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New York Economic Handbook 2014

Charles H. Dyson School of Applied Economics and Management
College of Agriculture and Life Sciences
Cornell University
Ithaca, NY 14853-7801

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For additional copies, contact:

Carol Thomson
Charles H. Dyson School of
Applied Economics and Management
301 Warren Hall
Cornell University
Ithaca, New York 14853-7801

E-mail: cmt8@cornell.edu
Phone: 607-255-5464
Fax: 607-255-9984

Or visit: http://dyson.cornell.edu/outreach/

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This publication contains information pertaining to the general economic situation and New York agriculture. It is prepared primarily for use by professional agricultural workers in New York State. USDA reports provide current reference material pertaining to the nation's agricultural situation. Many of these reports are available on the internet. Click on "Newsroom" at the following website: *http://www.usda.gov/wps/portal/usdahome*

The chapters in this handbook are available in PDF format on the Charles H. Dyson School of Applied Economics and Management outreach website: *http://dyson.cornell.edu/outreach/*

Chapter 1. Websites for Economic Information and Commentary

Steven C. Kyle, Associate Professor

1. http://rfe.org *Resources for Economists*
   This American Economics Association website has an encyclopedic list of all sorts of web-based economics sites.

2. http://www.economagic.com/ *Economagic -- Economic Times Series Page*
   Economagic is an excellent site for all kinds of U.S. economic data, including national income accounts, the Federal Reserve, the Bureau of Labor Statistics and more. The site includes a very useful graphing function and allows downloads to excel worksheets as well as simple statistical functions.

3. http://www.econstats.com/ *Economic Statistics*
   EconStats is another site with links to all kinds of US data. It also has links for data for many other Countries.

4. http://research.stlouisfed.org/fred2/ *St. Louis Federal Reserve*
   The Federal Reserve Bank of St. Louis boasts that they track more than 61,000 economic variables. They also have good chart software incorporated in their site.

5. http://www.cbpp.org/index.html *Center on Budget and Policy Priorities*
   The Center on Budget and Policy Priorities is a non-partisan web site that focuses on economic policies related to the budget and their effects on low- and moderate-income people.

6. http://www.calculatedriskblog.com/ *Calculated Risk Blog*
   Calculated Risk has commentary on financial markets and is especially good on national real estate trends.

7. http://www.econlib.org/ *Library of Economics and Liberty*
   The Library of Economics and Liberty web site features articles and links to many books and other economics related resources.

8. http://www.heritage.org/ *Heritage Foundation*
   The Heritage Foundation comments on economic policy from a conservative viewpoint. This link takes you to a very useful federal budget calculator that will help you understand what the federal government spends its money on and where they get the money from.

9. http://www.kowaldesign.com/budget/ *Budget Explorer*
   This site contains a budget explorer which I like because it allows you not only to calculate your own budget but also links to the various executive branch departments with spending authority, so you can see exactly where the money is going.

10. http://www.concordcoalition.org/ *The Concord Coalition*
    The Concord Coalition is a non-partisan group advocating a balanced budget. Their site contains very useful graphs and projections showing what current taxing and spending proposals mean for the federal budget in the years ahead.

11. http://www.economy.com/dismal/ *The Dismal Scientist*
    This is a very good web site for evaluations of current statistics and policy.

12. http://www.federalbudget.com/ *National Debt Awareness Center*
    The National Debt Awareness Center has a useful graph providing up to date information on the size of the national debt and what the Federal Government is spending money on.

13. http://www.ombwatch.org/ *OMB Watch*
    OMB Watch is another web site devoted to information on what is happening to the federal budget.

14. http://www.brookings.edu/ *The Brookings Institution*
    The Brookings Institution publishes lots of good articles on current economic and political policy.

15. http://www.realtor.org *National Assoc. of Realtors*
    Check this site if you want information on real estate.

16. http://www.census.gov/ *U.S. Census Bureau*
    The U.S. Census Bureau web site provides demographic and population numbers.

17. http://www.briefing.com/Investor/Index.htm *Briefing.com*
    For a more in-depth analysis of stock and bond markets and the factors that influence them, check out Briefing.com.

18. http://www.imf.org/ *International Monetary Fund*
    The International Monetary Fund is an excellent site for data on all member countries, with a particular emphasis on balance of payments, exchange rate and financial/monetary data.

19. http://worldbank.org/ *The World Bank Group*
    The World Bank has cross country data on a wide variety of subjects.

20. http://www.undp.org/ *United Nations Development Program*
    The UNDP has cross country data with a particular focus on measures of human welfare and poverty.

21. http://www.fao.org/ *Food and Agriculture Organization of the UN*
    The Food and Agriculture Organization of the UN has cross country information on food and agriculture.

22. http://datacentre2.chass.utoronto.ca/pwt/ *Penn World Tables*
    The Penn World Tables are a useful source for a variety of economic data series not available from other sources.

23. http://www.bls.gov/fls/ *U.S. Department of Labor, Foreign Labor Statistics*
    The Foreign Labor Statistics program provides international comparisons of hourly compensation costs; productivity and unit labor costs; labor force, employment and unemployment rates; and consumer prices. The comparisons relate primarily to the major industrial countries, but other countries are included in certain measures.

24. http://www.kyle.dyson.cornell.edu/ *Professor Kyle's Web Site*
    Visit my web site for information about me, material contained in this chapter, and my work in the area of economic policy.

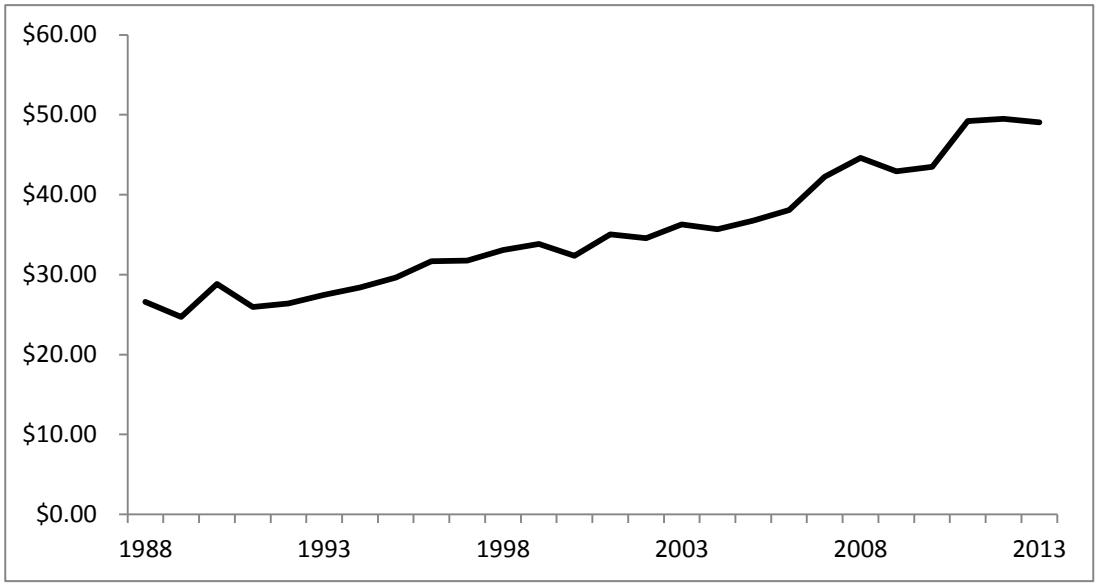
Chapter 2. The Marketing System

Kristen S. Park, Extension Associate

Special Topic – The Price of A Thanksgiving Dinner

When the American Farm Bureau Federation volunteer shoppers tallied up their shopping receipts this year, the price of the classic American turkey-and-dressing-and-all-the-fixings Thanksgiving dinner came to $49.04 for a meal for 10, basically stable from the 2012 feast ($49.48). This is a happy state of affairs for consumers.

FIGURE 2 – 1. THE PRICE OF A THANKSGIVING DINNER, 1987 – 2013



Source: American Farm Bureau Federation. 2013. "Cost of Classic Thanksgiving Dinner Down 2013". website: http://www.fb.org/index.php?action=newsroom.news&year=2013&file=nr1114.html

The Farm Bureau's informal survey on price inflation generally reflects the country's food markets this past year. Although the cost of food did actually increase, (sorry, Farm Bureau) it rose at a lower rate than the past few years. The United States Department of Agriculture estimates the average CPI for food through 2013 will be between 1.5% to 2.5%, a slightly lower inflationary level than the CPI for food the past 2 years (Table 2-1). One reason why the Farm Bureau meal came in a bit low compared to a general CPI could be due to the volunteer shoppers' diligence in shopping for good prices. It may also be due to retailers' reaction to hold down prices on several staple items in response to the generally depressed consumer confidence levels in October and November.

The Farm Bureau "meal" included items from almost all of the food categories tracked by the Bureau of Labor and Statistics, the bureau that releases official CPI figures. Items are: turkey, rolls, green peas, cubed

stuffing, fresh cranberries, pie shells, sweet potatoes, pumpkin pie mix, milk, a relish tray of carrots and celery, whipped cream and some miscellaneous ingredients. While poultry prices in general are estimated to increase about 4% above last year's prices (Table 2-1), turkey prices, specifically, were steady to down. Excellent retail prices for turkeys could be found by shoppers in the Farm Bureau price study. Cereals and bakery prices look like they will increase modestly and sugar and sweets will actually decline this year. This augers well for holiday desserts.

TABLE 2 – 1. CHANGES IN CONSUMER PRICE INDEXES FOR VARIOUS FOODS, 2012 THROUGH 2014

	2012[1]	2013 forecast[2]	2014 forecast[2]
	% change	*% change*	*% change*
All food	2.6	1.5 to 2.5	2.5 to 3.5
Food away from home	2.8	2.0 to 3.0	2.5 to 3.5
Food at home	2.5	1.0 to 2.0	2.5 to 3.5
Meats, poultry, and fish	3.6	1.5 to 2.5	2.5 to 3.5
Meats	3.4	1.0 to 2.0	2.5 to 3.5
Beef and Veal	6.4	2.0 to 3.0	2.5 to 3.5
Pork	0.3	0.5 to 1.5	2.0 to 3.0
Poultry	5.5	3.5 to 4.5	3.0 to 4.0
Fish and seafood	2.4	2.0 to 3.0	2.5 to 3.5
Eggs	3.2	2.0 to 3.0	2.0 to 3.0
Dairy products	2.1	0.0 to 1.0	2.5 to 3.5
Fats and oils	6.1	-1.0 to 0.0	1.5 to 2.5
Fruits and vegetables	-0.6	2.0 to 3.0	2.5 to 3.5
Fresh fruits & vegetables	-2.0	2.5 to 3.5	2.5 to 3.5
Fresh fruits	1.0	2.0 to 3.0	2.5 to 3.5
Fresh vegetables	-5.1	2.5 to 3.5	2.0 to 3.0
Processed fruits & vegetables	3.8	1.0 to 2.0	2.5 to 3.5
Sugar and sweets	3.3	-2.0 to -1.0	2.0 to 3.0
Cereals and bakery products	2.8	1.5 to 2.5	2.0 to 3.0
Non-alcoholic beverages	1.1	-1.0 to 0.0	2.5 to 3.5

[1] Bureau of Labor Statistics, Inflation and Prices, historical data at http://www.bls.gov/data/#prices.

[2] USDA-ERS, Food Price Outlook, http://www.ers.usda.gov/data-products/food-price-outlook.aspx#26630

Overall, fresh vegetables, including holiday favorites such as potatoes, and sweet potatoes, are more expensive this year, but this is only a rebound from last year's prices that were severely depressed.

The positive picture on food prices this Thanksgiving is probably welcome news to consumers. Although the economy still shows signs of recovery, progress is slow and exhibited fits and starts in 2013. Gross domestic product is predicted to increase only 1.7% in 2013 (Table 2-2). Personal income is expected to increase 2.9% in 2013, but this is only in nominal terms. Consumer price inflation in 2013 is expected to be around 1.5%.

What about 2014? Forecasts from the Conference Board forecast an increase in GDP of 2.3% as well as a larger increase in nominal personal income (3.7%) concurrent with a minor increase in the overall CPI (1.9%). As far as food prices, next year the cost of a Thanksgiving dinner will increase, as USDA analysts predict a hike of 2.5 to 3.5% in all food (see Table 2-1).

TABLE 2 – 2. ECONOMIC SNAPSHOT

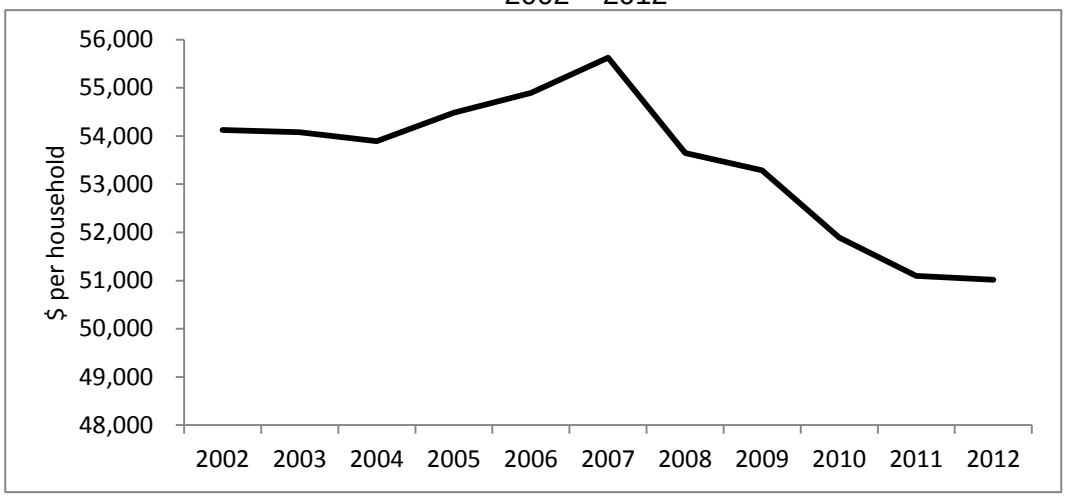
Economic Measure	2008	2009	2010	2011	2012	2013 (forecast)	2014 (forecast)
GDP (annual % chg)[1]	-0.3%	-3.1%	2.4%	1.8%	2.8%	1.7%	2.3%
Nominal Personal Income (annual % chg)[1]	-0.4%	-1.6%	2.0%	2.5%	2.2%	2.9%	3.7%
Consumer Price Inflation (% chg)[1]	3.8%	-0.3%	1.6%	3.1%	2.1%	1.5%	1.9%
Consumer Price Inflation, All Food (% chg) [2]	5.4%	1.9%	0.8%	3.7%	2.6%	1.5 to 2.5%	2.5 to 3.5%

[1] Historical data from Bureau of Economic Analysis; forecasts from The Conference Board
[2] Historical data from Bureau of Labor Statistics; forecasts by USDA-Economic Research Service .

Consumers

Although nominal personal income has increased since 2010 (Table 2-2), and will increase approximately 2.9% in 2013, the real median household income will not. Real median household income dropped again in 2012, continuing the decline in median income since 2007 (Figure 2-2). Much is being reported in news about this continuing decline.

FIGURE 2 – 2. REAL MEDIAN HOUSEHOLD INCOME, 2002 – 2012



Note: Adjusted for inflation using 2012 CPI-U-RS
Source: U. S. Census Bureau, Annual Social and Economic Supplement, http://www.census.gov/hhes/www/income/data/statemedian/

The household income is based on self-report responses to Census surveys and is an estimate of the current capacity of households and families to spend. Personal per capita income is estimated by the Bureau of Economic Analysis (BEA) and is calculate from administrative data sources and is adjusted for non-reported income. Factors that could explain the different trends between the two measures could include the shifting structure of households and the number of people employed in each household as well as the differences in self-reported data and perhaps more objective data sources.

The Conference Board, a leading business research organization, reported consumer confidence and the employment trends index declined in October, partially due to the government shutdown, while CEO confidence declined in the third-quarter following (Table 2-3). Only the leading economic index increased in September the latest month reported. Their employment trend aggregates eight labor-market indicators while their leading economic index is a composite of several individual leading indicators.

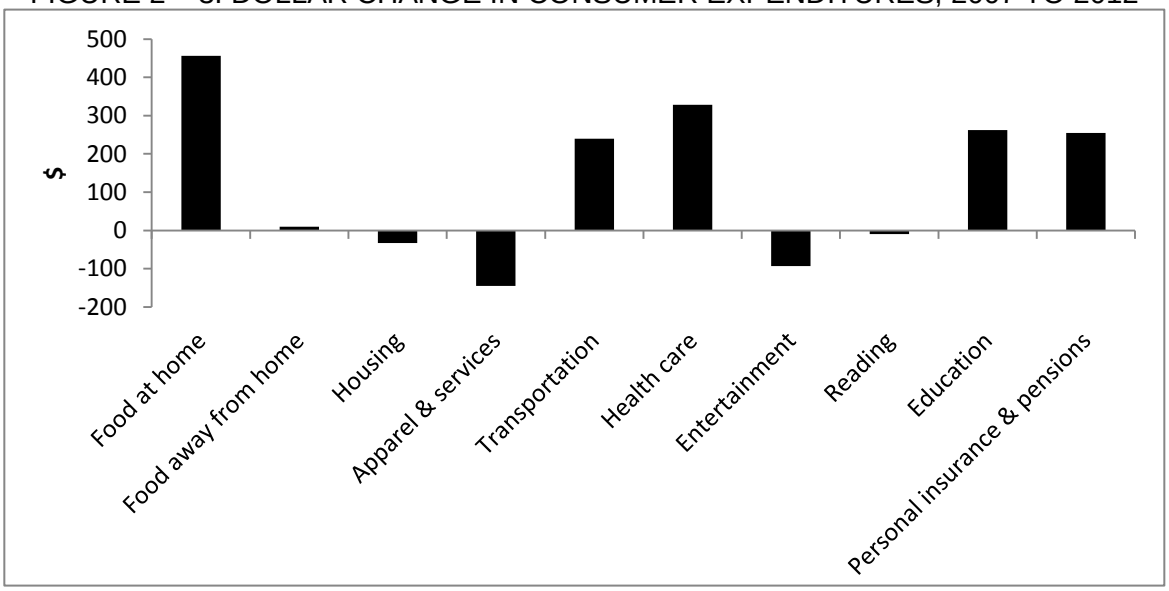
TABLE 2 – 3. ECONOMIC INDICATORS

Economic Indicator		November 2013 (change from previous month)
Consumer Confidence	⇩	-9.0 points
CEO Confidence	⇩	-8.0 points
Employment Trends Index	⇧	-0.9 %
Leading Economic Index	⇧	0.7 %

Source: The Conference Board, http://www.conference-board.org/ accessed November 11, 2013

As consumers need to spend against difficult income situations, they juggle their expenditures for housing, insurance, and healthcare with spending in more discretionary items, such as food away from home, apparel and services, and personal care. Shifts in some expenditure categories sometimes might be made to decrease overall spending, such as increasing in food at home spending in order to reduce food away from home spending (Figure 2 – 3). Health care expenditures increased significantly.

FIGURE 2 – 3. DOLLAR CHANGE IN CONSUMER EXPENDITURES, 2007 TO 2012



Note: nominal dollar change
Source: Bureau of Labor Statistics, Consumer Expenditure Series. http://www.bls.gov/cex/ accessed November 14, 2013.

It is interesting to note that of the categories listed here, spending increases in only a few categories outpaced inflation. Holding spending at 2007 dollars, "real" spending only increased for food at home, health care, and education. Hardly frivolous categories.

An additional impact to the food system was the reduction of SNAP benefits on November 1, 2013. Benefits declined by $3.3 billion annually (about 5%). The reduction was due to the expiration of a temporary increase in benefits voted in 2009 as part of a federal stimulus deal.

The amount of impact isn't known yet, but a look at historical data, 2012, indicates that supermarkets and super stores are the primary redeemers of SNAP program benefits; together they redeem 82.0% of SNAP benefits. Other grocery stores that are too small to be called supermarkets, ie under $2 million in annual sales, redeem almost 11%. Super Stores, large supermarkets with combination supermarket with pharmacy and including supercenters, redeemed close to half SNAP benefits.

TABLE 2 – 4. SNAP PROGRAM REDEMPTION OUTLETS

Firm Type	Total Authorized	Percent of Total	Redemption Amount	Percent of Total
Supermarket	18,792	7.6%	$24,955,985,193	33.5%
Super Store	18,386	7.5%	$36,194,946,950	48.5%
Other grocery stores	91,302	37.0%	8,085,098,210	10.8%
Convenience Store	96,769	39.3%	$3,688,089,967	4.9%
Farmers' Markets and Farmer Direct	3,214	1.3%	$16,598,255	0.0%
Direct Marketing Farmer	1,330	0.5%	$4,272,354	0.0%
All others	18,102	7.3%	1,644,193,083	2.2%
Total	247,895	100.5%	74,589,184,012	100.0%

Source: USDA Supplemental Nutrition Assistance Program, "Retailer Policy & Management Division 2012 Annual Report." www.fns.usda.gov/snap .

Shopping behaviors

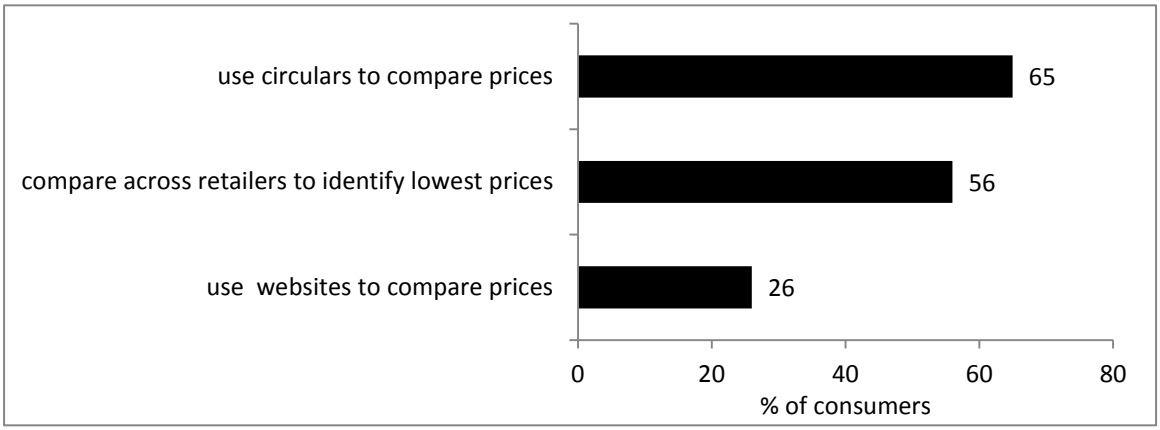
A study by KSC Kreate, a company specializing in visual content, reported that 36% of shoppers go online sometimes or always to research purchases. They search mostly for (in descending order) coupons, competitor pricing, recipe ideas, and nutritional information. Almost 37% of respondents indicated they use mobile devices while shopping for groceries. The devices are used to look up recipes, coupons, nutritional information, and competitor prices.

Consumers still use the traditional shopping tools to find low prices. Shopping activities include using grocery circulars, comparing prices across retailers, and using websites to compare

prices (Figure 2-4). Plus they are increasingly using some newer tools, such as retailer websites and smart phones to search out deals and comparison shop.

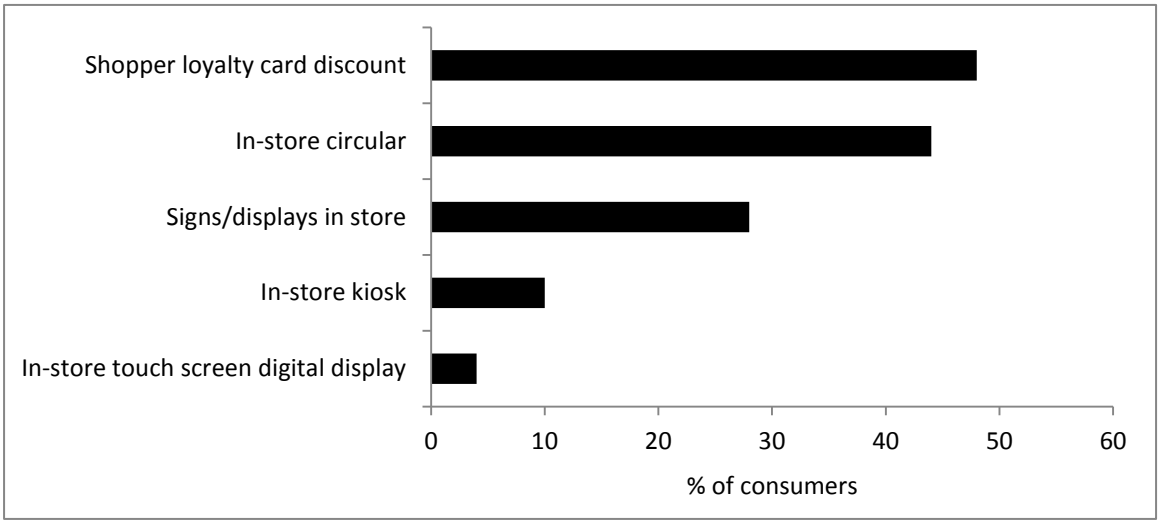
In-store marketing tactics are still used successfully to influence product choice, such as loyalty card discounts, in-store circulars, signs/displays, and for a limited percent of shoppers, kiosks and touch screens (Figure 2-5).

FIGURE 2 – 4. CONSUMER BUDGET SHOPPING ACTIVITIES



Source: IRI, "IRI MarketPulse Survey Finds Consumers Settling into 'New Normal'". August 6, 2013.
http://www.iriworldwide.com/NewsEvents/PressReleases/ItemID/1760/View/Details.aspx.

FIGURE 2 – 5. PROMOTIONAL ACTIVITIES AFFECTING PRODUCT CHOICE

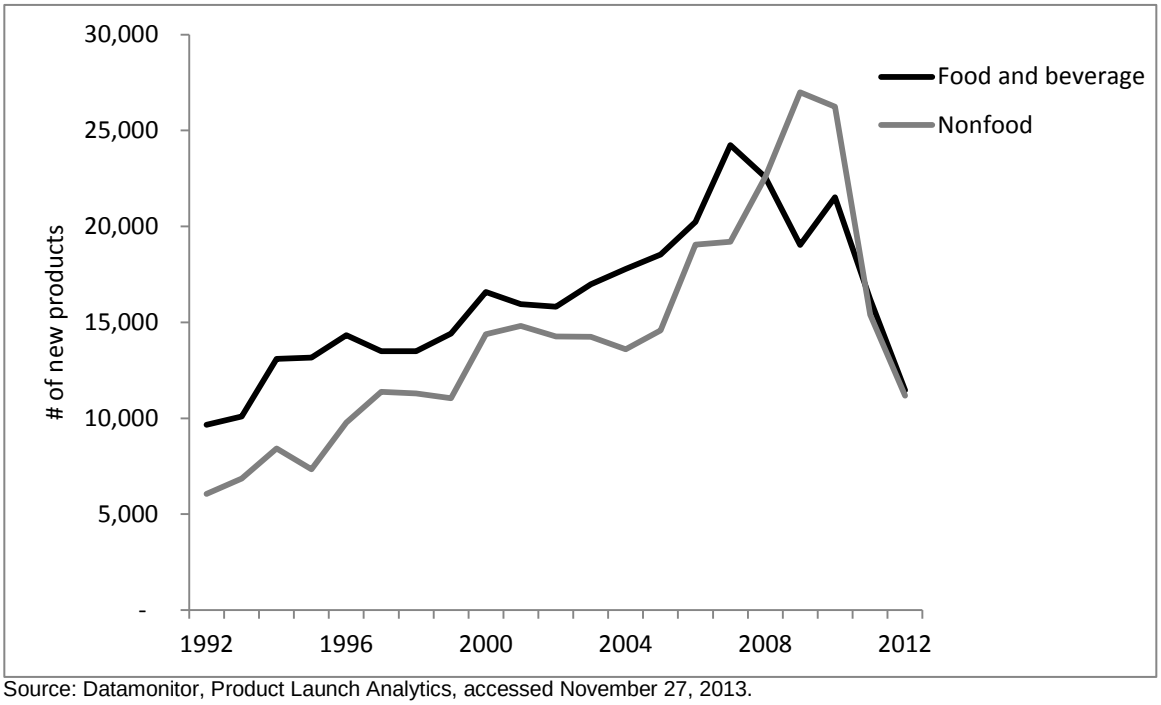


Source: IRI, "IRI MarketPulse Survey Finds Consumers Settling into 'New Normal'". August 6, 2013.
http://www.iriworldwide.com/NewsEvents/PressReleases/ItemID/1760/View/Details.aspx.

Manufacturing and Retail Trends

Food and beverage and other consumer packaged goods manufacturers introduced at total of 22,642 new food and nonfood products in 2012, down from 31,649 in 2011. New food and beverage items totaled 11,463 and nonfood totaled 11,179. This was the smallest number of introductions in a single year since a high of 47,768 in 2010 (Figure 2 – 6). Prior to 2008 new food introductions were greater than nonfood. The decline in food introductions was the second year in a row. Tightened credit and inventory reduction management on the part of retailers have influenced manufacturers to reduce their new product introductions. In addition, retailers have managed their store assortments more tightly, often eliminating unprofitable product lines and trying to simplify the shopping experience.

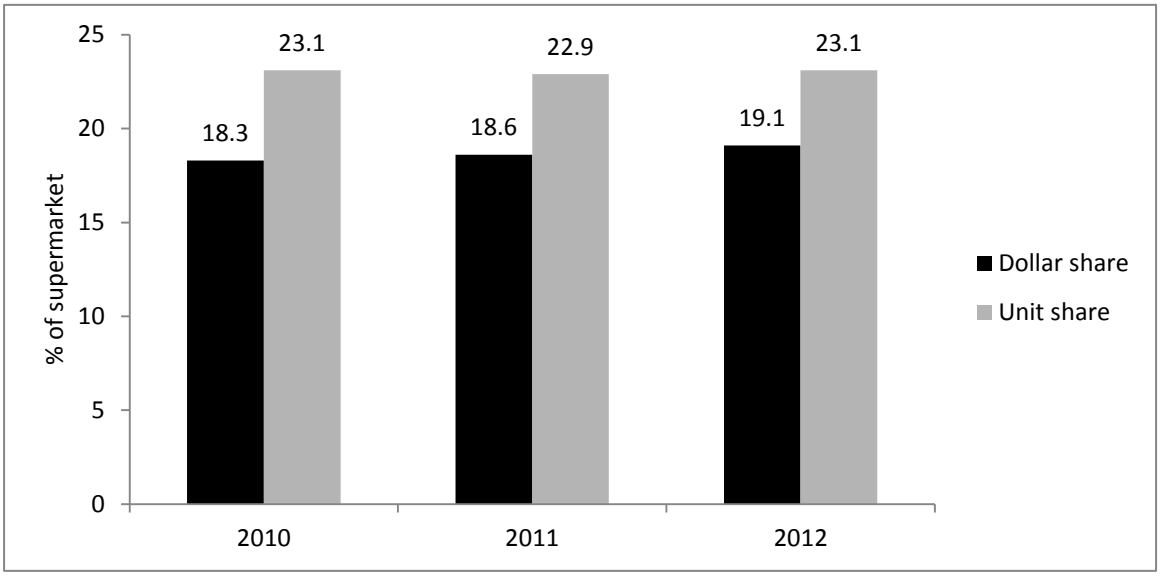
FIGURE 2 – 6. NUMBER OF NEW PRODUCT INTRODUCTIONS OF CONSUMER PACKAGED GOODS IN THE U. S.



Source: Datamonitor, Product Launch Analytics, accessed November 27, 2013.

Sales of private label goods climbed during the recession and private label sales as a share of total store increased. Since then, however, percent of sales has leveled off (Figure 2-7). Share growth has flattened due in part to increased promotions from branded manufacturers. Another reason for the zero growth in share may be because the categories in which private labels have shown great strength are now saturated by store brands. Some retailers are now looking at trying to introduce private labels into “non-traditional” categories such as alcoholic beverages and health and beauty.

FIGURE 2 – 7. PRIVATE LABEL SALES SHARES IN SUPERMARKETS. 2010-2012

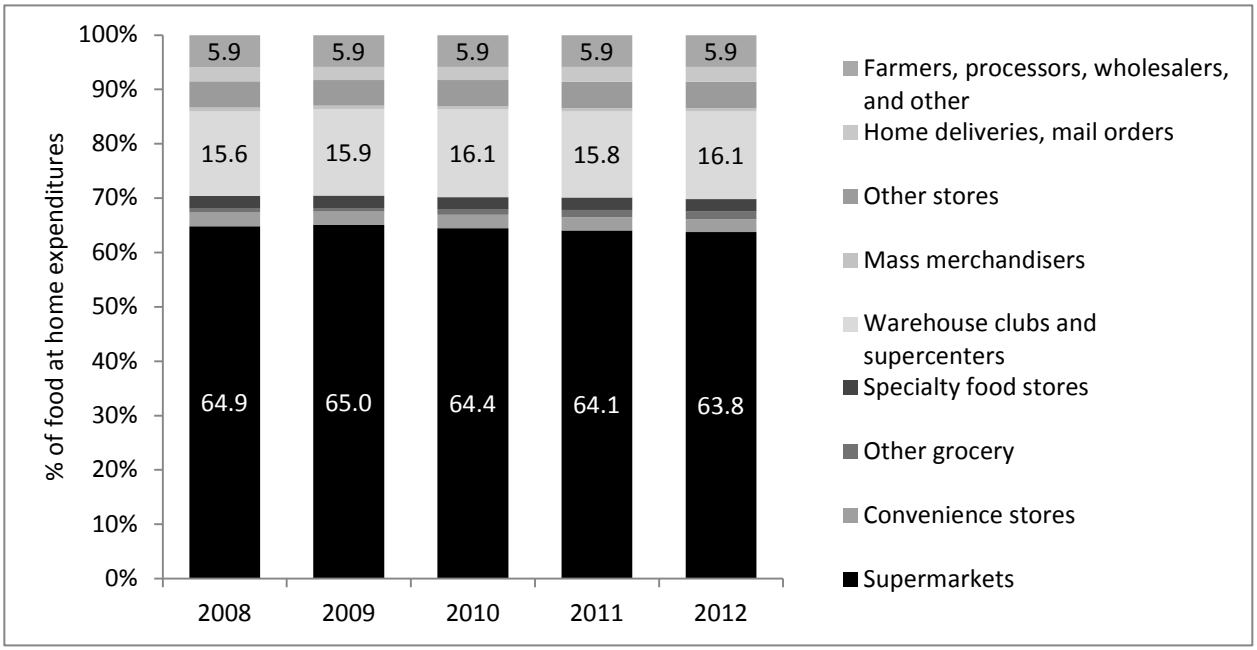


Source: PLMA. "Store Brands Growing Across All Channels." http://plma.com/storeBrands/sbt13.html

Supermarket formats continue to lose share to supercenters and warehouse clubs (Figure 2 – 8). In 2008, supermarkets earned 64.9% of consumers' food expenditures whereas in 2012 they earned only 63.8%. Supercenters and warehouse clubs in the meanwhile had a 15.6% share in 2008 and 16.1% in 2012.

Consumers' interest in local foods and direct marketing continues to grow. However, direct farm sales, captured under the category farmers, processors, wholesalers, and other, have not contributed enough sales to capture share from the other retail expenditure categories. Percent sales from farmers, processors, wholesalers, and other where 5.9% in 2008 and have remained relatively steady since.

FIGURE 2 – 8. SALES OF FOOD AT HOME BY TYPE OF OUTLET



Source: USDA-ERS, Food Expenditures, table 14. http://www.ers.usda.gov/data-products/food-expenditures.aspx#.UoZw0OKJ5D8 .

The U.S. Food Marketing System Update

Food retailers and manufacturers responded to economic downturn. They delayed price increases during increasing commodity prices, dropped prices on selected core staples in response to consumer bargain shopping, increased their focus on private labels, increased face value on coupons, and used aggressive price promotions (sales) to keep prices down and maintain, or even improve, volume. Retail competition was driven by price in the fear that bargain-hunting shoppers, lacking any store loyalty, would turn to competitors.

Consumer Food Expenditures

The USDA-Economic Research Service estimates for 2012 food and beverage sales from retail outlets are in Table 2-5 below. Despite the somewhat modest consumer price index for food in 2012, food sales show strong growth. Sales for total food and beverages topped $1.5 trillion, a growth 4.9% above 2011 sales. The growth in food away from home sales was particularly strong exceeding growth in any year since 2006. The growth in food at home sales was modest, at 3.4%.

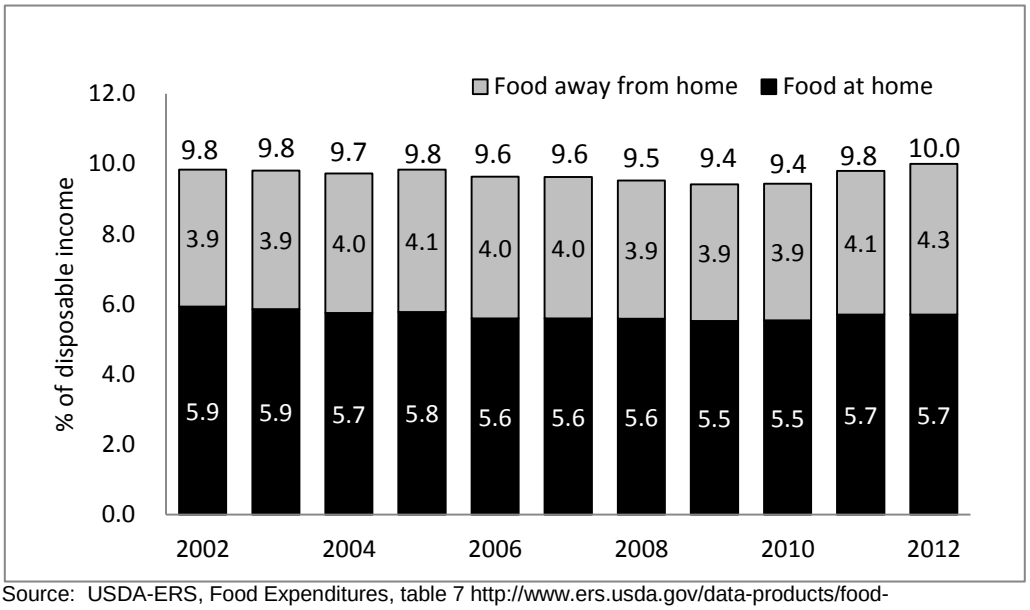
TABLE 2 – 5. FOOD SALES[1]

Sector	2012	2011	Growth
	--$ million--		%
Total food and beverage sales	$1,546,062	$1,474,481	4.9%
Total food sales (excluding alcohol)	1,302,324	1,241,416	4.9%
Food at home sales	672,643	650,683.	3.4%
Food away from home sales	629,681	590,732	6.6%
Alcoholic beverage sales	162,864	161,513	5.6%

[1] Sales only. Does not include home production, donation, or school lunch program expenditures
Source: USDA-ERS, Food Expenditures, table 1. *http://www.ers.usda.gov/data-products/food-expenditures.aspx#.UoZw0OKJ5D8* .

The economy has had an impact on food expenditures as a percent of disposable income. In 2002, families and individuals spent 9.8% of their disposable income on food; however, the share has increased slightly the last 2 years reported by USDA. In 2012 U. S. consumers spent 10.0% of their disposable personal income on food expenditures as inflationary increases in food expenditures concurrent with stagnating incomes continue (Figure 2 – 9).

FIGURE 2 – 9. FOOD EXPENDITURES AS A SHARE OF DISPOSABLE PERSONAL INCOME



Source: USDA-ERS, Food Expenditures, table 7 http://www.ers.usda.gov/data-products/food-expenditures.aspx#.UoZw0OKJ5D8 .

Chapter 3. Cooperatives

Roberta M. Severson, Extension Associate

Farmer cooperative sales throughout the United States and New York State set new records in 2012, which demonstrates the vitality of the nation's farmer-owned cooperatives and the important role they play in the agricultural sector. Total net business volume of cooperative businesses (excludes sales between cooperatives) grew by 14.6 percent nationally and 1.7 percent in New York State. Noteworthy research has been conducted over the past several decades to document the importance of cooperative businesses. Similar to investor-owned firms, cooperatives must adapt to a variety of external and financial factors in order to remain profitable and add value to the businesses of their producer members. The following chapter provides an overview of cooperative activity within the United States and New York State and provides insight into the critical issues facing cooperatives in the future.

U.S. Situation – Farmer Cooperatives

In 2012, 2,238 U.S. farmer cooperatives owned by 2.1 million members had a record-breaking year with over $234 billion in gross business volume (includes sales between cooperatives) and nearly $899 million returned to member owners in patronage refunds (Table 3-1). Grain and oilseed sales by co-ops increased more than $7 billion, more than offsetting the drop of $500 million in dairy products marketed. Gross business volume (excluding the Farm Credit System) increased by 7.9 percent from the previous record high of $216.8 billion set in 2011. Table 3-1 compares volume of cooperative business between 2011 and 2012 (Ali, 2013).

TABLE 3-1. U.S. FARMER COOPERATIVES, COMPARISON OF 2011 AND 2012

Item	2011	2012	Change
	($ billion)	*($ billion)*	*percent*
Gross Business Volume			
Marketing	$131.0	$137.4	4.8
Farm Supplies	81.4	91.9	13.0
Services	4.4	4.7	6.8
Total	**$216.8**	**$234.0**	**7.9**
Balance sheet			
Assets	$79.4	$82.9	4.4
Liabilities	51.3	53.0	3.3
Equity	28.2	30.0	6.5
Income Statement			
Sales (Gross)	$216.8	$234.8	8.3
Patronage income	0.6	0.9	46.6
Net income before taxes	5.4	6.1	12.9
Employees	(Thousand)	(Thousand)	
Full-time	130.8	129.2	-1.2
Part-time, seasonal	52.8	56.0	6.0
Total	**183.6**	**185.2**	**0.0**
Membership	(Million)	(Million)	
	2.3	2.1	-7.4
Cooperatives	(Number)	(Number)	
	2,299	2,238	-2.7

Source: Ali, Sarah and E. Eldon Eversull, *Rural Cooperatives, USDA Rural Business Cooperative Service, September/October 2013 Vol. 80 No. 5 pg. 5, Washington, D.C.*

While not shown, net business volume (excludes sales between cooperatives) grew by 8 percent or $14.6 billion from $187 billion in 2011 to $201.6 billion in 2012. Most of this (8%) can be attributed to increasing grain and oilseed prices. Net business volume for supply cooperatives increased $7.0 billion, with increasing prices paid for feed, fertilizer, and petroleum accounting for 43% of the increase. Net business volume increased $1.3 billion, $2.2 billion, and $2.6 billion for feed, fertilizer, and petroleum products, respectively.

The aggregate cooperative balance sheet shows total assets increased by $3.5 billion or 4 percent and liabilities increased by $1.7 billion or 3 percent between 2011 and 2012. Equity improved by $1.8 billion or slightly over 6%. Net income before taxes increased $0.7 billion or 13 percent between 2011 and 2012.

Nationally, farmer marketing cooperatives account for 53.8 percent of all farmer cooperatives with 31.0 percent of all memberships. Supply cooperatives account for 40.7 percent of all U.S. farmer cooperatives and 67.2 percent of all memberships. Farmer service cooperatives make up the balance; i.e. 5.4 percent of cooperatives with 1.7 percent of memberships. Membership numbers exceed farm numbers as a farm business can belong to one or more cooperative enterprises. Previous studies show farmers as members of up to three cooperatives. The total number of cooperatives declined modestly between 2011 and 2012 (-2.7 percent), reflective of continued industry consolidation (Table 3-1). While farmer cooperative members have also trended downward over the last decade, total memberships decreased modestly between 2011 and 2012 by 7.4 percent.

The number of full- and part-time workers remained relatively constant in 2012 at 185.2 thousand workers, with a slight decrease (1.2 percent) in full-time workers to 129.2 thousand and an increase (6.0 percent) in part-time, seasonal workers of 3.2 thousand (Table 3-1). Marketing cooperatives employ 60 percent of the farmer cooperative labor force, followed by supply cooperatives at 39 percent, and service cooperatives at 1 percent. Grain and oilseed marketing cooperatives employed 32,200 employees, with an increase of 1.5 percent from 2011 to 2012. Likewise, dairy cooperatives employed 22,000 employees in 2012, with an increase of 1.4 percent over 2011. Fruit and vegetable marketing cooperatives employed 29,300 employees in 2012, a decrease of less than 1 percent over 2011. Dairy, fruit and vegetable, grain and oilseed sectors employ approximately 45 percent of all farmer cooperative workers.

New York State Situation

Data for agricultural cooperatives headquartered in New York State were obtained through a USDA Rural Development Cooperative Service survey. The most current state-level information available is for years 2011 and 2012. Table 3-2 summarizes cooperative businesses headquartered in New York State.

Between 2011 and 2012 the total number of farmer cooperatives remained relatively stable (54) and cooperative memberships (5.7 thousand) decreased by 11 percent. The number of dairy cooperatives and the number of fruit and vegetable cooperatives decreased by one in each category. The number of "other product" marketing cooperatives remained the same.

Reflective of a slight increase in milk production coupled with prices comparable to 2011, net business volume for dairy cooperatives increased by nearly $311 million or 14.5 percent from previous year levels. New York State dairy cooperatives market approximately 75 percent of the milk produced within the state. Net business volume for fruit and vegetable cooperatives increased by 4.1 percent to $77.9 million in spite of a 50 percent decrease in memberships. USDA data now reflects the termination of ProFac Cooperative. Net business volume for all reporting marketing cooperatives increased by $425.5 million or 18 percent. Five "other products" marketing cooperatives is the calculated difference between the USDA reported total number of marketing cooperatives and dairy and fruit and vegetable cooperatives.

TABLE 3-2. NEW YORK STATE AGRICULTURAL COOPERATIVE NUMBERS, MEMBERSHIPS AND NET BUSINESS VOLUME, 2011 and 2012[1]

Major Business Activity	Number & Membership (000) Headquartered in State				Net Business Volume	
	2011		2012		2011	2012
	No.	Members (000)	No.	Members (000)	($ million)	
Marketing:						
Dairy	30	3.5	29	3.1	$2,143.4	$2,454.3
Fruit & Vegetable	8	1.0	7	0.5	74.8	77.9
Other Products[2]	5	0.3	5	0.4	184.8	296.3
TOTAL MARKETING	43	4.8	41	4.0	$2,403.0	$2,828.5
Supply:						
Crop Protectants					$22.9	$23.0
Feed					74.3	77.0
Fertilizer					31.4	31.4
Petroleum					2.3	2.2
Seed					3.6	2.9
Other Supplies					27.5	27.4
TOTAL SUPPLY	6	1.4	5	1.4	$162.0	$163.8
TOTAL SERVICE[3]	6	0.2	8	0.3	$31.5	$37.3
TOTAL	55	6.4	54	5.7	$2,596.6	$3,029.6

Source: *Cooperative Statistics* 2012, USDA Rural Development, http://www.rurdev.usda.gov/BCP_Coop_DirectoryAndData.html

[1] Totals may not add due to rounding.

[2] Includes wool, poultry, dry bean, grains, livestock, maple syrup, ethanol, and miscellaneous cooperatives.

[3] Includes those cooperatives that provide services related to cooperative marketing and purchasing.

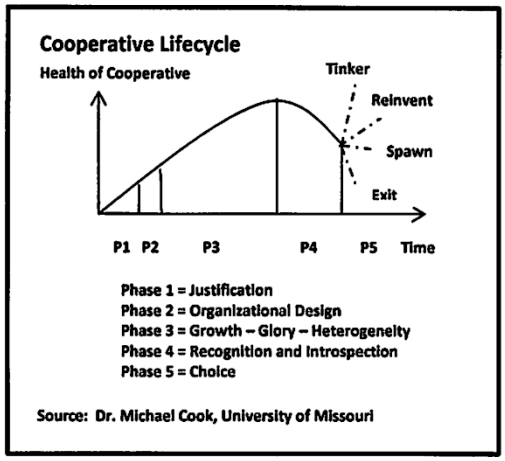
The database indicates that there are five farmer supply cooperatives and eight farmer service cooperatives in New York State. Producers experienced slightly higher costs for inputs in 2012 over 2011. These comparable costs are analogous business volumes for crop and livestock inputs in supply cooperatives. Net business volume from seed sales decreased 20 percent and net business volumes from crop protectants and fertilizer were similar in 2011 and 2012. In total, net business volume for supply cooperatives increased by $1.8 million, or 1.0 percent. The strong increase in farmer cooperative services resulted in net business volume increasing from $31.5 million to $37.3 million or 18 percent. Overall, net business volume for those cooperatives headquartered in New York State increased by $433 million or 17 percent.

The USDA Rural Development Cooperative Survey does not include activity of the Farm Credit System. On January 1, 2010 Farm Credit of Western New York, ACA merged into First Pioneer Farm Credit, ACA to create Farm Credit East, ACA. Farm Credit East, ACA service area includes New York State, New Jersey, Massachusetts, Connecticut, Rhode Island, New Hampshire, and customers in several other states. As such there are no figures specific to New York State; however 52 percent of the loan portfolio is based in New York State. The 2012 Farm Credit East ACA annual report notes that loan volume increased 7.8 percent to $4.7 billion. Net income before taxes rose from $141.4 million to $142 million. The board of directors determined that $40.0 million be returned in cash refunds, the cooperative's 17th consecutive patronage distribution.

The top 50 dairy cooperatives market almost 80 percent of the milk within the United States. Eight of the 50 cooperatives have members inside and outside of New York State. These cooperatives accounted for 40 percent of milk marketed by cooperatives. These cooperatives accounted for 36 percent of the memberships of the top 50 cooperatives (Hoard's Dairyman (2013).

Issues for Agricultural Cooperatives – The Five Phases of the Cooperative Life Cycle

The history of agricultural cooperatives is universal. They were formed by farmers to achieve economies of scale necessary to level the competitive field in the marketplace. In spite of consolidation in the farm sector through time, farm businesses are relatively small, family-owned production units, which still supply the majority of farm-level output. Cooperative-structured businesses supply needed services, build the bargaining power of farm owners, and share profits through patronage returns. In contrast, large agribusiness firms supply the majority of inputs that farmers use and control the processing, marketing and distribution of farm outputs to end users. Present day cooperatives continue for the same reasons, to address an economic challenge, to market product collectively, to achieve economies of scale, and to share profits with their members in proportion to use.



When a cooperative is created members are similar in their perspectives on the value of the cooperative, the economic problem it will address and the goals of the cooperative to be achieved. Many members are of the same age, live near one another, with businesses of similar size and scale. "The short-run effect of successful cooperative formation is transformative, providing balance and opportunity in the marketplace to a formerly disadvantaged group. In the long run, however, competitors respond to generate new market dynamics." (Hueth, 2011) Through time the cooperative changes as does its membership. The cooperative may expand into new territories with new members requiring pricing differentials different from other members. The size and scale of each members business may change and with those changes, the expectations of the cooperative change. New generations of members join the cooperative and older cooperative members retire. With this change comes new expectations and views on equity, how it is accumulated, allocated, and revolved.

The evolution of the cooperative is the cooperative life cycle. The concept of business life cycles has been studied for over 50 years. An organizational life cycle predicts that an organization moves from inception to growth, to maturity, to decline OR redevelopment. The literature suggests that these phases are sequential in nature, occur in a hierarchal progression and become increasingly complex through time. Dr. Michael Cook, University of Missouri suggests that a cooperative-structured business passes through five phases. The first phase is the Justification phase. In this phase the reason for the cooperative business is identified, i.e. reduce risk, create economies of scale in purchasing, marketing, secure needed services, etc. At this phase some cooperatives develop a defensive strategy in the marketplace to best position their members and generally operate at breakeven. Other cooperatives choose a more offensive strategy, working to achieve above breakeven profits with a membership culture that is more investor oriented.

Phase 2 of the cooperative life cycle is the Organizational phase where 'property rights' come into play. This part of the life cycle addresses who owns the cooperative, who controls the cooperative, and who will benefit from the cooperative. The people involved in Phase 1 were united in the common need, the goals to be achieved, and in the actual formation of the cooperative. In Phase 2 the cooperative is formally organized. Differences between members (heterogeneity) emerge as they articulate their perspectives on equity capital acquisition policies, distribution of patronage refunds, and representation rules. "The process of constructing the cooperative constitution tests the scope and degree of member heterogeneity through formulation of policies and rules affecting principal-agent relationships, collective decision making processes, and risk bearing responsibilities." (Cook, 2009).

Phase 3 of the cooperative life cycle is the Growth and Glory phase. Growth may be defined in numerous ways – growth in revenue, patronage refunds, membership, market share, and profitability. With growth come changes such as new locations or market channels in which the cooperative will operate, characteristics of desirable members, benefits to be accrued to members, and how to monitor and evaluate change itself. With growth comes change in the membership. Growth of membership implies economies of scale and improved bargaining positions for the cooperative business. It can also be a source of new leaders making creative decisions that build on the success of the cooperative. Long term members change as well. Some members who delivered 100 percent of their crop to the cooperative may seek alternative markets for a portion of their crop. Some members will expand the size and scale of their individual businesses as a result of a next generation owner and others will retire from the industry. As new issues arise it becomes evident that the same view of the cooperative is not shared by all members. This view will be influenced by the personal circumstances of each of the members. It is the first indicator that the cooperative leadership will have to address a diversity of member needs and expectations.

These diverse views are not an indicator of future failure of the cooperative. Creative solutions need to be identified, explored, and implemented to address these views. Through time heterogeneity will increase due to factors such as disproportionate equity allocation, patron drift, membership growth, substitution effects, and diversification.

- Disproportionate equity allocation – Long term members will have more equity in the cooperative business than new members but the services to each may be the same. Members may be faced with a realization that the return on the equity investment in the cooperative is less than what might be achieved if similar funds could be invested elsewhere for higher returns.

- Patron drift – Early members formed the cooperative to address a specific economic need. New members may create conflict within the organization as they are not aware of, nor did they experience the economic challenge that the cooperative worked to overcome. They may not believe that similar circumstances could happen in the future. Cooperative businesses may exert minimal effort to address or resolve negative effects of heterogeneity in the quest for growth of the business.

- Membership growth – Growth increases the likelihood of divergent interests among member-users. Increased membership growth compounds the cost of gathering and transferring information among members; increases the probability that inappropriate member behavior will avoid sanctions; and creates incentives to not monitor management, which increases the diversity of competing member interests. The board of directors needs to set and implement policies in response (Cook, 2009).

- Substitution effect – Through time, new competition in the marketplace may erode the competitive advantage of the cooperative. Members may be attracted to other firms performing similar functions. The cooperative may overcome the economic challenge it was formed to address and the need for the organization no longer exists or the need is not easily visible to present day member-owners.

- Diversification exacerbating transitional differences – Cooperatives may look for new opportunities to address or additional member needs to serve. Each new opportunity for products or services has the potential to intensify member heterogeneity to the point where membership will be polarized. "When cooperative decisions affect different members differently, the cooperative runs the risk of subsidizing the formation of distributional coalitions each time a new product or service is introduced. Thus, the bundle of goods that the cooperative provides may include certain 'selective goods' which favor a portion of the membership while having neutral or negative impact on farm-level profitability of the remaining member patrons." (Cook, 2009).

Cooperatives may retain excess cash flow in reserve fund accounts as a risk management strategy to finance all positive net-present-value projects and reduce debt capital needs. These funds are known as free

cash flow. These funds may be used to subsidize lesser-performing divisions. Extended subsidies can distort financial performance and fortify the divisive opinions of a fractured membership. These reserved funds are a legitimate strategy for risk reduction. However, they provide a convenient and strong argument for cooperative leadership to refuse to pay out earnings to members. They also create an opportunity for cooperative leaders to utilize the funds for low-return projects. Cooperative boards and management may be pressured to utilize these funds as risk capital. Financial slack refers to liquid assets and unused debt capacity in excess to what is needed for current operating and debt servicing needs. A decision to invest should take into account the return on the investment to the cooperative and the return on equity to the member. Cooperative leadership needs to balance the financial resources to be retained in the cooperative with the expectations of members to receive patronage refunds.

Phase 4 of the cooperative life cycle includes recognition and introspection. According to Cook, members seem to fall into 4 categories – apathetic, targets with preference to rival alternatives, those vacillating between the cooperative and a rival, and the loyalist. The first three groups combined most likely outnumber the loyalists. Fragmented coalitions build and the purpose and direction of the cooperative business becomes less focused and more ill-defined leading to a downward spiral. Tensions between various factions rise. "Recognizing in a transparent manner, analyzing the causes of, and contemplating options to the phenomenon of rising ownership costs is the activity of Phase 4. The end of this phase draws near when the cooperative leadership presents or membership demands explicit action to remedy perceived or real challenges." (Cook, 2009).

Phase 5 allows members and their leaders the option to tinker, reinvent, spawn or exit the cooperative business. Tinkering redesigns constitutional or operational mechanisms to align preferences and incentives of the membership. Choosing the tinkering option suggests no significant change in ownership rights. It often entails a change in bylaws, operating practices or policy that reduces friction." Reinvention means that ownership rights of the member will change. Altering the redeemability of shares or reassigning rights to investors rather than to patrons are examples of reinvention. Spawning refers to a situation where individuals formerly affiliated with a 'parent' cooperative organize a separate entrepreneurial venture. Exit means that member patrons change membership rights of the entity. The ownership rights are no longer based on patronage. Various options might unfold. It could mean conversion to an investor rather than patron driven firm, conversion to a hybrid where the member patrons loose majority residual control rights, entrepreneurial harvesting, or total liquidation (Cook, 2009).

The work by Dr. Michael Cook and others suggests that the presence of heterogeneity is a prelude to concerns of ownership costs and needed changes in the cooperative business. If heterogeneity is acknowledged and addressed, cooperative leadership possesses the potential to manage this change as they tinker or reinvent the cooperative to continue into the next life cycle.

Cooperative Outlook for New York

Cooperatives headquartered in or doing business within New York State have the potential to build upon the previous year's record performance. Weather conditions were more favorable in 2013 than 2012 resulting in record breaking fruit and vegetable yields. Dairy farmers were plagued with rainy conditions at the end of the planting season and during hay harvest. The weather compromised the quality of hay crop. Prices of grain decreased from record high levels in 2012 in expectation of larger acreages of corn and soybeans planted throughout the United States. Milk prices are expected to remain at levels similar to 2013 in early 2014 but will decrease later in the year. With lower grain prices, margins on dairy farms should be favorable in early 2014 and tighten by year end. The number of dairy cows remained constant between 2011 and 2012 and production increased slightly.

New York State became the dominate player in the yogurt market in 2012 producing an estimated 16 percent of all yogurt in the United States. Between 2008 and 2013 Greek yogurt production nearly quadrupled. Since 2000, the number of yogurt processing facilities increased from 14 to 29. Between 2005

and 2011New York yogurt plants doubled production. During the same time period the amount of milk used to make yogurt in New York State increased 7-fold from 158 million pounds of milk to 1.2 billion pounds of milk. Most of the increase is due to Greek yogurt production, which requires three times more milk than traditional yogurt production. "The large farm milk production sector in New York State is an important factor in the development of the product segment, but the proximity of this large production area relative to the demographically large, rich and diverse population centers of the northern Atlantic coast is even more important." (Boynton, 2013).

Boynton and Novakovic estimated that in 2011, milk used for Greek yogurt added a modest $0.03/cwt. to farmers' blend price in Federal Milk Marketing Order No. 1. Production of Greek yogurt presents several opportunities for cooperatives. "Milk or milk components sold to Greek yogurt processors commands a high over-order premium (these premiums are a component of the plant pay price above Federal Order minimum class price and are negotiated by a dairy cooperative or cooperative bargaining agency). If dairy farmers are members of a cooperative that itself makes Greek yogurt, it represents a strong in-house profit/margin opportunity for the cooperative and its members relative to the alternative uses for the milk. Serving yogurt processors may reduce balancing costs for cooperatives. Milk deliveries to yogurt plants follow farm milk production patterns quite well for the first 7 months of the year while in the last part of the year their demand exhibits a pattern that at least partially offsets opposite movements in the fluid milk sector. The net effect of supplying yogurt processors (and fluid milk processors too) would seem to make for less need to move farm milk in and out of balancing plants in the fall." (Boynton, 2013). Processors of low- and non-fat Greek yogurt generate large volumes of cream. The price of cream has decreased and cooperatives with butter manufacturing capabilities operate at higher capacity with improved margins.

Greek yogurt has strong appeal across several consumer sectors – dieters, health conscious, athletes, gourmands, and home chefs. Indications are that it is a mainstream dairy product and not a fad. Growth trends in the short run will continue but upward trends in the future will level out (Boynton, 2013).

Farm Credit East, ACA and Farm Credit of Maine, ACA announced plans to merge. Final approval needs to be given to the merger by the Farm Credit Administration. The newly merged organization is expected to begin operations on January 1, 2014 under the legal name Farm Credit East, ACA. The organization will serve agricultural producers, forest product businesses, commercial fishermen, and other rural landowners with combined assets of more than $5 billion and a loan portfolio in excess of 14,000 loans.

Dairylea Cooperative Inc. announced plans to merge with Dairy Farmers of America effective April 1, 2014. Member information meetings were held in November and December 2013 with a membership vote in February 2014. Dairylea spent 3 years in a comprehensive review process soliciting member input and guidance from the '2020 Group,' a committee formed in 2010 to gather ideas on generating value beyond the traditional cooperative structure. Among many topics, the group explored how to create market opportunities for members that peer cooperatives with investments in processing were attaining.

Fruit cooperatives processed a record-breaking harvest for its members in 2013. Picking schedules were modified resulting in higher quality grape juice at the end of the harvest season. New uses and markets have been found for Niagara grape juice. A major grape juice processing cooperative is poised to unveil another product innovation in 2014. The cooperative business structure is gaining momentum with people interested in purchasing local foods. Consumers are interested in purchasing products from businesses owned by local farmers. They view cooperatives as achieving the triple bottom line, people, planet, profitability.

Profitability is key for any business to remain viable into the future. Member satisfaction is critical to the longevity of a cooperative-structured business. Many of the cooperatives doing business in New York State were formed over 50 years ago. They will remain in business as they tinker and reinvent themselves. Consolidation continues in the farm and food sector. Cooperative mergers are one means to respond to the consolidation. Cooperatives require an engaged and informed membership to elect a board of directors who

have the ability to work with management to balance the needs of the cooperative with the best interests of the members. New York State cooperatives are well-positioned for solid performance in 2014.

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Chapter 4. Agricultural Finance

Calum G. Turvey, W.I. Myers Professor of Agricultural Finance

General Outlook

The financial condition of New York's agricultural economy is holding steady if not improving over 2012. Drought conditions that affected much of the Midwest and parts of New York in 2012 gave way to bountiful crops in 2013. But with this bounty came higher yields and with higher yields came drops in prices of major commodities. Figures 1 a-d show the closing CME futures prices from 2009 to the present and the 20-day historical volatilities (accessed December 1 2013, http://www.cmegroup.com/trading/agricultural/) . Milk prices have held steady throughout the year and are about 25% higher than the lows in the spring of 2012. Corn prices have fallen considerably from the late summer highs in 2012 of $8/bushel to a current price of $4.15/bushel a decrease of almost 48%. Likewise soybeans which hovered around $17.50/bu in August of 2012 is settling around $13.36/bu today and wheat which peaked around $9.50/bushel in 2012 has fallen to $6.55 presently. The 20-day historical volatility of prices is also included in Figure 1 to show that to some degree where market uncertainties lie. Historical volatilities measure short-term variability in the prices of commodities with up-tics indicating rising uncertainty and down-tics representing lower uncertainty. At the present time milk price volatility is at 7.43% which indicates that in the next year there is a 67% chance that prices will land between +/- 7.43% of the current price. Volatility in wheat prices at 16.65% is as low as it has been in many years, but one can expect corn and soybean prices to be very choppy in the next few months with rising volatilities of 45.45% and 32.99% respectively.

Most important for NY State is of course the relation between milk prices and corn prices with the latter capturing a major input cost and the former capturing the leading source of revenue and value added. New York cash receipts from agricultural activities were $5.287 Billion in 2012. As Table 1 shows, dairy accounts for approximately 48.3% of cash receipts in NY so that much of the financial and economic health of the State's agricultural economy depends on the dairy sector. For NY dairy farms using data from 1997-2010 it was found that a 1 unit decrease in the milk/corn price ratio would decrease average $/cow income by $248/year, for the low income/efficiency farms it was $429.42/cow. Between 2000 and 2007 the average price ratio was 5.39, but from 2008 to 2012 the average ratio fell to 3.03 capturing ethanol and other market effects. Table 2 shows the closing futures prices for corn and milk for contract months December 2013 through December 2014. Currently the milk to corn price ratio is at 4.45 which is much healthier than that of 2012, but with not a lot of movement anticipated in milk prices, and a rise expected in corn prices the ratio will fall to 3.75 by the end of 2014. This is still healthier than what has been observed in the past few years and while it might signal prudence in financial practices, it does not appear, historically at any rate, to signal any deterioration in financial conditions beyond conventional risk coping strategies.

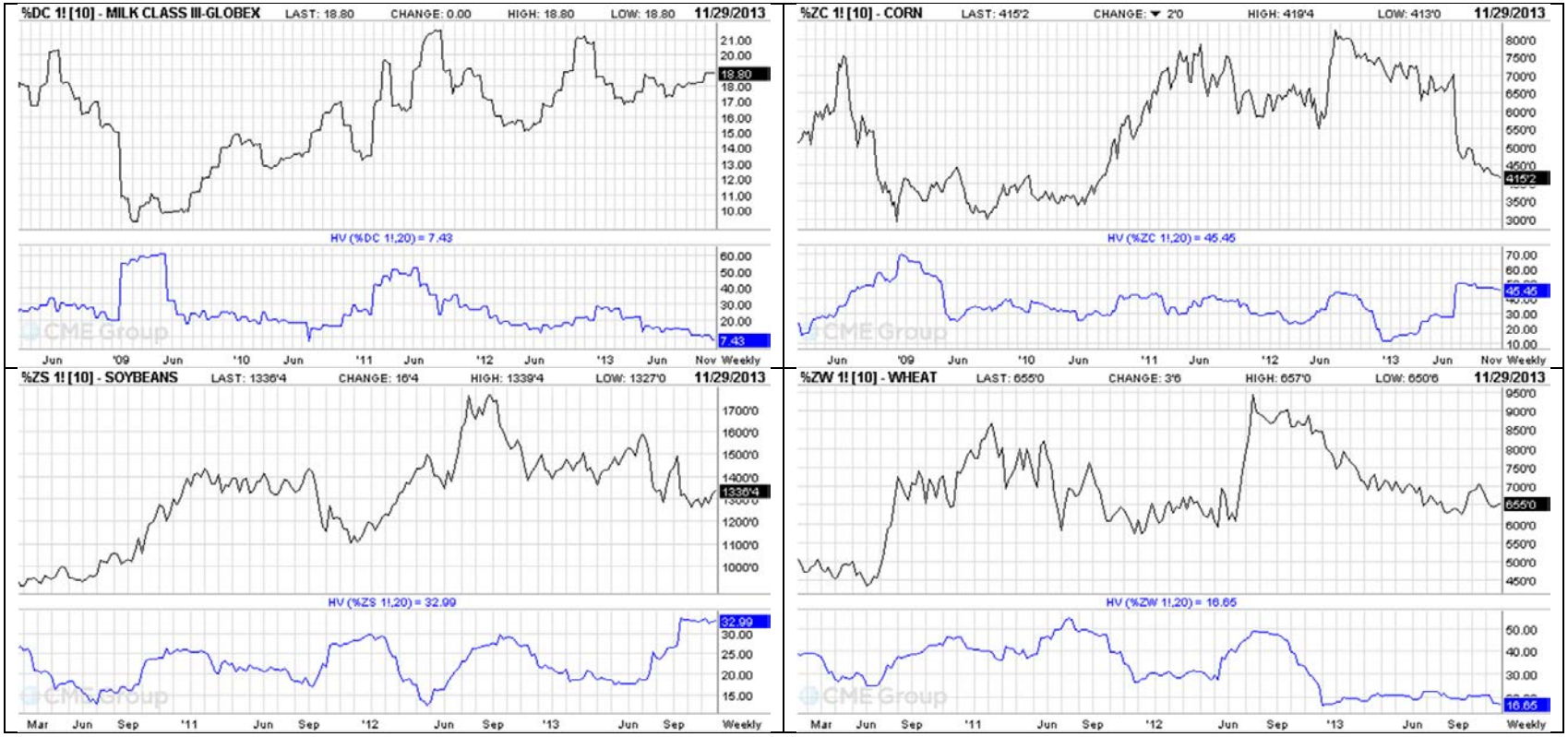


Figure 1: CME Commodity Futures Prices (upper) and 20-day Historical Volatility (lower). Top Left, Class III Milk; Top Right Corn; Bottom Left Soybeans, Bottom right Wheat.

Table 1: Share of Receipts for NY Commodities in Top 20 USA Rankings, 2012 (Source: USDA ERS)

Crop	Rank	State receipts for Total $1,000	Share of U.S. receipts for Total Percent	Share of State receipts for all commodities ($5.2878 Billion) Percent	Share of U.S. receipts for all commodities ($395.068 Billion) Percent
Total	26	5,287,766	1.3	100.0	1.338
Apples	2	234,543	7.8	4.4	0.059
Dairy	3	2,553,816	6.9	48.3	0.646
Fruits/nuts	6	318,425	1.2	6.0	0.081
Greenhouse	8	383,350	2.5	7.2	0.097
Grapes	4	52,252	1.1	1.0	0.013
Potatoes	13	60,776	1.6	1.1	0.015
Strawberries	5	6,880	0.3	0.1	0.002
Tomatoes	5	47,174	2.5	0.9	0.012
Vegetables/ melons	7	625,277	3.0	11.8	0.158
Top 10		4,282,493	80.99	81.0	1.084
All Others		1,005,273	19.01	19.01	0.254

Table 2: Projected Milk/Corn Price Ratio for 2014

Contract	Corn	Milk	Milk/Corn
Dec-13	4.156	18.49	4.45
Mar-14	4.252	17.02	4.00
May-14	4.33	16.9	3.90
Jul-14	4.4	17.15	3.90
Sep-14	4.456	17.24	3.87
Dec-14	4.544	17.04	3.75

More generally, NY agriculture still suffers from significant inter-year volatility. Figure 2 shows the percentage change in Gross Value Added, Net Value Added and Net Farm Income from 2001-2012. It shows that the residual effects of market uncertainties reside with the farmer. Since 2008 the economy has seen year over year changes of a decline by 60% to a rise of 60% in farm incomes. Gross value added is growing at an average rate of 4.4% annually with standard deviation of 11.37% while net value added is growing at an average rate of 5.06% with a standard deviation of 20.2%. But net farm incomes, while growing at an average rate of 7% , has a volatility of about 50%. This means that given current conditions, there is a 67% chance that net farm income, state-wide, will rise or fall by 50%.

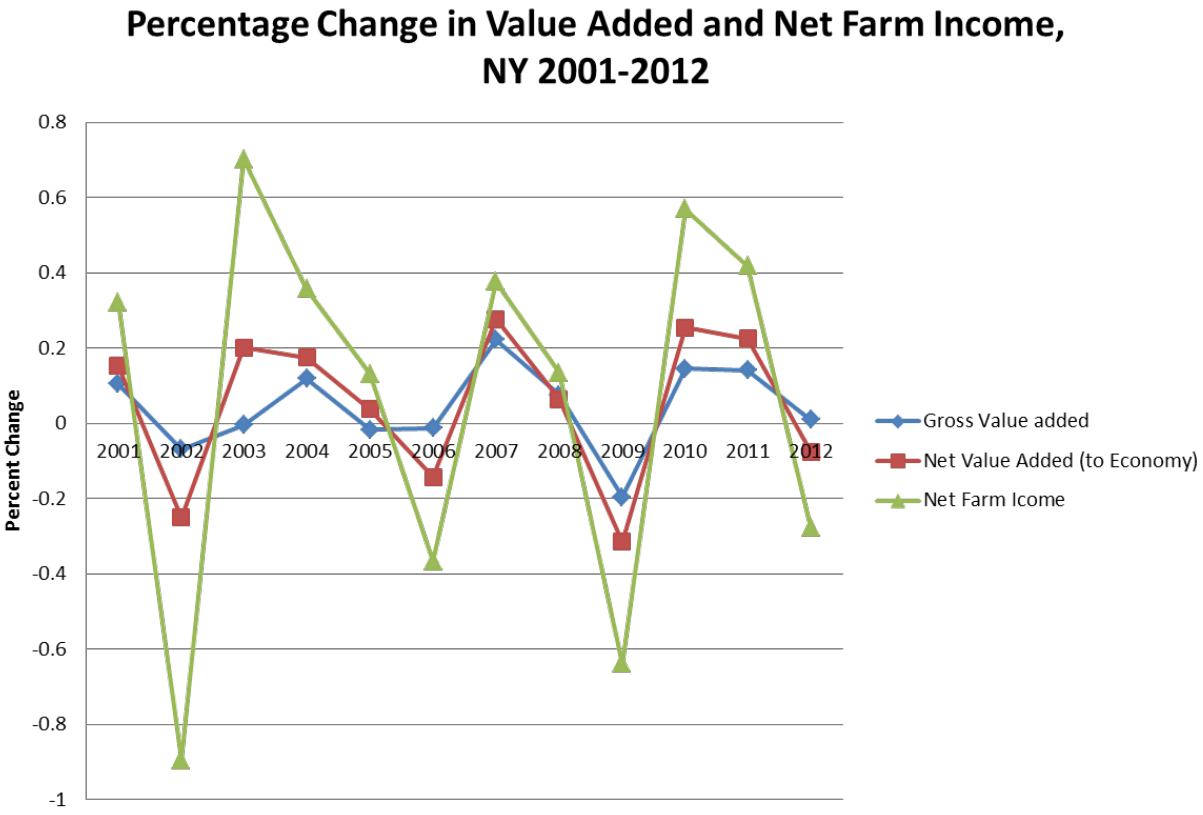


Figure 2: Percentage Change in Value Added and Net Farm Income, NY 2001-2012. Source USDA ERS

Agricultural Finance

The supply of credit to agriculture is strong and demand is high. Figures 3 and 4 show the market shares of key providers of agricultural credit. The Farm Credit System dominates the market for long term credit with about 27% compared to 20% for commercial lenders. In comparison, commercial lenders hold about 20% of non-real estate debt compared to about 14% of the Farm Credit System. The Farm Service Agency originates less than 1% of the debt but it is an important component of agricultural finance nonetheless because of its willingness to guarantee higher risk loans. Up until 1995 the data show that commercial lenders and the Farm Credit System were actually substitutes for credit: As Farm Credit loans increased, commercial loans decreased and vice versa. But since 1995 the two key lending sectors have

been complementary as the FCS shed its 'lender of last resort' image. Under this competitive environment FCS mortgage loans have dominated. For operating and other intermediate loans commercial lenders and the FCS have always seemed to compete, although since 1995 it appears that non-mortgage loans originated by the FCS are increasing relative to those of commercial banks. In terms of the financial crisis it does not appear that there was any long term reduction in the provision of either real estate or non-real estate loans to agriculture.

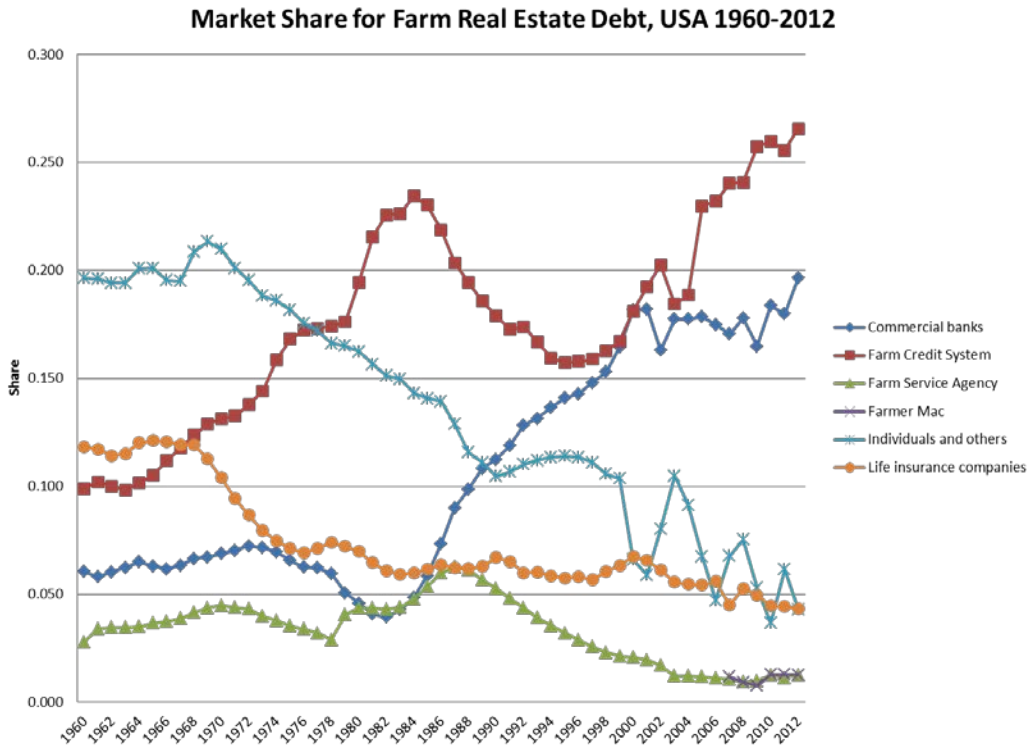


Figure 3: Market Share for Farm Real Estate Debt, 1960-2012

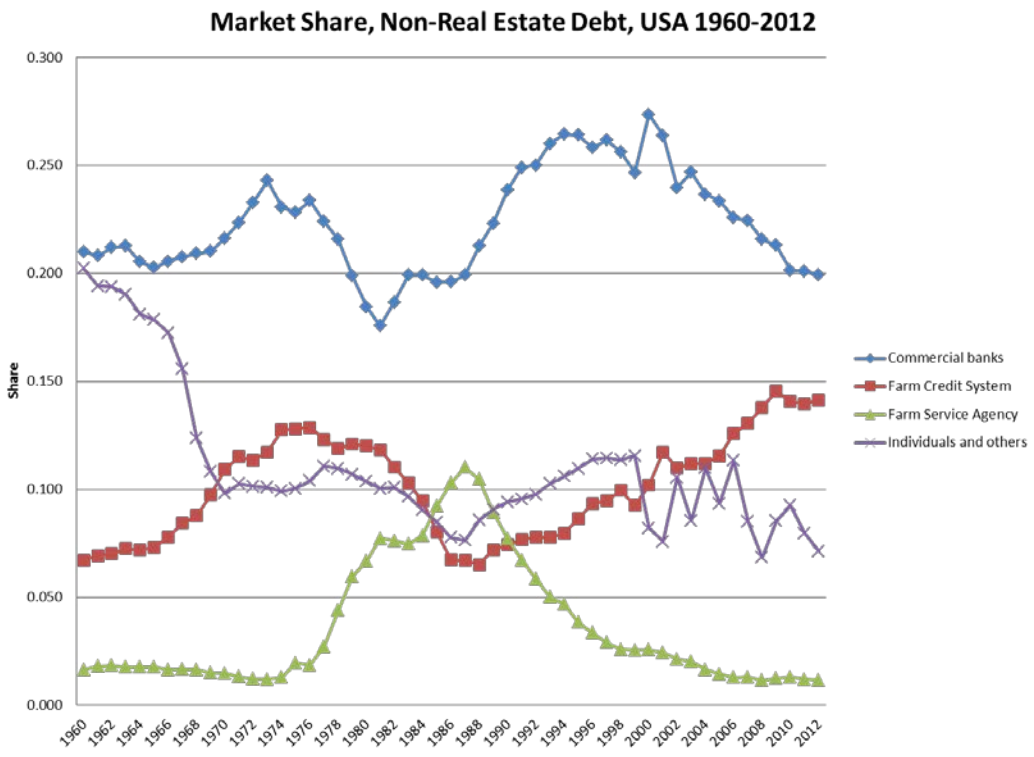


Figure 4: Market Share, Non-Real Estate Debt, USA 1960-2012

Farm Credit East in its 2013 Quarterly Report (as at September 30 2013) revealed that with 52% of its loan portfolio in NY overall credit quality is 92.1%, an improvement over 90.94% for 2012 and a reduction of substandard/doubtful loans from 5.22% to 3.58%. Impaired loans as a percentage of total loans was 1.44% compared to 1.60% in 2012. In relation to the Farm Credit System as a whole, there is no discernable difference between loan quality in NY (and the Northeast) and the U.S. agricultural economy. The Farm Credit System Annual Report for 2012 for example shows nonperforming loans in 2012 being 1.36% down from 1.72% in 2011. In addition to asset security Farm Credit East issued $280.6 million in loans under Farm Service Agency programs and has further securitization options with Farmer Mac. Total loans outstanding as of September 30 2013 were $4.694 Billion compared to $4.618 Billion as at December 31 2012, an increase in net loan volume of $75.9 million.

A similar story arises in the commercial banking sector. Figures 5-7 were generated from data made available through the Kansas City Federal Reserve's Farm Data Handbook and places current conditions in a historical context. System wide, nonperforming loans dipped below 1% by the 2nd quarter of 2013 (Figure 5) which is lower than that of the Farm Credit System, but also expected since commercial banks can more easily move in and out of agricultural finance as market conditions change. But in terms of long term mortgages, nonperforming loans are about 1.5% of total (Figure 6). Figure 7 shows net charge-offs for commercial banks from 1977-2012 which interestingly details the two significant financial crises of the agricultural sector. The first, peaking in the financial crisis of the mid 1980's, shows charge-offs by agricultural banks of about 2.25%. But in the financial crisis following 2007/2008 the larger charge-off rate was with the nonagricultural banks. While some deterioration

followed this later financial crisis because of the tightening of credit facilities (including working capital), what is important is that agricultural loans proved safer than nonagricultural loans, and banks with a larger proportion of agricultural loans were better able to stabilize credit risks. There is a very good case to make that because agricultural returns are largely independent or at least weakly correlated with the general industrial/consumer economy the commercial banking system may well show an increased interest in agricultural loans as a general hedging strategy that not only reduces credit risks but also adds to profits.

Despite this, Figure 8 shows a slight fallout from the 2007/2008 financial crisis with a failure amongst some commercial banks averaging about 9 per year from 2009-2011. Since sub-prime loans were not typically applied to agricultural loans these banks likely failed for residual reasons such as a large number of sub-prime or otherwise overvalued residential and commercial real estate holdings or holding too much sub-prime paper on their books as part of an investment strategy.

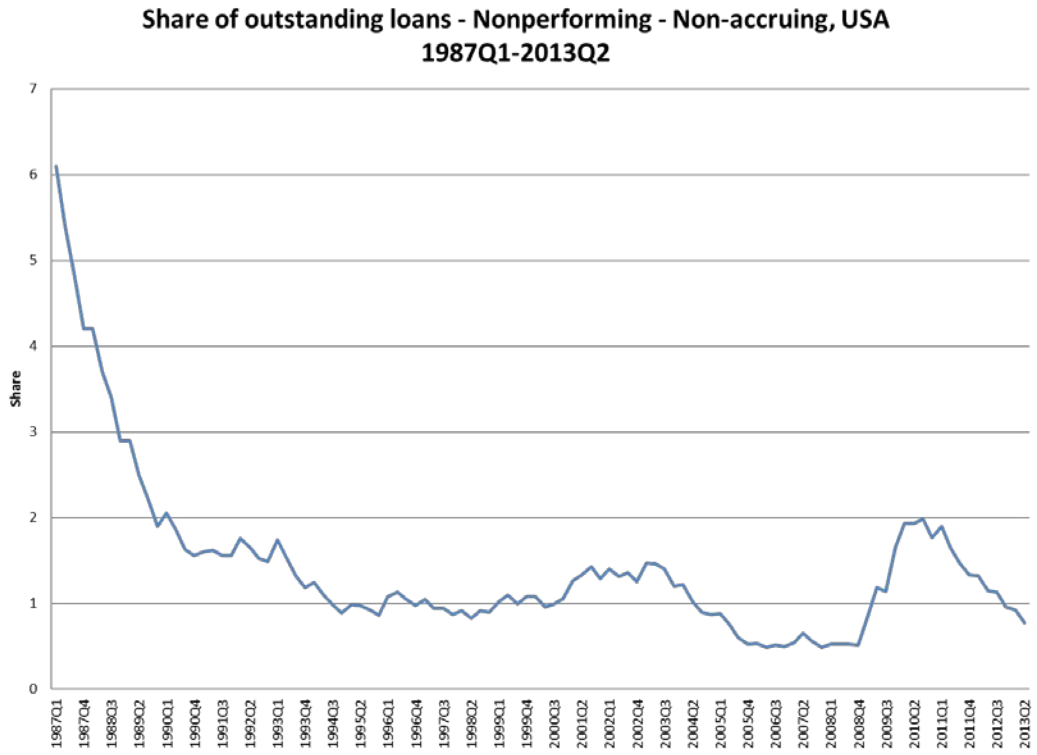


Figure 5: Share of Outstanding Loans, USA 1987-2013

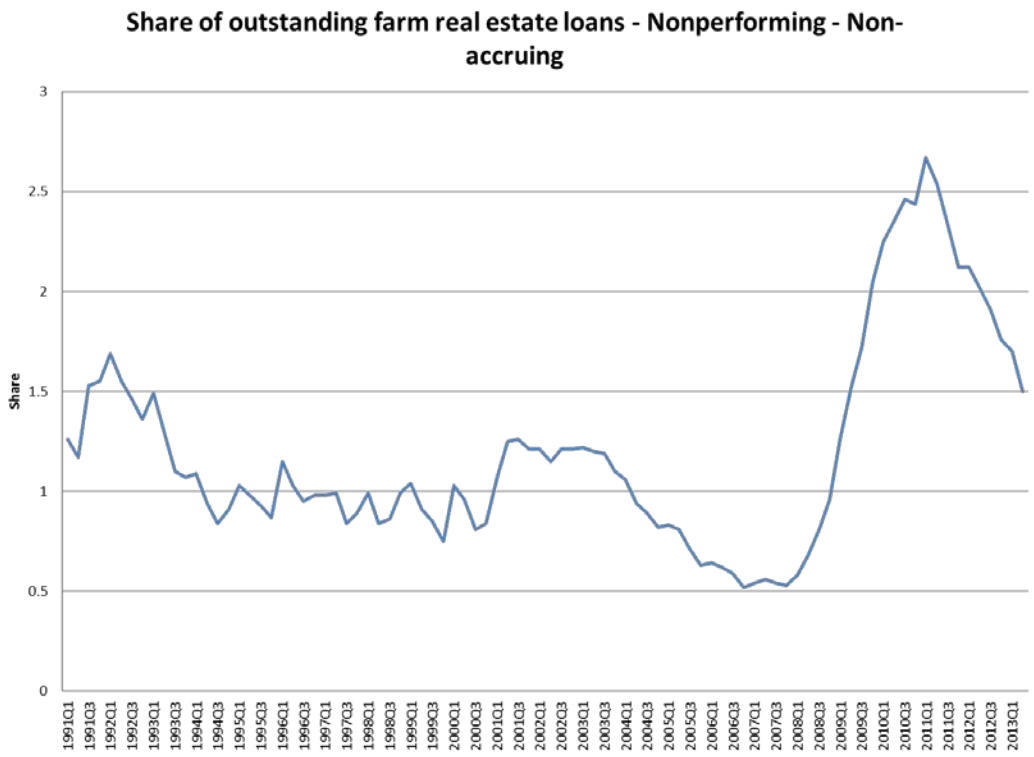


Figure 6: Share of Outstanding Farm Real Estate Loans-Nonperforming-Nonaccruing

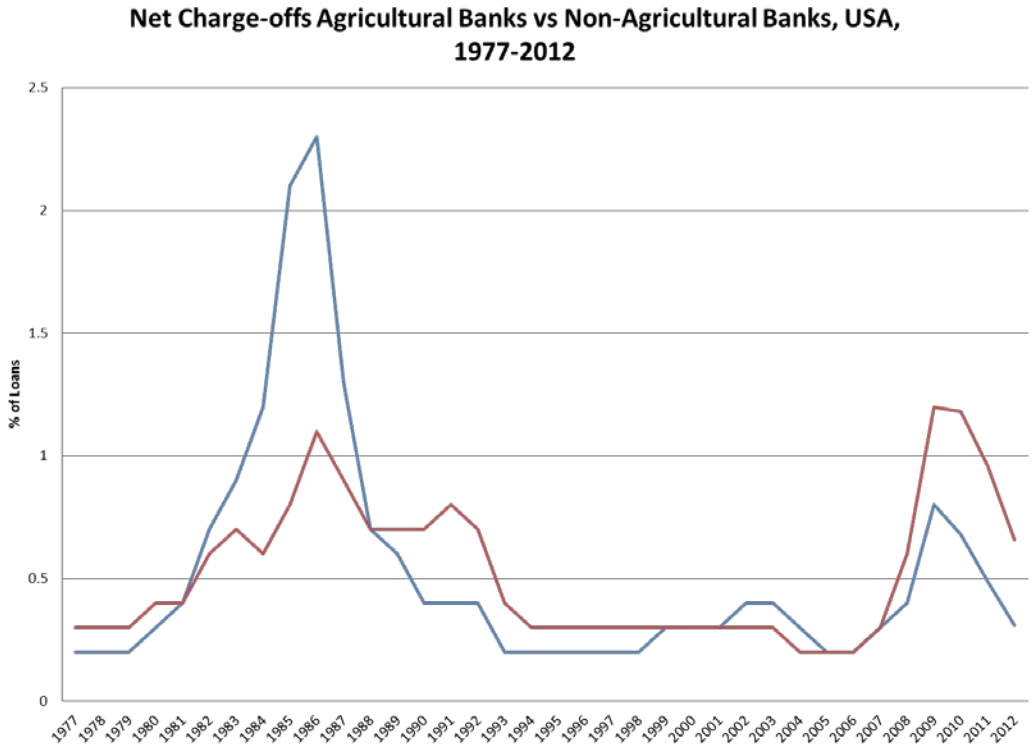


Figure 7: Net Charge-Offs. Agricultural versus Non-Agricultural Banks

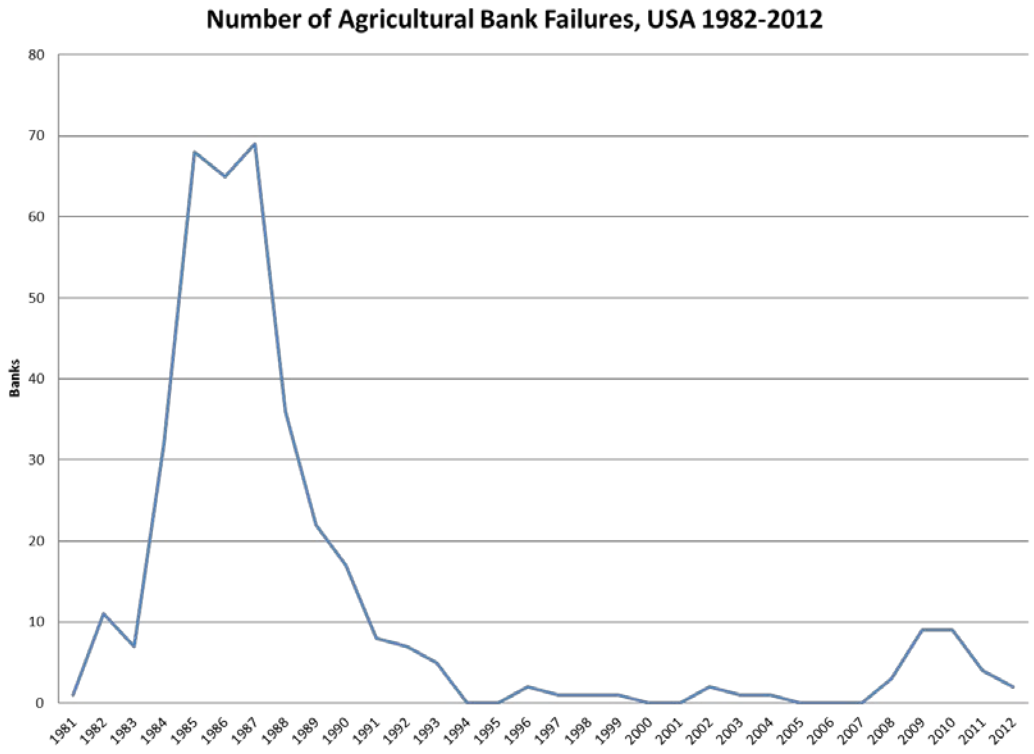
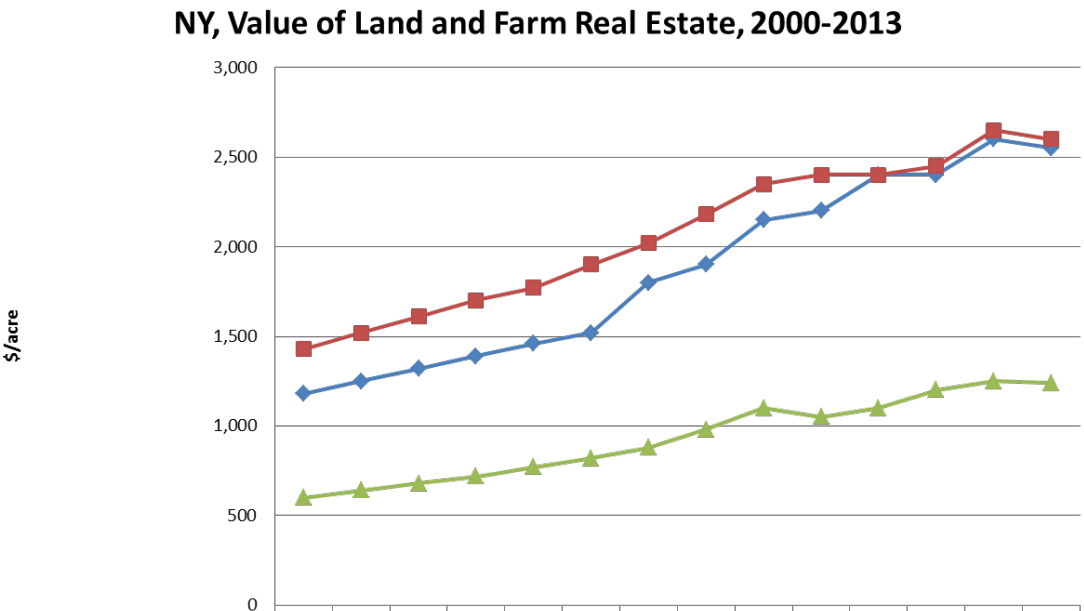


Figure 8: Number of Agricultural Bank Failures, USA 1982-2012

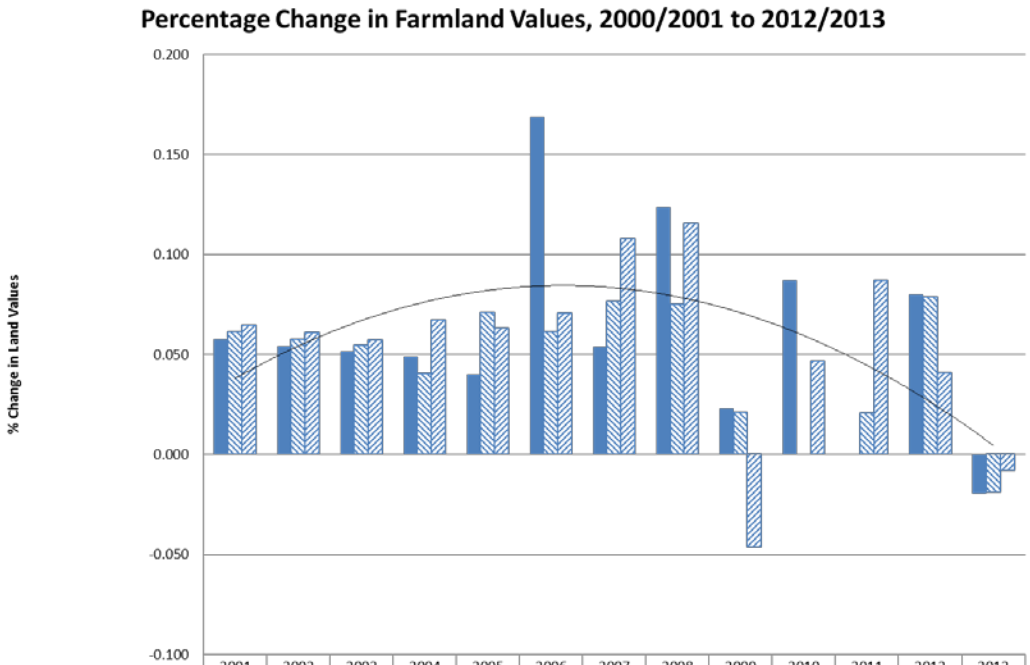
Farmland Values

Agricultural land is, for most farmers, the largest asset item with unrealized capital gains being the largest contributor to equity. Some extraordinary rises in farmland prices in recent year has led to questions of whether a bubble exists and if so whether a bust is imminent. In 2013 it looks perhaps that land prices are now leveling off and in fact for the first time in many years USDA data shows that crop and pasture land, and land with buildings have decreased. The decrease is small with average prices falling only $50/acre over 2012 (Figure 9). But this comes after a significant reduction in the rate at which land prices were increasing since 2000 and peaking between 2005 and 2008 (Figure 10). There are many possible reasons for this decline. The most obvious is that NY farmers looked rationally at the price of land, the cash flow it generates, the risks in generating those cash flows, and long run viability of agricultural production if they became overly speculative in land investment. Changes to ethanol subsidies, uncertainty about the Farm Bill and sequestration, and the general misbehavior of congress on such matters could also cause some farmers to take a wait-and-see approach until the recent tumult in commodity markets and policy is resolved. Even so it is difficult to gage the future. According to bank surveys by the Federal Reserve System as reported in the Farm Data Book (Kansas City Federal Reserve) a general softening of land values is being seen in the west, southwest, southeast but by not as much in the major grain and bean producing states in the Midwest (e.g. Iowa, Minnesota, Colorado).



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Crop Land ($/acre)	1,180	1,250	1,320	1,390	1,460	1,520	1,800	1,900	2,150	2,200	2,400	2,400	2,600	2,550
Land and Buildings ($/acre)	1,430	1,520	1,610	1,700	1,770	1,900	2,020	2,180	2,350	2,400	2,400	2,450	2,650	2,600
Pasture Land ($/Acre)	600	640	680	720	770	820	880	980	1,100	1,050	1,100	1,200	1,250	1,240

Figure 9: New York Land Values, 2000-2013, $/acre (Source: USDA ARMS)



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Crop Land ($/acre)	0.058	0.054	0.052	0.049	0.040	0.169	0.054	0.124	0.023	0.087	0.000	0.080	-0.019
Land and Buildings ($/acre)	0.061	0.058	0.054	0.040	0.071	0.061	0.076	0.075	0.021	0.000	0.021	0.078	-0.019
Pasture Land ($/Acre)	0.065	0.061	0.057	0.067	0.063	0.071	0.108	0.116	-0.047	0.047	0.087	0.041	-0.008

Figure 10: Percentage Change in New York Land Values

A final interesting relationship which has received little if any prior notice is the value of farmland with and without buildings. The relationship for NY is shown in Figure 11. Up until 2005 the value of buildings comprised about 20% of farmland values. But since 200 there has been a very strong decline in the value that the market is placing on buildings. In 2010 for example there was no difference between the price of land with buildings and bare land. There are two reasons for this. The first, speculation, suggest that the immutable properties of farm land is in its non-depreciable properties. Thus buildings hold little value to the investor in land. But it could also be due to farm expansion and capacity. Larger farms may already have buildings and storage/parlor capacity so that the marginal value of an additional barn or silo or parlor has little economic value. Even a residence that will remain vacated would be seen as an economic liability since it has no economic value in any alternative use.

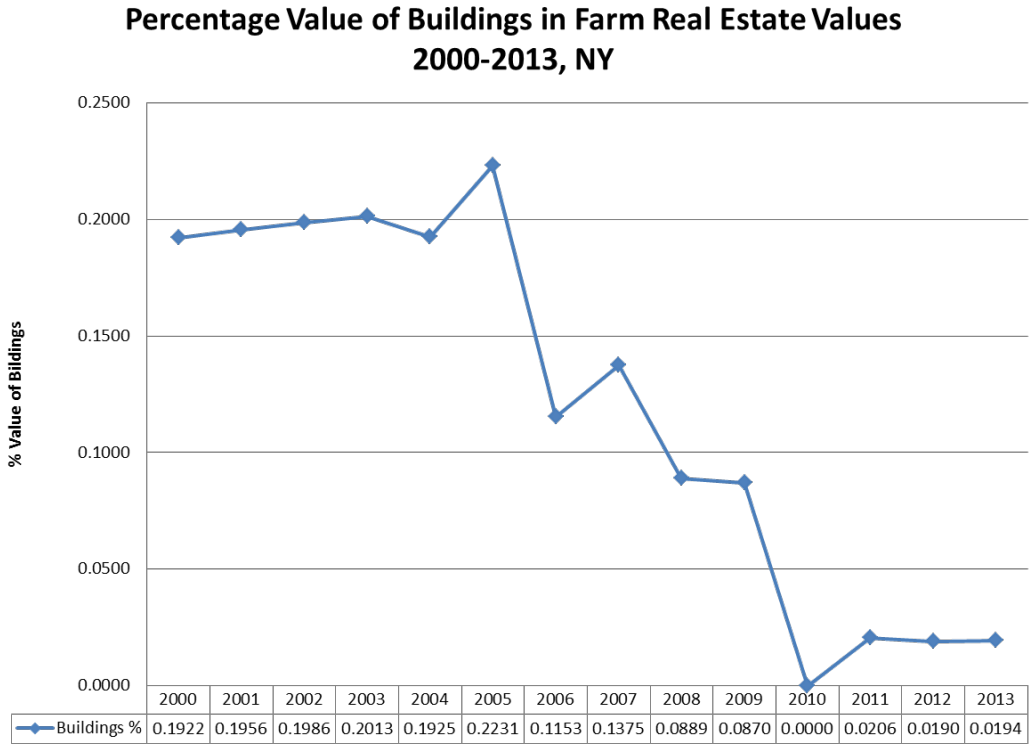


Figure 11: Percentage Value of Real Estate in Land Values

Financial Conditions of U.S. and NY Farms

As indicated earlier New York is no longer surveyed as part of the USDA's periodic Agricultural Resource Management Survey but from past experience financial conditions in New York were fairly consistent with the financial conditions of farmers elsewhere in the USA. Figure zzz illustrates the debt to asset and debt to equity ratios sector wide across the USA. Overall, farm debt in agriculture is low with plenty of equity for investment and expansion. The debt to asset ratio sector-wide is only 10% and the debt to equity ratio is about 10.2%. These have not changed in any economically meaningful way since 2012. However it must be kept in mind that these ratios are sector wide and include farms with no debt as well as debt and also includes the capital gain (market) value of farmland. In general as long as

the value of assets increases faster than the accumulation of debt one will see a decrease in either leverage ratio. In this outlook report for 2012 it was reported only 29.4% of American farmers have debt with an average debt to asset ratio of 28.9% and a debt to equity ratio of 40.6%. Even at 28.9%, this is not a degree of over-leverage that will bring widespread harm to the agricultural economy should a down-turn occur. Younger farmers hold more debt relative to assets or equities (36.9% and 58.4%) than older farmers (22.1% and 28.3%).

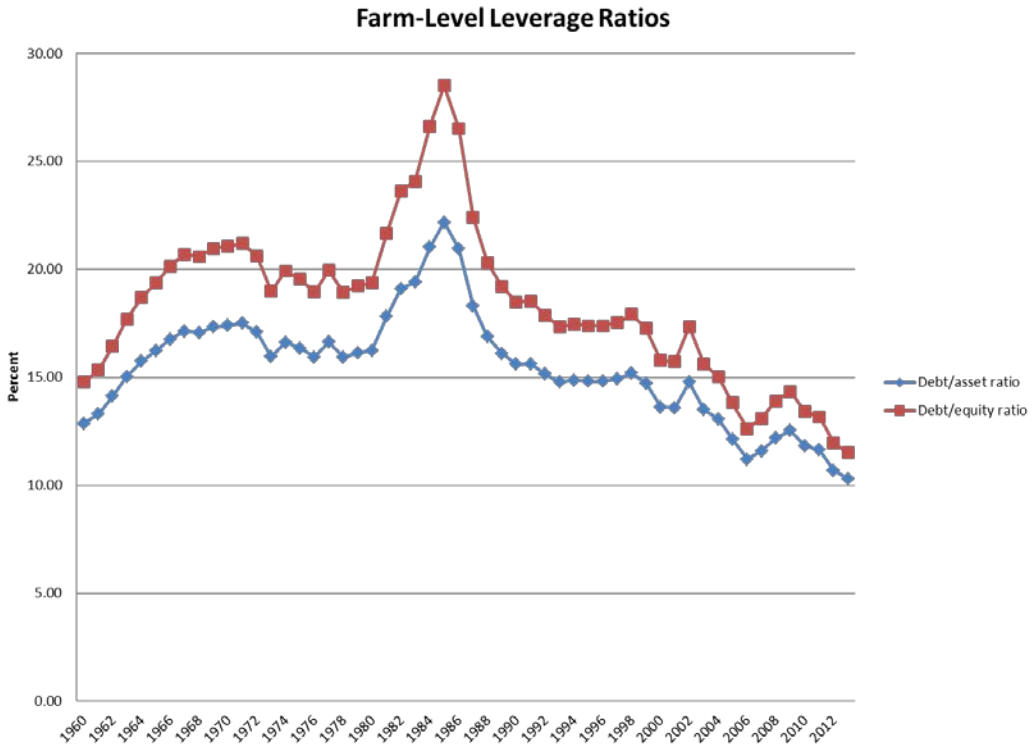


Figure 12: Debt to Asset and Debt to Equity Ratios, United States 1960-2012

Summary and Conclusions

2013 has been a mixed year for New York farmers. On the one hand the end of drought has resulted in higher crop yields but the decreases in prices have for many offset the yield gains. Greater stability in prices is seen for milk and wheat but corn and soybeans are increasingly volatile.

Agricultural credit from both the Farm Credit System and commercial lenders seem to be in ample supply and with interest rates hovering between 4.5% and 6% the cost of debt will unlikely be a significant barrier to credit demand. Equity looms large in the agricultural sector and there is a tremendous amount of low risk credit capacity to ensure ample supply. The tumult of the financial crisis appears to have largely dissipated and in NY, the Northeast, and nationally loan performance is solid and faring much better than the non-agricultural market.

For the first time in many years farmland values in NY have actually decreased, although only slightly. Whether this is a trend or a blip remains to be seen, but there are many uncertainties in markets

and politics that may give rise to uncertainty. There is no indication at the present time that a rapid and significant decline in land values will occur which suggests that loan to value ratios will remain in good conditions. If the buildup of land values in recent years was driven by speculative, rather than fundamental, forces then one might see a more rapid decrease in land prices in 2014 as farmers and investors seek to maximize capital gains. But this is not indicated at the present time. Instead it appears that the decline in land values is no more than realignment with current markets and fundamentals.

Chapter 5. Grain and Feed

Michael D. Hogan, Commercial Analyst
Lucas Qualmann, Project Coordinator

When you walk into a room and hit the light switch, what happens? The lights come on, right? Same thing when you walk out of the room, you hit the light switch and the room goes dark. While this may be an odd beginning for a chapter on grain and feed, it is the perfect way to illustrate the grain and feed market action for this past year, or for the past several years for that matter. Volatility almost isn't a strong enough word to explain the feed markets and path their respective prices have taken over the past 5 years. Think of the markets like a light switch, you turn them on and they move to astronomical prices in a matter of weeks, not months or years like they have in the past. Same thing on the way down. Turn off the fund capital in late 2008 and it only takes corn from July to early December to lose $4.70 (62%) of value. I mention the $4.70 range because that is 50 cents more than the highest price corn saw since the beginning of its trade till 2007(excluding 1995/96). Wheat only took 8 weeks to double its price in 2010. Currently, the grain and feed markets are in a lights off mode. Corn is down roughly 50% since its September 2012 peak. Beans and wheat are down a little over 30% from their respective 2012 high prices.

While the market drivers in 2013 are a bit different from the past, there were some overall themes that may be changing. 2013 will likely be known as a re-stocking year for many ag commodities. The first is the ethanol market and its changing structure and place in the commodity world. Ethanol helped to build in much of the price premium in corn over the past decade as the U.S. corn crop had to support roughly 5 billion bushels of new use. While farmers did a fantastic job of meeting the demand, the price was right for many to expand production over that time. As we look ahead we do not see the same demand leap coming from something new like it did with ethanol. On beans, China has been the main story as they have literally doubled their export business from the U.S. us over the past decade. Wheat is wheat, except India seems to have taken the place of the world's reserve wheat stockpile, although they have recently started to move their excess. In a nut shell 2013 was the first year since 2007 where supply is the main market driver. During the previous 5 years demand was the market driver. As production has caught demand and the demand increase is leveling out, it may make for some calmer markets ahead, but ultimately we doubt that as supply side issues can still make for one wild ride. As Tom Bodet is famous for saying in his Motel 6 commercials, "We'll leave the light on for you" may be more of a grain market theme than a hotel commercial.

Wheat

The theme of the wheat market this year was one of solid production around the world and demand from some unusual places. Total wheat plantings in 2013 for the U.S. crop were up 1% vs. 2012 final plantings figures. Harvested acres though were down a projected 3.7 million acres vs. 2012 as adverse spring weather hurt the western states. Combine the decrease in harvested acres with a 0.9 bushel bump in expected yield and the total production for 2013 is 2.13 billion bushels vs. 2.266 billion bushels in 2012. Now pair that slight drop in production with a slightly expanded demand number and that resulted in a 153 million bushel drop in ending stocks to 565 million bushels (Table 5-1).

TABLE 5-1. U.S. SUPPLY AND DEMAND BALANCE SHEET FOR WHEAT				
		2011-2012	2012-13E	2013-14P
Supply:				
Harvested Acres (million)		45.7	48.9	45.2
Yield (bushels per acre)		43.7	46.3	47.2
			(Million Bushels)	
Beginning Stocks		862	743	718
Production		1,999	2,266	2,130
Imports		112	123	150
	Total Supply	2,974	3,131	2,998
Use:				
Food		941	945	950
Seed		76	73	73
Feed and Residual		162	388	310
	Total Domestic Use	1,180	1,406	1,333
Exports		1,051	1,007	1,100
	Total Use	2,231	2,414	2,433
Ending Stocks		743	718	565
Stocks/Use Ratio		33.3%	29.7%	23.2%
Avg. Farm Price, U.S., $ per bushel		$7.24	$7.77	$6.70 $7.30

Note : Totals may not add due to rounding; marketing year beginning June 1; E = estimated, P = projected.
Data from USDA, "World Agricultural Supply and Demand Estimates," (November 8, 2013) WASDE-523, P.11.

The USDA is predicting a price range of $6.70 to $7.30 a bushel vs. 2012's final price of $7.77 a bushel. The question is why would this year's anticipated price be *lower* than last years, especially when ending carryout's were reduced? The answer is world wheat numbers. While the domestic figures here in the U.S. are lower, the world numbers continue to climb. Currently, the projected world carryout is an ample 178.48 million metric tonnes (Table 5-2). This is 1.75% higher than last year's relatively comfortable numbers. The stocks to use ratio worldwide is a comfortable 25.4%. More important that what the numbers are is the direction of the trend and that is up. As long as a market feels there are more bushels coming tomorrow than there are today, prices will decline just like we saw this year. The numbers continue to climb as countries like Argentina, Canada, Australia, Russia, Ukraine, and Kazakhstan all registered double digit production gains vs. 2012 output. Worldwide production is expected to reach a record high in 2013.

TABLE 5-2. WORLD SUPPLY-DEMAND BALANCE FOR WHEAT, 2004-05 TO 2013-14

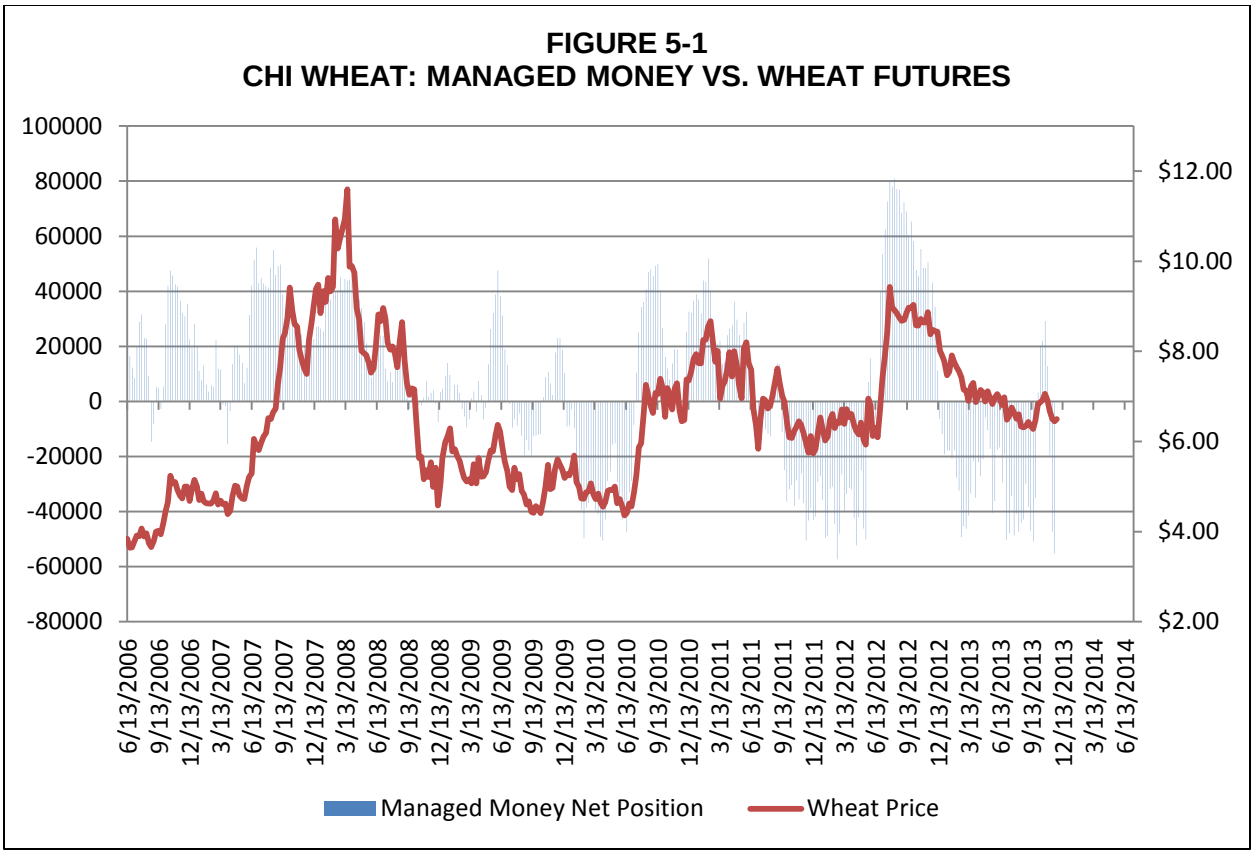
Marketing Year	Domestic Use	Ending Stocks	Stocks/Use Ratio
	(Million Metric Tons)		(%)
2004-05	607.15	155.50	25.6%
2005-06	621.95	152.68	24.5%
2006-07	616.13	132.80	21.6%
2007-08	617.58	127.32	20.6%
2008-09	642.31	167.80	26.1%
2009-10	650.16	200.55	30.8%
2010-11	654.74	198.90	30.4%
2011-12	697.11	199.37	28.6%
2012-13E	679.28	175.59	25.8%
2013-14P	703.49	178.48	25.4%

Data from USDA, "World Agricultural Supply and Demand Estimates". Various issues; E = estimated, P = projected

Corn and wheat prices also have a strong correlation with each other. As stocks of corn were projected to be rebuilt in the U.S. and worldwide that added price pressure to the wheat market. When the corn market is at 3 year lows it is tough for wheat to a find a distinctive story to break away from corn's pricing structure.

Participants in the wheat futures market have also taken a bearish tone. Participants are net short 45,000 contracts as of this writing (Figure 5-1). This is very close to the maximum short position that was seen during the 2009 and 2011 bear market moves. In September there was a similar short position in the Chicago wheat futures. A short covering rally took place shortly thereafter during October and that rally was worth 65 cents. That short covering rally saw a 75,000 contract swing (-45,000 to +30,000) before the market resumed its downtrend. Technically the market is near key support between $6.23 and $6.46 area on continuation charts. Pair the technical support and the net short position and wheat may again find some upward movement. However if support breaks, the next major downside target would be in the $5.00 area.

FIGURE 5-1
CHI WHEAT: MANAGED MONEY VS. WHEAT FUTURES



Corn

The corn market in 2013 was more like a dimmer switch than a true lights on/lights off scenario. A quick check of a continuation chart shows the lights on/lights off theory at work, especially with a huge price drop in the middle of July. While the picture looked dramatic, the actual price movement was more subtle. As the short crop from 2012 caused high prices through the first half of the year, it was really the market structure that took prices down. On the 14th of July the July corn futures expired at $7.01-1/2 while September futures were priced at $5.44, a $1.57-1/2 inverse in the market. While the market did actually lose that $1.57-1/2 it didn't do so by a direct price drop in the true sense. It was the carry/inverse structure of the market that reduced the price. From that $5.44 point though futures traded lower to a current price of $4.25 as the abundant new crop hit the market. That $4.25 number represents a roughly 50% decrease in price since the August 10th, 2012 high of $8.43-3/4. Much like wheat the corn ending stocks figure continues to grow both on paper and likely in the farmers' bins.

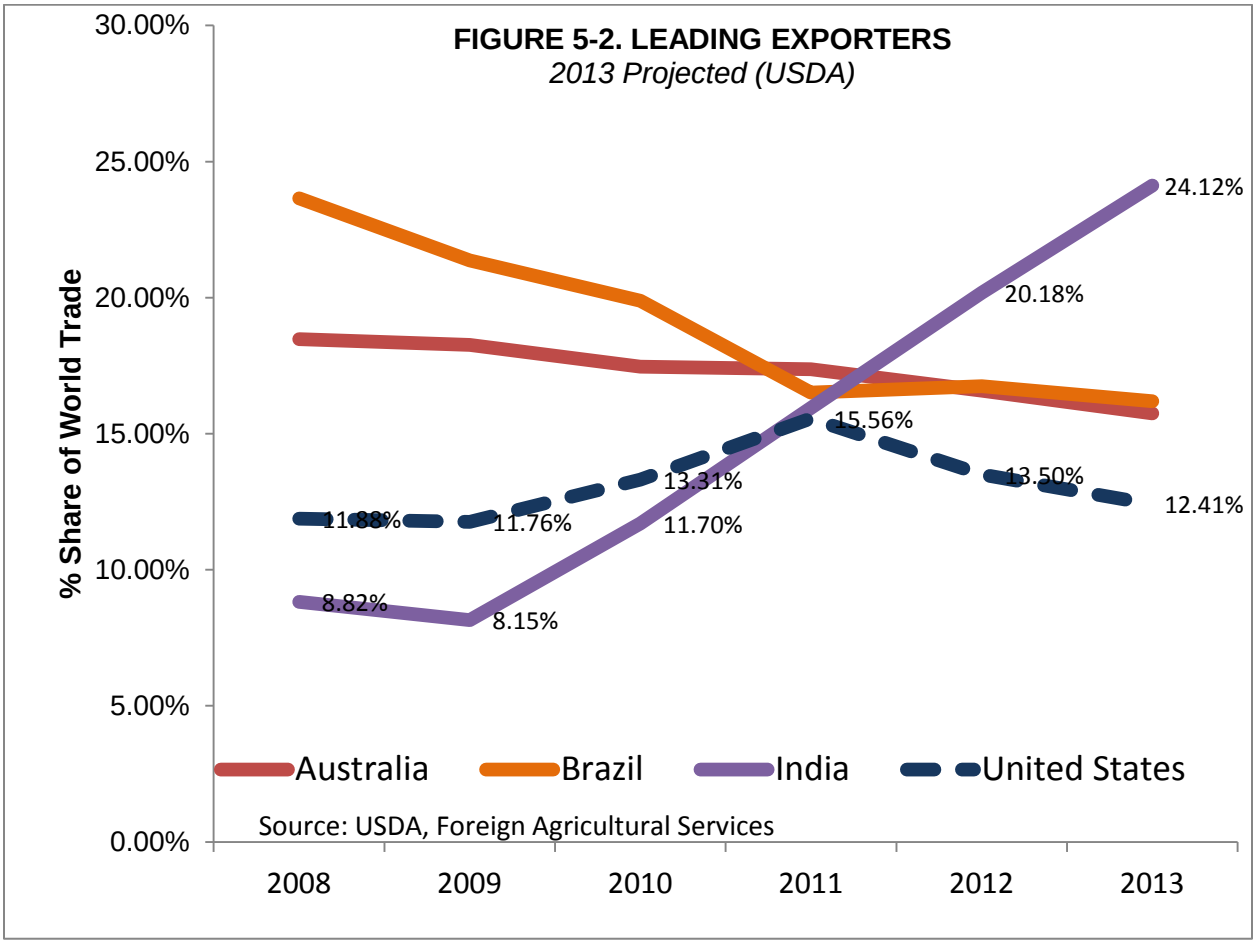
Corn ending stocks have grown to 1.887 billion bushels vs. 824 million bushels in 2012 (Table 5-3). Production was a record 13,989 billion bushels. This number is still likely to be fluid as harvest is still progressing as of this writing and the USDA lost three weeks of work in October due to the government shutdown.

TABLE 5-3. U.S. SUPPLY AND DEMAND BALANCE SHEET FOR CORN				
		2011-2012	2012-13E	2013-14P
Supply:				
Harvested Acres (million)		84.0	87.4	87.2
Yield (bushels per acre)		147.2	123.4	160.4
			(Million Bushels)	
Beginning Stocks		1,128	989	824
Production		12,360	10,780	13,989
Imports		29	162	25
	Total Supply	13,517	11,932	14,837
Use:				
Feed and Residual		4,557	4,333	5,200
Food, Seed and Industrial		6,428	6,044	6,350
Ethanol and By-Products[a]		5,000	4,648	4,900
	Total Domestic Use	10,985	10,377	11,550
Exports		1,543	731	1,400
	Total Use	12,528	11,108	12,950
Ending Stocks		989	824	1,887
Stocks/Use Ratio		7.9%	7.4%	14.6%
Avg. Farm Price, U.S., $ per bushel		$6.22	$6.89	$4.10 $4.90

Note : Totals may not add due to rounding; marketing year beginning September 1; E = estimated, P = projected. Data from USDA, "World Agricultural Supply and Demand Estimates," (November 8, 2013) WASDE-523, P.12.
[a]Corn used to produce ethanol and by-products including distillers' grains, corn gluten feed, corn gluten meal, and corn oil.

Animal feed is set to recover 21% this year to 5.3 billion bushels in use. The animal herd sizes are at fairly low levels. The cattle herd for example is the lowest in 61 years (1952). Animal herds are notoriously hard to rebuild quickly so that will likely aid the corn market in restocking other areas. Some experts have even questioned the notion of rebuilding the herd to pre 2011 levels due to a shift in consumer preferences and the emergence of India and other developing nations (Figure 5-2).

Exports are likely to be the moving target on corn usage this year. In last year's drought scenario exports dropped to 731 million bushels. This year exports are expected to rebound to 1.4 billion bushels. Expect this number to change, especially if production continues to climb through the January USDA reports.



Ethanol has been a hot button issue for the corn market for the past decade. As government price supports and usage requirements have been lighted in the past two years, the industry has remained on strong footing. Estimated Iowa ethanol margins were 80 cents per bushel as of the week of November 15th, 2013. Use is expected to be 4.9 billion bushels, a 5% increase vs. 2012 usage.

Prices on corn are estimated by the USDA to average $4.50 per bushel in 2013 vs. $6.89 in 2012. This price decrease directly relates to the increase in U.S. ending stocks levels and the estimated record level of ending stocks worldwide. The 2013/14 world carryout figures are 164.33 million metric tonnes is a 22% jump vs. 2012 levels (Table 5-4).

Soybeans

The bean market is likely like the most popular room in your house. Beans have historically been the most volatile ag commodity and this past year was no different. Price spikes to $16.30 in old crop July this year, while harvest low prices were just under 12.55 a bushel. The bean market has no issue moving a dollar in a couple of weeks time. China's increasing soybean appetite and lack of bin buster yields make beans an interesting market.

TABLE 5-4. WORLD SUPPLY-DEMAND BALANCE FOR CORN, 2004-05 TO 2013-14

Marketing Year	Domestic Use	Ending Stocks	Stocks/Use Ratio
	(Million Metric Tons)		(%)
2004-05	689.28	131.84	19.1%
2005-06	706.70	124.86	17.7%
2006-07	728.67	110.22	15.1%
2007-08	773.60	131.48	17.0%
2008-09	783.67	147.14	18.8%
2009-10	822.82	145.78	17.7%
2010-11	850.31	128.19	15.1%
2011-12	882.62	132.46	15.0%
2012-13E	860.30	134.86	15.7%
2013-14P	933.36	164.33	17.6%

Data from USDA, "World Agricultural Supply and Demand Estimates". Various issues; E = estimated, P = projected

As of the November USDA Supply and Demand report, estimated U.S. soybean production in 2013/14 is 3.26 billion bushels, an increase of 224 million bushels or 7.38% when compared to last year's production (Table 5-5). The total U.S. soybean supply is estimated to be 3.41 billion bushels, a 5.37% increase when compared to last year. Soybean imports are expected to be 21 million bushels fewer this year, however, projected exports were raised by 130 million bushels when compared to last year's numbers. Although harvested acres decreased 0.5 million acres from last year, yield increased 3.2 bushels per acre due to a late frost after a wet spring filled with planting delays.

Ending stocks are expected to increase to 170 million bushels, up from 141 million bushels last year. Stocks/use ratio also increased to 5.2% up from last year's 4.6%. This year's numbers put us close to the 2011-12 ending stocks level of 169 million bushels and its stocks/use ratio of 5.4%.

While soybean supplies are the highest they have been since 2010-11, most of soybean usage is about the same as last year. U.S. crushing's, seed, and residual usage is only expected to increase 0.84% year over year even though supply has increase by 5.37%. Exports have picked up the slack for the rest of soybean's demand factors with an expected 130 million bushel increase (9.85%) in exports for 2013-14 compared to last year. Through November 14, 501.8 million bushels of soybeans have been exported or 34.6% of the USDA's estimated exports in just 11 weeks. While this amount of exports would seem to point to the USDA drastically underestimating export demand, the soybean export market is markedly front-loaded until Brazil's soybean crop is harvested in the March/April timeframe. The biggest importer of soybeans is China which is expected to import 69.00 million metric tons of the world's total exports of 107.83 million metric tons. As long as China's economy doesn't collapse, the export market for U.S. soybeans should be relatively strong.

TABLE 5-5. U.S. SUPPLY AND DEMAND BALANCE SHEET FOR SOYBEANS				
		2011-2012	2012-13E	2013-14P
Supply:				
Harvested Acres (million)		73.8	76.2	75.7
Yield (bushels per acre)		41.9	39.8	43.0
			(Million Bushels)	
Beginning Stocks		215	169	141
Production		3,094	3,034	3,258
Imports		16	36	15
	Total Supply	3,325	3,239	3,413
Use:				
Crushings		1,703	1,689	1,685
Exports		1,365	1,320	1,450
Seed		90	89	87
Residual		-2	1	22
	Total Use	3,155	3,098	3,243
Ending Stocks		169	141	170
Stocks/Use Ratio		5.4%	4.6%	5.2%
Avg. Farm Price, U.S., $ per bushel		$12.50	$14.40	$11.15 $13.15

Note : Totals may not add due to rounding; marketing year beginning September 1; E = estimated, P = projected.
Data from USDA, "World Agricultural Supply and Demand Estimates," (November 8, 2013) WASDE-523, P.15.

The world supply and demand balance sheet (see Table 5-3) shows pretty ample supplies worldwide. Projected ending stocks of 70.23 million metric tons are the highest level ever. Domestic use, however, is also at its highest level ever at 270.00 million metric tons. As a result, the high usage coupled with high ending stocks results in a stocks/use ratio of 26.0% (up from 23.3% last year), which is still only the third highest stocks/use ratio in the last ten years (Table 5-6).

TABLE 5-6. WORLD SUPPLY-DEMAND BALANCE FOR SOYBEANS, 2004-05 TO 2013-14

Marketing Year	Domestic Use	Ending Stocks	Stocks/Use Ratio
	(Million Metric Tons)		(%)
2004-05	204.39	48.15	23.6%
2005-06	216.14	53.38	24.7%
2006-07	225.60	62.22	27.6%
2007-08	230.51	51.51	22.3%
2008-09	221.33	42.68	19.3%
2009-10	238.01	60.54	25.4%
2010-11	251.63	70.11	27.9%
2011-12	256.96	55.15	21.5%
2012-13E	258.44	60.11	23.3%
2013-14P	270.00	70.23	26.0%

Data from USDA, "World Agricultural Supply and Demand Estimates". Various issues; E = estimated, P = projected

Brazil's new port laws and tax changes may shift demand for soymeal to the U.S. and increase the value of soymeal processed in the U.S. Due to the lack of infrastructure and massive lines of ships waiting to be loaded after Brazil's crop was harvested in 2013, Brazil is changing its policies to promote the shipment of soybeans over soymeal. Soymeal is both more expensive to move and it takes about twice as long to load a ship than soybeans. While soymeal is more valuable per ton than soybeans, the government's new policy promotes volume of product moved over value of product moved. This change should help move soybeans out of Brazil somewhat faster which could hurt U.S. soybean exports, but it could also help U.S. processors as it should make U.S. soymeal more favorable on the world market.

The average farm price projected by the USDA is expected to be between $11.15 and $13.15. The projected farm price has been adjusted upward from May's initial estimate of $9.50 to $11.50. The increase the projected range shows how much the supply picture has changed since the weather did not supply perfect or near perfect growing conditions. As of the last week of November, soybean futures have been in the top half of the price projection range, which (although futures prices don't include basis) points toward the final farm price settling near the higher end of the current projected range. Additionally, unlike with corn, soybean futures months are at an inverse, with a carry in the market first appearing between the November 2014 and January 2015 contracts. Soybeans are wanted now, and storing them doesn't look to be as attractive an option as with corn. The U.S. stocks/use ratio is historically low while the world stock/use ratio is historically high. This paints a murky price outlook as it remains to be seen which fundamentals, the world's or the U.S.'s, will take center stage. Being prepared for higher prices and lower prices will be paramount.

Final Thoughts

While the markets for feed buyers are currently looking much better than they did even six months ago, it is still important to monitor the markets and create strategies that can benefit one's operation in up or down markets. Preparation will be the key to survival as volatility simply doesn't justly describe the grain and feed markets, especially over the last several years. Lower volatility doesn't only offer a chance to boost your profit margins, it offers a chance to do some genuine long term planning. The best lesson I learned came back in early 2010 when a group discussion centered around what could possibly move the market higher. The U.S.

and world economies were lackluster to say the least, prospects for good crops abounded and demand was suffering. Eight short weeks later the wheat market had doubled its price on some rough weather occurring half a world away in Russia. Similar price spikes in corn and beans were only another few weeks off. One simply does not know when the next person will walk into the room and turn of the switch again.

Chapter 6. Dairy — Markets and Policy

Mark W. Stephenson, Director of Dairy Policy Analysis
University of Wisconsin–Madison

2014 Dairy Outlook

Positive Factors:

- High levels of exports
- Lower feed costs
- Continued recovery of U.S. economy

Negative Factors:

- Better weather in Oceania and the European Union
- Falling fluid milk sales
- Somewhat lower milk price in 2014

Uncertainties:

- Weather, including drought in western states
- Slow recovery of economy

New York Dairy Situation and Outlook
2012, Projected 2013, and Estimated 2014

Item	2012	2013	2014	Percent Change 12-13	Percent Change 13-14
Number of milk cows (thousand head)	610	610	611	0.0	0.2
Milk per cow (lbs.)	21,663	22,110	22,536	2.3	2.2
Total milk production (million lbs.)	13,196	13,487	13,770	2.5	2.4
Blended milk price ($/cwt.)[a]	18.63	20.24	19.76	8.9	-2.1

[a] Northeast federal order statistical uniform price for farms shipping milk to Suffolk County, MA (Boston).

Table 6-1. U.S. Milk Supply and Utilization, 2004 - 2013

	2004 *	2005	2006	2007	2008*	2009	2010	2011	2012*[a]	2013 [b]	2014[c]
Supply											
Cows Numbers (thous.)	9,011	9,043	9,137	9,189	9,315	9,203	9,119	9,194	9,232	9,229	9,264
Production/cow (lbs)	18,968	19,566	19,894	20,204	20,396	20,572	21,148	21,346	21,696	21,861	22,130
Production	170.9	176.9	181.8	185.7	190.0	189.3	192.8	196.3	200.3	201.8	205.0
Farm Use	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9
Marketings	169.9	175.9	180.8	184.6	189.0	188.4	191.9	195.3	199.3	200.8	204.1
Beginning Commercial Stocks	8.3	7.2	8.0	9.5	10.4	10.1	11.3	10.9	11.0	12.7	12.9
Imports	7.0	7.4	7.5	7.2	5.3	5.6	4.1	3.5	4.1	3.6	3.6
Total Supply	**185.3**	**190.5**	**196.3**	**201.3**	**204.7**	**204.0**	**207.3**	**209.7**	**214.4**	**217.1**	**220.6**
Utilization											
Commercial Disappearance	178.3	182.6	186.7	191.0	194.6	191.9	196.2	198.7	201.7	204.2	207.6
Ending Commercial Stocks	7.2	8.0	9.5	10.4	10.1	11.3	10.9	11.0	12.7	12.9	13.0
DEIP	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Removals (excluding DEIP)	-0.2	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.0	0.0
Total Use	**185.3**	**190.5**	**196.3**	**201.3**	**204.7**	**204.0**	**207.3**	**209.7**	**214.4**	**217.1**	**220.6**

Source: Dairy Situation and Outlook, Milk Production, and Dairy Market News, U.S. Department of Agriculture. Note that total may not add exactly due to rounding.

* Leap year.

[a] Revised.

[b] Based on preliminary USDA data and Cornell estimates.

[c] Projected by Mark Stephenson.

The Dairy Situation

Dairy producers in many parts of the country have been trying to restore balance sheets that were damaged by credit needs from low milk prices in 2009 and high feed prices in 2012. 2013 was the second highest milk price year on record, and for many producers, it was the third year of milk price recovery in a row. However, high feed prices continued to challenge many dairy farms who purchase the majority of their feed. A cold and wet start to the growing season in the Upper Midwest followed by many summer months of dry weather were particularly challenging for forage needs in much of the U.S. Western producers who experienced unusually high forage prices found 2013 to be another financially stressful year.

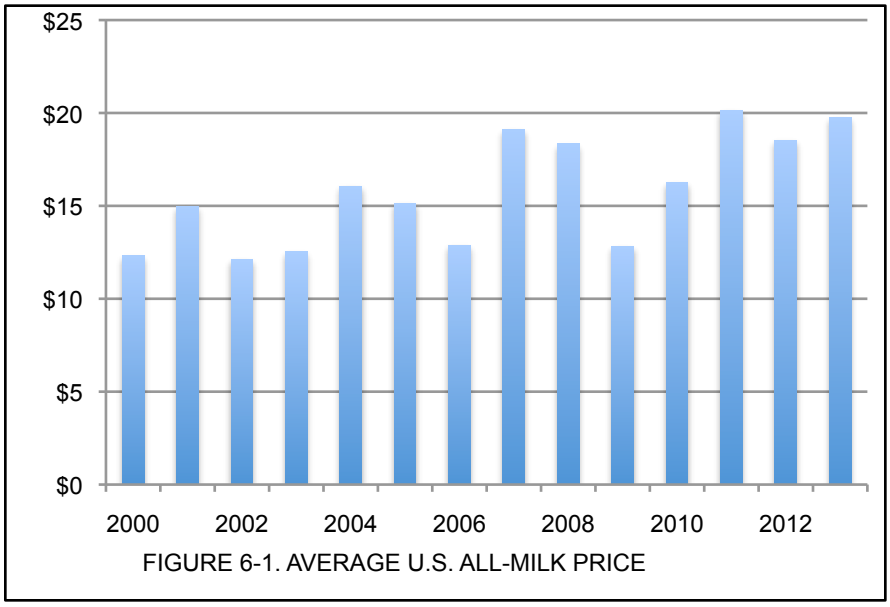


FIGURE 6-1. AVERAGE U.S. ALL-MILK PRICE

Growth in western milk supplies has pulled the geographic center of milk production to the west for many years. However, the intensive production model which explored economies of scale and lowered total costs of production has been recently challenged. With higher and more volatile feed costs, producers relying on a high proportion of purchased feed have found margins strained in a way that hasn't been as true for more traditional dairy regions. And, producers in the more traditional dairy regions have explored the same scale economies with a land base adequate for at least forage needs which has partially insulated them from fluctuating feed costs. In a fairly good milk price year like 2013, the western states have had less growth in milk production, and in fact experienced losses in the first three quarters, when compared with the Upper Midwest and Northeast.

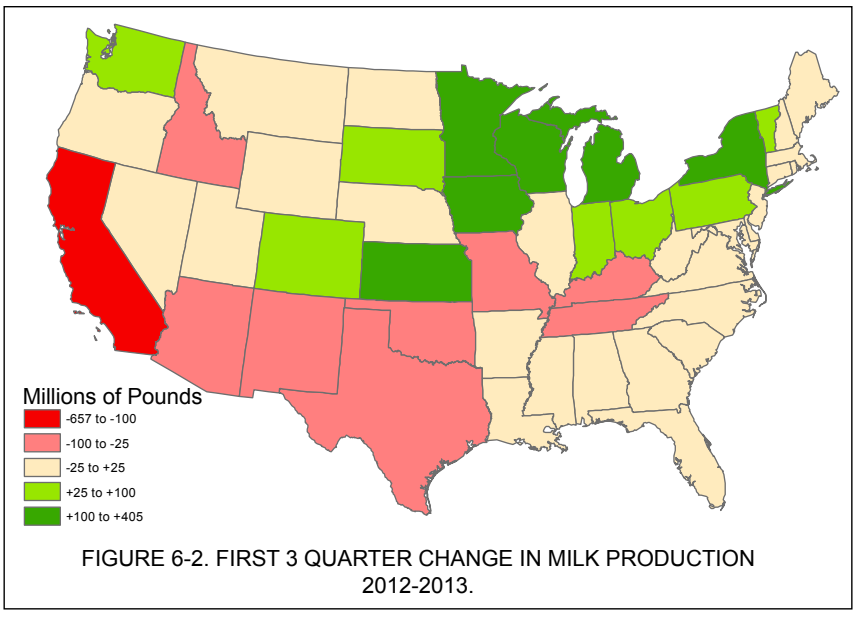


FIGURE 6-2. FIRST 3 QUARTER CHANGE IN MILK PRODUCTION 2012-2013.

Feed Prices

The National Agricultural Statistics Service (NASS) calculates the value of the dairy ration. With a much better growing season and a large crop acreage grown, the corn and soybean harvest was

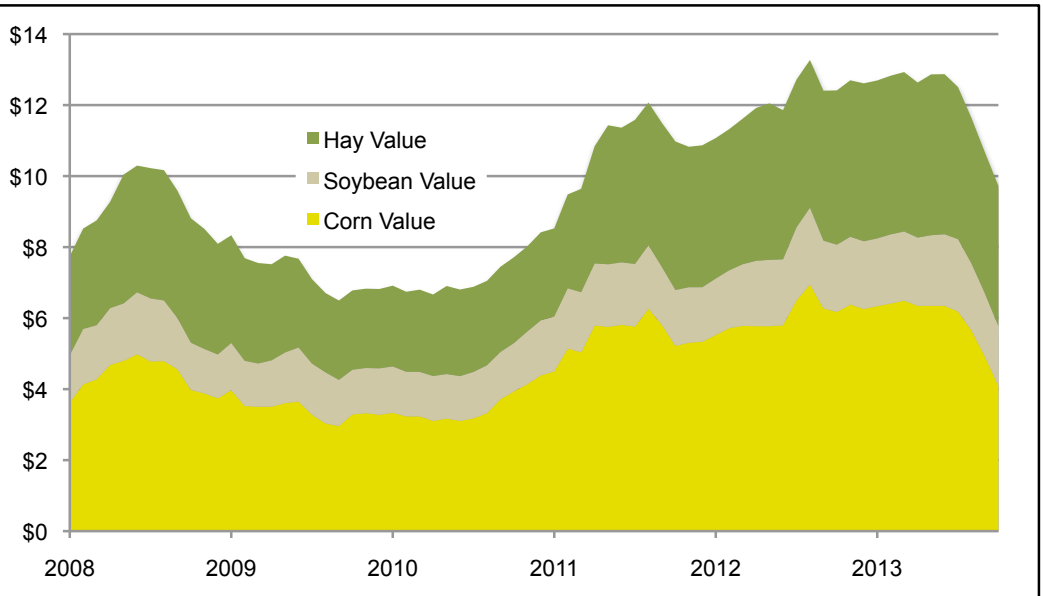


FIGURE 6-3. NASS VALUE OF THE DAIRY RATION

larger than in the past two years when widespread drought impacted yields. Coarse grain prices declined through the harvest months. As an example this past year, NASS corn prices peaked in March-2013 at $6.49 but had declined 37% to $4.09 per bushel by October of the same year.

Dairy Product Demand

The U.S. economy has remained stubbornly slow to crawl out of the 2009 recession. Unemployment has declined but not to the target level desired by the Federal Reserve. Income elasticity and changing tastes and preferences have put a damper on fluid milk sales in the U.S. Current consumption has fallen to about 19.5 gallons per capita.

As fluid milk and ice cream sales have declined, cheese, butter and notably yogurt sales, have increased. The aggregate per capita consumption of dairy products in the U.S. has

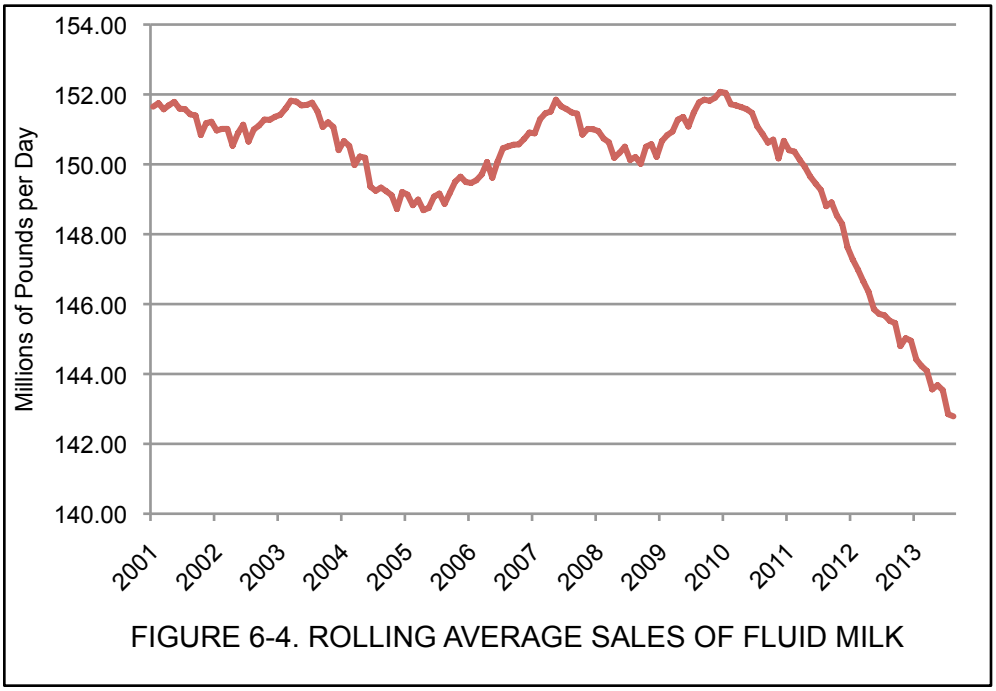


FIGURE 6-4. ROLLING AVERAGE SALES OF FLUID MILK

increased steadily over the last 40 years at a rate of about 0.334% annually. With U.S. population growing at an annual rate of just over 1.006% during the same time period, the total increase in domestic demand for dairy products would not have sustained the annual 1.462% growth in milk production that was averaged over the same time period.

Dairy Exports

U.S. trade in dairy products has been favorable for both imports and exports. Imports have declined as a percent of milk production, in part because we are producing excellent cheeses domestically and in part because the U.S. dollar has remained historically weak compared to the Euro.

Export opportunities have been truly extraordinary. Figure 6-5 shows the increase in export sales of milk solids as a percent of U.S. milk production. Last year, New Zealand finished their production season in extreme drought. What looked like a very promising beginning to their season ended very poorly with total milk production down 1.3 percent (production season June 2012 through May 2013). In contrast, the European Union experienced excessive rain in latter half of their season (April 2012 through March 2013) which also resulted in diminished milk production and exports from Europe. The U.S. was well positioned to take advantage of those market opportunities.

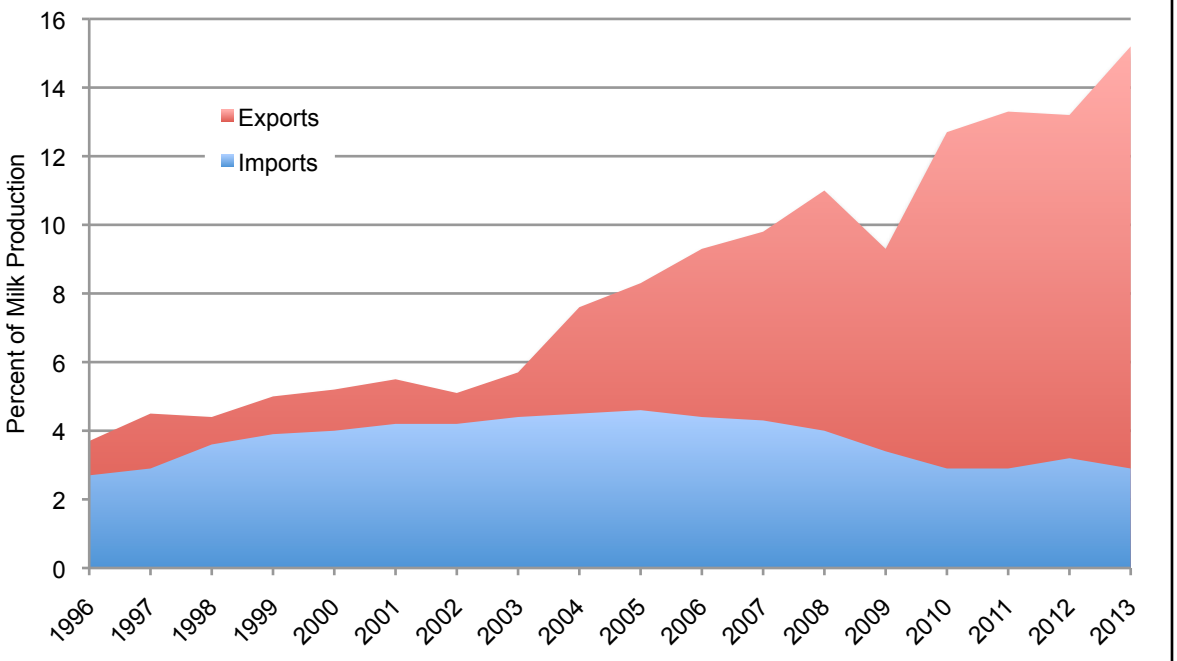


FIGURE 6-5. U.S. TRADE IN DAIRY PRODUCTS

The U.S. is still a relatively new player in the world market but we are already the third largest exporter behind New Zealand and the European Union. It takes a while to cultivate new markets and learn your customers' preferences. For example, we consider yellow cheddar cheese, sold by the pound, as a standard product, while the currency of world trade is Gouda cheese sold by

the kilogram. We make 80 percent butterfat butter and the world wants an 82 percent product. We produce nonfat dry milk when the world expects skim milk powder. These are small, but important, differences in greater market opportunities.

We are beginning to make significant inroads into more consistent sales. Milk drying plants are adding capacity to make whole milk powder—a product of great demand in world markets. Companies are exploring new opportunities to sell unrefrigerated UHT milk into Asian markets. Export sales growth will help to sustain our increased milk production in the long-run.

Dairy Stocks

It has been usual for U.S. dairy product prices to sell at a discount to European and Oceania prices into world markets. In the fall of 2012, relatively tight stocks of dairy products caused the U.S. prices for cheese and butter to climb above those other world market prices. Ultimately, this caused U.S. export sales to slow and domestic stocks to increase. We were carrying unusually large stocks of butter and cheese through the first half of 2013. However, when U.S. prices returned to a discount relative to other world prices, export sales picked up and our stock levels began to recede. By the fourth quarter of 2013, stocks of dairy products have been reduced to comfortable levels again.

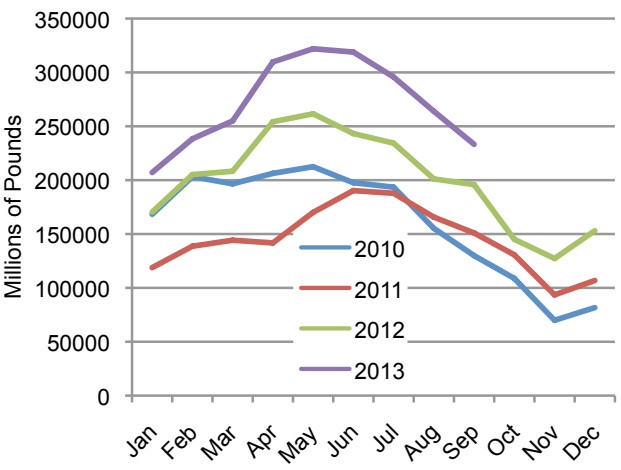


FIGURE 6-6. U.S. BUTTER STOCKS

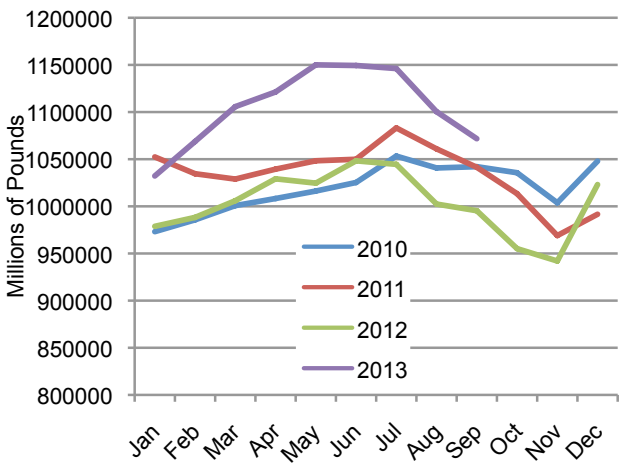


FIGURE 6-7. U.S. CHEESE STOCKS

The Dairy Outlook

It is no longer enough to keep our eyes on domestic milk production and consumption of dairy products. With more than 15 percent of our milk solids being exported, we are impacting world markets and world markets impact us. Europe is now more than half way through their production season and although they had a slow start through their flush, the second half is showing strong increases. New Zealand also experienced a slow start but pasture growth is favorable and they are forecast to have a 5 percent increase in milk supplies for the production year. Currently, USDA is forecasting U.S. milk production to increase 1.4 percent in 2014 and my own forecast calls

for a 1.6 percent increase. Individually and collectively, the three largest world exporters will all have increased milk production and more dairy products will be available for world trade.

China is the largest buyer of dairy products in the world. China is also a fairly large and growing milk producer. However, their milk production is down by about 5 percent from a very warm summer and because licensing restrictions after the melamine crisis have caused many smaller farms to exit the business. Large farm operations are still expanding, but they have not been able to keep pace with the 20 percent growth in demand for dairy products from the population. China, and much of the rest of Southeast Asia will purchase more dairy products as imports in 2014.

U.S. dairy companies have also increased sales into the Middle East and North Africa. These have been a traditional destination for butter and powder sales, but cheese exports to this region have also increased and are expected to remain strong.

The world demand for butter and powder have kept prices for those products fairly high. Because of these strong sales, Class IV prices have been higher than Class III prices for all but one month of 2013 and in recent months, greater by more than $2.00 per cwt. I am expecting Class IV prices to be above Class III for most of 2014, but narrowing the gap by the Spring flush. Milk powder for standardizing cheese vats is not profitable at these prices and cheese plants are sourcing their extra milk solids from raw milk. This reduces yields in cheese vats but it will help to keep Class III prices firm even with more milk available.

Class III prices began to tumble at the end of 2012 even in the light of tight domestic stocks of cheese. This happened in large part because the U.S. cheese price was well above Oceania prices. Our heavy participation in world markets won't allow that kind of divergent prices for very long. It is more normal for U.S. product prices to sell at a discount to these world benchmark prices. The good news is that our current values are below the world prices and we are in a good price relationship for continued strong export sales.

I also expect domestic sales to remain resilient. Our economy has shown slow but steady improvement and the third quarter 2013 GDP indicated a 2.8 percent growth from year earlier levels. Unemployment has been slowly decreasing but there is some concern that consumers may not be willing to go on a spending spree just yet. In fact, there is some worry that deflation may occur reflecting the conservative consumer. Although restaurant sales have not been extraordinary, they have remained above the contraction boundary in the Restaurant Performance Index and, there has been almost no increase in retail prices of all dairy products in the Consumer Price Index.

My forecast for the Northeast Federal Order blend price is to decline by $0.48 in 2014 when compared to 2013. I also expect that the New York All Milk Price may decline by about $0.80 reflecting some loss in over order premiums. The premium loss reflects the strong growth in milk supplies in the region. While this may sound like a mildly pessimistic milk price forecast, I am projecting purchased feed prices to decline by much more. Dairy producers should find favorable margins which would help restore balance sheet losses sustained in 2009 and 2012.

Dairy Policy

What can be said about Congress that hasn't already been said? At the time of this writing, the Farm Bill is now two years overdue and its passage is still uncertain. Conservative members of the House have the influence, the votes and the mettle to demand significant reductions in expenditures. Their focus has been on Food and Nutrition Title of the bill where they have identified nearly $40 billion in cuts over a ten year projection. This differs significantly from Senate's bill where about $4 billion in cuts are projected to the Supplemental Nutrition Assistance Program (S.N.A.P.) The conference committee members have been named and they have had their initial full committee meeting. The staff of the committee members have been meeting to iron out the differences but perhaps more importantly, the four people comprising the committee chairs and ranking members have met a number of times. However, finding common ground on the SNAP program remains an impasse.

There are other points of difference in the Farm Bill, including the dairy provisions. The primary focus of moving from the Milk Income Loss Contracts (MILC) to an insurance based milk-feed margin is not controversial and the differences between the House and Senate versions of those provisions would be easily reconciled. However, the Senate version contains the soft quota program referred to as the Dairy Stabilization Program (DSP) while the House bill dropped that language with an amendment from the floor. An added complexity of the conference committee is that the author of the Senate version of the dairy provisions (including the DSP) is the ranking member of the House—Colin Peterson—who is an influential member of the conference committee. It is likely that he would like to see the DSP reinstated in the compromise bill.

The Senate version of the bill also has language that is permissive with regard to Federal Milk Marketing Order (FMMO) changes. It is suggested that USDA examine whether a pre-hearing should be held to consider changes to the current method of price discovery. If the FMMO language is included in the bill that is finally passed, we could be looking at a series of Federal Order hearings on some of the fundamental activities of the Orders.

I believe that there is about an equal chance that the Farm Bill could be passed yet this year (by the time of the Agribusiness Outlook Conference) or that Congress simply cannot come to agreement and thus extends the previous Farm Bill. If extended, I think it would be a two-year extension because Congress is unlikely to want to tackle this difficult bill again in an election year. If passed, dairy producers are likely to have a relatively short time to make a participation decision in a fairly complex and new policy. We have developed a decision tool that would help them make that decision and will deploy it as soon as the final provisions are known.

Table 6-2. National Farm Prices for Milk; CCC Purchase, Wholesale, and Retail Prices for Cheddar Cheese, Butter, and Nonfat Dry Milk; and Selected Retail Price Indices, 2002–2012

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Farm Milk ($/cwt.)												
All Milk (ave. fat)	12.18	12.55	16.05	15.13	12.88	19.13	18.33	12.82	16.26	20.14	18.51	19.76
Class III (3.5%)	10.42	11.42	15.39	14.05	11.89	18.04	17.44	11.36	14.40	18.37	17.44	17.90
Support (3.5%)	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
Milk Price: Feed Price Value	2.60	2.61	3.10	3.24	2.57	2.81	2.01	1.78	2.26	1.88	1.52	1.71
MILC payments [c]	1.21	1.09	0.22	0.01	0.61	0.01	0.00	1.15	0.02	0.00	0.73	0.26
Cheddar Cheese, Blocks ($/lb.)												
CCC Purchase	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.130	1.130	1.130	1.130	1.130
Wholesale, Chicago Mercantile Exchange	1.182	1.317	1.649	1.492	1.239	1.758	1.856	1.296	1.496	1.806	1.698	1.750
Butter ($/lb.)												
CCC Purchase, Grade A or higher, Chicago	0.855	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
Wholesale, Gr. AA, Chicago Merc. Exchange	1.106	1.145	1.817	1.549	1.236	1.368	1.465	1.243	1.728	1.962	1.603	1.542
Nonfat Dry Milk												
CCC Purchase, Unfortified ($/lb.)	0.900	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
Wholesale, Central States	0.928	0.838	0.858	0.985	1.001	1.804	1.300	1.010	1.247	1.564	1.391	1.722
Retail Price Indices (1982–84=100.0)												
Milk	110.6	111.5	125.0	127.0	125.5	140.1	148.5	129.0	133.6	145.8	147.5	148.7
Cheese	170.0	169.4	180.8	183.3	180.8	191.5	214.6	203.5	204.8	217.5	222.4	222.0
All Dairy Products	168.1	167.9	180.2	182.4	181.4	194.8	210.4	197.0	199.2	212.7	217.3	217.4
All Food	176.2	180.0	186.2	190.7	195.2	202.9	214.1	218.0	219.6	227.8	233.8	237.1
All Consumer Prices	179.9	184.0	188.9	195.3	201.6	207.3	215.3	214.5	218.1	224.9	229.6	233.4

Source: Dairy Situation and Outlook, Dairy Market News, and Federal Milk Order Market Statistics, U.S. Department of Agriculture.

[a] Revised.

[b] Estimated by Mark Stephenson.

[c] Milk Income Loss Contract payments began in October of 2001.

MILK PRICE PROJECTIONS*
Northeast Federal Order Statistical Uniform Price
3.5 Percent, Suffolk County, Massachusetts
Last Quarter 2012-2013, Four Quarters 2013-2014

Month	2012	2013	Difference
		(dollars per hundredweight)	
October	20.78	21.04 [a]	0.26
November	21.35	21.46 [a]	0.11
December	20.65	21.42 [a]	0.77
Fourth Quarter Average	20.93	21.31 [a]	0.38
Annual Average	***18.63***	***20.24*** [a]	***1.61***

Month	2013	2014 [a]	Difference
		(dollars per hundredweight)	
January	19.73	20.77	1.04
February	19.43	20.21	0.78
March	19.32	19.93	0.61
First Quarter Average	19.49	20.30	0.81
April	19.50	19.67	0.17
May	19.78	19.58	-0.20
June	20.20	19.64	-0.56
Second Quarter Average	19.83	19.63	-0.20
July	20.18	19.57	-0.61
August	20.28	19.52	-0.76
September	20.58	19.60	-0.98
Third Quarter Average	20.35	19.56	-0.78
October	21.04 [a]	19.61	-1.43
November	21.46 [a]	19.55	-1.91
December	21.42 [a]	19.51	-1.91
Fourth Quarter Average	21.31 [a]	19.56	-1.75
Annual Average	***20.24*** [a]	***19.76*** [a]	***-0.48***

Chapter 7. Dairy -- Farm Management

Wayne A. Knoblauch, Professor
George J. Conneman, Professor Emeritus
Cathryn Dymond, Extension Support Specialist

Herd Size Comparisons

The 169 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 2012 have been sorted into seven herd size categories and averages for the farms in each category are presented in Tables 7-1 and 7-2. Note that after the less than 60 cow category, the herd size categories increase by 40 cows up to 100 cows, by 100 cows up to 200 cows, by 200 cows up to 600 cows and by 300 cows up to 900 cows.

In most years, as herd size increases, the net farm income increases; and that was the case for 2012 (Table 7-1). Net farm income without appreciation averaged $26,548 per farm for the less than 60 cow farms and $1,006,695 per farm for those with more than 900 cows. Return to all capital without appreciation generally increased as herd size increased. With herd sizes less than 200 cows, many farms find it difficult to find a low cost combination of technology and labor to produce milk. Thus profits are lower for these herds than other herd sizes.

It is more than size of herd that determines profitability on dairy farms. Farms with 900 and more cows averaged $718 net farm income per cow while 60 cows or less dairy farms averaged $619 net farm income per cow. The over 900 herd size category had the highest net farm income per cow while the 400 to599 herd size category had the lowest net farm income per cow at $515. In some years, other herd size categories have averaged the highest net farm income per cow. Other factors that affect profitability and their relationship to the size classifications are shown in Table7-2.

TABLE 7-1. COWS PER FARM AND FARM FAMILY INCOME MEASURES
169 New York Dairy Farms, 2012

Number of Cows	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income per Cow	Labor & Management Income per Operator	Return to all Capital without Appreciation
Under 60	12	43	$26,548	$619	$ -9,517	-2.5%
60 to 99	16	77	42,788	553	3,195	-0.2%
100 to 199	26	145	87,695	606	12,416	1.9%
200 to 399	19	307	178,617	582	31,121	4.0%
400 to 599	25	495	254,973	515	39,220	4.1%
600 to 899	31	746	482,727	647	92,785	5.4%
900 & over	40	1,402	1,006,695	718	207,649	6.8%

Note: All data in this chapter are from the New York Dairy Farm Business Summary and Analysis Project unless a specific source is specified. Publications reporting Dairy Farm Business Summary data for New York, three regions of the state, for large herds, small herds, grazing farms, and farms that rent are available from the Charles H. Dyson School of Applied Economics and Management website: http://www.dyson.cornell.edu/outreach/index.php .

This year, net farm income per cow showed a positive correlation with herd size; however some size categories varied from the expected relationship slightly. All herd size categories saw a decrease in operating cost of producing milk from a year earlier except for herds in the 400 to 599 and 600 to 899 size categories (Table 7-2). Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with more than 900 cows averaged more milk sold per cow than any other size category (Table 7-2). With 26,310 pounds of milk sold per cow, farms in the largest herd size group averaged 16.6 percent more milk output per cow than the average of all herds in the summary with less than 900 cows.

The ability to reach high levels of milk output per cow with a large herd is a major key to profitability. Three times a day milking (3X) and supplementing with bST are herd management practices commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3 times per day have been successful. Only four percent of the 28 DFBS farms with less than 100 cows used a milking frequency greater than two times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 199 cows reported 8 percent of the herds milking more often than two times per day, the 200-399 cow herds reported 58 percent, 400-599 cow herds reported 72 percent, 600-899 cow herds reported 84 percent, and the 900 cow and larger herds reported 95 percent exceeding the two times per day milking frequency.

TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS
169 New York Dairy Farms, 2012

Number of Cows	Average Number of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Operating	Total
Under 60	43	18,592	4,032	4.1	7.8	$15,718	$14.51	$26.02
60 to 99	77	19,370	6,321	2.6	7.6	11,037	15.60	22.64
100 to 199	145	20,667	7,517	2.7	8.2	10,338	15.45	21.30
200 to 399	307	24,226	9,494	2.1	7.3	11,041	15.50	20.01
400 to 599	495	24,230	10,400	2.3	7.7	9,781	16.08	19.94
600 to 899	746	25,362	11,340	2.0	7.8	10,588	15.78	19.45
900 & over	1,402	26,310	12,542	1.8	7.5	10,026	15.68	18.90

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,155,068 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 544,000 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow. The 400 to 599 herd size group had the more efficient use of farm capital with an average investment of $9,781 per cow.

The 40 farms with 900 or more cows had the lowest total cost of producing milk at $18.90 per hundredweight. This is $0.99 below the $19.89 average for the remaining 129 dairy farms. The lower average costs of production plus a similar milk price gave the managers of these large dairy farms profit margins (milk price less total cost of producing milk) that averaged $0.96 per hundredweight above the average of the other 129 DFBS farms.

Dairy Operations and Milk Cow Inventory

TABLE 7-3. NUMBER OF DAIRY FARMS AND MILK COWS BY SIZE OF HERD
New York State, 2012 [a, b]

Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
200 – 499	208	44.5%	71,000	20.8%
500 – 749	115	24.6%	70,000	20.5%
750 – 999	48	10.3%	42,000	12.2%
1,000 – 1,499	53	11.4%	64,000	18.7%
1,500 – 1,999	22	4.7%	37,000	10.8%
2,000 – 2,999	14	3.0%	32,000	9.4%
3,000 or more	7	1.5%	26,000	7.6%
Total	467	100.0%	342,000	100.0%

[a] This information on number of farms and number of cows by size of herd is derived from several sources:
- Dairy Statistics as published by the New York Agricultural Statistics Services for 2012.
- CAFO (Concentrated Animal Feeding Operations) permit reports for 2012.

[b] The author wishes to thank everyone who provided some data as well as providing valuable advice and perspectives. However, any errors, omissions or misstatements are solely the responsibility of the author, Professor George Conneman, **e-mail GJC4@cornell.edu**.

In 2012, there were 467 large dairy farms (farms with 200 or more cows) in New York State. Those farms reported housing 342,000 milk cows total in the State of New York. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories.

Farms with 1,000 or more cows (96 farms) represent about 21 percent of the farms but kept over 46 percent of the cows.

Ten-Year Comparisons

Ten years ago (2003) there were 40 herds with 1,000 or more cows and only 3 with over 2,000. The total number of farms in NYS in 2003 was 7000, and in 2012 there were almost 5,000.

The total cost of producing milk on DFBS farms has increased $4.27 per hundredweight over the past 10 years (Table 7-4). In the intervening years, total cost of production increased from 2003 to 2005, decreased in 2006, increased in 2007 and 2008, decreased in 2009, increased in 2010 and again to 19.92 in 2011, and decreased to $19.34 in 2012. It is interesting to note that costs of production decrease in low milk price years and increase in high milk price years. Over the 10 years, milk sold per cow increased 14 percent and cows per worker increased 7 percent on DFBS farms (Table 7-5). Farm net worth has increased significantly, while percent equity has been fairly stable.

TABLE 7-4. TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 2003 to 2012

Item	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Operating Expenses										
Hired labor	$2.51	$2.67	$2.66	$2.58	$2.70	$2.79	$2.70	$2.61	$2.75	$2.72
Purchased feed	4.29	4.88	4.37	4.30	5.21	6.17	5.45	5.41	6.53	7.29
Machinery repair, vehicle expense & rent	.91	1.09	1.07	1.04	1.27	1.24	1.07	1.16	1.36	1.31
Fuel, oil & grease	.33	.41	.53	.58	.67	.91	.57	.65	.88	.84
Replacement livestock	.15	.16	.11	.07	.07	.08	.06	.06	.08	.05
Breeding fees	.19	.21	.22	.23	.24	.26	.21	.21	.22	.21
Veterinary & medicine	.56	.59	.62	.65	.65	.68	.63	.63	.67	.65
Milk marketing	.69	.72	.76	.80	.80	.85	.88	.89	.88	.87
Other dairy expenses	1.30	1.27	1.32	1.29	1.41	1.52	1.44	1.45	1.48	1.48
Fertilizer & lime	.26	.30	.34	.31	.40	.47	.41	.37	.45	.55
Seeds & plants	.20	.24	.22	.23	.28	.33	.35	.36	.39	.42
Spray & other crop expense	.19	.20	.19	.19	.25	.26	.20	.21	.25	.27
Land, building & fence repair	.14	.21	.25	.22	.32	.34	.23	.26	.37	.35
Taxes	.21	.22	.23	.21	.23	.21	.22	.22	.23	.23
Insurance	.15	.16	.16	.17	.19	.18	.17	.17	.18	.17
Utilities (farm share)	.34	.36	.39	.41	.44	.43	.38	.41	.42	.37
Interest paid	.56	.57	.65	.78	.83	.54	.51	.53	.48	.45
Misc. (including rent)	.40	.43	.37	.45	.49	.49	.44	.44	.49	.49
Total Operating Expenses	$13.39	$14.67	$14.54	$14.51	$16.46	$17.77	$15.90	$16.04	$18.12	$18.71
Less: Nonmilk cash receipts	1.57	1.70	1.96	1.94	1.75	1.57	1.89	1.62	2.11	2.47
Increase in grown feed & supplies	.27	.17	.12	.22	.39	.66	-.04	.36	0.17	0.34
Increase in livestock	.09	.22	.21	.27	.30	.33	.34	.30	0.18	0.17
OPERATING COST OF MILK PRODUCTION	$11.46	$12.58	$12.25	$12.08	$14.02	$15.21	$13.71	$13.76	$15.66	$15.73
Overhead Expenses										
Depreciation: machinery & buildings	$1.23	$1.32	$1.32	$1.26	$1.32	$1.38	$1.28	$1.32	$1.38	$1.43
Unpaid labor	.10	.07	.06	.07	.07	.04	.05	.04	.04	.03
Operator(s) labor [35]	.70	.67	.61	.63	.65	.58	.54	.50	.53	.44
Operator(s) management (5% of cash receipts)	.73	.90	.90	.79	1.07	1.10	.80	.96	1.16	1.10
Interest on farm equity capital (5%)	.85	.92	1.02	1.06	1.20	1.29	1.21	1.15	1.15	1.38
Total Overhead Expenses	$3.61	$3.88	$3.91	$3.81	$4.31	$4.39	$3.88	$3.97	$4.26	+$4.38
TOTAL COST OF MILK PRODUCTION	$15.07	$16.46	$16.16	$15.89	$18.33	$19.60	$17.59	$17.73	$19.92	$20.11
AVERAGE FARM PRICE OF MILK	$13.24	$16.64	$15.98	$13.85	$20.34	$19.24	$13.88	$17.81	$21.67	$19.77
Return per cwt. to operator labor, capital & mgmt.	$0.45	$2.67	$2.35	$0.44	$4.93	$2.61	$-1.16	$2.69	$3.61	$3.35
Rate of return on farm equity capital	-5.7%	6.0%	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%	13.6%	6.48%

[35] 2003 through 2005 = $2,200/month, 2006 = $2,300/month, 2007 = $2,400/month, 2008 through 2010 = $2,500/month, 2011 = $2,550/month, and 2012 = $2,600/month of operator labor.

TABLE 7-5. TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2003 to 2012

Item	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of farms	201	200	225	240	250	224	204	204	190	169
Cropping Program										
Total tillable acres	659	701	729	730	758	883	965	987	1,086	1,189
Tillable acres rented	323	345	365	360	385	446	482	493	519	554
Hay crop acres	321	339	361	366	364	421	464	469	477	530
Corn silage acres	233	245	246	249	258	297	348	340	405	488
Hay crop, tons DM/acre	3.2	3.5	3.2	3.2	3.0	3.5	3.4	3.5	3.4	3.0
Corn silage, tons/acre	17.2	17.7	18.8	18.4	18.9	19.9	18.7	19.6	16.6	16.9
Fertilizer & lime exp./tillable acre	$28	$31	$33	$30	$40	$49	$42	$43	$50	$66
Machinery cost/cow	$497	$565	$624	$618	$708	$800	$660	$712	$839	$864
Dairy Analysis										
Number of cows	314	334	340	350	358	414	469	489	531	609
Number of heifers	240	260	270	283	289	348	391	415	459	522
Milk sold, cwt.	70,105	73,767	78,250	80,862	82,315	99,884	113,555	119,782	130,898	154,730
Milk sold/cow, lbs.	22,302	22,070	22,998	23,083	22,983	24,115	24,208	24,508	24,648	25,401
Purchased dairy feed/cwt. milk	$4.27	$4.86	$4.37	$4.29	$5.20	$6.16	$5.45	$5.39	$6.52	$7.29
Purchased grain & concentrate as % of milk receipts	30%	27%	26%	29%	24%	31%	38%	29%	29%	34%
Purchased feed & crop exp/cwt.milk	$4.92	$5.60	$5.12	$5.02	$6.13	$7.23	$6.41	$6.32	$7.62	$8.52
Capital Efficiency										
Farm capital/cow	$6,748	$7,010	$7,508	$7,762	$8,426	$9,145	$9,060	$9,141	$9,629	$10,232
Real estate/cow	$2,722	$2,809	$2,950	$3,030	$3,356	$3,606	$3,713	$3,857	$3,951	$4,193
Machinery investment/cow	$1,208	$1,226	$1,314	$1,384	$1,448	$1,535	$1,553	$1,570	$1,614	$1,686
Asset turnover ratio	0.54	0.64	0.60	0.52	0.67	0.59	0.44	0.56	0.64	0.60
Labor Efficiency										
Worker equivalent	7.50	7.97	8.18	8.19	8.40	9.75	10.74	10.93	12.13	13.59
Operator/manager equivalent	1.86	1.64	1.60	1.63	1.62	1.72	1.83	1.82	1.88	2.01
Milk sold/worker, lbs.	934,733	925,553	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897	1,079,423	1,138,769
Cows/worker	42	42	42	43	43	42	44	45	44	45
Labor cost/cow	$738	$752	$765	$757	$784	$823	$794	$771	$818	$810
Hired labor exp./hired worker equiv.	$32,659	$33,311	$33,539	$34,071	$34,924	$36,312	$35,908	$35,643	$37,152	$37,406
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$-15,360	$78,061	$64,745	$-31,269	$189,019	$75,945	$-147,313	$101,484	$227,028	$92,417
Farm net worth, end year	$1,207,964	$1,466,674	$1,690,427	$1,736,505	$2,200,655	$2,640,168	$2,639,640	$3,012,912	$3,759,325	$4,484,930
Percent equity	56%	60%	63%	62%	68%	68%	62%	65%	70%	69%

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 76 New York Dairy Farms, 2003 - 2012

Selected Factors	2003	2004	2005	2006
Milk receipts per cwt. milk	$13.32	$16.69	$15.99	$13.85
Size of Business				
Average number of cows	503	536	556	584
Average number of heifers	384	404	437	465
Milk sold, cwt.	117,264	123,191	132,272	139,189
Worker equivalent	11.52	12.20	12.63	13.00
Total tillable acres	963	1,016	1,045	1,077
Rates of Production				
Milk sold per cow, lbs.	23,328	22,980	23,777	23,839
Hay DM per acre, tons	3.5	3.8	3.7	3.4
Corn silage per acre, tons	17	18	19	19
Labor Efficiency				
Cows per worker	44	44	44	45
Milk sold per worker, lbs.	1,017,626	1,009,760	1,047,212	1,070,549
Cost Control				
Grain & concentrate purchased as % of milk sales	30%	27%	26%	29%
Dairy feed & crop expense per cwt. milk	$4.93	$5.61	$5.11	$5.00
Operating cost of producing cwt. milk	$11.53	$12.52	$12.21	$12.22
Total cost of producing cwt. milk	$14.23	$15.34	$15.12	$15.10
Hired labor cost per cwt.	$2.66	$2.79	$2.73	$2.70
Interest paid per cwt.	$0.50	$0.50	$0.60	$0.74
Labor & machinery costs per cow	$1,221	$1,288	$1,342	$1,332
Replacement livestock expense	$16,578	$24,284	$20,027	$12,295
Expansion livestock expense	$36,182	$40,906	$23,466	$27,833
Capital Efficiency				
Farm capital per cow	$6,453	$6,608	$7,121	$7,382
Machinery & equipment per cow	$1,094	$1,106	$1,200	$1,245
Real estate per cow	$2,534	$2,544	$2,653	$2,781
Livestock investment per cow	$1,823	$1,904	$2,095	$2,142
Asset turnover ratio	0.59	0.70	0.66	0.56
Profitability				
Net farm income without appreciation	$66,144	$353,195	$325,135	$53,124
Net farm income with appreciation	$154,193	$485,799	$529,073	$193,254
Labor & management income per operator/manager	$-17,121	$143,172	$108,940	$-44,966
Rate return on:				
Equity capital with appreciation	3.9%	19.7%	18.2%	3.7%
All capital with appreciation	4.0%	13.0%	13.1%	4.7%
All capital without appreciation	1.3%	9.3%	8.0%	1.4%
Financial Summary, End Year				
Farm net worth	$1,852,290	$2,220,239	$2,599,905	$2,641,022
Change in net worth with appreciation	$60,256	$366,646	$374,230	$26,909
Debt to asset ratio	0.45	0.41	0.38	0.40
Farm debt per cow	$2,926	$2,760	$2,771	$2,969

Farms participating in the DFBS each of the last 10 years have increased size of business, labor efficiency and milk sold per cow (Table 7-6). All measures of profitability exhibit wide variability from year-to-year and are highly correlated with milk price received.

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA (Continued)
Same 76 New York Dairy Farms, 2003 - 2012

2007	2008	2009	2010	2011	2012
$20.40	$19.33	$13.95	$17.86	$21.67	$19.75
582	599	627	661	676	694
464	496	530	561	582	594
140,019	147,901	155,318	164,944	169,608	177,043
13.05	13.54	14.05	14.47	14.97	15.64
1,109	1,182	1,230	1,279	1,311	1,370
24,058	24,676	24,765	24,951	25,081	25,526
3.2	3.7	3.5	3.6	3.5	3.0
19	19	19	19	16	17
45	44	45	46	45	44
1,073,288	1,092,526	1,105,272	1,139,576	1,133,050	1,131,989
24%	30%	38%	29%	29%	35%
$6.09	$7.30	$6.55	$6.34	$7.70	$8.63
$13.77	$15.39	$13.86	$13.99	$15.83	$16.13
$16.80	$16.76	$16.94	$17.03	$19.18	$19.67
$2.79	$2.89	$2.76	$2.70	$2.86	$2.85
$0.74	$0.53	$0.52	$0.53	$0.48	$0.46
$1,447	$1,612	$1,435	$1,481	$1654	$1,704
$14,807	$21,164	$10,309	$10,893	$24,491	$8,031
$13,835	$33,356	$21,827	$6,386	$4,859	$25,214
$7,946	$8,694	$8,691	$8,575	$9,221	$9,974
$1,349	$1,505	$1,565	$1,531	$1,610	$1,726
$2,937	$3,191	$3,319	$3,326	$3,570	$3,916
$2,333	$2,308	$2,207	$2,167	$2,197	$2,233
0.74	0.64	0.47	0.61	0.69	0.62
$749,449	$380,414	$-184,794	$427,007	$752,586	$378,028
$963,512	$477,867	$-156,056	$565,805	$930,050	$641,892
$318,878	$108,031	$-183,328	$130,170	$272,752	$69,923
29.1%	10.9%	-7.9%	13.0%	19.8%	11.0%
21.0%	8.8%	-3.4%	9.5%	14.2%	8.6%
16.4%	6.9%	-3.9%	7.0%	11.3%	4.8%
$3,366,183	$3,559,855	$3,227,096	$3,664,458	$4,436,549	$4,846,067
$781,541	$184,178	$-316,918	$425,061	$750,500	$390,563
0.33	0.34	0.41	0.37	0.33	0.33
$2,761	$3,036	$3,474	$3,231	$3,162	$3,358

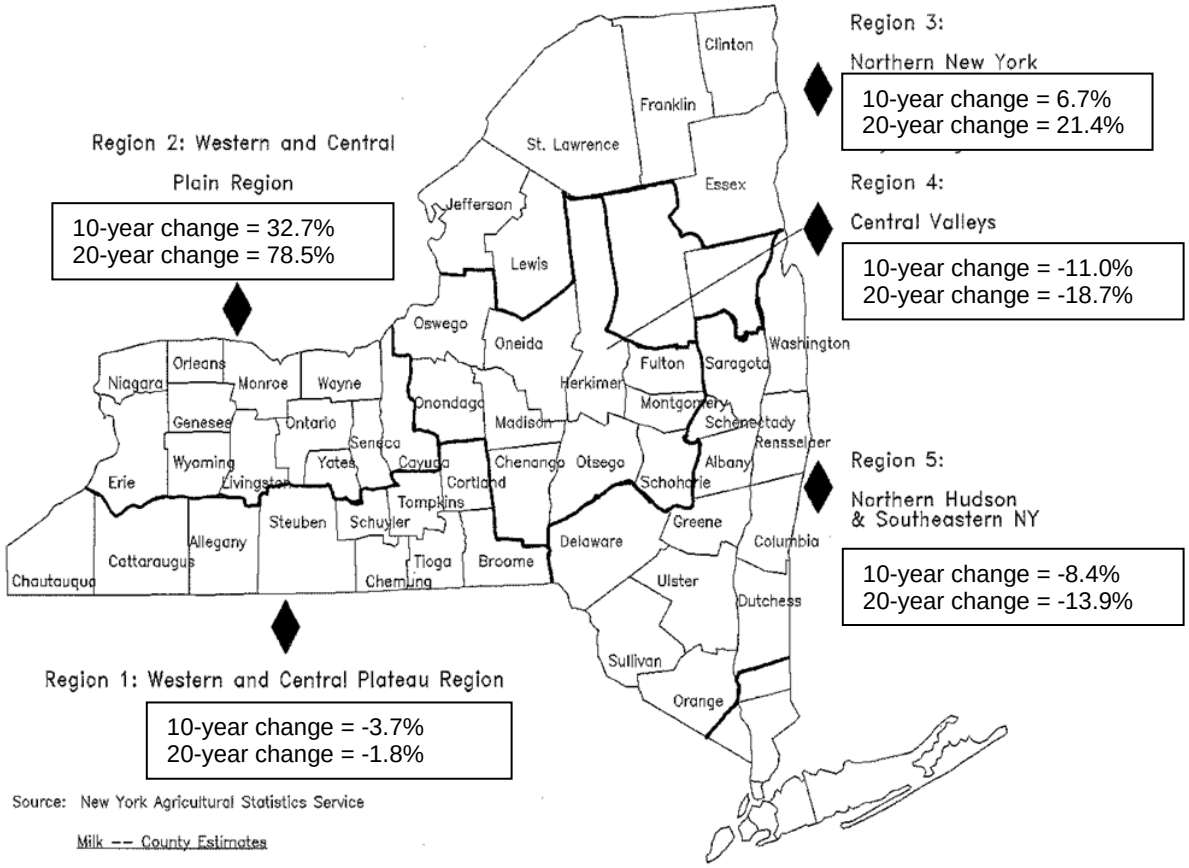
Debt to asset ratio has remained stable and debt per cow increased 15 percent while farm net worth more than doubled. During this time, crop yields have fluctuated, largely due to weather. Purchased grain and concentrate as a percent of milk sales varied from 24 to 38 percent, with the high in 2009, and the low in 2007.

TABLE 7-7. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
169 New York Dairy Farms, 2012

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	Northern Hudson & Southeastern New York
Number of farms	21	53	26	29	40
ACCRUAL EXPENSES					
Hired labor	$383,505	$561,998	$485,372	$360,479	$253,167
Feed	1,058,752	1,428,576	1,433,025	923,645	718,834
Machinery	304,907	392,283	402,803	336,189	219,834
Livestock	428,663	641,661	660,700	433,889	312,746
Crops	141,902	219,950	279,800	200,652	109,188
Real estate	132,826	167,995	129,864	118,572	75,124
Other	135,759	245,925	270,204	170,167	114,131
Total Operating Expenses	$2,586,314	$3,658,388	$3,661,768	$2,543,594	$1,803,022
Expansion livestock	10,611	57,284	15,412	7,118	7,457
Extraordinary expense	2,652	104	0	1,972	1,215
Machinery depreciation	105,939	168,313	171,259	135,590	77,243
Building depreciation	71,845	121,811	129,788	59,765	40,736
Total Accrual Expenses	$2,777,362	$4,005,900	$3,978,226	$2,748,039	$1,929,674
ACCRUAL RECEIPTS					
Milk sales	$2,801,038	$3,821,337	$3,935,795	$2,788,768	$1,812,778
Livestock	242,818	396,795	322,246	190,339	171,619
Crops	56,772	120,071	154,231	77,910	42,375
Government receipts	34,668	53,147	33,650	48,934	32,131
All other	24,408	110,379	83,806	78,338	45,367
Total Accrual Receipts	$3,159,785	$4,501,730	$4,529,728	$3,184,288	$2,104,262
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	$382,423	$495,829	$551,502	$436,249	$174,588
Net farm income (w/ appreciation)	$495,528	$798,551	$840,235	$538,711	$206,275
Labor & management income	$166,502	$222,627	$290,313	$230,133	$46,887
Number of operators	1.96	2.17	2.01	2.01	1.80
Labor & mgmt. income/operator	$84,950	$102,593	$144,434	$114,494	$26,049
BUSINESS FACTORS					
Worker equivalent	12.55	16.16	16.64	12.73	9.37
Number of cows	543	764	785	557	362
Number of heifers	492	652	684	455	308
Acres of hay crops[a]	517	597	751	547	386
Acres of corn silage[a]	528	671	661	501	348
Total tillable acres	1,049	1,313	1,628	1,234	780
Pounds of milk sold	14,209,784	19,452,061	20,200,911	13,906,689	8,926,451
Pounds of milk sold/cow	26,148	25,469	25,734	24,966	24,635
Tons hay crop dry matter/acre	2.5	3.2	2.9	2.8	2.9
Tons corn silage/acre	16.3	17.1	17.2	16.9	16.3
Cows/worker	43	47	47	44	39
Pounds of milk sold/worker	1,132,555	1,204,027	1,213,875	1,092,720	952,324
% grain & conc. of milk receipts	36%	34%	33%	32%	36%
Feed & crop expense/cwt. milk	$8.44	$8.46	$8.48	$8.08	$9.28
Fertilizer & lime/crop acre	$65,30	$75.64	$71.94	$69.14	$47.29
Machinery cost/tillable acre	$431	$464	$382	$423	$423

[a]Excludes farms that do not harvest forages.

FIGURE 7-1. PERCENT CHANGE IN MILK PRODUCTION
Five Regions in New York, 1990-2010



Source: New York Agricultural Statistics Service
Milk -- County Estimates

TABLE 7-8. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York

Item	Region[a] 1	2	3	4	5
Milk Production[b]			(million pounds)		
1990	2,062.0	2,539.0	2,085.2	2,823.0	1,545.4
2000	2,103.8	3,415.2	2,372.3	2,576.1	1,452.6
2010	2,025.5	4,531.5	2,530.5	2,294.0	1,331.3
Percent change, 2000 to 2010	-3.7%	+32.7%	+6.7%	-11.0%	-8.4%
Percent change, 1990 to 2010	-1.8%	+78.5%	+21.4%	-18.7%	-13.9%
2011 Cost of Producing Milk[c]			($ per hundredweight milk)		
Operating cost	$15.75	$15.60	$15.26	$15.50	$17.02
Total cost	19.37	19.20	18.71	19.23	20.76
Average price received	19.71	19.64	19.48	20.05	20.31
Return per cwt. to operator labor, management & capital	$3.40	$3.32	$3.46	$3.83	$2.70

[a]See Figure 7-1 for region descriptions.
[b]Source: New York Agricultural Statistics Service, Milk-County Estimates. The 2012 data was not available.
[c] From Dairy Farm Business Summary data.

TABLE 7-9. COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1962 - 2012

Selected Factors	1962	1972	1982	1992	2002	2012
Number of farms	503	571	572	357	219	169
Size of Business						
Average number of cows	38	70	82	123	297	609
Average number of heifers	24	45	67	96	226	522
Milk sold, cwt.	3,949	8,875	12,105	23,130	66,177	154,730
Worker equivalent	1.80	2.30	2.83	3.60	7.21[c]	13.59[c]
Total tillable acres	101[a]	188[a]	262	346	660	1,189
Rates of Production						
Milk sold per cow, lbs.	10,392	126800	14,762	18,789	22,312	25,401
Hay DM per acre, tons	1.8	2.4	2.6	2.8	3.1	3.0
Corn silage per acre, tons	12	11	14	15	15	17
Labor Efficiency						
Cows per worker	21	30	29	34	41[c]	45[c]
Milk sold per worker, pounds	219,385	385,870	427,739	641,893	917,854[c]	1,138,769[c]
Cost Control						
Grain & conc. as % of milk sales	33%	25%	24%	28%	30%	34%
Dairy feed & crop expense/cwt.	$1.67	$2.06	$4.53	$4.70	$4.79	$8.52
Operating cost of prod. cwt. milk	$2.26	$3.62	$10.19	$10.43	$11.01	$15.73
Total cost of producing cwt. milk	$4.46	$6.43	$14.87	$14.32	$14.25	$19.34
Milk receipts per cwt. milk	$4.33	$6.41	$13.56	$13.58	$12.98	$18.90
Capital Efficiency						
Total farm capital	$53,541	$173,780	$467,676	$810,201	$2,017,818	$6,232,925
Farm capital per cow	$1,425	$2,480	$5,703	$6,587	$6,794	$10,232
Machinery & equipment per cow	$296	$489	$1,081	$1,203	$1,261	$1,686
Real estate per cow	$675	$1,213	$2,735	$3,015	$2,612	$4,193
Livestock investment per cow	$366	$576	$1,488	$1,473	$1,827	$2,281
Asset turnover ratio	0.28	0.40	0.40	0.63	0.53	0.60
Profitability						
Net farm income without apprec.[d]	NA[b]	NA[b]	$95,183	$95,210	$48,877	$404,045
Net farm income with apprec.[d]	$37,590	$460,507	$109,597	$131,006	$105,577	$582,539
Labor & management income per operator/manager[d]	$15,352	$235,993	$15,311	$23,175	$-18,231	$92,417
Rate of return on:						
Equity capital with appreciation	NA[b]	6.3%	1.0%	5.0%	1.6%	10.7%
All capital with appreciation	NA[b]	6.2%	4.3%	5.7%	2.9%	8.5%
All capital without appreciation	NA[b]	NA[b]	-3.8%	3.6%	0.7%	5.6%
Financial Summary, End Year						
Farm net worth	$49,465	$125,031	$306,589	$529,858	$1,173,836	$4,299,025
Change in net worth with apprec.	NA[b]	NA[b]	NA[b]	$29,287	$1,735	$331,558
Debt to asset ratio	0.31	0.36	0.39	0.36	0.43	0.31
Farm debt per cow	$562	$1,011	$2,261	$2,390	$2,899	$3,171

[a]Acres of cropland harvested.
[b]NA = not available.
[c]Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.
[d]Profitability measures adjusted for inflation using Consumer Price Index – 2012 dollars.

Identifying Bottlenecks in Your Business

Introduction

Before a recommendation can be made regarding where a dairy farm business can improve, it must first be determined what the business is striving to accomplish. A mission statement is very helpful in this respect as a mission statement will describe why the farm exists. An example mission statement is "Our mission is to produce and market high quality milk in sufficient quantities to provide a good standard of living for our family. The business should also be sufficiently profitable to provide above average compensation for employees and long term security for our family". The above mission statement will not be right for all farms and mission statements will change over time as the age of the operator increases and family situation changes. An analysis of a farm business is most useful to the manager when the mission is known and thereby conveys to the evaluator what the business wants to accomplish.

The objectives of the farm are also of value to the evaluator because they more specifically state business direction. Objectives are general, challenging and untimed directions for the business. Example objectives might be to build net worth, increase profits and allow more time for personal and family activities.

Operating a profitable dairy farm business requires that the factors of production such as land, labor and capital be combined and managed to achieve a value of production that is greater than the cost of production. There are numerous ways to accomplish a profit in dairying; striving for high output per cow but with corresponding costs, low output per cow but with low costs or high output per cow with low costs. The latter category, high output with low costs is a characteristic of most of the highly profitable dairy farms.

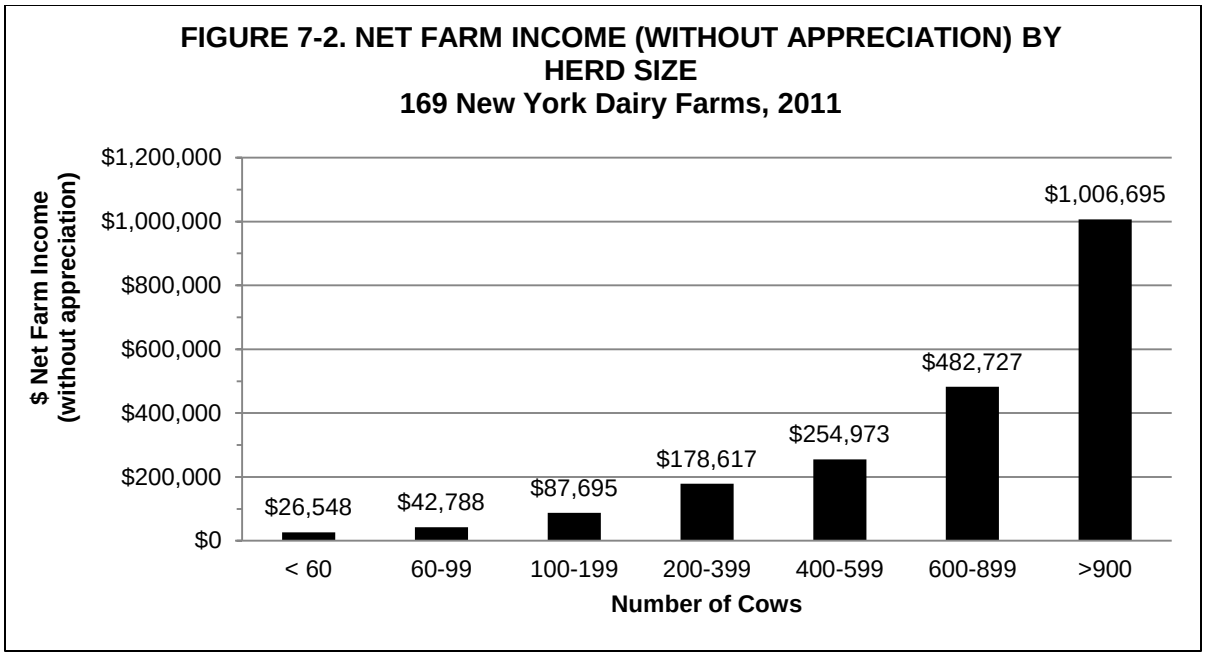
Evaluating a Dairy Farm Business

Evaluating a business to determine areas for improvement can be accomplished in the most simple terms by ascertaining if the business has 1) an adequate herd size, 2) excellent rates of production, 3) high labor efficiency, 4) stringent cost control and 5) strong financial position. Again, the evaluation should be set within the context of the mission and objectives of the farm family.

Farm Size

The question to be answered when examining the size of a dairy farm is "Is size of the farm sufficient to meet the family mission and objectives"? Or if the objective of the family is to increase profitability, is the size of the business a limiting factor?

There is a strong and well established relationship between farm size and farm income on well managed farms. Net farm income without appreciation increases as size of herd increases, ranging from about $27,000 on farms with less than 60 cows to over $1,006,000 on farms with more than 900 cows. See Figure 7-2.



In 1918, George F. Warren made an insightful observation regarding the relationship between farm size and income. "Not only are average incomes much larger on larger farms, but the chances of making a good profit are much better. However, no farm is large enough to ensure a profit."

Rate of Production

Achieving high rates of milk production per cow does not guarantee a profit, but on average, farms with higher rates of production do achieve higher incomes. As pounds of milk sold per cow increase, net farm income, net farm income per cow and labor and management income per operator generally increase. See Table 7-10.

Profitability measured as net farm income per cow rather than per farm removes the influence of herd size and also shows a positive relationship with milk sold per cow. In 2011, net farm income per cow generally increased as pounds milk sold per cow increased.

TABLE 7-10: MILK SOLD PER COW AND FARM INCOME MEASURES
169 New York Dairy Farms, 2012

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income Per Cow	Labor & Management Income Per Operator
Under 16,000	12	183	$-2,681	$-100	$-67,365
16,000 to 18,999	15	137	65,861	643	9,501
19,000 to 20,999	10	136	62,517	721	2,528
21,000 to 22,999	19	383	132,548	642	18,771
23,000 to 24,999	40	606	332,071	576	59,077
25,000 to 26,999	44	795	618,438	739	138,334
27,000 & over	29	1,065	816,905	692	218,126

Labor Efficiency

Labor efficiency is a measure of the amount of work done, on average, by one full time equivalent worker. A full time equivalent worker is considered to represent 230 hours of work per month. The labor efficiency measure used here is pounds of milk sold per worker. As can be seen from Table 7-11, as pounds of milk sold per worker increases, so does net farm income and labor and management income per operator.

TABLE 7-11. MILK SOLD PER WORKER AND NET FARM INCOME
169 New York Dairy Farms, 2012

Pounds of Milk Sold Per Worker	Number of Farms	Number of Cows	Pounds Milk Sold Per Cow	Net Farm Income (without appreciation)	Labor & Management Income Per Operator
Under 500,000	12	58	16,349	$22,336	$-15,906
500,000 to 699,999	26	123	19,395	44,174	-17,380
700,000 to 899,999	26	362	23,410	153,215	15,129
900,000 to 1,099,999	33	595	24,443	245,330	30,977
1,100,000 & over	72	972	25,645	760,939	190,537

In a stanchion barn, labor efficiency should be 600,000 pounds of milk sold per worker or higher. Small freestall barns should achieve 800,000 pounds per worker or higher and large freestall barns over 1,000,000 pounds of milk sold per worker.

Cost Control

Cost control is very important in operating a profitable dairy farm. If the three major costs in operating a business are under control, some of the smaller expense categories can be slightly higher and not seriously impact overall profit. The three largest cost categories on a dairy farm are purchased feed, hired labor, and machinery repairs; with milk marketing expense a close fourth. In this analysis, purchased feed and crop production expense per hundredweight of milk and machinery costs will be discussed. Hired labor was discussed under the category of labor efficiency.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production.

On the average, farms with purchased feed and crop expenses exceeding $8.00 per hundredweight of milk sold reported below average farm profits. Farms reporting less than $8.00 per hundredweight generally showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average as can be seen in the farms in the group reporting less than $7.00 per hundredweight. See Table 7-12.

TABLE 7-12. PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
169 New York Dairy Farms, 2012

Feed & Crop Expense Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Appreciation	Labor & Management Income Per Operator
$9.00 or more	61	545	6.9	22,975	$251,877	$23,051
8.50 to 9.00	27	636	7.4	24,041	392,358	77,033
8.00 to 8.49	25	684	8.3	24,294	461,000	99,191
7.50 to 7.99	23	731	7.4	24,675	555,840	138,249
7.00 to 7.50	17	719	7.0	24,147	658,769	247,286
Less than 7.00	16	399	9.4	20,387	426,071	71,386

Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre. See Table 7-13.

Controlling machinery costs can have a significant impact on profitability. Machinery costs should be evaluated along with labor efficiency. If machinery costs are high, as a result of use of labor saving technologies, then a high labor efficiency must result to offset the high machinery costs.

TABLE 7-13. ACCRUAL MACHINERY EXPENSES
163 New York Dairy Farms That Grow Forages, 2012

	Average 163 Farms		Average Top 10% Farms[a]	
Machinery Expense Item	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	$132,104	$107.77	$194,559	$106.96
Machinery repairs & vehicle expense	148,404	121.07	209,193	115.00
Machine hire, rent & lease	58,135	47.43	102,641	56.43
Interest (5%)	52,129	42.53	65,582	36.05
Depreciation	135,701	110.71	189,593	104.23
Total	$526,473	$429.51	$761,568	$418.67

[a]Average of 15 farms with highest rates of return to all capital (without appreciation) that grow forages.

Financial Position

Farm debt per cow should be below $3,500. Businesses that have been in operation for many years without an increase in herd size should have a very low debt per cow, below $1,000. Total farm investment per cow (market value) should be less than $9,000 and for large dairy farms $8,000 or less. See Table 7-16.

Farm Business Charts

For a complete analysis of the business, a farm business chart can be very useful. The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 169 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 10 percent for any other factor. See Tables 7-14 and 7-15.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

TABLE 7-14. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
169 New York Dairy Farms, 2012

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
38.8	1,892	49,665,166	28,592	5.0	24	63	1,531,309
24.7	1,127	30,054,041	27,243	3.7	20	52	1,318,166
19.8	897	23,485,084	26,437	3.4	19	49	1,204,845
16.4	708	18,126,241	25,705	3.1	18	46	1,143,274
13.3	573	13,534,712	24,938	2.9	17	44	1,081,089
9.4	412	10,081,569	24,243	2.6	16	42	992,845
6.5	269	6,058,011	23,270	2.3	15	38	879,393
4.0	149	3,101,862	21,688	2.0	14	34	750,865
2.8	92	1,729,237	18,750	1.7	12	31	606,893
1.8	49	905,580	13,882	0.6	0	23	417,411

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$797	23%	$489	$1,130	$1,058	$6.23
1,150	28	624	1,404	1,559	7.27
1,355	31	706	1,521	1,793	7.64
1,500	32	779	1,613	1,932	8.08
1,613	33	838	1,678	2,026	8.41
1,692	35	908	1,754	2,120	8.73
1,788	37	959	1,852	2,229	9.06
1,873	38	1,035	1,942	2,339	9.52
1,985	40	1,119	2,084	2,468	10.18
2,245	45	1,351	2,592	2,742	11.50

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

TABLE 7-15. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
169 New York Dairy Farms, 2012

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.
$5,759	$21.55	$2,125	$12.06	$3,385	$16.66
5,393	20.69	2,750	13.28	4,070	17.99
5,227	20.27	3,157	14.18	4,376	18.71
5,055	20.08	3,421	14.77	4,558	19.28
4,924	19.86	3,675	15.36	4,775	19.84
4,799	19.62	3,917	15.96	4,961	20.45
4,540	19.43	4,077	16.41	5,106	21.12
4,259	19.19	4,219	16.95	5,256	21.83
3,757	18.98	4,476	17.92	5,445	23.13
2,769	18.62	4,978	20.78	5,936	30.58

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
$1,807,809	$1,386	0.24	$2,487,315	$2,304	$1,181,869	$573,326
886,507	1,100	0.21	1,237,868	1,481	511,491	245,759
568,370	947	0.17	797,437	1,206	304,614	144,784
348,335	833	0.15	590,220	1,072	140,219	71,062
235,665	698	0.13	392,856	923	73,424	39,068
146,642	589	0.11	234,808	825	38,075	23,796
105,991	445	0.08	156,704	680	16,294	9,585
70,666	325	0.06	100,114	546	-7,327	-5,009
27,227	154	0.03	57,168	363	-64,605	-40,246
-74,185	-309	-0.11	-117,058	-289	-277,870	-175,959

The farm financial analysis chart, Table 7-16, is designed just like the farm business chart shown in Tables 7-14 and 7-15 and may be used to measure the financial health of the farm business.

TABLE 7-16. FINANCIAL ANALYSIS CHART
169 New York Dairy Farms, 2012

Liquidity/Repayment							
Planned Debt Payments Per Cow	Available For Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
$ 37	$1,400	19.36	25.95	0%	$ 184	62%	141.98
205	1,051	2.86	3.24	2	1,291	41	6.77
296	891	2.11	2.44	5	1,853	33	4.38
411	772	1.61	1.99	7	2,462	28	3.16
492	679	1.41	1.58	9	2,996	23	2.55
592	600	1.17	1.35	11	3,436	19	2.06
667	483	1.00	1.10	13	3,947	14	1.67
759	378	0.85	0.77	15	4,470	9	1.32
878	210	0.53	0.32	17	5,109	3	0.98
1,316	-118	-0.31	-0.57	29	6,543	-11	-0.22

Solvency				Operational Ratios		
		Debt/Asset Ratio		Operating	Interest	Depreciation
Leverage Ratio[a]	Percent Equity	Current & Intermediate	Long Term	Expense Ratio	Expense Ratio	Expense Ratio
0.02	98%	0.01	0.00	0.67	0.00	0.02
0.12	90	0.10	0.00	0.71	0.01	0.04
0.21	83	0.18	0.06	0.75	0.01	0.05
0.28	78	0.23	0.14	0.77	0.01	0.05
0.39	72	0.29	0.22	0.78	0.02	0.06
0.50	67	0.33	0.33	0.81	0.02	0.06
0.61	63	0.38	0.40	0.83	0.03	0.07
0.80	56	0.43	0.51	0.85	0.03	0.09
0.99	50	0.50	0.60	0.88	0.04	0.09
1.49	42	0.64	0.77	0.99	0.07	0.14

Efficiency (Capital)					Profitability	
					Percent Rate of Return With Appreciation on:	
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Equity	Investment[b]
0.86	$1,998	$697	$6,641	$1,823,101	28%	20%
0.74	2,911	1,047	8,039	808,038	15	12
0.67	3,349	1,330	8,645	544,071	13	10
0.62	3,552	1,579	9,283	296,500	11	8
0.58	3,949	1,819	10,115	185,991	9	7
0.55	4,302	1,956	10,810	113,516	7	6
0.51	4,864	2,112	11,361	62,170	5	4
0.45	5,528	2,332	12,501	26,207	2	3
0.40	6,519	2,688	13,593	-17,545	-1	1
0.28	9,584	4,233	17,095	-438,730	-14	-6

[a]Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.
[b]Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Conclusion

The saying "You can't manage what you can't measure" is equally valid in dairy farm management as it is in an industrial or commercial business. Effective managers measure the most important factors for success in their business, compare the values with the performance of similar businesses and set annual goals for improvement. The most effective goals are SMART. That is, they are Specific, Measurable, Attainable, Rewarding and Timed. Annually setting goals and then measuring progress towards goals is an important component of management. Research has shown that goals that are written are much more likely to be achieved than are goals that are only verbalized or goals that are not shared.

Evaluating a dairy farm business is not something to do once in a lifetime, but rather progress should be measured annually and new goals set for the following year. If a farm is not moving forward while other farms are, then the farm is moving backward relative to the industry. Performing an annual analysis and setting goals for the future is an excellent process to use in moving your business forward.

Chapter 8. Immigration Reform Stalemate Impacts Farm Businesses

Thomas R. Maloney, Senior Extension Associate
Marc A. Smith, Senior Extension Associate

Introduction

The environment of risk and uncertainty related to staffing farm businesses persisted in 2013. Much of the risk is created by the large number of undocumented workers employed in labor-intensive agriculture who could be detained or deported at any time. The I-9 immigration audits in farm businesses that began 2009 have increased, creating anxiety and uncertainty for both farm employers and their workers. Farm managers report that they are taking steps to minimize the risks associated with the prevalence of undocumented workers in agriculture while strongly advocating for immigration reform at the federal level.

During the 2012 presidential election cycle immigration re-emerged as an important national issue. Pressure on the U.S. Congress to reform the immigration process increased in 2013. Coalitions of business groups, churches and law enforcement groups joined forces to create a heightened awareness in Washington, D.C. regarding the need for immigration reform. Agriculture has been as active as any business group in advocating for immigration reform.

As the 113th Congress began its work in January 2013, a bipartisan group of U.S. senators started work on a comprehensive immigration reform proposal (S. 744) that ultimately passed the Senate on June 27, 2013. During the summer of 2013 the House Judiciary Committee passed a series of individual bills intended to resolve specific aspects of immigration policy. As 2013 winds down there is no assurance that any of the individual bills will make it to the floor of the House of Representatives.

In the absence of immigration reform, farm employers with labor-intensive enterprises are continually evaluating their options given the presence of undocumented workers, and are making strategic decisions to minimize associated risks. Some are shifting their production from labor-intensive fruits and vegetables to mechanized row crops like corn and soybeans. Others are looking for ways to further mechanize labor-intensive production practices or simply to operate in ways that will reduce the amount of physical labor required on the farm. Others are looking for workers they can be assured are legal, for example, northern New York dairy farmers who have experienced repeated I-9 audits have now begun to replace Mexican and Guatemalan workers with Puerto Rican workers because the Puerto Rican workers are U.S. citizens. Still other farm managers are continuing to hire foreign-born workers (likely many of them undocumented) because they see few alternative labor pools or mechanization options that will work for their respective businesses.

Legislative Actions on Immigration Reform 2012-13

Immediately after the 2012 presidential elections, action on immigration reform became an important topic of discussion in Washington DC. When Governor Mitt Romney lost the presidency, and in the process received only 27% of the Latino vote, Republican leaders expressed concern about winning future elections and encouraged their fellow Republicans to think carefully about their political position on immigration

moving forward. Agricultural leaders were anticipating that the 113th Congress would begin to move on immigration legislation. In preparation, agricultural leaders formed the Agricultural Workforce Coalition (AWC) to ensure that agricultural interests would speak with a unified voice in support of immigration reform. Leaders in the U.S. Senate began to organize and prepare to work on immigration reform legislation in 2013.

Senate Action 2013

Early in the new year the U.S. Senate leadership formed a "gang of eight" to begin crafting a comprehensive immigration reform bill. The informal leader of the group was Democratic Sen. Chuck Schumer from New York. Another key player was Republican Marco Rubio, a Cuban-American Senator representing Florida. Supporters of immigration reform were counting on Senator Rubio to persuade fellow Senate Republicans to support the legislation as it moved forward. Other members of the "gang of eight" included Democrats Dick Durbin from Illinois, Michael Bennett from Colorado, Bob Menendez from New Jersey as well as Republicans John McCain from Arizona and Lindsey Graham from South Carolina and Jeff Flake of Arizona.

On April 16 the Senate released the first version of the bill and sent it to the Senate Judiciary Committee for review. In the following weeks the Senate Judiciary Committee received over 300 amendments, accepted 92; and defeated attempts by conservative Republicans to eliminate or dilute key portions of the bill. During the final debates on the Senate floor the Corker/Hoven Border Security amendment was passed, providing an additional $38 billion in spending (a total of $46.3 billion in initial funding) for border fencing, additional border patrol agents and surveillance technology. Senate Democrats hoped that the amendment would help increase Republican support for the bill.

On June 27, 2013, the Border Security, Economic Opportunity, and Immigration Modernization Act of 2013 (S. 744) passed the U.S. Senate by a vote of 68 to 32. The bill is truly a comprehensive immigration reform effort. Included are provisions to increase enforcement both at the border and in the workplace; create a path to citizenship for undocumented immigrants, including the DREAMers (children brought across the border into the U.S. by their undocumented parents); improve our legal immigration system; and allow entry to highly skilled as well as low skilled workers. In addition, S. 744 includes a separate section specifically for agriculture.

The agricultural section of the bill contains two important provisions. First, undocumented workers currently working on farms would be eligible to adjust to legal status through a Blue Card Program. Agricultural workers would have to document that they worked in agriculture for two years prior to December 31, 2012. They would have to meet work requirements in agriculture for up to five years, pay all taxes, not have been convicted of any felony or violent misdemeanor and pay a $400 fine. Eventually they would be eligible for a green card. The second important provision is a guestworker program that would eventually replace the current H-2A program. The program has two options; a contract option with one employer, similar to the H-2A program, and a portability option allowing an individual to work for two or more employers during the assigned employment period. The U.S. Department of Agriculture would administer the new program.

House of Representatives Action

After passage of S. 744, attention shifted to the U.S. House of Representatives where it had been reported for months that the House had their own bipartisan gang working on a comprehensive bill. Yet comprehensive legislation from the House has not materialized in 2013. Instead Congressman Goodlatte, (R-Virginia) as Chair of the House Judiciary Committee proceeded to introduce four separate, targeted

immigration bills. In addition, the Homeland Security Committee submitted a border security bill and House Democrats introduced a comprehensive bill. These bills are outlined as follows:

- H.R. 1772 "Legal Workforce Act"; voted out of Judiciary Committee, 6/26/13. This Bill establishes an employment eligibility verification system modeled after the current voluntary E-Verify system. The Bill also requires employers to attest that they have verified the legality of new hires and requires employees to attest that they have legitimate legal status.
- H.R. 1773 "Agricultural Guestworkers Act"; voted out of Judiciary Committee, 6/19/13. This Bill allows foreign-born workers to perform agricultural jobs in the United States on a temporary basis. Agricultural leaders are concerned that wage rates in the Bill are poorly defined and that the proposed cap on the number of workers allowed is too low.
- H.R. 2278 "Strengthen and Fortify Enforcement Act"; voted out of Judiciary Committee, 6/18/13. The Bill focuses on enforcement in the interior of the United States and authorizes multiple programs to bolster state immigration enforcement efforts.
- H.R. 2131 "Skills Visa Act"; voted out of Judiciary Committee, 6/27/13. The Bill raises the number of visas allowed for high skilled workers and emphasizes STEM skills (science, technology, engineering and math).
- H.R. 1417 "Border Security Results Act of 2013"; voted out of the Homeland Security Committee, 4/9/13. The Bill requires the Secretary of Homeland Security to submit and implement a comprehensive plan for gaining and maintaining control of higher traffic areas along the United States/Mexico border.
- H.R. 15 Border Security, Economic Opportunity and Immigration Modernization Act; introduced by House Democrats this Bill is very similar to S. 744 with the exception that it substitutes less costly border security appropriations proposed in H.R. 1417 for the "border surge" provisions of the Senate bill.

Is important to note that none of these bills deals with the estimated 11 million undocumented immigrants currently living in the United States and therefore would not be supported by many Democrats in the House.

What Happens Next?

Advocates for immigration reform pushed hard during the summer and fall of 2013 for the House of Representatives to pick up where the Senate had left off. However, the House's piecemeal approach took all summer with no result; and by autumn the government shutdown and disagreements over the Affordable Care Act fully occupied congressional leaders, again delaying any substantive action on immigration reform. On November 13, 2013 House Speaker John Boehner stated in a press conference that the House would not take up immigration reform in 2013. He went on to say that "we have no intention of ever going to conference on the Senate Bill" suggesting that the House would likely act on immigration reform with smaller individual bills. With the mid-term elections looming in the fall of 2014, there is only a small window of opportunity early in 2014 for the House to follow the Senate's lead and pass immigration legislation. Compromise involving earned legal status short of a path to citizenship for undocumented immigrants now in the United States, a subject raised in meetings with New York representatives and discussed in the media late in November, might represent a slim hope for agreement in the House. A conference committee to resolve differences between the Senate and the House would likely follow. The 113th Congress has a poor track record so far in passing almost any legislation. Real progress on immigration reform in 2014 appears difficult at best.

Nonetheless pressure to pass immigration reform continues to build. Opinion surveys show that the public wants to see immigration reform legislation passed and the issue resolved. In addition a number of advocacy groups including agriculture, other businesses, law enforcement and evangelical groups are becoming more organized politically and far more vocal about the need for immigration reform than they were just a few years ago.

Impact on New York State Farming Operations

New York State agriculture is diverse and its most important sectors, fruit, vegetable and dairy production, are labor intensive enterprises. Fruit and vegetable growers spend an average of 40% of their cost of production on labor; dairy producers, 14% to 20%. New York shares an international border with Canada, has the second largest population of immigrants, and the fourth largest population of undocumented immigrants in the nation. For all of these reasons, rural and urban areas of New York State remain focal points of political action for immigration policy reform, enforcement activity by the Department of Homeland Security, and frustration with the social and economic damage caused by a badly broken immigration system.

Political Realities

Immigration reform took a surprising spot near the top of the Obama Administration's second term priority list shortly after the 2012 presidential election results were in. Hispanic-Americans, the fastest growing U.S. ethnic group, delivered 73% of their votes to the President, thus sending a message about the value of placing reform on the legislative agenda to congressional Republicans as well. The U.S. Senate Judiciary Committee moved quickly in 2013 to take advantage of this apparent opening for reform; and S.744, the Border Security, Economic Opportunity, and Immigration Modernization Act passed the full Senate by a vote of 68-32, on June 27, 2013.

During the Senate deliberations on S. 744, the authors met with members of the Northeast Dairy Producers Association to discuss the legislation. One leading producer shared the fact that he had not been following this historic debate, even though the outcome could have a major, long-term impact on his farm operations. He placed this distance between his professional life and the immigration reform news from Washington because, after decades of failed attempts to solve the problems caused by a broken policy, he had no faith in the nation's elected legislative leaders willingness or ability to succeed in 2013. As of this writing, amid commentary pronouncing the death of the reform effort in the current Congress, the skepticism expressed by this farmer and many others, appears to have been warranted.

A wary attitude toward the uncertain politics of immigration reform reflects an important on-farm reality. Economic success in labor-intensive agriculture, regardless of the policy environment, will require farm employers to remain focused on the wise management of human and related production resources.

Trends in Migration from Mexico

Congressional failure to reform immigration policy is only one external factor farm employers must incorporate into decisions to promote the current and future profitability of their businesses.

The current hired work force on New York farms includes significant numbers of Hispanic workers. In 2011, Thomas Maloney and Nelson Bills estimated New York's hired agricultural workforce at peak to be

33,200. Roughly half of hired fruit and vegetable workers, and 27% of hired dairy workers speak Spanish as their first language. In New York State, 75% of the hired Hispanic dairy work force comes from Mexico; and according to the National Agriculture Worker Survey (NAWS), 68% of hired crop workers nationwide are Mexicans.

Agriculture's reliance on workers from Mexico, of course, is subject to trends in the decisions made by Mexicans to come to the United States, and in our case, to make their way north to New York State to work. Those trends have shifted since the Great Recession of 2008-2009. Studies by the Pew Research Center, the Migration Policy Institute and others indicate that farm employers are already facing measurable erosion in the abundant supply of experienced Mexican agricultural workers on which they have depended for many years. New York State experience reported from a Finger Lakes vegetable operation reinforces these conclusions:

> *In the past, friends and relatives of current workers, especially young men, came up here from Mexico each year. Fewer people are coming and some people are leaving, either due to deportation or to reunite families who have had someone deported.*

The causes of this shift, in addition to the recent recession, include improved economic and employment prospects in Mexico (even in some rural areas) and vigorous enforcement activity by the U.S. Department of Homeland Security, both at the border and in the workplace.

Decisions, Priorities and Strategies on the Farm

Anecdotal evidence reported from various production regions in New York State reinforces the conclusion that the supply of workers for New York farm operations has tightened, leading to gradual, but important changes in short-term decisions and shifts in longer term management strategies.

Competitive Labor Markets and H-2A

One Hudson Valley apple grower reports that the 2013 harvest was successfully completed on time, but concern over the apparent failure to reform immigration policy weighs on future plans:

> *Future labor availability without immigration reform is a great concern. Across the eastern half of the US I hear about many more growers and crew leaders going to H-2A. There is every sign the flow of undocumented workers is drying up quickly. Some workers that have been here for 3 to 10 years are going home presumably with most of their earnings and a return is questionable to unlikely. They are not being replaced.*

In the Finger Lakes, a vegetable grower shared a similar view on the choice between the risks of hiring outside the H-2A program in a competitive labor market and the burdens of working within that federal guest worker system:

> *I expect the number of H-2A workers has increased as growers have found that to be the only way to be sure they have enough workers. I am fairly certain we will have to go this route next year too.*

Another major apple grower, with 40 years of experience using H-2A is concerned about the increasing costs imposed by federal regulators:

> *We need a less complicated and expensive guest worker program. Recently the US government has begun making it an expensive venture for the H-2A workers. They now have to pay federal and state income taxes without being able to claim their families as exemptions and are being forced to pay retroactively back to 2008. With Obamacare on the horizon, the foreign workers may be faced with additional costs in the form of health care premiums.*
>
> *The question becomes, "Will these increased costs deter the H-2A workers from traveling north for the harvest. If so, where will the laborers come from to maintain a healthy US agricultural community?"*

Farm business decisions related to H-2A are challenging and complex, except for dairy farmers, who are not eligible to participate in the program. Congressional proposals to provide this access have failed repeatedly. Long, conflicting employer and worker experiences with U.S. guest worker systems form the roots of continuing controversy and complexity associated with H-2A. Since its inception in 1986, New York employers of seasonal workers have learned either to deal with (sometimes in very innovative ways) the shifting, burdensome rules of the program and the state and federal agencies that implement them; or to avoid such regulation as well as the costs and risks attached to participation. Supporters and crafters of Senate reform legislation concluded that H-2A should be replaced with a very different approach, to be administered by a different federal agency. If reform does not happen and competition for hired agricultural labor remains strong, employers will need to find ways to make effective decisions related to the regulatory environment that determines legal access to the market for guest workers.

Competitive Labor Markets and Wages

During a record-breaking apple harvest, an Ontario County apple grower reports:

> *Cost of labor has gone up well over 30% due to supply issue. I think we dodged a bullet this year, and had just enough hands, but last year was touch and go (even with half a crop).*

A nearby vegetable grower noted:

> *We raised the hourly wage of all of our hand labor, but mostly the women and older men stayed and the younger men went to pick apples and grapes where they could make a lot of money during the short season. The large apple crop attracted a lot of workers. The wine grape and dairy industries continue to expand around us and we are all vying for the same smaller worker pool.*

These agricultural employers are astute participants in the international and regional labor markets from which they hire workers to grow and harvest crops under tight seasonal, environmental and biological constraints. Each year they face the impacts of the short-run events (high yield or low; weather; regulations) and long-term migratory trends described above. These factors indicate

continued upward pressure on the wages dairy, fruit and vegetable producers will have to pay to attract and retain qualified workers in the foreseeable future.

Competitive Labor Markets and Mechanization

The cover story of the Fall 2013 issue of *New York Fruit Quarterly* asks, "Will ladders be obsolete in Tall Spindle Orchards in 5 years?" The current issue of *Fruit Grower News* reports on field tests for a vacuum harvester in Michigan orchards. The perceived "yogurt boom" demand for more milk production on New York state dairy farms has increased consideration of reducing dairy labor risk by investment in robotic milking systems. The speed of technological progress toward solving the challenges of planting and harvesting fresh market crops in cost effective ways depends on the relative cost and availability of labor to carry out these same tasks. Congressional failure to pass reform legislation and economic factors driving trends in migration from Mexico will intensify the search for engineering and biological systems to save labor in U.S. agriculture.

Competitive Labor Markets and Land Use

A Finger Lakes grape grower and winery owner commented on 2013 developments in his operation:

> *We are gradually removing grape acreage as the dependence on the current labor situation is very uncertain and some varieties show no prospect of breaking even. Most native varieties are about the same price as 40 years ago. We are planting various field crops and hay on those former grape acres.*

In the Eden Valley, growers report increased demand for broccoli but "but neither labor nor land to increase production." The owner of a vertically integrated fruit growing operation echoed these observations:

> *We are not planting new orchards in this environment, and quite honestly we're not investing in replacement either. We have directed investments away from labor intensive units of the operation.*

Anecdotal evidence strongly indicates movement out of labor-intensive, high-return crops and a risk-averse reluctance to expand dairy, fruit and vegetable operations even as market opportunities beckon. These developments are measures of the economic damage caused by distorted market signals caused, at least in part, by labor policy failures.

Chapter 9. Fruits and Vegetables

Bradley J. Rickard, Assistant Professor
Charles H. Dyson School of Applied Economics and Management

Specialty crops are an important component of New York State's agricultural economy. In 2012 the total farm value of all agricultural products produced in New York was approximately $5.9 billion, which has increased from the average total farm value over the period between 2006 and 2011. In 2012, fruit and vegetable crops accounted for slightly more than 13% of the total value of agricultural production in New York State. Fruits and vegetables were planted on 232 thousand acres in New York State in 2010 and this represents only 6.3% of total harvested cropland. Therefore, the value generated from fruits and vegetables is nearly three times the value generated from other crops on a per acre basis.

Horticultural commodities are an important component of agriculture in New York State and we continue to see a significant quantity of fruits and vegetables produced in the State, and marketed to consumers through various channels. New York State is a top-producing state of apples, tart cherries, pears, grapes, cabbage, cauliflower, onions, pumpkins, snap beans, squash, and sweet corn. Apples and grapes are the two highest revenue fruit crops in New York while cabbage, sweet corn, snap beans, squash, and onions have been the five highest revenue vegetable crops in recent years; the value of production for each of these crops exceeded $30 million in 2012.

Below I provide a situation and outlook report for fruits and for vegetables, and examine market conditions for selected crops that are important in New York State. I review past production patterns and provide an assessment of the likely future market trends for fruit, berries, and vegetables (fresh and processing) in New York State. In each case I review production and price data between 2009 and 2013, give an economic outlook on expected market conditions in 2014, and also provide some thoughts on the long term marketing and policy issues for horticultural crops produced in New York State.

9.1 Fruit and Berry Situation and Outlook

Market conditions for major fruit crops in New York State were, overall, less favorable in 2012 compared to 2011. Prices for the major fruit crop in New York State, the apple crop, were substantially higher in 2012 compared to 2011, but production was down significantly and the total value of the marketed crop was similar to that in 2011. However, the distribution of the marketed fruit was not uniform across the state or across growers; in 2012 many growers had severe reductions in fruit sales while others were much less affected and enjoyed higher prices. Crop values for several other fruit crops were also lower in 2012 relative to 2011 due to the spring frosts in 2012. In what follows, I take a closer look at domestic prices and production values, consumption patterns, and international market conditions for major fruit crops in 2012. Similar to last year, market conditions for grapes are examined separately in Chapter 10. Overall, the total value of fruit (including grapes) in New York in 2012 was $323 million, down 8% from the value in 2011 and equal to the value observed in 2010, but down quite a bit compared to the peak values observed in 2007 and 2008.

Table 9-1 shows that 360 thousand tons of apples were produced in New York State in 2012; this crop was valued at $253 million. The overall value of the 2012 crop was up slightly compared to the 2011 crop; the value of the fresh crop was up and the value of the processing crop was down in 2012 compared to 2011. Table 9-1 also indicates that the average price of New York State apples increased in 2012 compared to 2011; the price of apples increased in both the fresh market and the processing market due to the significant

reduction in supplies during 2012. The average price for New York apples used in the fresh market was $900 per ton and the price was $385 per ton for apples used in the processing market in 2012; these are the highest prices reported for both uses in recent years.

Once the official data from 2013 are released, I expect to see statistics that show a significant increase in apple production compared to 2012 and most other normal years in recent history. Early evidence from the *US Apple Association* shows that U.S. apple production will be 247 million bushels, which is up 14% from 2012 and the 12th largest apple crop in history. The 2013 crop was driven by large yields in the eastern states that bounced back from the low production year in 2012 due to the spring freezes that substantially reduced the number of buds. Overall, it appears that production in western states (mainly Washington State) is down slightly compared to 2012, but that eastern production is up by nearly 50% compared to 2012. In turn, we also expect to see a substantial decrease in apple prices in 2013 compared to 2012, and we may see the per-capita consumption rate for apples increase during 2013/2014 due to high volumes and lower prices.

Relative to other states, New York continued to be a major national producer of apples in 2012; New York State continues to be the second largest producing state for apples in the nation. As shown in Table 9-2, the value of U.S. apple production in 2011 was $2,750 million based on production of 9,500 million pounds and an average price of $0.292 per pound. Washington State typically produces approximately 55 to 65% of the U.S. apple crop, and in 2013 Washington State is expected to produce 143.9 million bushels (about 58% of the national crop) given the significant crop that was produced in 2013 in eastern states. In New York State, production is forecast to be 30.5 million bushels in 2013 which is up approximately 50% from 2012. Michigan's crop in 2013 is expected to be close to 30 million bushels, and that is up from their substantially reduced crop (of only 2.7 million bushels) in 2012.

In addition to apples, New York State is also a top producer of several other tree fruit and berry crops; New York is a top ten producing state for tart cherries, pears and strawberries. Table 9-1 shows that production of all other major fruit and berry crops decreased in 2012 versus 2011. Crop values also decreased for all of these selected fruit crops (except tart cherries) in 2012. In 2012 New York State produced approximately $4.0 million in cherries ($2.9 million was tart cherries and $1.1 was sweet cherries), $4.1 million in peaches, and $2.3 million in pears.

TABLE 9-1. COMMERCIAL NONCITRUS AND NONGRAPE FRUIT PRODUCTION AND PRICES IN NEW YORK STATE

	Production			Prices		
	2010	2011	2012	2010	2011	2012
	------ *Thousand tons* ------			------ *Dollars per ton* ------		
Apples	630	610	360	360	416	704
Fresh	300	283	216	526	666	900
Processed	330	322	144	209	196	385
Tart Cherries	3.9	3.0	1.4	348	484	2,100
Pears	8.3	12.1	3.1	519	600	758
Peaches	5.9	6.8	2.6	1,200	1,240	1,580
Sweet Cherries	1.0	0.7	0.3	2,820	3,140	3,700
Strawberries	1.7	1.8	1.6	3,940	4,700	4,300
Blueberries	1.2	0.9	1.0	4,300	4,400	4,580

Sources: New York Agricultural Statistics, 2013.

Also shown in Table 9-1, berry production (including strawberries and blueberries) in 2012 was comparable to production levels observed in 2011, and the total value of these berries produced in New York State decreased from $2.7 million to $2.6 million in 2012 compared to 2011. The *USDA Fruit and Tree Nuts Outlook* report that focuses on eastern (tree and berry) fruit crops was delayed this year and was not available at the time this handbook was being developed.

Table 9-2 highlights the values of tree fruit crops in New York between 2010 and 2012; I also show the total value of these crops nationally in 2010 and 2011. The information in Table 9-2 highlights that New York apples and tart cherries are important nationally, pears and peaches are important for New York State but have less of an impact on those markets nationally, and sweet cherries are a relatively small industry in New York State. The value of the U.S. apple crop increased in 2012 relative to 2011, and is expected to be larger in 2013 given the size of the crop. The total value of peaches and cherries increased nationally in 2011, but the value of pears decreased nationally in 2011. The smaller changes in values for peaches and cherries in New York State are likely due to the regional marketing of these products that is more typical in the Northeast.

In addition to the differences in production and intra-national trade within the United States, international trade continues to be important in fresh and processed fruit markets. Imports of fresh apples in the United States reached a high of 472 million pounds in 2003/04 but have fallen recently; the United States imported 381 million pounds of fresh apples in 2011/12 and imported approximately 371 million pounds in 2012/13. Imports of processed apple products have been steadily increasing in recent years, and now the United States imports more apple juice that what it produces; approximately 80% of all apple juice imports come from China. Exports of fresh apples from the United States have been relatively steady since the mid-1990s, hovering around 1,700 million pounds per year. U.S. exports exceeded 1,800 million pounds in 2010/11 and 2011/12, and were approximately 1,700 million pounds in 2012/13. Imports of processed apple products have grown over the past fifteen years yet the value of each imported unit has fallen over this time, and this will continue to present challenges to U.S. processors of apple products.

TABLE 9-2. VALUE OF NONCITRUS FRUITS IN NEW YORK STATE AND THE UNITED STATES

	New York State			United States		
	2010	2011	2012	2010	2011	2012*
			------ Million dollars ------			
Apples	226.8	251.5	253.4	2,220.8	2,750.6	-
Fresh	157.8	188.1	194.4	-	-	-
Processed	68.9	63.2	55.4	-	-	-
Tart Cherries	1.4	1.4	2.9	40.5	69.5	-
Pears	4.3	7.0	2.3	381.7	372.3	-
Peaches	7.1	8.4	4.1	614.9	854.6	-
Sweet Cherries	2.8	2.1	1.1	721.2	867.8	-
Strawberries	6.9	8.5	6.9	2,262.4	2,399.4	-
Blueberries	4.5	4.0	3.9	-	-	-
All Fruit (including grapes)	322.0	351.0	323.0	11,811.3	12,246.7	-

Sources: New York Agricultural Statistics, 2013; USDA Agricultural Statistics, 2012.

* Publication of the 2012 USDA data were delayed in the fall of 2013, and were not available at the time of printing.

It is widely expected that there will be record crops of perennial fruits in eastern states in 2013 given the reduced crop size in 2012. Perennial fruit trees are able to store unused starches in low production years and carry them into the subsequent production cycle (in some capacity), and this is the primary driving force behind the large crop in 2013. Given the experience in 2013, there is now a greater likelihood of a smaller apple crop in New York State and Michigan in 2014, and this will place some upward pressure on apple prices for crops harvested in 2014 and for fruit stored into 2015. Of course, the national effects can be dampened (or heightened) by market conditions in Washington State. Washington State's apple production is expected to be approximately 7% lower in 2013 compared to 2012, so we may see an increased crop from Washington in 2014. Note that 7% of apple production in Washington State is approximately equal to 33% of the apple crop in New York State. In addition, there are new plantings coming into production in Washington State over the next 5 years and this alone could have a significant effect on producer prices in 2014 and 2015.

U.S. consumption patterns for fresh, frozen, and canned fruit products between 2002 and 2007 were examined in earlier editions of the *Agricultural Outlook Handbook.* Consumption rates had been very stable for frozen fruit products and showed a slight decline for many canned products. The per capita apple consumption rates in the United States have been relatively stable between 2002 and 2007. They have also been below per capita consumption rates for bananas, and this is a pattern that reflects a larger trend over the last two decades.

TABLE 9-3. CONSUMPTION PATTERNS FOR SELECTED FRESH FRUITS IN VARIOUS COUNTRIES

	Consumption			
	1991-93	2001-03	2004-06	2007-09
	------ *pounds per capita* -------			
Apples				
United States	18.92	15.84	18.04	17.82
United Kingdom	24.64	20.46	22	22.22
Japan	12.32	12.76	11.22	12.54
Canada	26.4	25.08	29.48	28.6
Germany	52.36	40.26	41.8	42.9
France	30.8	35.64	35.64	33.22
Spain	38.94	41.14	33.88	30.36
Italy	46.64	44	37.84	37.84
New Zealand	32.34	35.64	29.92	29.04
China	11.88	28.38	29.04	36.3
Japan	12.32	12.76	11.22	12.54
Turkey	71.06	72.6	64.68	69.96
Bananas				
United States	24.42	28.38	25.08	25.08
United Kingdom	14.3	24.42	25.74	26.4
Japan	15.4	14.52	16.28	17.6
Oranges				
United States	12.32	8.36	11.88	11.88
United Kingdom	6.38	7.26	6.82	6.16
Japan	15.84	15.18	14.08	13.2

Source: World Apple Review, Belrose Inc., 2010.

We reproduce Table 9-3 from last year's *Agricultural Outlook Handbook* to reinforce trends in fresh fruit consumption patterns in the United States, and elsewhere. Fresh fruit consumption (given in pounds per person) is provided in five different time periods between 1991 and 2009 in up to 12 countries. Apple consumption in the United States has remained in the range of 18 pounds per person per year over this time period, it was reported to have fallen below 15 pounds per capita in 2012/13 but is expected to rebound to above 17 pounds per capita during 2013/14. Trends in other countries are surprisingly different. In Canada per capita consumption of apples has been closer to 26 pounds per person. The per capita consumption rate in many western European countries has exceeded 30 or 40 pounds per person per year. Of the countries listed in Table 9-3, only Japan has a lower per capita consumption rate of apples than the United States. This information indicates that apple marketers need to develop very strategic plans to reach new consumers or expand apple sales to existing consumers.

9.2 Fruit Outlook: Marketing and Policy Issues

Several economic and marketing issues that have been important to producers and packers of fruit crops in New York State will continue to be key marketing concerns over the next two to five years. Important and on-going issues include food safety concerns, labor availability, crop insurance rates, promotion activities, and competition with foreign suppliers. Of the issues listed here, fruit producers in New York State and elsewhere have indicated that labor availability remains a top concern. This was also a priority topic in the election cycle in 2012 and there are indications that Congress will continue to look at new solutions to this issue that is of paramount interest to fruit growers. Although a major piece of legislation that would introduce immigration reform appears to be unlikely at this point, there continues to be discussions about piece-meal changes to immigration policy, and one such piece may address the guest worker program (H2A) that is currently used by some agricultural employers.

Farmers managing labor intensive specialty crop operations must cope with major risk and uncertainty associated with the perennial challenges of hiring a legally authorized and reliable workforce in an exceptionally challenging, seemingly intransigent immigration policy, regulatory and enforcement environment. A 2009 Cornell study by Tom Maloney and Nelson Bills reports that there are approximately 11,200 Spanish-speaking immigrants performing labor-intensive jobs on New York State's fruit and vegetable farms. While projections vary, it is also estimated that 50% to 80% of immigrants working in U.S. agriculture are not legally authorized, leaving them and the farm owners they work for vulnerable to a range of enforcement actions. Farm workers face the possibility of detention and deportation. Farm owners face the possibility of workforce disruptions during harvest and other critical work periods, as well as the possibility of fines and other penalties. Practical alternatives to the unauthorized workforce must be found if labor-intensive agriculture is to be viable in the future; and this is especially true in specialty crop markets.

New research at Cornell University is assessing various labor options for specialty crop producers to shed some new light on the relative costs of alternative ways to source and manage farm labor. In this effort we are collecting information from selected fruit and vegetable farms around New York State through a survey regarding their strategies to attract and maintain a viable labor supply. Information is being collected from employers that use, or have previously used H2A, as well as other labor supply options. Through this survey work we intend to develop a set of best management practices for agricultural employers in the State, and highlight the different strategies that are currently being used. We are also conducting an analysis to evaluate how potential changes in labor policy might impact labor availability and labor costs, and how any such changes might affect the competitiveness of specialty crop producers in New York State. Labor represents the single largest cost for most producers of specialty crops, notably for producers of fresh fruits and vegetables. Current levels of uncertainty about labor availability greatly add to these costs. Anecdotal evidence also indicates that uncertainty concerning the future of labor availability negatively affects investment among specialty crop producers, and this uncertainty could affect acreage planted to labor intensive crops and the long-term sustainability of the specialty crop industry.

Lastly, specialty crop growers continue to consider the economic effects from introducing new technologies and transgenic horticultural varieties. In New York State there is work underway that is examining the market potential for high tunnels in sweet cherry production, and other work that is examining biomarker technologies designed to identify the onset of post-harvest physiological disorders in stored apples. Both of these technologies have the capacity to greatly improve the economic situation for marketing fruit produced in New York State. The adoption of transgenic crop varieties is another issue that fruit growers are considering, and this is a topic where additional economic research is needed. It is not clear how the introduction of the Arctic technology for apples (the technology that controls the browning of the flesh) and genetically modified (GM) citrus (that effectively manages citrus greening) would be viewed by the industry and by consumers. Apples and citrus are both large industries that are expected to be able to manage the regulatory burden associated with adopting GM varieties, but industry stakeholders have mixed attitudes towards the adoption of these technologies. New research at Cornell University will examine the relative role of consumer acceptance, regulatory costs, degree of innovation, and the level of processing required for the raw commodities on the likelihood of GM adoption for major horticultural crops in the near future.

9.3 Vegetable Situation

Total land planted to vegetables (not including potatoes and dry beans) in New York State increased from 91,300 acres in 2011 to 98,300 acres in 2012; harvested acres of both fresh and processing vegetables were up in 2012, where the increase in processing vegetable acreage was much more significant (rising from 23,400 harvested acres to 31,500 harvested acres). Acreage used to produce processing vegetables is still far below the average level observed between 2003 and 2010, and the production of the processing vegetables in New York State may find a new long-term equilibrium between 30,000 and 40,000 harvested acres. The value of New York vegetable production (including vegetables for fresh and processing markets but not including potatoes and dry beans) increased from $356 million in 2011 to $450 million in 2012; the value of fresh vegetables increased by nearly $100 million in 2012 compared to 2011. In 2012 fresh market vegetables contributed $405 million to the total value of vegetables in the state (up from $317 million in 2011) while processed vegetables contributed $45 million in 2012 (which was up from $27 million in 2011).

The large increase in harvested acreage of processing vegetables in 2012 was due, in part, to better weather conditions and increased stability among the key players in the processing sector. However, there appears to be a long-term decline in the production of processing vegetables in New York State. Across the United States, the production of processing snap beans and green peas has decreased substantially between 2000 and 2012. Statistics indicate that there has been a general decline in the production of these two processing vegetables nationwide and the green pea industry has experienced more drastic changes in production than the snap bean industry. Wisconsin has been the largest producer of snap beans nationally, followed by Oregon, New York and Minnesota. New York has typically been the third or fourth largest producing state of snap beans in the United States. Minnesota dominates national pea production followed by Washington, Wisconsin, New York, and Oregon. As one of the top five producing states, New York plays an important role in supplying national markets for green peas and snap beans. The latest data (2010 for snap beans and 2006 for green peas) show that New York State accounts for about 10% of total national production. In recent years, we have seen dramatic declines in planted acreage of green peas and downward trends in acres planted to other key processing vegetables grown for freezing and canning. This is a critical concern for New York State farmers and is somewhat of an enigma, given the fact that geographically the production areas are relatively close to big cities such as New York City and Boston. A number of factors have combined to influence planting decisions and outcomes, including historically high corn and soybean prices, a 48% decline in per capita use of canned and frozen green peas since 1971, persistent production and yield challenges for New York snap bean growers, increasing concentration in the processing industry, and inventory decisions, especially for frozen vegetables, made by New York processing firms during the past four years.

Preliminary market conditions reported in the March 2013 edition of the *USDA Vegetables and Pulses Outlook* suggest that prices for most fresh vegetables were up in 2013 compared to levels observed in 2012. First quarter producer prices for fresh vegetables were 83% higher in 2013 relative to 2012; some increased by nearly 260% over this time period, while prices for several crops were up by 50%. The same *Outlook* report shows that total shipments of fresh market vegetables were down in the first three quarters of 2013 across the United States. Consumer prices for fresh vegetables were also higher in the first quarter of 2013 relative to the same time period in 2012, however, the price increases facing consumers were closer to 10%. A recent study by the USDA reports that the (loss-adjusted) per capita consumption of vegetables increased by 17% between 1970 and 2010. Relative to 2012, the exported quantity of fresh vegetables was up in 2013 by 3%, and imports were also up by about 5%. Overall, the United States has been importing about 25% of fresh vegetables consumed since 2010; prior to 2010, the import share was closer to 15%. Much of the change in U.S. import activity has been driven by protected-culture technologies employed in Mexico and Canada. Chinese products account for less than 2% of the imported vegetables that enter the United States. Key export markets for U.S. vegetables continue to be Canada, Mexico, Japan, Taiwan, the United Kingdom, and China.

TABLE 9-4. COMMERCIAL VEGETABLE PRODUCTION AND PRICES IN NEW YORK STATE

	Production			Price		
	2010	2011	2012	2010	2011	2012
Fresh	*------ Thousand cwt ------*			*------ Dollars per cwt ------*		
Sweet corn	2,736	1,862	2,266	26.00	28.80	30.20
Cabbage	4,343	4,708	4,536	18.70	20.00	25.30
Onions	3,087	1,891	3,131	19.70	20.80	16.90
Snap beans	469	323	345	83.60	96.10	97.00
Cucumbers	476	464	609	38.80	40.00	42.40
Tomatoes	392	432	546	72.70	84.80	86.40
Pumpkins	1,462	693	986	24.00	34.10	33.50
Squash	897	836	855	41.00	51.30	48.20
Cauliflower	67	49	66	51.00	49.00	65.00
Processing [a]	*------ Thousand tons ------*			*------ Dollars per cwt ------*		
Sweet corn	-	-	-	-	-	-
Snap beans	86.5	50.9	62.5	250.00	298.00	300.00
Green peas	-	-	-	-	-	-
Cabbage	-	-	-	-	-	-

Source: New York Agricultural Statistics, 2013.

[a] Much of the data describing production and prices for processing vegetables in New York State are not published to avoid disclosing specific information about individual operations.

New York State continues to be a significant producer of onions, cabbage, snap beans (fresh and processed), fresh tomatoes, pumpkins, squash, and sweet corn; for each of these commodities, New York State has often produced crops that have a value of $30 million or more. Total crop values for some of these commodities fell below typical levels in 2012, notably onions. Historically New York State has produced an onion crop and a snap bean crop that had a value exceeding $50 million, but these have both fallen short of this mark in 2011 and 2012. In the tables shown here and in the discussion that follows, we focus on recent economic conditions, and provide some outlook, for nine fresh vegetable products and four processed vegetable products that are important markets in New York. Table 9-4 shows production patterns for key

vegetables in New York State between 2010 and 2012. Data describing trends in fresh vegetable markets are shown at the top of Table 9-4 and trends for processing vegetables are shown on the bottom portion of Table 9-4. Much of the most recent information for processing vegetables is not available from New York State Department of Agriculture and Markets due to the small number of producers involved, budget constraints facing the National Agricultural Statistics Service, and the proprietary nature of the data.

Production of nearly all of the major fresh vegetable products in New York State was up in 2012 relative to 2011. Onions, in particular, are the one crop listed in Table 9-4 that showed a substantial increase in production in 2012 compared to 2011, and New York State is a top five producing state for onions. Typically we think that higher production levels lead to lower prices, but prices for nearly all of the fresh and processed vegetables listed in Table 9-4 were level, or up slightly, in 2012. Changes in the total values for the specified vegetable products are shown in Table 9-5. Because of the increased production in 2012, the total value of the listed crops is up in 2012 overall. Table 9-5 also highlights the national importance of many (fresh and processed) vegetables. For seven of the nine fresh vegetable crops listed in Table 9-5, New York State contributes at least 5% of the national crop. In the cases of cabbage and pumpkins, New York State contributes over 25% of the crop nationally.

TABLE 9-5. VALUE OF COMMERCIAL VEGETABLE PRODUCTION IN NEW YORK STATE AND THE UNITED STATES

	New York State			United States		
	2010	2011	2012	2010	2011	2012 [a]
Fresh			------ *Million dollars* ------			
Sweet corn	71.1	53.6	68.4	750.5	747.0	-
Cabbage	74.5	86.6	105.9	378.4	368.3	-
Onions	53.7	33.1	46.0	1,109.3	762.1	-
Snap beans	39.2	31.0	33.5	303.7	303.5	-
Cucumbers	18.5	18.6	25.8	193.4	188.5	-
Tomatoes	28.5	36.6	47.2	1,390.8	1,291.9	-
Pumpkins	35.1	23.6	33.0	116.5	113.2	-
Squash	36.8	42.9	41.2	203.6	283.2	-
Cauliflower	3.4	2.4	4.3	243.9	323.3	-
Processing						
Sweet corn	-	-	-	241.3	302.7	-
Snap beans	21.5	15.2	18.8	142.7	160.9	-
Green peas	-	-	-	104.6	117.7	-
Cabbage	-	-	-	-	-	-

Sources: New York Agricultural Statistics, 2013; USDA Agricultural Statistics, 2012.

[a] Data for 2012 were not available from *USDA Agricultural Statistics* at the time this report was written (as of December 1, 2013).

Recent USDA information indicates that national shipment levels of fresh vegetables were approximately 14% lower in early-2013 compared to early-2012. The 14% change comprises a large range across individual commodities, however. National shipments of broccoli, cauliflower, mixed greens, head lettuce, herbs, and cherry tomatoes increased by 15% or more; at the same time national shipments of asparagus, snap beans, Chinese cabbage, carrots, cucumbers, leaf lettuce, onions, squash, and Roma tomatoes decreased, and in some cases decreased sharply (up to a 45% decrease). Furthermore, these numbers may overstate actual market conditions given that local markets have become much more important and these are not covered in the USDA national shipment information.

9.4 Vegetable Outlook: Marketing and Policy Issues

A special article published as part of a recent *USDA Situation and Outlook Report for Vegetable and Pulses* provides a long term assessment for selected crops. The special article forecasts a slow expansion in the value of vegetables produced in the United States, growing from a total value of approximately $20 billion in 2012 to $21 billion in 2018 and to over $22 billion in 2022. Much of the expansion is expected to come from the production of fresh vegetables rather than processed vegetable or potato production; overall, total acreage dedicated to fresh vegetable production is expected to increase by approximately 140,000 acres by 2022. The share of total farm-level horticultural receipts that come from vegetable production is expected to remain around 32% between 2014 and 2022; the share that come from fruit and nut production is 44% and the share from greenhouse production is 24%. In terms of trade, the current trade deficit for vegetables is expected to grow over the next decade from a current value of about $4.5 billion to $7.6 billion in 2022.

Many of the outlook issues identified for fruit crops in section 9.2 also have implications for vegetable products. Food safety concerns, traceability issues, country-of-origin labeling requirements, international trade (especially with China), immigration reform, the new Food Safety Modernization Act, and policy changes in the next Farm Bill may affect vegetable markets, and in some cases the effects in vegetable markets may be different from the effects in fruit markets.

In addition to the issues mentioned above and discussed in section 9.2, there are additional outlook issues that may be particularly important to vegetable markets in New York State during 2014. The first issue is the impact of the next Farm Bill and the attention that vegetables get in the next Farm Bill. Although vegetables have not been a large component of previous Farm Bills, the 2008 Farm Bill (the Food, Conservation, and Energy Act of 2008)**,** introduced or extended various provisions that apply to vegetable products and vegetable markets. Title IV includes specific provisions for fruits and vegetables in nutrition programs; Title V continues to fund the Market Access Program to support promotion efforts for many specialty crops in foreign market; and Title VII provides some support for research and development activities for the horticultural sector including the Specialty Crop Research Initiative. As the discussions and negotiations continue on the next Farm Bill, we expect that there will be efforts to critically examine various provisions that relate to specialty crop markets.

As was discussed previously, one provision that will be assessed critically in Title I is the planting restriction for fruits and vegetables on base acres. Senate Bills and House Bills have proposed to repeal direct payments as part of Title I, and this would also eliminate the planting restriction on fruits and vegetables. This is an important policy consideration in New York State as we have seen a rapid decline in production of processing vegetables over the past five years. The planting restriction continues to receive widespread support from fruit and vegetable producers that are concerned that unrestricted direct payments would subsidize new production of these specialty crops and lead to decreased prices for fruits and vegetables. However, research from Cornell University and Purdue University suggests that removing the direct payments and planting restriction has the capacity to notably increase fruit and vegetable production in the United States (and thereby decrease fruit and vegetable prices)—and the effects are expected to be larger in the Sun Belt states compared to states in the Great Lake region.

Other new research at Cornell University is examining the economic impact of two proposed free trade agreements on specialty crop agriculture in the United States, and for growers in New York State. The first is the Trans-Pacific Partnership (TPP), a free trade agreement with several Pacific Rim countries, and the second is the Transatlantic Trade and Investment Partnership (TTIP) with the European Union. The TTIP aims to liberalize trade with all of the member states of the EU and there is special attention being given to reducing the trade barriers associated with sanitary and phytosanitary barriers in specialty crop agriculture.

Within the vegetable industry there has been much discussion about the economic effects of the new Food Safety Modernization Act (FSMA), and so-called "Produce Rule" that is part of the FSMA. President Obama signed the FSMA into law in early 2011 and then the U.S. Food and Drug Administration published the proposed rule regulating produce in early 2013. The "Produce Rule" will further push the system of voluntary practices to mandatory practices related to minimum standards for the safe production and handling of fruits and vegetables that are typically consumed raw. There are many specific provisions that define which crops are classified as raw agricultural commodities (RAC), and additional regulations for those crops not defined as RAC. Some exceptions to the FSMA are allowed and are based on farm size and the market channel where the farm sells their produce; both of these exemptions have met resistance from industry stakeholders and from some public interest groups. The "Produce Rule" is primarily concerned with preventing microbial contamination of produce, and pays special attention to employee hygiene activities, water use on the farm, animal exposure to crops, sanitation in processing equipment, and rules concerning soil amendments. Currently, the plan is to implement the "Produce Rule" in 2014 and growers will then be given a two to four year window (and in some cases a six year window) to comply with the new rule.

Chapter10. Grapes, Wine and Ornamental Crops

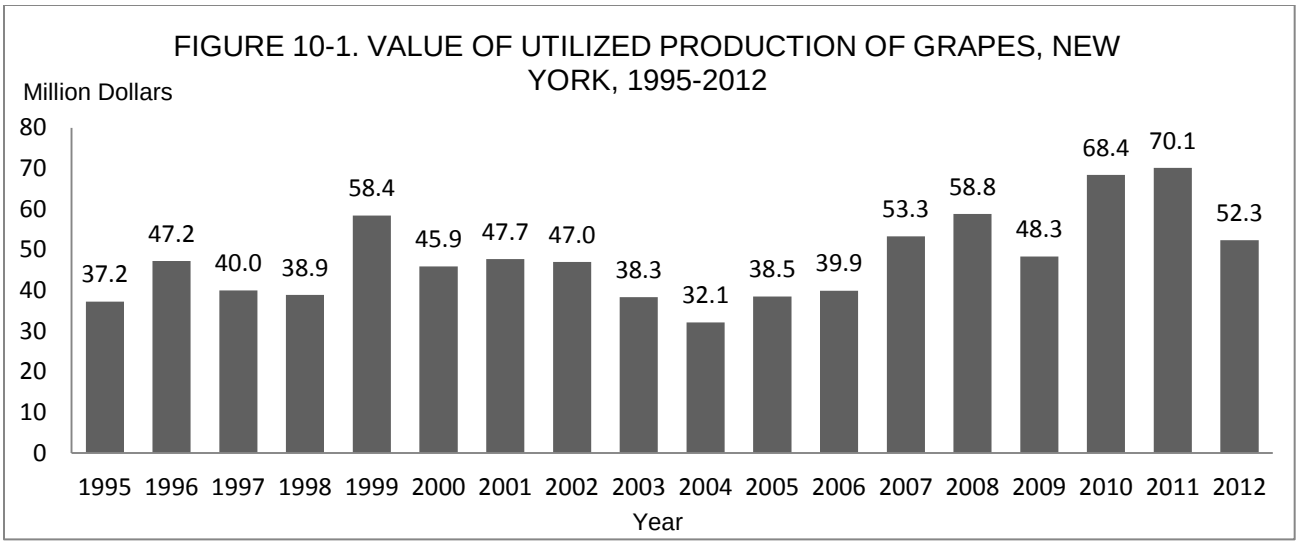
Miguel I. Gómez, Assistant Professor and Jie Li, Research Assistant

Specialty crops are an important component of New York State's agricultural economy. The agricultural products returned over $5.70 billion in 2012, which increased 8.4% from the total farm value in 2011. About 23% of the state's land area or 7 million acres were used by the 36,000 farms to produce a very diverse array of food products. Tree fruit, berry and grape crops accounted for nearly 5.7% of the total value of agricultural production in New York State with a total value of $323 million, down 8% from the 2011 value. And another 3% was generated from production of ornamental crops with a value of $171 million. Horticultural commodities are an important component of agriculture in New York State and we continue to see a significant quantity of fruits and vegetables produced in the State, and marketed to consumers through various channels. The crop value of grapes was estimated at $52.3 million in 2012 with a substantial 25% decrease from 2011.Floriculture products were valued at $169 million dollars which placed New York the ninth place in size in the nation. Bedding and garden plants are still the primary commodities.

Below we consider the market for three categories of specialty crops and take a closer look at market conditions in each. We examine current patterns, and provide an outlook, for grapes, wine, and ornamental products in New York. In each case we review production and price data between 2007 and 2012, give an economic outlook on expected market conditions in 2013 and 2014, and also provide some thoughts on the long term potential for grapes, wine, and ornamental products produced in New York State and the United States.

10.1 Grapes

Wine and juice grapes production placed New York third behind California and Washington. According to the National Agricultural Statistical Service, in 2012, grape production in New York experienced a tough year and decreased 39% from 2011 to 112,000 tons, among which 109,000 tons of Grapes were crushed by wineries and processors, while only 3,000 tons went to fresh market. Utilized production was the lowest since 1977, due to extremely warm weather in March followed by a devastating freeze in April 2012. After experiencing a decline from 2008 to 2009, and a significant increase from 2009 to 2011, the crop value in 2012 shrank substantially compared with the 2011 crop value (Figure 10-1). Among the total value of production, 62% of the production was for juice, 36% went into wines and 2 % for fresh market (Table 10-1). Crop values for 2013 are not available yet, but are forecasted to increase after a substantial decrease in 2012. 2013 could end up being a good year for grape production. In 2013, Long Island growers have experienced an unprecedented stretch of sunny dry weather, and they have found fewer problems like birds and bees than usual. In New York State, almost 65% of grapes are grown in the Lake Erie region where good weather has eased concerns about abundant rains early in the season. In the meantime, the Finger Lakes region also experience warm, sunny days and cool nights which provide favorable conditions for ripening. However, in the Hudson Valley, the weather conditions were not as favorable as in other NYS regions due to excessive rainfall.



Source: New York Agricultural Statistics, 2013.

In 2012, total grape crop production in the U.S. was 7.34 million tons, which represented a slight decrease from the 2011 crop. However, the value of utilized production for grapes increased by 14% as a result of the increasing grape price. Processed grapes for juice and wine production decreased to 6.34 million tons from 6.46 million tons. The production of fresh market grapes, for their part, was stable in 2012 relative to the previous year. However, price increases of both processed grapes and table grapes contributed to the increase in total value of utilized grape production in 2012. California accounted for 91 percent of the 2012 production, with a slight decrease in national market share, while Michigan, New York and Pennsylvania suffered the most notable decreases in market share in 2012.

TABLE 10-1. NEW YORK GRAPE UTILIZATION, 2010-2012

Use	2010	2011	2012
		tons	
Fresh	4,000	5,000	3,000
Juice[a]	124,000	130,000	69,000
Wine	48,000	53,000	40,000
Total	176,000	188,000	112,000

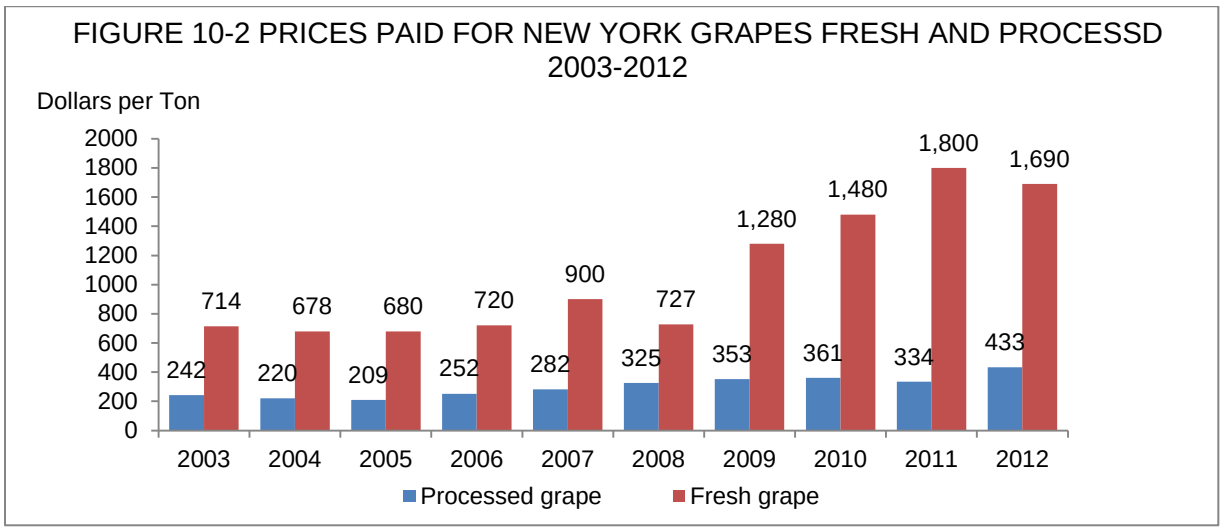
[a] Includes other processing for jam, jelly, etc.

Source: Fruit Report, New York Field Office, NASS, USDA, 2013

2013 is a promising year for grape growers. U.S. grape production in 2013 will increase in most states after experiencing a shortage of production in 2012. California will continue to lead U.S grape production in 2013. The quality of grapes is much better than in the last year, ensuring an outstanding 2013 vintage. Washington, the second largest grape production state, will reach the record high in production in 2013. The total crush of grapes in Washington could be as much as 220,000 tons in 2013.

Grapes and Prices in New York

Due to funding constraints, the USDA did not collect prices for each variety as has been the case in previous years. Relative to 2011, grower prices of processing grapes increased to $433 per ton from $ 334 per ton (a 30% increase). Prices for fresh grapes are typically higher than those for grapes used for processing, reflecting higher production costs. Much of the high production costs are attributable to a significant dependence on manual labor (Figure 10-2). However, in 2012, the price for table grapes dropped to $1,690 per ton from $1,800 per ton. Typically, prices for table grapes are lowest in August, when the U.S. domestic grape supply is at its peak, and prices begin to rise in November as supplies decrease. Overall, The significantly decrease in grape production in 2012 due to bad weather in New York combined with steady demand in both domestic as well as export markets kept the grower price much higher than in 2012 for processed grapes.



Source: Fruit Report, New York Field Office, NASS, USDA, 2013.

After experiencing a 22% increase from 2010 to 2011, prices for fresh grapes dropped slightly in 2012. Prices for all processing grapes remain lower than fresh grape prices. However, prices for juice grapes have steadily climbed in the last few years while the price for wine grapes have experienced frequent rises and declines. In 2012, juice grapes were valued at $318 per ton, up $43 per ton from the previous year; and wine grapes at $631 per ton, up $132 per ton from the previous year (NASS 2012). Overall, the prices for processing grapes went up significantly in 2012, while the prices for fresh grapes dropped slightly.

Concord is still the predominant variety grown and processed in New York (Table 10-2). After experiencing a significant increase from 2009 to 2010, and a steady increase from 2010 to 2011, Concord grapes suffered a substantial decrease in 2012. There were 64,600 tons of Concord New York-grown grapes processed in 2012 which represents almost 50% decrease relative to 2011 and is far below the 5-year production average. Over the past five years, in average, Concords comprised 68.2 % of total tonnage utilized in the state. Due to funding constraints, starting in 2011, the USDA collected production data only for Concord, Niagara and the total amount of grapes processed for wine and juice. The second leading variety is still Niagara. Production of Niagara grapes decreased significantly from 20,300 tons to 11,400 tons since 2011, with an annual average of 16,140 tons utilized over the past five years, accounting for 10.6 % of the NY

crush. Therefore, the total grapes processed in 2012 went down to 109,000 tons from 183,000 tons, 28% below the five-year average.

TABLE 10-2. GRAPES: NEW YORK GROWN
RECEIVED BY WINERIES AND PROCESSING PLANTS, 2007-2012[a]

Variety	2008	2009	2010	2011	2012	5-year Avg.
Catawba	3,670	5,150	7,110	NA[c]	NA[c]	5,310
Concord	127,000	84,900	117,300	124,700	64,600	103,700
Delaware	470	340	350	NA[c]	NA[c]	387
Niagara	15,000	12,400	21,600	20,300	11,400	16,140
Aurora	3,320	3,530	2,990	NA[c]	NA[c]	3,280
Baco Noir	520	820	610	NA[c]	NA[c]	650
Cayuga White	1,460	1,650	1,540	NA[c]	NA[c]	1,550
De Chaunac	180	420	240	NA[c]	NA[c]	280
Rougeon	380	370	260	NA[c]	NA[c]	337
Seyval Blanc	760	1,280	680	NA[c]	NA[c]	907
Vitis Vin.(all)	7,170	7,880	9790	NA[c]	NA[c]	8,280
Other varieties[b]	8070	9260	4310	38,000	33000	18,528
Total, all varieties	168,000	128,000	172,000	183,000	109,000	152,000

a Includes New York grown grapes received at out-of-state plants.

b Includes other American and French Hybrid varieties not shown.

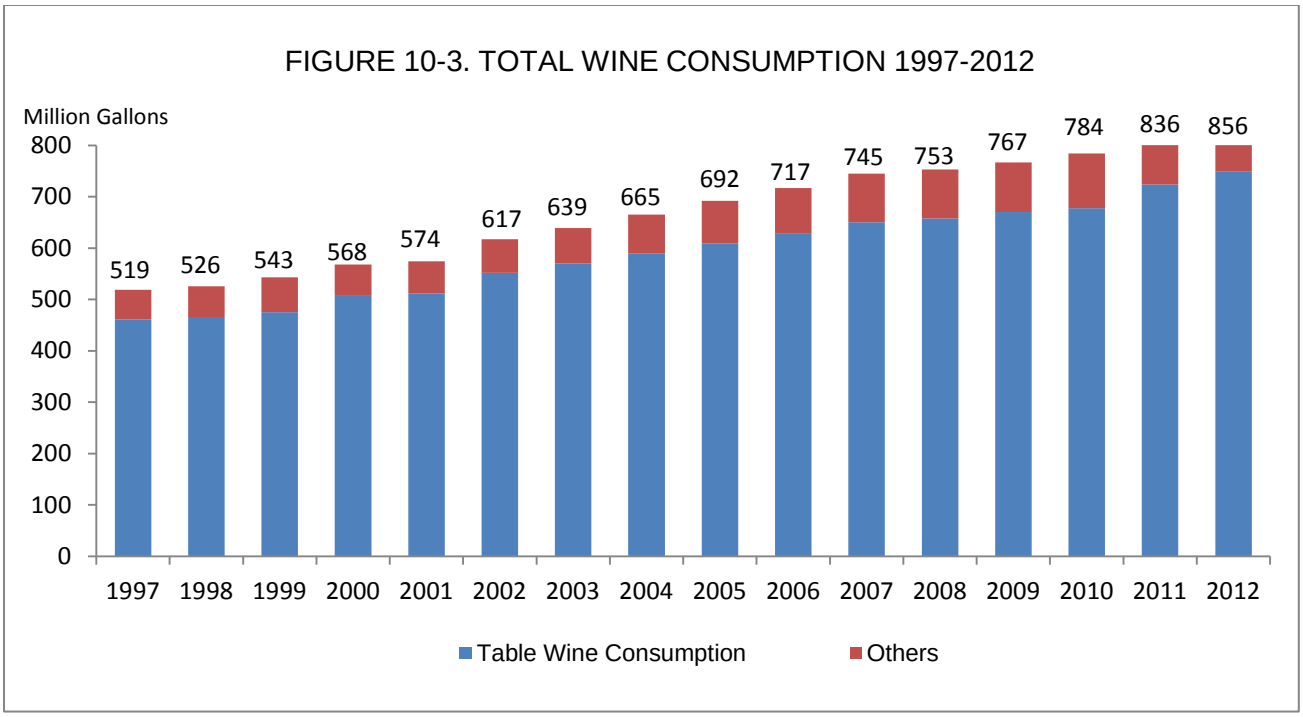
c Data not collected due to lack of funding

Source: New York Agricultural Statistics, 2013

10.2 Wine

According to the fruit report from NASS New York Field Office, in 2012, wineries and processing plants located in New York State crushed a total of 109,000 tons of grapes grown in New York or other states, down 42 % from the 185,000 tons processed from the 2011 crop. Grape crushed for wine in New York decreased 26% from last year to 40,000 tons and accounted for 37% of all grapes processed (the rest 63% went to grape juice and other products). Tonnage utilized for juice and other products decreased almost by 47% from 2011 to 69,000 tons.

In 2012, the U.S. was again the world's largest wine market. The U.S. wine industry continues its expansion (Figure 10-3). Shipments into U.S. trade channels of wine from California, other states and foreign suppliers reached 856 million gallons (nearly 360 million 9-liter cases), a record high for the industry in 2012 and a 3.8 % increase compared to the previous year, with an estimated retail value of $34.6 billion. Compared with 2011, total wine sales in food stores and other off-premise measured channels grew 2% by volume and 6% by value. Wine-selling locations continued to expand in 2012 with a 15% growth in off-premise retail outlets and 12% growth in restaurants and other on premise outlets. According to Fredrickson and Associates, California's 207.7 million cases held a 58% share of the U.S. market with slightly decrease from 60% market share in 2011. The total estimated retail value in California reached up $22 billion. This was the 19th consecutive year of volume growth in the U.S. Table wine sales again led wine sales in 2012 with a total of $314.9 million 9-liter cases (Table 10-3). According to the Wine Institute, shipments of sparkling wine and champagne continued growing over the past 26 years, reaching 17.7 million cases, up 2% over the previous year. Strong sales came from a variety of different producers and regions worldwide. Sparkling wine grew 3%



Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2013

TABLE 10-3. WINE SALES IN THE U.S.
2008-2012 IN MILLIONS OF 9-LITER CASES

(Wine shipments from California, other states and foreign producers entering U.S distribution)

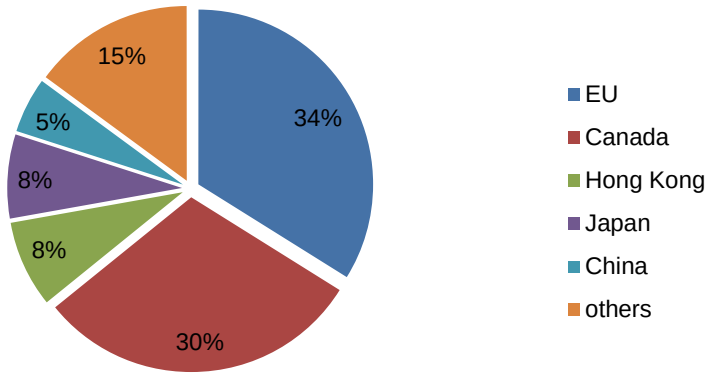
Year	Table Wine	Dessert Wine	Sparkling Wine/ Champagne	Total Wine	Total Retail Value
2012	314.9	27.5	17.7	360.1	$34.6 billion
2011	304.4	29.8	17.4	351.5	$32.9 billion
2010	285.2	27.9	15.4	329.7	$30.0 billion
2009	281.5	26.8	14	322.8	$28.7 billion
2008	274.7	27.2	13.4	315.8	$30.0 billion

Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2013

driven by Moscato-based sparklers. However, the overall volume in 2012 slightly slowed down after a major surge in 2011.

U.S. wine exports, 90% from California, reached a new record of $1.43 billion in winery revenues in 2012, a slight increase of 2.6% from 2011. Volume shipments were down 6.8% to 424.6 million liters or 47.2 million nine-liter cases. About 34% of U.S. wine exports by value were shipped to the 27-member countries of the European Union, accounting for $485 million of the revenues, up 1.7% from 2011. Other important markets for U.S. wines include: Canada, $434 million, up 14% from 2011; Hong Kong, $115 million, down 30% from 2011; Japan, $111 million, up 6% from 2011; and China, $74 million, up 18% from 2011 (Figure 10-4).

FIGURE 10-4. EXPORT OF U.S. WINE TO OTHER COUNTRIES
2012



Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2013

10.3 Outlook for Grapes and Wine

New York grapes are employed mostly in either wine or juice production, while a very small percentage is allocated to table grapes. In 2012, there were 3,000 tons of fresh grapes, while 109,000 tons of grapes were crushed by wineries and processors in New York State. According to USDA's Economic Research Service, the quantity of grapes to be crushed for wine will be a bountiful harvest with higher quality of grapes, mostly driven by ideal weather conditions in 2013. The U.S. grape production is forecasted to have large harvest in 2013 due to favorable weather conditions this growing season, as reported by major producers, particularly in California, Washington and New York, where production is forecasted to increase substantially in 2013.

A significant grape production increase is expected in many States. USDA forecasts that the total production of grapes will be 7.34 million tons in 2013. Growers experienced an excellent harvest in California, which supplies 90% of all U.S. grapes; and a significant boost in grape production in Washington, the second-largest producer state. At the same time, a warm, dry spring and warm temperatures led to notably healthy vines nationwide as fruit go through veraison and start ripening. This will assure an excellent fruit quality. This may drive up prices growers will receive for grapes sold to wineries through 2013/2014. Wine prices on U.S. store shelves could start rising this year because of an "emerging shortage" of wine grapes and wine plus a more intense wine marketing in 2012. Fresh grape imports are expected to increase. In contrast, wine exports are expected to decrease in the early 2013 because of harvest delays in California, which slowed early-season domestic supplies.

Considering the grape juice market, after a significant increase in juice grape production from 2009 to 2010, the total quantity of grapes available for juice processing from this year's harvested crop went down significantly. This will likely drive up prices growers will receive from juice processors in 2013/14.

USDA forecasts that U.S. raisin production is likely to increase from the previous season, driven by the expected increased production of raisin-type grapes in California. The California raisin-type grape forecast is 2.4 million tons, up 25.5% from the 2012 production. The 2013 California raisin-type grape harvest will likely be the largest crop since 2008, primarily due to favorable weather.

Due to the strong demand for wine in the U.S. and the small harvest in 2012, wine grape prices are likely to increase in 2013/2014. Prices received by growers in 2012 was $1,540 per ton, increased 9% from last year. The price for raisin-type grape was $3,770 per ton in September 2013, 3% higher than the price in 2012, and continued increasing to $3,850 per ton in October 2013. In the meantime, America consumes 12% of the world's wine but only produces 8%, and the consumption of wine is expected to grow in the next few years. Though the U.S wine making industry is growing, with the number of wineries expanding dramatically in the last 15 years, most of them are "boutique" operators rather than major producers. As a result, these new wineries are not driving significant growth in supply. According to the Wine Institute, in 2012, total U.S consumption was 856 million gallons, a record high, while the production was 752.4 million gallons. Therefore, with the consumption of wine expected to grow, import of wine will continue to grow over the next few years. The majority of imports will continue to come from Italy, France, Chile, Argentina and Spain.

Table 10-5 shows longer-term forecasts for the period 2014- 2016 from the National Food and Agricultural Policy Project (NFAPP), prepared in 2012. According to NFAPP, total grape output will grow steadily nationwide. The additional output is likely to be for wine and table grapes, as indicated by moderate increases in per capita consumption of these two items. The juice grape projections present a pretty stable outlook, while the per capita consumption of raisins shows a slightly downward trend.

TABLE 10-4. ECONOMIC OUTLOOK FOR GRAPES, 2014-2016

	U.S. (unless noted otherwise)		
	2014	2015	2016
Total			
Acres (1,000)			
Yield (tons per acre)	974	974	983
Total U.S. Production (1,000 tons)	8	8	8
Total Production Outside California (1,000 tons)	7,726	7,766	7879
Table Grapes	905	938	972
Production (million pounds)			
Farm Price (dollars per ton)	2,069	2,093	2125
Retail Price (dollars per pound)	805	838	861
Exports (million pounds)	2.54	2.64	2.72
Imports (million pounds)	938	957	975
Per capita consumption (pounds)	1,557	1,614	1,672
Wine	8.31	8.42	8.55
Production (million gallons)			
Farm Price (dollars per ton)	651	662	675
Retail Price (dollars per gallon)	711	746	777
Exports (million gallons)	33.46	34.66	35.72
Imports (million gallons)	129	131	134
Per capita consumption (gallons)	285	299	313
Raisins	2.5	2.54	2.59
Production (million pounds)			
Farm Price (dollars per ton)	681	685	689
Retail Price (dollars per pound)	223	226	228
Exports (million pounds)	NA	NA	NA
Imports (million pounds)	368	376	384
Per capita consumption (pounds)	51	54	56
Grape Juice	1.6	1.58	1.57
Production (million gallons)			
Farm Price (dollars per ton)	96	97	98
Retail Price (dollars per gallon)	340	345	349
Exports (million gallons)	4.82	4.96	5.06
Imports (million gallons)	29	29	30
Per capita consumption (gallons)	85	88	91
	0.47	0.48	0.49

Sources: National Food and Agricultural Policy Project, 2010.

10.4 Ornamentals

Nationally, the 2012 wholesale value of floriculture crops grew 1% from the 2011 valuation. The total crop value at wholesale for the 15-State program for all growers with $10,000 or more in sales was estimated at $4.13 billion for 2012, compared with $4.08 billion for 2011. The number of producers in 2012 was 5,419, which represents a reduction of 6% from the previous year. The total covered area allocated to floriculture crop production was 702 million square feet, which is down 1% from 2011.

TABLE 10-5. GROWER CASH RECEIPTS OF FLORICULTURE AND NURSERY CROPS, NEW YORK, 2005-2012

	2006	2007	2008	2009	2010	2011	2012
	--- *Million dollars* ---						
Floriculture[a.b]	203.5	209.1	204.3	182.6	166.6	171.166	169.2
Nursery[c]	205.5	NA	NA	NA	NA	NA	NA
Floriculture and nursery crops	409	NA	NA	NA	NA	NA	NA

a Includes growers with $10,000 or more in floriculture sales.
b Includes ornamental plants without woody stems, grouped into bedding/garden plants, cut cultivated greens, cut flowers, potted flowering plants, indoor foliage plants, and propagative floriculture material.
c Includes ornamental plants and trees with woody stems, including broadleaf evergreens, coniferous evergreens, deciduous shade trees, deciduous flowering trees, deciduous shrubs and other ornamentals, fruit and nut plants for home use, cut and to-be-cut Christmas trees, and propagation material or lining-out stock. Also includes other ornamental crops not classified as floriculture.

NA Not available

Source: Floriculture and Nursery Press Release, National Agricultural Statistical Service. 2013

TABLE 10-6. VALUE OF FLORICULTURE PRODUCTION BY PLANT CATEGORY, NEW YORK, 2008-2012

	2008	2009	2010	2011	2012	5-yr. avg. 2008-2012	2012 vs. 5-yr. avg.	2012 vs. 2011
	------ *Million dollars* ------						**%**	**%**
Bedding/garden plants[a]	108.9	98.6	105	103	102	103.5	-0.5%	-1.0%
Potted flowering plants[a]	42	42.3	20.8	24.2	26.6	31.2	-22.4%	9.9%
Cut flowers[a]	NA[c]	2.3	1.9	NA[c]	NA[c]	2.1	NA[c]	NA[c]
Foliage Plants[a]	4.2	2.94	2.63	2.52	2.53	3.0	-15.0%	0.4%
Propagative materials[a]	19.8	16.8	17.6	22.1	21.1	19.5	13.4%	-4.5%
Grower sales $10,000-$99,999 (Unspecified crops)	26.4	17.7	18.9	19.6	17	19.9	-1.6%	-13.3%
Total[b]	204.3	183	167	171	169	181.2	-5.5%	-1.2%

a Sales by operations with annual sales of $100,000 or more.
b Total reported crops includes categories not listed
c Not published to avoid disclosing individual operations

Source: Floriculture and Nursery Crops, Situation and Outlook Yearbook, Economic Research Service, USDA, various years.

In 2012, the commercial sales value of New York floriculture production totaled $169.2 million, a slightly decrease from the 2011 sales value, ranking New York 9th in the nation (Table 10-6). Unfortunately, data on nurseries are not available since 2006, due to changes in data collection procedures at USDA's National Agricultural Statistical Service. This situation analysis considers only floriculture as a result. Table 10-6 indicates that bedding and garden plants continued to be the number one component with total value of sales at $102 million in 2012, a slight decrease from the 2011 sales value. Potted flowering plants were second with a value of sales $26.6 million in 2012, a modest increase from 2011. Propagative materials were third at $21.1 million, a 4.5% decrease from the previous year (Table 10-6). In 2012, there were 577 growers in New York. The number of growers has declined steadily since 2008. The total covered area for floriculture production in 2012 was 25.2 million square feet, down slightly from 2011; and the open ground area used to produce floriculture crops did not change with respect to 2011, staying at 607 acres (Table 10-7). According to the NYS Department of Agriculture and Markets, these data on open ground area are not comparable to years before 2009 due to the combined data collection efforts of the Census of Horticulture and the Annual Floriculture Survey. The data after 2009 included area used for production of nursery crops as well as floriculture crops.

TABLE 10-7. GROWING AREA FOR FLORICULTURE CROPS IN NEW YORK[a]
2008-2012

Year	Total greenhouse Cover	Shade and temporary cover	Total covered area	Open ground	Total covered & open ground
	-- 1,000 square feet --			*--- acres ---*	
2008	23,473	531	24,404	1,382	1,943
2009	23,042	405	23,447	2,589	3,127
2010	25,378	340	25,718	760	1,350
2011	25,023	286	25,309	670	1,250
2012	24,869	348	25,217	607	1,186

a Includes operations with $10,000+ in annual floriculture sales. Crops include cut flowers, cut cultivated greens, potted flowering plants, potted foliage plants, bedding and garden plants, and propagative materials. Total may not add due to rounding.
b Revised

Source: Floriculture Crops, NASS, USDA, various years

An important distinction in floricultural production is the size of operation. According to NASS reports, the U.S. value of floriculture production was $4.13 billion in 2012, slightly higher compared to $4.08 billion for 2011 (Table 10-8). The value of production from large growers increased by1.5%. In contrast, the value of production from small growers decreased by 8% with respect to 2011. In New York, the value of production from large growers increased slightly by 0.3%; and similar to U.S. trends, the value of production from small growers decreased by 1.4% relative to 2011. The share of value of production from small growers is larger in New York in comparison to the national market. Small growers' share of production in New York was 10.4% in 2012, which is higher compared to the 3% share of small growers nationwide. In New York, the value of production from small growers decreased to $17 million in 2012 from 2011; and the value from large growers increased slightly to $ 152.2 million relative to 2011 (Table 10-8).

When reading the published U.S. floriculture and nursery crop statistics, it should be noted that only 15 states were surveyed by the USDA in 2006 and thereafter, compared to 36 states prior to 2006. Consequently, the data in Table 10-9 collected from 15 states include only California, Florida, Hawaii,

Illinois, Maryland, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Texas and Washington. In 2012, the leading two states were still California and Florida, which account for 44% of the total wholesale value in the 15-States. Michigan ranked third, followed by Texas and North Carolina. These three states contribute 22% of the total whole sale value in 2012.

TABLE 10-8. WHOLESALE VALUES OF FLORICULTURE PRODUCTION, BY GROWER SIZE[a], NEW YORK AND UNITED STATES, 2010-2012[b]

	New York			U.S.		
	2010	2011	2012	2010	2011	2012
	------ *Million dollars* ------					
Small growers	19	19.6	17	150	144	132
Large growers	147.7	151.6	152.2	3,980	3,937	3,994
All growers	166.7	171.2	169.2	4,130	4,081	4,126

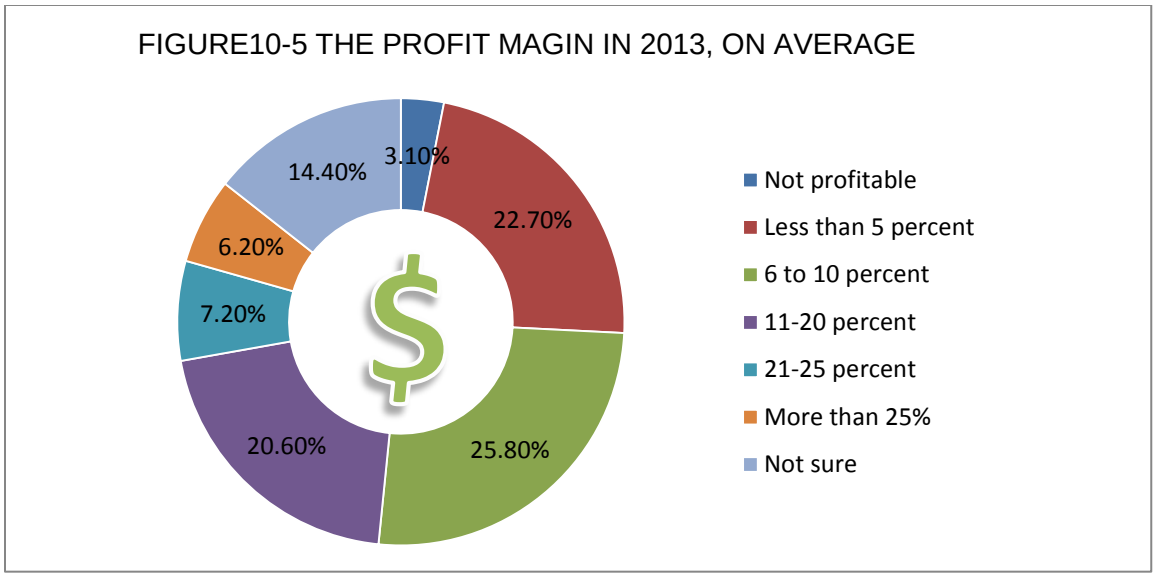
a Small growers have between $10,000 and $100,000 in annual floriculture sales; large growers have at least $100,000.

b Wholesale value of sales of growers with at least $10,000 in annual floriculture sales. Growers are located in the 36 surveyed states.

Source: Floriculture Crop, National Agricultural Statistic Service (NASS), USDA, 2013

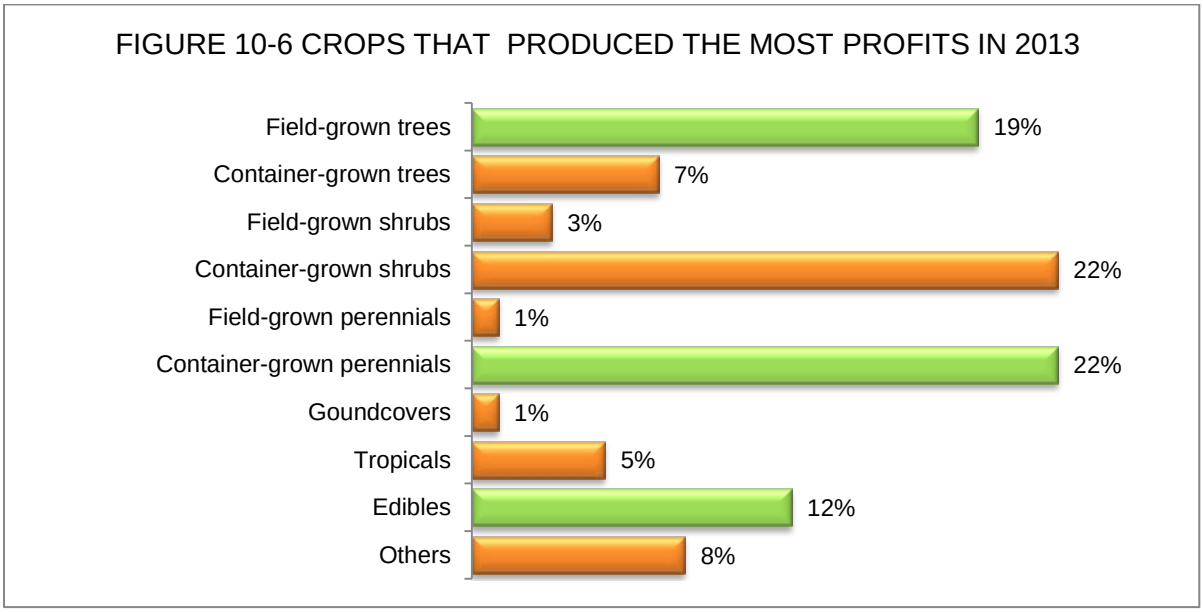
According to the Floriculture Crop 2013 summary report by NASS, USDA, the 2012 wholesale value of floriculture crops was $4.13 million in 2012, up 1.2% compared with 2011. The crop value at wholesale for growers with $10,000 or more in sales was estimated at $3.99 billion for 2012, up 1% from 2011. These 15 states only comprised 46% of all producers but the wholesale values accounts for 97% of total wholesale values in 2012. The wholesale value of all bedding and garden plants was $1.96 billion, up 3% from the previous year. Potted flowering plants for indoor or patio use, were valued at $594 billion in 2012. Potted herbaceous perennials were valued at $594 dollars, up 6% from 2011. The value of 2012 foliage plant production, at $624 million, was up 5% from the previous year, and Florida continues to dominate this category with 72% of the total value. The value of cut flowers, at $324 million, was 5% less than 2011; while cut cultivated greens, shrank to57.8 million from $72 million in 2012.

Regarding nursery crops, after experiencing some relief from 2011 to 2012, *Nursery Management State of the Industry* 2013 points out that the increases in sales and profit margins offset the declines experienced in 2012. The majority of growers indicated an increase in sales and in profitability in 2013 relative to 2012. The report reveals that more than 50% of growers indicated that their profits went up, 23% of growers reported a flat profit compared with the last year; and the remaining 24% of growers claimed declined profits. Regarding profit margins in 2013, almost half of the growers stated that they had a profit margin between 1-10%; 20% of growers enjoyed profit margins ranging from 10 to 20 %; and 6.2% of growers reported profit margins above 25%. Only 3% of respondents reported that they were not profitable in 2013 (Figure 10-5). The *Nursery Management* report also finds that over 68% of those surveyed predicted a growth in their profit levels in 2014; 24% of growers expect a flat profit; and only 8% of growers are forecasting a decrease in profit levels. Almost 90% of growers have an encouraging attitude toward the market for nursery products in 2014.



Source: Nusery Management, State of the Industry 2013

In 2013, growers reported that the most profitable crops were container-grown shrubs and container-grown perennials (22%), followed by field-grown trees (19%) and edibles (12%) (Figure 10-6). This is very close in line to what the respondents expected from last year that the edibles would take a 9% profit jump. Compared to 2012, the profit for field-grown trees and container-grown perennials increased by 5% and 1.6%, respectively. The other crops all experienced a decline in profit margin. The number of growers that increased their pre-booking plans in 2013 increased by 31% in all product categories, relative to 2012. About 22% of respondents indicated they did not change their pre-booking plans; while only 13% said pre-bookings dropped in 2013 in comparison to 2012.



Source: Nusery Management, State of the Industry 2013

Many growers in the north/central region of the U.S. already have or will plant more area in 2014 compared to 2013. Almost half of respondents said they plan to increase production of perennials by 46%. This is good news, in comparison to the negative trends experienced by the sector in recent years. Increased production varies by type of product: about 37% of those surveyed are increasing flowering shrubs; nearly 30% of growers are planning to increase production of edibles in 2014 given that edibles experienced a profit jump in 2013 ; and 27% of growers plan to increase production of evergreen shrubs. Overall, trees and shrubs are doing better and contribute significantly to profitability. Growers are quite confident that the tree business will grow. Therefore most of growers plan to grow more trees and shrubs in 2014.

Outlook

Economic indicators suggest that ornamental growers are recovering from the economic downturn and experiencing a period of steady sustained growth. Even though the economy is currently not normal by historical standard, it will be better than in recent years. Therefore the recovering economy could provide some support for ornamental industry to grow. However, the economy in 2014 will not be strong enough to save poorly managing operations. The local economy is important for ornamental growers; however, the driven force is still the national economy.

The production of the ornamental crops will increase in the coming 2014, driven primarily by improved economic conditions and by new residential construction being the brightest part of the economy. In 2013, housing started to rebound by one million units, and should be even better in 2014. For growers who sell to contractors and big-box stores, 2014 will be promising year. At the same time, there is increased interest from a large number of households in re-investing in their current landscapes. However, the growers need to be cautious in expanding their operations, given that they have been hit hard in the past four years. The implications for the floriculture industry and for the nursery/landscape industry are therefore cautiously optimistic. In particular, though the sales potential in the horticultural industry is moderately positive, changes in labor costs are uncertain. Wage rates have been growing by 2% each year. Growers need to take into these increases in labor cost when planning future expansions.

The next couple of years will not be more challenging than the past five years. However, to maintain growth, suppliers should focus on understanding customer needs and having the right assortment of products. They need to learn to serve customers in innovative ways: as consumers continue to change, they need to change with them. Producers and retailers should not try to wait to react to change. Instead they should focus on anticipating consumer demand for the products and services offered by the industry. By doing so, the ornamental supply chain, including growers and retailers, would eventually be more customer-centered, more relationship-oriented, and more transparent.

In summary, growers need to understand the “driving forces” of the market in order to survive in the future. They must stay informed about the new trends affecting their business. Understanding and providing superior service to consumers is another essential aspect that growers should focus on in the coming years. In addition, it is important for growers of all scales to reexamine their plans and strategic visions, and to speed up the decision-making process if a recession comes..

Looking ahead, growers will be focusing some areas that could yield the best possible gain in retaining or improving profit margins. Offering a better product mix, raising crop prices, developing better packaging and merchandising, and better defining and serving value perceptions by consumers will be the major actions that ornamental growers should take for success in the near future.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2013-16	Dairy Farm Business Summary, Northern New York Region, 2012	($12.00)	Knoblauch, W., Conneman, G., Dymond, C., Karszes, J., Howland, B., Buxton, S., Kiraly, M., and K. Shoen
2013-15	Dairy Farm Business Summary, Hudson and Central New York Region, 2012	($12.00)	Knoblauch, W., Conneman, G., Dymond, C., Karszes, J., Howland, B., Buxton, S., Kiraly, M., and K. Shoen
2013-14	Eastern Broccoli Crop Budgets		Atallah, S. and M. Gómez
2013-13	Dairy Farm Business Summary, New York Small Herd Farms, 120 Cows or Fewer, 2012	($16.00)	Knoblauch, W., Dymond, C., Karszes, J. and M. Kiraly
2013-12	Dairy Farm Business Summary, Western New York Region, 2012	($12.00)	Knoblauch, W., Dymond, C., Karszes, J., Hanchar, J., Grace, J., Carlberg, V. and J. Petzen
2013-11	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2012	($16.00)	Karszes, J., Knoblauch, W. and C. Dymond
2013-10	Milking Center Cost Study, New York State, 2010-2011		Howland, B., Karszes, J. and K. Skellie
2013-09	Marketing Module 8 - Promotion		Gómez, M. and S .Cuellar-Healey
2013-09i	Marketing Module 8 - Promotion Example		Cuellar-Healey, S. and M. Gómez
2013-09ii	Marketing Module 8 - Promotion Teaching Slides		Cuellar-Healey, S. and M. Gómez
2013-08i	Marketing Module 7 - Placement/Distribution Example		Cuellar-Healey, S. and M. Gómez
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