         | n/a                                     | n/a                                      |
| <b>Western Canada</b> | <b>63</b>         | <b>21.6</b>               | <b>19.9</b>      | <b>23.5</b>      | <b>37.9</b>                                 | <b>37.0</b> | <b>40.6</b> | <b>0.40</b>                             | <b>0.50</b>                              |
| Ontario               | 58                | 22.9                      | 19.7             | 24.5             | 38.3                                        | 34.6        | 40.7        | 0.40                                    | 0.04                                     |
| Quebec                | 26                | 22.1                      | 21.1             | 24.5             | 37.7                                        | 32.6        | 40.1        | 0.40                                    | 0.02                                     |
| New Brunswick         | 5                 | 23.2                      | 22.7             | 23.9             | 35.0                                        | 33.3        | 36.0        | 0.20                                    | 0.02                                     |
| <b>Eastern Canada</b> | <b>89</b>         | <b>22.2</b>               | <b>19.7</b>      | <b>24.5</b>      | <b>37.9</b>                                 | <b>32.6</b> | <b>40.7</b> | <b>0.40</b>                             | <b>0.03</b>                              |
| <b>Canada</b>         | <b>152</b>        | <b>21.9</b>               | <b>19.7</b>      | <b>24.5</b>      | <b>37.9</b>                                 | <b>32.6</b> | <b>40.7</b> | <b>0.40</b>                             | <b>0.04</b>                              |

<sup>1</sup> Protein content is calculated from nitrogen (N) content using N x 6.25.

<sup>2</sup> mg/kg = milligrams per kilogram.

<sup>3</sup> Calculated as percentage of oleic acid.

<sup>4</sup> Min = minimum.

<sup>5</sup> Max = maximum.

<sup>6</sup> n/a = not applicable.

Table 4 Main fatty acid content and iodine value of the oil for composites of No. 1 and No. 2 Canadian oilseed soybeans in 2025

| Location              | Number of samples | Fatty acid composition, %, in oil |            |             |             |            | Total SFA <sup>1</sup> | Iodine value <sup>2</sup> , units |
|-----------------------|-------------------|-----------------------------------|------------|-------------|-------------|------------|------------------------|-----------------------------------|
|                       |                   | C16:0                             | C18:0      | C18:1       | C18:2       | C18:3      |                        |                                   |
| Manitoba              | 63                | 10.5                              | 4.5        | 19.8        | 54.2        | 9.3        | 16.0                   | 135.4                             |
| Saskatchewan          | 0                 | n/a <sup>3</sup>                  | n/a        | n/a         | n/a         | n/a        | n/a                    | n/a                               |
| <b>Western Canada</b> | <b>63</b>         | <b>10.5</b>                       | <b>4.5</b> | <b>19.8</b> | <b>54.2</b> | <b>9.3</b> | <b>16.0</b>            | <b>135.4</b>                      |
| Ontario               | 58                | 10.4                              | 4.5        | 19.8        | 55.1        | 8.5        | 15.7                   | 135.0                             |
| Quebec                | 26                | 10.3                              | 4.1        | 18.5        | 56.5        | 9.0        | 15.2                   | 137.5                             |
| New Brunswick         | 5                 | 10.4                              | 3.9        | 18.4        | 57.3        | 8.8        | 14.8                   | 138.2                             |
| <b>Eastern Canada</b> | <b>89</b>         | <b>10.4</b>                       | <b>4.3</b> | <b>19.4</b> | <b>55.6</b> | <b>8.7</b> | <b>15.5</b>            | <b>135.9</b>                      |
| <b>Canada</b>         | <b>152</b>        | <b>10.4</b>                       | <b>4.4</b> | <b>19.5</b> | <b>55.0</b> | <b>8.9</b> | <b>15.7</b>            | <b>135.7</b>                      |

<sup>1</sup> Total SFA is the sum of all saturated fatty acids from C12:0 to C24:0.

<sup>2</sup> Calculated from the fatty acid composition.

<sup>3</sup> n/a = not applicable.

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