Cornell University
Cooperative Extension

2015 New York State Apple Crop Survey Report

8/14/15

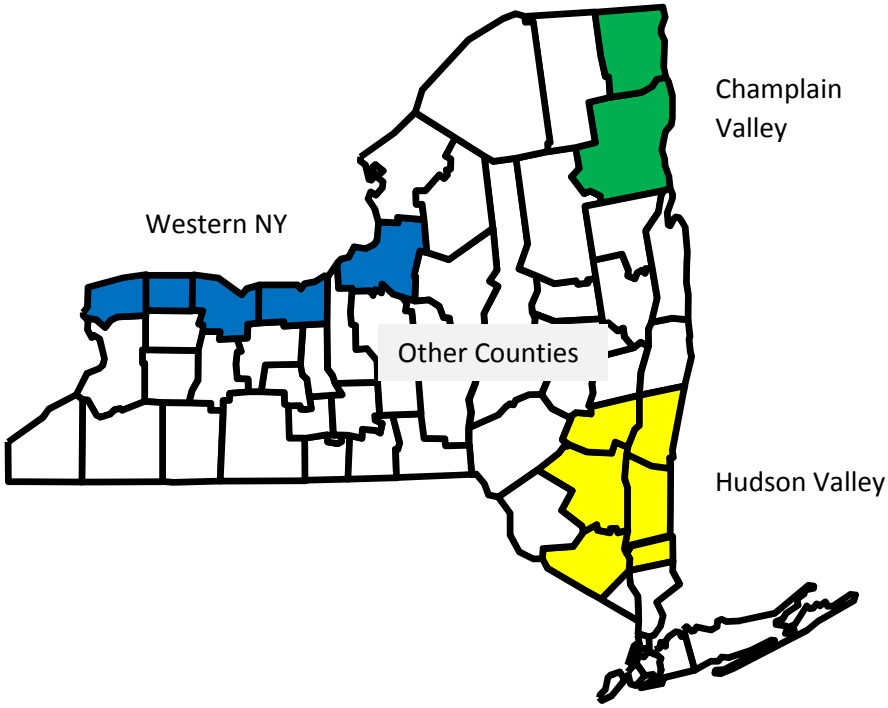
Funded by the Apple Research and Development Program

Objective: This 2015 New York State (NYS) apple crop survey was funded by the Apple Research and Development Board (ARDP) utilizing monies collected from NYS grower's production based research assessment and NYS matching funds. This funding was awarded to the Cornell Cooperative Extension (CCE) Lake Ontario and Eastern Horticulture Tree Fruit Teams who were the project developers. The purpose of the project was to develop an on-line survey that would efficiently collect crop information from all NYS growers prior to harvest. Historically, the states apple crop forecast has been developed by a small number of apple growers and industry members. The information collected from the survey would be used to publish an accurate and timely crop report for the industry to utilize in developing the state crop forecast.

Methodology: An on-line survey was created using the on-line survey platform – Qualtrics. The survey questions were designed to gather high level information regarding the 2015 crop and allow respondents to complete the survey in less than 10 minutes. In addition a key component was using a survey platform that allowed anonymous responses to protect each grower's privacy. Apple growers were informed about the survey by use of CCE publications and the Core Report. 506 NYS apple growers were mailed a survey notice on July 24th. This list of growers was provided by NYS via a freedom of information (FOIL) request. The survey was open for use on July 25th and closed on August 8th.

As there are distinct growing regions in NY the first question of the survey asked what region the respondent is from. This would allow a better understanding of crop differences in each of the growing regions. In addition to issuing the survey to NYS apple growers an additional survey was created for businesses that employ field personnel that spend a considerable time in orchards and would have a good perspective on the crop. The results from this group of "field personnel" will be included at the end of this report.

Crop Survey Regions and Counties	
Region	**Counties**
Western	Niagara, Orleans, Monroe, Wayne, Oswego
Champlain Valley	Clinton, Essex
Hudson Valley	Columbia, Dutchess, Greene, Putnam, Orange, Ulster
Other	All other counties



NYS Grower Survey Results:

Survey Participation: A total of 53 apple growers responded or 10.4% of the state's apple growers. Of the 53 growers that responded, they represent 19% of the state's apple acreage. (See Table 1)

Table 1: Survey Participation Statistics

Region	Participation Count	Mailed Count	Percent Participation	Total Survey Acres	NYS Total Acres (NASS - 2011)*	Percent of Total Acres
Western	40	238	17%	6,400	26,871	24%
Champlain	2	12	17%	758	3,268	23%
Hudson	3	106	3%	470	7,744	6%
Other	8	153	5%	287	3,826	8%
Total	**53**	**509**	**10.4%**	**7,915**	**41,709**	**19%**

Production Results: The 53 respondents forecast a total crop for their operations of 5,205,916 bushels and 2% greater than 2014. (See Table 2) The western NY crop forecast was the only region reporting a smaller crop than a year ago at minus 1%.

Table 2: Total Bushels 2015 Forecast vs. 2014 Actual

Region	2014 Actual	2015 Forecast	Year over Year Change	Percent Change
Western	4,368,912	4,337,416	(31,496)	-1%
Champlain	365,500	372,000	6,500	2%
Hudson	227,862	287,750	59,888	26%
Other	155,895	208,750	52,855	34%
Total	**5,118,169**	**5,205,916**	**87,747**	**2%**

The respondents listed 58% of their 2015 forecast production as "fresh" and 42% as "process". In all regions the 2015 fresh crop was reported to be larger than 2014 (See Table 3), while the total process crop was reported to be down 6% vs. a year ago driven by Western NY. (See Table 4)

Table 3: Fresh Bushels 2015 Forecast vs. 2014 Actual

Region	2014 Actual	2015 Forecast	Year over Year Change	Percent Change
Western	2,066,936	2,174,226	107,290	5%
Champlain	359,500	365,000	5,500	2%
Hudson	218,062	274,250	56,188	26%
Other	154,255	204,100	49,845	32%
Total	**2,798,753**	**3,017,576**	**218,823**	**8%**

From the survey data, average yields could be determined in bushels per acre. (See Table 5) These results were calculated by dividing the total production in each region by the total bearing acreage in each region. The average yield on bearing acres was 749 bushels and 658 bushels on total apple acreage.

Table 4: Process Bushels 2015 Forecast vs. 2014 Actual

Region	2014 Actual	2015 Forecast	Year over Year Change	Percent Change
Western	2,301,976	2,163,190	(138,786)	-6%
Champlain	6,000	7,000	1,000	17%
Hudson	9,800	13,500	3,700	38%
Other	1,640	4,650	3,010	184%
Total	**2,319,416**	**2,188,340**	**(131,076)**	**-6%**

Acreage Results: There was very little difference in bearing acreage (AC) in 2015 vs. 2014 among respondents at 1.1%. This would not have had a significant effect on overall production estimates in this survey. However, what cannot be quantified from the survey questions are the number of young bearing acres that may be making large year over year increases due to bearing surface expanding.

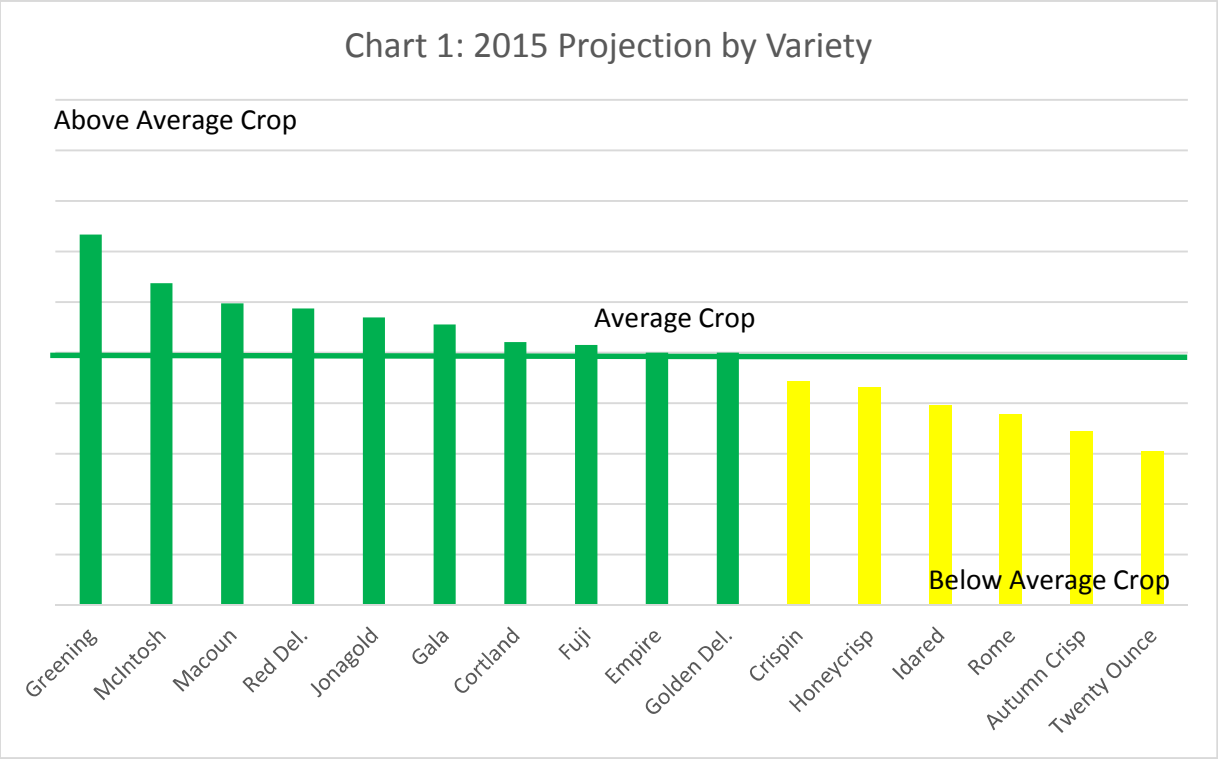
Table 5: Apple Yields in Bushels/Acre 2015 Forecast vs. 2014 Actual

Region	2014 Actual	2015 Forecast	Year over Year Change	Percent Change
Western	771	766	(5)	-0.7%
Champlain	621	571	(50)	-8.1%
Hudson	628	767	140	22.2%
Other	602	806	204	33.9%
Total	**744**	**749**	**5**	**0.7%**

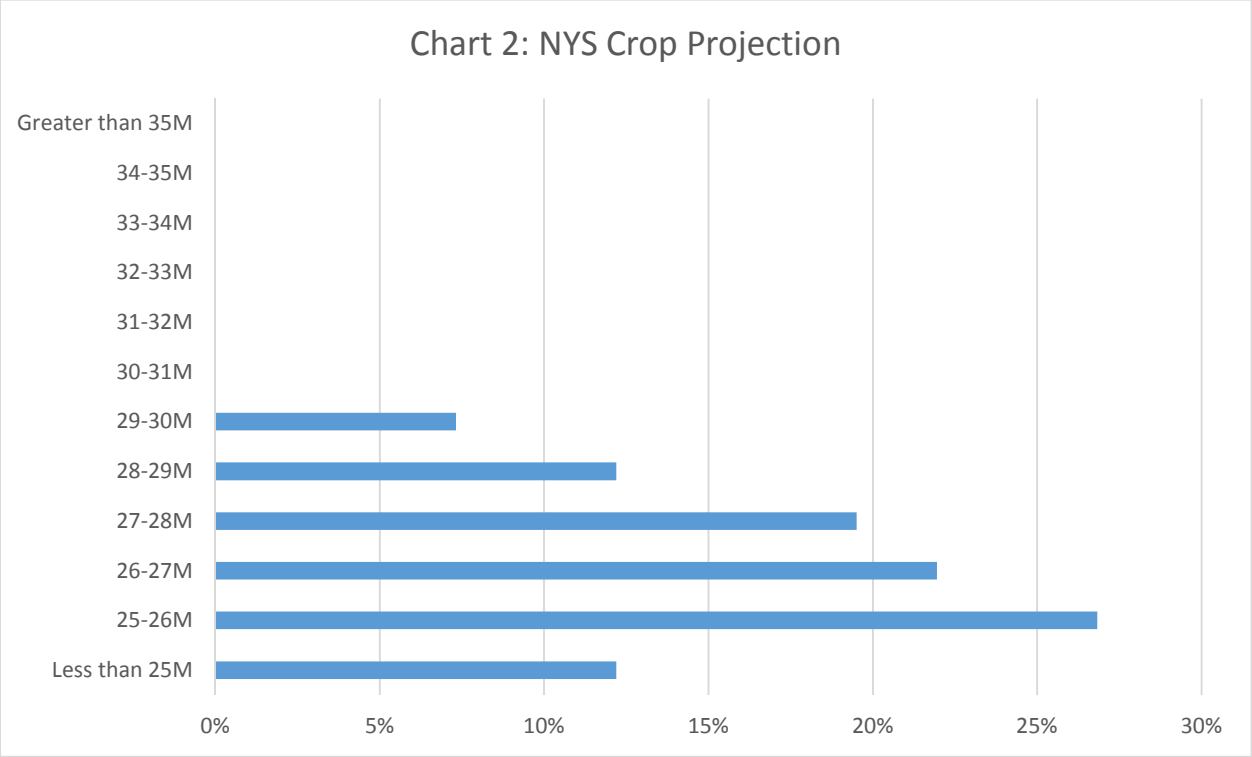
Table 6: Apple Bearing Acres 2015 vs. 2014

Region	2014 Bearing AC	2015 Bearing AC	Change	% Chg
Western	5,665	5,664	(1)	0.0%
Champlain	589	652	63	10.7%
Hudson	363	375	12	3.3%
Other	259	259	-	0.0%
Total	**6,876**	**6,950**	**74**	**1.1%**

Variety Projections: The survey asked to classify the crop forecast for 16 varieties as: above average, average or below average crops. (Note: if a respondent did not grow a particular variety they could opt out of the question). The data from these questions were assigned values to create a weighted value so that a chart could be created to illustrate the results. (See Chart 1). This chart shows from left to right the varieties that scored closest to "above average crop" to the varieties that scored closest to "below average crop." The green line indicates a weighted score of "average crop." Above the green line indicates an above average crop, while below the line indicates a below average crop.



Total NYS Crop Projection: Historically, the industry has focused on forecasting the total state apple crop each season in millions of bushels. While this crop survey was primarily focused on each farms crop information, the respondents were given the opportunity to share their opinion of the entire states crop. (See Chart 2) Twelve of the 53 respondents answered with "do not know" and 41 respondents answered the question. Twelve percent estimated the crop to be below 25 million (M) bushels. Eighty eight percent estimated the crop to be between 25 and 30M bushels with the largest response (27%) between 25 and 26M bushels.



General Comments: Each respondent was given space for written responses with regards to their specific crop. There were no comments from the Hudson and Champlain Valleys. Most comments were around the quality issues related to a freeze event in Western NY. In addition many comments discussed variability in crop volume due to the freeze event and marginal pollination. Below are few responses from growers that represent a majority of the comments:

- "Difficult crop to estimate, some varieties and locations are heavy on one end of orchard with nothing on other end. Lots of quality problems, such as frost rings on Honeycrisp."
- "Additional field sorting will be required for fresh apples"
- "Some frost damage, everything variable depending on location, two thirds of farm has huge crop"
- "Very poor Rome and Autumn Crisp crop. Good Idared crop but fruit size seems smaller than should be at this time of year"
- "Overall fruit size is good except for frost damaged fruit. Frost damage will hurt pack-outs. Some Empire blocks light while others are heavy"

NYS Industry - Field Personnel Results:

Survey Participation: A list of 26 of "field personnel" was developed by CCE agents from each of the major apple producing regions. Many of these field personnel were crop consultants but the list also included field personal from packer/marketers and processors. There were 10 respondents for a 38% participation rate and **all participants were from Western NY.**

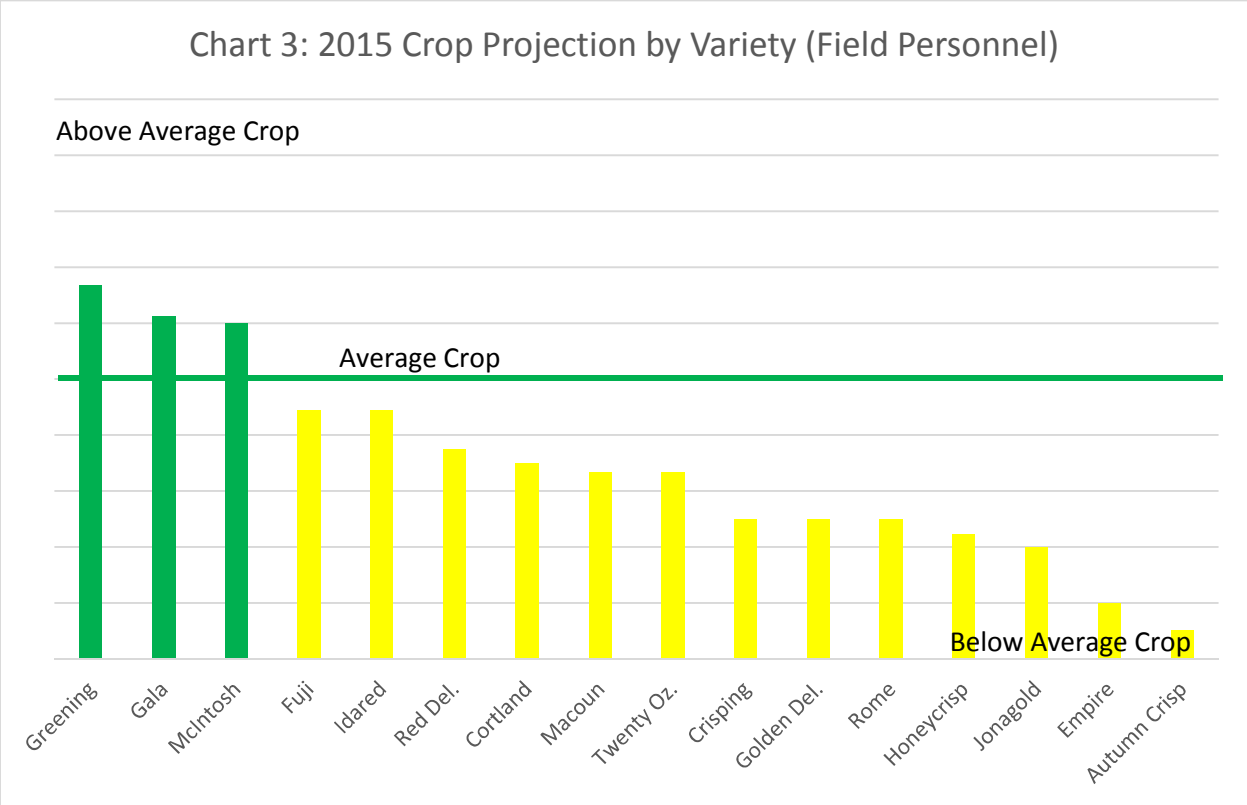
Production Results: The production survey questions were different as the respondents do not grow apples. The field personnel were asked how many acres they "cover" or perform activities in. The total acres covered was 41,650 for an average of 4,165 per respondent. (Note: many field personnel cover the same acres)

The field personnel were asked whether the 2015 crop was larger, smaller or the same as 2014. If they responded with larger or smaller they were also asked to indicate the percent change from 2014. (See Table 6)

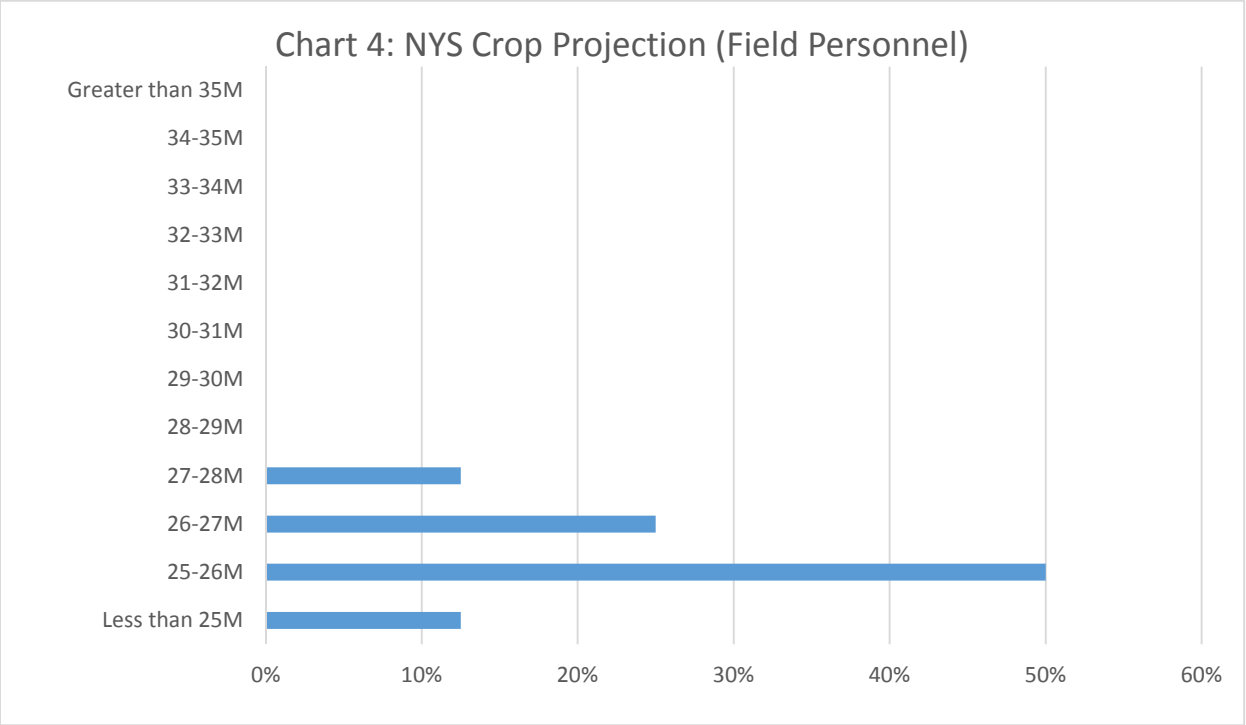
Table 6: 2015 Crop Forecast by Industry Field Personnel

Crop Size	# Responses	% Change and (Range)
Larger	1	Positive 10%
Same	1	No change
Smaller	8	Minus 18% (range 10-25%)

Variety Projections: The field personnel were asked the same questions as NYS growers regarding varieties and the same methodology was used to create the illustration. (See Chart 3)



Total NYS Crop Projection: The same question was asked of field personnel regarding the overall NYS apple crop forecast. Twelve percent indicated a crop smaller than 25M bushels. Eighty-eight percent indicated a crop between 25 and 30M bushels and 50% indicated a crop size between 25 and 26M bushels.



Final Crop Overview and Summary:

Growing Season Review: ***[Note: These comments are from CCE agents in each respective area]***

Western NY: The timing or progression of the 2015 crop started slowly or behind but the season advanced to near normal due to very warm weather in early May. Generally, there was adequate moisture through the season with the exception of areas in Niagara and Orleans counties in which case those areas missed many of the early season rains. The pollination period was unusually quick due to unseasonably hot weather at that time. In addition to a short pollination period some areas received heavy rainfalls in full bloom that may have contributed to poor pollination. Unfortunately, the defining moment for the western NY crop was a freeze event on May 23. This event produced localized crop loss and widespread freeze injury. There was some debate as to whether some of the freeze injury was from very low temperatures in February or the May 23rd freeze. Regardless, there is fairly extensive scarring and misshapen apples as a result of cold temperatures. The freeze event did result in many growers using caution while chemically thinning and this resulted in over-cropping in some orchards.

Hudson Valley: A brutally cold winter followed by a late spring marked the start of an unusual growing season in the Hudson Valley. The months of April and May were dry, followed by an unseasonably wet June. July marked a return to dry conditions with most areas of the valley receiving only one to two inches of rain. A heavy "snowball" bloom in early May came on fast, furious, and hot. The old adage that a snowball bloom thins easy was not true this year, as the set proved heavy and difficult to chemically thin. Perhaps the credit for this goes to near perfect conditions for pollination. Even after extensive hand

thinning, the crop remains heavy in most locations. Sizing is moderate to date due to the scarcity of rainfall, but otherwise the quality is high with only light pest pressure and a minimum of localized hail damage.

Champlain Valley: After the second frigid 'test winter' in a row, the growing season began slowly in the Champlain Valley. Cold damage of trees and minimal ribbing of fruit was observed in some locations. Cool, dry early spring conditions minimized disease pressure and trees were a few days behind average to leaf out. May was extremely dry, followed by a very wet June—nearly 10" of rainfall was logged in most areas. A snowball bloom with excellent pollination conditions, despite a very short bloom period (2-3 days), led to a very good fruit set. A heavy crop has required aggressive chemical and hand thinning. The remainder of the summer has seen regular rainfall, and warm temperatures have now put anticipated harvest windows a few days ahead of average.

Crop Overview: ***[Note: These comments are based on survey results from growers and field personnel and CCE horticulture team seasonal observations]***

Western NY: The freeze event on May 23rd had a crop reducing impact, negatively impacted fruit finish and will likely have an impact on final fruit size. Both grower and industry survey respondents indicate many varieties are below average and also believe the total NYS crop is closer to 25M bushels than 30M bushels. Note last year's official crop number was 30M bushels according to NASS although many in the apple industry feel the 2014 crop number was over-stated. Based on the respondents production forecast the total crop is down 1%, fresh up 5% and process down 6%. There is less pessimism in the production data than indicated in the qualitative questions. This may indicate that the crop is smaller than a year ago but not more than 15% as suggested in the qualitative questions. It's clear that fruit finish will be a challenge for the fresh industry. Despite the smaller crop in many orchards, fruit size may not finish well due to freeze damage and low seed counts.

Champlain and Hudson Valleys: Both the Hudson and Champlain Valleys have very good crops due to good fruit set and favorable growing season weather. Based on the respondents production forecast the total crop is up 2% in the Champlain Valley and 26% in the Hudson Valley. The response numbers were low from these regions but CCE agents in those regions concur that there are very good crops. While the varietal data is not shown in this report all regions outside of Western NY indicated above average crops for all varieties with the exception of Crispin.

State Crop Extrapolation: Extrapolating the 2015 state crop by using the total state apple acres* and multiplying by the respondent's average yield on all apple acres equals 27.4M bushels. While this would be a very good method to forecast the total crop size the acreage data in NY is four years old and has likely changed. However, assuming the acreage has not increased more than 9% over the past four years the results of this method indicate a smaller crop than last year's 30M bushels as reported by NASS.

Overall Crop Summary: The 2015 crop will likely finish below the 2014 crop. While there are good crops in the Champlain and Hudson Valleys and the states "other" counties, Western NY represents two-thirds of the state's production. Western NY's highly variable yet smaller crop will contribute to a smaller overall NYS crop this season.

Footnote:

** The total state acres of 41,709 is data from the 2011 Tree Fruit Survey conducted by NYS Agricultural Statistics. There is no up to date data on apple acreage in NYS.*