



ANNUAL
REPORT

2019/2020
Ontario Apple Growers

SEVENTEENTH ANNUAL REPORT OF THE ONTARIO APPLE GROWERS

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2019 / 2020 BOARD OF DIRECTORS

Chair Cathy McKay • **Vice Chair** Brian Rideout
Keith Wright • Robert Geier • Joe Van de Gevel • Brian Gilroy • Greg Ardiel •
Art Moyer • Kevin Martin • Charles Stevens

GROWER COMMITTEE MEMBERS

Steve Versteegh • Casey Cleaver • Kyle Ardiel • Robert Shuh • Manus Boonzaier

ASSOCIATION DELEGATES

Canadian Horticultural Council • Brian Gilroy & Cathy McKay (alt.)
CHC Apple Working Group • Brian Gilroy & Kelly Ciceran
Ontario Fruit & Vegetable Growers' Association • Charles Stevens
President's Council • Cathy McKay
National Apple Breeding Consortium • Cathy McKay
Ontario Federation of Agriculture • Joe Van de Gevel
FARMS - Steve Versteegh
Labour Issues Coordinating Committee • Brian Rideout
Horticultural Crops Ontario & Ontario Fruit and Vegetable Convention • Kelly Ciceran
Ontario Agricultural Commodity Council • Greg Ardiel & Kelly Ciceran

Staff

GENERAL MANAGER Kelly Ciceran • **PROJECT MANAGER*** Larissa Osborne
MARKETING COORDINATOR* Kelle Neufeld • **TREASURER*** Maureen Connell
OFFICE MANAGER* Sylvana Lagrotteria

*Shared Staff

CHAIR'S REPORT



As Kelly and I sat at the Canadian Horticulture Council meeting in Ottawa the middle of March, we had no idea that there was a terrible storm brewing around the world. Oh, Covid-19 was mentioned, but it felt far away and really was not a discussion point at our meetings in Ottawa. By the time we got home, the country was beginning to shut down. Store shelves were empty, and this gave consumers a new respect for locally produced food.

Despite difficult circumstances, apple growers have been nimble; have adapted and carried on producing another great crop. Farmers are good at problem solving and dealing with adversity, but usually it comes from the sky, or the markets, not from a virus.

The biggest impact Covid-19 has had on our businesses has been labour shortages and changes to how we work, such as using PPE or cohort groups. Our workers were late, and then we had to isolate them for 2 weeks before they could work. Many of us were unable to get the numbers of workers needed to do crucial spring work such as pruning and thinning.

We have worked closely with the OFVGA and the OFA to make sure the various levels of governments know what we need. Health and safety is always of the utmost importance on our farms and with our employees. To assist our members, the OAG acted quickly and hired Worker Safety Prevention Services to create a Covid-19 protocols to the Tree Fruit Health and Safety Guidelines.

Press coverage of the agricultural workers who come to Canada was overwhelming day after day even though we were following government and Public Health protocols to keep everyone safe on the farm. There was a lot of confusion about Pick-Your-Own farms earlier this fall and it resulted in some farmers being ticketed, while others were left alone. Rules and guidelines changed often during the season and local health units and municipalities were left to enforce regulations that varied across jurisdictions. For some growers, mental health has suffered and all of us have felt additional stress. The government is aware of this situation and has developed programs and public service announcements to urge farmers to seek assistance if needed.

Having participated in many Zoom meetings with the Federal and Provincial Ag Ministers, I would say that they understand the need for the SAWP program and the changes we are proposing to the Business Risk Management programs. We have stressed many times that we simply could not grow apples in Ontario without our seasonal agriculture workers. None the less, we do face increased regulation in the coming years, and we are providing feedback to the various levels of government regarding the sector's needs, most recently on worker housing requirements. A major frustration for growers with seasonal worker housing was the patchwork set of regulations across Ontario. Each Public Health Unit – and there are 34 of them – has their own ability to set regulations and this makes it confusing for everyone.

The 2020 crop is certainly a vintage year. We had a relatively easy winter and, except for the extreme south-west, where there was some frost at bloom, there was a good spring pollination season. Summer was exceptionally hot and dry in most areas and rain was spotty with some districts receiving almost none for several months. Our crop estimates have indicated a larger crop has appeared this fall with excellent colour and flavour. Honeycrisp is having an “on” year.

As we review and analyze the 2019 crop, markets have been tough with demand changing from tray pack to bagged apples as the pandemic hit. Prices for our older varieties have not kept up with the cost to produce them and so I am sure there are many of you examining your variety mix and blocks with a keen eye on productivity and efficiency.

The Board met pre-pandemic lockdown and developed a new five-year strategic plan for the OAG. We have changed the vision and mission of the organization and determined the focus areas to ensure our continued success. Thank you to those of you who completed the surveys, your input was instrumental in its development. Please take a few minutes to review the strategic plan in this report.

On behalf of Ontario's apple growers, I would like to thank and acknowledge our many funding partners. The OAG has been fortunate to receive funding from the Canadian Agricultural Partnership, a federal-provincial-territorial initiative. Thank you also to the Apple Marketers' Association of Ontario and Ontario Fruit & Vegetable Growers' Association for their continued funding support of our initiatives.

I would like to thank the Board of Directors and all our staff for their work this year with a special shout out to Brian Rideout, our Vice Chair, and Kelly Ciceran, our General Manager. From the start of my chairmanship, I decided to take a management team approach with Brian and Kelly, and I thank them very much for all their extra work.

We don't know what next year will bring, but I want to let you know that as members of the Ontario Apple Growers, your Board and Kelly will be working hard to tackle the issues as they come. We will listen to you and we will let the government know what we need to keep our businesses healthy.

Respectfully submitted,



Cathy McKay
Chair, OAG



STRATEGIC PLAN 2020-2025

VISION

Ontario apples:
The first pick for
healthy consumers.

VALUES

Integrity
Collaboration
Leadership
Innovation
Respect
Quality

MISSION

To foster a thriving
industry and
sustainable farms
so that consumers
can enjoy a wide
variety of fresh,
locally grown
apples.

OUR WORK

We support the
success of our
members through
promotion,
advocacy,
innovation and
collaboration.

FIVE KEY FOCUS AREAS



Promotion

Promote Ontario apples



Advocacy

For competitiveness and innovation



Information

Keep members informed



Improve

Fruit quality and efficiency through research



Governance

Effective governance and operations

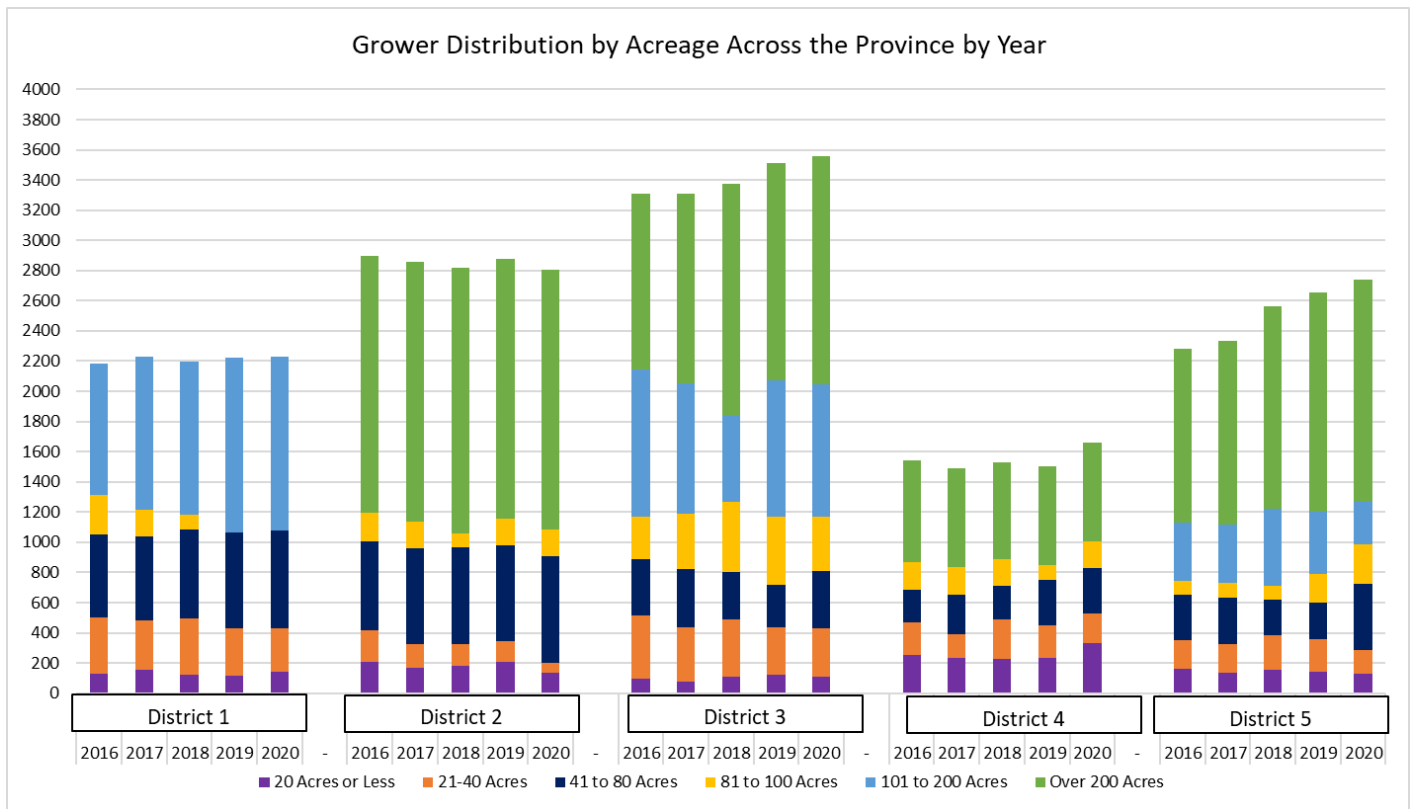


Proudly
representing over
200 Ontario apple
grower members

OAG MEMBERSHIP

District	Number of Grower Members	District Committee Representatives
District 1	36	3
District 2	30	3
District 3	37	3
District 4	37	3
District 5	30	3
Total - Members	170	15
Voluntary Members	52	
Total - All Members	222	

2016 – 2020 OAG Grower Distribution by Acreage

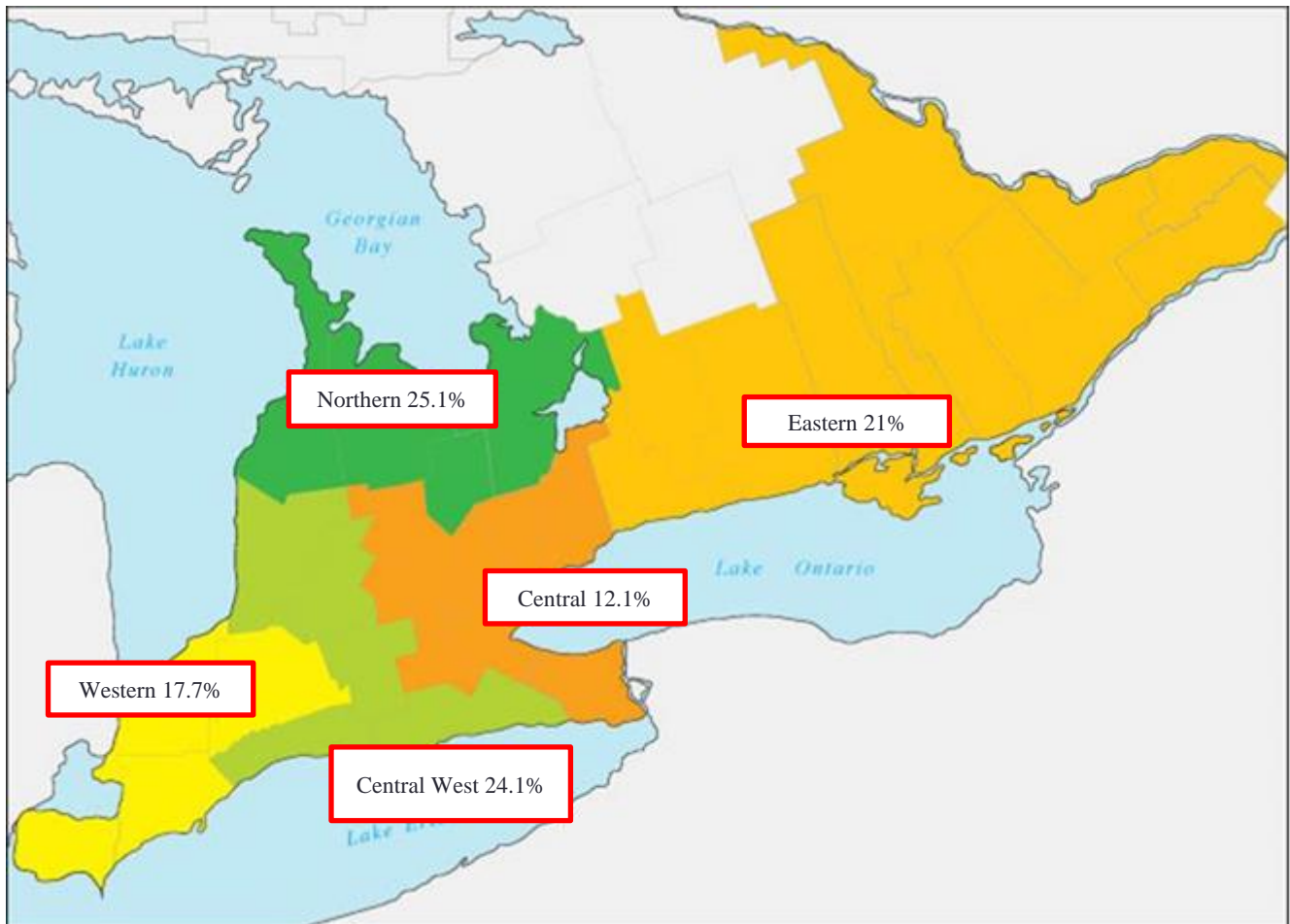


ACREAGE REVIEW

Tree Census

Tree census information (as of January 1st, 2020) included in this report is based on Agricornp’s GPS mapping and information on total acreage provided by Statistics Canada. Agricornp continues to manage the DMS system in partnership with the OAG. The system provides reports on plantings by age, by variety and by district for all OAG members. Statistics Canada estimated that there is a total of 15,237 bearing and non-bearing acres in Ontario in 2020. The assumption has been made that the variety mix for the remaining acres were about the same as for those that were mapped.

Ontario Acreage by District



District Boundaries

District 1 *Western* is comprised of the upper-tier municipalities of Essex, Lambton & Middlesex and the single-tier municipality of Chatham-Kent.

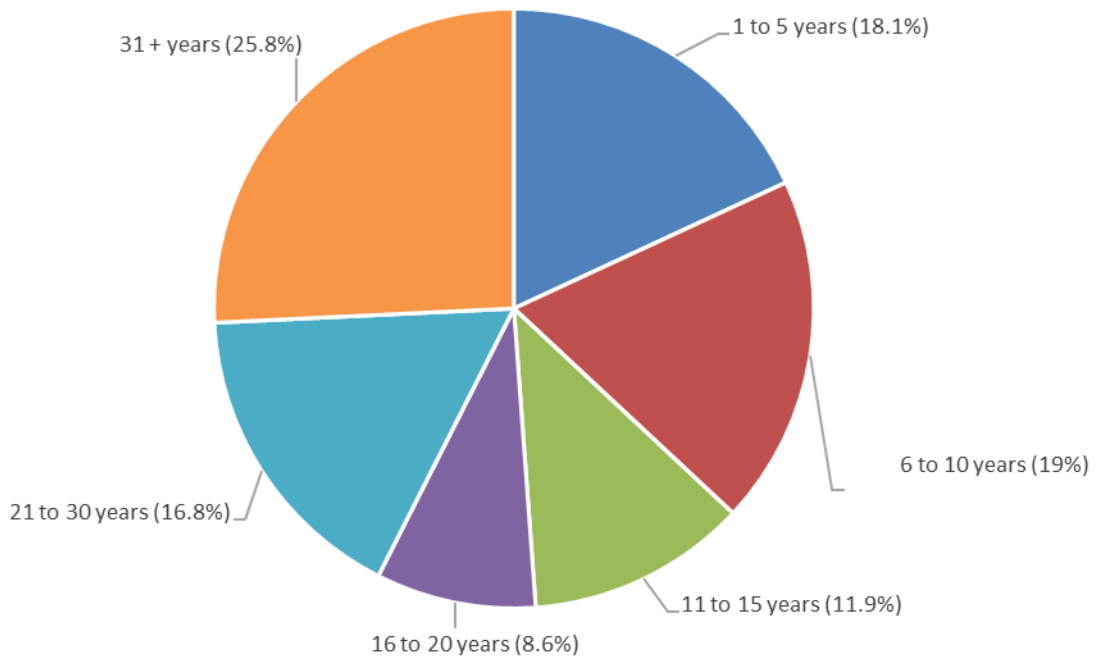
District 2 *Central West* is comprised of the upper-tier municipalities of Huron, Perth, Oxford & Elgin and the single-tier municipalities of Haldimand and Norfolk.

District 3 *Northern* is comprised of the upper-tier municipalities of Bruce, Grey, Simcoe and Dufferin.

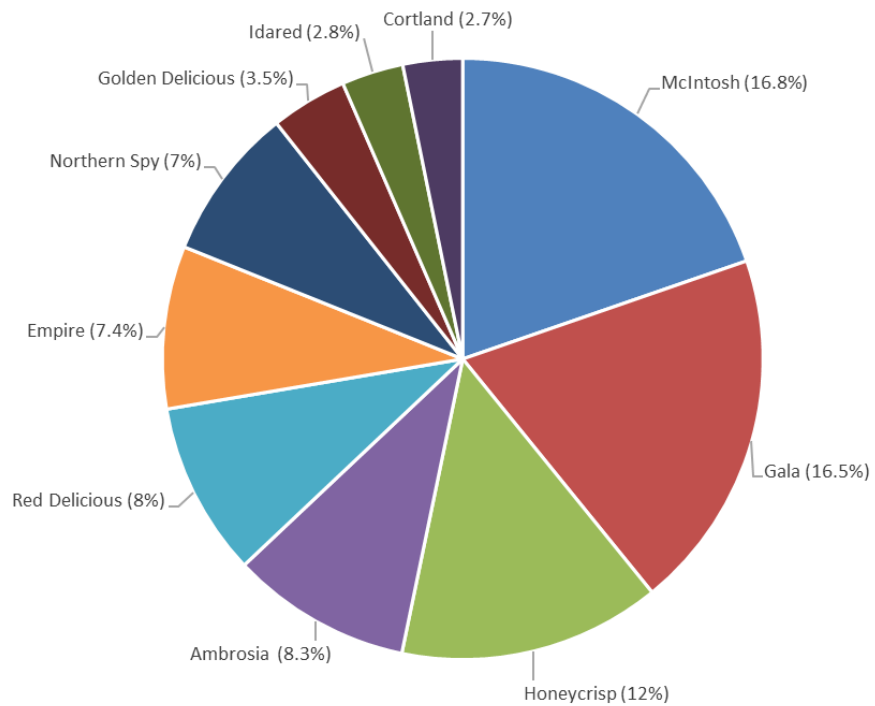
District 4 *Central* is comprised of the upper-tier municipalities of Wellington, Peel, York, Halton, Waterloo and Niagara and the single tier-municipalities of Brant, Toronto and Hamilton.

District 5 *Eastern* is comprised of the upper-tier municipalities of Durham, Northumberland, Peterborough, Frontenac, Hastings, Lannark, Lennox & Addington, Leeds & Grenville, Renfrew & Stormont, Dundas & Glengarry & Prescott & Russell and the single-tier municipalities of Kawartha Lakes, Ottawa and Prince Edward.

2019/2020 Apple Acreage by Age



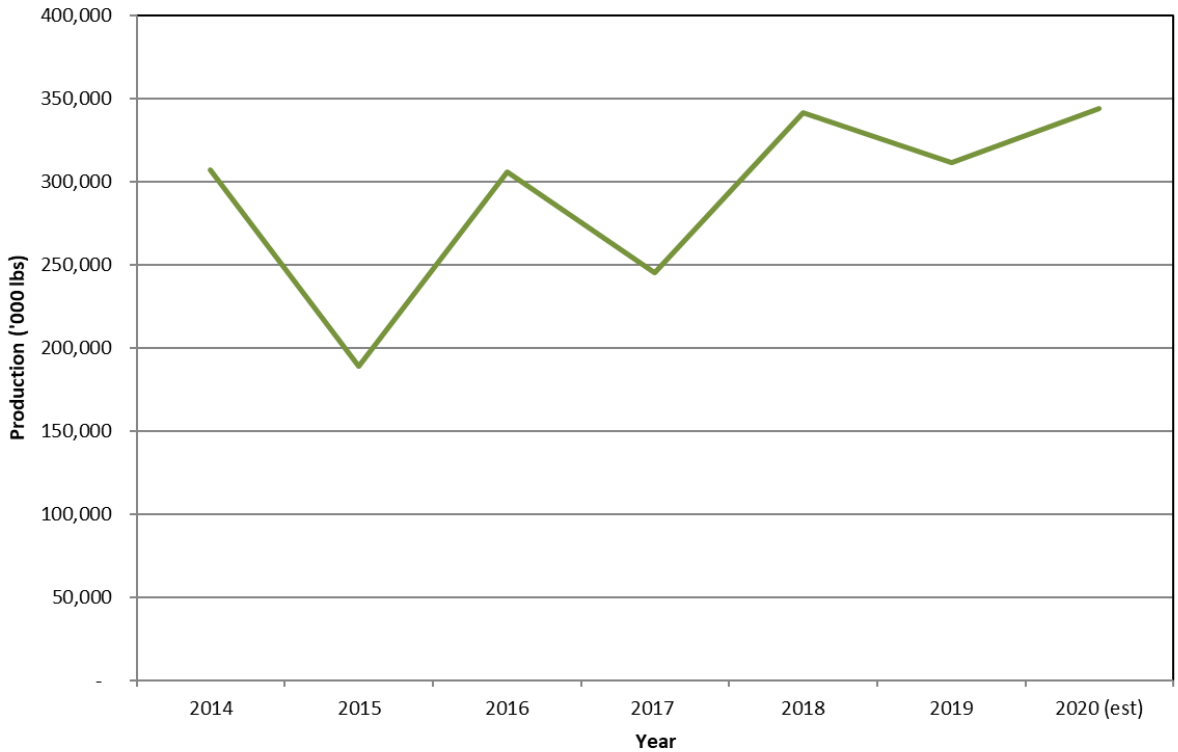
2019/2020 Acreage by Variety Top 10 Varieties



CROP ESTIMATE

Ontario Apple Production - 2015 to 2020		
Years	Production ('000 lbs.)	% Change from previous year
2015	203,533	-38.0%
2016	350,435	72.2%
2017	269,513	-23.1%
2018	361,959	34.3%
2019	311,705	-13.9%
2020 est.	343,749	10.3%
5-year ave.	309,716	
Source: OAG Annual Apple Marketing Survey and Apple Yield Estimate Survey		
*November 2020 estimate excludes orchard juice estimated volumes at this time.		

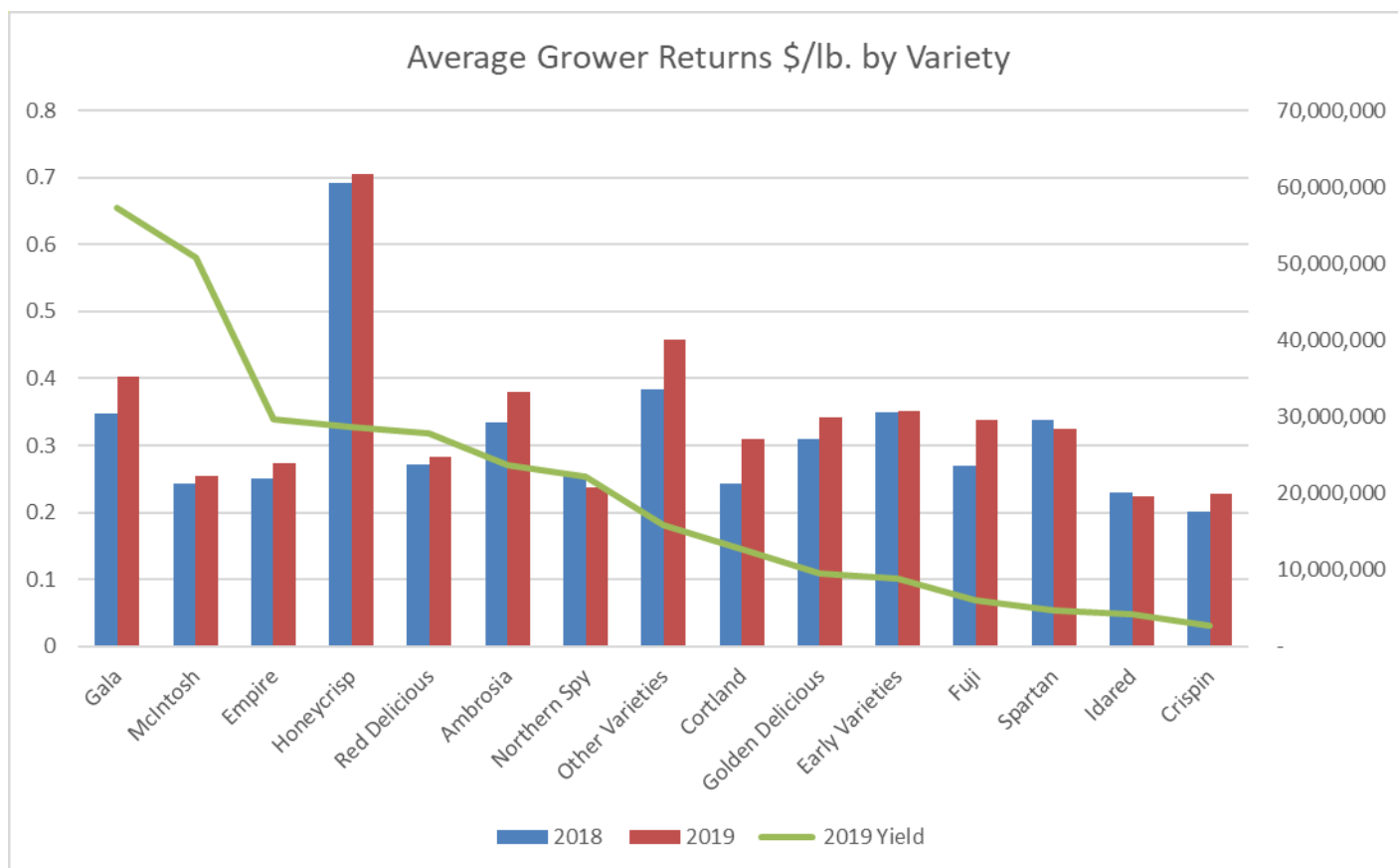
**Ontario Apple Production
2014 to 2020 (est.)**



MARKETING REVIEW

The results of the 2019 marketing survey include comparative figures from the 2018 year begin on page 12. The survey provides the industry average returns per pound and per bin (820 lbs.) by variety and represents the prices for 100% of the apples in the bin, not just those for the fresh market pack out. With this information, growers and packers can compare their results with the average. This information also provides valuable information for government programming.

Prices overall are similar to 2018 pricing though the volume of fruit reported was less for 2019. There were quality issues in some varieties and regions due to the growing and warm harvest conditions in 2019. Average Grower Price for fresh apples (page 13) indicates that pricing was up 3.4 cents per lb. across all varieties. Notably, the three top returning varieties continue to be Honeycrisp, Gala and Ambrosia. In March and April the pandemic drastically changed the retail landscape. While the food system in Canada did not break, it certainly bent. For Ontario apples, retailers asked for more bagged fruit to facilitate convenience and ease for shoppers. On the processing side, there were more challenges during the lockdown which greatly affected sales at foodservice. This dramatically affected the movement of peelers, especially Spy and Idared. With foodservice across Canada still not operating at 100% there will likely be continued challenges for processing in the months to come.



Flyer Ad and Retail Price Tracking

The OAG tracks apple flyer ad activity at major retail. We record retail chain, variety, pack (bulk or bag), price/lb. and country of origin. This information is shared with the apple packers on a weekly basis. Additionally, this year we have started to receive grocery store information on four varieties from Foodland Ontario representatives. Representatives are recording price, tray or bag and share of shelf.

Storage Holdings

The OAG continues to collect storage holdings for the industry. As always, individual storage holder data is kept confidential. Similar information is collected in other apple producing provinces. This information is entered into AAFC's InfoHort system and published on their website. The OAG summarizes the Canadian data and combines it with similar statistics on the U.S. crop and provides it to the marketers, storage holders and our grower members. The reports are shared in the OAG newsletters and are available on the web site. The OAG thanks all the storage cooperators for their excellent participation.



APPLE STATISTICS

ONTARIO APPLE GROWERS					
NOVEMBER 2020 ESTIMATED APPLE YIELD BY VARIETY					
Variety	2018 Production ('000 lbs.)	2019 Production ('000 lbs.)	November 2020 Estimated Production ('000 lbs.)	November 2020 Estimated Production ('000 bushels)	% Change 2020 vs. 2019
Other Early Varieties	8,622	9,159	10,623	253	16.0%
Ambrosia	19,706	24,384	27,670	659	13.5%
Cortland	13,125	13,063	11,275	268	-13.7%
Crispin/Mutsu	2,444	2,818	3,344	80	18.7%
Empire	39,328	30,400	28,403	676	-6.6%
Fuji	2,674	6,176	7,438	177	20.4%
Gala	56,965	58,795	71,138	1,694	21.0%
Golden Delicious	6,995	9,725	11,785	281	21.2%
Honeycrisp	32,903	29,427	48,127	1,146	63.5%
Idared	5,614	4,138	4,683	112	13.2%
McIntosh	63,466	51,781	49,264	1,173	-4.9%
Northern Spy	47,493	22,203	19,201	457	-13.5%
Red Delicious	25,840	28,571	26,714	636	-6.5%
Spartan	4,644	4,754	5,550	132	16.7%
Other Late Varieties	12,003	16,309	18,534	441	13.6%
Total Fresh	341,823	311,705	343,749	8,185	10.3%

2019 ONTARIO APPLE PRODUCTION BY UTILIZATION

PRODUCTION (LBS.)								
Variety	Fresh		Orchard Juice*		Other Processing		Total	
	2019	2018	2019	2018	2019	2018	2019	2018
Ambrosia	23,652,686	19,876,877			95,221	86,586	23,747,907	19,963,463
Cortland	12,350,782	11,589,102			379,871	1,002,396	12,730,653	12,591,498
Crispin (Mutsu)	2,282,437	2,871,153			474,382	465,594	2,756,819	3,336,747
Early Varieties	8,896,001	8,970,113			24,000	316,297	8,920,001	9,286,410
Empire	28,065,018	36,287,856			1,580,384	1,683,731	29,645,402	37,971,587
Fuji	6,014,616	3,715,266			-	20,153	6,014,616	3,735,419
Gala	57,050,215	56,654,572			209,708	193,149	57,259,923	56,847,721
Golden Delicious	9,382,900	8,213,823			89,679	73,883	9,472,579	8,287,706
Honeycrisp	28,608,873	31,680,200			48,650	38,473	28,657,523	31,718,673
Idared	-	506,271			4,138,124	6,088,539	4,138,124	6,594,810
McIntosh	37,359,524	48,141,007			13,416,651	13,525,436	50,776,175	61,666,443
Northern Spy	-	19,610,575			22,203,332	16,749,853	22,203,332	36,360,428
Red Delicious	27,401,353	24,464,184			432,725	161,841	27,834,078	24,626,025
Spartan	3,983,127	4,197,403			663,962	1,289,981	4,647,089	5,487,384
Other Varieties	14,389,382	10,466,341			1,532,239	2,145,668	15,921,621	12,612,009
Mixed Varieties - Juice**	-	-	12,664,718	20,136,021	6,979,240	10,736,498	19,643,958	30,872,519
Total	259,436,913	287,244,744	12,664,718	20,136,021	52,268,168	54,578,078	324,369,799	361,958,843

*Orchard Juice represents apples picked specifically for juice from Ontario orchards.

**Juice production cannot be accurately reported by variety therefore it is reported as a total of mixed varieties.

2019 ONTARIO APPLE GROWER PRICE PER LB.

GROWER PRICE (\$/LB)									
Variety	Net Return/ 820 Lb. Bin	Fresh (\$)		Orchard Juice Processing (\$)		Other Processing (\$)		Average Fresh and Other Processing (\$)	
	2019	2019	2018	2019	2018	2019	2018	2019	2018
Ambrosia	\$ 311	0.380	0.335			0.299	0.172	0.379	0.334
Cortland	\$ 256	0.312	0.248			0.229	0.192	0.310	0.243
Crispin (Mutsu)	\$ 193	0.235	0.206			0.192	0.176	0.228	0.202
Early Varieties	\$ 289	0.352	0.353			0.211	0.266	0.352	0.350
Empire	\$ 228	0.278	0.251			0.206	0.246	0.274	0.251
Fuji	\$ 278	0.339	0.271			-	0.140	0.339	0.270
Gala	\$ 331	0.404	0.349			0.191	0.162	0.403	0.348
Golden Delicious	\$ 281	0.343	0.311			0.135	0.127	0.341	0.310
Honeycrisp	\$ 579	0.706	0.693			0.140	0.140	0.705	0.692
Idared	\$ -		0.225			0.224	0.230	0.224	0.230
McIntosh	\$ 224	0.273	0.252			0.200	0.208	0.254	0.243
Northern Spy	\$ -	-	0.260			0.237	0.259	0.237	0.259
Red Delicious	\$ 232	0.283	0.271			0.204	0.345	0.282	0.272
Spartan	\$ 291	0.355	0.357			0.143	0.273	0.325	0.338
Other Varieties	\$ 396	0.484	0.420			0.220	0.208	0.458	0.384
Mixed Varieties - Juice	\$ -	-	-	0.087	0.087	0.145	0.137	0.145	0.137
Avg. Grower Price - All Utilization (\$/lb)	\$ 322	0.393	0.359	0.098	0.087	0.199	0.213	0.343	0.307
Avg. Transaction - All Utilization (\$/lb)		0.465	0.431	0.098	0.087	0.219	0.233	0.411	0.382

2019 ONTARIO APPLE GROWER VALUE

GROWER VALUE \$								
Variety	Fresh (\$)		Orchard Juice (\$)		Other Processing (\$)		Total (\$)	
	2019	2018	2019	2018	2019	2018	2019	2018
Ambrosia	8,982,246	6,661,404			28,485	14,922	9,010,731	6,676,326
Cortland	3,856,321	2,869,191			87,117	192,367	3,943,438	3,061,558
Crispin (Mutsu)	536,346	591,664			91,285	82,122	627,631	673,785
Early Varieties	3,135,501	3,168,569			5,054	84,237	3,140,555	3,252,805
Empire	7,807,552	9,106,507			325,857	414,190	8,133,409	9,520,697
Fuji	2,039,754	1,005,581			-	2,821	2,039,754	1,008,403
Gala	23,031,764	19,755,966			40,043	31,221	23,071,807	19,787,187
Golden Delicious	3,214,731	2,555,818			12,062	9,384	3,226,793	2,565,201
Honeycrisp	20,190,311	21,951,357			6,824	5,386	20,197,134	21,956,743
Idared	-	113,949			928,933	1,399,686	928,933	1,513,635
McIntosh	10,205,039	12,143,123			2,679,208	2,814,291	12,884,247	14,957,414
Northern Spy	-	5,098,603			5,268,142	4,330,233	5,268,142	9,428,836
Red Delicious	7,760,483	6,636,333			88,468	55,827	7,848,951	6,692,160
Spartan	1,413,213	1,500,427			94,959	352,566	1,508,172	1,852,993
Other Varieties	6,957,540	4,399,802			336,645	447,344	7,294,186	4,847,146
Mixed Varieties -Juice	-	-	1,244,198	1,741,785	1,012,716	1,475,208	2,256,915	3,216,993
Total Grower Value	99,130,799	97,558,293	1,244,198	1,741,785	11,005,800	11,711,805	111,380,797	111,011,882
Total Transaction Value	120,752,868	123,935,177	1,244,198	1,741,785	11,439,961	12,707,796	133,437,027	138,384,758

2019 Ontario Apple Tree Acreage By Variety, By District

Variety Name	1 Western	2 Central West	3 Northern	4 Central	5 Eastern	Total Acreage	2019 % of Total Crop	2018 % of Total Crop
McIntosh	154	608	1,151	186	458	2,556	16.8%	18.1%
Gala	487	708	131	358	836	2,520	16.5%	15.4%
Honeycrisp	284	379	373	241	553	1,830	12.0%	10.6%
Ambrosia	330	270	206	188	266	1,260	8.3%	7.7%
Red Delicious	280	371	75	183	303	1,213	8.0%	8.3%
Empire	245	479	165	84	162	1,135	7.4%	8.2%
Northern Spy	62	240	710	32	29	1,072	7.0%	7.7%
Other	73	72	285	71	122	622	4.1%	3.8%
Golden Delicious	246	121	8	110	43	529	3.5%	3.5%
Idared	66	91	228	15	32	431	2.8%	3.0%
Cortland	37	84	116	77	102	416	2.7%	2.8%
Crispin/Mutsu	81	59	22	95	17	274	1.8%	1.9%
Fuji	122	37	16	39	42	256	1.7%	1.6%
Spartan	8	40	134	15	40	237	1.6%	1.5%
Paulared	36	36	29	25	87	213	1.4%	1.4%
Ginger Gold	56	26	11	23	37	154	1.0%	1.0%
Mixed	35	7	6	56	37	141	0.9%	1.0%
Crimson Crisp	5	5	75	14	8	108	0.7%	0.6%
Jonagold	31	26	14	25	1	97	0.6%	0.6%
Jerseymac	12	2	51	4	1	70	0.5%	0.5%
Golden Russet	15	3	16	8	20	62	0.4%	0.4%
Jonamac	26	5	7	2	0	40	0.3%	0.3%
TOTAL	2,691	3,670	3,829	1,851	3,196	15,237	100%	100%

Notes: Includes bearing and non-bearing acreage in Ontario.

Sources: Agricorp/OAG ADaMS DMS System and Statistics Canada, CANSIM Table 32-10-0364-01

See Ontario Apple Growing Regions section in this annual report for a more detailed description of Districts 1 to 5 above.

Other includes: Aurora Golden Gala, Braeburn, Cameo, Cox's Orange Pippin, Creston, Cripps Pink, Dabinett, Earligold, Elstar, Fortune, Goldrush, Granny Smith, Kingston Black, Liberty, Lobo, Lodi, Macoun, Marshall Mac, Mascad De Dieppe, Melba, Michelin, Nicola, Novaspy, Porter's Perfection, Quinte, Red Prince, Rome, Roxbury Russet, Russet, Salish, Shizuka, Silken, Smitten, Snow, Sunrise, Tolman Sweet, Transparent, Tydeman Red, Viking, Vista Bella, Wealthy, Winesap, Yarlington Mill and Zestar!.

2019/2020 Ontario Apple Tree Acreage By Variety, By Tree Age

Variety Name	1 To 5 Years (2015-2019)	6 To 10 Years (2010-2014)	11 To 15 Years (2005-2009)	16 To 20 Years (2000-2004)	21 To 30 Years (1990-1999)	31 Years and Over (Pre-1990)	Total Acreage	2019 % of Total
McIntosh	120	155	237	173	511	1,360	2,556	16.8%
Gala	707	1,044	250	226	267	25	2,520	16.5%
Honeycrisp	753	385	494	177	21	1	1,830	12.0%
Ambrosia	550	384	264	61	1	-	1,260	8.3%
Red Delicious	155	211	35	86	237	489	1,213	8.0%
Empire	15	40	50	86	461	483	1,135	7.4%
Northern Spy	7	49	55	93	307	562	1,072	7.0%
Other	177	91	201	72	43	78	662	4.3%
Golden Delicious	14	110	46	112	154	93	529	3.5%
Idared	5	21	1	13	82	310	431	2.8%
Cortland	45	87	44	41	93	106	416	2.7%
Crispin/Mutsu	7	23	32	73	67	71	274	1.8%
Fuji	77	89	20	16	46	9	256	1.7%
Spartan	3	7	11	5	79	132	237	1.6%
Paulared	31	52	18	7	26	79	213	1.4%
Ginger Gold	20	36	19	28	49	1	154	1.0%
Mixed	7	8	23	21	30	51	141	0.9%
Crimson Crisp	39	68	0	-	-	-	108	0.7%
Jonagold	15	12	6	6	47	11	97	0.6%
Jerseymac	1	-	1	2	18	48	70	0.5%
Golden Russet	8	1	3	17	17	16	62	0.4%
TOTAL	2,757	2,875	1,810	1,316	2,556	3,924	15,237	100.0%

Notes: Includes bearing and non-bearing acreage in Ontario.

Sources: Agricorp/OAG ADaMS DMS System and Statistics Canada, CANSIM Table 32-10-0364-01

See Ontario Apple Growing Regions section in this annual report for a more detailed description of Districts 1 to 5 above.

Other includes: Aurora Golden Gala, Braeburn, Cameo, Cox's Orange Pippin, Creston, Cripps Pink, Dabinett, Earligold, Elstar, Fortune, Goldrush, Granny Smith, Kingston Black, Liberty, Lobo, Lodi, Macoun, Marshall Mac, Mascad De Dieppe, Melba, Michelin, Nicola, Novaspy, Porter's Perfection, Quinte, Red Prince, Rome, Roxbury Russet, Russet, Salish, Shizuka, Silken, Smitten, Snow, Sunrise, Tolman Sweet, Transparent, Tydeman Red, Viking, Vista Bella, Wealthy, Winesap, Yarlington Mill and Zestar!.

IMPORTS OF FRESH APPLES

(KGS)

PROVINCE	EMPIRE	HONEYCRISP	GALA	GOLDEN DELICIOUS	GRANNY SMITH	IDA RED	MCINTOSH	RED DELICIOUS	UNSPECIFIED	TOTAL
Alberta		11,407	94,815	7,945	46,190		381	32,784	113,917	307,439
British Columbia		1,841,492	21,801,712	1,904,777	9,107,982		25,180	6,739,293	21,858,961	63,279,397
Manitoba		1,645	85,357	22,315	52,637			35,030	38,867	235,851
New Brunswick			360,056	126	183,605			13,274	605,606	1,162,667
Nova Scotia		20,792	392,786		45,829	2,004,276			339,008	2,802,691
Ontario		914,900	26,444,140	2,982,363	11,456,616	19,839	117,332	5,717,769	13,452,723	61,105,682
Quebec		12,669	1,867,439	382,496	1,371,712	42,508		248,342	2,285,702	6,210,868
Saskatchewan			30,109						3,606	33,715
Total By Variety	-	2,802,905	51,076,414	5,300,022	22,264,571	2,066,623	142,893	12,786,492	38,698,390	135,138,310
2018	-	1,026,233	51,931,988	5,726,914	23,622,668	589,341	182,663	14,614,634	36,909,319	134,603,760
variance vs. 2018	-	173%	-2%	-7%	-6%	251%	-22%	-13%	5%	0%
variance vs. 5 yr ave	-100%	266%	-13%	-19%	-13%	151%	-74%	-29%	5%	-9%

IMPORTS - 5 YEAR AVG. 2015-2019

(KGS)

PROVINCE	EMPIRE	HONEYCRISP	GALA	GOLDEN DELICIOUS	GRANNY SMITH	IDA RED	MCINTOSH	RED DELICIOUS	UNSPECIFIED	TOTAL
Alberta		3,569	370,498	27,527	113,588		76	75,811	185,269	776,337
British Columbia	2,280	490,258	21,786,908	2,396,274	9,353,049	20,992	5,036	8,270,580	19,795,104	62,120,481
Manitoba		329	116,013	10,777	30,533		39,539	22,901	40,925	261,017
New Brunswick		2,127	191,692	8,146	60,699		1,776	20,709	231,092	516,240
Nova Scotia		4,158	388,537		9,169	466,978			486,570	1,355,413
Ontario	170,924	261,964	32,322,558	3,762,751	12,316,115	236,516	103,835	8,960,920	13,337,131	71,472,714
Québec	116,658	2,534	3,361,103	351,317	3,730,006	98,730	399,314	577,196	2,752,116	11,388,973
Saskatchewan		889	153,789	1,216	27,349			8,733	91,843	283,820
Total by Variety	289,862	765,828	58,691,097	6,558,007	25,640,509	823,216	549,576	17,936,850	36,920,049	148,174,995

Note:

Quantity is report in KG

The province denotes the port of entry and may not necessarily reflect the final provincial destination of imported apples.

Source: Statistics Canada

PROMOTING ONTARIO APPLES

The Ontario Apple Growers objectives for this strategic direction are to build consumer preference for Ontario grown apples and enhance knowledge and confidence in how apples are produced to increase public trust.

Instore Sampling Program

Over the past few years OAG has engaged in instore sampling events to introduce consumers to the newer varieties of apples we grow, while also educating them on all available varieties in Ontario. This program is a particular favourite as it provides measurable results and sales data. Highlights from this season's campaigns are as follows:

- ✓ 108 stores executed throughout February 2020
- ✓ 26,652 kg of apples sold overall
- ✓ 27% sales lift over previous week
- ✓ Cart posters developed and prominently displayed to remind shoppers that "Ontario apples are available all winter long"



Craft Cider Sampling Event

- ✓ Took place October 11 & 12, 2019 (Thanksgiving weekend) at Sobeyes & Loblaws
- ✓ 5,565 apple samples distributed alongside samples of Ontario craft ciders
- ✓ Shoppers appreciated the fresh, crisp taste of the apples and felt it was the perfect time of year to sample
- ✓ Shoppers loved supporting Ontario products
- ✓ Craft cider and apple cheddar bread recipe provided as a takeaway



World Cuisine Recipe Development

To expand our ever-growing recipe database and really showcase the versatility of apples in meals, we worked with a local chef to develop 10 new recipes sourced from signature dishes loved around the world. The collection was turned into a beautiful booklet used for distribution during instore sampling and direct-to-consumer events such as the Royal Agricultural Winter Fair. Micro videos were also created to support our social media campaign.

Food Influencers

OAG enlists the services of food and lifestyle bloggers each season to ensure maximum coverage for Ontario apple content in order to reach a diverse consumer base across all social networks. Working with influencers we decided to repurpose previously developed materials and share them in new and innovative ways:

- ✓ 4 unique meal plans were crafted by influencers using the OAG recipe database, combined with some of their own previously developed recipes
- ✓ A 5-day plan was created with apples in every meal to demonstrate versatility in both sweet and savoury dishes any time of the day
- ✓ Content was shared on influencers' Blogs, Facebook, and Instagram feeds, including their stories and highlight reels
- ✓ OAG created a blog post combining all 4 plans and shared on our social media and website

Media Outreach

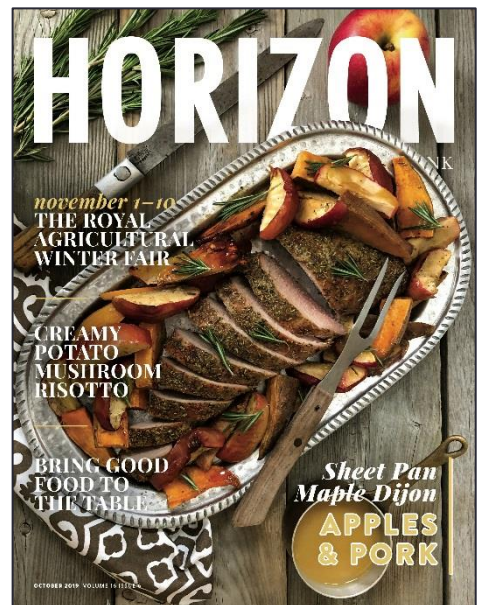
- ✓ CTV Morning Live on October 10, 2019 (Chef Jonathan Collins)
 - Thanksgiving turkey tips which included apple stuffing recipe
 - Chef demonstrated how to cut an apple quickly, suggested using fresh local ingredients & mentioned use of Gala apples in featured recipe
- ✓ CTV Kitchener on December 2, 2019 (RD Carol Harrison)
 - Healthy snacks for around the holidays featuring Ontario apples
- ✓ CHCH Hamilton - April 9, 2020 (RD Shannon Crocker)
 - 'Food Strategy' for making the most of your grocery shops/what you have in the pantry during the pandemic

Print and Digital Media

OAG executed a robust program this season in terms of print and digital marketing. A full-page advertorial was featured in the October 2019, January 2020, and April 2020 issues of Horizon Food & Travel Magazine with our sheet pan apples and pork tenderloin recipe making the cover of the fall issue (pictured right). In January, we shared our 'world cuisine' Ontario apple borscht and in April had a healthy Ambrosia salad featured to welcome in the Spring. In conjunction with the magazine placements, Ontario apple availability was advertised on video billboards in Dundas Square and on screens throughout the TTC Path.

In addition to our Horizon ads, we were included in the March/April 2020 issue of Condo Nest magazine as well as their elevator screens in 132 condos across the GTA.

This low cost, high impact campaign saw a combined 500,000+ impressions and reached an audience of 325,000.





Social Media

An increase in followers was noted across all platforms this year with the largest being seen in our younger demographic on Instagram and YouTube, gaining over 200 followers and 450 views, respectively. Our following and page likes at the end of our winter campaign were as follows:

- ✓ 10,762 Facebook Likes
- ✓ 2,870 Twitter Followers
- ✓ 1,456 Instagram Followers
- ✓ 1,300 YouTube Views

Consumer Outreach

We can all agree that beginning in March 2020, this year looked vastly different in terms of consumer outreach events and sponsorships. Luckily, OAG staff had the opportunity to take part in some very special events prior to the ‘physical distancing’ rules that are in place today. In a typical year, OAG donates over 10,000 apples annually to various causes, which includes but is not limited to:

- ✓ Breakfast on the Farm: September 14, 2019
- ✓ Toronto’s Run for the Cure: October 6, 2019
- ✓ Ontario Physical Literacy Summit: October 11, 2019
- ✓ Canada’s Table – A celebration of local food: October 19, 2019
- ✓ Royal Agricultural Winter Fair: November 1 – 3, 2019
- ✓ Produce Made Simple Ambassador Apple Event: February 6, 2020 (see details below)
- ✓ Hungry for Comfort: February 9, 2020

Produce Made Simple

Ambassador Cooking with Ontario Apples Event

Ontario Produce Marketing Association’s (OPMA) Produce Made Simple Ambassadors and OAG staff participated in a unique event where two teams of foodies faced off “Iron Chef” style to create a three-course meal using 6 different Ontario apple varieties based on their best uses and flavour profiles. On-site chefs then judged the meals to determine a winning team (pictured); however, attendees were able to enjoy both meals that evening so everyone went home feeling like a winner! Live videos from the event were shared out via the Ambassadors and the OAG, which gained over 1.3 million impressions. A consumer contest also took place offering a delicious variety pack of the same 6 apples used in the cook-off for a prize, along with several Ontario apple recipes for inspiration. The contest received a whopping 442 entries in total!



Other Produce Made Simple Activities

The Produce Made Simple marketing team promoted Ontario apples through several platforms this year including their website, newsletters, and social media channels. We greatly value this partnership as it contributes huge results to our generic apple program overall:

- ✓ 5 new recipes added to database
- ✓ 2 website homepage features
- ✓ bi-weekly newsletter showcasing Ontario apples in recipe features and videos
- ✓ social media campaign sharing key messaging (availability, versatility, storage, nutrition)
- ✓ 1.7 million program impressions

Foodland Ontario Activities

Radio Tags

- ✓ 1 week of radio tags (60-100 tags) aired in 67 radio markets
- ✓ Release dates were September 9, October 7, October 14 (Agriculture Week) and 28

Television Appearances

- ✓ Ontario Apples were featured in 9 television appearances, reaching an audience of 88,800 Ontario consumers
- ✓ Editorial value of \$154,000

Recipe Releases and Newsletter

- ✓ More than 450 print/online and broadcast media outlets write and talk about fresh Ontario food
- ✓ Ontario Apples were featured in the September 2019 recipe releases and the Autumn issues of Fresh Perspectives

Website and Calendar

- ✓ Approximately 100 recipes can be found that feature Ontario Apples
- ✓ Featured in the 2019 Calendar in December in the Maple, Apple and Carrot Layered Cake recipe and in the Availability Guide with 250,000 English and 2,500 French copies distributed



Point of Sale Materials (POS)

Over 16,000 pieces of point of sale (POS) material were physically placed by the Foodland Ontario field team during their regular merchandising visits. Materials include balloons, banners, base wrap, channel strips, clings, commodity cards, posters, danglers, flags, logo cards, magnets, price cards and stickers.

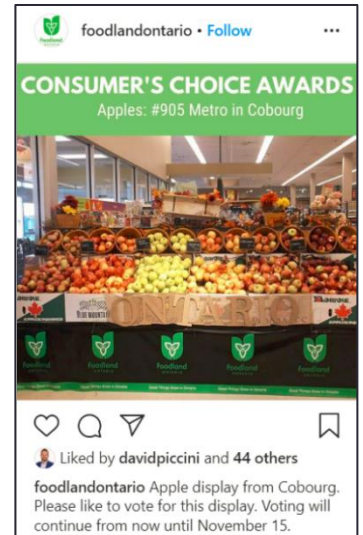
Retailer Display Contest

The contest ran from September 16, 2019 through November 30, 2019 and had 337 entries!

Foodland Social Media

Foodland Ontario posts in relation to Ontario Apples had a huge impact this season! We greatly appreciate their efforts across the following platforms:

- ✓ Facebook apple posts reached 199,802 users and initiated over 4,300 engagements
- ✓ Instagram apple posts generated 63,6242 impressions and 7,572 engagements
- ✓ Twitter apple posts gathered 55,146 impressions and 1363 engagements
- ✓ Pinterest apple posts generated 227 impressions



ADVOCATING FOR COMPETITIVENESS AND INNOVATION

The Ontario Apple Growers objectives for this strategic direction are to:

- ✓ Advocate to maintain and improve access to crop protection tools to ensure grower competitiveness and sustainability
- ✓ Ensure growers have a reliable access to a qualified workforce
- ✓ Improve effectiveness of Business Risk Management (BRM) programs to help growers manage risks and stimulate industry growth
- ✓ Reduce regulatory overload on growers

AgriStability

AgriStability covers margin declines caused by any combination of production losses, adverse market conditions or increased costs. If a producer's margin falls below 70% of their recent average, AgriStability helps to offset the difference. The following table shows Apple AgriStability Program participation and payments. Reporting is done by sector and can fluctuate year to year, as the annual sector determination is based on program-year reported income. Sector determination (apple, G&O, cattle, etc.) is based on income at or greater than 50% of total reported income in the program year. This means that an "apple" producer could be reported as a grain and oilseed producer (for example) if their apple income is less than 50% of their total reported income in a given year.

AgriStability Apple Statistics

(as of October 30, 2020)

Year	Processed	Payments	Total \$	Average \$
2019	109	11	251,868	22,897
2018	140	24	823,569	34,315
2017	147	27	1,126,733	41,731
2016	159	27	621,918	23,034
2015	176	21	1,300,909	61,948
2014	194	56	1,987,648	35,494
2013	177	30	1,168,185	38,940
2012	206	89	2,343,273	26,329

Note: Processing statistics represent files processed as of October 30, 2020. Potential for additional Apple file processing and payments is possible as processing for 2019 continues.

Agri-Insurance (Production Insurance)

Production Insurance covers production losses and yield reductions caused by insured perils. Growers can choose the type and level of coverage that best meets their needs. The OAG communicates to government the needs and ensure a production insurance plan that is responsive to the changing needs of the Ontario apple sector.

Apple Crop Insurance, 2012 – 2020 (as of October 2, 2020)

Year	Accounts	Liability (\$000's)	Total Premiums* (\$000's)	Grower Share of Premiums (\$000's)	Total Claims** (\$000's)
2020	140	75,501	8,901	4,670	unknown
2019	137	69,503	9,863	5,170	6,384
2018	135	62,202	9,292	4,811	4,569
2017	134	58,628	8,038	4,211	12,654
2016	142	49,843	8,632	4,516	2,835
2015	140	45,427	7,077	3,432	13,735
2014	143	41,128	7,868	4,112	2,828
2013	144	33,755	7,053	3,675	4,632
2012	140	34,866	3,482	1,528	26,858
5-year average (2015 - 2019)	138	57,121	8,181	4,216	7,324

* Total grower and government premiums

**Claims data refers to approved claims only

AgriInvest

AgriInvest is an additional business risk management program that producers can use to either cover small income declines or support other investments. Each year, producers can deposit up to 100% of their Allowable Net Sales (ANS) with the first 1% matched by governments. The limit on matching government contributions is \$10,000 per year. ANS are the net sales of most primary agricultural commodities. Producers can withdraw funds at any time.

Self-Directed Risk Management (SDRM)

Ontario's Risk Management Program (RMP) helps producers manage risks beyond their control, like fluctuating costs and market prices. Under the RMP plan for edible horticulture, producers deposit funds into self-directed risk management (SDRM) accounts and the deposit is matched by the government to help mitigate risk associated with farm business.

Agricorp sends personalized participation forms along with the Handbook (for new participants) and the Rates, Dates and Updates Information Sheet to eligible producers in September. The participant handbook and information sheet work together to provide all the information you need to participate in SDRM.

The Ontario government has announced an increase in available funding for the Risk Management Program (RMP), from \$100 million to \$150 million, starting with the 2020 program year. RMP helps farmers manage risks beyond their control, like fluctuating costs and market prices.

Commodity Loan Program (CLP) & Advance Payments Program (APP)

Apple growers currently have access to two government cash advance programs through Agricultural Credit Corporation. Both programs are available to all apple growers in Ontario.

The **Commodity Loan Program (CLP)** is a provincial government cash advance program that provides up to \$750,000 of available financing at bank prime rate. The program begins January of each year, and advances are required to be paid the following year in September (19 months). Producers must utilize production insurance to participate.

The **Advance Payments Program (APP)** is a federal government cash advance program that provides up to \$1,000,000 in available financing to producers with the first \$100,000 interest free and the balance at the bank prime rate. Apple growers can access this program starting April 1st of each year based on anticipated production using either Production Insurance or AgriStability insurance. After October 1st of each year, security may be based on inventory on hand, without the Production Insurance or AgriStability requirement.

The application process can be completed by the producer by simply contacting Agricultural Credit Corporation office and completing the application over the phone with one of their trained staff. Producers who are interested in applying or have questions regarding either program can contact the ACC office for further information at 1-888-278-8807 or by visiting www.agcreditcorp.ca for details and updates.

KEEPING MEMBERS INFORMED

This year, communications to the membership certainly took on a different tone and urgency. While our newsletters continued to be sent to the members, either by email or regular mail, there was an increase in email communication informing and sharing information about the pandemic and impacts to the horticulture sector. The OAG also continued to distribute OMAFRA's *Orchard Network Newsletter* four times a year.

In early 2020, the OAG Board and staff began planning the Orchard Summer Tour to be held east of Toronto. Unfortunately, plans for the event were cancelled due to the pandemic. The Board will plan for another tour when the timing is appropriate for everyone's health and safety.

The OAG web site continues to house a lot of information. A Covid-19 Resources page was added under the "Grower" section. Additional information including newsletters, industry statistics and information are always available here as well. OAG members can log into this at any time with their grower number. There is also a Classifieds section on the Grower section of the website.

Worker Health & Safety

In April the OAG, in partnership with Ontario Tender Fruit and Fresh Grape Growers, developed an Infection Control and Prevention Policy for members. This document is an addendum to the previously

provided Health and Safety Modules for the sector. The documents are developed by Worker Safety & Prevention Services (WSPS).

Pick-Your-Own Covid-19 Guidelines

Working with OMAFRA specialists and the Ontario Berry Growers, the OAG developed a guidance document for Pick-Your-Own apple operations and held a webinar to share the information. Ultimately, the protocols that needed to be followed are specific to the Public Health Unit in which the farm operates but this document provided a starting point of the many things that need to be considered when opening to the public. The document is available upon request or from Covid-19 resources web page.

CropTracker

The web-based system CropTracker is available to Ontario Apple Growers members as an online system providing a comprehensive tool for growers. Developed especially for the fruit and vegetable industry, the Canadian-made crop management software platform is used by growers, associations, and cooperators of all sizes. The platform schedules and tracks chemical usage, monitors employees and harvest on site, cuts operational costs associated with creating GAP reports and auditing, enhances traceability, and provides data so operators can make more informed decisions.

In partnership with the Ontario Tender Fruit Growers and the Fresh Grape Growers, we have helped develop modules to integrate aggregate data collection and reports that are used by the sector. For example, Form 1s, storage holdings, yield estimates and marketing information will be submitted electronically through the system reducing the time for data entry. The development of this enterprise system will speed up data collection and dissemination of information which will greatly benefit the activities undertaken by the OAG.

Cost of Establishment and Production

In 2019, the OAG updated the Cost of Establishment and Production (COP) for Ontario apples. The updated report uses 2018 costs and aims to reflect the current management practices presently being used by apple growers today. The COP provides information for both high-density and medium-density planting systems. The document is available upon request.

Economic Impact Study

The Ontario Apple Growers, Ontario Tender Fruit Growers and Ontario Fresh Grape Growers' Marketing Board partnered to conduct a 2019 Economic Impact Study of the Ontario tree fruit and fresh grape industry. This project included three new videos about the sectors. Funding was provided by the Canadian Agricultural Partnership.

The Ontario apple, tender fruit and fresh grape sectors continue to be increasingly efficient. There are investments in advanced technologies (at all levels – growing, packing, shipping and processing), improved storage techniques and the gradual conversion of older orchards and vineyards to newer varieties and higher-density orchards for certain crops. Given the extensive range of activity taking place across the entire industry in Ontario, a comprehensive industry economic impact assessment is a valuable tool to inform industry stakeholders and farmer members of the total impact and value-add of such a range of activities, and appropriately strategize for the future. A copy of the report is available upon request.

Ontario Young Apple Farmers

Since 2014, the Ontario Young Apple Farmers group has been bringing together new and young apple farmers in Ontario as a way for them to network and learn from each other. The group continues to grow with over 60 members. The group also tries to meet face-to-face each year but that was not possible this year. The group continues to use the texting app called “*What’s App*” to continue their conversation and learn from each other daily.



IMPROVING FRUIT QUALITY AND ORCHARD EFFICIENCY

Research and Development

The OAG has secured more than \$333,000 in research grant funding this year while providing \$39,428 in grower seed funding to additional projects. Each year, the Research Committee meets with research extension staff to review minor use priorities and discuss research project results and proposals. Our research priorities are as follows:

1. Technology, Mechanization, Automation & Efficiencies

Increased production efficiencies using the latest technologies and precision agriculture that take into consideration the economic viability for apple growers. Research could include:

- Labour efficiencies
- Pest management and crop protection efficiencies
- Weather risk efficiencies
- Water use efficiencies
- Modelling (for example, Ontario solutions using existing models for crop load management and integrated pest management)
- Remote sensing, software development and robotics
- Technology in storage and packing efficiencies
- Orchard design

2. Sustainable Practices

Optimizing sustainable cropping practices for conventional or organic production according to variety and climatic conditions. Research could include:

- Crop load management
- Training systems
- Carbon capture
- Irrigation
- Fertigation
- Soil management
- Nutrition

3. Maximizing Quality & Minimizing Losses

Crop maturity management and post-harvest storage conditions and treatment strategies with the goal of delivering a larger percentage of high-quality fruit for the fresh market. Research could include:

- Post-harvest research developing storage regimes for in-demand varieties
- Optimal harvest management and timing
- Strategies to reduce storage disorders

4. Variety & Rootstock Development and Evaluation

Variety and rootstocks development and selection according to consumer preferences and their performance in the different regions with the goal of achieving greater market share. Research could include:

- New variety breeding and evaluation
- Scion and Rootstock evaluation (i.e. winter hardiness, drought efficiency)
- Genomics
- Consumer preference studies

Pest Management Priorities

We have chosen not to assign a priority number to this section and that should not be construed to mean that it is of low priority. Apples have a complex pest and disease profile and having the adequate strategies to deal with these issues is critical to the viability of the sector.

Development and adoption of sustainable Integrated Pest Management (IPM) practices and resistance management for conventional and organic orchards. Research could include:

- Strategies for management of fire blight.
- Development of an integrated approach for difficult diseases and disorders. For example, but not limited to, the canker complex and replant disease complex.
- Evaluate the efficacy of sprayer application methods. For example, but not limited to, border sprays, alternate row spraying and use of new equipment designs.
- Due to the loss of broad-spectrum crop protection products, evaluate management strategies and pesticide efficacy.
- Investigate new application or IPM technology.
- Strategies for monitoring, intervention and management of invasive species and emerging issues. For example, but not limited to, BMSB, Spotted Lanternfly and Sudden Apple Decline (SAD).

The following is a synopsis of the many research projects that the Ontario Apple Growers has either managed or provided support (financially or in-kind).

Fire Blight Risk During 2020 Bloom – Kristy Grigg-McGuffin, OMAFRA Horticulture IPM Specialist and Michael Pupulin, OMAFRA Summer Student

Fire blight is a very devastating bacteria disease of apple and pears. The models available (Maryblyt and Cougar Blight) are intended to be site specific. However, many apple growers have indicated time constraint challenges in collecting and entering environmental data daily into the models to determine fire blight infection risk during bloom. The 7-day weather forecast data from 72 sites, representing most counties in southern and eastern Ontario where apples are grown, was put into the Cougar Blight model and updated 3 times per week during apple blossom time May 1 - June 18, 2020. Regional risks were developed into animated maps that were posted on the ONfruit blog and the link was emailed to OAG

members. A recap of the year can be found on ONfruit at <http://www.onfruit.ca/fire-blight-map>. Overall, Cougar Blight infection risk potential was high to extreme for most areas of the province from May 22 – June 12, 2020.

Improving outcomes for Ontario apple producers through precision agriculture and labour efficiency strategies – Dr. J. Cline, C. Bakker and L. Reis (University of Guelph) and J. Molenhuis (OMAFRA)

A three-year University of Guelph/OMAFRA Alliance project funded in part by the OAG, was initiated in 2020 to investigate advanced precision crop load management strategies and mechanical pruning in Ontario apple orchards. The overall aim of the project is to reduce the reliance on manual labour, increase orchard fruit quality and efficiency, and decrease the need for manual hand thinning and pruning.

The components of the research are:

- A. Crop load management
 - a. Compare and validate crop load management models in development or not in use in Canada (Carbohydrate Model, Pollen Growth Tube Model and model called BrevisSmart in development by ADAMA)
 - b. Evaluating the pollen tube growth model developed and used in the USA
 - c. Determine the effect of chemical thinning on uniformity (variation) in fruit size distribution
- B. Exploring the benefits of mechanical hedging
 - a. Measure the cost-benefit analysis of mechanical hedging on labour savings
 - b. Measure apple tree response to mechanical hedging at different timings in combination with dormant hand pruning on tree health
 - c. Perform a cost-benefit analysis of hedging in the winter and summer for the purpose of reducing labour, increasing light penetration (summer) and increasing bud formation (summer)

The project is funded by the Ontario Agri-Food and Innovation Alliance with support from the Ontario Apple Growers.

Incidence, the timing of infection, and management of bitter rot in Ontario - Asifa Munawar (University of Guelph)

The apple bitter rot project has four objectives,

1. Determine the incidence of bitter rot in Ontario apple orchards using both symptomatic and asymptomatic fruit samples.
2. Investigate the timing of infection on apple fruits and co-relate it with weather data.
3. Determine the sensitivity of *Colletotrichum fioriniae* isolates to pyraclostrobin and captan.
4. Evaluate the efficacy of different fungicides and calcium chloride to control bitter rot, identify fungicides with potential for registration, and collect data to support registration.

The work in progress and the results for each objective is discussed on the next page:

Objective 1: Incidence of bitter rot in Ontario apple orchards using both symptomatic and asymptomatic fruit samples:

Thirteen growers from districts 1, 2, 3, and 5 participated in the bitter rot field and storage survey in 2019. Two cultivars, 'Empire' and 'Ambrosia' were scouted for bitter rot symptoms. However, if a participating grower did not have either of the above cultivars, the next choice was 'Honeycrisp' or 'Gala'. The data collected from the study was used to calculate the incidence of tree and fruit infection of bitter rot in the field and storage.

Results - The analysis of the field data showed the incidence of tree infection ranged from zero (for some orchards) to as high as 37.5 % whereas the fruit infection across Ontario remained low <1%. This is because of the number of fruit infected per tree in most orchards were low. In terms of the average tree infection, district 2 has a higher bitter rot incidence followed by districts 5, 1, and 3. The analysis of storage data showed a higher incidence of tree infection (0 - 80%) and fruit infection (0 - 20%). In terms of average infection in storage, district 2 has higher bitter rot followed by districts 1, 5, and 3.

Overall, the incidence of bitter rot remained low to moderate in 2019. The results of this study were also published in the Orchard Network Newsletter and letters detailing the results of the 2019 survey were also sent to all the participating growers. The survey is being repeated in 2020 with the inclusion of orchards from District 4.

Objective 2: Investigate the timing of infection on apple fruits and co-relate it with weather data.

The work on this objective was started in June 2020, the selected apple fruits were inoculated with bitter rot spores weekly until September 10, 2020. The treated fruits were harvested on September 17, 2020. The fruit was stored at 4°C for four months and will be assessed for bitter rot symptoms in February 2021. The asymptomatic fruits were also collected weekly starting in June 2020 and incubated to observe bitter rot symptoms. The field and weather data were collected during the 2020 field season. The rainwater was also collected from the study to determine a load of bitter rot spores in the orchard. The results of this study are being compiled and will be available after storage assessment in March-April 2021.

Objective 3: Determine the sensitivity of *Colletotrichum fioriniae* isolates to pyraclostrobin and captan.

In our preliminary work on eight isolates of *C. fioriniae*, the fungus was found sensitive to pyraclostrobin at lower concentrations and captan at higher concentrations.

This work will continue in year 3 (2021-2022) of the project.

Objective 4: Evaluate the efficacy of different fungicides and calcium chloride to control bitter rot, identify fungicides with potential for registration, and collect data to support registration.

The work on this objective was delayed and could not be started in the 2020 field season due to COVID-19. An extension request has been submitted to the Ontario Agri-food and Innovation Alliance. The work for this objective is planned for the 2021 field season.

The project is funded by the Ontario Agri-Food and Innovation Alliance with support from the Ontario Apple Growers.

Using Genetic Tests to Confirm Herbicide Resistant Weeds – Kristen Obeid, OMAFRA Weed Management Specialist - Horticulture

Since 2016, this project has created 16 genetic quick tests (5 more in progress) to assist in identifying herbicide resistance in 12 weed species and confirmed 94 new cases of herbicide resistance in horticulture crops. These tests deliver a diagnostic and a recommendation to the grower within the same growing season. Traditional resistance testing in the greenhouse can take from three months to a year to get results back to growers. Now, leaf tissue instead of seed is collected. DNA is extracted from the leaf tissue to determine if there is a change in the sequencing resulting in a mutation making the plant resistant.

Tests have also been developed to differentiate between Brassica and Amaranthus (pigweed) species. Tests differentiating pigweed species have been instrumental in confirming new cases of waterhemp in Ontario, Manitoba and Quebec. Once confirmed, the waterhemp was tested for Groups 2, 5, 9 and 14 resistances.

The most significant trend is the number of fields with multiple resistant species:

- Common ragweed resistant to herbicide Groups 2 and 5 in pumpkins and soybeans
- Redroot and green pigweed resistant to herbicide groups 2 and 5 in tomatoes
- Redroot and green pigweed resistant to herbicide Groups 5 and 7 in carrots and potatoes
- Waterhemp resistant to herbicide Groups 2, 5, 9 and 14 in asparagus, peppers, soybeans and corn

Another significant trend is the increased documentation of Canada fleabane resistant to glyphosate (Group 9) in apples, grapes, carrots, onions and pumpkins.

This testing has been instrumental in documenting new cases of herbicide resistant weeds. 80% of submitted weed samples tested positive. Once confirmed producers were provided the resistance profile enabling a change in management to mitigate spread. Producers, agri-business and consultants that participated in the project were pleased with the timely results and welcomed the in-season management recommendations.

There are many more undocumented cases of herbicide resistant weeds in Canada. The resistance mechanism is unknown for most of them. The major concern is their distribution and economic impact for producers. Knowing where resistant biotypes are located will improve management and maintain the longevity of our crop protection tools.

Testing is now being completed in Ontario by Harvest Genomics: www.harvestgenomics.ca

Project partners, along with the OAG, include AAFC, AAFC-PMC, Bayer CropScience Inc., FMC Corporation, FVGO, MAPAQ, OFVGA, OPVG, and Syngenta Canada Inc.

Canadian Tree Fruit Products Development – Erin Wallich, Summerland Varieties Corporation, Amanda Green, OMAFRA, Leslie Huffman, Maureen Balsillie, Larissa Osborne, OAG

The Grower Testing project is led by the British Columbia Fruit Growers' Association (BCFGA) in partnership with Ontario Apple Growers (OAG), Summerland Varieties Corp. (SVC), Scotian Gold and the Québec-based consortium, Le réseau d'essai de cultivars et de porte-greffes de pommiers (RECUPOM).

The partners work with the apple breeding staff at Agriculture and Agri-Food Canada’s Summerland Research and Development Centre (Summerland RDC) in Summerland, BC to test promising new apple selections under a range of growing conditions. The project receives funding through the Agri-Science Program and will continue for another 4 years with funding from the federal government and all the partners, including those mentioned above plus Vineland Research and Innovation Centre (Vineland).

For more than 9 years, 10 grower-cooperators across the province planted advanced selections of apple breeder’s selections to evaluate for suitability for various climatic regions and markets in Ontario. Each cooperator was provided with the trees and asked to plant a supported system. The OAG would like to thank our cooperators for the time and expertise that they have provided to this project.

Below is a chart of the plantings since 2012:

Year	Sites	Selections
2012	11	7 (AAFC/SVC)
2015	11	5 (4 AAFC/SVC + Evangeline AAFC/NB)
2016	10 (2 new, 3 declined)	4 (3 AAFC/SVC + 1 from U Minnesota)
2018	2 larger plots	4 best from 2012-2015
	7 (to date)	7 new (2 from VRIC, 4 from AAFC/SVC, 1 from AAFC Ontario test plots (2000))
2019	10	1 new (AAFC/SVC)

Update on the Vineland Research and Innovation Centre Apple Breeding program - Rachael LeBlanc, Apple Breeder

In a year with so many uncertainties, Vineland was able to continue breeding efforts with minimal interruptions.

Breeding apples that have a high consumer appeal continues to be the focus of the breeding program. Approximately 28,000 unique seedling trees have been created since 2011. Parents are selected based on their consumer appeal such as texture and flavour along with storage attributes and disease tolerance/resistance. In 2020, an additional 4,000 seedlings were added to the Test 1 (T1) block at Vineland. All T1 selections undergo three seasons of fruiting before evaluation. Over 3,000 cross pollinations were completed in May 2020 and these seedlings will be budded in the T1 block next year.

A wide variety of fruit is evaluated in the T1 block for characteristics including, but not limited to, size, colour, shape, texture, flavour, juiciness and harvest date. In order to increase breeding efficiencies and minimize land use, seedlings are culled prior to going into the field by using molecular markers for disease resistance and fruit quality traits including firmness, acid content and storage stability. This enriches the population in-field, fruit from these trees are then evaluated for texture and storage to identify the best selections for volatile and sensory analysis. An exciting development is that Vineland’s biochemistry and

consumer insights teams have identified a number of aroma volatiles that consumers find appealing in apples. This year DNA markers were developed for the key aroma chemicals that contribute to apple flavour. These markers will be implemented into the breeding program so that our population can be enriched with apples containing aroma attributes that consumers find desirable before they are even planted out into the T1 block. Vineland believes these aroma markers will be a distinguishing characteristic of the breeding program and will give us an edge in the marketplace.

Currently there have been 55 selections advanced from the T1 to the Test 2 (T2) stage at Vineland. The T2 stage consists of 8 trees per genotype grafted on M9 rootstock. Approximately 20 of these genotypes are now producing enough fruit to be evaluated by our trained sensory panel and interested growers. Information from the sensory panel will be evaluated alongside industry feedback to determine which selections to advance for further testing.

A limited amount of T2 material has been further propagated for on farm testing (Test 3) across Ontario that will commence in 2021. Each year we plan to propagate trees and will slowly increase the number of test sites in Ontario and across Canada.

All About Apples: Obesity-related health benefits and communication strategies to increase apple knowledge, purchase and consumption in Ontario - Dr. Lindsay Robinson, University of Guelph

The Apple Study clinical trial had two phases: an acute phase wherein participants were monitored for 6 hours after consuming 3 (100 g) Ontario Gala apples and a high fat meal in one sitting; and a chronic phase wherein participants consumed 3 Ontario Gala apples every day for 6 weeks. Eligible participants chose to take part in one or both phases of the study. The acute phase of the study was completed (with 26 participants total) in September 2018, while the chronic phase was completed in December 2018. All laboratory analyses of the samples that were collected from participants in the clinical trials have been completed. We are currently finalizing all manuscripts in order to bring the Apple Study to full completion. In the sections below, I have highlighted further aspects of the Apple Study.

Key Findings to Date

As mentioned above, we have now completed two clinical trials in overweight and obese adults to assess both the short-term (acute) and long-term (chronic) effects of consuming Ontario Gala apples on risk factors for chronic diseases. For the short-term trial, 26 participants ate 3 apples and drank a high-fat beverage or drank the high-fat beverage alone on separate days. During the 6-hour post meal period, apples did not affect participants' digestion rate or blood levels of triglycerides, chylomicrons (markers of lipid transport in the body) or glucose levels but did transiently increase blood levels of another marker of lipid transport, Apo48, as well as insulin. In contrast, apples reduced levels of inflammatory markers in blood-derived immune cells. For the long-term trial, 23 participants ate 3 apples every day for 6 weeks while another 23 participants ate none. After 6 weeks, apples did not affect the participants' gut microbiota profile or blood levels of triglycerides, glucose, or insulin, but did reduce levels of inflammatory markers circulating in the body and in immune cells. Overall, our data suggests that Gala apples may be an effective dietary strategy to mitigate obesity-associated inflammation, which precedes and exacerbates metabolic disease risk.

Update on the Apple Study consumer survey

Another major accomplishment in the past year was the completion of our comprehensive survey aimed at addressing barriers and motivators towards apple purchase and consumption in Ontario. This consumer survey was developed with significant interaction and input from collaborators, Dr. Sunghwan Yi (University of Guelph) and K. Ciceran at the Ontario Apple Growers. In spring 2019, the survey was administered to 800 adults across Ontario (balanced by age, sex, region and education) via Maru/Blue, a data services/marketing company. As of October 2020, this large data set is still being analyzed and several manuscripts are in various stages of preparation. We are also aiming to produce a report for the Ontario Apple Growers.

The project is funded by the Ontario Agri-Food and Innovation Alliance with support from the Ontario Apple Growers.

Canadian Agri-Science Cluster for Horticulture 3

The following two industry-driven projects, which were common throughout the collaborating provinces, are being investigated with funding from the Canadian Agri-Science Cluster for Horticulture 3 with total funding of \$1.3 million over 5 years (2018 to 2023). These projects are generously funded through the Canadian Agri-Science Cluster for Horticulture 3, in cooperation with Agriculture and Agri-Food Canada's AgriScience Program, a Canadian Agricultural Partnership initiative, the Canadian Horticultural Council and industry contributors. The OAG would also like to recognize and thank the Apple Marketer's Association of Ontario (AMAO) for their funding contribution.

Optimizing Storage and Postharvest Practices to Reduce Apple Loss and Improve Quality – Dr. Jennifer DeEll, OMAFRA

Objectives of this project include:

1. Optimize postharvest practices and storage regimes for rising cultivars (i.e. Honeycrisp, Ambrosia and Gala strains)
2. Evaluate new low oxygen storage and dynamic regimes to reduce apple loss
3. Investigate new technology for harvest management and fruit maturity

Fruit is evaluated annually, and results shared through the OAG newsletters and Orchard Network Newsletters.

Postharvest research is conducted at the OAG Storage Lab located at Norfolk Fruit Growers' Association in Simcoe, Ontario. This facility continues to benefit the Canadian apple industry. The sector appreciates the cooperation of the Norfolk Fruit Growers' Association and Dr. Jennifer DeEll, OMAFRA Fresh Market Quality Specialist in ensuring that the lab is fully utilized on research that assists with the maximization of fruit quality while minimizing losses.

Sustainable Control Practices for Apple Pests in Canada - Suzanne Blatt, Jean-Philippe Parent, Justin Renkema and Gaetan Bourgeois (AAFC), Michelle Cortens (Perennia), Garth Nickerson (NB Ministry of Agriculture), Joanne Driscoll (PEI Hort Association), Hannah Fraser and Kristy Grigg-McGuffin (OMAFRA), Susannah Acheampong and Tracy Hueppelsheuser (BCMA), Daniel Cormier and Gerald Chouinard (IRDA)

While the five main apple-growing provinces (Ontario, Quebec, British Columbia, Nova Scotia and New Brunswick) experience insect pest pressure to varying degrees, there are some species of common concern including apple maggot, apple leaf curling midge and leafrollers such as eye spotted budmoth and obliquebanded leaf roller. Control of these pests is critical for the apple industry to remain competitive in a global market where differing regulations often provide other countries with a competitive edge. Deregistration of pesticides throughout Canada is driving the need for alternative and effective management strategies for many of these species.

Objective of this project are to:

1. Develop improved control methods for apple maggot through determination of the number of sprays required to effect control with currently available products,
2. Further understanding of apple leafcurling midge phenology and refine a recently developed degree day model, and
3. Investigate the utility of host volatiles for mass capture of multiple species of leafroller.

In 2019, four commercially available insecticides (Exirel, Imidan, Assail, Calypso) plus a water control were applied in Nova Scotia to 4-tree plots of Honeycrisp 2 or 3 times once apple maggot was captured in the orchard block. Treatments were replicated 4 times. Up to 100 apples from each plot were harvested and stored in the greenhouse for 3 weeks to allow apple maggot trails within the fruit to develop. Analysis showed no significant differences between treatments for percentage of apples with stings.

Apple leafcurling midge capture data has been collected from multiple orchards in British Columbia, Ontario, Quebec and Nova Scotia since 2018. Resulting population curves have confirmed there are 3 generations in all regions sampled. Preliminary degree day models have been developed for each region: British Columbia, Ontario/Quebec and Nova Scotia and are currently being validated in all provinces.

Trapping for various leafroller species, including lesser appleworm, eye spotted budmoth, redbanded leafroller, fruittree leafroller, variegated leafroller and tufted apple budmoth, began in Ontario orchards in 2019 to determine regional populations. Host volatiles containing benzyl acetonitrile, phenyl ethanol and acetic acid were used in 2020 in Ontario, Quebec, Nova Scotia and British Columbia, including a trial in Quebec to evaluate a perimeter trapping method to protect young apple plantings from leafrollers. Preliminary results show promise for attraction of obliquebanded leafroller and eye-spotted budmoth in some regions. Further work with host volatiles in all provinces will continue in 2021.

Acknowledgements

The Ontario Apple Growers acknowledges and thanks the support of our many funding partners. Canadian Agriculture Partnership is a federal-provincial-territorial initiative.

NATIONAL REPORTS

CANADAGAP REPORT

CanadaGAP® is a food safety program for companies that produce, pack, repack, store, wholesale and broker fresh fruits and vegetables. The program is designed to help implement effective food safety procedures within fresh produce operations. Audit and certification services for the program are delivered by third party, accredited Certification Bodies. Over 3,200 produce companies in Canada and the USA are participating in CanadaGAP. Overall program enrolment has stabilized over the last several years. There has been interest in the program from Latin America and Asia.

Apple farmers, packers and wholesalers across Canada have been active participants since 2009. In Ontario, approximately 100 apple growers and packers are CanadaGAP-certified.

With the arrival of the global coronavirus (COVID-19) pandemic early in the year, 2020 brought unprecedented challenges to the food industry globally and within Canada. As in all sectors, the regular course of business for fresh produce operations and food safety programs was profoundly disrupted. The industry has risen to the challenge and shown great resilience and flexibility in these uncertain and difficult times. CanadaGAP and its partner Certification Bodies have also worked hard to be responsive and creative in adapting to the shifting landscape. Some of the program adjustments that have been required over the course of 2020 include postponement of audits and extensions of CanadaGAP certificates, new procedures to allow for audits to be performed using partially remote auditing methods, extensive communication with all stakeholders, and ongoing updates to a dedicated COVID-19 webpage on the CanadaGAP website.

Alongside the challenges of enabling and maintaining a focus on the safe production and handling of fresh fruits and vegetables during the pandemic, CanadaGAP was successful in undertaking the following activities over the course of the past year:

Maintaining Government Recognition: CanadaGAP must continue to receive approval from CFIA for any proposed changes to the program, to demonstrate sound management of the certification system and to align with all applicable regulatory requirements. CanadaGAP anticipates publishing updates to the Food Safety Manuals (Version 9.0) in December 2020, with an implementation date for audits effective April 1, 2021. The advance publication of new Lot Code requirements will assist operations in complying with CFIA's planned enforcement of corresponding Lot Code requirements in the *Safe Food for Canadians Regulations* beginning on January 15, 2021.

Re-benchmarking to GFSI - in progress: CanadaGAP has been benchmarked and officially recognized by the Global Food Safety Initiative (GFSI) since 2010. To maintain recognition, CanadaGAP has been undertaking re-benchmarking to GFSI Version 2020 since the summer months.

New Certification Body: Perry Johnson Registrars Food Safety, Inc. (PJRFSI) was licensed in July 2020 as the newest certification body offering CanadaGAP audits in Canada (excluding Quebec) and the United States.

CHC Apple Working Group (AWG) Update

The CHC AWG met in person in March during the CHC AGM in Ottawa and discussed:

- ✓ Crop and Market Review

- ✓ Canadian Apple Breeding Consortium
- ✓ Grade Standards
- ✓ Crop Protection
- ✓ Development of Protocols for exports to the EU

Due to Covid-19, we were unable to meet in person for our annual Mid-Summer AWG meeting which was to be held in Nova Scotia. Representatives did meet via video conference over two days and discussed:

- ✓ Canadian Crop Estimate by Province
- ✓ Market situation and trends
- ✓ Crop protection
- ✓ National Tree Planting Proposal
- ✓ And research project updates on three different projects