



# Alberta 2023 Greenfeed and Silage Production Survey Results

## Purpose of survey

Official greenfeed and silage production statistics for Alberta are not available from Statistics Canada or any other source, despite the fact that producers in the province harvest significant acreages of annual crops for greenfeed and silage every year. To fill this data gap and meet client needs, the Statistics and Data Development Section of Alberta Agriculture and Irrigation initiated a greenfeed and silage production survey in 2002. Since then, the survey has been conducted annually to develop selected statistics for the forage industry.

As in previous years, the 2023 survey was done in partnership with Agriculture Financial Services Corporation (AFSC). The survey collected data on greenfeed and silage acreage, yields and production at the municipal level. The information was then used to develop provincial estimates. Yield and production estimates are on a wet weight basis.

## Overview

For the 2023 crop season, roughly 92 per cent of producers had adequate or surplus feed grain, while 80 per cent had adequate to surplus forage reserves going into the May growing season. Alberta pasture growth rated good to excellent was comparable to other low production years on record such as 2021, 2019, 2015 and 2009. In each of these years, conditions rated good to excellent stayed below 70 per cent from May to July and each year besides 2019 showed a long-term downward trend. In 2023, pasture conditions rated good to excellent remained below 52 per cent, after starting at 42 per cent the first week of May. Conditions peaked in the following two weeks before declining throughout the season and reaching 18 per cent good to excellent by October 13.

Tame hay conditions started the crop reporting season as rated 30 per cent good to excellent provincially and peaked at 47 per cent a week later. Afterwards, a dry May caused conditions to trend downward to 31 per cent good to excellent during the second week of June. Conditions then trended slightly upward during July and August due to showers throughout areas of the province that helped grow a higher yielding second cut hay crop.

## Early season forage growth

Specifically, pasture and tame hay fields were off to a slow start due to cool temperatures, leading to ratings of 42 per cent of pasture growth good to excellent and tame hay growth at 30 per cent rated good or excellent. Conditions increased the following week but by May 16 pasture and tame hay conditions had decreased due to the lack of precipitation. Overall, by May 30, 60 per cent of the province's tame hay was rated as poor to fair and 40 per cent good to excellent. For pasture growth, 53 per cent was rated as poor to fair and 47 per cent was rated as good to excellent. Provincially, pasture weed growth was below the 5-year and 10-year averages, as 12 per cent of Alberta was reporting moderate pasture weed growth.

## First and second cut hay

Sporadic showers experienced across the province the beginning of June raised pasture and tame hay conditions rated good to excellent by 4 and 3 per cent, respectively, though June 13 conditions were still well below the 5- and 10-year averages.

Tame hay was rated as (10-year average), 39 (10) per cent poor, 26 (24) per cent fair, 31 (51) per cent good, and 4 (15) per cent excellent. Pasture conditions were rated as (10-year average), 37 (13) per cent poor, 23 (24) per cent fair, 38 (51) per cent good and 2 (13) per cent excellent. Tame hay was reported to be flowering, while pasture grass was heading out which caused haying, silaging and rotational grazing to begin sooner than normal. At that time, first cut haying progress was reported to range from 2 per cent complete in the Peace to 12 per cent complete in the North West. By the end of June, the first cut of hay was reported to have begun in all regions of the province.

As of July 11, the average yield for first cut dryland hay was 0.9 tons per acre and the average yield for irrigated first cut hay was 2 tons per acre. Dryland first cut was 59 per cent complete, well ahead of the 5-year average (38 per cent). Some producers were also putting annual crops into their grazing rotations due to lack of available feed. Pasture conditions had slightly decreased since the third week of June and only 33 per cent of the pastures in Alberta were rated as good to excellent.

By July 25, the provincial progress on the first cut of hay was reported to be 85 per cent complete for dryland and 97 per cent complete for irrigation. The second cut was reported to have begun for dryland hay in the Central, North East, and North West regions, but not yet for irrigated land.

By August 8, provincial pasture growth conditions were rated 36 per cent poor, 35 per cent fair, 28 per cent good, and 1 per cent excellent. Tame hay was rated 28 per cent poor, 37 per cent fair, 33 per cent good, and 3 per cent excellent. Provincially, 95 per cent of dryland hay was cut with an average yield of 0.9 tons per acre, down from the 5-year average of 1.4 tons per acre. The highest yield estimates were from the Peace (1.1 tons per acre) and the lowest was in the South (0.8 tons per acre). Provincially, 40 per cent of acres were estimated to get a second cut and were 9 per cent complete, with an average of 0.9 tons per acre. Due to poor annual crop conditions, there were reports of some crops being cut for feed, especially in the Central Region.

Pasture and tame hay condition ratings slightly decreased across the province by the week of September 5, with the largest declines occurring in the North West and North East. While there had been some pasture regrowth, it had slowed as fall approached. Areas that had frost also saw a halt in growth. Across the province, 32 per cent of tame hay second cut was still left to cut and bale and while yields were estimated to be above average at 1.1 tons per acre, areas with high moisture were struggling to get hay to dry.

As of October 3, provincial pasture growth conditions were rated 18 per cent good to excellent condition, below the 5-year average of 34 per cent. Regionally, the South, North East and North West Regions were stable while Central's conditions rated good to excellent increased 3 per cent and the Peace Region decreased 21 per cent since the previous week. The poorest ratings were seen in the South with only 4 per cent rated good to excellent, while the best ratings were in the North West with 38 per cent good to excellent. Of total dryland hay cut this season, 86 per cent was from the first cut while 14 per cent was from the second cut. Even though there was little second cut, quality ratings of 75 per cent good to excellent, were higher than first cut ratings of 41 per cent good to excellent. Provincial average hay yields for both first and second cut were 1 ton per acre while irrigated hay first cut yield average was 2 tons per acre and second cut was 1.6 tons per acre. Cattle continued to be turned out onto harvested fields as farmers were managing low feed supplies.

By the end of the growing season, pasture ratings were rated 18 per cent good to excellent and fall seeded crops were rated 45 per cent good to excellent.

## Forage reserves

According to the October 10 supplementary crop report, provincial forage reserves were estimated to be 10 per cent deficit, 21 per cent shortfall, 66 per cent adequate and 4 per cent. Feed grain reserves were estimated to be 6 per cent deficit, 15 per cent shortfall, 69 per cent adequate and 10 per cent surplus. Provincially, the feed supply is rated the most adequate to surplus for feed corn (91 per cent), silage (86 per cent), feed barley (84 per cent). For other forages, hay was estimated to be 70 per cent adequate to surplus, greenfeed was estimated 78 per cent adequate to surplus.

## Forage production

Based on the Statistics Canada report "Production of Principal Field Crops, December 2023", Alberta's forage production was 6.2 million tonnes, down 18.1 per cent from 2022 and 20.8 per cent below the 10-year average.

The overall decline in forage production stemmed from a 30.2 per cent decrease in tame hay, more than offsetting a 19.2 per cent increase in fodder corn. Tame hay production fell 30.2 per cent to 4 million tonnes, 35.6 per cent lower than the 10-year average. This was attributed to a 25.5 per cent reduction in average yield to 1.2 tons per acre, as well as a 6.4 per cent decline in harvested area to 3.6 million acres.

For fodder corn, production set a record high at 2.2 million tons, up 19.2 per cent from 2022, and 35 per cent higher than the 10-year average. This was due to a 28.4 per cent increase in harvested acres to 140,000 acres while yield was stable at 18.8 tons per acre.

In 2023, Alberta producers seeded an estimated 13.8 million acres of spring wheat, durum wheat, barley, oats, mixed grains, triticale, and dry peas (see Table 1). About 88.9 per cent of this area was harvested as grains and pulses (down 4.2 per cent from 2022), 9.4 per cent as greenfeed and silage (up 36.2 per cent from 2022), 6.4 per cent was grazed (compared to 0.2 per cent in 2022) and 0.3 per cent was abandoned (while zero per cent was abandoned in 2022).

Based on a survey conducted as part of the Alberta Crop Reporting Program, total production for greenfeed in 2023 was estimated at 1.5 million tonnes (stable with 2022), and 22.2 per cent above the 5-year average of 1.2 million tonnes (See Table 2). This was attributed to a 60.2 per cent increase in harvested area which offset the 36.1 per cent decrease in yield. Production for greenfeed barley was 627,300 tonnes, up 11.6 per cent from 2022. For spring wheat, greenfeed production was estimated at 329,800 tonnes (up 16.4 per cent from 2022), while for oats it was at 238,000 tonnes (down 35 per cent from a year ago).

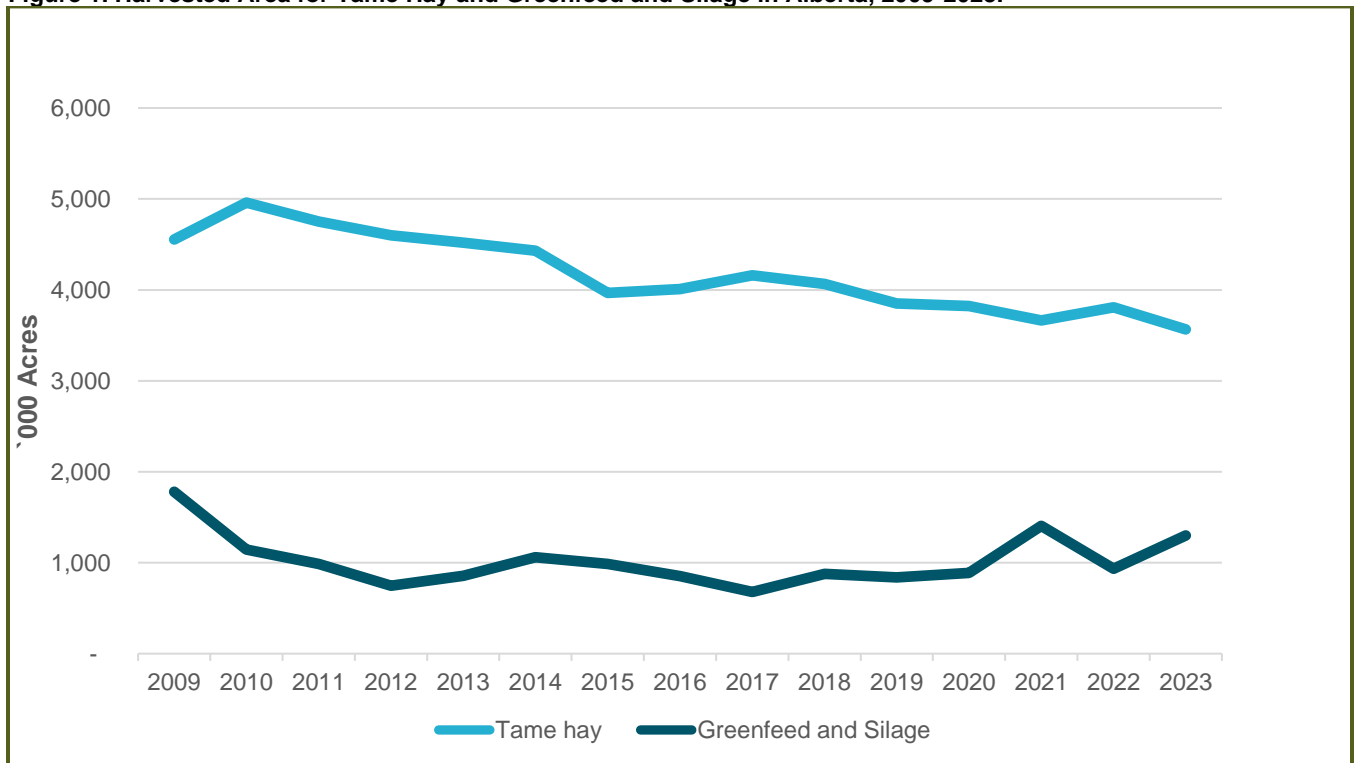
The provincial average yield for greenfeed was estimated at 2.3 tonnes per acre, lower than in 2022 (3.6 tonnes per acre), and the 5-year average (2.7 tonnes per acre). For greenfeed barley, the yield was estimated at 2.4 tonnes per acre, down from 3.1 tonnes per acre in 2022. Spring wheat yield averaged 1.8 tonnes per acre, down from 4 tonnes per acre in 2022. For greenfeed oats, yield fell from 3.9 tonnes per acre to 3.1 tonnes per acre. Total harvested area for greenfeed was estimated at 650,145 acres in 2022, up 60.2 per cent from 2022, and 39.8 per cent above the 5-year average of 464,946 acres. Compared to 2022, harvested area for greenfeed barley increased to 261,900 acres (up 43.7 per cent). The harvested area for greenfeed spring wheat more than doubled to 186,500 acres, while it was down 18.4 per cent for greenfeed oats to 75,600 acres.

Total silage production was estimated at 3.8 million tonnes, up 8.4 per cent from 2022 and 43.5 per cent above the 5-year average of 2.7 million tonnes. Compared to 2022, the higher production stemmed from a 22.8 per cent increase in harvested area for silage, more than offsetting a 11.9 per cent decline in the average provincial yield for silage. Barley silage production was estimated at 2.3 million tonnes (up 9 per cent from 2022), spring wheat at 829,200 tonnes (up 31.2 per cent from 2022)

and oats at 248,000 tonnes (down 38.3 per cent from 2022). The estimated provincial average yield for silage was estimated at 5.9 tonnes per acre, below 2022 (6.7 tonnes per acre) but above the 5-year average (5.3 tonnes per acre). Barley silage yield declined from 6.3 tonnes per acre to 6 tonnes per acre. For spring wheat silage, yield declined from 7.5 tonnes per acre in 2022 to 5.1 tonnes per acre, while oat silage yield marginally decreased to 6.7 tonnes per acre. In 2023, total harvested area for silage increased to 650,100 acres, up 22.8 per cent from 2022 and 24.4 per cent above the 5-year average of 522,700 acres. Compared to 2022, harvested area for silage barley increased significantly to 388,100 acres (up 13.5 per cent), while it increased 92.7 per cent for silage spring wheat to 162,600 acres. For silage oats, harvested area decreased 36.6 per cent to 37,200 acres.

Total harvested area for both greenfeed and silage slightly increased to 1.3 million acres (up 39 per cent from 2022) (see figure 1). While in previous years barley and oats were the most harvested crop for greenfeed, in 2023 barley and spring wheat were the most common, as was the case with silage. Spring wheat accounted for 29 per cent of harvested greenfeed and barley accounted for 40 per cent. As for silage, 60 per cent was harvested from barley and 25 per cent from spring wheat.

**Figure 1. Harvested Area for Tame Hay and Greenfeed and Silage in Alberta, 2009-2023.**



Source: Alberta Agriculture and Irrigation

**Table 1: Alberta Greenfeed and Silage Production, 2013-2023**

		Total Seeded Area	Harvested Greenfeed Area	Harvested Silage Area	Average Greenfeed Yield	Average Silage Yield	Total Greenfeed Production	Total Silage Production
		( '000 acres )	( '000 acres )	( '000 acres )	( tonnes/acre )	( tonnes/acre )	( '000 tonnes )	( '000 tonnes )
<b>2023</b>	Spring Wheat	6,805	186.5	162.6	1.77	5.10	329.8	829.2
	Durum Wheat	997	32.3	6.5	0.58	1.81	18.8	11.8
	Barley	3,835	261.9	388.1	2.39	6.03	627.3	2,341.4
	Oats	699	75.6	37.2	3.15	6.66	238.0	248.0
	Mixed Grains	168	65.0	47.1	3.39	7.84	220.7	369.4
	Triticale	51	23.3	7.3	1.32	2.94	30.6	21.6
	Dry Peas	1,261	5.5	1.1	0.50	5.69	2.8	6.5
	<b>Total</b>	<b>13,815</b>	<b>650.1</b>	<b>650.1</b>	<b>2.26</b>	<b>5.89</b>	<b>1,468.0</b>	<b>3,827.7</b>
<b>2022</b>	Spring Wheat	6,396	71.0	84.4	3.99	7.48	283.4	631.8
	Durum Wheat	1,087	2.8	0.0	0.27	0.00	0.8	0.0
	Barley	3,553	182.3	341.8	3.08	6.29	562.2	2,148.8
	Oats	943	92.7	58.7	3.95	6.85	366.0	401.9
	Mixed Grains	139	36.0	39.8	5.30	8.49	190.7	338.2
	Triticale	50	19.5	3.2	3.34	2.50	65.2	7.9
	Dry Peas	1,324	1.5	1.5	2.18	0.91	3.2	1.3
	<b>Total</b>	<b>13,491</b>	<b>405.8</b>	<b>529.3</b>	<b>3.63</b>	<b>6.67</b>	<b>1,471.4</b>	<b>3,530.0</b>
<b>2021</b>	Spring Wheat	5,710	125.0	155.3	1.06	3.16	132.7	490.3
	Durum Wheat	1,037	22.2	0.0	0.30	0.00	6.6	0.0
	Barley	3,951	293.9	433.8	1.48	3.59	434.6	1,558.3
	Oats	884	117.7	66.8	1.55	3.14	182.5	209.8
	Mixed Grains	234	68.1	84.7	1.78	4.71	121.1	398.7
	Triticale	53	27.9	0.9	0.63	0.91	17.5	0.8
	Dry Peas	1,471	5.0	2.1	0.81	1.81	4.0	3.7
	<b>Total</b>	<b>13,340</b>	<b>659.8</b>	<b>743.5</b>	<b>1.36</b>	<b>3.58</b>	<b>899.2</b>	<b>2,661.6</b>
<b>2020</b>	Spring Wheat	6,314	13.9	60.0	1.61	5.30	22.4	317.8
	Durum Wheat	1,012	1.3	0.0	0.50	0.00	0.7	0.0
	Barley	3,662	137.7	368.0	2.09	4.77	287.3	1,756.0
	Oats	881	134.8	53.2	3.04	5.52	409.7	293.6
	Mixed Grains	171	37.6	39.4	2.55	5.74	95.8	226.3
	Triticale	40	26.0	9.2	3.57	5.72	92.5	52.5
	Dry Peas	1,650	0.0	5.1	0.00	4.95	0.0	25.3
	<b>Total</b>	<b>13,730</b>	<b>351.3</b>	<b>534.9</b>	<b>2.59</b>	<b>4.99</b>	<b>908.5</b>	<b>2,671.6</b>
<b>2019</b>	Spring Wheat	6,588	56.0	64.6	1.91	3.17	106.7	204.4
	Durum Wheat	775	1.9	0.0	1.09	0.00	2.1	0.0
	Barley	3,563	175.3	242.6	3.70	5.50	648.9	1,334.0
	Oats	899	141.5	47.8	3.39	5.98	480.2	286.0
	Mixed Grains	163	48.9	36.3	5.47	7.13	267.3	258.9
	Triticale	36	14.4	7.0	1.88	3.75	27.0	26.1
	Dry Peas	1,800	0.3	0.4	1.46	5.22	0.4	1.9
	<b>Total</b>	<b>13,824</b>	<b>438.3</b>	<b>398.7</b>	<b>3.50</b>	<b>5.30</b>	<b>1,532.6</b>	<b>2,111.2</b>
<b>2018</b>	Spring Wheat	6,265	104.0	87.7	1.94	3.63	201.9	318.3
	Durum Wheat	1,185	7.0	0.0	1.36	0.00	9.5	0.0
	Barley	3,114	171.0	218.3	2.62	6.93	448.2	1,513.0
	Oats	795	111.5	43.6	2.76	5.43	307.4	236.4
	Mixed Grains	179	60.0	51.4	2.75	5.17	164.8	265.8
	Triticale	37	15.8	6.1	2.73	4.19	43.2	25.8
	Dry Peas	1,511	0.3	0.0	1.81	0.00	0.5	0.0
	<b>Total</b>	<b>13,086</b>	<b>469.5</b>	<b>407.1</b>	<b>2.50</b>	<b>5.79</b>	<b>1,175.7</b>	<b>2,359.3</b>

Note: Yields and production are reported on a wet weight basis. Totals may not add up due to rounding

Source: Statistics Canada and Alberta Agriculture and Irrigation

**Table 1 (Cont'd): Alberta Greenfeed and Silage Production, 2013-2023**

		Total Seeded Area	Harvested Greenfeed Area	Harvested Silage Area	Average Greenfeed Yield	Average Silage Yield	Total Greenfeed Production	Total Silage Production
		( '000 acres )	( '000 acres )	( '000 acres )	( tonnes/acre )	( tonnes/acre )	( '000 tonnes )	( '000 tonnes )
<b>2017</b>	Spring Wheat	5,860	22.9	35.7	2.71	5.75	62.0	205.6
	Durum Wheat	1,090	10.9	5.8	1.04	4.99	11.4	28.8
	Barley	2,850	86.4	258.2	2.49	6.20	214.7	1,599.9
	Oats	690	99.6	67.3	3.18	6.44	317.0	433.8
	Mixed Grains	135	45.6	31.0	3.30	7.64	150.5	236.6
	Triticale	35	9.3	5.7	1.61	3.50	15.0	20.0
	Dry Peas	1,800	0.0	0.0	0.00	0.00	0.0	0.0
	<b>Total</b>	<b>12,460</b>	<b>274.6</b>	<b>403.8</b>	<b>2.81</b>	<b>6.25</b>	<b>770.6</b>	<b>2,524.6</b>
	<b>2016</b>	Spring Wheat	5,729	39.5	28.6	2.53	6.11	100.0
Durum Wheat		1,102	2.6	0.0	2.04	0.00	5.4	0.0
Barley		3,414	118.1	289.5	3.08	6.34	363.3	1,835.8
Oats		822	116.9	65.0	4.34	7.02	507.0	456.7
Mixed Grains		242	70.0	98.1	4.84	7.68	339.3	753.7
Triticale		50	8.3	14.2	3.92	6.50	32.5	92.3
Dry Peas		1,910	0.0	0.0	0.00	0.00	0.0	0.0
<b>Total</b>		<b>13,268</b>	<b>355.5</b>	<b>495.5</b>	<b>3.79</b>	<b>6.69</b>	<b>1,347.5</b>	<b>3,313.3</b>
<b>2015</b>		Spring Wheat	5,910	137.1	53.2	1.82	3.83	250.0
	Durum Wheat	890	5.4	2.1	0.73	2.36	3.9	5.0
	Barley	3,500	171.9	339.5	2.16	4.28	371.0	1,453.7
	Oats	725	122.9	61.3	2.63	5.20	323.3	318.8
	Mixed Grains	115	23.3	51.6	2.40	5.32	56.1	274.4
	Triticale	35	5.2	10.0	1.20	3.10	6.3	31.1
	Dry Peas	1,515	0.9	2.0	2.61	1.37	2.2	2.8
	<b>Total</b>	<b>12,690</b>	<b>466.7</b>	<b>519.9</b>	<b>2.17</b>	<b>4.40</b>	<b>1,012.9</b>	<b>2,289.6</b>
	<b>2014</b>	Spring Wheat	6,095	75.1	22.4	1.95	5.83	146.4
Durum Wheat		580	0.0	0.0	0.00	0.00	0.0	0.0
Barley		3,250	158.6	394.6	2.85	6.69	451.8	2,638.4
Oats		670	193.6	104.3	2.57	6.70	497.0	698.2
Mixed Grains		140	38.2	61.1	2.40	6.59	91.9	402.6
Triticale		30	8.7	1.7	2.31	6.22	20.1	10.4
Dry Peas		1,355	0.3	0.0	1.80	0.00	0.5	0.0
<b>Total</b>		<b>12,120</b>	<b>474.5</b>	<b>584.1</b>	<b>2.55</b>	<b>6.64</b>	<b>1,207.7</b>	<b>3,880.6</b>
<b>2013</b>		Spring Wheat	6,440	9.0	9.0	2.16	5.96	19.4
	Durum Wheat	620	0.0	0.0	0.00	0.00	0.0	0.0
	Barley	3,700	140.8	335.8	4.33	7.38	609.3	2,477.0
	Oats	580	194.0	58.3	4.53	7.23	878.3	421.8
	Mixed Grains	140	41.0	58.8	4.88	7.05	200.0	414.7
	Triticale	25	4.5	3.9	3.34	9.07	15.1	35.1
	Dry Peas	1,040	0.0	0.0	0.00	0.00	0.0	0.0
	<b>Total</b>	<b>12,545</b>	<b>389.3</b>	<b>465.9</b>	<b>4.42</b>	<b>7.30</b>	<b>1,722.1</b>	<b>3,402.2</b>

Source: Statistics Canada and Alberta Agriculture and Irrigation

**Table 2: Five-Year Average of Alberta Greenfeed and Silage Production, 2017-2022**

		Total Seeded Area	Harvested Greenfeed Area	Harvested Silage Area	Average Greenfeed Yield	Average Silage Yield	Total Greenfeed Production	Total Silage Production
		( '000 acres )	( '000 acres )	( '000 acres )	( tonnes/acre )	( tonnes/acre )	( '000 tonnes )	( '000 tonnes )
<b>5-year average*</b>	<b>Spring Wheat</b>	6,254	74.0	90.4	2.10	4.55	149.4	392.5
	<b>Durum Wheat</b>	1,019	7.0	0.0	0.70	0.00	3.9	0.0
	<b>Barley</b>	3,568	192.0	320.9	2.59	5.42	476.2	1,662.0
	<b>Oats</b>	881	119.6	54.0	2.94	5.38	349.2	285.5
	<b>Mixed Grains</b>	177	50.1	50.3	3.57	6.25	168.0	297.6
	<b>Triticale</b>	43	20.7	5.3	2.43	3.41	49.1	22.6
	<b>Dry Peas</b>	1,551	1.4	1.8	1.25	2.58	1.6	6.5
	<b>Total</b>	<b>13,494</b>	<b>464.9</b>	<b>522.7</b>	<b>2.72</b>	<b>5.27</b>	<b>1,197.5</b>	<b>2,666.7</b>

Note: Yields and production are reported on a wet weight basis. Totals may not add up due to rounding.

\* 5-year average refers to 2017-2022

Source: Statistics and Data Development, Agriculture and Irrigation

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