



# Annual Report



October 31st, 2015



## **Vision**

**Ontario Apples...a healthy consumer...  
a healthy industry.**

## **Mission**

**To foster a viable apple industry through  
advocacy with government and collaboration  
with industry partners for the health of  
consumers and the wealth of producers.**

# ONTARIO APPLE GROWERS TWELTH ANNUAL REPORT October 31<sup>st</sup>, 2015



## COMMENTS FROM THE CHAIR

Unfortunately, again this year in Ontario, many apple farmers felt the wrath of Mother Nature. The winter was colder than normal all across Ontario. In southwestern Ontario, the extremely wet spring caused spray issues while for the rest of Ontario a dry May and a frost on May 22<sup>nd</sup> – 23<sup>rd</sup>, referred to as a dry freeze, left some orchards with no apples and other orchards with a reduced crop with many damaged apples. This has resulted in our industry having quality issues and only half a crop this year. With the conditions of 2015 and the devastating frost of 2012, the industry will be looking for support to adapt to new technology to help reduce the risk for apple growers in the future. In my opinion, the apple industry of Ontario has lost more fresh fruit in 2012 and 2015 from frost events than all other perils combined including insects, disease and hail in the last 20 years. There is little doubt that we should be putting our risk reduction dollars into frost protection.

Now on a positive note, Essex County hosted the annual summer apple tour this year with over 150 people in attendance. I would like to take this opportunity to thank everyone who organized and helped put on the event, especially the families who opened their farms and to say well done. This event is vital to the industry as it is the only opportunity to meet your fellow growers across the province to discuss the issues and see the new technology in action.

On another positive note, the OAG negotiated with the Ontario processors that the price for grounder juice apples be determined based on competitive market forces for 2015. There were many favourable market forces this year which were impacting the price of juice apples. These include the short Ontario crop, exchange rates and price increases in other raw processing products across North America. On a short year, this has worked well to satisfy both growers and processors. This may be different on a long year. Thank you to the growers on the negotiating committee for their hard work and the processors for being open to the process.

At the time of writing this report, the market was very strong for fresh and processing apples. The reason for this is that the production was down in most apple growing areas in North America compared to last year. The strength of the Canadian apple market has been driven due to the strength of the American dollar. This has helped to stabilize pricing on imported apples. Even though some of our input costs are more, the domestic market is better off with a lower Canadian dollar.

Two valued OMAFRA employees to the apple industry retired this year. We wish Leslie Huffman, Apple Specialist and Margaret Appleby, IPM Systems Specialist well in their retirements. They are well deserved. The apple specialist position has been filled by the very competent, Amanda Green, and we are still working to fill Margaret's position. With an increased emphasis on more biological crop protection methods and more environmentally-friendly means to control pests, this position is extremely important to the apple sector but also to all of horticulture.

The Ontario Apple Growers have hired JRG Consulting Co. this year to conduct an economic study for our apple industry to emphasize our strengths and reveal our weaknesses so we may work together in building our industry. It is our intention to use this study to shine a spotlight on the Ontario apple industry and to celebrate the contributions we make to Ontario. This is a very important initiative and we hope you will provide us with your full support.

In mid-October, Agriculture Minister Jeff Leal announced the reinstatement of weather risk mitigation technologies as an eligible expense to the GF2 program. The OAG greatly appreciates the government's response to our need for weather risk mitigation technologies. Your board, in partnership with the Ontario

Tender Fruit Growers, worked hard on this all summer and I would like to thank Minister Jeff Leal again for listening to the needs of our industry.

In closing, I would like to thank the Ontario Apple Growers' board and staff for the positive support they have given during another challenging year in the apple industry.

Respectfully submitted,



Charles R. Stevens  
Chair, OAG



Charles Stevens & Cathy McKay at Foodland Ontario Queen's Park event supporting Local Food Week.

The Wright family at Farm & Food Care's Breakfast on the Farm



Doug Balsillie talks high-density orchards on the 2015 Summer Tour



Anne Verhallen and the Soil Pit 2015 Summer Tour

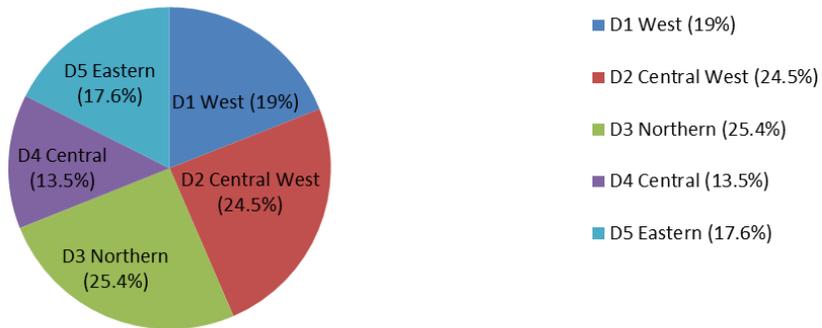
# TWELTH ANNUAL REPORT OF THE ONTARIO APPLE GROWERS

## CROP AND MARKET REVIEW

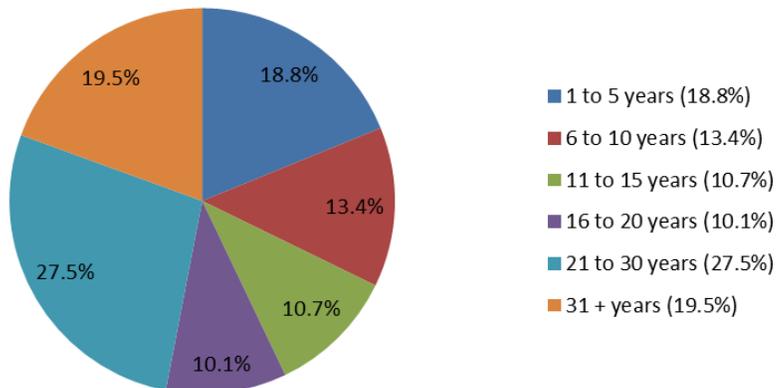
### Tree Census

Tree census information (as of December 31<sup>st</sup>, 2014) is included on pages 11 and 12. This information is based on Agricorp's GPS mapping and information on total acreage provided by Statistics Canada. Agricorp continues to manage the ADaMS 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 are a total of 15,939 acres in Ontario. The assumption has been made that the variety mix for the remaining acres were about the same as for those that were mapped.

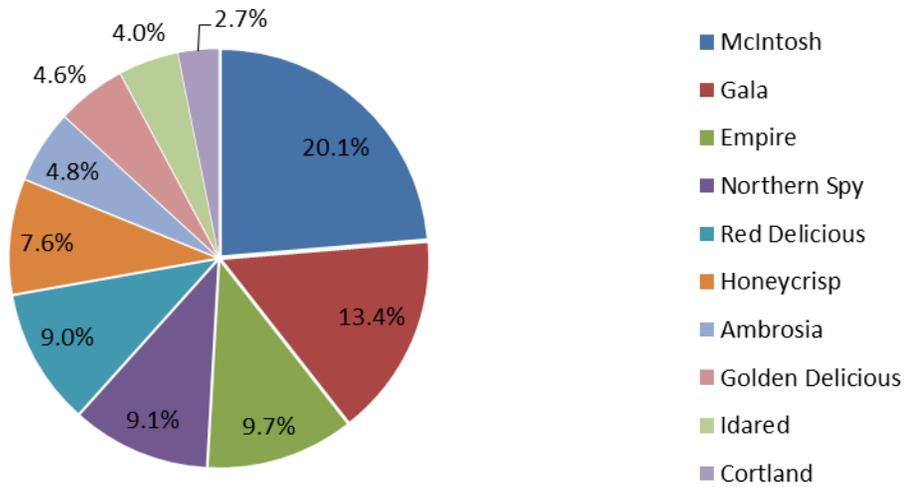
**2014 Ontario Apple Tree Acreage  
by District**



**2014 Apple Acreage  
by Age**



## Ontario acreage by variety (top 10)

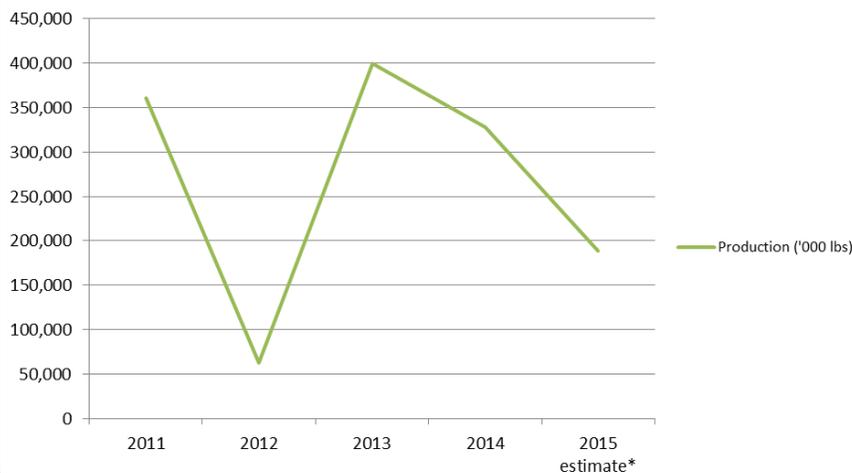


## Crop Estimate

ONTARIO APPLE PRODUCTION – 2010 TO 2015		
	Production ('000 lbs)	% Change From Previous Year
2010	299,168	-23.8%
2011	361,048	20.7%
2012	63,143	-82.5%
2013	399,506	532.7%
2014	328,204	-17.8%
2015 estimate*	189,006	-
5 Yr Avg ('10 –'14)	290,214	-

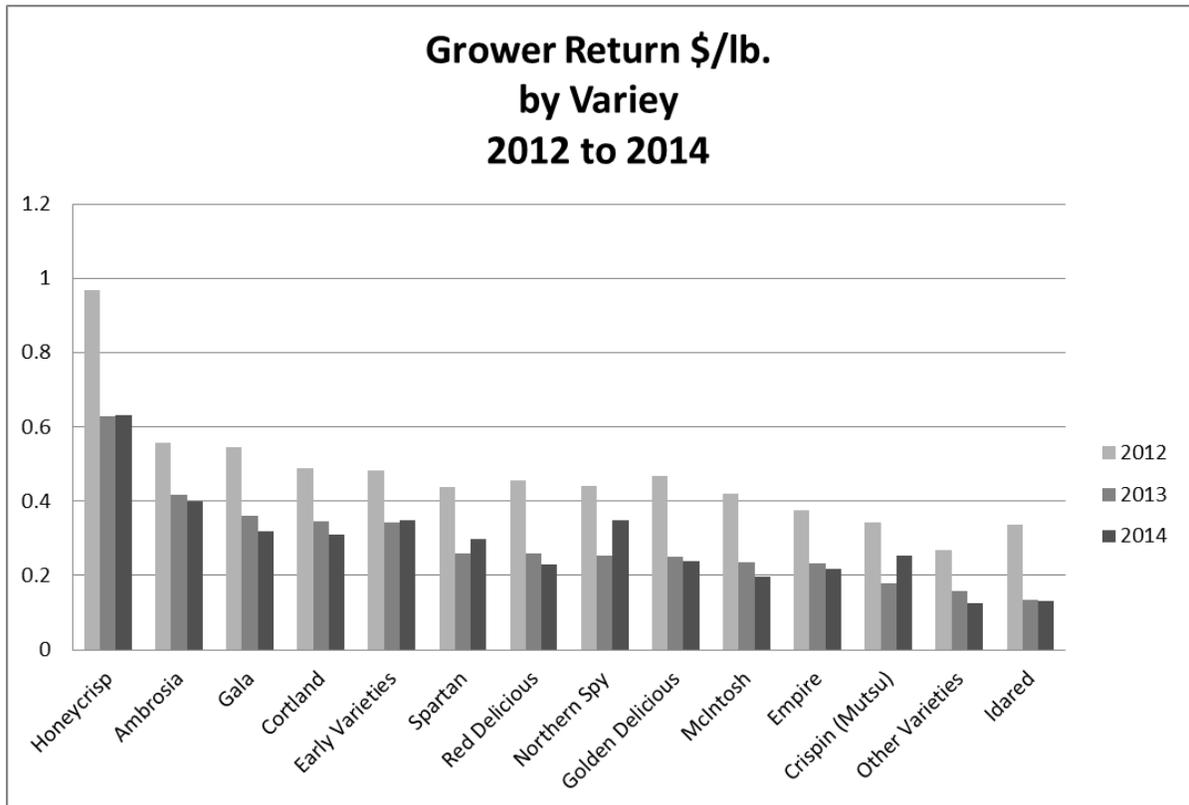
Source: OAG Annual Apple Marketing Survey and Apple Yield Estimate Survey  
 \* Excludes orchard juice estimated volumes

## Ontario Apple Production ('000 lbs)



## **Marketing Survey**

The results of the 2014 marketing survey include comparative figures from the 2013 year. 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. More detail is provided beginning on page 7 of this report.



## **Flyer Ad 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.

## **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 OAG thanks all the storage cooperators for their excellent participation.

## **OAG MEMBERSHIP**

Each District has a District Apple Producers' Committee and each District may elect one committee person for each 20 growers. If the District is not a multiple of 20, then there shall be one grower representative for each 20 growers plus one additional representative. On or before December 31<sup>st</sup> of each year, each District Apple Producers' Committee will elect two members to the board of directors of the Ontario Apple Growers.

Based on the current membership, the number of growers to be elected to the District Committees is as follows:

<u>District</u>	<u>Grower Members</u>	<u>Committee Numbers</u>
District 1	42	3
District 2	36	3
District 3	44	3
District 4	32	3
District 5	31	3
Total - Members	185	15
Voluntary Members	42	
Total - All Members	227	

<u>Acreage</u>	<u># of Growers</u>	<u>Voluntary</u>
Less than 10		42
10-20	56	
21-40	48	
41-60	23	
61-80	18	
81-100	10	
101-200	19	
200+	11	
<b>Total</b>	<b>185</b>	<b>42</b>

## APPLE INDUSTRY STATISTICS

### 2015 APPLE CROP ESTIMATE

<b>Varieties</b>	<b>November 2013 Production ('000 lbs.)</b>	<b>November 2014 Production ('000 lbs.)</b>	<b>November 2015 Production ('000 lbs.)</b>	<b>% Change 2015 vs. 2014</b>
Other Early Varieties	5,290	4,649	2,576	-44.6%
Ambrosia	4,048	5,051	3,388	-32.9%
Cortland	7,679	7,605	5,688	-25.2%
Crispin/Mutsu	5,519	2,555	1,411	-44.8%
Empire	51,543	50,935	18,727	-63.2%
Fuji	1,703	1,407	1,359	-3.4%
Gala	19,755	23,007	16,564	-28.0%
Golden Delicious	10,804	8,022	5,839	-27.2%
Honeycrisp	22,328	25,060	23,926	-4.5%
Idared	18,612	13,686	5,330	-61.1%
McIntosh	73,701	75,586	44,353	-41.3%
Northern Spy	70,967	46,969	34,821	-25.9%
Red Delicious	27,861	25,060	12,022	-52.0%
Spartan	7,182	7,201	7,160	-0.6%
Other Varieties	10,833	10,425	5,842	-44.0%
<b>Total Fresh</b>	<b>337,826</b>	<b>307,217</b>	<b>189,006</b>	<b>-38.5%</b>
Juice	<b>61,680</b>	<b>20,987</b>		
<b>All Varieties</b>	<b>399,506</b>	<b>328,204</b>	<b>189,006</b>	

**2014 ONTARIO APPLE PRODUCTION BY UTILIZATION**

<b>PRODUCTION (LBS.)</b>								
<b>Variety</b>	<b>Fresh</b>		<b>Orchard Juice</b>		<b>Other Processing</b>		<b>Total</b>	
	<b>2014</b>	<b>2013</b>	<b>2014</b>	<b>2013</b>	<b>2014</b>	<b>2013</b>	<b>2014</b>	<b>2013</b>
Ambrosia	<b>4,951,548</b>	3,948,350			<b>99,912</b>	100,000	<b>5,051,460</b>	4,048,350
Cortland	<b>6,973,430</b>	7,022,170			<b>631,540</b>	656,870	<b>7,604,970</b>	7,679,040
Crispin (Mutsu)	<b>2,425,230</b>	5,360,715			<b>130,140</b>	157,985	<b>2,555,370</b>	5,518,700
Early Varieties	<b>4,531,660</b>	5,268,920			<b>117,470</b>	21,220	<b>4,649,130</b>	5,290,140
Empire	<b>47,870,797</b>	50,347,323			<b>3,064,613</b>	1,195,577	<b>50,935,410</b>	51,542,900
Fuji	<b>1,406,277</b>	1,703,310			<b>373</b>	-	<b>1,406,650</b>	1,703,310
Gala	<b>22,596,865</b>	19,631,590			<b>409,955</b>	123,550	<b>23,006,820</b>	19,755,140
Golden Delicious	<b>7,362,930</b>	10,665,857			<b>658,890</b>	138,463	<b>8,021,820</b>	10,804,320
Honeycrisp	<b>25,059,680</b>	22,328,250			<b>-</b>	-	<b>25,059,680</b>	22,328,250
Idared	<b>7,773,125</b>	5,851,787			<b>5,913,015</b>	12,760,263	<b>13,686,140</b>	18,612,050
McIntosh	<b>64,951,855</b>	66,249,753			<b>10,633,775</b>	7,451,187	<b>75,585,630</b>	73,700,940
Northern Spy	<b>34,243,862</b>	50,502,121			<b>12,725,198</b>	20,464,769	<b>46,969,060</b>	70,966,890
Red Delicious	<b>24,840,707</b>	27,751,906			<b>219,173</b>	109,084	<b>25,059,880</b>	27,860,990
Spartan	<b>6,616,780</b>	6,865,921			<b>583,810</b>	316,569	<b>7,200,590</b>	7,182,490
Other Varieties	<b>9,076,530</b>	9,736,360			<b>1,348,340</b>	1,096,620	<b>10,424,870</b>	10,832,980
<b>Total</b>	<b>270,681,276</b>	293,234,333	<b>20,986,871</b>	61,679,882	<b>36,536,204</b>	44,592,157	<b>328,204,351</b>	399,506,372

2014 ONTARIO APPLE GROWER PRICE PER LB.

<b>GROWER PRICE (\$/LB)</b>								
<b>Variety</b>	<b>Fresh (\$)</b>		<b>Orchard Juice Processing (\$)</b>		<b>Other Processing (\$)</b>		<b>Average Fresh and Other Processing (\$)</b>	
	<b>2014</b>	<b>2013</b>	<b>2014</b>	<b>2013</b>	<b>2014</b>	<b>2013</b>	<b>2014</b>	<b>2013</b>
Ambrosia	<b>0.405</b>	0.419			<b>0.120</b>	0.300	<b>0.399</b>	0.416
Cortland	<b>0.326</b>	0.370			<b>0.118</b>	0.108	<b>0.309</b>	0.347
Crispin (Mutsu)	<b>0.263</b>	0.182			<b>0.116</b>	0.121	<b>0.255</b>	0.180
Early Varieties	<b>0.355</b>	0.346			<b>0.115</b>	0.070	<b>0.349</b>	0.344
Empire	<b>0.226</b>	0.237			<b>0.115</b>	0.108	<b>0.219</b>	0.234
Fuji	<b>0.269</b>	0.211			<b>0.115</b>	-	<b>0.269</b>	0.211
Gala	<b>0.322</b>	0.363			<b>0.115</b>	0.108	<b>0.319</b>	0.361
Golden Delicious	<b>0.251</b>	0.281			<b>0.116</b>	0.108	<b>0.240</b>	0.279
Honeycrisp	<b>0.631</b>	0.628			-	-	<b>0.631</b>	0.628
Idared	<b>0.139</b>	0.124			<b>0.122</b>	0.138	<b>0.132</b>	0.133
McIntosh	<b>0.211</b>	0.250			<b>0.115</b>	0.108	<b>0.198</b>	0.236
Northern Spy	<b>0.402</b>	0.288			<b>0.209</b>	0.156	<b>0.350</b>	0.250
Red Delicious	<b>0.232</b>	0.261			<b>0.115</b>	0.108	<b>0.231</b>	0.260
Spartan	<b>0.313</b>	0.267			<b>0.113</b>	0.108	<b>0.297</b>	0.260
Other Varieties	<b>0.124</b>	0.168			<b>0.130</b>	0.076	<b>0.125</b>	0.159
<b>Avg. Grower Price - All Utilization (\$/lb)</b>	<b>0.296</b>	0.294	<b>0.055</b>	0.055	<b>0.150</b>	0.138	<b>0.265</b>	0.239
<b>Avg. Transaction - All Utilization (\$/lb)</b>	<b>0.357</b>	0.371	<b>0.055</b>	0.055	<b>0.170</b>	0.158	<b>0.317</b>	0.299

## 2014 ONTARIO APPLE GROWER VALUE

<b>GROWER VALUE \$</b>								
<b>Variety</b>	<b>Fresh (\$)</b>		<b>Orchard Juice (\$)</b>		<b>Other Processing (\$)</b>		<b>Total (\$)</b>	
	<b>2014</b>	2013	<b>2014</b>	2013	<b>2014</b>	2013	<b>2014</b>	2013
Ambrosia	<b>2,005,037</b>	1,653,877			<b>11,960</b>	30,000	<b>2,016,997</b>	1,683,877
Cortland	<b>2,274,053</b>	2,596,205			<b>74,252</b>	70,614	<b>2,348,305</b>	2,666,819
Crispin (Mutsu)	<b>637,326</b>	976,115			<b>15,124</b>	19,108	<b>652,450</b>	995,223
Early Varieties	<b>1,609,801</b>	1,820,828			<b>13,509</b>	1,485	<b>1,623,310</b>	1,822,313
Empire	<b>10,827,697</b>	11,923,611			<b>352,349</b>	128,525	<b>11,180,047</b>	12,052,136
Fuji	<b>378,590</b>	359,932			<b>43</b>	-	<b>378,632</b>	359,932
Gala	<b>7,286,550</b>	7,121,935			<b>47,145</b>	13,282	<b>7,333,694</b>	7,135,217
Golden Delicious	<b>1,848,823</b>	2,998,992			<b>76,299</b>	14,885	<b>1,925,122</b>	3,013,877
Honeycrisp	<b>15,809,854</b>	14,015,075			<b>-</b>	-	<b>15,809,854</b>	14,015,075
Idared	<b>1,084,320</b>	725,928			<b>723,320</b>	1,758,039	<b>1,807,641</b>	2,483,968
McIntosh	<b>13,717,467</b>	16,563,963			<b>1,226,514</b>	801,003	<b>14,943,981</b>	17,364,966
Northern Spy	<b>13,765,809</b>	14,528,934			<b>2,657,582</b>	3,194,931	<b>16,423,390</b>	17,723,866
Red Delicious	<b>5,754,257</b>	7,234,880			<b>25,205</b>	11,727	<b>5,779,462</b>	7,246,606
Spartan	<b>2,070,045</b>	1,831,486			<b>65,694</b>	34,031	<b>2,135,739</b>	1,865,517
Other Varieties	<b>1,127,416</b>	1,637,181			<b>174,827</b>	83,693	<b>1,302,242</b>	1,720,874
<b>Total Grower Value</b>	<b>80,197,044</b>	85,988,944	<b>1,154,278</b>	3,392,394	<b>5,463,823</b>	6,161,322	<b>86,815,145</b>	95,542,660
<b>Total Transaction Value</b>	<b>96,733,947</b>	108,884,290	<b>1,154,278</b>	3,392,394	<b>6,194,547</b>	7,053,165	<b>104,082,772</b>	119,329,848

### Notes:

1. The above marketing data is based on a survey of six major Ontario apple marketers.
2. Juice production is estimated and reported as a total of the crop versus by variety as there is no way to determine the actual volume by variety.
3. Orchard juice price per lb. does not include sort outs (pack line culls) or handpicked apples for juice.
4. Transaction price for non-juice uses a factor of 2 cents added to the grower non-juice price.
5. Based on the survey results, variety mix for the entire crop may vary from the sample.
6. Total transaction value for fresh is determined using the combined bag and tray net return (before grower deductions) and takes into consideration the total pack out percentage from the 2014 marketer's survey.

**2014 Ontario Apple Tree Acreage By Variety, By District**

Variety Name	1 Western	2 Central West	3 Northern	4 Central	5 Eastern	Total Acreage	% of Total Crop	2013 % of Total Crop
McIntosh	235	633	1,436	238	665	3,207	20.1%	21.2%
Gala	432	607	145	381	570	2,135	13.4%	11.9%
Empire	328	659	207	136	224	1,553	9.7%	10.2%
Northern Spy	84	379	867	63	60	1,453	9.1%	9.2%
Red Delicious	367	427	88	299	252	1,432	9.0%	8.9%
Honeycrisp	198	287	235	166	327	1,213	7.6%	7.2%
Ambrosia	273	137	106	116	135	766	4.8%	4.2%
Golden Delicious	368	149	6	152	52	727	4.6%	4.8%
Idared	112	150	256	36	77	631	4.0%	4.3%
Other	51	71	240	73	37	472	3.0%	2.9%
Cortland	49	89	120	88	81	427	2.7%	2.7%
Crispin/Mutsu	116	94	18	153	23	404	2.5%	3.0%
Spartan	18	48	165	18	49	297	1.9%	1.9%
Paulared	44	25	23	26	97	215	1.3%	1.3%
Fuji	105	46	5	40	11	208	1.3%	1.2%
Mixed	37	14	5	72	63	190	1.2%	1.4%
Ginger Gold	67	36	8	23	27	161	1.0%	1.0%
Jonagold	41	28	12	34	2	119	0.7%	0.8%
Jerseymac	15	2	71	6	2	96	0.6%	0.6%
Golden Russet	16	4	16	16	25	77	0.5%	0.5%
Jonamac	61	3	4	5	0	72	0.5%	0.4%
Earligold	7	3	24	1	8	43	0.3%	0.3%
Marshall Mac	6	15	-	5	15	41	0.3%	0.2%
<b>TOTAL</b>	<b>3,030</b>	<b>3,905</b>	<b>4,056</b>	<b>2,147</b>	<b>2,802</b>	<b>15,939</b>	<b>100%</b>	<b>100%</b>

Notes:

- District 1 Western is comprised of the upper-tier municipalities of Essex, Lambton and Middlesex and the single-tier municipality of Chatham-Kent.
- District 2 Central West is comprised of the upper-tier municipalities of Huron, Perth, Oxford and 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, Lanark, Lennox and Addington, Leeds and Grenville, Renfrew and Stormont, Dundas and Glengary and Prescott and Russell and the single-tier municipalities of Kawartha Lakes, Ottawa and Prince Edward.
- Other includes: Braeburn, Cox's Orange Pippin, Creston, Crimson Crisp, Cripps Pink, Elstar, Fortune, Goldrush, Granny Smith, Liberty, Lobo, Lodi, Maccoun, Melba, Novaspy, Quinte, Rome, Roxbury Russet, Russet, Shizuka, Silken, Snow, Sunrise, Tolman Sweet, Transparent, Tydeman Red, Viking, Vista Bella, Wealthy, Winesap and Zestar.

**2014 Ontario Apple Tree Acreage By Variety, By Tree Age**

<b>Variety Name</b>	<b>1 To 5 Years (2010- 2014)</b>	<b>6 To 10 Years (2005- 2009)</b>	<b>11 To 15 Years (2000- 2004)</b>	<b>16 To 20 Years (1995- 1999)</b>	<b>21 To 30 Years (1985- 1994)</b>	<b>31 Years and Over (Pre-1984)</b>	<b>Total Acreage</b>	<b>% of Total Crop</b>
McIntosh	148	277	249	231	1,226	1,076	3,207	20.1%
Gala	1,118	311	287	280	128	10	2,135	13.4%
Empire	46	57	90	217	881	262	1,553	9.7%
Northern Spy	136	69	127	177	512	431	1,452	9.1%
Red Delicious	237	41	112	182	493	368	1,432	9.0%
Honeycrisp	414	558	214	23	4	1	1,213	7.6%
Ambrosia	379	304	83	0	0	-	766	4.8%
Golden Delicious	119	65	154	111	173	105	727	4.6%
Idared	3	1	16	29	246	336	631	4.0%
Other	104	230	68	17	19	34	472	3.0%
Cortland	74	47	47	63	113	83	427	2.7%
Crispin/Mutsu	20	42	104	56	104	78	404	2.5%
Spartan	7	12	6	24	141	107	297	1.9%
Paulared	42	21	9	11	74	59	215	1.3%
Fuji	82	23	24	36	42	1	208	1.3%
Mixed	5	25	31	34	51	43	190	1.2%
Ginger Gold	43	18	33	63	2	2	161	1.0%
Jonagold	12	5	10	26	58	8	119	0.7%
Jerseymac	-	2	2	7	49	36	95	0.6%
Golden Russet	2	4	22	9	22	18	77	0.5%
Jonamac	3	1	0	1	25	42	72	0.5%
Earligold	2	3	12	16	7	3	43	0.3%
Marshall Mac	4	19	3	-	15	-	41	0.3%
<b>TOTAL</b>	<b>3,001</b>	<b>2,134</b>	<b>1,704</b>	<b>1,614</b>	<b>4,385</b>	<b>3,102</b>	<b>15,939</b>	<b>100%</b>

Note:

1. Other includes: Braeburn, Cox's Orange Pippin, Creston, Elstar, Fortune, Goldrush, Granny Smith, Liberty, Lobo, Lodi, Macoun, Melba, Novaspy, Quinte, Rome, Sunrise, Tydeman Red, Viking, Vista Bella, Wealthy, and Winesap.

IMPORTS OF FRESH APPLES 2014 (LBS)									
PROVINCE	EMPIRE	GALA	GOLDEN DELICIOUS	GRANNY SMITH	IDA RED	MCINTOSH	RED DELICIOUS	UNSPECIFIED	TOTAL
Alberta		1,340,532	16,766	270,502			152,231	425,928	2,205,960
British Columbia		56,296,167	8,291,876	23,038,160	64,322		21,433,671	39,554,531	148,678,726
Manitoba		131,647	28,905	88,815		418,798	59,505	59,994	787,664
New Brunswick	141	301,374	81,242	238,571		12,178	183,969	123,207	940,683
Nova Scotia		942,698		54,099				1,014,628	2,011,425
<b>Ontario</b>	<b>1,014,037</b>	<b>80,012,865</b>	<b>13,248,181</b>	<b>29,956,639</b>	<b>817,907</b>	<b>132,352</b>	<b>23,102,319</b>	<b>29,404,452</b>	<b>177,688,752</b>
Québec	422,097	11,987,469	2,453,290	8,034,367	246,624	244,680	3,915,875	6,587,881	33,892,282
Saskatchewan		229,206	7,840	10,536		37,679	24,584	37,168	347,012
<b>Total By Variety</b>	<b>1,436,275</b>	<b>151,241,956</b>	<b>24,128,100</b>	<b>61,691,690</b>	<b>1,128,854</b>	<b>845,688</b>	<b>48,872,153</b>	<b>77,207,790</b>	<b>366,552,505</b>

Ontario - 2013	1,546,931	79,929,746	9,145,705	28,291,170	239,973	235,628	21,366,703	37,767,806	178,523,661
<b>Ontario - 2014 vs. 2013</b>	<b>-34%</b>	<b>0%</b>	<b>45%</b>	<b>6%</b>	<b>241%</b>	<b>-44%</b>	<b>8%</b>	<b>-22%</b>	<b>0%</b>
Total By Variety - 2013	3,266,804	150,649,379	19,112,375	58,251,446	416,843	933,859	48,791,561	81,116,804	362,539,071
<b>Total By Variety - 2014 vs. 2013</b>	<b>-56%</b>	<b>0%</b>	<b>26%</b>	<b>6%</b>	<b>171%</b>	<b>-9%</b>	<b>0%</b>	<b>-5%</b>	<b>1%</b>

IMPORTS OF FRESH APPLES - 5 YEAR AVERAGE 2010-2014 (LBS)									
PROVINCE	EMPIRE	GALA	GOLDEN DELICIOUS	GRANNY SMITH	IDA RED	MCINTOSH	RED DELICIOUS	UNSPECIFIED	TOTAL
Alberta		1,538,487	52,312	317,294		3,958	147,426	372,884	2,432,361
British Columbia		45,573,473	10,205,376	20,261,696	25,014	70,747	18,539,954	34,415,649	129,091,909
Manitoba		288,082	28,121	71,518		345,103	61,111	172,709	966,644
New Brunswick	28	771,950	260,154	523,938		6,846	388,726	585,014	2,536,656
Nova Scotia		500,615		146,511				592,945	1,240,071
<b>Ontario</b>	<b>1,047,571</b>	<b>80,276,987</b>	<b>12,614,615</b>	<b>30,433,123</b>	<b>407,108</b>	<b>199,976</b>	<b>20,577,233</b>	<b>39,804,161</b>	<b>185,360,772</b>
Québec	633,430	16,226,699	2,391,563	7,586,046	1,774,920	232,586	3,120,496	7,251,140	39,216,880
Saskatchewan		236,244	12,518	35,163		113,539	26,862	58,545	482,871
<b>Total by Variety</b>	<b>1,681,029</b>	<b>145,412,537</b>	<b>25,564,659</b>	<b>59,375,288</b>	<b>2,207,042</b>	<b>972,755</b>	<b>42,861,808</b>	<b>83,253,047</b>	<b>361,328,165</b>

<b>Ontario - 2014 vs. 5 Year Average</b>	<b>-3%</b>	<b>0%</b>	<b>5%</b>	<b>-2%</b>	<b>101%</b>	<b>-34%</b>	<b>12%</b>	<b>-26%</b>	<b>-4%</b>
<b>Total By Variety - 2014 vs. 5 Year Average</b>	<b>-15%</b>	<b>4%</b>	<b>-6%</b>	<b>4%</b>	<b>-49%</b>	<b>-13%</b>	<b>14%</b>	<b>-7%</b>	<b>1%</b>

Note: The province denotes the port of entry and may not necessarily reflect the final provincial destination of imported apples.  
Source: Statistics Canada

## REPORTS

### RISK MANAGEMENT

Risk Management is an important, yet complex, set of programs for the apple sector. The Risk Management Committee and Board aims to ensure that government cost-shared programs are meeting the needs of the apple farmers. Following is a review of the current programming.

**Agri-Insurance** - Production Insurance covers production losses and yield reductions caused by insured perils. Depending on the plan, coverage is available on a total-yield, dollar-value, or acreage-loss basis. Producers can choose the type and level of coverage that best meets their needs. The Risk Management Committee is focusing on improving the program through developing clearer definition of juice apples, determining how potentials are calculated, and improving the Tree Rider.

#### **Apple Crop Insurance, 2010 – 2015 (as of October 30<sup>th</sup>, 2015)**

Crop Year	Accounts	Liability ,000's	Total Premiums* ,000's	Grower Share of Premiums ,000's (a)	Claims** ,000's (b)	Net Benefit to Growers ,000's (b) - (a)
2015	140	\$ 45,346	\$ 7,077	\$ 3,432	unknown	unknown
2014	143	\$ 41,128	\$ 7,868	\$ 4,112	\$ 2,828	\$ (1,284)
2013	144	\$ 33,755	\$ 7,053	\$ 3,675	\$ 4,632	\$ 957
2012	140	\$ 34,866	\$ 3,504	\$ 1,546	\$ 26,858	\$ 25,312
2011	139	\$ 28,473	\$ 3,657	\$ 1,916	\$ 3,036	\$ 1,120
2010	139	\$ 27,912	\$ 3,823	\$ 2,001	\$ 2,428	\$ 427
5 Year Average ( '10 - '14)	141	\$ 33,227	\$ 5,181	\$ 2,650	\$ 7,956	\$ 5,306

Notes:

\* - total grower and government premiums

\*\* - Claims data refers to approved claims only

**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 November 2, 2015)**

Year	Processed	Payments	Total \$	Average
2010	217	71	\$2,644,031	\$37,240
2011	212	44	\$1,534,914	\$34,884
2012	208	89	\$2,343,273	\$26,329
2013	183	30	\$1,199,520	\$39,984
2014	164	42	\$1,191,411	\$28,367

Note: Processing statistics represent files processed as of November 2<sup>nd</sup>, 2015. Potential for additional Apple file processing and payments is possible as processing for 2014 continues.

**Risk Management Plan for Edible Horticulture** – The Risk Management Plan (RMP) for edible horticulture allows participants to deposit funds into an RMP account, receive government contributions and withdraw funds to cover risks to their farm business. To be eligible, producers must grow and sell at least one of the more than 100 eligible commodities, have an ANS of least \$5,000, file a T1163 to CRA or Statement A to Agricorp, be farming 6 months in the taxation year, and have a premise ID. Beginning in 2015, AgriStability is not required to participate in SDRM.

Introduced in 2013 was the \$100 million in annual government funding available through RMP to be distributed across all six RMP programs including edible horticulture, grains and oilseeds, cattle, hogs, veal, and sheep. Government contributions were made in two installments. The first government contribution was made from September to February and the additional government contribution was made in June.

As of August 4<sup>th</sup>, 2015

- Under the 2014 RMP: Edible Horticulture plan, governments funds of \$23.21 million were deposited in SDRM accounts. The matching government contributions were equal to 87.5% of deposits.
- Under the 2013 RMP: Edible Horticulture plan, governments funds of \$20.74 million were deposited in SDRM accounts. The matching government contributions were equal to 86% of deposits.
- Under the 2012 RMP: Edible Horticulture plan, governments funds of \$24.11 million were deposited in SDRM accounts.

**AgriInvest** - AgriInvest is a savings account that producers can use to either cover small income declines or support other investments. Each year, producers can deposit up to 1.0 percent of their ANS into a bank account and receive a matching government contribution. Producers can withdraw funds at any time.

### **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 (currently 3%). The program begins January of each year, and advances are usually repaid in three monthly pre-authorized payments in December, January and February. Producers must utilize production insurance to participate.

The Advance Payments Program (APP) is a federal government cash advance program that provides up to \$400,000 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 1<sup>st</sup> of each year based on anticipated production using either Production Insurance or AgriStability insurance. After October 1<sup>st</sup> of each year, security may be based on inventory on hand, without the Production Insurance or AgriStability requirement.

Major improvements have been made for both programs in 2014 (APP) and 2015 (CLP). Five advance/loan rates are now available ranging from 9 cents to 31 cents per pound for the APP program and from 13 cents to 46 cents per pound for the CLP program. These price levels recognize higher priced apple varieties. More changes are coming in 2016, including additional forms or security, online applications, and enhanced repayment terms. Visit [www.agcreditcorp.ca](http://www.agcreditcorp.ca) for details and updates.

### **GROWER INFORMATION AND COMMUNICATIONS**

The OAG utilizes several means to reach our membership. All newsletters are currently distributed by mail with eleven OAG newsletters sent between December 2014 and October 2015. The OAG also looks after distribution of OMAFRA's Orchard Network Newsletter which is distributed four times a year.

### Summer Orchard Tour

Once again the OAG organized the Ontario Apple Summer Tour which was held on July 21<sup>st</sup> in Essex County. There were over 150 apple farmers and industry representatives in attendance and they toured four locations in this apple growing area. The tour took us to Mori Essex Nursery, E & B Medel Orchards, Sugar Apple Orchards and The Fruit Wagon.

Thank you very much to our tour hosts for welcoming the group and sharing their experiences. Each stop had multiple speakers and we thank the many industry extension experts who shared their research and activities with the group.

The OAG would like to recognize the wonderful financial support received from industry. This enabled us to offer the tour and meals free for OAG members. Our sincere thanks to:

- Lakeview Vineyard Equipment
- ProvideAgro
- Dupont
- Engage Agro
- Van Brenk Nursery
- Mori Essex Nurseries
- Vineland Research and Innovation Centre
- Don Arthur Equipment
- Summerland Varieties Corp.
- Kraus Nurseries
- NuFarm
- Grindstone Creek Nursery
- Golden Town Apple Products
- Dow AgroSciences
- Warwick Nurseries
- AEF Global
- AgroFresh
- Huron Fruit Systems
- Syngenta
- NM Bartlett
- Dubois Agrinovation
- MacroPlastics



### PROMOTIONS

The Ontario Apple Growers work in collaboration with Foodland Ontario and the Apple Marketers' Association of Ontario (AMAO) on promotional programs to entice consumers to purchase Ontario apples. This year, we were very fortunate to have Local Food Fund program funding from the Ontario Ministry of Agriculture, Food and Rural Affairs which provided 50% of the cost to assist us with our promotional initiatives.

#### Foodland Ontario Fall 2014 Promotions

- **2014 Foodland Calendar** – Over 590,000 calendars distributed. Ontario Apples were featured in the winter calendar.
- **Foodland Retailer Display Contest** – 286 retailers participated in the 2014 Fall contest. Store winners were located in Mississauga, Picton, Windsor and Kemptville.

#### Foodland Winter and Spring 2015 Promotions

- **Foodland TV Commercials** – Foodland commercials featuring Ontario apples ran for 11 weeks at 3 different time periods during the year. 91% of the target audience saw the commercials on average 20 times. These spots aired in 11 different languages on 600 different occasions.
- **Foodland Radio Ads** – Radio 10 second teaser ads ran for 15 weeks at 3 different time periods during the year. They aired in 32 English markets and 8 French markets. Apples were featured in the fall and winter months.
- **Online Banner Ads** – Banners featuring Ontario Apples ran during the fall and winter months.



- **Transit Shelter Ads** – Localized billboard campaigns (including the large Food Terminal sign on the Gardiner Expressway) achieved 97 million consumer impressions.

**Social Media** – Foodland supports OAG by adding fresh content and recipes as well as sharing and liking our own posts to their very large social media audience. New this year, Foodland has started an Instagram profile to appeal to younger audience with the focus on sharing recipe photos and local food events.

### 2014/2015 OAG Activities

**2014 Royal Winter Fair Promotion** – The Royal Winter Fair is one of our biggest events of the year. Over 330,000 tickets sold for the 10-day event.



Ontario Apples were showcased on the first weekend at the OFVGA Booth and the popular Royal Apple Competition was back again with entries from Ontario, British Columbia and Quebec. We also partnered with Durham College to host two live cooking demos on the new Food and Lifestyle stage. As well, the OAG sponsored the “Road to the Royal” Chefs Challenge. Celebrity Chef Ted Reader hosted the event that featured Ontario Honeycrisp apples as the secret ingredient for both the semi-finals and finals.



**In-Store Sampling Program** – Mosaic was hired to implement a comprehensive in-store sampling program for Ontario apples. We worked to create an experience that showcased Ontario apples at their finest and to bring awareness to the availability of locally grown Ontario apples in the winter months. The program was executed over a 6-week period in February and March. There were over 46,000 apple slices sampled with over 37,000 customer engagements. More than 25,000 engagements directly impacted a new sale. Through this, we gathered more valuable data on our consumers and sold many more apples.



**Social Media** – Social media allows us to ‘tell our story’ directly to consumers. We have made a large commitment to providing relevant and useful content to our followers by supplying them with more stories related to the industry with recipes, news related items, grower profiles, and holiday images. As a result, our audience has seen rapid growth.

- **Facebook** – We have 10,446 ‘Likes’ as of October 27<sup>th</sup> which is up from 8,700 at this time last year. Increased posting with more relevant stories to the industry with recipes, news related items, and grower profiles.

- **Twitter** – 1,549 followers as of October 19<sup>th</sup>, up from 1,077 at this time last year. Most of our shares and followers are related to the local food industry.

**Consumer Contests** – two social media consumer contests were held that gave a large increase to our social visibility. **The Apple of Your Eye Photo Contest** generated 527 Likes and had 205 photos entered. **How do you like them apples? Recipe Contest** generated 861 Likes and had 190 recipes entered. The winners of each contest received \$500 gift cards to the grocery store of their choice.

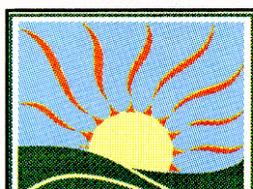
**Farm & Food Care’s Breakfast on the Farm** – was held on September 20, 2015. Hylander Farms in Essex County hosted over 1,800 people to a free breakfast and farm tours. The OAG participated with an information booth, free apples and cider.

**Ontario Produce Marketing Association (OPMA) “Produce Made Simple” Program** – Ontario apples were the featured item for one week (Oct 12<sup>th</sup> – 18<sup>th</sup>, 2015) on the Produce Made Simple website and in their social media campaign. This promotion included tips, recipes and general apple information.

**Baking and Sweets Show** – September 25<sup>th</sup> – 27<sup>th</sup>, 2015 at the Toronto Congress Centre – Our promotion for this show included a Breakfast Television appearance with Chef Emily Richards on baking with apples. Emily also performed an on-stage demo going over tips and tricks with two of recipes featured in the “Baking with Ontario Apples” booklet we had designed and printed for this show. The OAG booth featured samples of Apple Spiced Cupcake from the baking booklet. Samples, brochures and recipes cards were given out throughout the weekend. We also were a part of the “At Home Baking Competition” featuring Ontario Apples recipes. The competition was held via Facebook and Twitter. The winning recipes will be displayed on our website.



The OAG would like to sincerely thank the following organizations for their valuable support with our promotional activities:



**Horticultural Crops  
Ontario**



## **INDUSTRY COMPETITIVENESS**

### **Orchard (Grounder) Juice Apples**

The OAG negotiated with the processors that the price for orchard (grounder) juice apples to processors be determined based on competitive market forces for 2015. The OAGs decision to negotiate using this approach was made in order to allow growers to achieve an appropriate price for their juice apples in today’s market place based on existing market conditions. The OAG would like to sincerely thank the Ontario processor for being receptive and open to this new way of negotiating the price of Ontario juice apples.

There are many favourable competitive market forces this year possibly impacting the price of juice apples. These include:

- The Ontario crop is short; the crop is estimated down 47% from the 2014 crop

- The change in exchange rate from 2014 to 2015 has resulted in a pound of apples being worth at least 20% more in Canadian dollars
- The processing plant located in Ontario has invested in new equipment to improve efficiencies to remain competitive with other processors
- Michigan Agricultural Cooperative Marketing Association (MACMA) negotiated hand-picked processing apple prices increased 1¢/lb. in 2015 over 2014
- Ontario tender fruit processing price negotiations in 2015 have also resulted in pricing increases as follows:
  - Tart cherries - 15% increase
  - Pears - 20% increase
  - Peaches - 7% increase

The processor published a minimum price for grounder juice apples for 2015 at 5.75¢/lb. FOB the farm. This is equivalent to a 4% increase over last year's price (2014 = 5.5¢/lb.). On September 15<sup>th</sup>, an incentive was offered by the processor and the revised price was 7.5¢/lb. FOB. On November 9<sup>th</sup>, the grounder juice price returned to 5.75¢/lb. FOB as the processor had fulfilled all their "not from concentrate" (NFC) contract obligations.

### **Craft Cider**

For several years now, the Ontario Craft Cider Association (OCCA) has been working with the government to implement a program to reduce the taxes paid on craft cider made with 100% Ontario grown apples. The OAG has supported OCCA in this initiative which will provide parity for the craft cider industry which competes directly with the craft beer industry on the LCBO store shelves.

On November 6<sup>th</sup>, Bill 110 "*Growing Ontario's Craft Cider Industry Act*" passed second reading. Bill 110 was co-sponsored by Conservative MPP Sylvia Jones and Liberal MPP Arthur Potts. Once fully implemented, Bill 110 will provide a level playing field for Craft Cider comparable to Ontario's Craft Brewers.

Bill 110 ensures that the tax or mark-up imposed on Ontario Craft Cider does not exceed the mark-up or tax imposed on craft beer in Ontario, ensuring the industry receives the same incentives enjoyed by craft beer producers. With a level field, the potential for expansion of this industry is immense. Increased sales will contribute to Ontario's rural economic growth, create new jobs and strengthen communities throughout the province. Ontario Craft Cider producers use 100% Ontario grown apples and pears and are recognized globally, winning awards in some of the biggest competitions in the world.

### **Research and Development**

The OAG has secured over \$325,299 in research grant funding while providing \$34,000 in grower seed funding. Each year, the Research Committee meets with research extension staff to review the research priorities. Please see page 30 for the extensive list. Below is a synopsis of the many research projects that the Ontario Apple Growers has either managed or provided support (financially or in-kind).

#### **Tree Fruit Physiology and Orchard Management Research – Dr. John A. Cline, University of Guelph**

A ten-year project was initiated in 2014 to determine the horticultural attributes of several new Vineland and Cornell-Geneva size controlling rootstocks with Honeycrisp and Aztec Fuji as the scion cultivars.

Ten trees each of Honeycrisp and Aztec Fuji on 17 different rootstock (B.10, G.11, G.202, G.214, G.30, G.41, G.5890, G.935, G.969, M.26 EMLA, M.7, MM.106, M.9 T337, V.5, V.6, V.7) were planted in 2014 as part of the Canadian Horticultural Council's GF2 Science Cluster project. Trees are trained to a spindle type training system and trickle irrigated. Trees will be monitored annually for trunk circumference growth, tree height and spread, yield, fruit size, rootstock suckering and longevity.

Honeycrisp is a weak growing cultivar that has suboptimal production on M.9 or other dwarfing rootstocks. Increasing tree vigor through the use of a semi-dwarfing rootstock in the size range of M.26 and M.7 may prove to be beneficial for overall productivity, tree performance, and longevity.

This project is being funded for five years by the OAG (through the Canadian Horticulture Council), and is also part of a wider North American NC-140 Project.

**Assessment of the Distribution and Natural Enemies of the Brown Marmorated Stink Bug in Southern Ontario – Cynthia Scott-Dupree (University of Guelph), Hannah Fraser (OMAFRA), Tara Gariepy (AAFC) and Tracey Baute (OMAFRA)**

Brown marmorated stink bug (BMSB) is an invasive pest native to East Asia. First identified in Pennsylvania in 2001, it has now been detected in 42 states and the provinces of Ontario and Quebec. In the northeastern U.S., BMSB has caused serious economic damage to important fruit, vegetable and field crops, as well as ornamental trees and shrubs. Injury to apple can be extensive and can occur throughout the growing season. BMSB was first detected in Ontario in 2010, and an established population was identified in Hamilton in 2012. In addition, there have been confirmed homeowner finds and / or trap captures in 17 counties (31 locations – see Table 1) across southern Ontario: Essex, Kent, Middlesex, Oxford, Bruce, Brant, Haldimand Norfolk, Hamilton-Wentworth, Halton, Peel, Toronto, York, Lennox Addington, Leeds&Genville, and Ottawa-Carleton. These finds have been the result of outreach efforts and submissions to the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Agriculture Information Contact Centre, and to surveys conducted by The University of Guelph, OMAFRA and Agriculture and Agri-Food Canada (2013-2015).

Table 1

Region	Established / breeding population (confirmed)	Adults captured in a pheromone trap (grower sties)	Confirmed homeowner finds (adults)
Golden Horseshoe / GTA	Hamilton St. Catharines	Ancaster, Beamsville, Ilderton, Lincoln, Hamilton, Niagara-on-the-Lake, Niagara Falls, Pelham, St. Catharines, St. David’s, Waterdown, Smithville	Ancaster, Brampton, Burlington, Dundas, Fort Erie, Grimsby, Hamilton, Milton, Niagara-on-the-Lake, Niagara Falls, Oakville, St. Catharines, Stoney Creek, Toronto, Vaughan, Welland
Western Ontario	London Windsor	Cedar Springs, Essex	Cedar Springs, Delhi*, Kitchener, Kincardine, London, Maidstone, Paris, Tecumseh, Windsor
Eastern Ontario	Newboro	N/A	Nappanee, Newboro, Ottawa

Based on three years of field surveys, breeding populations of BMSB are established in Hamilton, London, Newboro, St. Catharines and Windsor. However, multiple finds at most locations indicates populations are likely established but at low levels. Confirmation of establishment followed multiple homeowner finds, indicating the importance of directing outreach efforts beyond the agricultural community.

Several new locations were identified in 2015 using baited traps, however, numbers were down overall relative to 2014 at most locations. There have been no reports of crop injury. Continued monitoring and surveillance are

necessary to document population density and spread from infested areas. Commercially available pheromone trapping systems may be useful as early detection tools and / or monitoring activities. Thresholds and management strategies are still under development for most crops.

Funding for the project “Sustainable Management of Survey for Brown Marmorated Stink Bug in Ontario” (2015-2018) was obtained through the OMAFRA / University of Guelph Partnership Program under the Emergency Management Theme, with the financial support of the Grain Farmers of Ontario, the Ontario Apple Growers, and the Ontario Tender Fruit Growers. Team members include Cynthia Scott-Dupree (University of Guelph), Hannah Fraser (OMAFRA), Tara Gariepy (AAFC) and Tracey Baute (OMAFRA).

The objectives of this work include:

1. Phenology of BMSB in Ontario;
2. Management strategies – biological and chemical control; more efficient ways of delivering the control products; and containment of overwintering aggregations;
3. Development of diagnostic methods in orchard crops (apples and peaches) - improve our ability to identify BMSB damage in the field;

5. Engaging Citizen Scientists through the development of a participatory education program for growers, consultants, and citizens; and
6. Continuation of the survey.

Ongoing survey work is required to confirm BMSB in other parts of Ontario, including those areas associated with new homeowner finds. A better understanding of the phenology, occurrence, and spread of BMSB in Ontario is necessary to develop an IPM strategy to limit the impact of this pest in economically important agricultural crops. Surveys for native natural enemies have shown a diversity of parasitoid species associated with stink bug eggs. However, the ability of native parasitoids to develop on BMSB is relatively unknown and their potential for suppressing BMSB populations warrant further investigation. Screening of candidate insecticides is being conducted by the University of Guelph (MSC student Kaelyn Hunter).

#### **Improving Efficiencies in Ontario Apple Orchards – John Zandstra, University of Guelph**

Work is continuing on a project set up to examining the effectiveness of woodchip groundcover at moderating soil moisture levels with and without irrigation. The goal is to see if mulch can provide some relief of bitterpit in Honeycrisp orchards which are not irrigated.

The Cedar Springs Research Station is also a location of the NC-140 Honeycrisp Rootstock Trial, which was established in 2014 and contains M9 T337, M26 EMLA, MM 106, M7, 3 Vineland rootstocks and 6 Geneva rootstocks. They are collaborating with Dr. John Cline on this project with a second location in Simcoe, Ontario. This project was sponsored by the Canadian Horticulture Council through the Canadian Agri-Science Cluster 2 program.

Trials were also continued at the Cedar Springs Research Station in the spring of 2015 to evaluate the Cornell Precision Thinning protocol. Their “carbohydrate model”, which uses weather data to adjust thinning rates up or down, was provided by Weather Innovations (WIN). These trials were conducted only on Gala in 2015 and were compared to hand thinning and thinning with the thinning disk.

Additionally, Cedar Springs is one of the OAG cultivar test sites with 7 cultivars from AAFC’s Pacific Research Centre (PARC) breeding program first planted in 2012. These plantings include Nicola and Salish. Another 5 varieties were planted in spring 2015.

#### **Trellis Demonstrations for Ontario Apple Farmers – Leslie Huffman and Hugh Fraser, OMAFRA**

As new apple orchards are planted in Ontario, many apple farmers are looking to high density planting systems. These new systems require fully dwarfing rootstocks that require support, and trellising is more cost-effective than individual trees stakes at higher tree densities. There are many aspects of designing and installing successful trellises that are new to many apple farmers. There are many different systems, materials and methods of installation that a grower can choose from. Information on materials, engineering designs, anchorage and methods of installation is very important information for a grower when making the large investment in new orchards, including trellises. The goal of this project was to establish 5 demonstration sites in the different Ontario apple growing regions, evaluate their performance and provide growers with the opportunity to learn about different options available to them. The project is now complete with the establishment of the sites and a comprehensive fact sheet which has been distributed to all OAG members and is available on the website. Going forward, the OAG will look to engage the assistance of the provincial horticultural engineer to visit the sites and continue to evaluate the trellis systems.

This project is funded in part through *Growing Forward 2* (GF2), a federal-provincial-territorial initiative. The Agriculture Adaptation Council assists in the delivery of GF2 in Ontario.

**Efficacy of applying Calcium Chloride to apple trees during the growing season to manage bitter rot on apple fruit at harvest - Michael Celetti, Eric Pate (acting for Kristy Grigg-McGuffin), Amanda Green and Christoph Kessel, OMAFRA**

During the past few growing seasons in Ontario, unusual spots and blotches on apple fruit were observed during warm weather, particularly on Golden Delicious and Gala. Fruit rot symptoms appear as tan to dark brown sunken lesions that develop salmon-colored spores in humid or wet weather. Preliminary surveys have determined the fruit spots to be caused by *Colletotrichum acutatum*, the causal agent of Bitter rot.

Currently, there is little information available on management strategies for bitter rot in apples grown in Ontario. Recently, Allegro (fluazinam), Pristine (boscalid+pyraclostrobin) and (thiram) have been registered for bitter rot in apples. Other fungicides appear to have activity against diseases caused by this pathogen in other crops that, if registered on apples, could be used as part of an integrated pest management strategy. However, alternative products should also be investigated and, if found efficacious, integrated into the fruit rot management strategy. Applications of calcium salts and particularly calcium chloride ( $\text{CaCl}_2$ ) were shown to significantly reduce bitter rot incidence and severity in apples in inoculated trials conducted in West Virginia (Biggs1999). Unfortunately, the  $\text{CaCl}_2$  was applied at different times over the 3 years that the trials were conducted and no information on optimum timing of the  $\text{CaCl}_2$  was determined.

A project was initiated in 2014 to investigate the efficacy and application timing of  $\text{CaCl}_2$  applied as a foliar spray on apples trees cv. Ambrosia during the growing season for the control of bitter rot on fruit at harvest. Water was applied to separate trees to serve as untreated check. Trees were assessed for phytotoxicity and calcium (Ca) in leaves and fruit just prior to harvest. Diseased-free fruit, harvested from the untreated trees and trees receiving three  $\text{CaCl}_2$  applications at different times during the growing season, were also assessed for fruit rot development after 1, 2 and 3 weeks in cold storage as well as after 3 months in Controlled Atmosphere (CA) storage.

$\text{CaCl}_2$  applied to apple trees cv. Ambrosia for three consecutive weeks at three different times during the growing season (Late June – early July; Late July – early August; Late August) did not provide adequate control of Bitter rot at harvest. Symptomless apples harvested from the trees treated with  $\text{CaCl}_2$  developed bitter rot both in cold storage and after Controlled Atmosphere (CA) storage. Fruit harvest from trees that received 9 applications of water, which was supposed to serve as an untreated check, had significantly less bitter rot at harvest and did not develop bitter rot in cold storage or after CA storage. Furthermore, Ca levels in leaves and fruit collected from trees treated with 3 applications of  $\text{CaCl}_2$  had lower Ca levels in the tissue than leaves and fruit from trees receiving 9 applications of water. Analysis of the water used in the trial indicated it contain 100 ppm of Ca. It appears from the preliminary trial in 2014, that calcium may reduce bitter rot when applied throughout the summer growing season; however, because there were no trees that were not treated in the trial, it is difficult to determine if  $\text{CaCl}_2$  can reduce Bitter rot.

Based on the results and the flaw of the experimental design in 2014, another project was initiated in 2015 to compare the efficacy of applying  $\text{CaCl}_2$  in distilled water (without Ca) as foliar sprays throughout the 2015 growing season to recently registered fungicides such as Pristine and Allegro for the control of Bitter rot in apple fruit at harvest. The  $\text{CaCl}_2$  and fungicide treatments were compared to applying distilled water, water naturally containing 100 ppm of Ca (source of water in 2014 trials) and no treatment. All treatments were applied every 10-14 days throughout the 2015 season for a total of 6 applications in 2015. Unfortunately, the trial was inadvertently harvested by the grower co-operator before yield assessments for bitter rot incidence and severity could be conducted.

Funding for these projects was through Horticulture Crops Ontario.

**Fire Blight Risk Initiative - Michael Celetti, OMAFRA Plant Pathologist Horticulture Crop Program Lead and Susannah Ripley, OMAFRA Summers Student**

Weather data from 71 locations across southern and eastern Ontario was collected 3 times per week (Monday, Wednesday and Friday) and input into the Cougar blight model to predict conditions conducive for fire blight infection of open blossoms throughout May 2015. The model predicted a 7-day fire blight risk

which was updated, mapped and posted to the OMAFRA website (<http://www.omafra.gov.on.ca/english/crops/facts/fireblight-2.htm>) throughout May 2015 to help apple growers time the application of fire blight prevention products. The OAG emailed the members each time there was an update to the website.

The Cougar Blight model indicated several periods of potential fire blight inoculum build up and infection of unprotected open blossoms during the month of May 2015. Open blossoms were reported in both District 1 and 2 around May 11<sup>th</sup> when environmental conditions were very high to extreme for fire blight infection of open blossoms from May 5<sup>th</sup>-15<sup>th</sup> in the southwestern region of the province. Although conditions were very high to extreme in other apple growing regions of the province, trees were either at tight cluster to pink and therefore not at a susceptible stage for infection during most of this time period. However, all regions reported King Bloom to full bloom by May 15<sup>th</sup>. The temperatures cool down significantly across the province with frost reported in many regions on May 16<sup>th</sup>. The cooling temperatures also lowered the possibility of infection briefly. Unfortunately, the risk of fire blight infection of unprotected open blossoms began to increase again on May 17<sup>th</sup>-18<sup>th</sup> starting in the south, central and Georgian Bay regions of the province culminating in a high to extreme risk of infection from May 19<sup>th</sup>-21<sup>st</sup>, 2015 for all apple growing regions across the province. During this time, most apple growing regions were reporting open blossoms that were susceptible to fire blight infection, although petal fall was reported in District 1<sup>st</sup> and 2<sup>nd</sup> on May 19<sup>th</sup>. The temperatures began to cool down briefly across the province on May 22<sup>nd</sup> which lowered the infection risk for most regions except in the far eastern region of the province. The temperatures began to increase again across the province starting on May 23<sup>rd</sup> culminating in a high to extreme risk of fire blight infection of unprotected open blossoms in most apple growing regions during the period of May 24<sup>th</sup>-30<sup>th</sup>. Many apple growing regions were reporting full bloom in the eastern and Georgian Bay regions to petal fall in the southern and central regions from May 24<sup>th</sup>-25<sup>th</sup>. Most apple growing districts reported petal fall by May 25<sup>th</sup> with District 1 and 2 reporting post-bloom. All regions reported either open blossoms or 'rat tail' blooms during the last week of May which were very susceptible to fire blight infection if left unprotected.

### **Apple Variety Testing Projects**

The OAG has partnered with two leading organizations to maximize our work in the area of apple variety breeding and evaluation.

### **Canadian Tree Fruit Products Development – Erin Wallich, Summerland Varieties Corporation**



The Grower Testing Program is a research partnership between Ontario Apple Growers (OAG), Summerland Varieties Corp. (SVC) and Le Réseau d'essais de cultivars et porte-greffes de pommiers (RECUPOM) and is designed to test new varieties of apples across the tree fruit growing regions of Canada. The testing is funded by industry and government with 74% of financial support provided by Agriculture and Agri-Food Canada (AAFC) through the Growing Forward II - Agri-Innovation Program (AIP).

The objective of the Grower Testing Program is to develop and implement a comprehensive testing program for new apple selections developed in Canada, primarily those bred at AAFC's Pacific Agricultural Research Centre (PARC) in Summerland, BC. After identifying varieties with potential economic benefits to the Canadian apple industry, the first stage of commercial testing involves planting those varieties in orchards across Canada to prove they can be successfully grown in each region. Varieties that pass the first stage of testing will then be planted in larger numbers to provide sufficient fruit for large-scale commercial testing. These tests will show whether the fruit of the variety retains premium quality throughout commercial storage, pack, and retail display, and whether the apple has enough consumer appeal that people will choose it over other commercial varieties.

As part of the original Growing Forward funding, OAG planted seven new PARC apple varieties in 2012. The varieties were planted in 11 orchards in each of the five growing regions. The 2012 test trees were in their third year of fruit production when SVC staff visited each of the sites in October. SVC staff observed

that the varieties performed well on most sites, though there were instances of too large fruit size and poor crop yield in a few orchards. Additionally, with the freezing temperatures during bloom timing, apples on the North shore of Lake Ontario were severely damaged, and the trees in the Simcoe area had completely lost their crop. The cold weather may have also been responsible for the extensive russetting of SPA440 (Nicola) which may suggest that this variety is not suitable for Ontario growing conditions.

In addition to visiting the test orchards, the SVC staff visited Vineland Research and Innovation Centre (VRIC) to arrange sensory evaluation of the new PARC varieties. Vineland's Trained Sensory Panel will evaluate the varieties relative to commercial benchmarks using 18 sensory attributes (aroma, taste, texture) and descriptive analysis. The analysis will identify the sensory profiles of the apples as well as the similarities and differences between varieties. Most importantly, the information will be integrated with Vineland's Apple PrefMap, which is a series of reference points for consumer drivers and detractors of preference, to show whether the new varieties have attributes that would predict high consumer appeal.

### **Update on Varietal Testing at Vineland Research and Innovation Centre – Dr. Daryl Somers, Vineland Research and Innovation Centre**

In last year's report on apple breeding at Vineland, Dr. Daryl Somers, Vineland's Director of Applied Genomics, indicated that his main goal for 2015 was to increase the size of the seedling nursery with high quality candidate apple selections. To reach his target of 25,000 unique nursery seedlings, in 2014-2015 Dr. Somers and staff tested a new apple breeding strategy which included both a way to optimize seed production and a way to screen seedlings in the greenhouse. They first used a pollination technique, adopted from collaborators at Better3Fruits in Belgium that allowed them to make many controlled crosses



without damaging the apple flowers. This pollination method ensured a high seed yield from each cross. Next, to improve the overall quality of their new seedling population, the breeding program used a DNA-based screening method to identify which seedlings has the best potential to naturally produce superior apples. In this screen, Dr. Somers' program focused on high-consumer impact traits such as good fruit firmness, excellent storability, and balanced acidity, and selected the seedlings most likely to have all three desirable features. Although Vineland's 2014 apple seedlings will not bear fruit for another 2 years, the success of their new breeding strategy is already clear. In early 2015, Dr. Somers and staff were able to germinate 20,000 apple seedlings from 35 crossing combinations of these almost 7,000 individuals were selected for their potential to produce excellent apples. They then budded those 7,000 apples to the seedling nursery and, in doing so both increased their total number of seedlings to 11,000 and dramatically improved their chances of finding the next great apple variety.

Building on the success of their 2014-2015 breeding strategy, this year Vineland was awarded funding from the University of Guelph-OMAFRA partnership and the federal Agri-Innovation Program to continue and expand their apple breeding program. In 2015, Dr. Somers and staff made another series of crosses, this time using new and diverse parental material, including advanced selections from Belgium, disease resistant varieties from Purdue University, and high quality commercial cultivars. As well, they are coming close to being able to apply some recent sensory and consumer research to screen apple seedlings for other target traits such as juiciness, crispness, and fresh apple flavour. Dr. Somers predicts his program will meet their 25,000 seedling goal by the fall of 2017. As those seedlings mature, their next and most eagerly anticipated challenge will be that of tasting all the fruit.

### **Advanced Low Oxygen Storage for Ontario Apples – Dr. Jennifer DeEil, OMAFRA**

This project is a two-year study led by Dr. Jennifer DeEil (*Fresh Market Quality Program Lead* with OMAFRA) to test a new dynamic CA control system, used to determine safe low oxygen levels for Ontario apple cultivars.



Results to date include installation of new additional equipment at the OAG Storage Lab, including new controllers that will allow for ultra-low oxygen concentrations to be utilized within the new SafePod™ storage technology. This system allows for monitoring fruit health (through respiration) so that the absolute lowest oxygen concentration can be determined in relation to fruit stress. Preliminary tests using the SafePod technology during the 2014-15 season showed that low oxygen limits varied among cultivars and the overall fruit stress level was lower than anticipated (<1% oxygen). In a more robust trial, ‘Gala’ and ‘Empire’ apples from the 2015 Ontario apple harvest are currently in long-term storage using SafePod technology at the OAG Storage Lab.

Data and results from testing such new advanced storage control system technology will provide apple growers and CA storage operators with optimum oxygen and carbon dioxide levels for their storages, assisting the industry in supplying superior quality fruit throughout the year. The ability to expand the season for fresh Ontario apples, through improved quality and storability, will enable more local fruit consumption for a longer period of time.

This project is funded in part through *Growing Forward 2* (GF2), a federal-provincial-territorial initiative. The Agriculture Adaptation Council assists in the delivery of GF2 in Ontario.

### **Canadian Agri-Science Cluster for Horticulture 2**

The following industry-driven issues, which were common throughout the collaborating provinces, are being investigated with funding from the Canadian Agri-Science Cluster for Horticulture 2 (within the Growing Forward 2 program) with total funding of \$1.5 million over 5 years (2013 to 2018).

- *Optimizing Storage Technologies to Improve Efficiency, Reduce Energy Consumption, and Extend the Availability of Canadian Apples – Dr. Jennifer DeEil, OMAFRA*
- *Improving tree fruit storage management using weather based predictions of fruit quality at harvest – Dr. Gaetan Bourgeois, AAFC*
- *Performance of Honeycrisp on New Size-Controlling Rootstocks – Dr. John Cline, University of Guelph*
- *New biological control agents for postharvest diseases of pome fruit – Dr. Louise Nelson, University of British Columbia*

In 2014, CHC implemented a communications plan and is posting Cluster 2 reports to the CHC website on a semi-annual basis (November and May) which are posted on their web site ([www.hortcouncil.ca](http://www.hortcouncil.ca)) and on the OAG web site ([www.onapples.com](http://www.onapples.com)). CHC will also be developing a success stories booklet, and conducting a series of surveys for Cluster 2 participants, including researchers, administrators and industry contributors.

### **Tree Fruit Cost of Production/Profitability Tracking & Reporting System – Larissa Osborne, Ontario Apple Growers & Ontario Tender Fruit Growers**

This multi-year project which aims to modernize the way Ontario’s tree fruit industry (apples and tender fruit) tracks and reports cost of production data both at the industry level and the individual grower level.

At the industry level, the Ontario Tender Fruit Growers and the Ontario Apple Growers perform the rigorous process of surveying grower members for industry cost of production data. This data is compiled into a Cost of Production (COP) document that serves as a valuable benchmark for our stakeholders.

At the grower level, a tremendous opportunity exists to provide a cost of production/profitability tracking and reporting system for various aspects of individual grower operations. Growers would benefit from a user friendly tool designed to help track their costs and gauge profitability by selected criteria. FruitTracker.com currently exists as a record keeping, orchard management software system. It draws on grower's GPS data and tracks production activities such as spray, fertilizer and harvest events to which cost tracking functionality would be linked. The design and development of tools for capturing labour costs accurately and efficiently would provide valuable information that growers could use to expedite work flow and enhance labour productivity.

This project is funded in part through *Growing Forward 2* (GF2), a federal-provincial-territorial initiative. The Agriculture Adaptation Council assists in the delivery of GF2 in Ontario.

### **Tree Fruit & Grape Worker Health and Safety Manual and Online Module – Workplace Safety and Prevention Services (WSPS)**

This joint project acts upon the opportunity to reduce risk and injuries within the Ontario apple, tender fruit and fresh grape sectors. The project aims to provide grower members with relevant and practical health and safety information, templates and tools, integrated within the FruitTracker.com record keeping management system to help manage health and safety in their operations. In 2015, a series of regionally scheduled training workshops for growers were held in each of the apple growing districts in Ontario. The purpose of the workshops was to provide growers with training on how to access and utilize the templates and tools to assess the hazards in grower's individual operations, to develop and upload policies and procedures appropriate to their operations in FruitTracker and how to best adapt the safe practices to their operations.

This project is funded in part through *Growing Forward 2* (GF2), a federal-provincial-territorial initiative. The Agriculture Adaptation Council assists in the delivery of GF2 in Ontario.

### **Economic Impact Study – John Groenewegen, JRG Consulting Group**

The OAG is undertaking a comprehensive industry economic impact assessment which will provide the entire Ontario apple industry and its stakeholders with an analysis of the overall economic impact and contributions of the apple industry within Ontario and will become a valuable tool towards appropriately strategizing for the future. The main reasons for doing this project are to:

- build the capacity of Ontario apple industry producers and stakeholders;
- assist in the allocation of resources for future projects related to Ontario apples;
- provide information to Ontario apple stakeholders assessing the potential for investment strategies to retain or expand an existing business and/or attracting new business & economic activity;
- assist the industry in planning for change;
- provide all Ontarians (including current Ontario apple consumers) with increased knowledge on the economic impact and importance of apples grown, packed, processed and sold in their home province.

This project is funded in part through *Growing Forward 2* (GF2), a federal-provincial-territorial initiative. The Agriculture Adaptation Council assists in the delivery of GF2 in Ontario.

### **Growing Forward 2 Organic Science Cluster Projects**

The OAG is a partner on two projects within the Growing Forward 2 Organic Science Cluster. Both projects will run until March 31, 2018.

### **Development of organic control strategies for apple scab - Dr. Deena Errampalli, AAFC**

The project has two main objectives:

(1) To test or evaluate full season organic spray programs consisting of Sulphur, liquid lime sulphur alone or in combination with the following:

- a. *Bacillus sp. Trichoderma* or other biocontrol agents (endophytes)
- b. Methyl jasmonate, chitosan (Elexa) or other plant resistance activators

- c. Evaluation of full season spray program field trials
- d. Management of leaf debris: with biological sprays and shredding of debris

Apple scab, caused by *Venturia inaequalis* (Cooke) G. Wint., is an important fungal disease worldwide, especially during the years of above-average rainfall. Apple scab is the single major disease that affects organic apple production in most regions of Canada and the organic apple growers experienced difficulty in controlling fungal disease during the summers. There is a need for new pest control products for apple scab control in organic orchards. Isolation and application of endophytes from apple for the control of apple scab has a great potential for significant innovation. The identification and testing of most effective field program for apple scab control is another objective of this study.

During 2014-15, the protocols and procedures for laboratory, greenhouse and field plans were set up for the objectives of this project. Endophytic fungi or bacteria were isolated from three different sources:

- a) apple tree roots from a conventional apple orchard
  - Results show that a total of 48 bacterial and 15 fungal isolates were collected from apple tree roots from this source.
- b) apple tree roots from an organically managed trees
  - Results show that a total of 12 bacterial and 6 fungal isolates were collected from apple tree roots from this source.
- c) apple plants grown in the greenhouse
  - Results show that a total of 4 fungal isolates were collected from the roots but neither fungi nor bacteria could be isolated from the apple leaves.

All these microorganisms were characterized visually. Further characterization of these endophytic microorganisms for the suppression of *V. inaequalis*, the causal agent of apple scab on apple seedlings from the different cultivars will be carried out in 2015-2016.

The goal of another experiment was to identify most effective spray program with organic fungicides against *V. inaequalis* to reduce development of apple scab in 'McIntosh' apples in the orchard. The apples were sprayed with three organic fungicides, a water control and a conventional chemical control. The three organic fungicides used were 80% Sulphur (Kumulus) and 0.25% *Reynoutria sachalinensis* and 0.25% pre-bloom and 0.75% post bloom *R. sachalinensis* (Regalia #1 and #2 respectively). Foliar rating scale was used to record weekly observations of the presence of apple scab on 'McIntosh' apple leaves. Disease ratings on fruits were recorded three times. Observations showed a gradual increase in apple scab disease progression over three months. The results indicated that sulphur was the most effective fungicide in reducing apple scab disease on 'McIntosh' apple leaves and fruits. *R. sachalinensis*, an organic fungicide treatment, also significantly reduced the apple scab disease as compared to control on 'McIntosh' apple fruits. Trial will be repeated in 2015-16.

(2) Project evaluation, using the data from the objectives above, generate economic analysis of organic spray programs and improve recommendations for the control of apple scab and postharvest diseases in organic apple orchards. This objective will be studied in 2016-18.

### **Integrated organic practices in apple orchard management - Dr. Julia Reekie, AAFC**

The overall objective of the project, 'integrated organic practices in apple orchard management', is to develop innovative ground cover systems for supplying nitrogen to organic apple orchards for the maintenance of tree health and to devise effective pest management practices to safe guard marketable organic apples so as to meet consumer demands. There are three project studies:

(1) *The impact of a modified 'Swiss sandwich' system on fruit production in an organic 'Honeycrisp' orchard in Nova Scotia (project lead: Julia Reekie, AAFC)*

This 4-year project studies the long-term impact of a modified Swiss sandwich system of ground cover management on soil nitrogen supply, tree performance and fruit quality in an organic 'Honeycrisp' orchard in Nova Scotia. Each treatment plot consists of a row of three experimental trees with one guard tree on either end. A strip of 0.5 m natural vegetation is left in the tree trunk line and two 0.75 m wide, tilled bare strips are

placed on each side of the tree line (with natural vegetation strip) in each plot. Cover crops are grown according to the experimental lay-out in 3.5 m wide lane ways in between the two tilled bare strips and will be mowed and incorporated as mulch (added nutrients) into the tilled bare strips of each of the treatment plots.

Six cover-crops treatments are used:

1. Bare ground (control)
2. Red clover oat mix
3. Pea, oat, hairy vetch mix
4. Sweet clover and oat mix
5. Triple mix (red clover, alsike clover, timothy grass)
6. Alfalfa

Analysis of variance performed on the 2014 data showed no significant difference in fruit yield or SPAD readings among treatments. Tree fruits are long-lived perennial crops which may take longer to respond to treatments.

*(2) The efficacy of Quassia Extract in the control of European apple sawfly (EAS) (project lead: Julia Reekie, AAFC)*

In order to test the hypothesis that Quassia extract is efficacious in the control of both primary and secondary European Apple Sawfly (EAS) damages in apples, we conducted field trials in Nova Scotia and Ontario. In Nova Scotia, a research orchard with known history of EAS infestations located at the Atlantic Food and Horticulture Research Centre (AFHRC) in Kentville was used. Randomized complete block design was employed with nine replications to test four rates of Quassia extract: 0 g quassin/ha (control), 3 g quassin/ha (low rate), 6 g quassin/ha (medium rate), and 9 g quassin/ha (high rate). In Ontario, in two commercial apple orchards, Quassia extract at a rate of 6 g quassin/ha was applied to experimental trees on two dates (early vs. late applications) and compared to trees which received a commercial standard (Calypso) spray.

All three trials were successfully carried out and yielded useful data to show that Quassia extract is effective in the control of EAS. In Nova Scotia, apples received no Quassia extract sustained 36% primary and secondary fruit damage indicating that pest pressure was relatively high in 2014. Yet apples received low, medium and high rates of Quassia extract only sustained respectively 4%, 2% and 1% of primary fruit damage with the exception of one (low-rate) apple with secondary damage. In Ontario, apples received Quassia extract (applied early or late) sustained negligible amount of EAS damage and they compared well to those apples sprayed with Calypso.

Quassia Extract has been identified by growers as a biopesticide priority at the 2014 Minor Use Priority Setting meeting in Ottawa, and it is going to receive regulatory support. Our project to study the efficacy of Quassia extract in the control of European apple sawfly will contribute to the future registration of this control product.

*(3) Rates, timing and trunk injection of promising scab-resistance inducing compounds (project lead: Pervaiz Abbasi, AAFC)*

Apple scab and black rot or Frog eye are two important fungal diseases that affect apple leaves early in the growing season. Management of both these diseases is a challenge in organic apple production where effective chemical fungicides cannot be used. Salicylic acid has been found to induce plants own defense mechanisms to reduce initial disease infections. In this study, analogues and metabolites of salicylic acid were applied as trunk injections and spray treatments to measure their effects on the development of apple scab and black rot on Honeycrisp and Cortland apple trees in the field. Both spray and injection treatments were applied at the tight cluster stage of bud development and again near bloom. Incidence of leaf infection was assessed in plants 7 days after the second treatment and within plant severity and incidence measurements taken 14 and 21 days after the second treatment. For injection treatments, the branch directly above the injection site was assessed independently of the remainder of the tree. Fungal infections

for the remainder of the growing season were controlled by applying sulphur (Kumulus) to control secondary infections while insects were controlled using Trounce and Dipel2X.

Black rot symptoms did not appear on Honeycrisp leaves until the second week of the trial. The cultivar Cortland showed higher tolerance to black rot than the cultivar Honeycrisp, whereas the cultivar Honeycrisp showed higher tolerance to apple scab than the cultivar Cortland. In summary, salicylic acid applied as trunk injection and as spray treatments always gave lowest black rot and apple scab incidences on leaves and fruit. Injection technology needs to be optimized as chemical residues were found in shells of all injection treatments.

### **Other Research and Services**

**AppleTracker.com** – The web-based system ‘AppleTracker.com’ is maintained by the Ontario Apple Growers as an online system providing a comprehensive tool for growers to record their spray records, harvest data as well as shipping and storage information. This program also provides growers with the reports needed for CanadaGAP food safety program.

**The OAG Storage Lab** – The OAG Storage Lab is located at Norfolk Fruit Growers’ Association in Simcoe, Ontario and continues to pay benefits for the Canadian apple industry. When first established, the storage lab was supported by the Apple Working Group members of Canadian Horticultural Council with cost-shared funding from the CanAdvance Program. The Lab continues to be fully utilized again this year. The industry very much appreciates the cooperation of the Norfolk Fruit Growers’ Association and the efforts of Dr. Jennifer DeEil, OMAFRA Post-Harvest Lead.

### **Acknowledgements**

The Ontario Apple Growers acknowledges and thanks the support of our many funding partners. In the above research report we have acknowledged the partners for each of the projects.

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## OAG APPLE RESEARCH AND SERVICES PRIORITIES

November 2015

<b><u>Innovative IPM Systems</u></b>
ENHANCING IPM KNOWLEDGE AND PRACTICE IN CURRENT PRODUCTION SYSTEMS, INCLUDING INCORPORATING NEW PESTICIDES, ALTERNATIVE CONTROL MEASURES, UNDERSTANDING PEST/BENEFICIAL DYNAMICS, AND IMPACTS ON FRUIT QUALITY & STORABILITY
Document the progress made in the Ontario apple IPM program and organic apple production in a format that can be used for consumer education and awareness. Topics could include: alternative techniques, sustainability, environmental stewardship, use of beneficials, etc.
Emerging Pest Issues: Expanding infestation areas Apple leaf curling midge, Apple maggot, mites, bitter rot, borers and European apple sawfly. Re-emergence of San Jose Scale and cankers.
Development of sustainable IPM practices and resistance management including pesticide efficacy testing, pesticide timing using degree day predictive models, mating disruption strategies and evaluation of biological controls.
Strategies for management of Fire Blight on pome fruit including nursery tree health, plant growth regulators, cultural methods, bio-pesticides, predictive models and non-chemical alternatives especially in high density systems and for in-season trauma blight.
Development of an integrated approach for difficult diseases and disorders such as Black and Bitter rot (including cankers), Russetting, Root and Crown rot (e.g. replant disease).
Due to the loss of broad spectrum products, evaluate late season reduced risk insecticides for apple maggot, OBLR, Codling moth, Woolly Apple aphid and OFM including the efficacy of border sprays.
Invasive species/pest issues (e.g. Brown marmorated stink bug, Apple clearwing moth, viruses and phytoplasma).
Characterization of the changing patterns of resistance in Powdery mildew, Apple scab, Fire blight, Codling moth, Oriental fruit moth (OFM) and mites and ongoing sustainable and affordable resistance testing service for growers.
Optimizing sprayer performance for improved coverage, product efficacy and controlling input costs by eliminating wasted spray. Investigate new application technology techniques such as fixed sprayer systems or storage fogging.
<b><u>Postharvest Strategies for Apple Quality</u></b>
Storage Technology – including the development of best practices for SmartFresh and Harvista (1-MCP orchard spray), storage recommendations for new varieties and new storage technology related to fruit stress and/or energy efficiency.
Control and Management of Storage Diseases and Disorders – including fungicide resistance, investigation of new products for control and optimizing storage regimes to reduce disorders.
<b><u>Marketing Strategies</u></b>
Consumer preference testing and taste profiling to guide future cultivar development and planting decisions.
New value-added product development utilizing fresh apples.
Research on the healthy attributes of apples and apple products including areas such as nutraceuticals, functional foods (e.g. antioxidants, bioflavonoids and other functional components) and the long-term health effects.
<b><u>Crop Cultural Management</u></b>
Orchard system efficiencies with the goal of reducing labour and grower cost of production (for example robotics, platforms, high density systems, mechanical thinners, light interception methods, fixed application systems, mechanized pruning/hedging and harvest options).
Development of practical approaches to in-field maturity assessments including fruit firmness, brix and colour to assist growers in determine optimal harvest timing.
Developing and evaluating new apple cultivars and selections.
Evaluation of rootstocks for high density orchards for hardiness, disease resistance and orchard performance.
Research to enhance the production of quality and affordable nursery stock.
Research and evaluation to optimize crop nutrition, including soil-applied foliar and fertigation programs including efficacy and cost-effectiveness analysis.
Develop irrigation scheduling and performance for high density orchard systems.
Evaluation of frost and other risk management protection methods including weather monitoring equipment.
New recommendations for plant growth regulators including thinning (precision crop load management), stop drop, early cropping and canopy development. Research and development on thinning options as consistent and effective as carbaryl with a wide application window.
Enhancing the habitats of natural pollinators to augment the use of pollination services.
Evaluation of new pollination methods including the use of bumblebees and inter-planted crabapples. Re-evaluate recommendations to ensure adequate pollination of new cultivars and throughout high density orchards, including integrating honeybees, commercial bumblebees, natural pollinators and crabapples pollinizers.



## **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. CanadaGAP has been benchmarked and officially recognized by the Global Food Safety Initiative (GFSI). Audit and certification services for the program are delivered by third party, accredited Certification Bodies. Apple farmers, packers and wholesalers across Canada have been active participants in the program since 2009. In Ontario, almost 120 apple growers and packers are CanadaGAP-certified.

Over 2,800 produce companies across Canada are enrolled for CanadaGAP certification, including more than 100 farms in the U.S. Repacking, wholesaling and brokerage operations participating in CanadaGAP are also increasing. Certification for brokerage was introduced in April 2015, and the first operation is expected to be CanadaGAP-certified by the end of the year. Benchmarking of certification Option D for repacking and wholesaling is underway by the Global Food Safety Initiative (GFSI) and is expected to be complete in early 2016. CanadaGAP successfully completed CFIA Technical Review of the program management system in 2015, and is in progress with the final stage of Government Recognition. The “implementation assessment” phase requires CanadaGAP to demonstrate to government the effective delivery of program audits and the effective administration of the system by the national office. The goal is to complete the final steps in time for the coming into force of new food safety regulations for fresh produce in Canada, likely in 2016. A major change occurred this past season with the departure of certification body QMI-SAI Global from the program. QMI-SAI is no longer offering CanadaGAP audits and certification. If you are due for an audit or self-assessment review by QMI-SAI and have not yet chosen a new certification body, please contact the CanadaGAP office without delay.

## **CHC APPLE WORKING GROUP UPDATE**

Over 35 producers and other stakeholders met during this year’s CHC Apple Working Group (CHC-AWG) mid-summer meetings in Kentville,



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Conseil  
canadien de  
l’horticulture

Nova Scotia on August 4th to 5th. The meetings were followed by a full day of orchard tours in the region, hosted by Nova Scotia Apples and the Nova Scotia Fruit Growers’ Association.

The CHC-AWG focused on three main subjects during its meetings: Industry Strategy, Priorities, and Issues Management; the possible dumping of Washington State apples into Canada; and the potential application of retaliatory tariffs on imported apples from the United States arising as a consequence of the application by Canada of WTO approved retaliatory tariffs as a consequence of Country of Origin Labelling (COOL) contraventions by the United States. There was a strong presence of senior staff from the AAFC Science and Technology Branch who assisted CHC members during their discussions on Industry Strategy and Priorities and a renewed National Apple Industry Strategy, based on the previous work accomplished in 2007.

## **CHC General Update**

In the lead up to the 2015 federal election, CHC worked with all main parties to gain their commitment for the development and implementation of a mechanism similar to features of the USDA’s Perishable Agricultural Commodities Act in support of Canadian fruit and vegetable grower, shippers and packers. On October 7, the Liberals came out in support of the creation of such a mechanism as well as agreeing to work with the US to reinstate protection for Canadian produce sellers which was revoked by the USDA on October 1, 2014.

While payment protection for produce sellers has been a priority issue for Canada’s horticultural sector during this election, numerous issues are on-going and will require continual engagement with government at all levels. Going forward, the CHC will continue to work with the Liberal Party of Canada and MPs of all

parties to grow and nurture a strong and healthy produce sector. Plans are well underway to engage in meaningful interaction with the new government on the breadth of issues that will strengthen Canada's horticultural sector.

### **Canadian Agri-Science Cluster for Horticulture 2**

The following industry-driven issues, which were common throughout the collaborating provinces, are being investigated with funding from the Canadian Agri-Science Cluster for Horticulture 2 (within the Growing Forward 2 program) with total funding of \$1.5 million over 5 years (2013 to 2018).

*Optimizing Storage Technologies to Improve Efficiency, Reduce Energy Consumption, and Extend the Availability of Canadian Apples – Dr. Jennifer DeEll, OMAFRA*

- 1) Methods to control CO<sub>2</sub> injury without the use of diphenylamine (DPA)
- 2) Determination of DPA residues throughout storage facilities
- 3) Optimizing storage regimes for 'Honeycrisp' and 'Gala'
- 4) Effects of cooling rate on apple quality after storage

*Improving tree fruit storage management using weather based predictions of fruit quality at harvest – Dr. Gaetan Bourgeois, AAFC*

- 1) Bioclimatic models of apple quality at harvest and in storage will be updated or developed based on the available historical data and on the new information obtained in this project. All models will be integrated in the CIPRA (Computer Centre for Agricultural Pest Forecasting) software and made freely available to the Canadian apple industry.

*Performance of Honeycrisp on New Size-Controlling Rootstocks – Dr. John Cline, University of Guelph*

- 1) Measure the precocity and performance of new size-controlling rootstocks and to compare these against industry standard M.9 and M.26
- 2) Determine rootstock effects on calcium disorders, whole tree physiology, and fruit storage potential
- 3) Assess the productivity of more vigorous rootstocks M.106 and M.7 against M.26 – with a close examination of graft union compatibility

*New biological control agents for postharvest diseases of pome fruit – Dr. Louise Nelson, University of British Columbia*

- 1) Test several bacterial antagonists of postharvest fungal pathogens to determine their potential for development as a commercial biological control product.
- 2) The proposed research is necessary to develop a comprehensive data package showing their ability to control postharvest disease under varying conditions in two major apple growing regions of Canada. This information will help us determine if their efficacy is sufficiently broad in scope to warrant further development.
- 3) Determination of the optimal concentrations, application mode and timing are essential pieces of information for registration and commercialization

In 2014, CHC implemented a communications plan and is posting Cluster 2 reports to the CHC website on a semi-annual basis (November and May). CHC will also be developing a success stories booklet, and conducting a series of surveys for Cluster 2 participants, including researchers, administrators and industry contributors.

As Cluster 2 is now in its third year, CHC has begun the early planning for Cluster 3, which is anticipated to be part of Agriculture and Agri-Food Canada's next suite of programs and will begin in April 2018. Over the next year, CHC will be working with commodity groups to update research strategy documents and review national research priorities. Further consultations with CHC members will follow as well.

For more information on CHC activities or to obtain a copy of the Annual Report, please visit their website: [www.hortcouncil.ca](http://www.hortcouncil.ca).

**DIRECTORS AND STAFF  
ONTARIO APPLE GROWERS  
2014/2015**

**CHAIR  
VICE CHAIR  
DIRECTORS**

Charles Stevens	District 5
Cathy McKay	District 5
Keith Wright	District 1
Brian Rideout	District 1
Brett Schuyler	District 2
Bob Hepburn	District 2
Brian Gilroy	District 3
Kyle Oakley	District 3
Art Moyer	District 4
Richard Feenstra	District 4

**DISTRICT GROWER COMMITTEE**

Steve Versteegh	District 1
Joe Van de Gevel	District 2
Shane Ardiel	District 3
Spencer Johnson	District 4
Robert Vanderwindt	District 5

**GENERAL MANAGER  
PRODUCTION & MARKET ANALYST+  
MARKETING COORDINATOR+  
TREASURER\*\*  
ACCOUNTING ASSISTANT\*\***

Kelly Ciceran  
Larissa Osborne  
Mark Chyz  
Maureen Connell  
Sylvana Lagrotteria

+ Shared staff with Tender Fruit Board  
\*\* Shared staff with GTFOL

**ASSOCIATION DELEGATES**

Agricultural Commodity Corporation  
Canadian Horticultural Council  
CHC Apple Working Group  
Ontario Federation of Agriculture  
FARMS  
Hort Crops Ontario  
Ontario Fruit & Vegetable Growers' Assoc.  
Ontario Agricultural Commodity Council  
Presidents' Council  
Summerland Varieties Corp.  
Fruit Technical Working Group

Chris Hedges  
Brian Gilroy (Charles Stevens – Alternate)  
Brian Gilroy, Brett Schuyler (Charles Stevens – Alternate)  
Bob Hepburn  
Steve Versteegh  
Kelly Ciceran  
Charles Stevens (Brian Gilroy – Alternate)  
Bob Hepburn (Brian Gilroy – Alternate)  
Charles Stevens  
Cathy McKay  
Charles Stevens and Art Moyer

**COMMITTEE DELEGATES**

Fresh Apple Advisory Committee  
Juice Apple Advisory Committee  
Juice Apple Negotiating Agency  
Risk Management Committee

Keith Wright, Art Moyer, Spencer Johnson  
Brian Gilroy, Brett Schuyler, Keith Wright  
Brian Gilroy, Brett Schuyler, Keith Wright  
Brett Schuyler, Brian Gilroy,  
Art Moyer, Charles Stevens, Chris Hedges, Bob Hepburn,  
Spencer Johnson, Rich Feenstra  
Cathy McKay, Harold Schooley, Art Moyer, Spencer Johnson,  
Joe Van de Gevel, Shane Ardiel, Richard Feenstra, Brian  
Rideout

Research Committee





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