

Canadian Livestock Feed Consumption

2020 Estimates



Table of contents

Objectives

Methodology

Reporting and assumptions

Livestock feed consumption: 2020 overview

Major species

- Swine
- Beef Cattle
- Dairy Cattle
- Broilers
- Layers
- Turkeys

Minor feed consumers

- Horses/Ponies
- Bison
- Sheep
- Fin Fish
- Rabbits, Elk, and Deer

Appendix A: Feed consumption data tables

Appendix B: Ruminant forage consumption data



Objectives

The objectives of this project are:

- To estimate livestock feed consumption volumes in Canada, on an annual basis, according to species and geography. For each species, consumption estimates are broken down by stage of production when the relevant statistics are available.
- To provide publicly available statistics on Canadian livestock feed consumption to industry stakeholders.
- To compare year over year livestock feed consumption estimates to proactively identify changes that could impact the industry.



Methodology

To estimate livestock feed consumption, the average feed intake of specific livestock populations were determined and multiplied by the Canadian population.

Calculation of feed consumption for species at specific stage of life/production:

$$\text{average feed intake} \times \text{population} = \text{estimated feed consumption}$$

Average feed intake for each species, adjusting for various life and production stages, was determined by the Feed Statistics Special Purpose Committee of the ANAC Nutrition Committee. Feed intake averages are included in [Appendix A](#).

Population data were taken from official sources including:

- Agriculture and Agri-Food Canada
- Canadian Pork Council
- Equestrian Canada
- Statistics Canada
- Turkey Farmers of Canada



Reporting and assumptions

Estimated feed consumption volumes are provided as **complete feed equivalents** on an as fed (AF) basis.

All consumption volumes are reported in metric tonnes.

Monogastric feed consumption volumes represent total diet.

Ruminant feed consumption volumes do not include forages. Forage consumption estimates are provided separately in [Appendix B](#).



Livestock feed consumption: 2020 overview



2020 Highlights



Approximately 28.8 million tonnes of feed was consumed by livestock (not including forages).



It is estimated 68% of livestock feed was consumed in Alberta, Ontario and Quebec, the same provinces where 73% of feed mills were located.

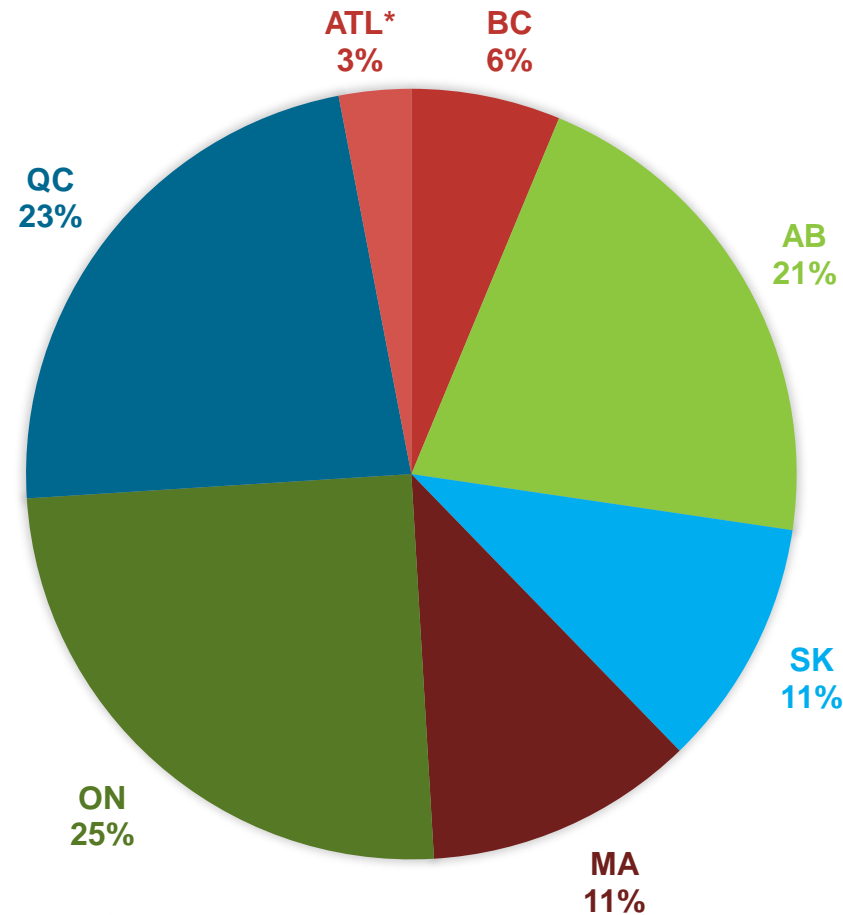


Approximately two thirds of the feed consumed in Canada was produced in 471* commercial feed mills. One third was produced on farm.

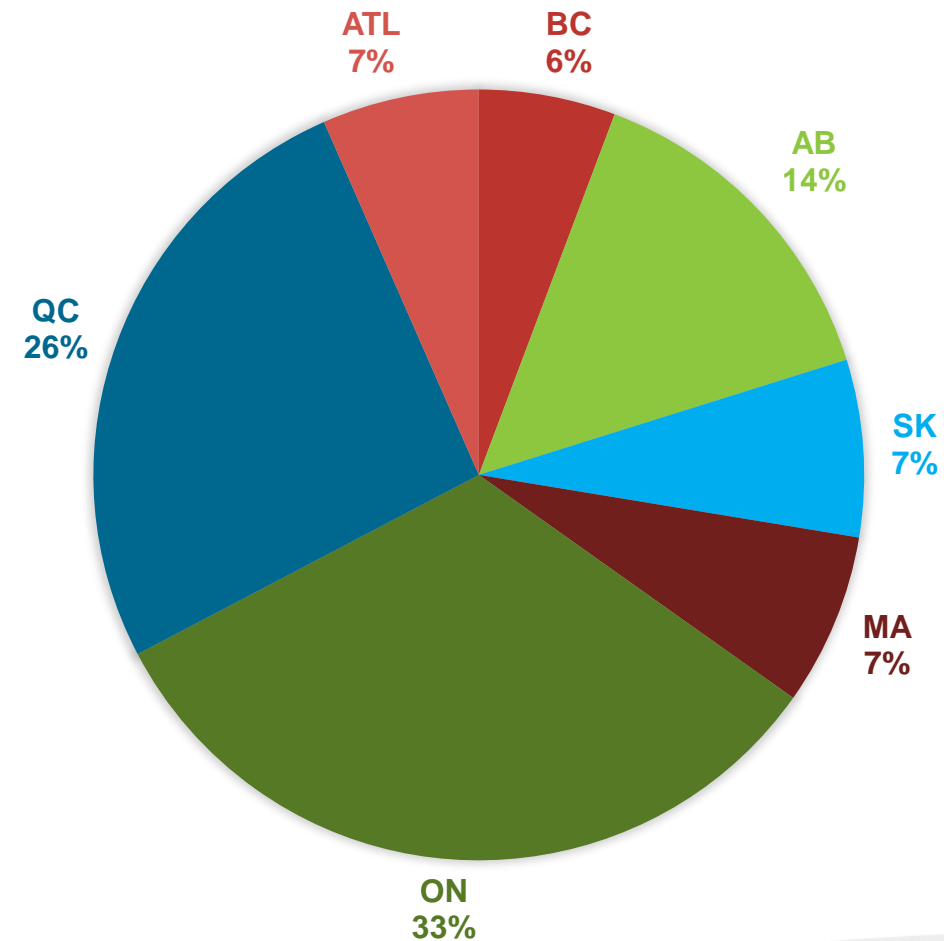


Distribution of livestock feed consumption and commercial feed mills across Canada in 2020

Livestock feed consumption

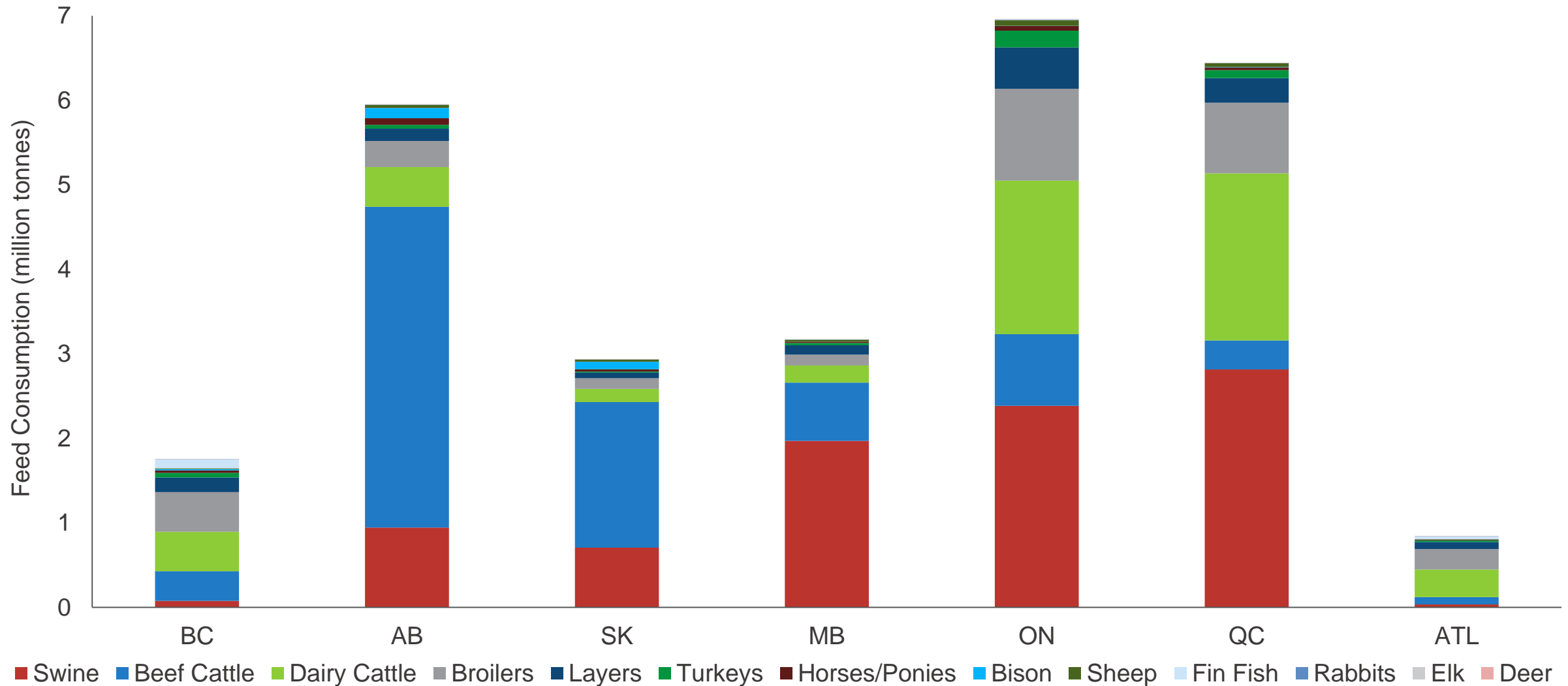


Commercial feed mills



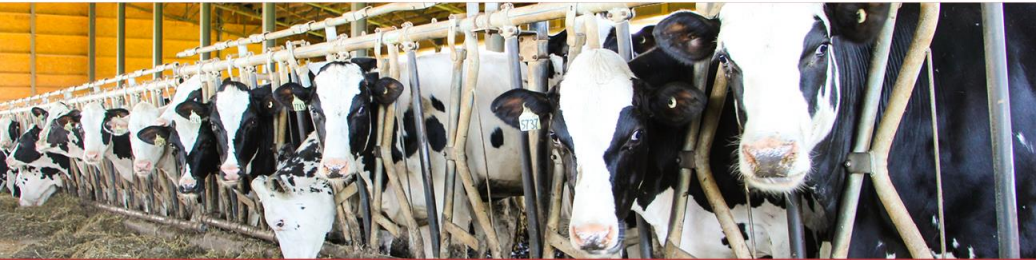
Provincial livestock feed consumption and commercial feed mills data is presented in [Table A1](#). Territories (Terr), including Northwest Territories, Nunavut, and Yukon, represent 0.001% of Canadian feed consumption and will be included in graphs where relevant. *ATL includes the provinces of Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland and Labrador.

2020 Livestock feed consumption by province and species

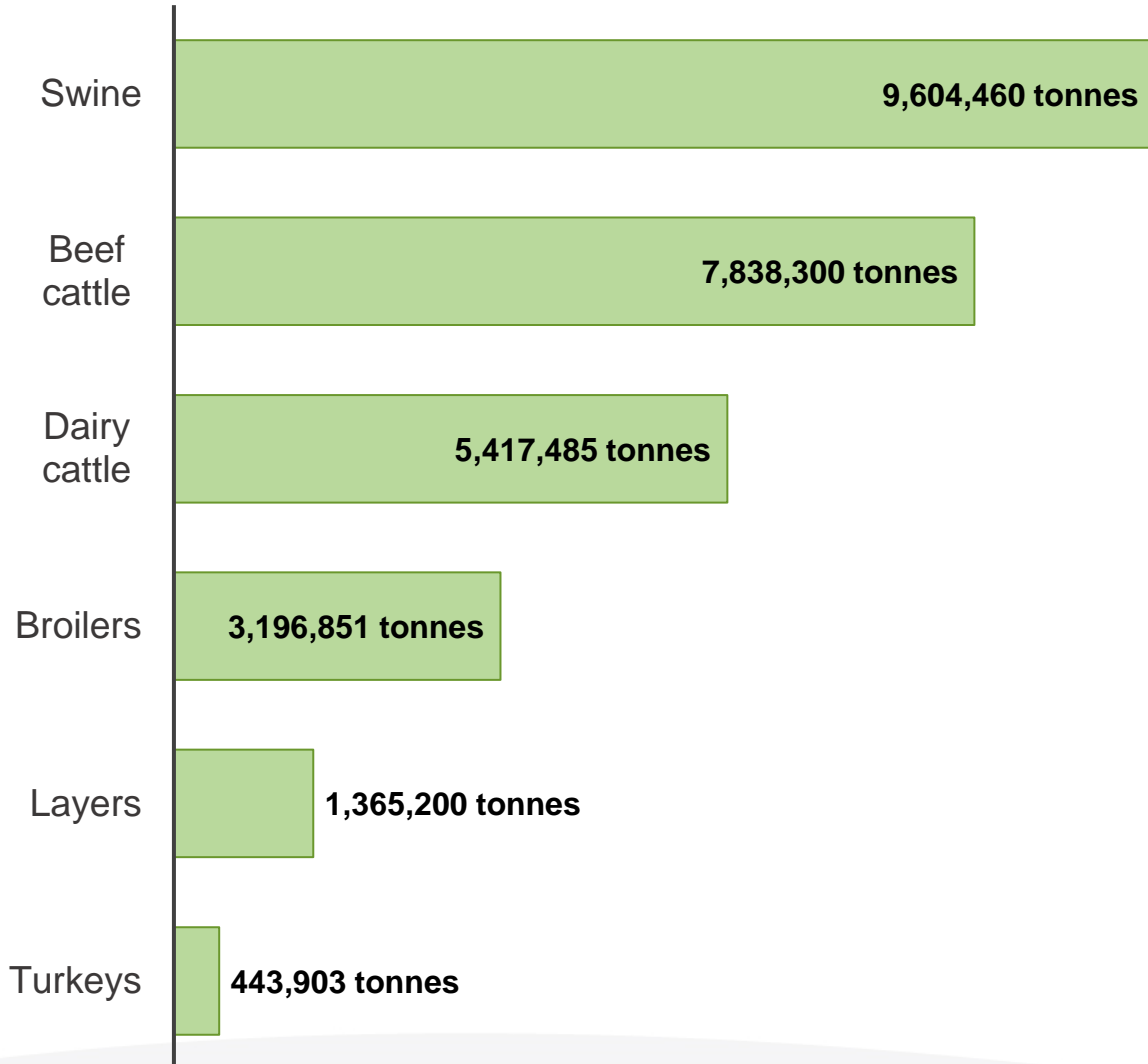


Territories, not included in this graph, represent 382 tonnes of feed consumption by horses/ponies, rabbit, and elk.
Data presented in this graph does not include feed consumption of ducks/geese nor swine for export due to unavailable provincial data.

Major species



Overview of major species



Major species consume approximately 27.9 million tonnes of livestock feed, representing 97% of total feed consumption in Canada.

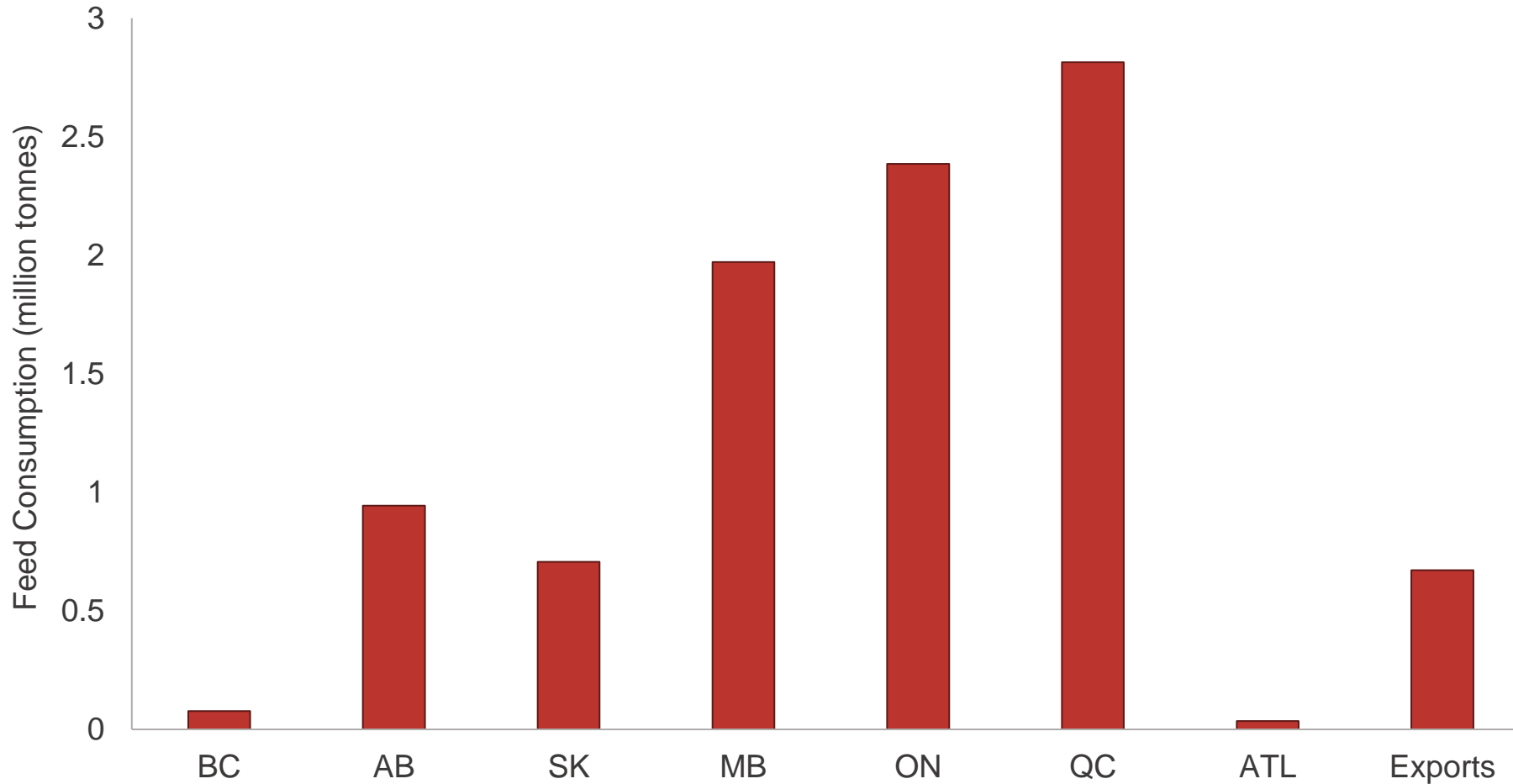
- Swine – 33%
- Beef cattle – 27%
- Dairy cattle – 19%
- Poultry – 18%
 - Broiler chickens – 11%
 - Laying hens – 5%
 - Turkeys – 2%

In addition to concentrate, beef and dairy cattle consumed a considerable amount of forage. Data on forage consumption estimates can be found in [Appendix B](#).



Swine feed consumption by province

Swine consumed a total of 9.6 million tonnes of feed.



Population numbers were based on total number of hogs slaughtered by province in 2020.

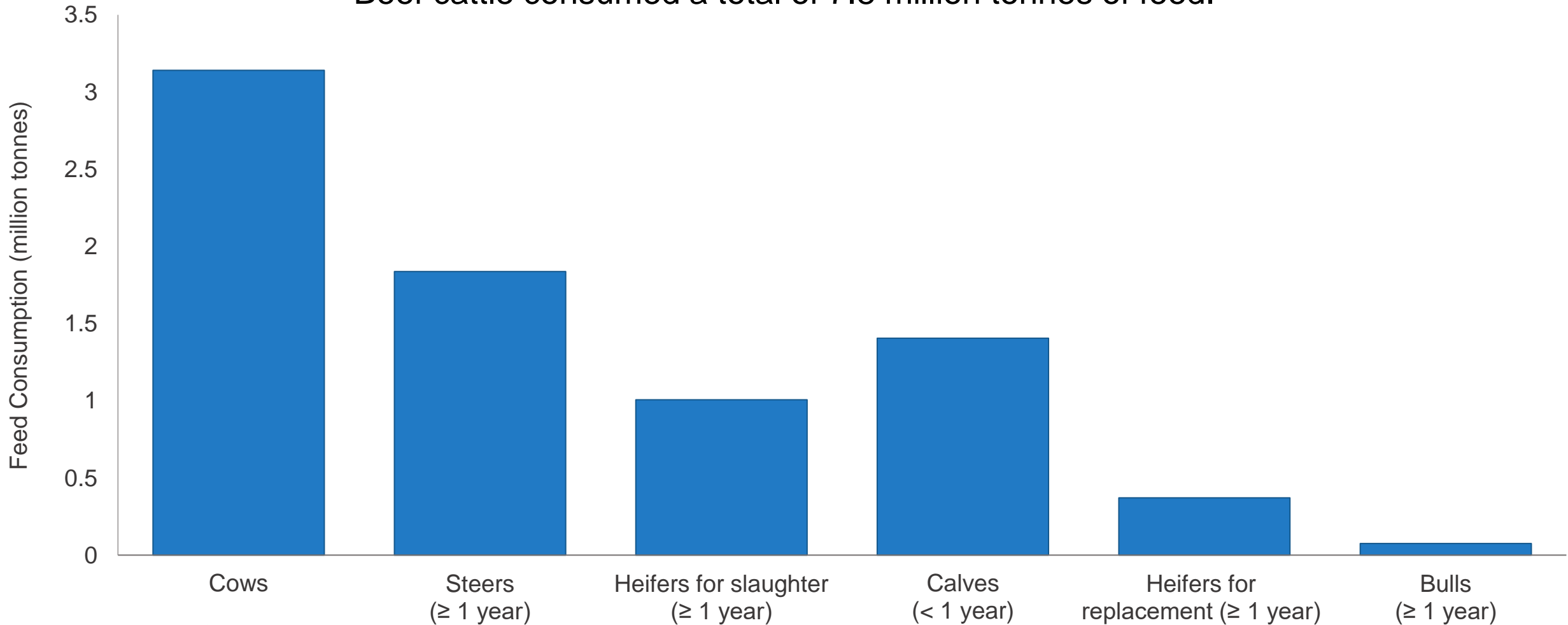
Exports represent all live hogs exported internationally including feeder pigs, breeding hogs, and market hogs.

Parental feed intake was considered in pig feed consumption calculations.

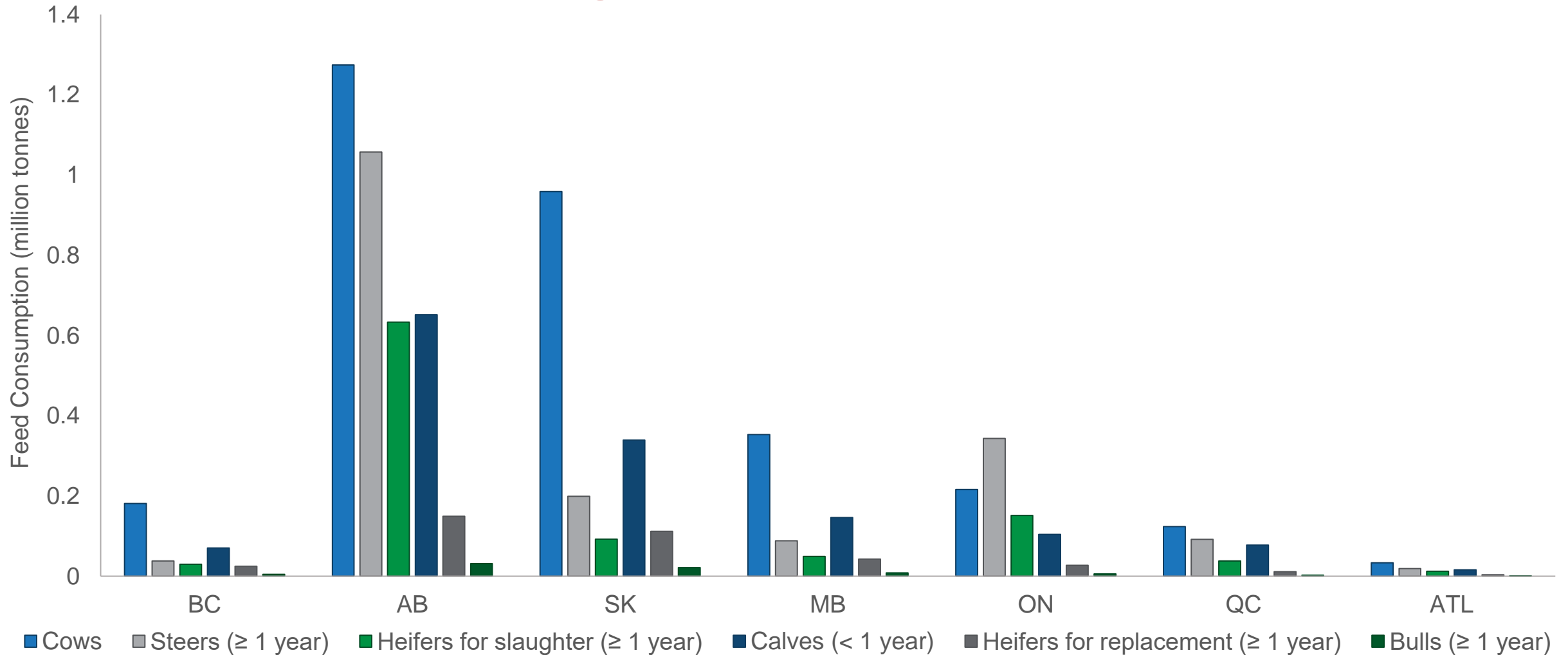


Beef cattle feed consumption by stage of production

Beef cattle consumed a total of 7.8 million tonnes of feed.

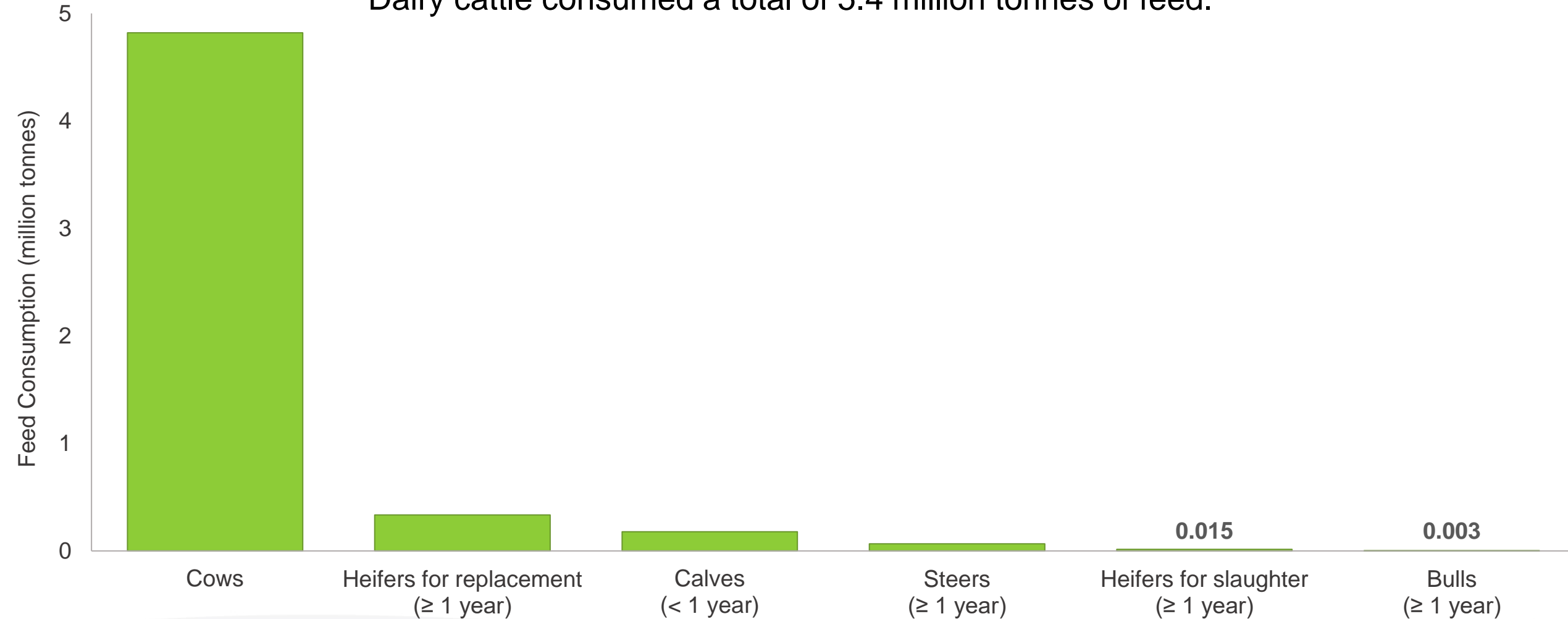


Beef cattle feed consumption by province and stage of production

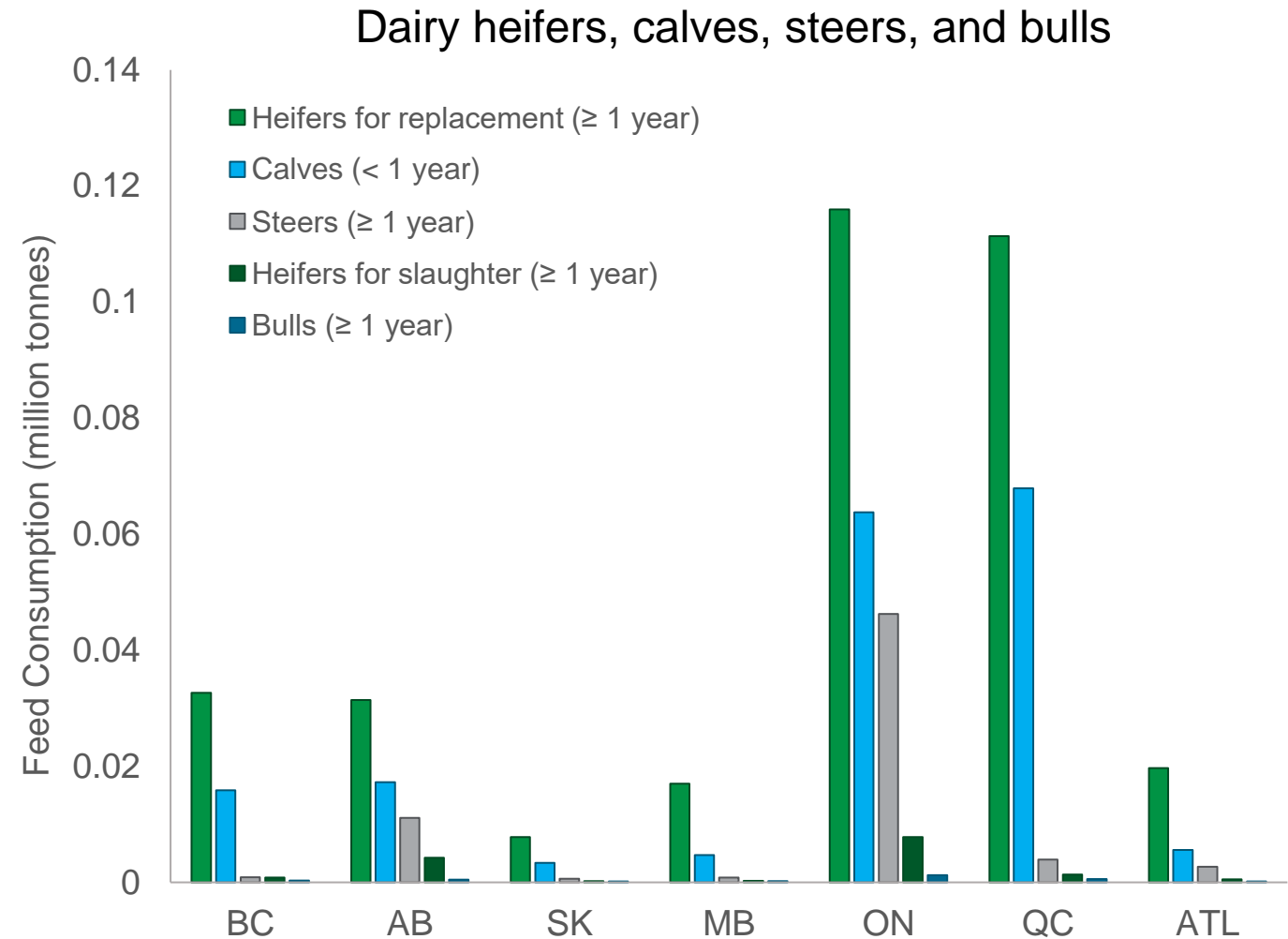
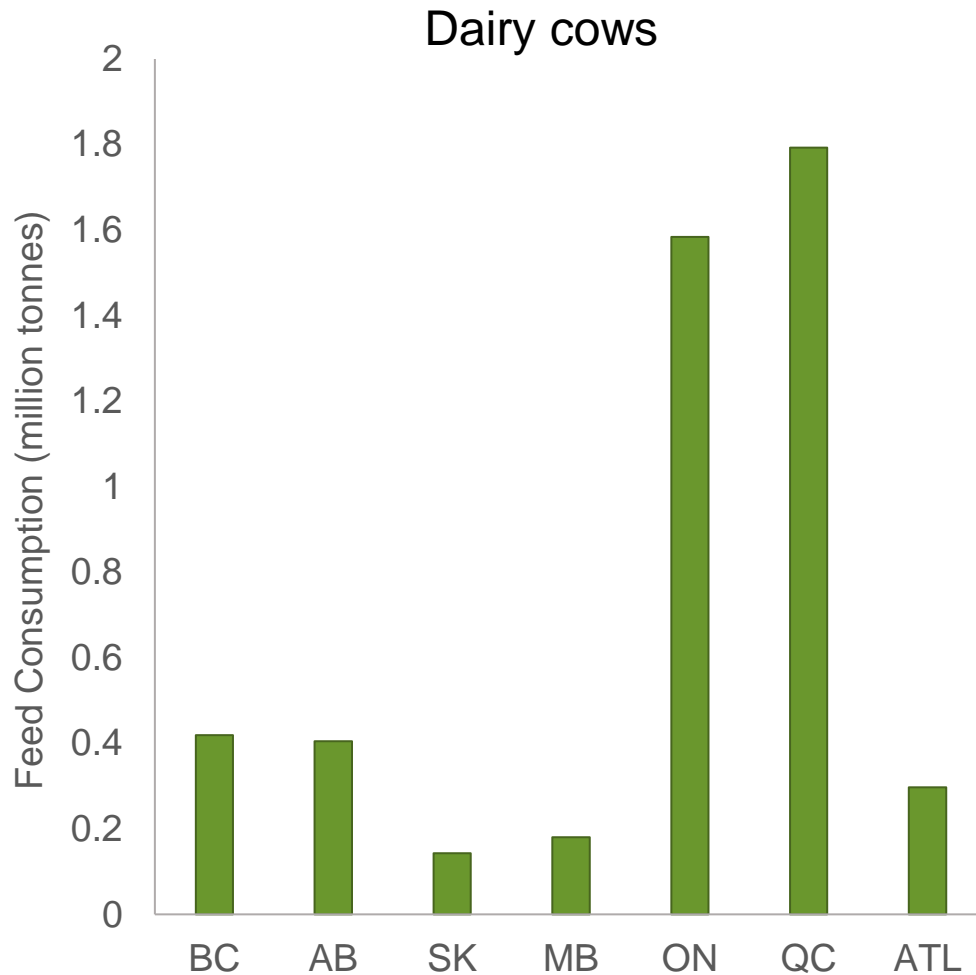


Dairy cattle feed consumption by stage of production

Dairy cattle consumed a total of 5.4 million tonnes of feed.

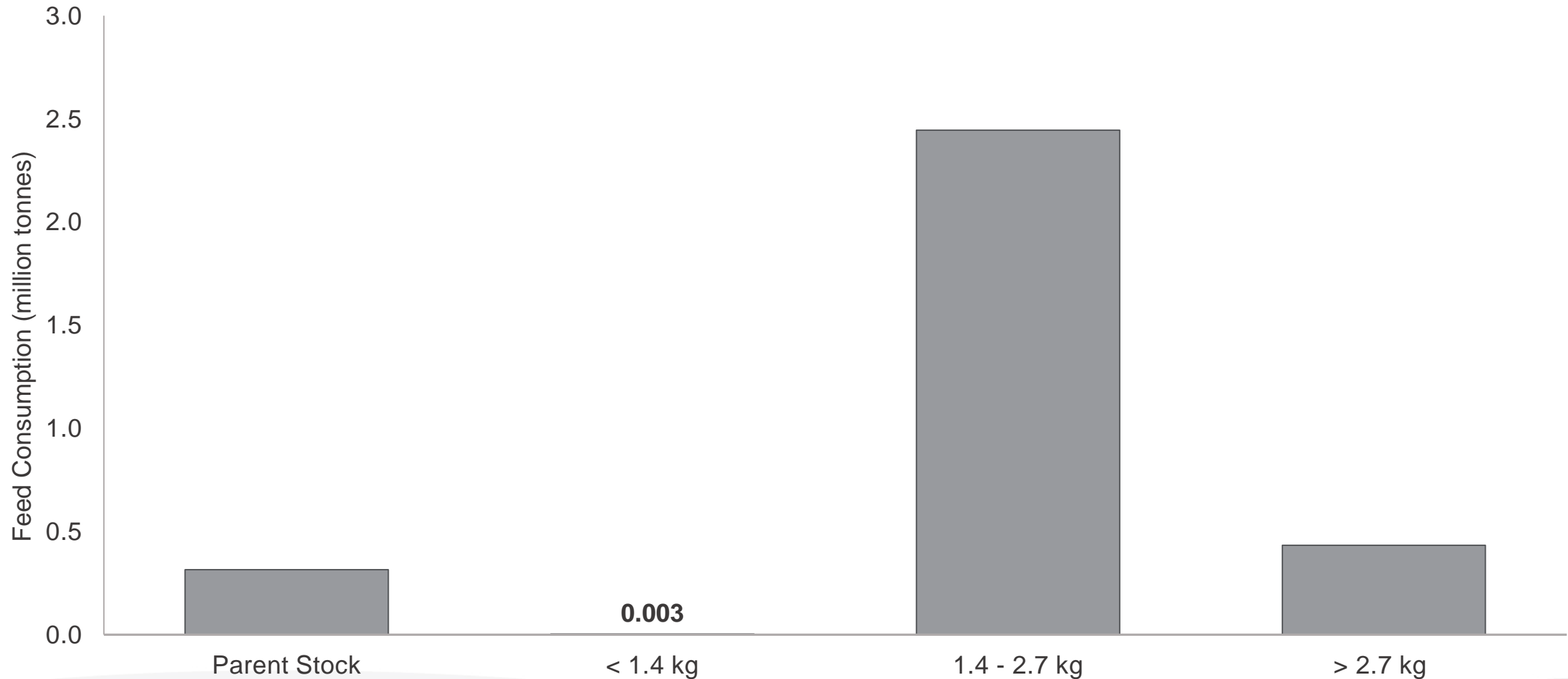


Dairy cattle feed consumption by province and stage of production

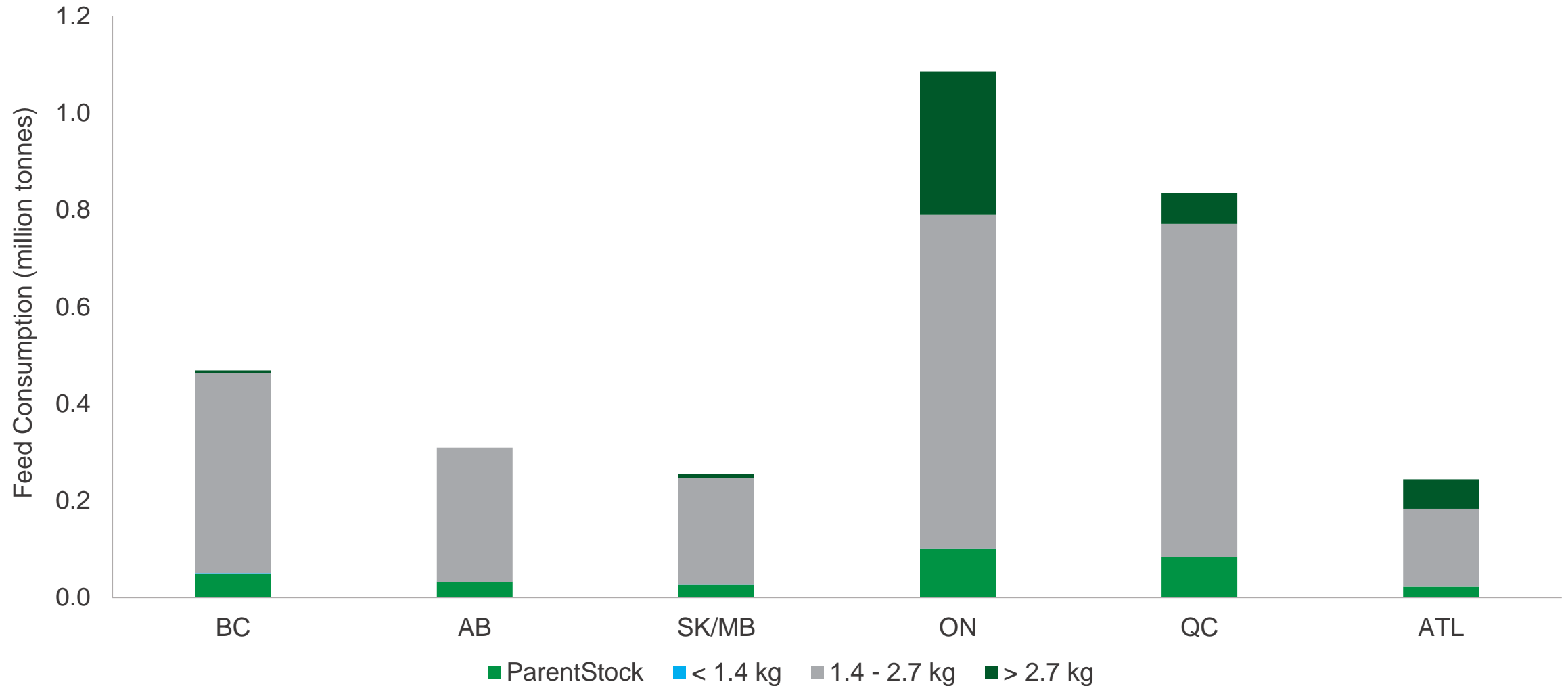


Broiler feed consumption by stage of production

Broilers consumed a total of 3.2 million tonnes of feed.

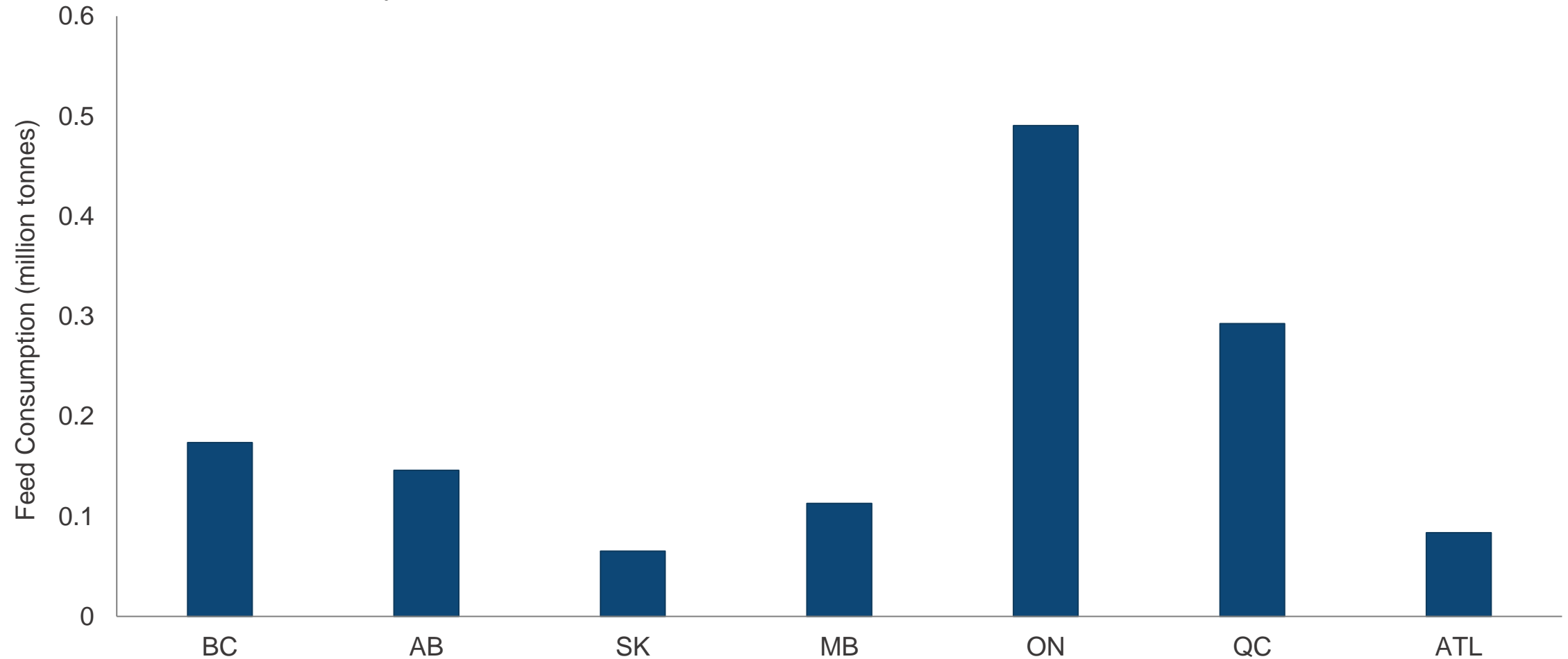


Broiler feed consumption by province and stage of production (2020 revised)



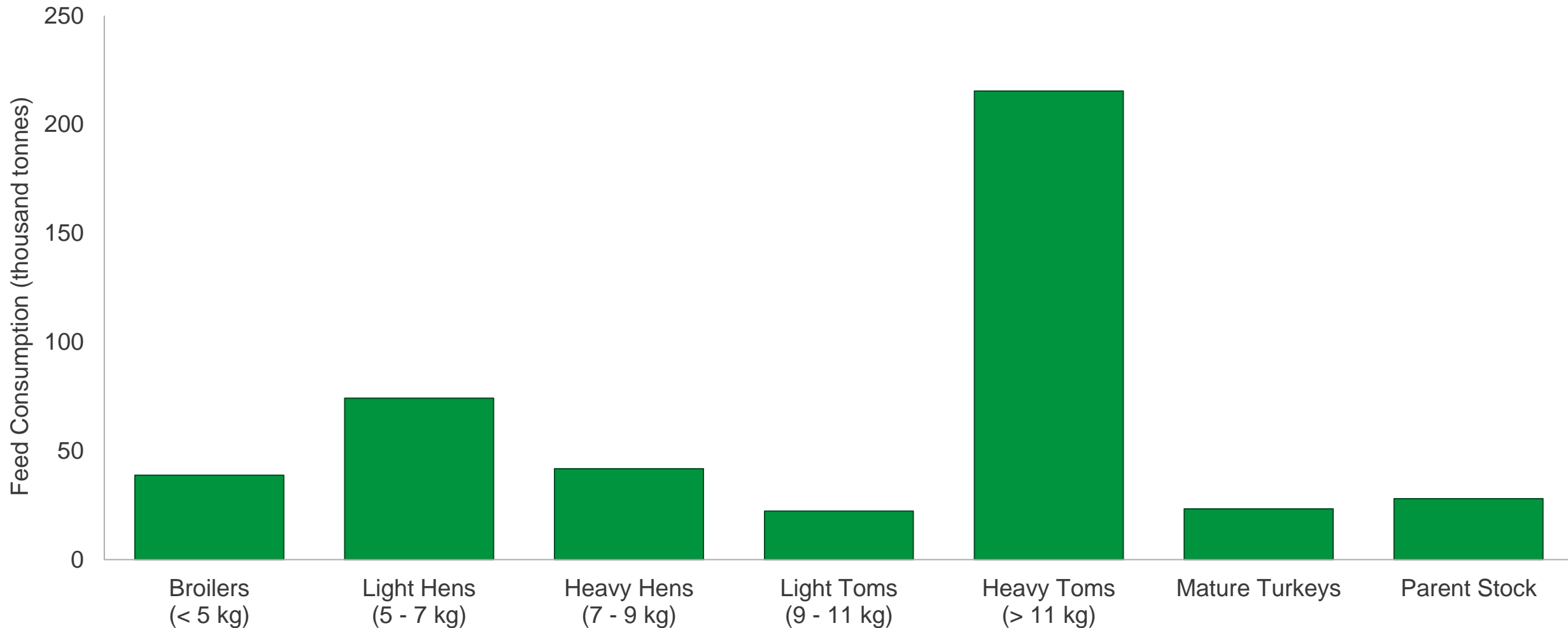
Layer feed consumption by province

Layers consumed a total of 1.4 million tonnes of feed.



Turkey feed consumption by stage of production

Turkeys consumed a total of 444 thousand tonnes of feed.

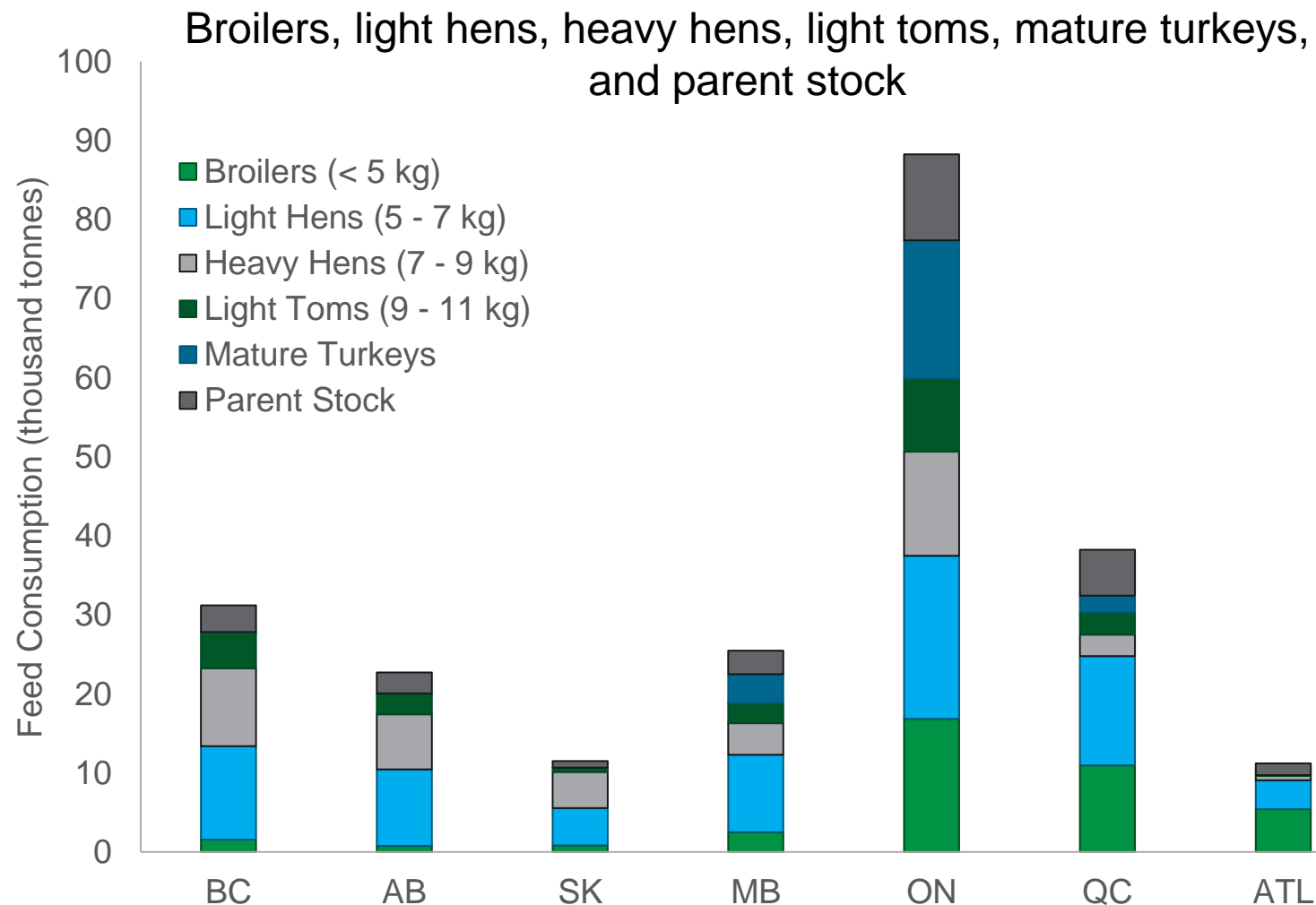
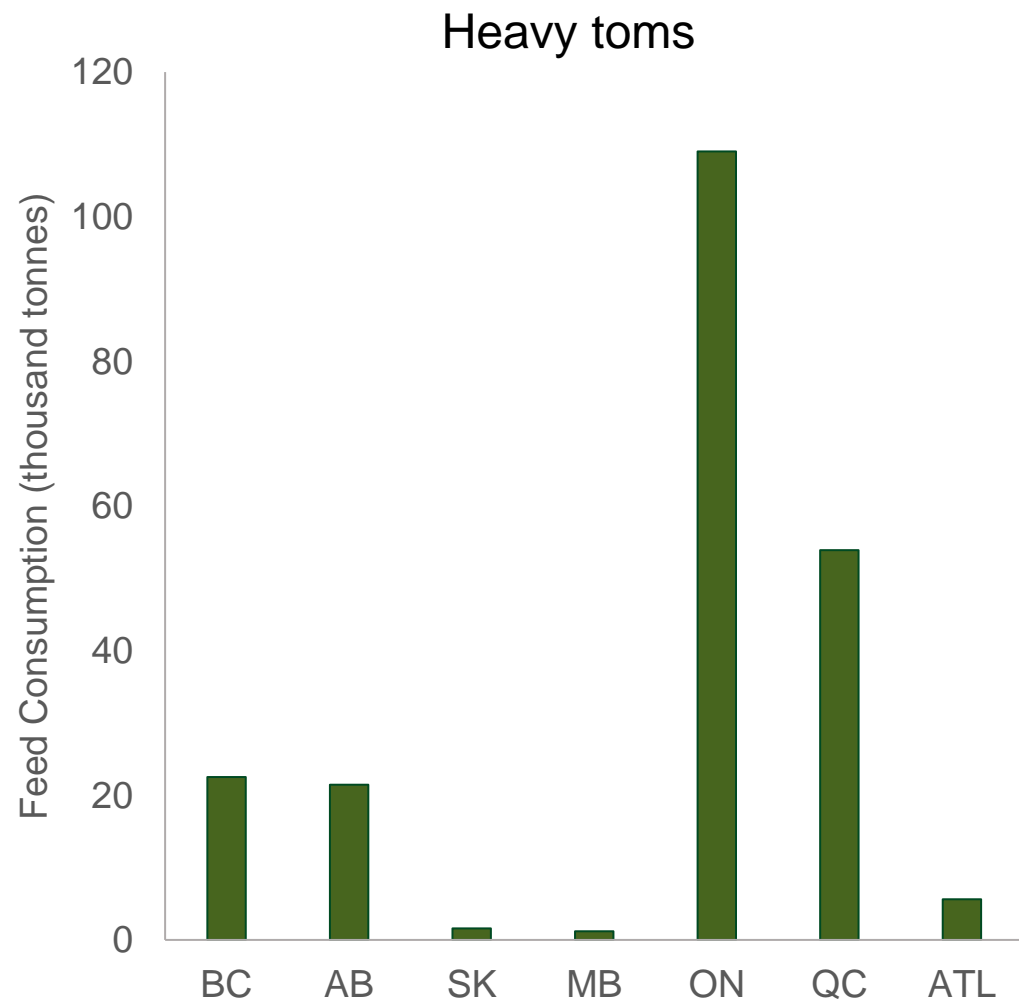


Presented data reflects population numbers from 2019.

Turkey feed consumption data and intake estimates used for feed consumption calculations can be found in [Tables A11 and A12](#).



Turkey feed consumption by province and stage of production



Presented data reflects population numbers from 2019.

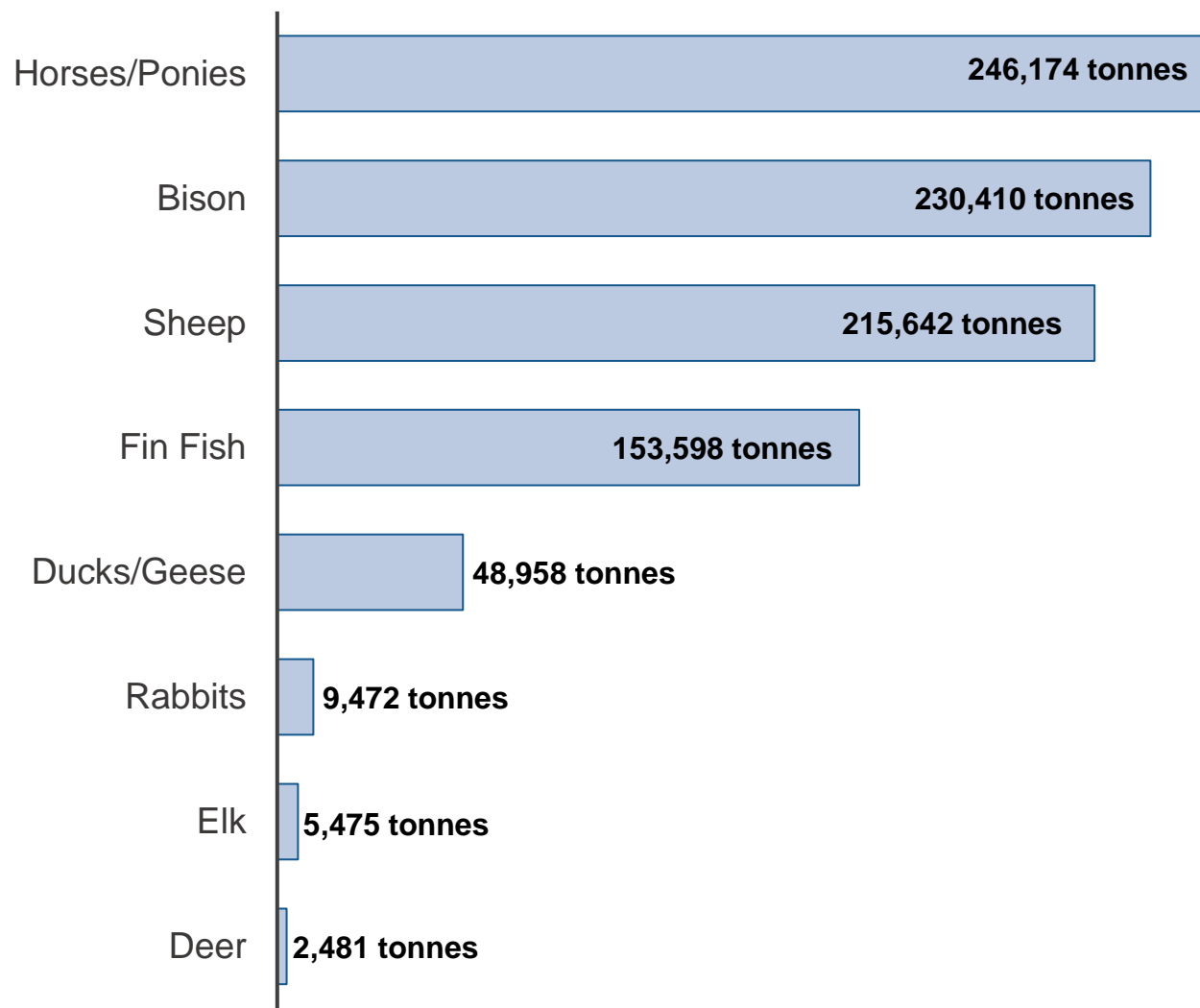
Turkey feed consumption data and intake estimates used for feed consumption calculations can be found in [Tables A11 and A12](#).



Minor species



Overview of minor species



Minor species consume approximately 0.9 million tonnes of livestock feed, representing 3% of total feed consumption in Canada.

- Horses/Ponies – 0.86%
- Bison – 0.80%
- Sheep – 0.75%
- Fin fish – 0.53%
- Ducks/Geese* – 0.17%
- Rabbits, Elk, Deer – 0.06%

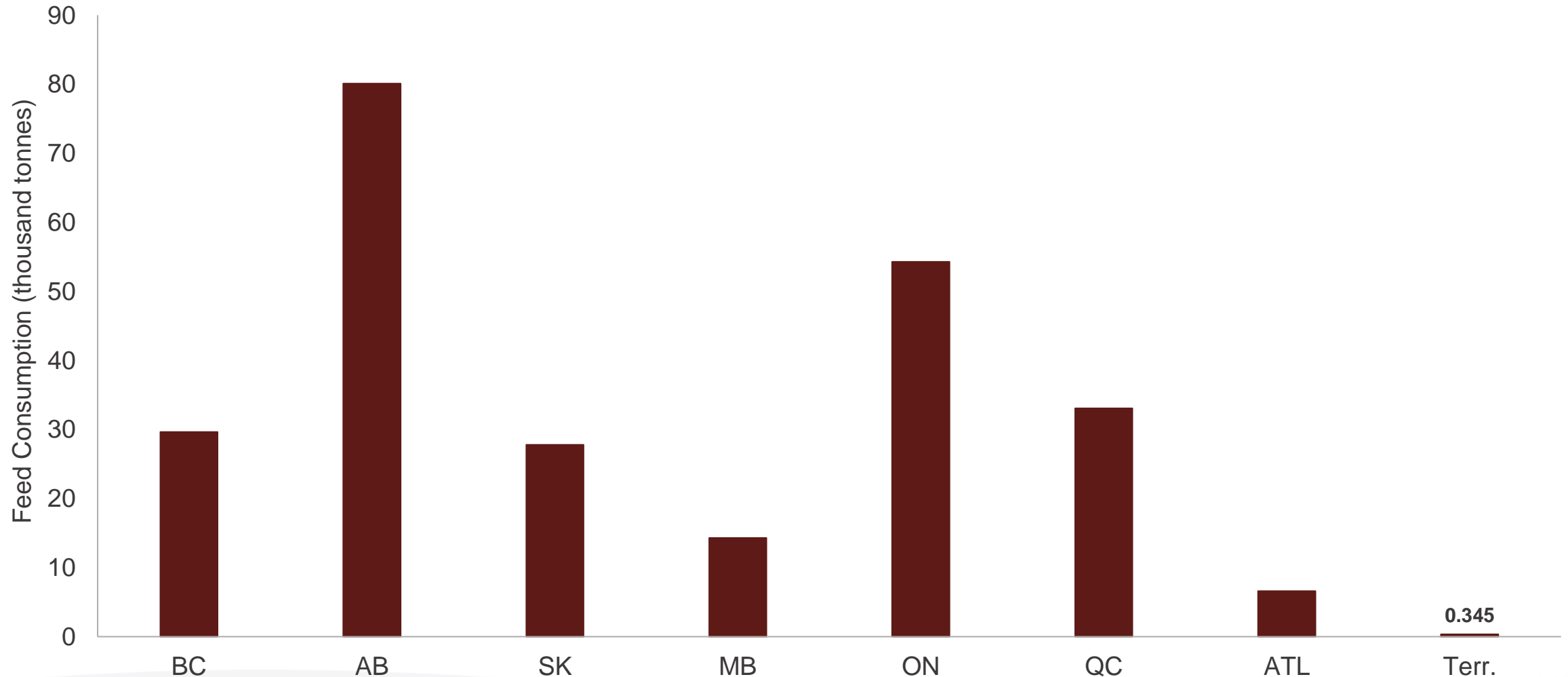
Goats are a minor species but have not been included in this report due to insufficient data to estimate their feed consumption.

*Data for ducks/geese were only available at the national level; no further graphs will be provided.



Horse/Pony feed consumption by province

Horses/Ponies consumed a total of 246 thousand tonnes of feed.



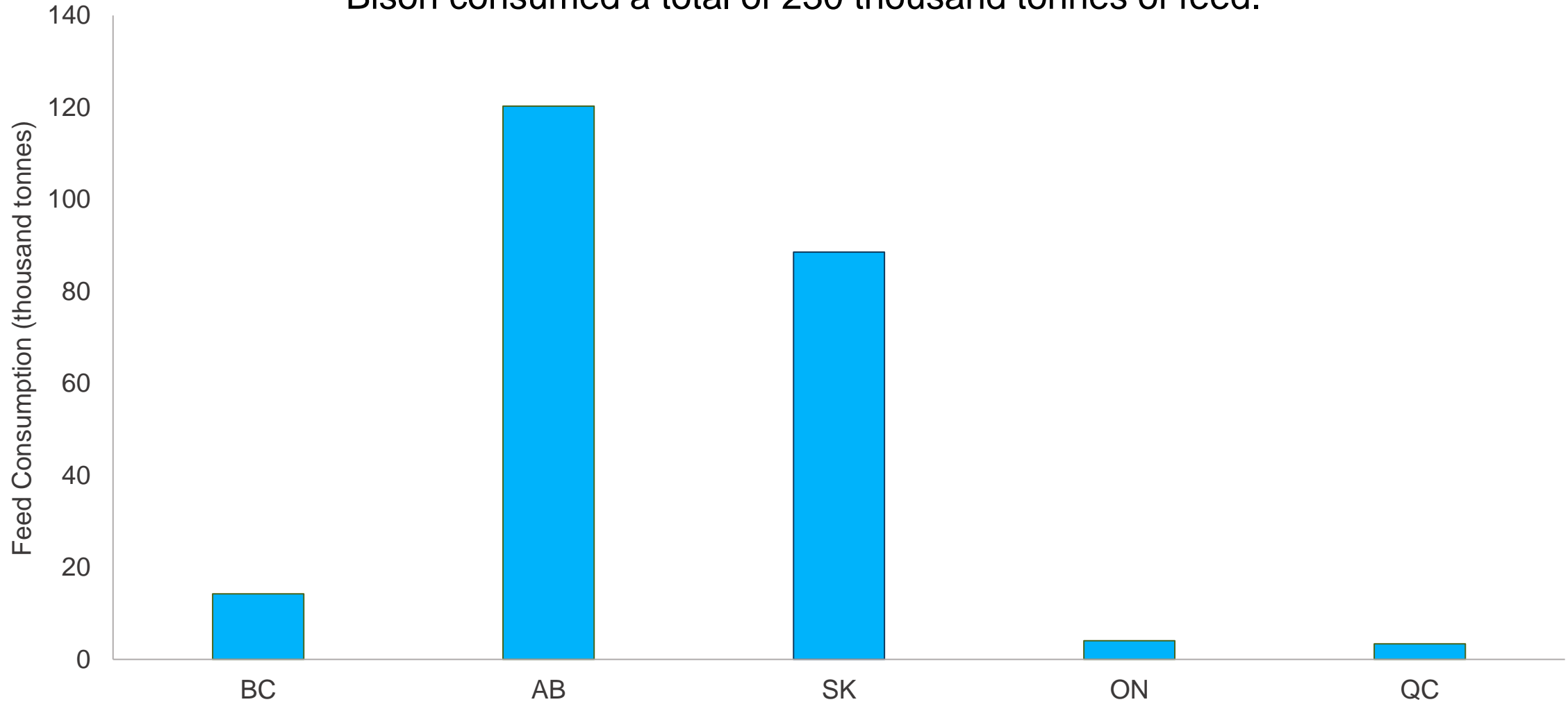
Presented data reflects population data from 2010.

Horses/ponies feed consumption data as well as intake estimates used for consumption calculations can be found in [Table A13](#).



Bison feed consumption by province

Bison consumed a total of 230 thousand tonnes of feed.



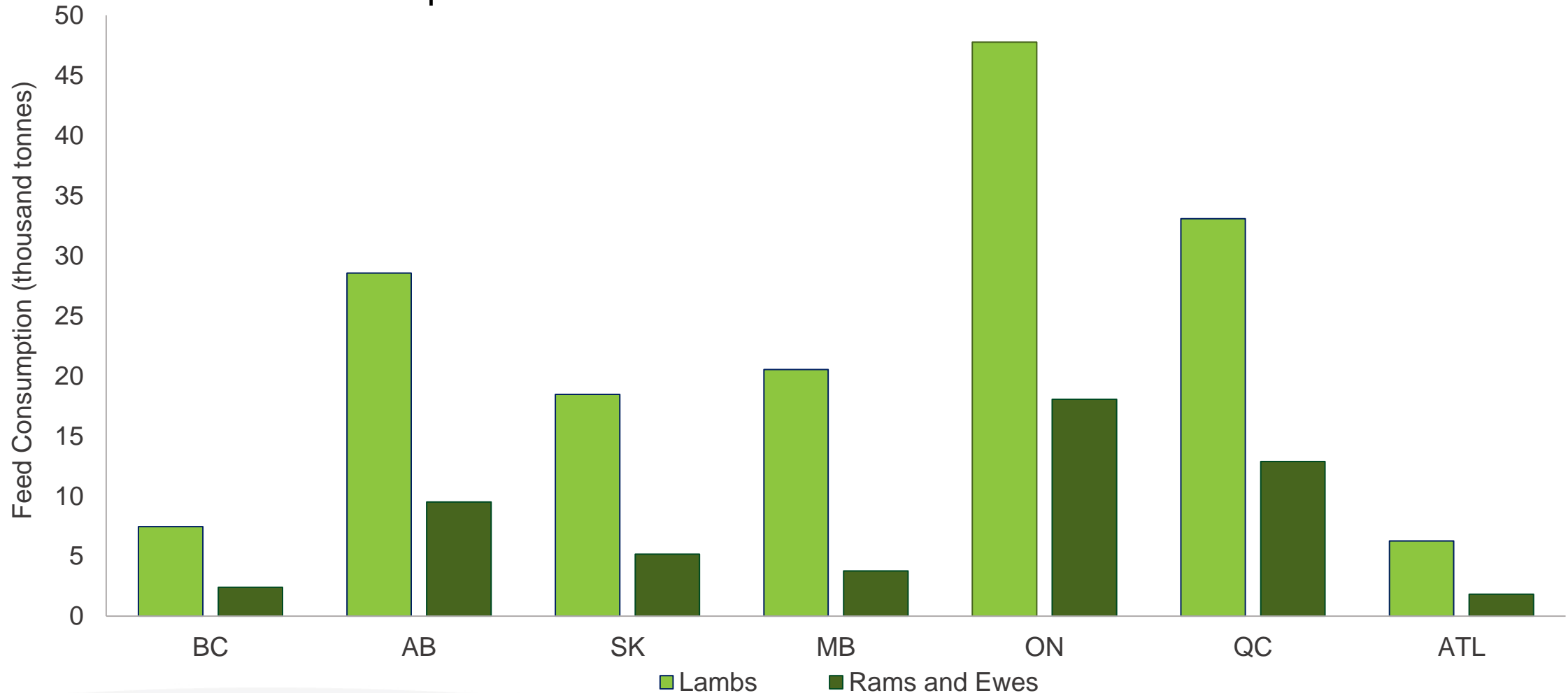
Presented data reflects population data from 2016.

Bison feed consumption data as well as intake estimates used for consumption calculations can be found in [Table A14](#).



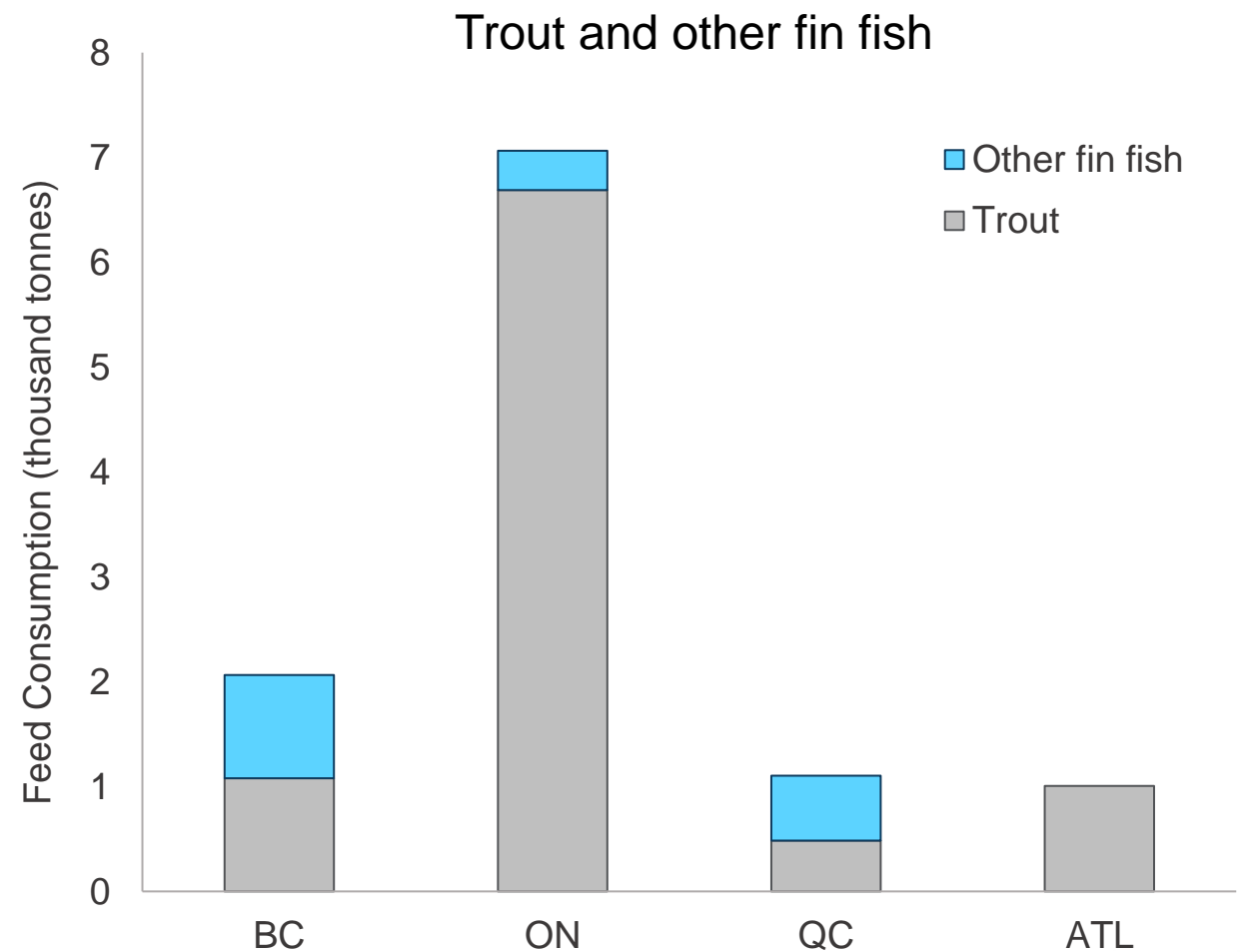
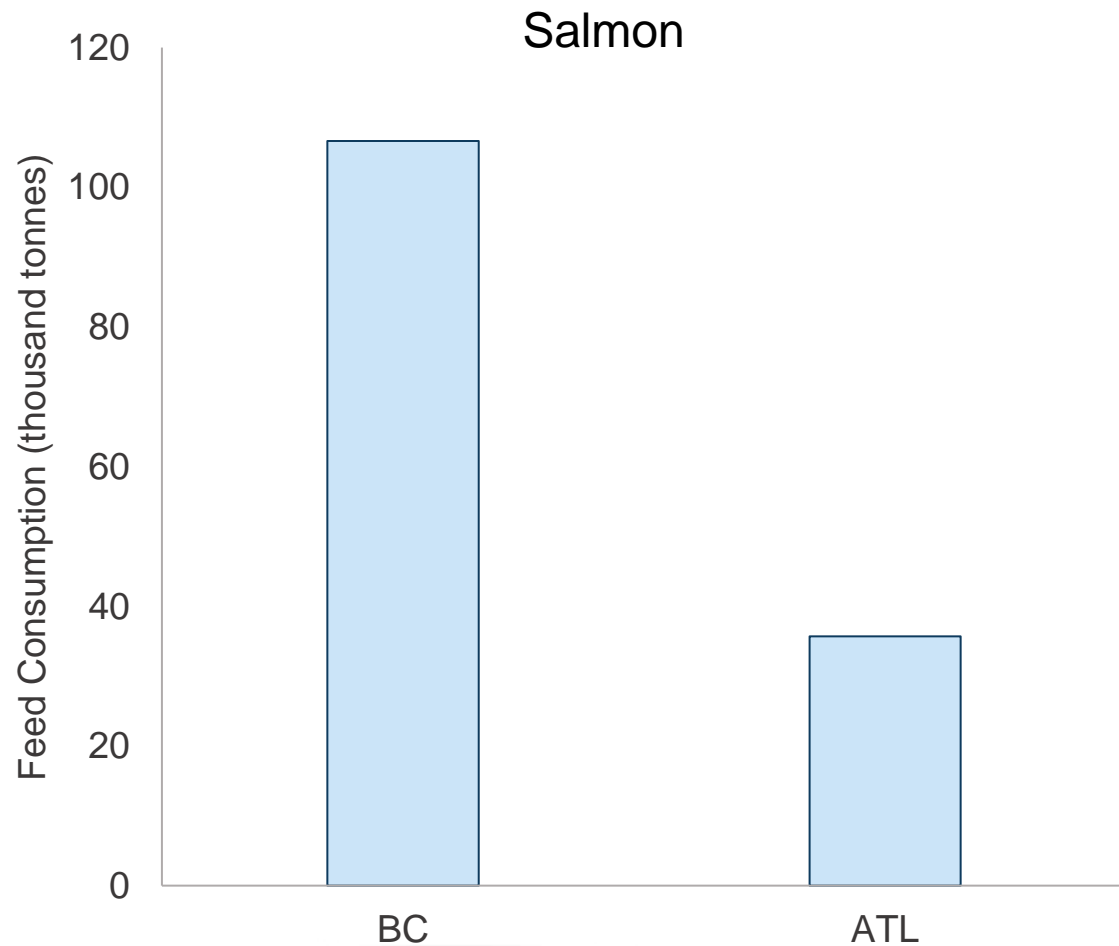
Sheep feed consumption by province and stage of production

Sheep consumed a total of 216 thousand tonnes of feed.



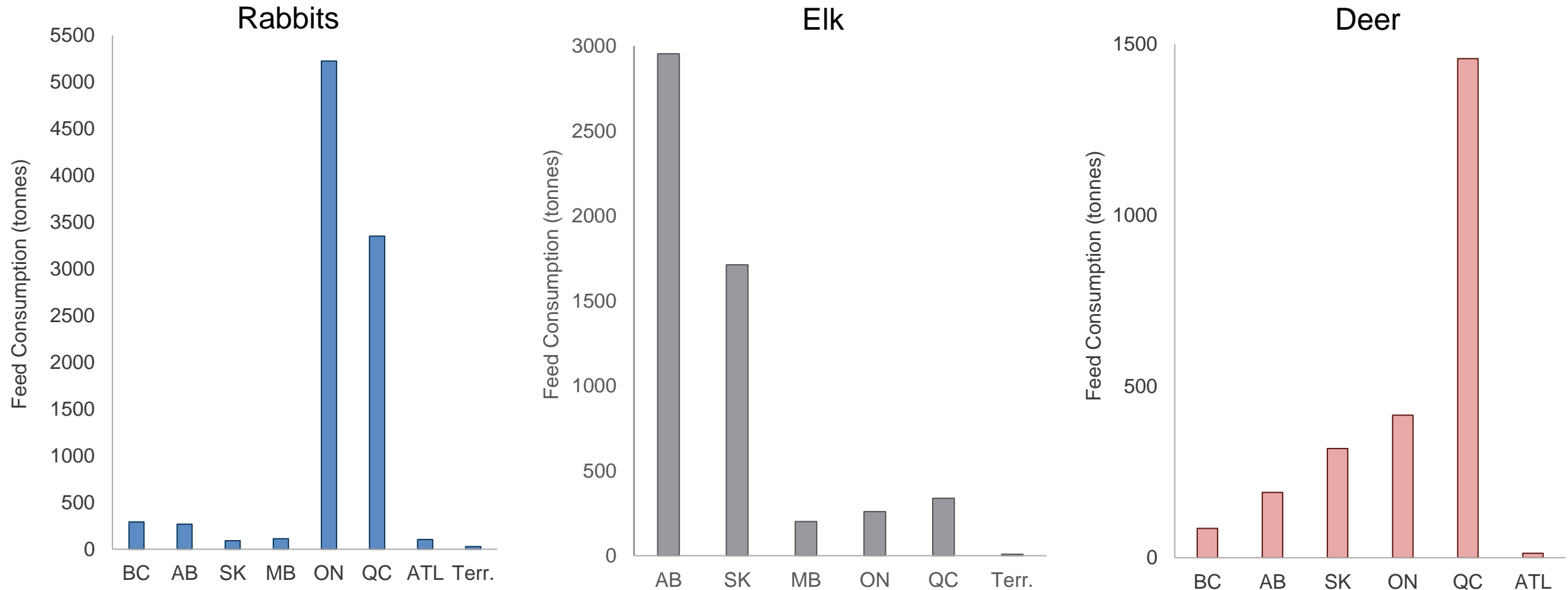
Fin fish feed consumption by province

Fin fish consumed 154 thousand tonnes of feed.



Rabbit, elk, and deer feed consumption

Rabbits consumed 9,472 tonnes of feed while elk consumed 5,475 tonnes and deer 2,481 tonnes.



Appendix A:

Feed consumption data tables



Table A1. Total feed consumption (tonnes) and number of commercial feed mills across Canada

Province	Total Feed Consumption	Number of Commercial Feed Mills ¹
BC	1,754,315	27
AB	5,951,823	68
SK	2,932,542	35
MB	3,168,660	34
ON	6,961,596	153
QC	6,445,774	123
ATL	842,764	31
Terr	382	0
Canadian Total	28,778,408²	471

¹Commercial feed mills are defined by the CFIA as businesses that manufacture mixed feeds for sale and distribution in the Canadian marketplace or for export (CFIA, 2020).

²Canadian total feed consumption includes listed provincial values plus national feed consumption values for swine exports (671,595 tonnes) and ducks/geese (48,958 tonnes).



Table A2. Swine feed consumption (tonnes)

Province	Feed consumption
BC	77,312
AB	944,151
SK	706,345
MB	1,970,865
ON	2,384,578
QC	2,814,291
ATL	35,324
Exports	671,595
Canadian total	9,604,460

Table A3. Estimated intake of swine by stage of production

Stage of production	Estimated intake (kg/hog)
Domestic hogs	396
Breeding and market hogs exports	396
Feeder exports	75

Table A4. Beef cattle feed consumption (tonnes)

Province	Cows	Steers (≥ 1 year)	Heifers for slaughter (≥ 1 year)	Calves (< 1 year)	Heifers for replacement (≥ 1 year)	Bulls (≥ 1 year)	Provincial Total
BC	181,498	38,099	29,967	70,292	24,791	4,554	349,201
AB	1,274,173	1,057,303	633,471	651,742	149,650	31,263	3,797,603
SK	958,725	199,304	92,361	339,329	111,980	21,931	1,723,631
MB	353,337	88,457	49,524	146,465	42,661	8,119	688,564
ON	216,006	343,258	151,286	104,294	27,335	5,581	847,761
QC	123,940	91,761	38,105	77,807	11,430	2,762	345,806
ATL	33,367	19,306	12,428	15,929	3,864	840	85,734
Canadian Total	3,141,046	1,837,489	1,007,144	1,405,858	371,711	75,051	7,838,300

Table A5. Estimated daily intake of beef cattle by stage of production

Stage of production	Estimated average BW (kg)	Estimated DMI (kg/hd/d)	Forage intake (% of diet)	Estimated feed intake on AF basis (kg/hd/d)*
Cows	650	14.50	85.4	2.41
Steers (≥ 1 year)	414	10.35	65.8	4.02
Heifers for slaughter (≥ 1 year)	396	9.11	66.6	3.46
Calves (< 1 year)	128	3.33	70.0	1.13
Heifers for replacement (≥ 1 year)	450	10.35	85.0	1.76
Bulls (≥ 1 year)	900	18.00	95.0	1.02

*AF intake estimates were calculated based on the assumption that dry matter (DM) content of feed was 88%.
Population source: Statistics Canada Biannual Livestock Survey 2020

Table A6. Dairy cattle feed consumption (tonnes)

Province	Cows	Heifers for replacement (≥ 1 year)	Calves (< 1 year)	Steers (≥ 1 year)	Heifers for slaughter (≥ 1 year)	Bulls (≥ 1 year)	Provincial Total
BC	418,555	32,626	15,827	881	820	280	468,989
AB	404,488	31,405	17,216	11,085	4,227	448	468,869
SK	142,644	7,784	3,349	587	189	149	154,704
MB	180,403	16,981	4,697	807	252	168	203,309
ON	1,583,403	115,927	63,757	46,247	7,760	1,213	1,818,308
QC	1,792,681	111,348	67,903	3,891	1,325	541	1,977,688
ATL	297,135	19,652	5,534	2,643	505	149	325,618
Canadian Total	4,819,311	335,724	178,282	66,141	15,078	2,949	5,417,485

Table A7. Estimated daily intake of dairy cattle by stage of production

Stage of production	Estimated Average BW (kg)	Estimated DMI (kg/hd/d)	Forage Intake (% of diet)	Estimated feed intake on AF basis (kg/hd/d)*
Cows	700	23.80	50.0	13.52
Heifers for replacement (≥ 1 year)	400	9.20	80.0	2.09
Calves (<1 year)	128	3.33	70.0	1.13
Steers (≥ 1 year)	414	10.35	65.8	4.02
Heifers for slaughter (≥ 1 year)	396	9.11	66.6	3.46
Bulls (≥1 year)	900	18.00	95.0	1.02

*AF intake estimates were calculated based on the assumption that dry matter (DM) content of feed was 88%.
Population source: Statistics Canada Biannual Livestock Survey 2020

Table A8. Broiler feed consumption (tonnes)

Province	Parent Stock	Broilers < 1.4 kg	Broilers 1.4 – 2.7 kg	Broilers > 2.7 kg	Provincial Total
BC	48,501	1,343	413,168	5,505	468,517
AB	32,132	102	276,875	0	309,109
SK/MB	27,257	38	219,902	7,733	254,930
ON	100,716	394	688,357	296,385	1,085,852
QC	82,688	1,421	687,068	63,266	834,443
ATL	23,377	0	159,786	60,837	244,000
Canadian Total	314,671	3,298	2,445,156	433,726	3,196,851

Table A9. Estimated intake of commercial and parent stock of broilers

	Stage of production	Estimated Intake	Intake Units
Parent Stock	Broiler stock cockerels	0.032	kg/ chick
	Broiler stock pullets	0.370	kg/ chick
	Broiler chicks placed	0.402	kg/ chick
Commercial Stock	< 1.4 kg	1.389	kg/kg live weight (assume 70% dress)
	1.4 – 2.7 kg	1.647	kg/kg live weight (assume 70% dress)
	> 2.7 kg	1.847	kg/kg live weight (assume 70% dress)

Table A10. Layer feed consumption (tonnes)

Province	Feed consumption
BC	173,760
AB	146,120
SK	65,240
MB	112,880
ON	490,720
QC	292,760
ATL	83,720
Canadian Total	1,365,200

Estimated intake used for feed consumption calculation was 40 kg/hen/year.

Table A11. Turkey feed consumption (tonnes)

Province	Broilers (< 5 kg)	Light Hens (5–7 kg)	Heavy Hens (7–9 kg)	Light Toms (9 – 11 kg)	Heavy Toms (> 11 kg)	Mature Turkeys	Parent Stock	Provincial Total
BC	1,571	11,827	9,827	4,546	22,531	56	3,354	53,712
AB	773	9,685	6,943	2,648	21,475	0	2,652	44,177
SK	835	4,714	4,561	538	1,601	0	848	13,098
MB	2,488	9,801	3,998	2,520	1,204	3,681	2,970	26,662
ON	16,816	20,644	13,172	9,207	109,009	17,540	10,889	197,278
QC	10,940	13,849	2,717	2,811	53,901	2,104	5,815	92,138
ATL	5,416	3,658	545	93	5,631	0	1,495	16,837
Canadian Total	38,839	74,178	41,763	22,363	215,352	23,381	28,023	443,902

Table A12. Estimated intake of commercial and parent stock of turkeys

	Stage of production	Estimated Intake	Intake Units
Commercial Stock	Broilers < 5 kg	1.52	kg/ kg live weight
	Light Hens (5 – 7 kg)	1.93	kg/ kg live weight
	Heavy Hens (7 – 9 kg)	2.13	kg/ kg live weight
	Light Toms (9 – 11 kg)	1.83	kg/ kg live weight
	Heavy Toms (> 11 kg)	2.23	kg/ kg live weight
	Mature Turkeys	2.99	kg/ kg live weight
Parent Stock	Poults	1.30	kg/poult



Table A13. Horse/Pony feed consumption (tonnes)

Province	Feed consumption
BC	29,638
AB	80,099
SK	27,798
MB	14,308
ON	54,294
QC	33,087
ATL	6,605
Terr.	345
Canadian Total	246,174

Estimated intake used for feed consumption calculation was 0.7 kg/hd/day.



Table A14. Bison feed consumption (tonnes)

Province	Feed consumption
BC	14,244
AB	120,246
SK	88,515
MB	0
ON	4,036
QC	3,368
ATL	0
Canadian Total	230,410

Estimated intake used for feed consumption calculation was 6 kg/hd/day.

Table A15. Sheep feed consumption (tonnes)

Province	Lambs (< 1 year)	Rams and Ewes (≥ 1 year)	Provincial Total
BC	7,448	2,400	9,849
AB	28,541	9,493	38,035
SK	18,464	5,159	23,623
MB	20,530	3,764	24,294
ON	47,757	18,048	65,805
QC	33,069	12,874	45,942
ATL	6,259	1,835	8,094
Canadian Total	162,069	53,573	215,642

Table A16. Estimated daily intake of sheep by stage of production

Stage of production	Estimated DMI (kg/hd/d)	Forage Intake (% of diet)	Estimated feed intake on AF basis (kg/hd/d)*
Lambs (< 1 year)	1.36	10	1.39
Rams and Ewes (≥ 1 year)	2.50	90	0.28

*AF intake estimates were calculated based on the assumption that DM content of feed was 88%.
Population source: Statistics Canada Biannual Livestock Survey 2020



Table A17. Fin fish feed consumption (tonnes)

Province	Salmon	Trout	Other Fin Fish	Provincial Total
BC	106,649	1,080	985	108,714
ON	0	6,689	376	7,064
QC	0	486	618	1,104
ATL	35,707	1,008	0	36,715
Canadian Total	142,356	9,263	1,979	153,597

For all fin fish, feed conversion rate was 1.2 kg/kg live wt.

Table A18. Feed consumption (tonnes) of rabbit, elk, and deer

Province	Rabbit	Elk	Deer
BC	292	0	85
AB	269	2,955	191
SK	91	1,713	318
MB	112	201	0
ON	5,225	260	416
QC	3,351	338	1,458
ATL	103	0	13
Terr.	28	9	0
Canadian Total	9,472	5,475	2,481

Table A19. Estimated daily feed intake of rabbit, elk, and deer

Species	Estimated Intake (kg/hd/d)
Rabbit	0.15
Elk	0.68
Deer	0.45



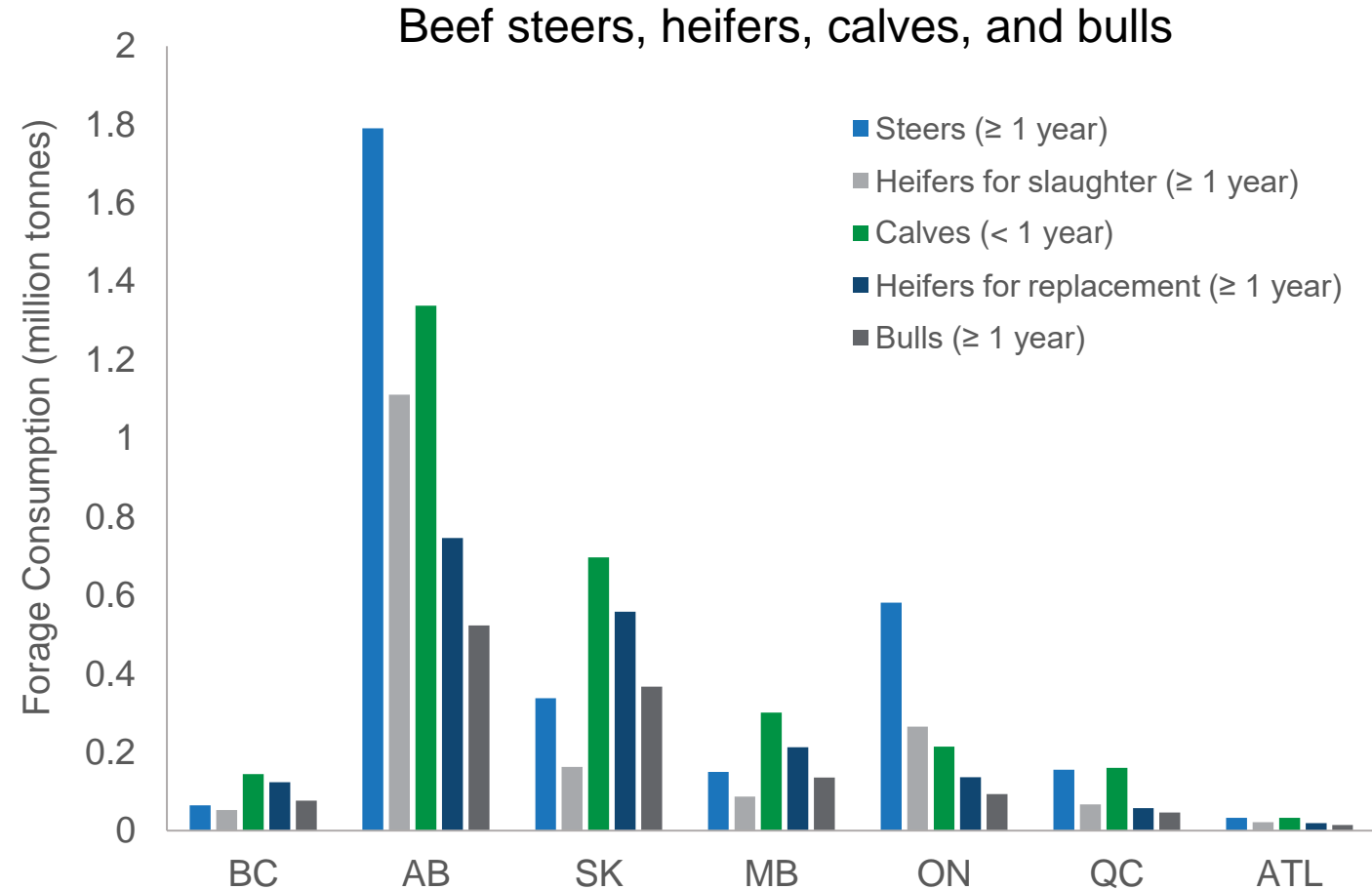
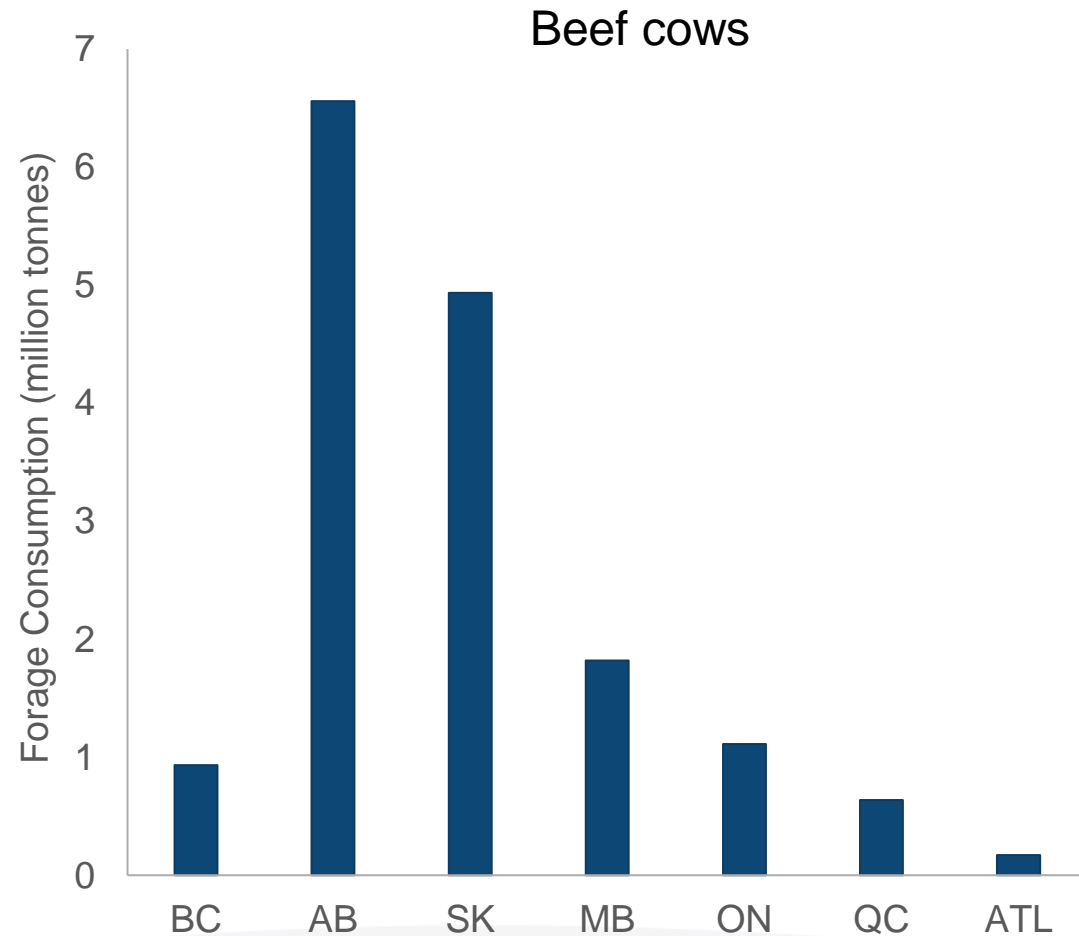
Appendix B:

Ruminant forage consumption data



Beef cattle forage consumption by province and stage of production

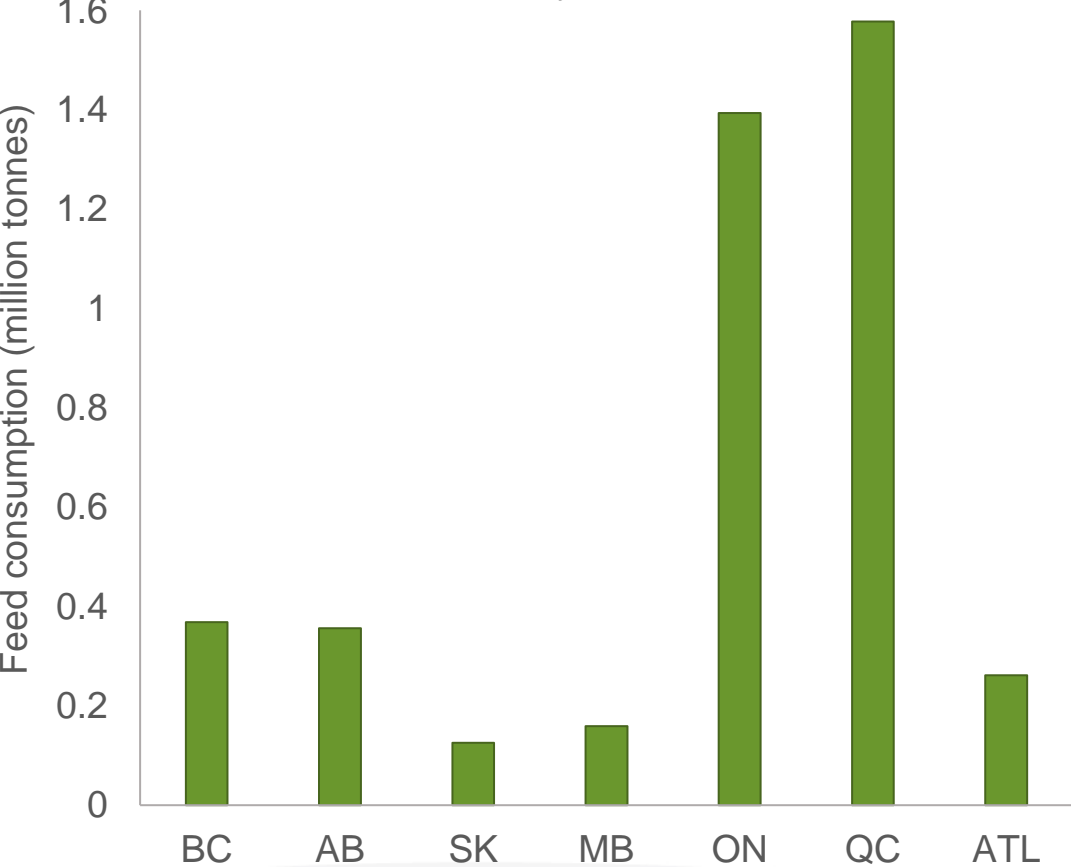
In addition to prepared feed, beef cattle consumed a total of 27 million tonnes of forage (DM basis).



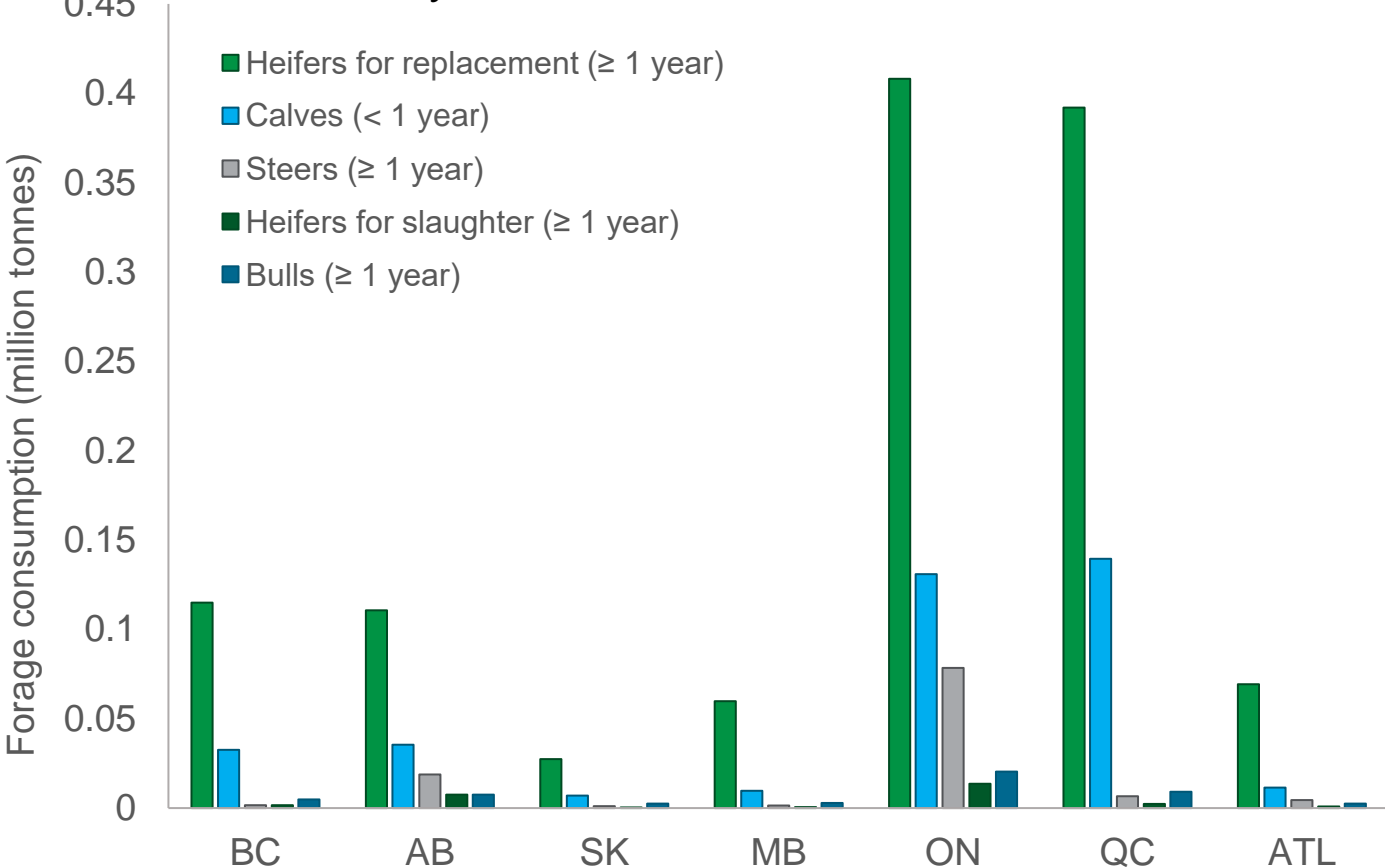
Dairy cattle forage consumption by province and stage of production

In addition to prepared feed, dairy cattle consumed a total of 6 million tonnes of forage (DM basis).

Dairy cows



Dairy heifers, calves, steers, and bulls



Sheep forage consumption by province and stage of production

In addition to prepared feed, sheep consumed a total of 440 thousand tonnes of forage (DM basis).

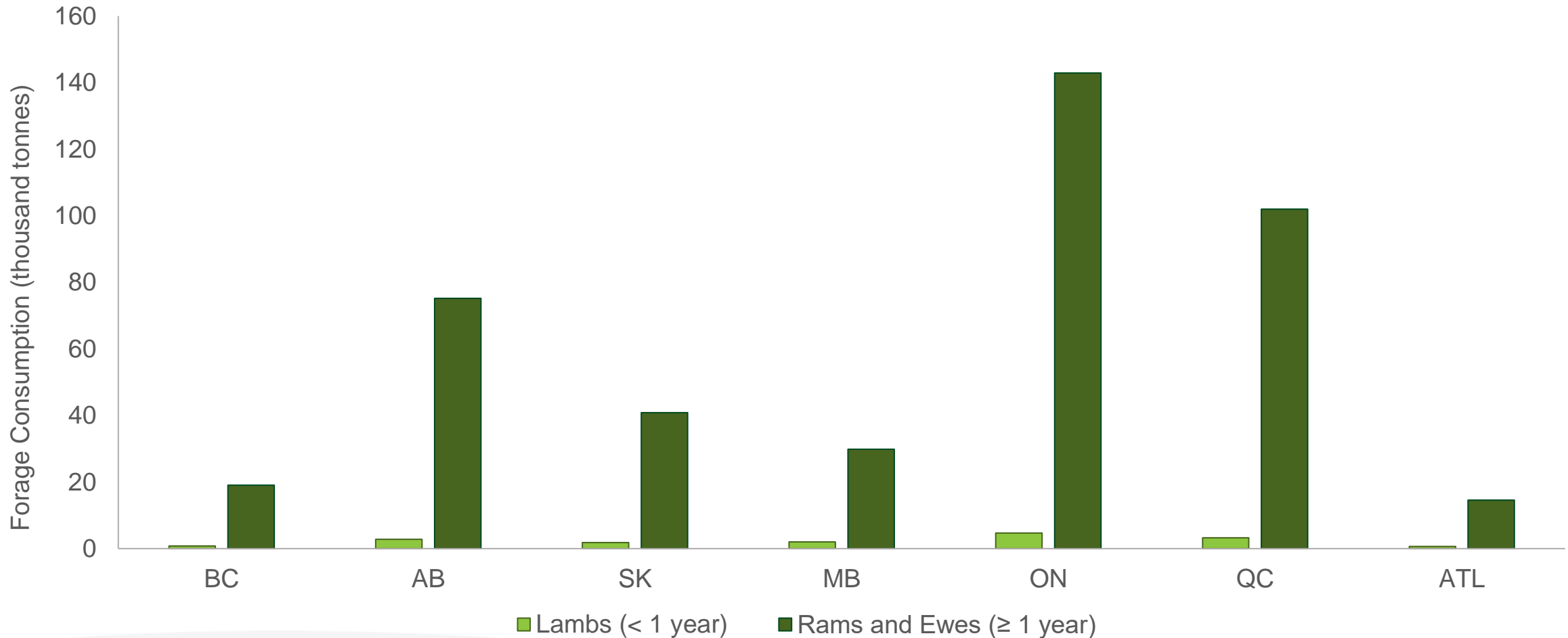


Table B1. Beef cattle forage consumption (tonnes of DM)

Province	Cows	Steers (≥ 1 year)	Heifers for slaughter (≥ 1 year)	Calves (< 1 year)	Heifers for replacement (≥ 1 year)	Bulls (over 1 year)	Provincial Total
BC	934,242	64,505	52,584	144,333	123,627	76,146	1,395,437
AB	6,558,675	1,790,120	1,111,571	1,338,243	746,257	522,726	12,067,591
SK	4,934,938	337,442	162,069	696,755	558,408	366,688	7,056,301
MB	1,818,766	149,767	86,902	300,742	212,735	135,753	2,704,664
ON	1,111,870	581,171	265,466	214,151	136,311	93,310	2,402,278
QC	637,969	155,360	66,865	159,764	56,997	46,187	1,123,142
ATL	171,752	32,688	21,809	32,708	19,267	14,043	292,266
Canadian Total	16,168,211	3,111,052	1,767,266	2,886,696	1,853,600	1,254,854	27,041,678

Table B2. Dairy cattle forage consumption (tonnes of DM)

Province	Cows	Heifers for replacement (≥ 1 year)	Calves (< 1 year)	Steers (≥ 1 year)	Heifers for slaughter (≥ 1 year)	Bulls (≥ 1 year)	Provincial Total
BC	368,329	114,844	32,498	1,491	1,439	4,681	523,282
AB	355,950	110,545	35,349	18,767	7,417	7,490	535,519
SK	125,527	27,401	6,877	994	332	2,497	163,628
MB	158,755	59,772	9,645	1,367	443	2,809	232,791
ON	1,393,395	408,064	130,914	78,301	13,616	20,285	2,044,576
QC	1,577,559	391,946	139,427	6,587	2,325	9,050	2,126,894
ATL	261,479	69,175	11,364	4,474	886	2,497	349,874
Canadian Total	4,240,993	1,181,747	366,073	111,983	26,458	49,308	5,976,563

Table B3. Sheep forage consumption (tonnes of DM)

Province	Lambs (< 1 year)	Rams and Ewes (≥ 1 year)	Provincial Total
BC	728	19,012	19,740
AB	2,791	75,185	77,976
SK	1,805	40,857	42,663
MB	2,007	29,811	31,819
ON	4,670	142,939	147,608
QC	3,233	101,958	105,192
ATL	612	14,536	15,148
Canadian Total	15,846	424,298	440,146