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New York Economic Handbook 2012

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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 to data for many other countries.

4. http://www.whitehouse.gov/ *White House Web Site*
   This is the White House site. On it you can find out everything the White House wants you to know about economic and other issues of the day.

5. http://www.cbpp.org/ *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.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.

7. 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.

8. 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.

9. 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.

10. http://www.economy.com/dismal/ *The Dismal Scientist*
    This is Moody's web site for evaluations of current statistics and policy. I may not believe their bond ratings after the debacle in 2008 but this page is still pretty good for analysis.

11. 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.

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

13. http://www.brook.edu/default.htm/ *The Brookings Institution*
The Brookings Institution publishes lots of good articles on current economic and political policy.

14. http://www.calculatedriskblog.com/ *Calculated Risk*
This is a website by a former real estate guy who also has general commentary on the overall macro situation. Often, you can get an advance reading on what Paul Krugman will say next about the real estate market by reading what Calculated Risk says.

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

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 Programme*
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. This is also where you can find past predictions I have made so you can give me a grade on my accuracy!

Chapter 2. The Marketing System

Kristen S. Park, Extension Associate

Special Topic – Prices

The economy is still in the headlines and likely to stay there to be pushed aside only as election stories pick up. Let's hope for better news.

For the majority of consumers, the recession is not over. Unemployment is still high and inflation has increased (Table 2-1). Uncertainties in the stock market and housing continue to impact savings and retirement accounts. Although GDP and expected retail sales are looking healthier this year, Moody's recently revised these 2 measures of economic activity downward, reducing expected GDP from 4.2% to 3.7% and reducing expected retail sales from 8.1% to 7.6%. Retailers also are expecting inflation to help their financials even though volumes may or may not increase substantially.

TABLE 2-1. ECONOMIC SNAPSHOT

Economic Measure	2008	2009	2010	2011(est)
GDP (% chg)	1.9%	-2.5%	4.2%	3.7%
Unemployment (%, SA)	5.8%	9.3%	9.6%	9.0%
Consumer Price Inflation (% chg)	3.8%	-0.3%	1.6%	3.0%
Consumer Price Inflation, Food at Home (% chg)	6.4%	0.5%	0.3%	6.3%[1]
Retail Sales (% Chg)	-1.2%	-7.0%	6.4%	7.6%
Supermarket and Grocery Store Sales (% Chg)	4.1%	-0.1%	1.9%	4.2%

[1] CPI Food at Home for change September 2011 from year ago.
Source: Moody's Economy October 2011 and Bureau of Labor Statistics

A Barclays Capital report of the 2011 holiday season also provides an insight into holiday spending compared to year ago. They predict the strongest growth in holiday spending (4^{th} quarter growth) since 2006. A closer look at their predictions shows an interesting dichotomy in where real growth during the holidays will come from. The Holiday Outlook for major department store subsectors, that drive much of holiday spending growth, reveals largest sales increases predicted for warehouse clubs and luxury retailers (Table 2-2). This dichotomy in spending behavior is driven by the divide in consumer segments. The wealthiest consumers are rebounding more quickly from the recession than middle- or lower- income consumers and spending on high-end, luxury items, while the middle- and lower- income consumers are searching for bargains at low-price retailers.

TABLE 2-2. ESTIMATED FOURTH QUARTER ESTIMATES FOR THE 2011 HOLIDAY OUTLOOK

Broadline Department Stores	4Q10A	4Q11E
Excluding Walmart	4.9%	4.3%
Department Stores	4.1%	2.3%
Discount Stores	-0.9%	1.7%
Warehouse Clubs	7.0%	6.0%
Luxury Retailers	9.2%	6.1%

Source: Barclays Capital, "Updated 2011 Holiday Outlook", November 21, 2011

Consumers

> *"If the recession has been over for more than two years, as the government keeps telling us, then why are shoppers so pessimistic? Nearly half of shoppers surveyed for SymphonyIRI's Third Quarter 2011 MarketPulse™ believe they are a little or a lot worse off financially today versus this time last year, and 30 percent believe they will be worse off still next year at this time. This is not exactly fortuitous news for the upcoming holiday season, nor for CPG companies and retailers generally."*
>
> *John A. McIndoe, SymphonyIRI Group*

Despite positive spending forecasts, consumers remain on edge. A recent report from the consulting and data capture company IRI reports on some changes shoppers have used to help reduce their food bill. Some of the changes in shoppers' lifestyles include[1]:

- "creating and serving less expensive meals at home"
- "bringing snacks/food from home to work/school to save money"
- "snacking less frequently" and
- "eating smaller portions"

They are also planning trips to stores more carefully and:

- "shop at multiple stores to find the lowest prices"
- "purchase only needed items rather than stocking up"
- "keep weekly budget in check"
- "purchase larger quantities and/or make larger shopping trips at the beginning of the month when more cash is available"

Shopping alternative brands has also become a strategy for consumers who report:

- "price has become a more important consideration than convenience in brand purchases"
- "I am using more coupons than I used to"
- "I am buying more private label or store brands than I used to"
- "I am trying new brands that are priced below my regular brands"
- "I am giving up some of my favorite brands to save money"

[1] SymphonyIRI Group. The Downturn Shopper: Buckled in for a Wild and Crazy Ride." Times and Trends special report. October/November 2011. http://supermarketnews.com/trends/ar/downturn-shopper-buckled-1108/.

Many of these changes may be lasting. For instance, if brands do not live up to their price premium, more consumers may remain loyal to private labels. Other changes may only be transitory and change when unemployment falls and household incomes recover. Coupon use is relatively high now, but could easily drop again if too inconvenient for shoppers to pursue. As well, shopping multiple stores to find the best bargain may become too time consuming.

But what would happen if we all made a lasting change to snack less frequently and eat smaller portions?

The U.S. Food Marketing System Update

While the news about the economy is generally underwhelming, with increases in retail sales correlated with rising inflation, the news about the food marketing system is slightly more positive. Between 2007 - 2011 the marketing system stretched to accommodate, at various times, inflation, deflation, recession, unemployment, and record commodity prices. The good news is that although the system has been strained, it has demonstrated that it can moderate economic stress. The good news is that the stresses continue.

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 food and beverage sales from retail outlets for 2010 are in Table 2-3 below. Growth in sales rebounded 3.6% from 2009 sales, with all sectors showing growth. Since food inflation, and therefore food prices, was low in 2010, most of the sales growth in 2010 was due to increases in volume movement.

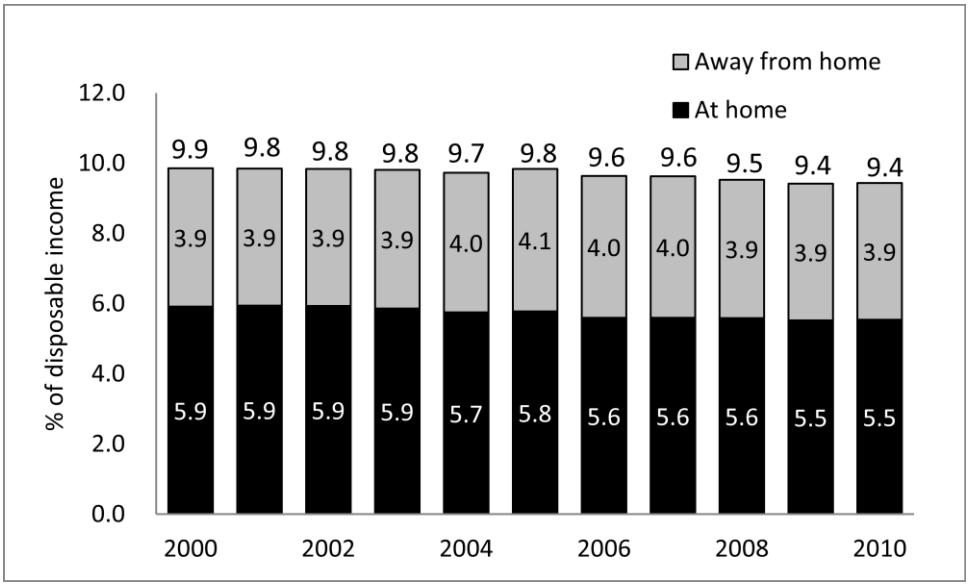
TABLE 2-3. FOOD SALES[1]

Sector	2010	2009	Growth
	--$ Million--		
Total food and beverage sales	$1,325,808	$1,279,186	3.6%
Total food sales (excluding alcohol)	1,169,933	1,131,479	3.4
Food at home sales	625,538	604,546	3.5
Food away from home sales	544,395	526,934	3.3
Alcoholic beverage sales	155,876	147,707	5.5

[1] Sales only. Does not include home production, donation, or school lunch program expenditures
Source: USDA-ERS, http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/table1.htm.

Despite the economy, food expenditures as a percent of disposable income remain low. Just 10 years ago, families and individuals spent 9.9% of their disposable income on food, while in 2010, food expenditures were only 9.4% of our disposable income (Figure 2-1).

FIGURE 2-1. FOOD EXPENDITURES AS A SHARE OF DISPOSABLE PERSONAL INCOME



Source: USDA-ERS, Food CPI, Prices and Expenditures.
http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/Expenditures_tables/table1.htm .

The Consumer Price Index

Unfortunately, although retail food prices were held low for much of 2009 and 2010, they are on the rise in 2011. Driving the retail price increases are continued increasing food costs. Commodity prices and, especially, perishable foods costs have been climbing sharply, and although retailers have delayed increasing retail prices, they are now increasing prices trying to regain normal profit levels. Food inflation in 2011 is much higher than 2009 or 2010. The USDA Economic Research Service predicted inflation for all food to average 3.5 – 4.5% for the whole year (Table 2 – 4). However, food inflation has been increasing through 2011 and the change in the September 2011 CPI for all foods from year ago levels was 4.7% (Table 2-4).

The CPI for food away from home is forecast to increase 3.0 – 4.0% for the year; however, year ago inflation in September was a lackluster 2.6% (Table 2-3). Although this is better than 2010 levels for restaurants, it is less than historic levels. The lack of consumer confidence in the economy along with continued high unemployment levels are making it difficult for eating establishments to increase prices. This despite the increases in food costs.

Food at home prices are expected to increase an average of 4.0 – 5.0%, substantially greater than 2009 and 2010 (Table 2-4). Again, prices continue to increase throughout 2011 and by September 2011, food at home prices were 6.3% above year ago (Table 2-4). By September, foods from livestock and poultry, such as meats, eggs, and dairy, should see approximate retail price increases from about 8.5% for meats to 11.1% for table eggs. The exception to this are poultry prices which are estimated to increase only 3.0% this year.

Retail operators may not be able to keep increasing prices with inflationary costs as many shoppers remain gloomy and lack confidence in spending. Some consumers expect the value of their investments to sink and are hesitant about the job market with continued fears of unemployment.

TABLE 2-4. CHANGES IN FOOD PRICE INDEXES, 2008 THROUGH SEPTEMBER 2011

	2008	2009	2010	2011 Forecast	Sep-11[1]
			% Change from Year Ago		
All food	5.5%	1.8%	0.8%	3.5-4.5%	4.7%
Food away from home	4.4	3.5	1.3	3.0-4.0	2.6
Food at home	6.4	0.5	0.3	4.0-5.0	6.3
Meats, poultry, and fish	4.2	0.5	1.9	5.5-6.5	7.3
Meats	3.5	-0.6	2.8	6.5-7.5	8.5
Beef and Veal	4.5	-1.0	2.9	8.0-9.0	10.1
Pork	2.3	-2.0	4.7	6.5-7.5	7.5
Poultry	5.0	1.7	-0.1	2.5-3.5	3.0
Fish and seafood	6.0	3.6	1.1	5.5-6.5	8.1
Eggs	14.0	-14.7	1.5	5.0-6.0	11.1
Dairy products	8.0	-6.4	1.1	5.0-6.0	10.2
Fats and oils	13.8	2.3	-0.3	6.5-7.5	11.3
Fruits and vegetables	6.2	-2.1	0.2	3.5-4.5	6.7
Fresh fruits & vegetables	5.2	-4.8	0.7	3.5-4.5	7.6
Fresh fruits	4.8	-6.1	-0.6	3.0-4.0	8.7
Fresh vegetables	5.6	-3.4	2.0	4.5-5.5	6.5
Processed fruits & vegetables	9.5	6.6	-1.3	1.5-2.5	4.0
Sugar and sweets	5.5	5.6	2.2	2.5-3.5	5.4
Cereals and bakery products	10.2	3.2	-0.8	4.0-5.0	5.6
Nonalcoholic beverages	4.3	1.9	-0.9	2.0-3.0	4.0

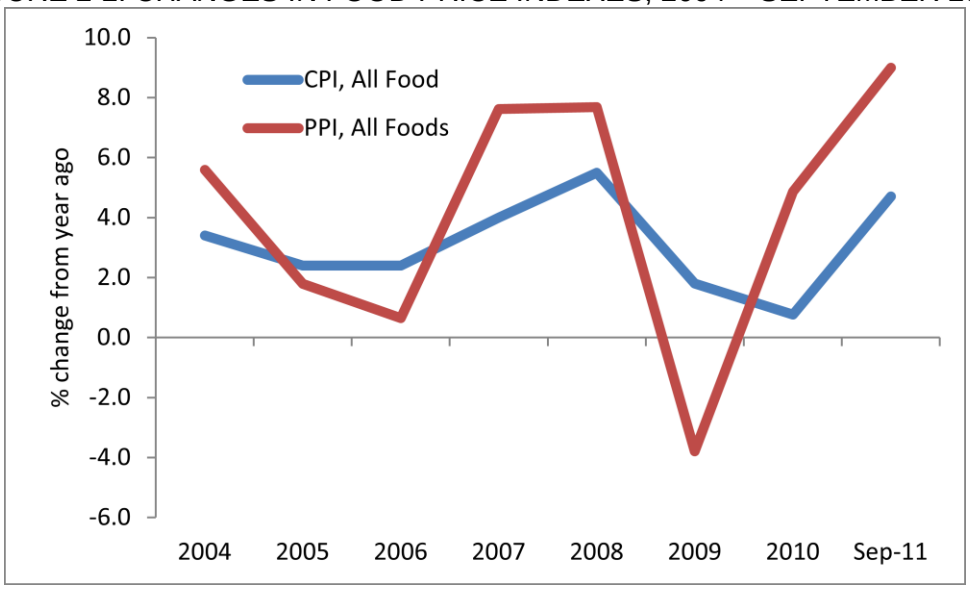
[1] Bureau of Labor Statistics, Inflation and Prices, http://www.bls.gov/data/#prices.

Source: USDA-ERS, Food CPI, Prices, and Expenditures, http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/cpiforecasts.htm

The Producer Price Index

Since 2007, the Producer Price Index (PPI) for wholesale foods has shown large fluctuations, some due to short harvests around the world, low inventories, and high oil prices followed by large plantings and good harvests. Figure 2-2 shows the yearly change in the PPI for all foods during this time. It also shows the Consumer Price Index (CPI) for all foods. As shown, the CPI moderated the extreme price changes at the wholesale level. This benefited consumers by holding prices steadier throughout. When the PPI soared in 2007 and 2008 (in 2007 6.6% above 2006, and in 2008 an additional 6.8% above 2007 levels) the CPI increased only 4.0% and 5.5% respectively.

FIGURE 2-2. CHANGES IN FOOD PRICE INDEXES, 2004 – SEPTEMBER 2011

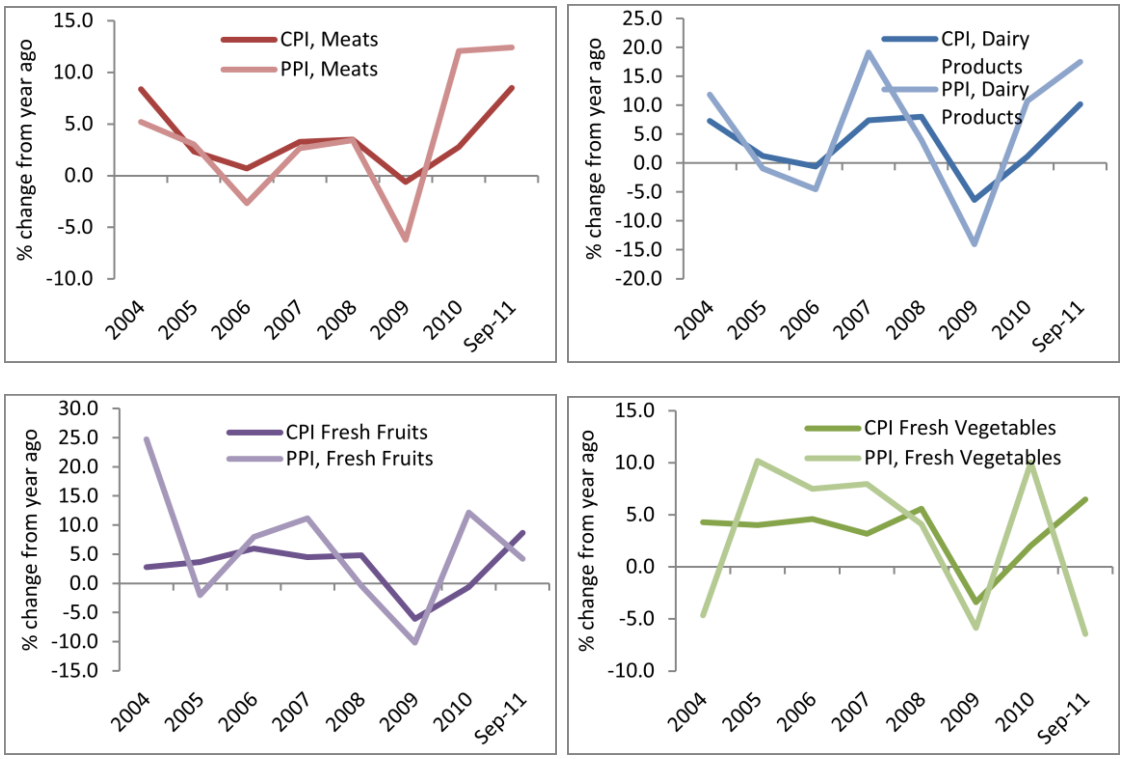


Source: Bureau of Labor Statistics, Inflation and Prices, http://www.bls.gov/data/#prices.

The same fluctuations in PPI and moderately fluctuating CPI can be shown for selected major perishable foods in Figure 2-3 below. The PPI for meats increased markedly in 2010 and in 2011, growing over 10% each year (12.1% and an estimated 12.4% respectively). Dairy PPI grew by bounds both years (10.8% and an estimated 17.5% respectively). Fresh fruits and vegetables showed large growth in PPI in 2010, 12.1% and 10.0% respectively. But in 2011, the PPI for fresh fruit is estimated to grow a more moderate 4.2% and for fresh vegetables is estimated to actually fall by -6.4%.

The CPI for these product categories grew in 2010 and are estimated to increase at an even greater rate in 2011 (Figure 2-3).

FIGURE 2-3. PERCENT CHANGES IN CONSUMER AND PRODUCER PRICE INDEXES, SELECTED COMMODITIES



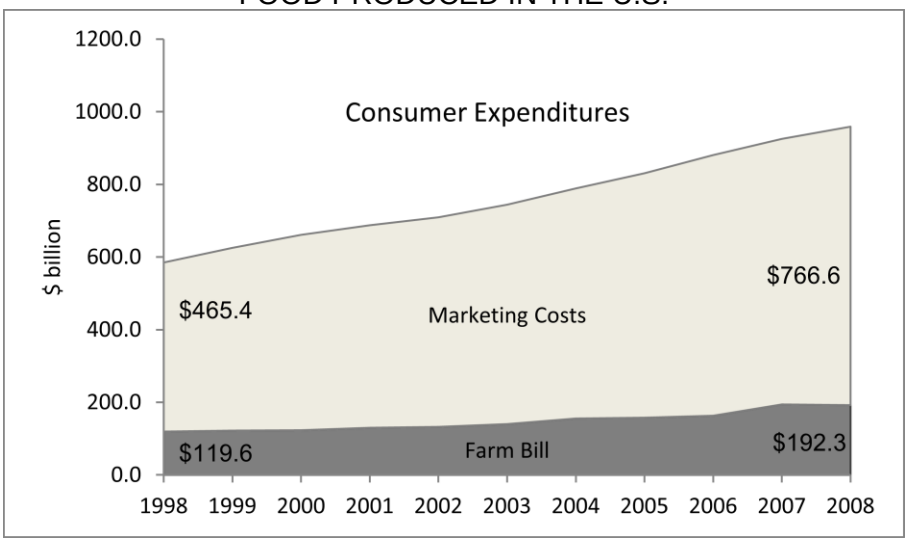
Source: Bureau of Labor Statistics, Inflation and Prices, http://www.bls.gov/data/#prices.

During the recession, the marketing margin between wholesale and retail prices were squeezed as retailers delayed raising retail prices during the height of the recession. However, retailers were also able to reduce their own food costs by investing even more in private labels. Private label goods cost retailers less than the branded counterparts. Plus, they were still able to apply their usual margin on private labeled goods and maintain retail prices less than the branded products. This benefited shoppers as well as retailers.

The Marketing System

The marketing system in the United States is responsible for all the costs incurred in getting food from the farmers' gate into the hands of the consumer. It covers transportation and storage, processing, handling, distribution, marketing, and retail. As the U.S. consumer has demanded food in more convenient forms, these costs have increased at a faster rate than farmers costs and profits. USDA calculates marketing costs for food produced and consumed in the United States. In 2008, the latest data, consumer expenditures for food produced in the U.S. totaled $958.9 billion (Figure 2-4). The farm value portion was $192.3 billion or 20% of expenditures. The remainder of food expenditures, $766.6 billion, are associated with marketing costs, including labor, packaging, transportation, energy, profits, advertising, depreciation, rent, interest, repairs, business taxes, and other costs. Updates through 2010 will be available in early 2012 from the USDA-Economic Research Service indicated in Figure 2-4.

FIGURE 2-4. MARKETING COSTS: FARM BILL AND CONSUMER EXPENDITURES FOR FOOD PRODUCED IN THE U.S.



Source: USDA-ERS. Briefing Room, Food Marketing System in the U.S. Price Spreads from Farm to Consumer, http://www.ers.usda.gov/Data/FarmToConsumer/marketingbill.htm. latest update, November 21, 2011.

When the farm value of food produced and consumed in the United States is compared to its retail value, the data historically show continuous declines in the farm value shares (Table 2-5). This is often misleading. Many farms capture parts of the marketing costs that are not added to the "farm value" but are included in the marketing costs or the value-added stage of the food system. Most of these marketing costs captured by farms include postharvest handling, storage, packing and grading, some fresh cut processing, shipping, and distributing. Fluctuations in PPI and delayed changes in CPI were not significant enough to change these shares much in 2010.

TABLE 2-5. FARM VALUE AS A PERCENT OF RETAIL VALUE

	2007	2008	2009	2010
	% of Retail Value			
Market basket[1]	23.6%	22.9%	19.8%	22.5%
Meat products	32.4	31.2	28.8	31.6
Dairy products	37.7	33.2	25.3	31.9
Poultry	43.3	41.4	38.4	42.3
Eggs	44.8	46.3	38.0	40.0
Cereal and bakery products	8.2	9.6	6.9	7.1
Fresh fruit	16.6	15.8	14.9	15.9
Fresh vegetables	19.6	18.7	19.0	21.1
Processed fruits and vegetables	17.2	17.2	17.0	15.3

[1] Retail costs are based on CPI-U of retail prices for domestically produced farm foods, published monthly by the Bureau of Labor Statistics (BLS). Farm value is the payment for the quantity of farm equivalent to the retail unit, less allowance for by-product. The farm-retail spread, the difference between the retail value and farm value, represents charges for assembling, processing, transporting, and distributing.
Source: USDA-ERS, Agricultural Outlook: Statistical Indicators, Table 8. Farm – Retail Price Spreads
http://www.ers.usda.gov/publications/Agoutlook/AOTables/

Of the total marketing costs, energy and fuel costs especially have been volatile and have risen recently. They can have a significant impact on marketing costs.

General Retail Sales

Whiles retail sales in 2010 looked like we were headed toward recover, 2011 sales are more modest. Sales in most of the retail outlets tracked below were up compared to year ago (Table 2-6). And yet, the economy does not feel secure. Department stores, excluding discount department stores such as Walmart, and clothing stores estimate a drop in sales in 2011.

On the contrary, sales from electronic shopping and mail order houses increased even through the recession and continue to increase in 2011. What we don't know without further investigation is what items from these e-sites have shown the largest increases.

TABLE 2-6. ANNUAL RETAIL AND FOODSERVICE SALES, SELECTED INDUSTRIES

Kind of Business	2008	2009	2010	2011 est.
		--$ Billions--		
Retail and food services sales, total	$4,409	$4,092	$4,355	$4,591
Automobile dealers	652	557	621	742
Building mat. and supplies dealers	265	231	234	242
Supermarkets and other grocery (except convenience) stores	488	487	496	517
Beer, wine, and liquor stores	40	41	42	42
Pharmacies and drug stores	211	217	222	226
Gasoline stations	502	388	453	537
Clothing stores	158	152	159	155
Hobby, toy, and game stores	16	16	17	17
Department stores(excl. discount department stores)	71	64	64	57
Warehouse clubs and superstores	352	356	371	376
Used merchandise stores	11	11	13	15
Electronic shopping and mail-order houses	228	235	271	281
Food services and drinking places	457	453	466	491

Source: US Department of Commerce, Census Bureau. *Monthly Retail Trade and Food Service Survey*, http://www.census.gov/mrts/www/mrts.html

Chapter 3. Cooperatives

Brian M. Henehan, Sr. Extension Associate, and Todd M. Schmit, Assistant Professor

U.S. Situation – Farmer Cooperatives

Although 2010 brought higher input prices, U. S. farmer, rancher and fishery cooperatives still experienced the second highest sales and net income only less than the previous record highs in 2008 (Table 3-1). Gross business volume of $170 billion in 2010 was up slightly from the previous year. Net income of $4.3 billion was also the second best showing ever for farmer cooperatives.

Gross marketings of U.S. cooperatives in 2010 were slightly less than the previous year. Dairy product sales grew by almost $2 billion from 2009; followed by declines in grain and oilseed marketing, rice, beans and peas, as well as poultry and cotton sales declined by more than $1 billion. However, there were increased cooperative marketings of processed fruits and vegetables, livestock, fish, nuts, sugar, and tobacco.

TABLE 3-1. U.S. FARMER COOPERATIVES, COMPARISON OF 2009 AND 2010

Item	2009	2010	Change
	($ billion)	*($ billion)*	*percent*
Gross Business Volume			
Marketing	$101.4	$101.1	-12.6%
Farm Supplies	62.9	63.9	-10.1
Services	14.9	5.0	3.4
Total	**$169.3**	**$170.1**	**-11.3%**
Balance sheet			
Assets	$60.8	$65.0	-11.4%
Liabilities	37.1	39.2	-18.9
Equity	23.8	25.9	3.7
Income Statement			
Sales (Gross)	$169.3	$170.1	-11.3%
Patronage income	0.9	0.7	4.6
Net income before taxes	4.1	4.3	-8.9
Employees	(Thousand)	(Thousand)	
Full-time	122.2	129.3	-1.5%
Part-time, seasonal	58.0	54.3	7.5
Total	**180.2**	**183.6**	**1.2%**
Membership	(Million)	(Million)	
	2.2	2.2	-6.0%
Cooperatives	(Number)	(Number)	
	2,390	2,310	-3.4%

Source: *Cooperative Statistics 2010*, USDA Rural Development, Service Report 71, November 2011.

Across all cooperatives, the value of total assets increased by 7 percent. Liabilities increased by almost 6 percent, while equity capital held by cooperatives increased 8 percent to nearly $26 billion. Patronage income, which is total refunds received from doing business with other cooperatives, declined by 23 percent to $700 million from $900 million in 2009. In many U.S. rural communities, cooperatives

represent the largest employer. The total number of full time employees decreased slightly in 2009 to 123,000 while the use of part-time and seasonal employees increased 6 percent to 54,000.

Memberships in cooperatives remained stable at 2.2 million memberships in 2010. Many farmers belong to more than one cooperative, and so farm numbers and memberships are not strictly comparable. The number of cooperatives declined 3.4 percent from the previous year, continuing a long term trend in mergers and consolidations resulting in larger-sized cooperatives.

These statistics do not include data from the Farm Credit System (FCS). As of 2007, the FCS in the U.S. accounted for 37% of total farm debt with 42% in real estate and 31% in non-real estate activities (Deller et al. 2009). Each bank and association of the FCS is its own cooperative, and thus has its own member-elected board of directors. As of 2007, the FCS had over $186 billion in assets, nearly $12 billion in sales revenue, and over $1 billion in wages in benefits. There are approximately 400,000 memberships in Farm Credit Associations and 11,000 employees (Deller et al. 2009).

New York State Situation

Table 3-2 summarizes the most recent cooperative numbers, membership, and business volume for New York State. State level data on cooperatives are collected every other year, and so the 2009 data are the most recent. The total number of cooperatives continued to decline, reflecting a national trend resulting from mergers, acquisitions or dissolutions. In 2008, New York agricultural cooperatives numbered 56, this number declined slightly to 55 in 2009. Memberships, however, have been relatively stable. A small drop in memberships over the past few years is primarily the result of declining farm numbers. Note that producers may belong to more than one cooperative, so the numbers of memberships can exceed the number of farms.

TABLE 3-2. NEW YORK STATE AGRICULTURAL COOPERATIVE NUMBERS, MEMBERSHIPS AND NET BUSINESS VOLUME, 2008 and 2009[1]

Major Business Activity	Number & Membership (000) Headquartered in State				Net Business Volume	
	2008		2009		2008	2009
	No.	Members (000)	No.	Members (000)	($ million)	
Marketing:						
Dairy	34	3.7	34	3.5	$1,910.5	$1,783.4
Fruit & Vegetable	9	1.0	10	1.1	68.6	75.1
Other Products[2]	3	0.3	3	0.2	143.8	143.5
TOTAL MARKETING	46	5.0	47	4.8	$2,122.9	$2,002.0
Supply:						
Crop Protectants					$3.7	$12.6
Feed					73.4	72.2
Fertilizer					22.4	28.4
Petroleum					5.5	2.5
Seed					1.6	2.8
Other Supplies					23.7	28.1
TOTAL SUPPLY	6	1.4	6	1.4	$130.4	$146.6
TOTAL SERVICE[3]	4	0.3	2	0.2	$26.6	$18.7
TOTAL	56	6.7	55	6.4	$2,296.8	$2,167.3

Source: *Cooperative Statistics 2009*, USDA Rural Development, Service Report 70, November 2010.
[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.

Total net business volume for New York based marketing cooperatives declined year over year by almost $130 million primarily due to the lower value of dairy cooperative sales. Fruit and vegetable marketing cooperatives reported an increase in net business volume. Supply cooperatives net business volume increased by $16 million with an increase in all farm inputs except petroleum products. The net business volume related to services declined to $18,700,000 in 2009. As noted for the U.S. level data, Table 3.2 does not include data for the Farm Credit System, an active agricultural lender in the New York State.

A recent study of the economic impact of cooperatives was conducted by the Center for Cooperatives at the University of Wisconsin for the U.S. Table 3.3 presents data from that study on farm supply and marketing cooperatives (FMCS) for the U.S., New York State and New England.

TABLE 3-3. FARM SUPPLY AND MARKETING COOPERATIVES, SUMMARY OF KEY INDICATORS, 2006[1]

Area/Type	Firms[2]	Establish-ments	Assets ($M)	Revenue ($M)	Wages[3] ($M)	Employees (000)	Memberships (000)
United States:							
Total	2,535	4,479	$44,394	$119,074	$6,014.15	147.78	2,484.10
Firm Average		1.76	17.53	46.97	2.43	0.06	0.99
New York:							
Total	66	71	$667	$2,690	$109.97	2.83	6.87
Firm Average		1.08	10.11	40.75	1.77	0.04	0.11
New England:[4]							
Total	42	42	$1,140	$2,293	$204.49	3.38	11.24
Firm Average		1.0	27.14	54.60	5.24	0.08	0.28

[1] Source: Deller, S., A. Hoyt, B. Hueth, and R. Reka Sundaram-Stukel. 2009. "Research on the Economic Impact of Cooperatives." University of Wisconsin Center for Cooperatives, University of Wisconsin-Madison. All data are based on the year 2006 calendar year. Due to numerous missing data, patronage refunds were excluded.

[2] Firms represent the number of reporting cooperative firms. For the farm supply and marketing sector, this represents nearly all cooperatives enumerated. As such, no extrapolation to the population of cooperatives was conducted.

[3] The implied average annual wages (with benefits) per employee are $41.55, $40.17, and $65.25 for the United States, New York, and New England, respectively (in thousand dollars)

[4] New England includes the states of CT, MA, ME, NH, RI, and VT.

TABLE 3-4. TOTAL ECONOMIC IMPACTS FOR FARM SUPPLY AND MARKETING COOPERATIVES, 2006[1]

	United States		New York		New England	
Economic Impact	Direct	Total	Direct	Total	Direct	Total
Revenue ($M)	$119,074	$128,362	$2,690	$2,900	$2,293	$2,472
Wages ($M)	$6,014	$8,895	$110	$163	$204	$302
Employment (jobs)	147,775	210,579	2,826	4,027	3,375	4,809

[1] Source: Deller, S., A. Hoyt, B. Hueth, and R. Reka Sundaram-Stukel. 2009. "Research on the Economic Impact of Cooperatives." University of Wisconsin Center for Cooperatives, University of Wisconsin-Madison. Total effect equals direct effect plus indirect and induced effects. Total effects based on national multipliers in Deller, et al. (2009); i.e., 1.078, 1.479, and 1.425 for revenue, wages, and employment, respectively.

[2] New England includes the states of CT, MA, ME, NH, RI, and VT.

Focusing on New York, the $2.7 billion in revenue generated in 2006 by FSMCs expands to $2.9 billion when indirect contributions of up-stream suppliers and spending are accounted for. Similarly, the $110 million in directs wages and benefits provided to employees, when rippled through the economy, represents a total contribution of $163 million in wages supported by this cooperative sector. The nearly 2,900 jobs directly supported by FSMCs in New York expand to over 4,000 jobs when all inter-industry linkages are accounted for. Clearly, the contributions that agricultural cooperatives make to the New York State economy are substantial.

The bankruptcy trust of Agway, a major farm supply cooperative that operated in New York State issued the tenth and final distribution of allowed claims of 2.7 cents on October 3, 2011. The total amount of distributions reached over 76% of allowed claims. The Trust report for 2010 states that:

> *"No distributions were made during 2010, although a 3% distribution was made on or about January 28, 2011, bringing the total distribution to date to 74% of allowed claims. When the Plan was confirmed, it was estimated that the total recovery to holders of allowed unsecured claims would range from 54% to 66% of their allowed claim amounts. Through the efforts of the Trustee and his staff involving claim resolution and asset recovery, the additional distributions of 8% to 20% above Plan estimates have been realized. As described below, however, the major assets of the Trust have been liquidated and the ability to make any additional distributions is largely dependent on the resolution of a few remaining claims. If there are any further distributions, they will likely amount to less than 2% of allowed claims. In the event that no further distributions will be made, holders of allowed claims will be advised of that fact in writing…"*
>
> Source: 2010 Annual Report at - www.agwaylt.com.

Cooperative Outlook for New York

Most cooperatives operating in New York State have the potential to build on the positive results from 2010. Higher milk prices paid to dairy farmers in 2010 and the first quarter of 2011 helped to improve the performance of farm credit and related-service cooperatives. Milk prices and dairy farm income improved from the relatively low levels of 2009. Although farm level milk prices increased, dairy producers have seen their costs of production increase with higher feed and energy expenses resulting in tight margins for some. Dairy farm numbers have been on a long-term decline, but recent years have seen a higher number of exits. Dairy cooperatives experienced a loss of farmer-members as some farmers cease farming due to increased financial stress but milk volume remained stable.

The cooperative bank that is a primary lender to rural cooperatives in the U.S. and New York continued to report record results again during the most recent year that data are available. Net income, cash patronage distributions, and member equity all increased from the previous record year. That strong performance is expected to continue into 2012, although recent fluctuations in commodity markets, ethanol prices, and capital markets have created a higher level of financial uncertainty.

Dairy cooperatives with value-added operations have experienced increasing costs for processing milk including: energy, packaging, transportation, and some ingredients. Favorable tax policy aimed at rewarding U.S. manufacturers with employees has provided cooperatives with manufacturing operations an opportunity to pass through tax deductions to members resulting in a significant benefit to members of some cooperatives. It remains to be seen how milk and energy prices unfold in 2012, but demand for most of the dairy products produced in the Northeast remain high.

Domestic consumer concerns over rising food prices and an economic recession have shifted purchasing to lower priced food product outlets, as well as resulted in less food being consumed away from home. As the impact of the recession lessens, demand for dairy products should strengthen.

On the export side, a weak value of the dollar continues to make U.S. exports competitive. There appear to be opportunities for increased exports of agricultural products in 2012. The dairy industry and dairy marketing cooperatives have relied on increasing exports to help bolster domestic farm prices and overall cooperative sales and margins.

Relatively new management in the marketing arm of the major grape juice processing cooperative is succeeding to grow patronage proceeds to grape grower members. Initial signs point toward improved performance for this commodity. A more aggressive advertising and promotion campaign featuring growers and a celebrity chef seem to be having a positive impact on sales.

Significant changes have occurred in the processed fruit and vegetable industry as a major cooperative who partnered with a private equity firm sold their interest in a major brand and marketing operations. The proceeds of the sale generated significant gains to both the private equity firm and to the members of the cooperative. However, as firm that purchased the processing operations is experiencing financial difficulties that may result in a weaker market for ram products. The sale of a major brand of frozen vegetables previously owned by the cooperative may result in lower demand for New York produced vegetables.

Although 2011 has brought a number of challenges for cooperatives operating in New York State - volatile milk prices, continued pressure on farm income, shifting consumer purchasing patterns and an ongoing slow recovery from the recession, most cooperatives operating in New York State remain well positioned for solid performance in 2012.

References

Penn, J. and E. Eversull (2011) "Co-op sales, income second highest ever" *Rural Cooperatives*, USDA rural Development, September/October, 2011.

Evershull, et al. (2010) USDA Rural Development, "Cooperative Statistics, 2009." Service Report 70, November, 2010.

Deller et al. (2009).

Chapter 4. Finance

Calum G. Turvey, Professor

Introduction

On August 5, 2011, Standards and Poor downgraded US Treasuries from AAA to AA+ with a negative outlook. On the following Monday, August 8, 2011 Standard and Poors also downgraded bonds issued by the Farm Credit Banks Funding Corporation. This was in response to the political risks brought about by the impasse between House and Senate Republicans and Democrats and President Obama on raising the USA debt ceiling and political uncertainty about the divisiveness between the two parties in terms of deficit reduction and certain refusals by 'Tea Party' and other Norquest-Republicans to consider tax reforms. Moodys and Fitch, however retained AAA status on USA treasuries. As indicated in a previous note, the degree by which we can actually use treasuries as the risk free rate will depend upon the constitutional interpretation of the 14th amendment which if read literally makes it a constitutional obligation of the USA Government to guarantee its debt. Notwithstanding the S & P downgrade, we assume that the guarantee is explicit.

The issue to be discussed in this Chapter is the implicit guarantee on farm credit bonds. The farm credit system was the first Government Sponsored Enterprise in the United States and its GSE status has been discussed on occasion. But the current financial crisis has led to a more vigorous debate about GSE status. The current financial crisis which was originally caused by the sub-prime crisis in 2007 has long escalated to a global financial economic crisis. The failure of two government sponsored enterprises (GSE), Fannie Mae and Freddie Mac, has cost the US government billions of dollars. According to a report, "On Oct 21, 2010 FHFA estimates revealed that the bailout of Freddie Mac and Fannie Mae will likely cost taxpayers $224–360 billion in total, with over $150 billion already provided"[1]. Since then, there has been a debate on the benefits and costs of GSE status. While many people think that the benefits of the GSEs to the economy are very significant, many other people think that the potential costs of the GSEs are so high that their GSE status should be removed. As one of the several, and indeed the very first, GSEs, the Farm Credit System is in danger of losing its GSE status. One immediate question would be: what would be the impact on the Farm Credit System if it lost its GSE status? While the simultaneous downgrade of US treasuries is inexplicable[2] given the 14th amendment the action reminds us that an 'implicit' guarantee is not equal to an 'explicit' guarantee, and that it would be a stretch to assume that the agency relationship between a GSE and the USA government is included in the 14th amendment. In either case, that of GSE status, or the implication of market recognition that an implicit guarantee is not the same as an explicit guarantee there is a better need to understand the risk structure of bonds issued by Farm Credit Banks Funding Corporation and to determine the value of the guarantees in terms of bond yields. This chapter paper is devoted to answering this question.

The Farm Credit System

The Farm Credit System (FCS) was the first government sponsored enterprise (GSE) in the United States. Established in 1916 by the U.S. Congress, its mission is "to provide sound and dependable credit to American farmers, ranchers, producers or harvesters of aquatic products, their cooperatives and certain farm-related businesses"[3]. The system consists of three parts: the Farm Credit System Associations (Associations), the Farm Credit System Banks (Banks) and the Farm Credit System Funding Cooperation (FFCB). This

[1] Davidson, Paul "Fannie, Freddie bailout to cost taxpayers $154 billion". 2010-10-22 , *USA Today*

[2] At least in the view of the writer

[3] Please refer to P.5 of the annual report 2010 released by FFCB.

chapter is principally concerned with the relationship between bonds issued by the Farm Credit Funding Corporation and the GSE status held by the system as a whole. Bonds issued by the funding corporation are backed by the real estate of the United States agricultural economy. In addition to this the farm credit system, as a cooperative, is jointly liable for system wide debts, The intervention of the system in 2008 to provide capital to Farmer Mac is an example of how capital from one arm of the system can be used to prop up capital deficiencies in another. In fact, of the five GSEs, including Farmer Mac, only the Farm Credit System is designed around cooperative principles. For the United States Government to intervene on behalf of Farm Credit bond holders is a last resort response that would arise only if the farm credit system as a whole was in jeapordy. The imlicit guarantee therefore is not so much on the bonds themselves, but on providing capital to the system as a whole should the need arise. As long as the Farm Credit System is liquid, farm credit bonds would be a fairly safe bet.

Farm Credit Bonds: The First "Too Big to Fail"

Although the Farm Credit Funding Corporation has never defaulted on any bonds it has originated, the U.S. government has on occasion had to intervene in the farm credit market. Most recently this occurred with the crash of the land price bubble in the mid 1980's. While such interventions are wholly expected there is nothing in the Farm Credit Acts of 1916, 1923 or 1933 and its successors that binds the government towards intervention. In other words, there is no explicit guarantee. The test of this came in 1987 when the U.S. Treasury refused to extend an emergency line of credit to the Farm Credit System until the system had exhausted its capital. Several events intervened to vitiate the need including a rebound in commodity prices, stabilization of land values, and lowering interest rates (see Peoples et al 1992 for a review of the 1985-1987 agricultural credit crisis). Meanwhile, system association banks entered into capital preservation agreements in which individual banks agreed amongst each other that associations with surplus cpaital would lend to troubled associations. This avoided triggering joint and several liability amongst the Farm Credit Banks. In addition the 1985 Farm Credit Act separated the oversight and regulatory authority for the Farm Credit Administration (FCA) so that it could operate independently and withouot influence from the directors of the banks that it was to oversee. Thus the FCA had the authority to force reforms across the system. The 1987 Farm Credit Act brought about Farmer Mac which then provided a mechanism for farm credit to be issued to investors in the secondary markets providing needed liquidity for system and commercial banks.

Nonetheless, in January of 1987 financial markets became concerned that the US Government would not intervene under the implied guarantee after all. Up to 1985 bonds issued by the FCS dominated agency bonds issued to treasury markets (including Federal National Mortgage Association and Federal Home Loan Bank). In what might be called the first 'Too Big to Fail' political action, congress convened (leading to the 1985 Farm Credit Act and Farm Bill) not as part of its implicit guarantee to the FCS but because of the risk contagion that default on farm credit bonds might have on other bond-issuing housing agencies. As recorded and projected losses accumulated towards the end of 1986 and the refusal of Treausry to extend a line of credit to system banks, financial markets responded to the increased risk by bidding up farm credit bond yields above short term treasuries above 25 basis points for most of 1987 peaking twice at approximately 115 basis points (Peoples et al, 1992).

The FCS has its detractors, primarily commercial lenders to agriculture, who see the GSE status as a competitive disadvantage, and as the FCS seeks to expand its mandate into other areas of rural business, commerce and housing, mission creep beyond its original mandate. The Independent Commercial Bankers' Association (ICBA) for example argues that mission creep requires an increase in the regulatory authority over the FCS. The issue of mission creep was taken up by Congress in 2000 in regards to Farm Credit

Administration's National Charter Initiative (U.S. House of Representatives, 2000; ICBA 2011)[4]. The FCSs GSE status has again been raised in light of the 2008/2009 financial crisis. The political arguments against GSE's are laid out in McCain-Hatch (see United States Senate 2011[5]). Part of the rationale for winding down Fannie Mae and Freddie Mac is because they have an unfair advantage in providing lower interest rates than private sector firms because they do not fully price default risk because of implied guarantee. This is the same argument leveled at the FCS, and part of the reason why its GSE status is continually questioned by Congress and competing lending associations.

The Idea

Because this paper is interested in the consequence of loss in GSE status it takes on a more technical approach to the problem than previous papers. This paper is primarily based on the Black-Scholes-Model as applied in Merton (1974) and Gray, Merton and Bodie (2007). The risk premium for a risky bond is defined by the spread between the bond yield and the risk-free interest rate is the yield derived from the explicit guarantee of the US government on equivalent duration/callable US treasury bonds; a bond with zero spread implies that the bond is risk-free.

This basic idea defines the general problem of bond pricing by establishing the value of the bond as the present value of principal and interest (coupons). However if there is uncertainty about the actual payment of coupon or principal then what the investor expects might in probaility differ from what is stated at origination. Because there is an explicit willingness to accept default the difference between the stated payment and the expected payments is equivalent to a put option on each coupon and on the face value which, when combined, constitute a compound option. For any period before the bond matures, the difference between the promised payment and the expected payment can be interpreted as a put option, which is sold by the investor and bought by the bond issuer at the time of issue. This 'put option' gives the bond issuer the right to default on the coupon payment. The value of the put option at maturity captures not only the coupon but also the face value of the bond.

However for FCA bonds with the GSE status, the expected coupon payments and expected face value repayment will increase due to the implicit guarantee of the governement. With the imlicit guarantee not being explicit the compound put option implied by farm credit bonds will be greater than zero, but less than the option without GSE status. Thus, the Farm Credit System benefits from GSE status and the cost of captial is lower than what would otherwise arise without the implicit guarantee[6].

Measuring Risk of GSE Bonds

Critical to understanding the financial economics of Farm Credit Bonds is to understanding the underlying risk structure. To do this we equate in this section the implicit put option provided by the guarantee to the Black-Scholes option pricing model. We then use the equivalent Black-Scholes model to

[4] U.S. House of Representatives, (2000) Committee on Banking and Financial Services, Washington, D.C., Tuesday, October 3, 2000: http://commdocs.house.gov/committees/bank/hba67260.000/hba67260_0f.htm.

Independent Commercial Bankers' Association (2011) . ICBA Ref: http://www.icba.org/advocacy/index.cfm?ItemNumber=31874&sn.ItemNumber=1709olutions.

[5] United States Senate (2011). "GSE Bailout Elimination and Taxpayer Protection Act", Senate Bill S.693 112th Congress, 1st Session. March 31, 2011.

[6] The Farm Credit System is not risk-free because the value of the collateral changes over time. The two most important compositions of the assets which are used as collateral for bonds are loans and investment which account for approximately 76% and 20% of the system assets, respectively.

extract the implied volatility of the bonds (this is a rather complex procedure so we leave out the mathematics and some important details to keep the exposition simple.)

According to the annual report 2010 released by the Federal Farm Credit Bank Funding Cooperation (FFCB), Farm Credit Administration regulations require the Banks to maintain a net collateral ratio of at least 103%[7] [8] [9] [10]. This represents the collateral value of the bonds. The liabilities of the Farm Credit System at the time of the bond issuance are the money received from the bond issuance. The difference between a risk-free bond and a risky bond is the GSE bond guarantee on the face value. Our task is to isolate the risk value that the market uses to determine this spread. As previously discussed, this bond guarantee is interpreted as an implicit European put option on the collateral with a strike price and the same maturity as the bond. The strike price must be equal to the liabilities of the Farm Credit System[11] [12]

The value of the guarantee (i.e. put option price) depends on the spread, the risk-free interest rate and the maturity of the debt. With all three variables being observable, the put price for a given bond at the time of the bond issuance can be calculated directly. Once the put price is calculated, this can be plugged into the Black-Scholes Model and used to derive the implied volatilities of the option. We can then compare this implied volatility to the historical volatility of agricultural assets which is the base source of risk of the Farm Credit System.

Data

The yields of bonds with different maturities issued by the Farm Credit System were obtained from the Federal Farm Credit Bank Curve which can be found on Bloomberg[13]. Specifically, the Federal Farm Credit Bank Curve is an index which is updated on a daily basis showing the yields of the bonds with different maturities issued by the Federal Farm Credit Banks Funding Corporations. The beginning date of the data is January 13th 2009 and the ending date of the data is February 10th 2011. The total number of the observations for a given maturity is 522. The risk-free interest rates are the Daily Treasury Yield Curve Rates published on the official website of the U.S. Department of the Treasury[14]. The final data set used for this research include both the treasury yield and the yield of the Farm Credit System bonds with the maturities of 3-Month, 6-Month, 1-Year, 2-Year, 3-Year, 5-Year, 7-Year, 10-Year and 20-Year. The summary statistics for the FCS bond yields are provided in Table 4-1 while spreads are summarized in Table 4-2 and are self-explanatory.

[7] Please refer to FFCB annual report 2010 page 17 "Bank Collateral Requirements" section

[8] The "net collateral ratio" is defined as "net collateral (primarily earning assets) divided by total liabilities less subordinated debt, subject to certain limits"

[9] Please refer to FFCB annual report 2010 page 44 "Structural Risk Management " section

[10] The two most important assets of the Farm Credit System are net loans and cash, federal funds sold and investments. The ratios of net loans and cash, federal funds sold and investment to the total assets have remained stable over the years. Moreover, subordinated debt was 0.84% of the total liabilities in both 2010 and 2009, 0.56% of the total liabilities in 2008 and 0.31% of the total liabilities in 2007, which was so small that could be ignored in the calculation.

[11] We use an important concept in financial economics called put-call parity is used to prove it. The put-call parity requires that the put option price must be equal to the present value of the strike price plus the call option price less the spot price of the underlying asset.

[12] The difference between the collateral value and the liabilities is the excessive value of the collateral over the liabilities, which is the current equity of the Farm Credit System. The equity allows the Farm Credit System repay the bond on time and leaves the collateral untouched. Collateral = Liabilities + Equity.

[13] Bloomberg ticker YCCF0078 INDEX

[14] http://www.treasury.gov/resource-center/data-chart-center/interest-rates/Pages/TextView.aspx?data=yield

TABLE 4-1 SUMMARY STATISTICS FOR THE FARM CREDIT SYSTEM BOND YIELDS

FCS Yield	3M	6M	1Y	2Y	3Y	5Y	7Y	10Y	20Y
MAX	0.77%	0.88%	1.26%	1.95%	2.35%	3.66%	4.53%	5.23%	5.87%
MIN	0.03%	0.10%	0.25%	0.46%	0.64%	1.45%	2.05%	2.84%	3.86%
AVERAGE	0.24%	0.32%	0.53%	1.12%	1.60%	2.60%	3.38%	4.12%	4.89%
MEDIAN	0.19%	0.28%	0.44%	1.12%	1.71%	2.77%	3.60%	4.33%	4.97%

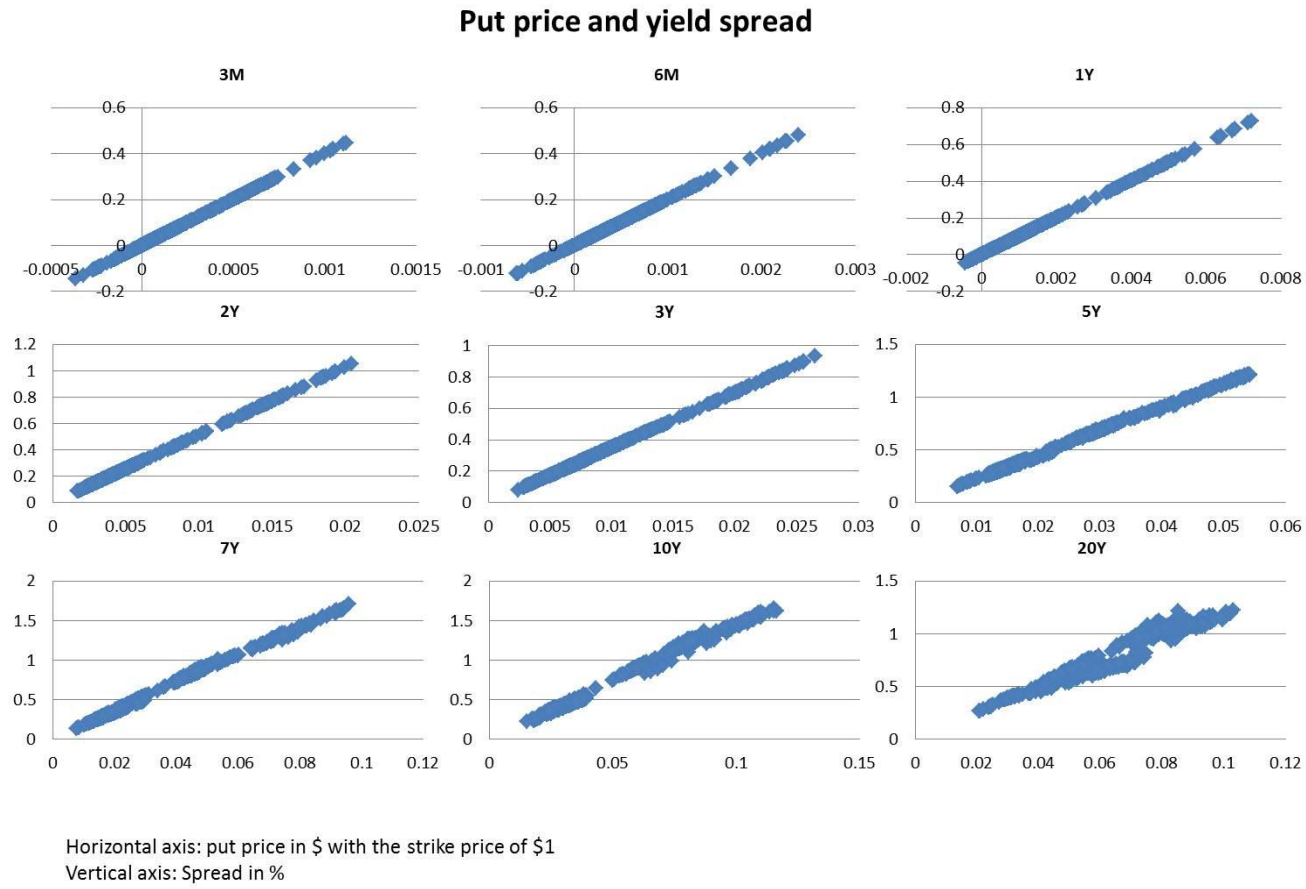
TABLE 4-2 SUMMARY STATISTICS FOR SPREADS

Spread	3M	6M	1Y	2Y	3Y	5Y	7Y	10Y	20Y
MAX	0.45%	0.48%	0.73%	1.05%	0.93%	1.22%	1.71%	1.66%	1.23%
MIN	0.03%	0.10%	0.25%	0.46%	0.64%	1.45%	2.05%	2.84%	3.86%
AVERAGE	0.24%	0.32%	0.53%	1.12%	1.60%	2.60%	3.38%	4.12%	4.89%
MEDIAN	0.19%	0.28%	0.44%	1.12%	1.71%	2.77%	3.60%	4.33%	4.97%

The Relationships Between Yield Spread and Option Prices

The relationship between put price and spread for bonds with different maturities at the time of the bond issuance is shown in Figure 4-1 which can be found at the end of this section. There are three interesting observations in Figure 4-1: First, all slopes are positive. This means, the correlation between implicit put option price and spread is positive; second, the slopes for short-term bonds are steeper with decreasing maturities. For Example, if the put prices for both 3-Month bond and 6-Month bond increase by $1, the 3-Month bond is riskier relatively to the period prior to the change of the put price. Therefore, the 3-Month bond should have a higher yield (higher spread); third, the relationship between the put price and the spread is linear for bonds with shorter maturities. The relationship between the put price and the spread becomes more complex for bonds with longer maturities. It is visually obvious that the relationship between the put price and the spread for 10-Year bond and 20-Year bond are not linear.

FIGURE 4-1 RELATIONSHIP BETWEEN PUT PRICE AND YIELD SPREAD



Implied Volatility

This section presents the results of the implied volatilities. As previously, indicated the spread and the risk-free interest rate for a given bond on a given day will be used to calculate the implicit put price for that bond on a specific day. The implicit put price will be plugged into the Black-Scholes Model and derive the implied volatilities. Since there are 522 observations for each maturity, 522 implied volatilities are derived for a given maturity. The summary statistics for the implied volatilities are shown in Table 4-3[15]. In theory these should be the same under the Black-Scholes Brownian motion assumption which may suggest that investors are adjusting the market price of risk or market risk aversion. Nonetheless, the average and median implied volatilities are quite close to each other for 6M, 1Y, 2Y, 3Y and 10Y bonds, which indicate that the implied volatilities for those maturities are more evenly distributed. In contrast, the implied volatilities for 3M, 5Y, 7Y and 20Y are less evenly distributed.

[15] It is important to notice that since there are negative yield spreads for short-term bonds, the implicit put price for a bond with a negative yield spread cannot be calculated (negative put prices do not make sense). A negative yield spread would mean that the market expects this bond to be even safer than the risk-free treasury bonds. Therefore, the implied volatilities for bonds with negative yield spreads are assumed to be zero.

TABLE 4-3 SUMMARY STATISTICS FOR THE IMPLIED VOLATILITIES OF DIFFERENT MATURITIES

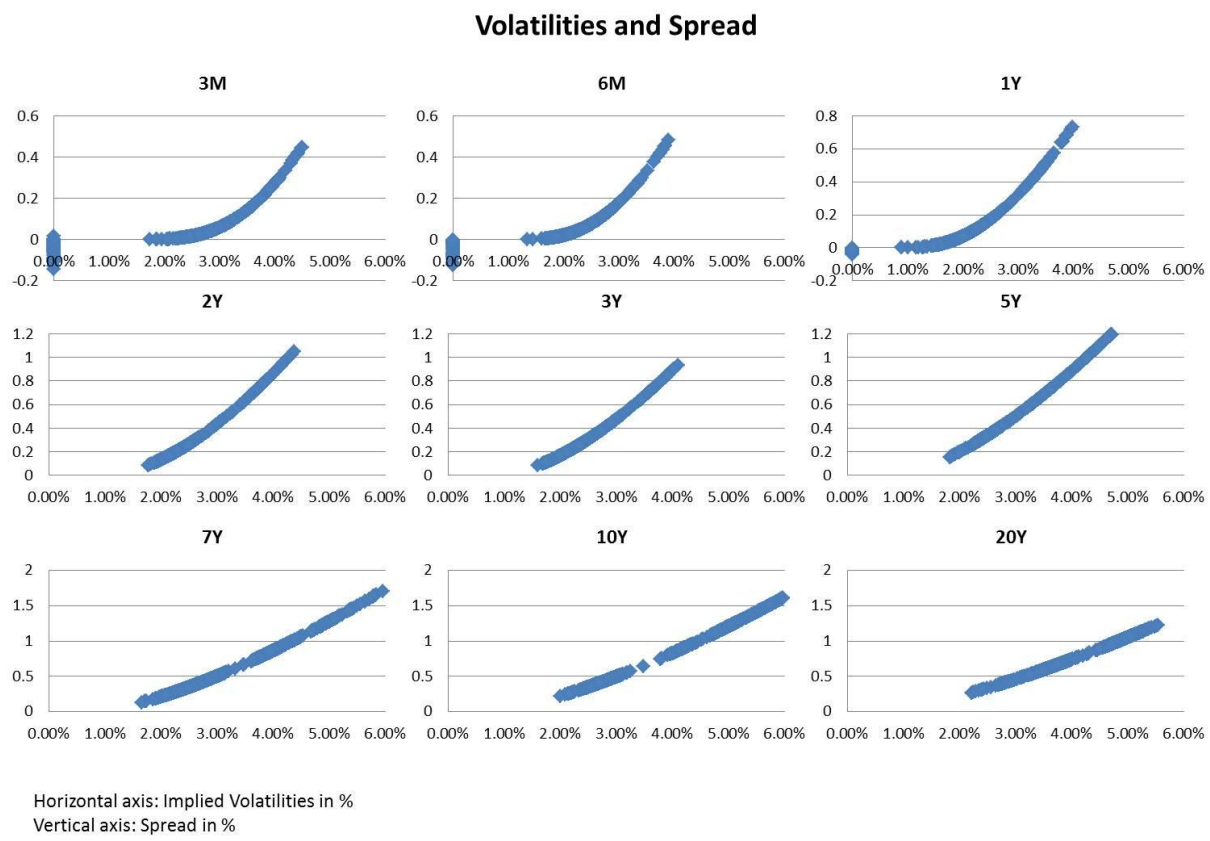
	3M	6M	1Y	2Y	3Y	5Y	7Y	10Y	20Y
MAX	4.50%	3.90%	3.98%	4.38%	4.10%	4.77%	5.96%	6.10%	5.54%
MIN	0.00%	0.00%	0.00%	1.77%	1.60%	1.83%	1.65%	2.01%	2.22%
AVERAGE	2.65%	2.32%	2.16%	2.54%	2.56%	3.05%	3.37%	4.01%	4.17%
MEDIAN	2.96%	2.44%	2.20%	2.36%	2.41%	2.70%	3.01%	4.17%	3.92%

Moreover, the average implied volatilities are smaller for short-term bonds, increase consistently with increasing maturities for medium-term and long-term bonds. This indicates that the market expects the volatility of the collateral value to be larger for bonds with very short maturity, the volatility of the collateral value is the smallest for 1Y bond and the volatility of the collateral value increases with increasing maturity for bonds with a maturity of longer than 1 year.

Spread and Volatility

The relationship between implied volatilities and spread for bonds with different maturities at the time of the bond issuance is shown in Figure 4-2. This is the key part of this research, because ultimately the historical volatility of the land price will be plugged into the Black-Scholes Model to derive the hypothetical spread for the Farm Credit System bonds without GSE status.

FIGURE 4-2 RELATIONSHIP BETWEEN VOLATILITIES AND SPREAD



Hypothetical Farm Credit System Bond Yield without GSE Status

Using historical U.S. land prices (USDA various years) we calculate an historical volatility 6.07%, with a standard error of 0.000493, and a 95% confidence interval between 5.97% and 6.16%. We use these values to determine what the spread would look like without GSE status. Before doing this we rescale the land price volatilities to fit more reasonable expectations of risk. The rescaling is based on the implied volatilities observed in farm credit bonds. These results are presented in Table 4-4.

TABLE 4-4 HYPOTHETICAL YIELDS WITHOUT GSE STATUS WITH ADJUSTED VOLATILITIES

	GSE Volatility	No GSE Volatility	GSE Yield	No GSE Yield	Difference (bps)
3M	2.65%	3.86%	0.2382	0.3744	13.62
6M	2.32%	3.37%	0.3190	0.5193	20.02
1Y	2.16%	3.15%	0.5271	0.7609	23.38
2Y	2.54%	3.70%	1.1181	1.5416	42.35
3Y	2.56%	3.73%	1.5986	2.0269	42.83
5Y	3.05%	4.45%	2.6068	3.1434	53.66
7Y	3.37%	4.91%	3.3852	3.9641	57.89
10Y	4.01%	5.84%	4.1196	4.8077	68.81
20Y	4.17%	6.07%	4.8873	5.5036	61.63

The first column of Table 4-4 lists all maturities. The actual average implied volatilities for all maturities are presented in the second column. The rescaled volatilities used to derive the hypothetical yields are shown in the third column. The fourth column presents the actual average yields of the Farm Credit System bonds with different maturities over the observation period. The hypothetical yields of the Farm Credit System bonds without GSE status are found in the fifth column. The sixth column presents the differences of the yields without and with GSE status.

Using this scaled volatility approach, the results show that the average bond yield for a 3M FCS bond from January 13th 2009 to February 10th 2011 would be 0.3744% if the Farm Credit System had no GSE status, which is 13.62 bps higher than the actual bond yield. The difference between the hypothetical yield and the actual yield increases with increasing maturity and reaches its peak with 10Y bond. The difference between the hypothetical yield and the actual yield is 68.81 bps. The difference decreases slightly for 20Y bond.

Conclusion and Extension Suggestions

With congress under pressure to dissolve Government Sponsored Enterprises, this paper examined the potential impact of such a move on the yields of farm credit bonds issued by the Federal Farm Credit Funding Corporation. We use daily Farm Credit System bond yields for different maturities from January 13th 2009 to February 10th 2011 combined with Merton's (1974) model and the Black-Scholes formula to determine the extent by which farm credit bonds are influenced by volatility and maturity. We use this information to estimate Farm Credit System bond yields without GSE status. We find that because the market already recognizes the security inherent in agricultural markets that volatility is low and in line with the long-run volatility measured in farm land prices that the impact on farm credit bonds would be less than 1% and will unlikely increase by more than 69 basis points for maturities of 20 years or more. The effect on shorter term bills would be no less than 13.62 bps. Even so, such a move could see an increase in long term interest rates on mortgages originated by farm credit associations of 0.5% and this may place farm credit at a competitive disadvantage to commercial loans originating at deposit taking institutions.

References and Related Bibliography

Black, F. and Scholes M. (1973) The Pricing of Options and Corporate Liabilities. *Journal of Political Economy*, 81 (May-June): 637-54.

Cowan, M and Pertrine, R (2002) Taxes and the Pricing of Government Sponsored Entity Bonds, Working paper, University of Alabama at Birmingham.

Duffee, G. (1998) The Relation between Treasury Yields and Corporate Bond Yield Spreads, *Journal of Finance*, 54, 2225-2241.

Elton, E. and Green, C. (1998) Tax and liquidity effects in pricing government bonds, *Journal of Finance* 53, 1533-1562.

Freshwater, D. (1998) Can Continuation of GSE Status for the Farm Credit System Justified, *Journal of Public Budgeting Accounting and Financial Management* Vol. 11, 35-53.

Gray,D., Merton,R.C and Bodie, Z (2007) Contingent Claims Approach to Measuring and Managing Sovereign Credit Risk, *Journal of Investment Management* Vol. 5(4), 1-24.

Green, R. and Odegaard, B. (1997) Are there tax effects in the relative pricing of U.S. government bonds, *Journal of Finance* 52, 609-633.

Jacoby, G. (2002) On estimating the relation between corporate bond yield spreads and Treasury yields, Working paper, University of Manitoba.

Jensen, Farrell E (2000) The Farm Credit System as a Government-Sponsored Enterprise. *Review of Agricultural Economics*. Vol. 22, No. 2 (Autumn - Winter, 2000), pp. 326-335.

Lee, W.F., and G.D. Irwin (1996) Restructuring the Farm Credit System: A Progress Report, *Agricultural Finance Review*, 56, 1-21.

Lins, D. and Barry, P (1984) Agency Status for the Cooperative Farm Credit System, *American Journal of Agricultural Economics* 66(5), 601-606.

Merton, R. C. (1977) An Analytic Derivation of the Cost of Deposit Insurance and Loan Guarantees, *Journal of Banking and Finance* 1, 3-11.

Merton, R. C. (1974) On the Pricing of Corporate Debt: The Risk Structure of Interest Rates, *Journal of Finance* 29 (May), 449-70.

Peoples, K.L., D. Freshwater, G.D. Hanson, P.T. Prentice and E.P. Thor (1992) *Anatomy of an American Agricultural Credit Crisis: Farm Debt in the 1980's.* Bowman and Littlefield Publishers, Lanham Maryland.

Tauer, L. and A. Weersink (1987) *Optimal Equity Recovery for a Cooperative Financial Institution, In A Changing Environment*: Macro, Market, Policy and Management Issues Proceedings, Department of Agribusiness Economics, Southern Illinois University.

Chapter 5. Grain and Feed

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Much of the post-2005 run-up in grain and oilseed prices has been attributed towards growing demands based on global growth in incomes (and associated food demands) and increased use of farm commodities for biofuels. Uncertainty about the ability to ration available and expected supplies with these growing demands has been reflected in higher prices and increased price volatility. However, supply factors also have a role in explaining current prices. This was particularly evident this year with lower weather-induced yields for most major commodities in the U.S. and repeated downsizing of production estimates, which brought about record or near-record prices so far in 2011. With extremely tight U.S. carryover stocks in corn and soybean markets, changes in information into the markets will continue to be reflected in potentially sizable and abrupt price changes looking ahead. Growing political tensions domestically, financial crises globally, and a sluggish domestic economy struggling to rebuild from the past recession have added associated uncertainty, with inherent spillover effects into the grain markets.

The outlook for the coming year is still one of considerable uncertainty about economic conditions, and prices continue to vary from day to day as news arrives in the market. Thus, this Chapter should be viewed as a status report as of mid-November 2011. After reviewing the wheat, corn, and soybean markets, we discuss the implications for feed prices in 2012.

Wheat

Drought-stress in the central and southern Great Plains had a significant impact on 2011 U.S. hard red winter wheat production, while excessive rains caused problems in the northern plains and impacted hard red spring and durum wheat production. However, reduced hard red winter wheat production was more than offset by larger soft red winter wheat production in the eastern Corn Belt. While planted acres were up slightly in total from 2010, fewer acres were actually harvested. Harvested acres of 45.7 million acres in 2011/12 are down about 4% from 2010/11, and represent 84% of planted acres compared with 89% the previous year (Table 5-1). Combined with a 5.8% reduction in yield, total production of nearly 1.999 billion bushels (bb) is projected to be 9.4% below 2010/11 and the lowest since 2006/07 (1.808 bb). With lower beginning stocks offset somewhat by slightly higher imports, total wheat supplies in 2010/11 are estimated to be 2.982 bb, down 9.1% from 2010/11, but similar to supply in 2009/10.

Decreased wheat supplies are expected to be more than offset by decreased use (down 10.9%), and are projected at 2.153 bb (Table 5-1). With slightly higher usage for food, seed, and feed, the reduction is fully attributed to reduced export expectations at 975 million bushels (mb), down from nearly 1.3 bb last year. U.S. wheat exports have been the key source of variation in U.S. wheat supply-demand balances over the last four years, while food use has been relatively consistent. U.S. export prospects have diminished, in part, because of production recoveries in the Black Sea region, Australia, and Canada, and reduced export competitiveness in 2011. Wheat feeding (both domestic and abroad) could see a higher than projected usage if livestock feeders and perhaps ethanol producers make use of wheat as a competitive substitute for tight feed grain supplies and higher prices.

U.S. ending stocks are projected at 828 mb, down slightly from 2010/11, but consistent with lower overall use projected in 2011/12 (Table 5-1). Relative to use, ending stocks are a reasonable 38.5% of use, but below the 48.4% realized two years ago. World wheat stocks are projected up slightly, with a stocks-to-use ratio that has been relatively unchanged over the last few years at around 30%. While comparatively large relative to U.S. stocks-to-use ratios in corn and soybeans, wheat stocks may diminish if record high corn prices remain making wheat feeding more competitive.

TABLE 5-1. U.S. SUPPLY AND DEMAND BALANCE SHEET FOR WHEAT[a]			
	2009-2010	2010-11E	2011-12P
Supply:			
Harvested Acres (million)	49.9	47.6	45.7
Yield (bushels per acre)	44.5	46.3	43.7
		(Million Bushels)	
Beginning Stocks	657	976	862
Production	2,218	2,207	1,999
Imports	119	97	120
Total Supply	2,993	3,279	2,982
Use:			
Food	919	926	940
Seed	69	71	78
Feed and Residual	150	132	160
Total Domestic Use	1,138	1,128	1,178
Exports	879	1,289	975
Total Use	2,018	2,417	2,153
Ending Stocks	976	862	828
Stocks/Use Ratio	48.4%	35.7%	38.5%
Avg. Farm Price, U.S., $ per bushel	$4.87	$5.70	$7.40
Avg. Farm Price, NYS, $ per bushel	$4.84	$6.05	$ -

Note : Totals may not add due to rounding; marketing year beginning June 1; E = estimated, P = projected.
[a]U.S. data from USDA, "World Agricultural Supply and Demand Estimates," (November 9, 2011) WASDE-499, P.11. New York State (NYS) data from "Field Crop Data," USDA NASS, New York Field Office, www.nass.usda.gov/statistics_by_State/New_York/Historical_Data/Field Crops/FieldCropsIndex.htm.

The competitive feedstock attribute implies that wheat prices are supported, in part, by the higher corn prices. This is evident in the expected record high average wheat price in 2011/12 (on a market-year basis) at $7.40 per bushel (bu), even with a comparable stocks-to-use ratio the year prior that had an average price of nearly $2 per bu less. As market arbitrage forces impact wheat and corn prices, wheat prices have followed corn prices, albeit imperfectly. Consistent growth in world wheat usage has occurred despite record high prices, reflecting inelastic world wheat demand; i.e., demand has been relatively inflexible to changing prices. The price-side consequence, however, is only small changes in supplies can cause large variability in prices – a result evident over recent marketing years.

Given today's market information, tight U.S. corn stocks, strong competition for acres, and forecasts of lingering weather problems in major wheat production areas into spring 2012, historically high and volatile wheat prices can be expected into 2012. Futures markets' prices are one way to assess market expectations about the ability of future supplies to meet growing demands. Given current and expected supply and demand levels, as of 17 November 2011, December 2011 futures contracts are nearly $6 per bu (about $0.60 less than year-prior levels), with one- and two-year-out contracts trading near or in excess of the $7 mark (Table 5-2). Comparatively, the USDA forecast looks high relative to the Chicago futures. However, the Chicago (CBOT) futures contract is pricing for soft red winter wheat. Kansas City (KSBT) futures contract prices are for hard red winter wheat, which is the dominant type in the United States, and have December futures trading in the $6.70 range. The Minneapolis Grain Exchange (MGEX) covers hard red spring wheat, and is currently trading at over $8.50 per bu. Of course, expectations can change quickly with new market information.

TABLE 5-2. FUTURES PRICES FOR WHEAT, CHICAGO MERCANTILE EXCHANGE, 17 NOVEMBER 2011	
Contract Month	$ per bushel
December 2011	$5.940
March 2012	6.122
May 2012	6.316
July 2012	6.462
September 2012	6.662
December 2012	6.842
December 2013	7.084

Corn

Table 5-3 provides a supply-demand balance sheet for corn in the United States as of 9 November 2011. Projected U.S. 2011 corn yields are 146.7 bu per acre, the lowest yield since 147.9 bu in 2005 and 142.2 bu in 2003. Several cumulative weather-related problems have affected 2011 corn yields, including difficult spring planting conditions, an excessively hot and dry summer in many Corn Belt areas, and continuing drought in both the southern and central Plains and the southeastern United States. With over 2 million additional acres harvested this year (up 3.1%), the crop would still be the fourth largest crop on record at 12.310 bb.

The November USDA downsizing of 2011 projected U.S. production was the fourth consecutive monthly estimate reduction. This is the second year in a row in which weather-related crop production problems have resulted in lower U.S. corn production than has been projected or hoped for early in the growing season. The result has been a marked tightening of U.S. corn supply-demand balances and has provided support for record high U.S. corn prices in the 2011/12 marketing year. With beginning stocks at 1.128 bb, the lowest level since 958 mb in 2004/05, total U.S. corn supply for 2011/12 is estimated at 13.453 bb, down 5.1% from 2010/11 and 5.7% below the prior four-year average (Table 5-3).

In response to lower 2011 production prospects and lower carry-in stocks relative to last year, USDA adjusted 'feed and residual' and ending stock levels lower in November. It is important to recall that the feed use line is a residual estimate in USDA calculations. Since the projected index of grain consuming animal units is expected up modestly in 2011/12 (see the feed section), the most recent adjustment may be more of a residual adjustment. The increased availability of distillers grains from ethanol production (included in the corn for ethanol calculations) for domestic livestock feeding has offset to some degree this reduction. Clearly, the USDA is projecting that price rationing is necessary to bring about more cuts in U.S. corn usage in order to maintain minimal required ending stock levels by the end of the summer 2012. Ethanol use projections are at 5.000 bb, down from 5.15 bb projected in July 2011, implying the first year-over-year reduction in usage for ethanol since the mid-1990s. A combination of generally sluggish overall economic growth and uncertainty about the impact of likely changes in government funding for the ethanol blenders credit and tariff protections may be factoring into the projections.

A somewhat larger reduction in U.S. corn exports above domestic use restrictions is anticipated in the next year. If the current export projection of 1.600 bb holds true, it would represent the fifth lowest level of exports since 1990/91. Corn exports are expected to be rationed more than proportionally than other categories of use. A year-over-year decline of 13% in corn exports compares to drops of 4% and 0.3% for

TABLE 5-3. U.S. SUPPLY AND DEMAND BALANCE SHEET FOR CORN[a]			
	2009-10	2010-11E	2011-12P
Supply:			
Harvested Acres (million)	79.5	81.4	83.9
Yield (bushels per acre)	164.7	152.8	146.7
		(Million Bushels)	
Beginning Stocks	1,673	1,708	1,128
Production	13,092	12,447	12,310
Imports	8	27	15
Total Supply	14,774	14,182	13,453
Use:			
Feed and Residual	5,125	4,792	4,600
Food, Seed and Industrial	5,961	6,428	6,410
Ethanol and By-Products[b]	4,591	5,021	5,000
Total Domestic Use	11,086	11,220	11,010
Exports	1,980	1,835	1,600
Total Use	13,066	13,054	12,610
Ending Stocks	1,708	1,128	843
Stocks/Use Ratio	13.1%	8.6%	6.7%
Avg. Farm Price, U.S., $ per bushel	$3.55	$5.18	$6.70
Avg. Farm Price, NYS, $ per bushel	$4.02	$5.20	$ -

Note : Totals may not add due to rounding; marketing year beginning September 1; E = estimated, P = projected.
[a] U.S. data from USDA, "World Agricultural Supply and Demand Estimates," (November 9, 2011) WASDE-499, P.12. New York State (NYS) data from "Field Crop Data," USDA NASS, New York Field Office, www.nass.usda.gov/statistics_by_State/New_York/Historical_Data/Field Crops/FieldCropsIndex.htm.
[b] Corn used to produce ethanol and by-products including distillers' grains, corn gluten feed, corn gluten meal, and corn oil. It is included in the food, seed, and industrial category and is presented for illustrative purposes.

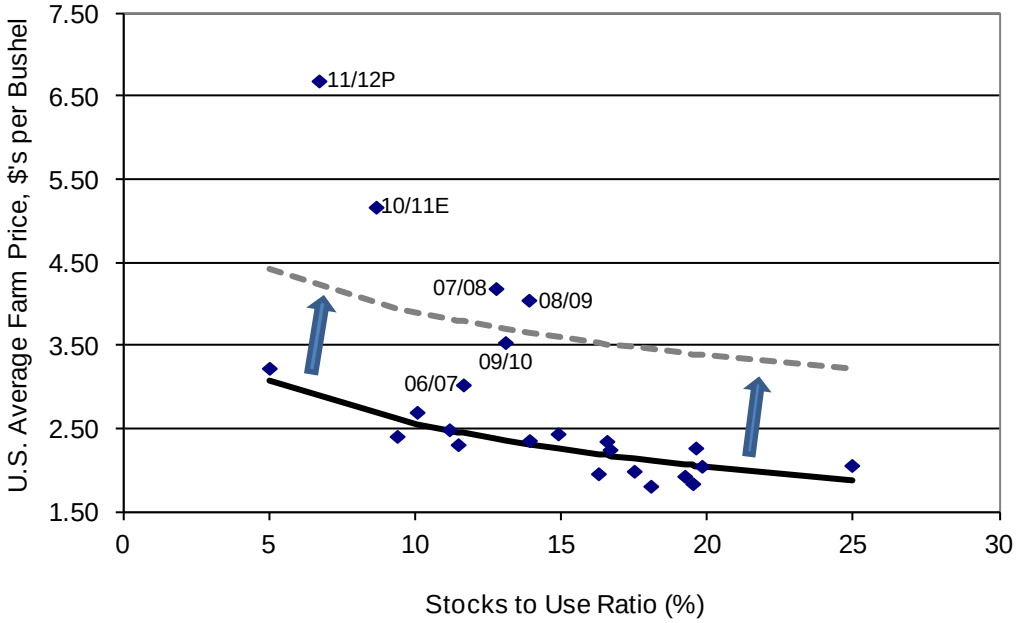
'feed and residual' and 'food, seed, and industrial' uses, respectively. Future sales of U.S. corn are expected to be limited by high U.S. prices and strong competition from foreign grain.

U.S corn ending stocks are projected at only 843 mb, or 6.7% relative to total use (Table 5-3). This projection of stocks-to-use is down from 8.6% in 2010/11. Of course, the ending stock levels are still subject to change. A similar percentage was projected for the 2010/11 marketing year this time last year, only to have stocks increase as the year progressed. Interestingly, the 6.1% projected for last year's crop coincided with a $5.20 average farm price, while a slightly higher stocks-to-use percentage this year coincides with an farm price projection of $1.50 higher. If materialized, this stocks-to-use level would be the lowest level since 5.0% in 1995/96. While uncertainty regarding the supply-side estimates have been largely resolved, realizations of usage will be worked through in the latter part of the 2011/12 marketing year.

Gross margins on corn ethanol production have expanded this year and consumption is supported by strong exports. Changes in ethanol policy could have substantial impacts on use and ending stocks in 2011/12 and 2012/13. It is expected that the federal blender's credit will be allowed to expire in 2012. Federal legislation has also been recently proposed (HR 3097) entitled "The Renewable Fuel Standard Flexibility Act," and aims to base the Renewable Fuel Standard on projected corn stocks-to-use ratios. If stocks to use are greater than 10%, there will be no change in the standard. However, when stocks-to-use fall below this level, reductions in RFS mandates will be triggered.

A way to combine supply and demand is to plot the stocks-to-use ratio against the average farm price of corn for the year (Figure 5-1). The observations for 1989/90 through 2005/06 have a constant relationship (i.e., the lower collection of points on the figure and estimated solid trend line). During this time, the demand for corn was growing, but supply growth was keeping up with the demand; hence, the mean price over those years was stable. A small upward shift is observable in 2006/07, followed by larger shifts in 2007/08 through 2009/10. The 2010/2011E combination represents another sizable price jump. A case can be made that we are now in a new regime of prices; i.e., the mean has shifted (and represented by the dashed line). The projected price and stocks-to-use combination in 2011/12 is in unchartered territory. There will certainly be fluctuations in prices about the mean but, for the longer run, it is interesting to speculate about whether this larger demand will persist. Conditional on the realizations of this and similar future projections, it may also be that not only has the mean shifted, but the relationship across ratios is pivoting clockwise. In other words, not only do similar stocks-to-use levels now relative to the past generate considerably higher prices, but, in the face of changes in stocks relative to use, the price changes are becoming larger.

FIGURE 5-1. HISTORICAL RELATIONSHIP BETWEEN CORN PRICES AND THE STOCKS-TO-USE RATIO, 1989-2011.



World coarse grain production is projected to reach 1,135.8 million tons in 2011/12, with relatively large increases for China, the EU, and Argentina partially offset by reductions in Mexico and countries in Africa. The world's use and stock balances for corn are summarized in Table 5-4. Total use is projected to be nearly 870 nearly million metric tons in 2011/12. This is a 2.7% increase over the previous year and is consistent with the resilient growth trend since 2007/08 despite high prevailing prices. This strong demand is due, in part, to expanding meat production in several countries including China and India. Chicken meat production in China is expected to grow by 5% this year over last year, and, by the end of the decade, pork production in China is projected to grow by approximately 20%. The variation in ending stocks in recent years is an indicator of the ability of supply to balance use. Indicative of low U.S. stocks, a world stocks-to-use ratio of 14.2% is projected for 2011/12 -- a relatively low level for the world and lowest since the 14.9% level observed in 2006/07.

TABLE 5-4. WORLD SUPPLY-DEMAND BALANCE FOR CORN, 2004-05 to 2011-12[a]

Marketing Year	Domestic Use	Ending Stocks	Stocks/ Use Ratio
	(Million Metric Tons)		(%)
2004 – 05	684.97	131.23	19.1%
2005 – 06	704.03	123.02	17.5
2006 – 07	728.53	108.69	14.9
2007 – 08	771.23	129.72	16.8
2008 – 09	781.10	147.99	18.9
2009 – 10	822.76	144.05	17.5
2010 – 11E	843.70	129.04	15.3
2011 – 12P	866.66	123.19	14.2

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

Price quotations for corn futures for nearby and distant contracts, as of 17 November 2011, help summarize the current situation (Table 5-5). Research suggests that these prices are as good a forecast as any alternative, but like all forecasts, the futures quotes are imprecise, especially for the more distant time periods. Clearly market expectations are bullish for the nearby months; however one- and two-year-out prices suggest a softening in prices, albeit well above levels experienced in the last few years. Acres planted to corn this spring were quite large, and for spring 2012, it is going to be the expected relative profitability that influences plantings. New crop futures prices do, however, appear to favor corn.

Since the USDA November report release, corn prices have come down a little, but remain highly variable from day to day. In summary, look for continued tight supply-demand conditions and historically high feed grain prices at least through summer 2012, with strong pressure to maintain, if not increase U.S. corn acres to replenish stocks amid strong competition for crop acres. Concerns about the adequacy of U.S. corn supplies will make production risks from weather more problematic. Price volatility will be on continued high alert with persistent tight stocks going into 2012/13 and uncertainty about ethanol production as the blender's tax credit is expected to expire in 2012.

TABLE 5-5. FUTURES PRICES FOR CORN, CHICAGO MERCANTILE EXCHANGE, 17 NOVEMBER 2011

Contract Month	- $ per bushel-
December 2011	$6.144
March 2012	6.232
May 2012	6.300
July 2012	6.334
September 2012	5.842
December 2012	5.602
December 2013	5.502

Soybeans

Consistent with wheat and corn, a smaller U.S. soybean crop is projected this marketing year. However, weaker than expected domestic exports coupled with record expected exports out of Brazil have driven a softening of prices since September. The supply and demand balance sheet for soybeans is summarized in Table 5-6. Early season planting and establishment problems in the eastern Corn Belt and northern Plains states and spring flooding along the Missouri, Ohio, and Mississippi rivers contributed to a nearly 4% drop in harvested acres to 73.7 million acres. July weather stress issues also contributed to lower yields, with estimated U.S. production in 2011/12 reduced to 3.046 bb, an 8.5% reduction from 2010/11. Continued reductions in projected crop production, combined with slightly higher beginning stocks from year-ago levels imply a total supply for 2011/12 of 3.275 bb, off 6.3% from last year.

TABLE 5-6. U.S. SUPPLY AND DEMAND BALANCE SHEET FOR SOYBEANS[a]

	2009-10	2010-11E	2011-12P
Supply:			
Harvested Acres (millions)	76.4	76.6	73.7
Yield (bushels per acre)	44.0	43.5	41.3
		(Million Bushels)	
Beginning Stocks	138	151	215
Production	3,359	3,329	3,046
Imports	15	14	15
Total Supply	3,512	3,495	3,275
Use:			
Crushings	1,752	1,648	1,635
Exports	1,499	1,501	1,325
Seed	90	87	88
Residual	20	43	32
Total Use	3,361	3,280	3,080
Ending Stocks	151	215	195
Stocks/Use Ratio	4.5%	6.6%	5.1%
Avg. Farm Price, U.S., $ per bushel	$9.59	$11.30	$12.60
Avg. Farm Price, NYS, $ per bushel	$9.10	$11.00	$ -

Note : Totals may not add due to rounding; marketing year beginning September 1; E = estimated, P = projected.
[a] U.S. data from USDA, "World Agricultural Supply and Demand Estimates," (November 9, 2011) WASDE-499, P.15. New York State (NYS) data from "Field Crop Data," USDA NASS, New York Field Office, www.nass.usda.gov/statistics_by_State/New_York/Historical_Data/Field Crops/FieldCropsIndex.htm.

Most of the movement on the use side has been on changes in expected export sales for the United States. USDA's November forecast reduced soybean exports to 1.325 bb, down nearly 12% from 2010/11 (Table 5-6). Early strong export sales to China last year have not materialized in 2011/12 and, as of 3 November 2011, U.S. export sales of soybeans were down 36% from last year. That said, the wide gap in early exports from last year could improve within the next few months, but perhaps not without more competitive prices. Coupled with large carryover stocks in Brazil, higher soybean production there is expected to raise Brazilian exports to record levels.

Despite a roughly 2% reduction global soybean production, larger carry in stocks, particularly in Brazil, are anticipated to raise total global supplies in 2011/12 by 3.7 million tons. In addition, earlier rains

this fall in Brazil has soybean planting ahead of schedule and may permit expanded double-cropping acres with corn following the soybean harvest. A better chance for additional early crop harvesting in January may imply a narrower window for U.S. exports to increase. The exports out of Brazil in 2011/12 are expected currently to outpace U.S. shipments for only the second time in history, 2005/06 was the first. However, stronger corn prices are expected to garner some acres away from soybeans globally.

Lower projected exports has resulted in higher ending stock levels from a month ago to 195 mb, but still below last year's tight stock levels (Table 5-6). Relative to use, ending stocks remain extremely tight at a level of 6.3%, above the 5.1% projected in October, and similar to ending levels in 2010/11. The global supply balance for soybeans is not as tight as it is for corn, with a 2011/12 projected stocks-to-use ratio of 24.1%, similar to last year (Table 5-7). Consistent growth in world soybean use combined with declining world production has occurred in spite of continuing record high prices. Strength in imports by China remains a staple demand component for world soybean markets, with China accounting for over 50% of all imports.

TABLE 5-7. WORLD SUPPLY-DEMAND BALANCE FOR SOYBEANS, 2004-05 to 2011-12[a]

Marketing Year	Domestic Use	Ending Stocks	Stocks/ Use Ratio
	(Million Metric Tons)		(%)
2004 – 05	205.39	48.18	23.5%
2005 – 06	215.21	52.94	24.6
2006 - 07	225.28	62.68	27.8
2007 – 08	229.75	52.91	23.0
2008 – 09	221.13	44.02	19.9
2009 – 10	238.22	59.41	24.9
2010 – 11E	251.48	68.37	27.2
2011 – 12P	261.75	63.01	24.1

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

Average farm prices are projected to be $11.45 per bu, similar to those realized in 2010/11. While prices have moderated more recently, soybeans remain in a tenuously high price position, even relative to a new higher regime in prices over the past few years. Given weaker U.S. exports to foreign competitors, current expectations about supply and demand this marketing year show moderated year-over-year decreases in futures commodity prices for beans and meal (Table 5-8). Last year at this time, January contracts were trading about $0.40 per bu higher for beans and were over $30 per ton higher for meal, albeit somewhat a result of declining price expectations since September this year. Since contracts for delivery in subsequent crop years are trading above or near prices than for current delivery, the implication is that markets are expecting continued struggles in rationing soybean supplies relative to expected demand. More recent drops in prices for both oil and meal components may bolster the U.S. share of international trade in these products, particularly for meal, which compared to other feeds, are now low relative to recent historical experience.

Uncertainty regarding potential policy changes relative to biofuels production will also be on the radar in soybean markets. The U.S. Renewable Fuels Standard includes mandates of minimum volumes of certain types of biofuels, e.g., conventional ethanol, biodiesel, and cellulosic ethanol. The total mandate increases to 36 billion gallons (bg) in 2022, with increasing submandated usage of at least 1 bg of biodiesel and 16 bg of biofuels from cellulosic biomass (both considered advanced biofuels). If the Administrator of the

TABLE 5-8. FUTURES PRICES FOR SOYBEANS AND SOYBEAN MEAL, CHICAGO MERCANTILE EXCHANGE, 17 NOVEMBER 2011

Contract Month	Beans $ per Bushel	Meal $ per Ton
January 2012	$11.682	$329.8
March 2012	12.150	331.9
May 2012	12.106	330.7
July 2012	12.110	330.0
September 2012	11.594	213.2
November 2012	11.280	293.9 (Dec 2012)
November 2013	10.682	281.5 (Dec 2013)

Environmental Protection Agency, after consultation with the Secretary of Agriculture, determines that the "implementation of the requirement would severely harm the economy or environment," he/she can waive part or the entire mandate. Waivers have already been granted on the cellulosic mandate, but the volumes were so small in the first two years little consequence was realized from the decisions. Future waivers under larger volumes may very well influence grain and oilseed commodity prices, particularly if intra-category adjustments in conventional and advanced mandate levels are considered. Furthermore, biodiesel helps to meet the submandate for advanced biofuels, but other advanced biofuels do not help to meet the biodiesel mandate. Particular adjustments in biodiesel mandates may result in further adjustments in commodity prices for oilseeds.

Feeds

Reduced production estimates for major feed commodities have increased prices for feed inputs and narrowed livestock margins. However, continued growth in USDA forecast prices for 2012 steers and broilers (6.6% and 4.3%, respectively, above 2011 estimates) are offsetting some reductions in margins. Hog prices moderated in the last half of 2011 after strong gains earlier in the year; the annual average price of hogs in 2012 is expected to be about the same as in 2011. The egg industry is expecting some softening in prices in 2012 after modest gains were realized in 2011 over low 2010 prices.

Domestic feed grain utilization in 2011/12 is projected 2.4% below last season, dominated by reduced corn feeding in the face of record prices. However, the projected index of grain consuming animal units (GCAU) in 2011/12 is 93.3 million units, up modestly from 2010/11. Both beef and broiler animal product production is expected down in 2012 (-5.0% and -1.7%, respectively) from 2011 estimated levels. Broiler production is forecast lower as sharper declines are expected in bird numbers during late 2011 and into 2012; while beef production is reduced due to slightly lower cattle slaughter during the year and slower growth in carcass weights. Continued strong demand for cattle in 2011 and 2012 is expected, particularly with gains in exports to a number of Asian markets. Pork production is forecast higher in early 2012 compared with 2011, up 1.7%, where export markets have remained steady. Higher feed prices and lower forecast milk prices in 2012 are expected to limit the rate of growth and the amount of feed used for dairy production.

Corn and soybean meal futures prices as of 17 November 2011 (Tables 5-5 and 5-8) are used, along with other information, in a model to project selected mixed feed costs. One set of estimates for dairy, hog, and layer feeds over the next year is shown in Table 5-9. They suggest, for example, that 18% protein dairy feed could be about $46 per ton lower this coming spring than a year earlier. Hog feed costs are forecast to drop $42 per ton, while layer feed costs are forecast to drop almost $30 per ton.

TABLE 5-9. APRIL COMPLETE FEED PRICES FOR DAIRY AND LAYERS, NORTHEAST U.S., 2006-2011[a]

Year	Dairy (18%)	Hog (14-18%)	Layer
2006	$217	$290	$237
2007	259	330	288
2008	312	376	332
2009	285	352	330
2010	272	284	368
2011	367	424	398
2012F	321	382	370

[a] Historical prices from USDA *Agricultural Prices*. Authors' 2012 forecasts are based on CME March 2012 contract settlement prices (17 November 2011) for corn and soybean meal. Specifically, assumed prices are respectively: corn $6.23 per bu, soybean meal $300 per ton, distillers dried grains with solubles $215 per ton, and meat & bone meal $333 per ton.

These particular results assume, among other things, that corn prices will be $6.23 per bu and soybean meal will be $300 per ton for 2011. These prices are consistent with recent quotes for corn and soybean meal futures contracts for March delivery (and exclude basis adjustments). While the forecast estimates are a welcome reprieve from feed costs in 2011, the forecasts remain considerably above levels realized in 2006 for all three livestock sectors. All predictions are conditional on the assumed information. Obviously, actual ingredient prices next March may be higher or lower than the quotes used in our analysis, and it is the volatility in the underlying ingredient prices that makes feed costs difficult to forecast.

The challenge is to buy feed or feed ingredients at prices that will provide an acceptable profit. Feed prices should not be looked at in isolation from output prices; it is the relative prices that are important. Thus, it is useful to think in terms of "assuring" a profit margin between feed costs and output prices. Market prices may not provide an acceptable margin at various points in time, but it is useful to look for opportunities to lock in an acceptable margin. In last year's chapter, we examined two hedging examples – one for cattle feeding and one for milk production. While we do not repeat these examples this year, updating the examples with existing futures prices reveals a strengthening in the gross margin hedged per head of livestock for both cases. The existence of futures markets provides flexibility in timing purchase and sale decisions. These markets do not provide perfect results, however, because of basis risk.

As also suggested previously, another possible way to protect against ingredient price increases is to consider buying call options on futures contracts. However, since the futures contract underlying the option has a volatile price, the premium paid for the option will be relatively high. On November 17, when the March corn futures settled at $6.232 per bushel (Table 5-4), the at-the-money call (strike price of $6.20) option's premium was 41.2 cents per bu. In other words, a livestock farmer would have paid $14.71 per ton to protect against corn prices rising above $221 per ton. This may look like rather expensive price insurance, but the premium reflects the possibility that March corn prices were nearly $8 per bu back in September. Again, the question is, does an option position help assure a suitable return to the farming operation?

Chapter 6. Dairy — Markets and Policy

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2012 Dairy Outlook

Positive Factors:

- High levels of exports
- Worldwide tightness in animal proteins

Negative Factors:

- Continued high unemployment
- Regionally poor quality and quantity of forage supplies
- Continued high purchased feed costs

Uncertainties:

- Weather impacts of La Niña
- Double dip recession
- Strengthening U.S. dollar against other currencies
- New dairy policy

TABLE 6-1

New York Dairy Situation and Outlook
2010, Projected 2011, and Estimated 2012

Item	2010	2011	2012	Percent Change 10-11	Percent Change 11-12
Number of milk cows (thousand head)	611	610	609	-0.2	-0.2
Milk per cow (lbs.)	20,820	21,085	21,200	1.3	0.5
Total milk production (million lbs.)	12,713	12,865	12,911	1.2	0.4
Blended milk price ($/cwt.)[a]	16.92	20.75	19.25	22.6	-7.2

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

Table 6-2. U.S. Milk Supply and Utilization, 2001 - 2012

	2001	2002	2003	2004*	2005	2006	2007	2008*	2009	2010[a]	2011[b]	2012*[c]
Supply												
Cows Numbers (thous.)	9,102	9,139	9,082	9,011	9,043	9,137	9,189	9,315	9,201	9,117	9,190	9,240
Production/cow (lbs)	18,164	18,608	18,759	18,968	19,566	19,894	20,204	20,396	20,572	21,149	21,460	21,675
Production	165.5	169.8	170.3	170.9	176.9	181.8	185.7	190.0	189.3	192.8	197.2	200.3
Farm Use	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Marketings	164.5	168.8	169.2	169.9	175.9	180.8	184.6	189.0	188.3	191.8	196.2	199.3
Beginning Commercial Stocks	6.8	6.1	9.9	8.3	7.2	8.0	9.5	10.4	10.1	11.3	10.9	10.1
Imports	5.7	5.1	5.0	5.3	5.1	5.0	4.6	3.9	4.1	4.0	2.7	3.0
Total Supply	**177.0**	**180.0**	**184.2**	**183.6**	**188.2**	**193.8**	**198.8**	**203.3**	**202.5**	**207.1**	**209.9**	**212.4**
Utilization												
Commercial Disappearance	169.8	169.8	174.7	176.5	180.2	184.2	188.4	193.2	190.5	196.0	199.8	202.2
Ending Commercial Stocks	7.0	9.9	8.3	7.2	8.0	9.5	10.4	10.1	11.3	10.9	10.1	10.2
DEIP	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Removals (excluding DEIP)	0.1	0.3	1.1	-0.2	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.0
Total Use	**177.0**	**180.0**	**184.2**	**183.6**	**188.2**	**193.8**	**198.8**	**203.3**	**202.5**	**207.1**	**209.9**	**212.4**

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.

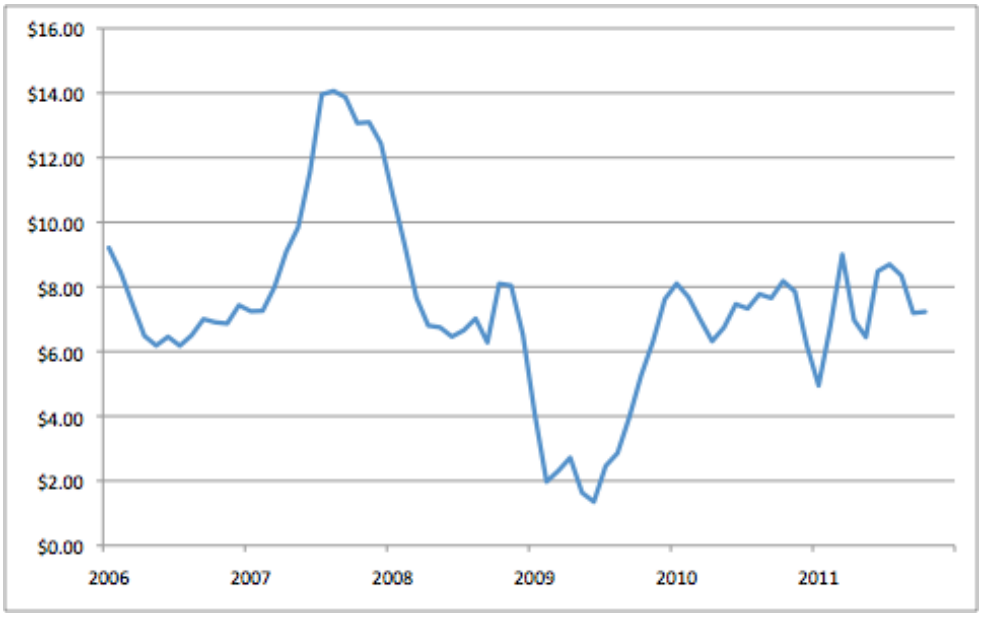
[b] Based on preliminary USDA data and Cornell estimates.

[c] Projected by Mark Stephenson.

The Dairy Situation

2011 will go on into the books as the highest annual average milk price ever recorded. At the time of this writing, I don't have the last two month's All Milk price, but I am projecting that the U.S. All Milk price will average just above $20 which would put it just about $1 better than the previous high year in 2007. While all of this sounds like a banner year, it must be remembered that feed prices were also extraordinarily high. For example, corn prices will average about 60 percent higher than 2010 and nearly 30 percent higher than the previous high year in 2008. As a measure of milk income over feed costs, Figure 6-1 shows that 2011's margin was fairly ordinary.

FIGURE 6-1. MONTHLY MILK - FEED PRICE MARGIN.



The Milk Supply

Although the milk-feed price margin was nothing special, it was good enough for most dairy producers to produce milk at a profit and to increase milk production. The 2011 milk production will be about 2.33 percent above the previous year's level—a rate that is well above a longer term average of about 1.5 percent.

During the poor milk prices of 2009, U.S. dairy cow numbers declined substantially. With the price recovery of that last two years, cow numbers have had a modest increase and are now back at 2007 levels. One factor that has contributed to moderate increases in cow numbers is a high cull cow price. NASS (National Agricultural Statistics Service) cull cow prices will average more than 70 cents per pound and is well above a more typical 50 cents per pound average in recent years. Although cull cow prices have been attractive, the supply of heifers in the national herd has been very high and has supplied a steady stream of replacement animals. In years past, having heifer numbers at about 40-42 percent of milking cows was quite normal. In 2010-11, we have had heifers at almost 50 percent of milking cows. There are plenty of animals available to take the place of any

culled cows and room to grow the national herd if the economics warrant expansion. Right now, economics seem to dictate cautious expansion and many of the heifers are being exported. As of September 2011, year-to-date exports of heifers are 52,630 animals which compares to the 37,590 heifers export sales for all 12 months of 2010.

Milk per cow has shown little growth over 2010 levels. Productivity increases had been modest in 2008-09 as farms reacted to higher concentrate costs. But as feed prices moderated in 2010, dairy producers expressed the genetic gains in their herds with a large 2.8 percent increase in milk per cow—a rate more than double the previous two years. With feed prices at their highest recorded levels ever, dairy producers are not pushing cows very hard in 2011 and the milk per cow will only be slightly higher than 2010 levels.

Dairy Product Demand

The landscape keeps shifting on dairy product demand. The 2009 recession and slow recovery have impacted domestic demand for dairy products as well as export demand. Commercial disappearance is a calculation that is often done to reflect demand. This calculation is the production of a product plus the change in inventory minus government purchases. It doesn't discriminate against domestic versus export sales but it does tell us about total commercial sales of a product. For the most recent decade, commercial disappearance of cheese has increased at a compound annual growth rate of 2.33 percent. During the economic downturn of 2008-09 cheese grew at less than half that rate but, in 2011, we are on course to increase commercial disappearance of cheese at a nearly 4 percent rate.

Fluid milk disappearance is a different story than cheese. Per capita fluid milk consumption has been on the decline for many years. It peaked back in the mid-1940s at a level of more than 380 pounds. Today's consumption is less than half that amount. During the recession of 2009, fluid milk sales bucked that trend. It is conjectured that consumers reacted favorably to the lower retail prices on beverage milk and that while they were eating more meals at home, they were buying more milk and consuming it. Unemployment numbers have remained persistently high but consumption of fluid milk has declined quite a bit from the temporary respite of 2009. Figure 6-2 shows the increase and the more recent decline in the average daily sales of fluid milk.

Consumer's confidence in the economy is not strong. The monthly survey by the Confidence Board indicates that the mild recovery that we saw in consumer's confidence after the bottom in early 2009, may not be holding. Although consumers tend to have more optimism about the future than they do the present, their sentiment has again been eroding through 2011. Most economists do not believe that we are headed into a "double dip" recession, but consumers do not appear to be convinced.

FIGURE 6-2. AVERAGE DAILY SALES OF FLUID MILK.

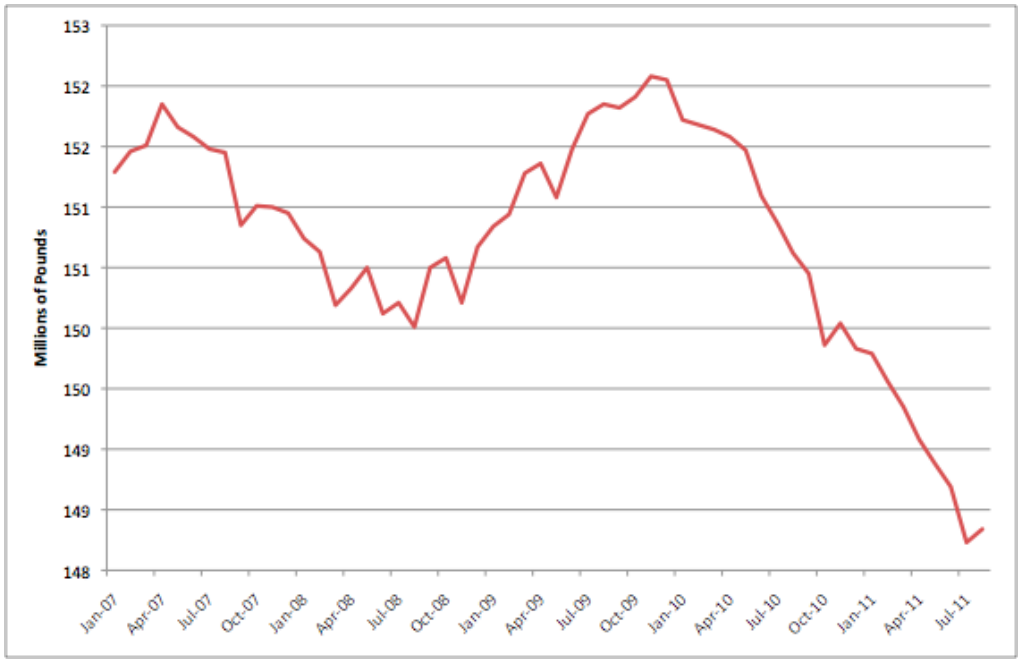
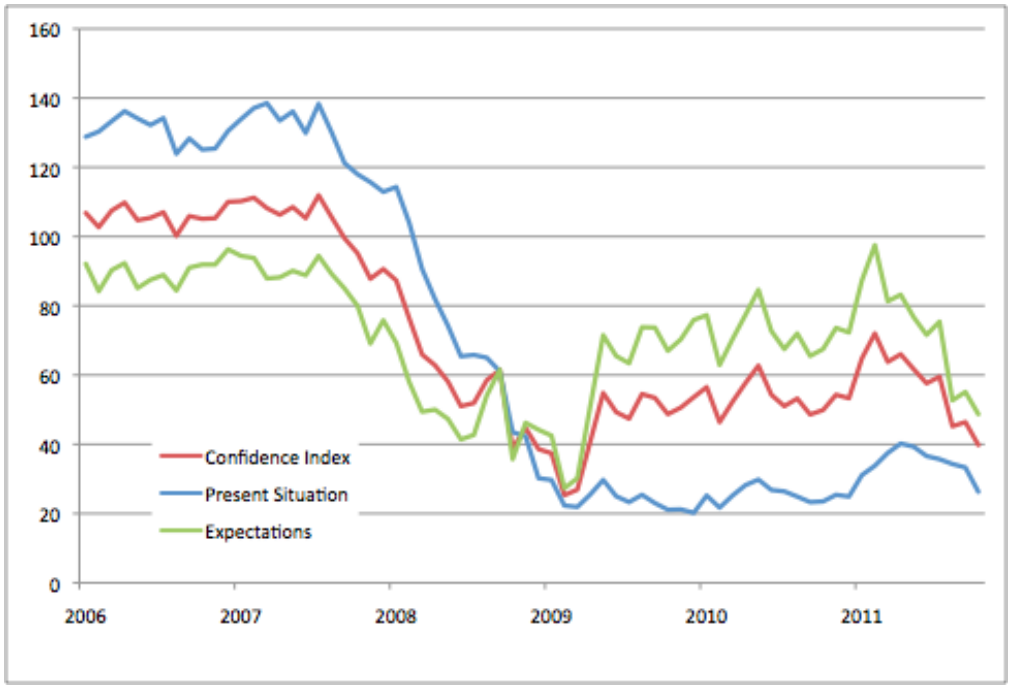


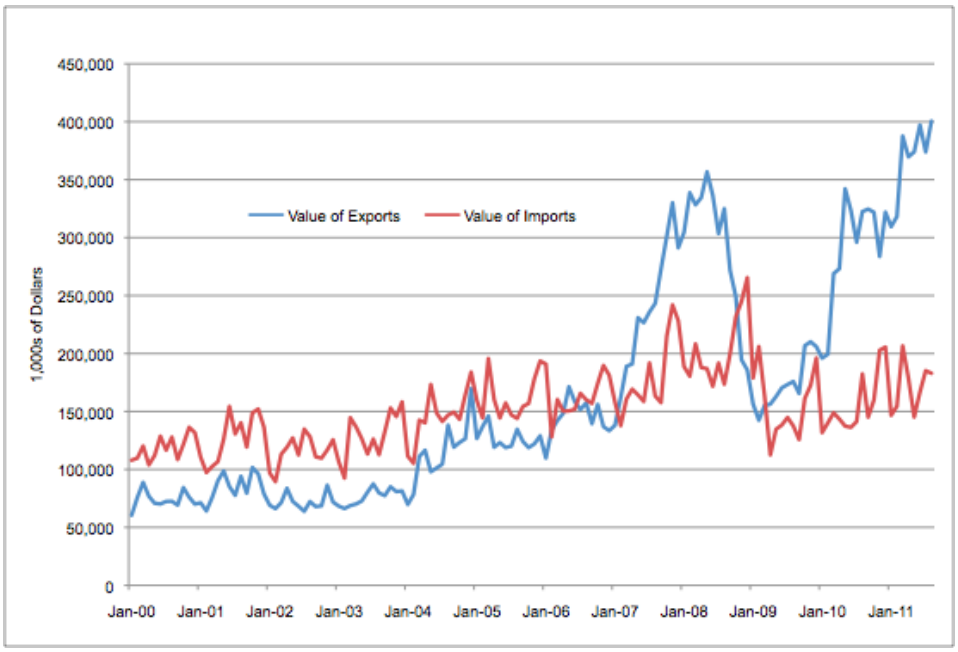
FIGURE 6-3. CONSUMER'S CONFIDENCE IN THE ECONOMY.



Although some of the domestic sales prospects are not as bright, exports have been particularly strong in 2011. Figure 6-4 shows the rebound in export value that occurred in the last two years. Exports continue to grow and now account for 12-14 percent of the U.S. milk production. Although our export products tend to be relatively lower value products like dried whey, lactose and skim milk powder, and imports from other countries tend to be high value products like specialty

cheeses that are not produced here, the net trade balance for dairy products is now positive by nearly a 2-to-1 margin. It is clear that the great capacity for future growth in sales of milk and dairy products will come from export sales and the reduction of dairy product imports and not from dramatic changes in domestic consumption.

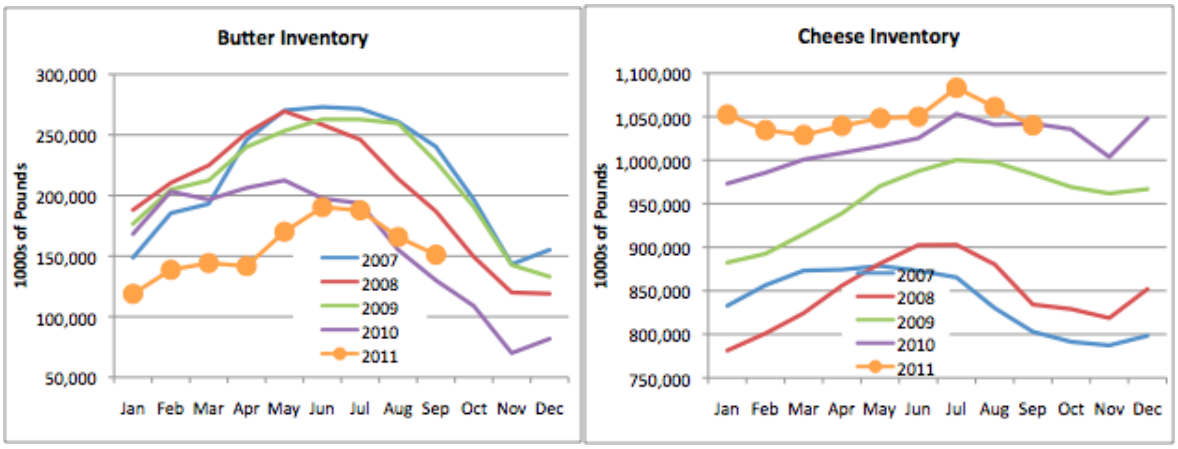
FIGURE 6-4. VALUE OF TRADE IN DAIRY PRODUCTS.



Dairy Stocks

Levels of dairy stocks act like the "canary in the coal mine". They have the capacity to expand or contract somewhat based on minor supply and demand imbalances. Over the last few years, cheese and butter stocks have moved in opposite directions.

FIGURE 6-5. COMMERCIAL INVENTORIES OF BUTTER AND CHEESE.



Through most of 2010 and the first half of 2011, butter inventories had shrunk to nearly half of normal levels. This was in part due to strong demand, including exports, and a national butterfat depression. It isn't clear why the butterfat production was depressed, but hot weather and feed quality may have played a role. As 2011 has progressed, butterfat yields have returned to normal levels and relatively high butter prices may have tempered demand. Inventory levels are returning to more comfortable pipeline stocks.

Cheese inventories have been almost the opposite story. By January, 2011 inventory levels were as much as 30 percent above more typical stocks. These had built steadily over the last two years but, by the fourth quarter of the year, stocks appear to have stopped growing.

The Dairy Outlook

We can't begin to forecast milk prices without acknowledging the severe impact that feed prices will have. Many countervailing factors are involved in my outlook for dairy prices this year and one of them is the weather. La Niña is a climate event that is caused by colder than normal waters in the eastern equatorial regions of the Pacific Ocean. These events commonly occur every 3 to 5 years. Last year was an unusually strong La Niña causing major flooding in Australia and severe drought in the Southwest U.S. Although it doesn't happen often, the La Niña is forming again this year and will almost certainly prolong what is categorized as extreme or exceptional drought throughout most of Texas, Oklahoma and New Mexico in 2012. This has direct implications for dairy in that region and feedstuffs for dairy cattle throughout the country.

La Niña is also implicated for the excessive rains in the Northeast and La Niña punished Northwest Australia last year with rainfall. However, it also broke the decade long drought that had plagued the more southern dairy regions of that country. Australia and New Zealand are expecting increased milk production and exports in 2012.

The European Union also had significantly greater exports in 2011 than the year earlier. For example, in the first half of 2011, Ireland had increased milk production by almost 50 percent and looks forward to 2015 when their milk quota will cease to exist.

Competing exporting countries have an impact on our milk price prospects but the sovereign debt crisis in the EU may also have an impact. As the debt problems in Ireland, Portugal, Greece and Italy cause concerns in financial markets all over the world, repercussions will also affect the U.S. Even though unemployment in the U.S. is high and our economic recovery is weak, the rest of the world still views the U.S. as a safe haven in uncertain times. Investors may put their money into U.S. securities and thus strengthen the U.S. dollar. This sounds good, but it makes our exports look relatively more expensive to countries buying our dairy products.

Through the global recession in 2009, we saw emerging economies like China, India and Mexico recover much more rapidly than developed countries. Their influence on worldwide dairy markets has been substantial. Although China is not the largest destination for U.S. dairy product exports, it has important growth potential for us. A newly signed free trade agreement with Korea also holds promise for increased exports. And, the recently settled dispute with Mexico regarding cross-border trucking on U.S. highways should help increase cheese exports to that country by having tariffs on U.S. products lifted.

As mentioned, trade has become an important source of demand for U.S. dairy products, but feed prices have had a tendency to pull milk supplies in the opposite direction. Grain futures markets for corn and soybeans have moderated slightly from their high point in 2011. However, using futures market values for milk and feed prices would indicate weakening margins for 2012. If the MILC program is still in place in 2012, these price forecasts would expect payments in all 12 months of the year with the largest payments from February through August.

It looks as though 2011 U.S. All Milk prices will average about $3.80 better than 2010 prices. However, I am expecting 2012 prices to decline about $1.80 from the 2011 levels. I will add that I believe that there is more upside potential in my forecast than downside. This is because world demand for milk proteins could be stronger than expected.

A recent Rabobank report entitled "Where's the Beef" points out that they are forecasting a worldwide shortage of animal proteins. In the U.S., the extreme drought in Texas has caused heavy culling of beef cows and the calf crop is forecast to be short. There are other reasons for pork and chicken shortages in other regions of the world, but their conclusion is that the forecast growth in animal protein production will only be about half of population growth which suggests a strong price from the shortage. Milk proteins may prove to be strong substitutes for meat proteins and the U.S. dairy industry is in a good position to increase milk production if the price is right.

Dairy Policy

At the time I write this outlook, Washington has been proceeding with a very different path to Farm Bill legislation. On August 2, 2011, Congress created the Budget Control Act of 2011. This Act authorized the Joint Select Committee on Deficit Reduction—the so called "Super Committee, comprised of twelve individuals—which is tasked with identifying $1.2 trillion in budget savings over a ten-year horizon by November 23, 2011 with an "up or down" vote to be taken by December 23, 2011. What makes this committee different is its ability to write and report out legislation that is non-amendable.

The chairmen and ranking members of both the House and Senate agricultural committees have seized this opportunity and are in the process of trying to craft the entire farm bill, with $23 billion in net deficit budget savings over the next 10 years, to submit to the Super Committee for inclusion in their larger package. It is believed that the House ranking member, Colin Peterson, has created the framework for the dairy title of the Farm Bill with his Dairy Security Act of 2011.

The Dairy Security Act seeks to reduce milk price volatility, replace current safety net programs with milk-feed price margin insurance, require federal milk marketing orders to replace product price formulas for Class III milk with a competitively determined price, and reduce the federal budget exposure for dairy programs in the Farm Bill. The budget savings would be found by repealing three current programs: the Dairy Export Incentive Program (DEIP), the Dairy Product Price Support Program (DPPSP), and the Milk Income Loss Contracts (MILC).

The former "safety net" programs, DPPSP and MILC, would be replaced with a voluntary insurance program referred to as the Dairy Producer Margin Protection Program (DPMPP). If producers have elected to participate in the program a base level of coverage is provided at no cost. Producers can also buy up to higher levels of protection by paying an annual premium. Indemnities are determined by the difference between milk prices and feed prices referred to as the margin

trigger. The same margin calculation would determine whether the Dairy Market Stabilization Program (DMSP) would be activated. If the DMSP is triggered, participating dairy producers would be notified that they would not receive payment for a portion of milk shipped that is above their individual production base.

The provisions of the Dairy Security Act would be a marked departure from existing dairy policy. Because participation in the DPMPP and thus the DMSP is voluntary, it is unknown what the level of impact would be on the U.S. dairy industry. It is also unknown what level of margin protection participating producers would choose as supplemental coverage.

Only time will tell whether the major provisions of the Dairy Security Act will have made it to the Super Committee for inclusion in the larger bill, or even if the Super Committee can come to consensus on their much larger task of finding $1.2 trillion in budget reduction, or if the Super Committee does report out a bill whether Congress will vote the package into law. If any of these things fail, then the Farm Bill will probably assume a more normal public debate during 2012 and may not even see passage in a major election year.

Table 6-3. National Farm Prices for Milk; CCC Purchase, Wholesale, and Retail Prices for Cheddar Cheese, Butter, and Nonfat Dry Milk; and Selected Retail Price Indices, 2001–2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Farm Milk ($/cwt.)											
All Milk (ave. fat)	15.04	12.18	12.55	16.05	15.13	12.88	19.13	18.33	12.83	16.29	20.11
Class III (3.5%)	13.10	10.42	11.42	15.39	14.05	11.89	18.04	17.44	11.36	14.41	18.25
Support (3.5%)	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
Milk Price: Feed Price Value	3.39	2.60	2.61	3.10	3.24	2.57	2.81	2.01	1.78	2.26	1.89
MILC payments [c]	0.06	1.21	1.09	0.22	0.04	0.61	0.07	0.00	1.26	0.00	0.00
Cheddar Cheese, Blocks ($/lb.)											
CCC Purchase	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.130	1.130	1.130
Wholesale, Chicago Mercantile Exchange	1.439	1.182	1.317	1.649	1.492	1.239	1.758	1.856	1.296	1.496	1.819
Butter ($/lb.)											
CCC Purchase, Grade A or higher, Chicago	0.855	0.855	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
Wholesale, Gr. AA, Chicago Merc. Exchange	1.663	1.106	1.145	1.817	1.549	1.236	1.368	1.465	1.243	1.728	2.019
Nonfat Dry Milk											
CCC Purchase, Unfortified ($/lb.)	0.900	0.900	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
Wholesale, Central States	1.004	0.928	0.838	0.858	0.985	1.001	1.804	1.300	0.993	1.250	1.572
Retail Price Indices (1982–84=100.0)											
Milk	112.7	110.6	111.5	125.0	127.0	125.5	140.1	148.5	129.0	133.6	145.2
Cheese	167.6	170.0	169.4	180.8	183.3	180.8	191.5	214.6	203.5	204.8	216.1
All Dairy Products	167.1	168.1	167.9	180.2	182.4	181.4	194.8	210.4	197.0	199.2	211.6
All Food	173.1	176.2	180.0	186.2	190.7	195.2	202.9	214.1	218.0	219.6	227.2
All Consumer Prices	177.1	179.9	184.0	188.9	195.3	201.6	207.3	215.3	214.5	218.1	224.7

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.

TABLE 6-4.

MILK PRICE PROJECTIONS*
Northeast Federal Order Statistical Uniform Price
3.5 Percent, Suffolk County, Massachusetts
Last Quarter 2010-2011, Four Quarters 2011-2012

Month	2010	2011	Difference
	(dollars per hundredweight)		
October	18.61	20.42	1.81
November	18.17	20.69 [B]	2.52
December	16.91	20.34 [B]	3.43
Fourth Quarter Average	17.90	20.48 [B]	2.59
Annual Average	***16.92***	***20.75*** [B]	***3.83***

Month	2011	2012 [a]	Difference
	(dollars per hundredweight)		
January	17.01	19.65	2.64
February	18.75	19.15	0.40
March	20.28	18.97	-1.31
First Quarter Average	18.68	19.26	0.58
April	20.38	19.02	-1.36
May	20.79	19.02	-1.77
June	22.09	19.19	-2.90
Second Quarter Average	21.09	19.08	-2.01
July	22.76	19.22	-3.54
August	23.22	19.36	-3.86
September	22.23	19.39	-2.84
Third Quarter Average	22.74	19.32	-3.41
October	20.42	19.37	-1.05
November	20.69 [B]	19.33	-1.36
December	20.34 [B]	19.33	-1.01
Fourth Quarter Average	20.48 [B]	19.34	-1.14
Annual Average	***20.75*** [B]	***19.25*** [B]	***-1.50***

* Averages may not add due to rounding.

[a] Projected.

Chapter 7. Dairy -- Farm Management

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Herd Size Comparisons

The 204 New York dairy farms that participated in the Dairy Farm Business Summary (DFBS) Project in 2010 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 generally the case for 2010 (Table 7-1). Net farm income without appreciation averaged $24,201 per farm for the less than 60 cow farms and $1,030,251 per farm for those with more than 900 cows. Return to all capital without appreciation generally increased as herd size increased. With herd sizes between 60 and 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 $715 net farm income per cow while 60 cows or less dairy farms averaged $509 net farm income per cow. The over 900 herd size category had the highest net farm income per cow while the 60 to 99 herd size category had the lowest net farm income per cow at $210. Other factors that affect profitability and their relationship to the size classifications are shown in Table 7-2.

TABLE 7-1. COWS PER FARM AND FARM FAMILY INCOME MEASURES
204 New York Dairy Farms, 2010

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	24	48	$24,201	$509	$-8,307	-3.4%
60 to 99	23	76	16,052	210	-15,740	-3.5%
100 to 199	42	139	67,455	484	-978	1.3%
200 to 399	26	290	190,350	657	58,665	5.6%
400 to 599	25	490	325,488	665	89,346	6.8%
600 to 899	30	740	490,148	662	153,264	7.3%
900 & over	34	1,440	1,030,251	715	273,170	7.9%

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 did generally exhibit the usual increase as herd size increased. All herd size categories except the largest category saw an increase in operating cost of producing milk from a year earlier (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 25,649 pounds of milk sold per cow, farms in the largest herd size group averaged 9.6 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 4 percent of the 47 DFBS farms with less than 100 cows used a milking frequency greater than 2 times per day. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 200 cows reported 5 percent of the herds milking more often than 2 times per day, the 200-399 cow herds reported 58 percent, 400-599 cow herds reported 64 percent, 600-899 cow herds reported 87 percent, and the 900 cow and larger herds reported 94 percent exceeding the 2 times per day milking frequency.

TABLE 7-2. COWS PER FARM AND RELATED FARM FACTORS
204 New York Dairy Farms, 2010

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	48	19,166	4,623	3.6	8.7	$12,659	$13.45	$23.00
60 to 99	76	19,147	5,506	2.8	7.9	11,324	15.01	22.60
100 to 199	139	19,898	7,011	3.0	8.6	12,187	13.89	20.08
200 to 399	290	24,039	9,889	2.0	8.0	9,051	13.90	17.28
400 to 599	490	22,956	9,990	2.4	8.2	8,201	13.95	17.35
600 to 899	740	24,921	11,249	2.0	7.9	8,887	14.16	17.11
900 & over	1,440	25,649	12,576	1.8	8.4	8,980	13.48	16.41

Milk output per worker has always shown a strong correlation with herd size. The farms with 100 cows or more averaged over 1,125,600 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 509,700 pounds per worker.

In achieving the highest productivity per cow and per worker, the largest farms had the fewest crop acres per cow and above average forage dry matter harvested per cow. The 400 to 599 herd size group had the more efficient use of farm capital with an average investment of $8,201 per cow.

The 34 farms with 900 or more cows had the lowest total cost of producing milk at $16.41 per hundredweight. This is $1.34 below the $17.75 average for the remaining 170 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 $1.01 per hundredweight above the average of the other 170 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, 2010 [a, b]

Size of Herd	Farms		Milk Cows	
Number of Cows	Number	% of Total	Number	% of Total
1 – 29	950	18.6%	9,000	1.5%
30 – 49	900	17.6%	29,000	4.8%
50 – 99	1,750	34.3%	120,000	19.6%
100 – 199	855	16.8%	110,000	18.0%
200 – 499	400	7.8%	110,000	18.0%
500 – 749	118	2.3%	67,000	11.0%
750 – 999	45	0.88%	35,000	5.7%
1,000 – 1,499	48	0.94%	55,000	9.0%
1,500 – 1,999	17	0.33%	28,000	4.6%
2,000 or more	17	0.33%	48,000	7.8%
Total	5,100	100.0%	611,000	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 2010.
- CAFO (Concentrated Animal Feeding Operations) permit reports for 2010. Some small CAFO farms (farms with 200 to 700 milk cows) have not applied for or updated the permit. Estimates for these farms were made so as to reflect the total number of dairy farms in New York State; revision from Census in certain size categories.

[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 2010, there were 5,100 dairy farms in New York State, and 611,000 milk cows. The table above was prepared based on the NYASS data plus the CAFO permit filing for additional herd size categories, and estimates from the 2007 Census.

Eighty-seven percent of the farms (less than 200 cows per farm) had 44 percent of the milk cows. The remaining thirteen percent of the farms had 56 percent of the cows.

About 5 percent of the farms (those with 500 or more cows) had 38 percent of the cows.

Farms with less than 50 cows represent 36 percent of all farms but kept only 6 percent of the cows.

Farms with 1,000 or more cows represent about 1.6 percent of the farms but kept over 21 percent of the cows.

Ten-Year Comparisons

The total cost of producing milk on DFBS farms has increased $1.94 per hundredweight over the past 10 years (Table 7-4). In the intervening years, total cost of production fell in 2002, increased in 2003 and 2004, decreased in 2005 and 2006, increased in 2007 and 2008, decreased in 2009, and increased to $17.73 in 2010. 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 13 percent and cows per worker increased 10 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, 2001 to 2010

Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Operating Expenses										
Hired labor	$2.41	$2.44	$2.51	$2.67	$2.66	$2.58	$2.70	$2.79	$2.70	$2.61
Purchased feed	4.25	4.10	4.29	4.88	4.37	4.30	5.21	6.17	5.45	5.41
Machinery repair, vehicle expense & rent	1.21	1.01	.91	1.09	1.07	1.04	1.27	1.24	1.07	1.16
Fuel, oil & grease	.32	.28	.33	.41	.53	.58	.67	.91	.57	.65
Replacement livestock	.20	.16	.15	.16	.11	.07	.07	.08	.06	.06
Breeding fees	.19	.21	.19	.21	.22	.23	.24	.26	.21	.21
Veterinary & medicine	.54	.56	.56	.59	.62	.65	.65	.68	.63	.63
Milk marketing	.63	.65	.69	.72	.76	.80	.80	.85	.88	.89
Other dairy expenses	1.26	1.25	1.30	1.27	1.32	1.29	1.41	1.52	1.44	1.45
Fertilizer & lime	.33	.27	.26	.30	.34	.31	.40	.47	.41	.37
Seeds & plants	.20	.20	.20	.24	.22	.23	.28	.33	.35	.36
Spray & other crop expense	.25	.22	.19	.20	.19	.19	.25	.26	.20	.21
Land, building & fence repair	.26	.19	.14	.21	.25	.22	.32	.34	.23	.26
Taxes	.21	.20	.21	.22	.23	.21	.23	.21	.22	.22
Insurance	.14	.16	.15	.16	.16	.17	.19	.18	.17	.17
Utilities (farm share)	.33	.34	.34	.36	.39	.41	.44	.43	.38	.41
Interest paid	.82	.61	.56	.57	.65	.78	.83	.54	.51	.53
Misc. (including rent)	.42	.44	.40	.43	.37	.45	.49	.49	.44	.44
Total Operating Expenses	$13.98	$13.27	$13.39	$14.67	$14.54	$14.51	$16.46	$17.77	$15.90	$16.04
Less: Nonmilk cash receipts	1.49	1.91	1.57	1.70	1.96	1.94	1.75	1.57	1.89	1.62
Increase in grown feed & supplies	.10	.12	.27	.17	.12	.22	.39	.66	-.04	.36
Increase in livestock	.52	.23	.09	.22	.21	.27	.30	.33	.34	.30
OPERATING COST OF MILK PRODUCTION	$11.87	$11.01	$11.46	$12.58	$12.25	$12.08	$14.02	$15.21	$13.71	$13.76
Overhead Expenses										
Depreciation: machinery & buildings	$1.30	$1.39	$1.23	$1.32	$1.32	$1.26	$1.32	$1.38	$1.28	$1.32
Unpaid labor	.10	.08	.10	.07	.06	.07	.07	.04	.05	.04
Operator(s) labor [a]	.74	.74	.70	.67	.61	.63	.65	.58	.54	.50
Operator(s) management (5% of cash receipts)	.87	.75	.73	.90	.90	.79	1.07	1.10	.80	.96
Interest on farm equity capital (5%)	.91	.89	.85	.92	1.02	1.06	1.20	1.29	1.21	1.15
Total Overhead Expenses	$3.92	$3.85	$3.61	$3.88	$3.91	$3.81	$4.31	$4.39	$3.88	$3.97
TOTAL COST OF MILK PRODUCTION	$15.79	$14.86	$15.07	$16.46	$16.16	$15.89	$18.33	$19.60	$17.59	$17.73
AVERAGE FARM PRICE OF MILK	$15.98	$12.98	$13.24	$16.64	$15.98	$13.85	$20.34	$19.24	$13.88	$17.81
Return per cwt. to operator labor, capital & mgmt.	$2.71	$0.50	$0.45	$2.67	$2.35	$0.44	$4.93	$2.61	$-1.16	$2.69
Rate of return on farm equity capital	6.0%	-5.6%	-5.7%	6.0%	4.1%	-4.6%	13.4%	3.6%	-10.3%	5.2%

[a] 2000 = $1,900/month, 2001 = $2,000/month, 2002 = $2,100/month, 2003 through 2005 = $2,200/month, 2006 = $2,300/month, 2007 = $2,400/month, and 2008 and 2009 = $2,500/month of operator labor.

TABLE 7-5. TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 2001 to 2010

Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of farms	228	219	201	200	225	240	250	224	204	204
Cropping Program										
Total tillable acres	618	660	659	701	729	730	758	883	965	987
Tillable acres rented	290	337	323	345	365	360	385	446	482	493
Hay crop acres	302	323	321	339	361	366	364	421	464	469
Corn silage acres	210	232	233	245	246	249	258	297	348	340
Hay crop, tons DM/acre	2.8	3.1	3.2	3.5	3.2	3.2	3.0	3.5	3.4	3.5
Corn silage, tons/acre	16.5	15.4	17.2	17.7	18.8	18.4	18.9	19.9	18.7	19.6
Fertilizer & lime exp./tillable acre	$32	$27	$28	$31	$33	$30	$40	$49	$42	$43
Machinery cost/cow	$554	$520	$497	$565	$624	$618	$708	$800	$660	$712
Dairy Analysis										
Number of cows	277	297	314	334	340	350	358	414	469	489
Number of heifers	207	226	240	260	270	283	289	348	391	415
Milk sold, cwt.	60,290	66,177	70,105	73,767	78,250	80,862	82,315	99,884	113,555	119,782
Milk sold/cow, lbs.	21,762	22,312	22,302	22,070	22,998	23,083	22,983	24,115	24,208	24,508
Purchased dairy feed/cwt. milk	$4.25	$4.10	$4.27	$4.86	$4.37	$4.29	$5.20	$6.16	$5.45	$5.39
Purchased grain & concentrate as % of milk receipts	25%	30%	30%	27%	26%	29%	24%	31%	38%	29%
Purchased feed & crop exp/cwt.milk	$5.03	$4.79	$4.92	$5.60	$5.12	$5.02	$6.13	$7.23	$6.41	$6.32
Capital Efficiency										
Farm capital/cow	$6,755	$6,794	$6,748	$7,010	$7,508	$7,762	$8,426	$9,145	$9,060	$9,141
Real estate/cow	$2,713	$2,612	$2,722	$2,809	$2,950	$3,030	$3,356	$3,606	$3,713	$3,857
Machinery investment/cow	$1,222	$1,261	$1,208	$1,226	$1,314	$1,384	$1,448	$1,535	$1,553	$1,570
Asset turnover ratio	0.63	0.53	0.54	0.64	0.60	0.52	0.67	0.59	0.44	0.56
Labor Efficiency										
Worker equivalent	6.72	7.21	7.50	7.97	8.18	8.19	8.40	9.75	10.74	10.93
Operator/manager equivalent	1.94	1.82	1.86	1.64	1.60	1.63	1.62	1.72	1.83	1.82
Milk sold/worker, lbs.	897,167	917,854	934,733	925,553	956,698	987,530	980,234	1,024,799	1,057,063	1,095,897
Cows/worker	41	41	42	42	42	43	43	42	44	45
Labor cost/cow	$706	$725	$738	$752	$765	$757	$784	$823	$794	$771
Hired labor exp./hired worker equiv.	$31,448	$31,755	$32,659	$33,311	$33,539	$34,071	$34,924	$36,312	$35,908	$35,643
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$45,479	$-14,243	$-15,360	$78,061	$64,745	$-31,269	$189,019	$75,945	$-147,313	$101,484
Farm net worth, end year	$1,181,055	$1,173,836	$1,207,964	$1,466,674	$1,690,427	$1,736,505	$2,200,655	$2,640,168	$2,639,640	$3,012,912
Percent equity	60%	57%	56%	60%	63%	62%	68%	68%	62%	65%

TABLE 7-6. COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 94 New York Dairy Farms, 2001 - 2010

Selected Factors	2001	2002	2003	2004
Milk receipts per cwt. milk	$16.02	$12.99	$13.29	$16.77
Size of Business				
Average number of cows	347	368	385	409
Average number of heifers	256	284	296	307
Milk sold, cwt.	78,955	85,538	89,102	93,219
Worker equivalent	8.30	8.70	9.20	9.62
Total tillable acres	707	747	787	834
Rates of Production				
Milk sold per cow, lbs.	22,772	23,228	23,122	22,795
Hay DM per acre, tons	3.1	3.3	3.4	3.4
Corn silage per acre, tons	17	15	18	18
Labor Efficiency				
Cows per worker	42	42	42	43
Milk sold per worker, lbs.	951,266	983,190	968,502	969,008
Cost Control				
Grain & concentrate purchased as % of milk sales	25%	29%	31%	27%
Dairy feed & crop expense per cwt. milk	$4.95	$4.75	$4.98	$5.61
Operating cost of producing cwt. milk	$11.93	$10.94	$11.34	$12.38
Total cost of producing cwt. milk	$15.00	$14.03	$14.31	$15.47
Hired labor cost per cwt.	$2.52	$2.53	$2.58	$2.71
Interest paid per cwt.	$0.76	$0.56	$0.53	$0.52
Labor & machinery costs per cow	$1,279	$1,257	$1,256	$1,326
Replacement livestock expense	$13,297	$12,286	$12,618	$18,722
Expansion livestock expense	$24,022	$23,172	$20,035	$28,663
Capital Efficiency				
Farm capital per cow	$6,592	$6,724	$6,744	$6,913
Machinery & equipment per cow	$1,204	$1,230	$1,192	$1,199
Real estate per cow	$2,523	$2,543	$2,615	$2,654
Livestock investment per cow	$1,694	$1,798	$1,818	$1,857
Asset turnover ratio	0.67	0.56	0.56	0.68
Profitability				
Net farm income without appreciation	$220,038	$53,510	$55,728	$278,188
Net farm income with appreciation	$330,621	$121,598	$128,281	$391,494
Labor & management income per operator/manager	$86,906	$-13,592	$-15,363	$117,465
Rate return on:				
Equity capital with appreciation	19.2%	3.4%	3.7%	19.0%
All capital with appreciation	13.9%	4.0%	4.0%	13.0%
All capital without appreciation	9.1%	1.2%	1.2%	8.9%
Financial Summary, End Year				
Farm net worth	$1,460,576	$1,464,111	$1,522,309	$1,814,895
Change in net worth with appreciation	$225,021	$1,339	$52,270	$289,581
Debt to asset ratio	0.40	0.42	0.43	0.39
Farm debt per cow	$2,685	$2,798	$2,934	$2,780

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 94 New York Dairy Farms, 2001 - 2010

2005	2006	2007	2008	2009	2010
$16.04	$13.85	$20.41	$19.35	$13.93	$16.92
424	443	463	475	496	521
333	353	370	393	416	440
100,308	104,671	110,519	116,034	121,688	128,842
9.99	10.21	10.68	11.05	11.48	11.73
855	876	935	977	1,013	1,048
23,641	23,636	23,853	24,434	24,533	24,738
3.4	3.4	3.1	3.6	3.4	3.6
20	19	19	20	19	19
42	43	43	43	43	44
1,004,084	1,025,180	1,034,822	1,050,079	1,060,004	1,098,397
26%	29%	24%	31%	38%	29%
$5.12	$5.04	$6.11	$7.30	$6.54	$6.35
$12.09	$12.11	$13.83	$15.40	$13.86	$14.10
$15.29	$15.23	$17.00	$18.80	$17.12	$17.31
$2.63	$2.65	$2.74	$2.88	$2.74	$2.67
$0.62	$0.75	$0.76	$0.56	$0.54	$0.57
$1,377	$1,372	$1,484	$1,651	$1,469	$1,502
$16,862	$9,422	$12,845	$15,237	$7,983	$9,562
$15,776	$20,576	$9,612	$27,076	$17,792	$6,250
$7,458	$7,756	$8,175	$8,943	$8,969	$8,884
$1,309	$1,363	$1,417	$1,588	$1,643	$1,604
$2,793	$2,948	$3,063	$3,314	$3,453	$3,497
$2,013	$2,113	$2,225	$2,331	$2,269	$2,196
0.64	0.53	0.71	0.63	0.46	0.58
$250,698	$42,880	$584,147	$293,953	$-150,118	$313,383
$414,780	$151,840	$750,504	$377,277	$-106,698	$431,868
$88,032	$-41,852	$267,980	$85,468	$-159,868	$92,627
17.1%	3.3%	27.1%	10.2%	-7.4%	11.6%
12.6%	4.4%	19.8%	8.3%	-3.2%	8.7%
7.4%	1.2%	15.4%	6.4%	-4.1%	6.1%
$2,122,825	$2,165,835	$2,765,253	$2,909,177	$2,655,382	$2,990,819
$292,996	$25,683	$607,046	$142,940	$-241,427	$330,191
0.36	0.39	0.32	0.34	0.41	0.37
$2,788	$2,974	$2,797	$3,100	$3,568	$3,333

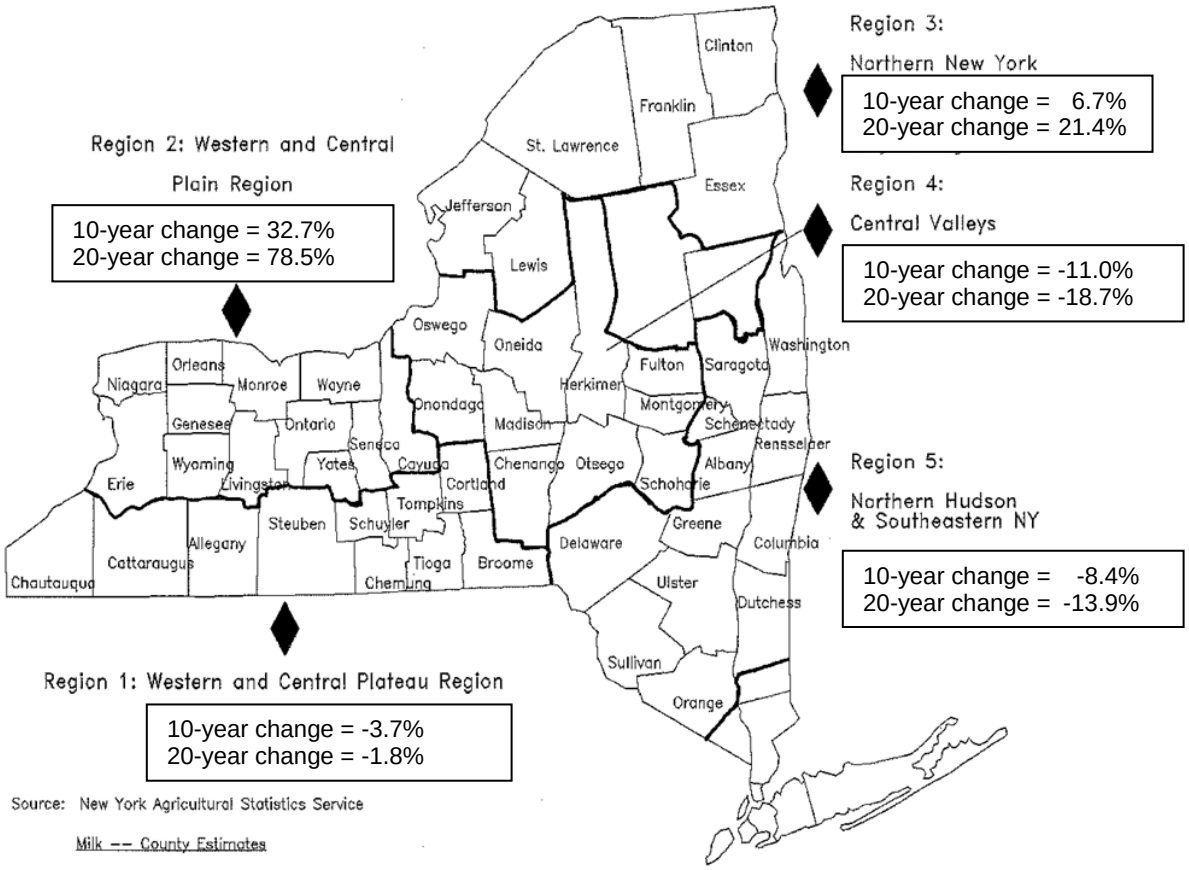
Debt to asset ratio has remained stable and debt per cow increased 24 percent while farm net worth more than doubled. During this time, crop yields have fluctuated, largely due to weather. Purchased grain and concentrate as a percent of milk sales varied from 24 to 38 percent, with the high in 2009,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

TABLE 7-7. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
204 New York Dairy Farms, 2010

Item	Western & Central Plateau Region	Western & Central Plain Region	Northern New York	Central Valleys	Northern Hudson & Southeastern New York
Number of farms	34	53	23	30	64
ACCRUAL EXPENSES					
Hired labor	$178,146	$481,810	$438,808	$330,687	$189,856
Feed	423,216	955,683	950,541	663,355	392,874
Machinery	136,760	289,392	321,441	254,473	141,611
Livestock	235,518	555,662	576,724	439,588	239,652
Crops	55,391	147,201	166,692	147,651	75,415
Real estate	64,566	133,142	104,220	101,348	48,202
Other	88,483	231,466	250,265	166,748	98,646
Total Operating Expenses	$1,182,080	$2,794,356	$2,808,691	$2,103,850	$1,186,257
Expansion livestock	12,005	9,560	15,283	22,266	1,757
Extraordinary expense	59	478	3,709	0	664
Machinery depreciation	62,900	131,682	147,897	119,126	48,920
Building depreciation	35,877	106,682	104,369	76,868	22,506
Total Accrual Expenses	$1,292,921	$3,042,258	$3,079,949	$2,322,110	$1,260,104
ACCRUAL RECEIPTS					
Milk sales	$1,384,875	$3,081,573	$3,138,935	$2,373,515	$1,271,463
Livestock	111,973	244,075	242,535	162,642	82,852
Crops	53,720	104,438	87,597	118,409	13,857
Government receipts	10,254	22,737	15,842	19,647	12,123
All other	13,467	67,832	65,695	37,059	23,260
Total Accrual Receipts	$1,574,289	$3,520,655	$3,550,604	$2,711,272	$1,403,555
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	$281,369	$478,396	$470,655	$389,163	$143,451
Net farm income (w/ appreciation)	$349,270	$604,116	$692,543	$444,701	$176,310
Labor & management income	$193,466	$286,454	$278,349	$222,556	$44,384
Number of operators	1.77	1.86	1.82	1.95	1.75
Labor & mgmt. income/oper.	$109,303	$154,007	$152,939	$114,131	$25,362
BUSINESS FACTORS					
Worker equivalent	7.49	14.37	15.34	12.10	7.77
Number of cows	322	693	733	539	297
Number of heifers	288	579	629	446	256
Acres of hay crops[a]	379	577	710	501	384
Acres of corn silage[a]	261	535	541	436	240
Total tillable acres	666	1,185	1,578	1,171	696
Pounds of milk sold	7,817,093	17,293,672	18,075,165	13,270,645	6,989,829
Pounds of milk sold/cow	24,259	24,952	24,667	24,613	23,563
Tons hay crop dry matter/acre	3.4	4.2	3.4	3.3	2.8
Tons corn silage/acre	21.0	20.3	20.5	18.9	17.6
Cows/worker	43	48	48	45	38
Pounds of milk sold/worker	1,043,206	1,203,526	1,178,687	1,096,823	899,206
% grain & conc. of milk receipts	30%	29%	29%	25%	31%
Feed & crop expense/cwt. milk	$6.07	$6.36	$6.18	$6.11	$6.69
Fertilizer & lime/crop acre	$38.80	$51.85	$38.45	$46.11	$39.82
Machinery cost/tillable acre	329	$392	$333	$355	$310

[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%
2010 Cost of Producing Milk[c]			($ per hundredweight milk)		
Operating cost	$12.85	$13.67	$13.35	$13.48	$15.11
Total cost	16.34	16.83	16.47	16.99	18.58
Average price received	17.72	17.82	17.37	17.89	18.19
Return per cwt. to operator labor, management & capital	$3.53	$2.76	$2.60	$2.92	$1.95

[a]See Figure 7-1 for region descriptions.
[b]Source: New York Agricultural Statistics Service, Milk-County Estimates.
[c] From Dairy Farm Business Summary data.

TABLE 7-9. COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1960 - 2010

Selected Factors	1960	1970	1980	1990	2000	2010
Number of farms	467	509	600	395	294	204
Size of Business						
Average number of cows	35	65	75	107	246	489
Average number of heifers	21	43	56	87	186	415
Milk sold, cwt.	3,339	8,222	10,761	19,005	52,871	119,782
Worker equivalent	1.70	2.20	2.70	3.37	6.11[c]	10.93[c]
Total tillable acres	96[a]	168[a]	246[a]	325	566	987
Rates of Production						
Milk sold per cow, lbs.	9,540	12,600	14,300	17,720	21,516	24,508
Hay DM per acre, tons	2.3	2.7	2.5	2.7	3.3	3.5
Corn silage per acre, tons	10	15	15	14	15	20
Labor Efficiency						
Cows per worker	21	30	28	32	40[c]	45[c]
Milk sold per worker, lbs.	196,400	373,700	403,000	563,349	839,432[c]	1,095,897[c]
Cost Control						
Grain & conc. as % of milk sales	28%	25%	27%	28%	27%	29%
Dairy feed & crop expense/cwt.	$1.61	$1.91	$4.49	$5.21	$4.61	$6.32
Operating cost of prod. cwt. milk	$1.91	$2.43	$8.65	$11.11	$11.31	$13.76
Total cost of producing cwt. milk	$3.57	$5.73	$14.39	$15.50	$14.46	$17.06
Milk receipts per cwt. milk	$4.64	$6.10	$12.81	$14.93	$13.38	$17.81
Capital Efficiency						
Total farm capital	$48,745	$137,280	$445,712	$701,492	$1,607,712	$4,467,572
Farm capital per cow	$1,392	$2,112	$5,500	$6,556	$6,535	$9,141
Machinery & equipment per cow	$287	$447	$1,015	$1,233	$1,225	$1,570
Real estate per cow	$644	$1,026	$2,600	$2,977	$2,615	$3,857
Livestock investment per cow	$367	$495	$1,569	$1,436	$1,572	$2,182
Asset turnover ratio	0.42	0.48	0.45	0.48	0.54	0.56
Profitability						
Net farm income without apprec.[d]	NA[b]	NA[b]	$77,852	$78,523	$59,195	$326,482
Net farm income with apprec.[d]	$46,640	$159,198	$140,643	$94,475	$107,577	$413,954
Labor & management income per operator/manager[d]	$24,531	$87,031	$4,147	$23,928	$785	$101,484
Rate of return on:						
Equity capital with appreciation	NA	NA	11.4%	4.8%	3.0%	11.0%
All capital with appreciation	NA	NA	10.2%	6.0%	4.8%	8.5%
All capital without appreciation	NA	NA	6.9%	4.7%	2.5%	6.5%
Financial Summary, End Year						
Farm net worth	NA	$100,541	$288,022	$480,515	$942,881	$3,012,912
Change in net worth with apprec.	NA	NA	NA	$18,390	$21,271	$300,575
Debt to asset ratio	NA	0.29	0.36	0.34	0.43	0.35
Farm debt per cow	NA	$700	$2,048	$2,220	$2,762	$3,207

[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 – 2010 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

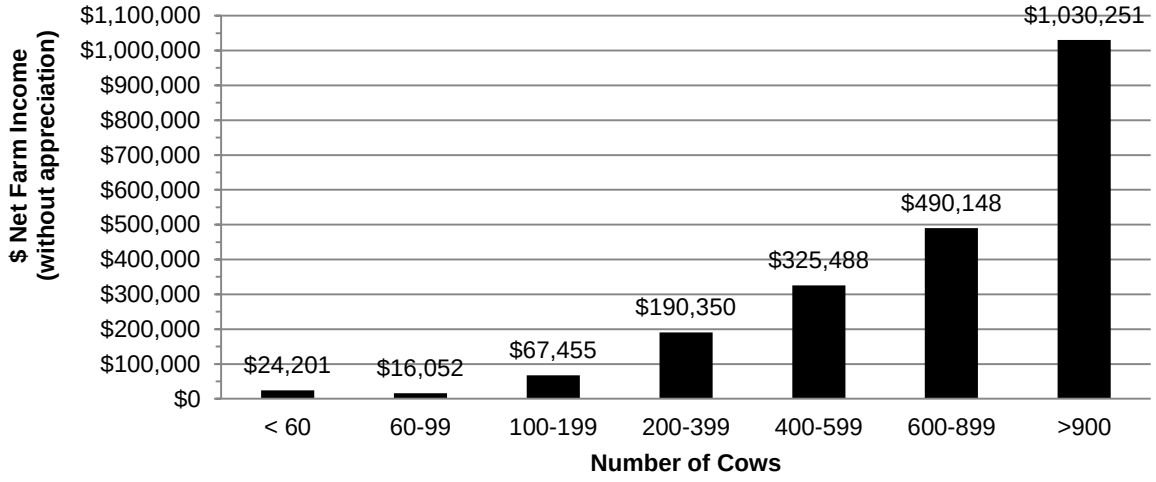
Evaluating a business to determine areas for improvement can be accomplished in the most simple terms by ascertaining if the business has 1) an adequate herd size, 2) excellent rates of production, 3) high labor efficiency, 4) stringent cost control and 5) strong financial position. Again, the evaluation 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 generally increases as size of herd increases, ranging from about $16,000 on farms with 60 to 99 cows to over $1,030,000 on farms with more than 900 cows. See Figure 7-2.

FIGURE 7-2. NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE
204 New York Dairy Farms, 2010



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. Net farm income per cow fluctuates on farms with up to 22,000 pounds milk sold per cow. There is an upward trend in net farm income per cow when milk output increases over 22,000 pounds per cow. Fourteen of the 33 farms that achieved $1,000 or more of net farm income per cow sold more than 26,000 pounds of milk per cow.

TABLE 7-10: MILK SOLD PER COW AND FARM INCOME MEASURES
204 New York Dairy Farms, 2010

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	18	162	$72,970	$451	$14,811
16,000 to 17,999	20	148	41,659	282	-3,901
18,000 to 19,999	15	117	54,870	467	5,017
20,000 to 21,999	30	219	137,234	626	17,213
22,000 to 23,999	36	503	225,914	449	51,518
24,000 to 25,999	40	716	448,328	626	131,726
26,000 & over	45	861	743,325	863	250,338

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
204 New York Dairy Farms, 2010

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	24	67	15,643	$3,383	$-26,615
500,000 to 699,999	43	140	20,027	75,306	8,479
700,000 to 899,999	29	235	22,668	98,272	6,835
900,000 to 1,099,999	50	546	24,114	299,803	83,062
1,100,000 & over	58	1,000	25,620	783,500	243,684

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 milk marketing expense; with machinery repairs 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 $6.50 per hundredweight of milk sold reported below average farm profits. Farms reporting less than $6.50 per hundredweight 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. See Table 7-12.

TABLE 7-12. PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
204 New York Dairy Farms, 2010

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
$7.50 or more	36	194	7.2	20,139	$57,308	$3,103
7.00 to 7.49	19	657	7.9	25,185	278,556	52,773
6.50 to 6.99	36	512	7.6	23,930	249,095	57,433
6.00 to 6.49	50	558	8.9	25,640	378,838	117,031
5.50 to 6.00	35	570	8.1	24,422	479,057	173,201
Less than 5.50	28	499	8.7	24,715	520,373	170,532

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
204 New York Dairy Farms, 2010

	Average 204 Farms		Average Top 10% Farms[a]	
Machinery Expense Item	Total Expenses	Per Tillable Acre	Total Expenses	Per Tillable Acre
Fuel, oil & grease	$ 77,362	$78.38	$ 113,943	$77.88
Machinery repairs & vehicle expense	95,391	96.65	142,408	97.34
Machine hire, rent & lease	43,316	43.89	78,084	53.37
Interest (5%)	38,367	38.87	51,924	35.49
Depreciation	94,106	95.35	90,459	61.83
Total	$348,542	$353.14	$476,818	$325.91

[a]Average of 20 farms with highest rates of return to all capital (without appreciation).

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 204 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
204 New York Dairy Farms, 2010

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
34.6	1,715	44,507,767	28,024	5.9	27	65	1,496,743
21.9	992	25,065,046	26,486	4.4	23	51	1,239,084
16.5	722	18,382,622	25,611	4.0	22	48	1,131,389
12.4	548	12,786,314	24,763	3.7	20	44	1,052,995
8.3	385	8,896,608	23,569	3.4	19	42	991,796
5.7	233	5,098,220	22,603	3.1	18	38	888,445
4.3	150	2,980,442	21,295	2.7	18	36	749,166
3.2	105	1,958,629	19,859	2.2	17	32	656,722
2.4	70	1,322,994	17,279	1.9	15	29	530,202
1.7	46	824,194	13,227	1.3	11	21	361,659

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
$569	18%	$427	$1,019	$800	$4.47
846	23	561	1,292	1,114	5.53
967	26	623	1,394	1,251	5.86
1,079	27	671	1,478	1,363	6.10
1,169	29	717	1,531	1,452	6.33
1,234	30	755	1,603	1,518	6.53
1,288	31	803	1,661	1,595	6.79
1,357	33	872	1,796	1,677	7.14
1,436	35	954	1,951	1,782	7.76
1,575	41	1,164	2,354	2,007	9.55

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
204 New York Dairy Farms, 2010

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.
$5,056	$19.76	$1,742	$10.09	$2,903	$14.79
4,718	18.65	2,307	11.64	3,547	15.81
4,520	18.29	2,647	12.46	3,786	16.67
4,370	18.07	2,898	13.16	3,958	17.45
4,189	17.85	3,081	13.74	4,116	17.83
4,013	17.71	3,246	14.13	4,265	18.76
3,778	17.52	3,428	14.66	4,442	19.67
3,491	17.31	3,612	15.43	4,625	21.11
3,125	17.03	3,872	16.60	4,863	23.11
2,402	16.49	4,272	19.05	5,330	28.67

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
$1,585,864	$1,366	0.29	$1,900,618	$1,938	$1,164,968	$608,745
662,211	1,070	0.23	829,592	1,295	422,477	233,448
437,842	874	0.19	601,181	1,098	263,930	126,152
300,908	754	0.16	387,604	936	140,197	71,428
183,729	653	0.14	248,959	798	79,500	42,780
114,646	542	0.12	154,252	695	41,512	25,059
68,027	409	0.09	89,447	556	8,766	6,299
41,582	278	0.06	49,752	391	-14,134	-9,501
11,394	97	0.02	17,122	137	-46,357	-35,267
-78,221	-466	-0.14	-60,960	-421	-166,013	-110,938

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
204 New York Dairy Farms, 2010

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
$43	$1,196	7.39	12.09	3%	$ 161	65%	32.07
236	861	2.17	3.43	6	1,038	36	4.79
332	741	1.65	2.33	8	1,871	28	3.30
448	661	1.42	1.89	10	2,417	22	2.63
548	595	1.22	1.59	12	2,904	18	2.18
632	511	1.05	1.27	14	3,392	14	1.85
742	433	0.85	1.00	15	3,900	11	1.50
858	348	0.73	0.72	17	4,395	7	1.19
1,006	206	0.43	0.23	20	5,065	-2	0.85
1,601	-178	-0.59	-0.50	31	6,936	-19	0.35

Solvency				Operational Ratios		
		Debt/Asset Ratio		Operating	Interest	Depreciation
Leverage Ratio[a]	Percent Equity	Current & Intermediate	Long Term	Expense Ratio	Expense Ratio	Expense Ratio
0.01	99%	0.02	0.00	0.63	0.00	0.02
0.12	90	0.10	0.00	0.68	0.01	0.04
0.23	82	0.18	0.01	0.72	0.01	0.05
0.30	78	0.25	0.10	0.75	0.02	0.05
0.44	72	0.31	0.21	0.77	0.02	0.06
0.61	63	0.37	0.33	0.79	0.03	0.07
0.72	59	0.42	0.44	0.81	0.04	0.07
0.87	54	0.50	0.53	0.84	0.04	0.09
1.17	47	0.60	0.63	0.88	0.05	0.10
3.03	33	0.79	0.95	1.01	0.09	0.15

Efficiency (Capital)					Profitability	
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return With Appreciation on: Equity	Investment[b]
0.82	$1,796	$616	$5,927	$1,559,343	31%	19%
0.68	2,600	996	7,238	647,486	17	12
0.62	3,022	1,324	8,088	436,905	13	9
0.55	3,332	1,528	8,673	271,545	10	8
0.52	3,755	1,719	9,280	163,158	8	6
0.48	4,207	1,892	9,915	77,763	5	5
0.44	4,755	2,109	10,545	37,984	3	3
0.39	5,643	2,282	11,585	16,650	0	1
0.31	6,902	2,710	13,138	-4,658	-6	-2
0.21	11,328	4,163	18,676	-136,008	-42	-10

[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. Decisions Facing New York State's Labor Intensive Agricultural Sector

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Introduction

Agricultural employers continue to face risk and uncertainty relating to immigrants who may not have entered the United States legally and continue to perform the most labor intensive agricultural jobs. In 2011 there was no progress on immigration reform at the federal level that would provide farm employers greater access to legal workers. The legislation receiving the most attention in Congress was H.R. 2885, The Legal Workforce Act. This bill would require all employers to verify the legal status of their workers through the electronic verification system provided by the Department of Homeland Security. In the absence of federal legislation an unprecedented number of states have passed immigration related laws that are impacting immigrants and employers. Most of these state legislatures have placed heavy emphasis on immigration enforcement in the workplace creating stress and anxiety for farm employers attempting to keep labor intensive farm operations running smoothly. The current enforcement environment has many farm managers considering significant changes in their approach to hiring agricultural workers.

The Political Economy of Agriculture and Immigration Reform

The national immigration debate took on sharper focus in 2011, as the 2012 presidential campaign started in earnest and the 112th Congress took office. President Obama attempted to pave the way for more progress on comprehensive immigration reform by asserting that the nation's southern borders were effectively secure. His administration announced changes in enforcement priorities, while maintaining a tough, visible stance on enforcement in farming regions of New York. State legislatures also claimed new roles in making policy and directing immigration enforcement, with serious ramifications for farm businesses across the nation.

Politics is a continuously played spectator sport, especially during the long run-up to a national election. It's easy to view immigration policy, a major national and now local campaign issue, exclusively through this competitive, entertaining political lens. Meanwhile, labor intensive farm businesses in New York and throughout the nation continue to deal with the increasingly acute *economic* consequences of new state immigration policies and the cumulative effects of federal laws left in place and enforcement practices implemented during decades of congressional inaction on this issue. The stakes are high, as one prominent New York vegetable grower points out, "This is the most important issue facing fresh produce farms in this country. If we can't fix this problem, everything else really doesn't matter; we won't grow fruits and vegetables here."

In the 112th Congress

Mandatory E-Verify: The Legal Workforce Act, H.R. 2885

New Republican congressional leaders moved very quickly after taking office to start a mandatory "E-Verify" bill on its way to the House floor for a vote. E-Verify is an Internet-based system operated by the Department of Homeland Security in partnership with the Social Security Administration that allows participating employers to electronically verify the employment authorization of their newly hired employees. To establish the rationale for passage of a bill, House Judiciary Committee Chair Lamar Smith (R-TX) held

hearings, "New Jobs in Recession and Recovery: Who Are Getting Them and Who Are Not" on March 10; and "H-2A VISA Program: Meeting the Growing Needs of American Agriculture?" on April 13. The Legal Workforce Act is thus based on the presumption that undocumented immigrant workers take jobs from Americans and that existing legal means to employ foreign workers could be bolstered by minor changes coupled with a mandatory E-Verify law.

On February 10, 2011, Elton Gallegly (R-CA), Chair of the Subcommittee on Immigration Policy and Enforcement opened hearings to further this effort by defining the problem to be solved:

> *"I have long said that the way to solve the problem of illegal immigration is fairly simple. First, we must enforce laws and secure the border. Second, we must remove the magnets that encourage illegal immigration. And finally, we must remove the benefits that make it easy for them to stay. With nearly 14 million unemployed Americans, removing the magnets is more important than ever. The biggest magnet for illegal immigration is jobs. So we owe it to the American people to do whatever we can to reduce the number of American jobs going to illegal immigrants. The E-Verify program helps do just that."*

Mr. Gallegly's immediate predecessor in the subcommittee chair, Zoe Lofgren (D-CA), emphasized the negative impacts the proposed new law would have on agriculture and, in doing so, highlighted deep, fundamental divisions among Americans on this issue:

> "*In agriculture, where 75% of the jobs are filled by undocumented immigrants, E-Verify would decimate the agricultural economy, and as we have learned over the years, the increase in wages necessary to get U.S. workers to go to the fields would hike production costs so high that U.S. products would no longer be competitive with imported products. The end result would be the closure of America's farms, a less secure America and the mass offshoring of millions and millions of U.S. jobs, including all the upstream and downstream jobs that are created and supported by our agriculture industry."*

The paralysis that has prevented Congress from reforming the nation's immigration system for over 25 years is rooted in seemingly intractable differences, illustrated by these two statements, in defining the problem and the "reform" necessary to solve it. One side believes passionately in *stopping illegal immigration and removing illegal immigrants from American jobs*, while the other believes just as fervently in *reforming bad laws that perpetuate a broken immigration system*.

On September 21, 2011, on a party-line vote, the House Judiciary Committee passed H.R. 2885) and sent the bill on to House Republican leaders, who referred it to the Ways and Means Committee, where it sits today.

A Proliferation of Guest Worker Proposals

Strong opposition from many agricultural and business interests to mandatory E-Verify without workable guestworker provisions has divided the Republican caucus and led Speaker of the House John Boehner to stow the bill away in the Ways and Means Committee for the foreseeable future. A number of representatives have also been moved by their constituents to churn out a flurry of guestworker bills, either as companions to H.R. 2885 or as stand-alone legislation.

At last count, at least four guestworker proposals, in addition to the remnants of AgJobs legislation from the previous Congress were available for consideration in the House and Senate. Immigration subcommittee member Dan Lungren (R-CA) voted for H.R. 2885, but held out his bill, the "Legal

Agricultural Workforce Act" (H.R. 2895) as a means to allay the concerns of his farmer constituents. The bill failed as an amendment to the E-Verify legislation in committee. Even later in the process, Congressman Smith added his own "American Specialty Agriculture Act" to the mix for similar reasons. Congressman Lungren has clearly stated, "A bill on E-Verify won't come to the floor unless we address agriculture, I am convinced."

Some farm organizations have indicated limited willingness to work with these two pieces of legislation, but farmworker advocates have blasted both proposals and a similar bill in the Senate (S. 1196) for failure to address the legal status of the existing undocumented workforce and for undermining existing worker and wage protections. Closer to home, a bipartisan proposal from Representatives Michael Hanna (R-NY) and Kathy Hochul (D-NY) would extend existing H-2A provisions to dairy farm workers. Well intentioned or not, these proposals are unlikely to pass in the 112th Congress.

In the Obama Administration

On May 10, 2011, President Obama spoke to an audience in El Paso, Texas about his administration's immigration reform goals and accomplishments. He stressed progress on border security, as measured by significantly increased investments in people, technology, infrastructure and equipment devoted to stopping illegal immigration. He cited positive results in seizures of illegally imported drugs, arms and currency at the border and a 40% drop in apprehensions from 2009. Mr. Obama was attempting to establish the premise that the U.S. border had indeed been secured first, before further reforms, as demanded by many involved in the immigration debate. From that premise, he returned to making a multi-step case for comprehensive reform. As part of that case the president only briefly addressed agricultural challenges by arguing, "We need to provide our farms a legal way to hire workers that they rely on, and a path for those workers to earn legal status."

In the field, recent federal immigration enforcement and regulatory initiatives beyond the southwest border correspond only loosely to the president's stated vision for an improved national system. Apprehensions (now known as "deportable aliens located" in Department of Homeland Security parlance) nationally have dropped off dramatically (while rising slightly in the Northeast). The shift from workplace raids to business audits of employment records seems to have been made; and statistics appear to bear out the early results of the Administration's loudly proclaimed intention to turn the focus of deportation efforts on undocumented immigrants with criminal records. These actions have angered activists on both sides, while farm employers attempt to navigate their businesses through the still uncertain federal enforcement climate.

State Legislation and Impact

Predictions of stalemate in the 112th Congress and a resulting lack of activity on national immigration policy reform proved accurate, but perhaps discounted the agricultural impacts of state legislative efforts to fill the federal vacuum in 2011.

According to the National Council of State Legislatures, 40 state legislatures passed 162 laws and 95 resolutions related to immigration policy in the first six months of 2011. Of greatest concern to agricultural producers were bills containing mandatory E-Verify provisions enacted in Georgia, South Carolina, Utah, Indiana and Alabama. Due to court challenges and timetables dictated by state legislatures themselves, not all of these bills have been implemented. Georgia's HB87, "The Illegal Immigration Reform and Enforcement Act of 2011 was signed by Governor Nathan Deal in May; and will take effect in January 2012. Despite the fact that provisions of the law won't be enforced until 2012 and because the bill became law during the spring harvest season for many perishable fresh fruit and vegetable crops, some of the policy's early impacts on Georgia's agricultural economy are now known.

Based on early estimates by the Georgia Department of Agriculture and a survey conducted by the Georgia Fruit and Vegetable Growers Association, agricultural economists at the University of Georgia Center for Agribusiness and Economic Development conducted a preliminary analysis of economic outcomes of the late spring and early summer harvest. Some 11,000 seasonal jobs in berry and vegetable operations went unfilled during this time period. The study concluded that production losses due to the absence of workers to harvest seven primary crops caused a decline of $181 million in total goods and services produced by input suppliers, retailers in local economies and farm operations. In 2009, growers of the crops considered in the survey generated $578 million in production value. The study also estimated that lost production in these crops in 2011 caused 572 production job losses and 940 more in related retail and input businesses.

On the Farm

Frequently, the political language used to promote solutions to problems without any consensus definition is too loose to offer any useful answers for farmers seeking to keep their businesses viable in a very challenging economy. For example, immigration issues are of major concern to farmers whose livelihoods depend on *labor intensive* agricultural enterprises, such as dairy and fresh fruit and vegetable production. Midwestern corn and soybean growers are not affected by the conflict because their principal investments are in the machinery, not the labor, needed to cultivate thousands of row-crop acres. Processing vegetable growers lean more heavily on capital equipment resources, while organic farm operations are especially dependent on farm workers. It's also important to recognize differences among various intensive farm operations. Policy prescriptions and management strategies could differ significantly in their effectiveness, for example, in solving problems for dairy farms that employ workers year-round, and seasonally-oriented fruit and vegetable operations.

Lumping all of these diverse agricultural business concerns into one agricultural interest serves political purposes, but distorts the economic, regulatory and management realities individual farmers and particular farm sectors must face. The New York State farm economy is especially vulnerable to the risks posed by the current legal environment because agriculture in New York is diverse and comprised largely of labor intensive operations producing milk, cheese, fresh fruits and vegetables (conventionally and organically). Moreover, New York shares a 445-mile border (albeit a northern one) with Canada, which attracts particularly vigorous monitoring and enforcement activities and large investments in border control resources in and around some of the state's most important agricultural production regions.

For labor intensive farm businesses, the prospect of a mandatory federal E-Verify law with no accompanying reforms to create a functional guest worker program represents a major new challenge to the future of their operations. As Congresswoman Lofgren, U.S. Apple Association President Nancy Foster and others have pointed out, the new law, if passed, will confirm what is already known; and "screen out" or drive away at least 70% of the nation's agricultural workforce.

Members of Congress and legislators in other states will follow developments in Alabama, Georgia and other states that followed Arizona's lead closely as they consider their next steps on immigration policy. In October, the California legislature acted on their interpretation of the consequences and moved in an entirely different direction by *prohibiting* mandatory E-Verify legislation by local governments (and the state itself) within its jurisdiction. Political debates at various levels of government across the nation, however, are unlikely to resolve critical challenges facing farm employers as they look ahead to the 2012 growing season and beyond. As workable public policy options to deal with economic realities appear ever more elusive, farmers need to find management solutions. The authors of a recent Associated Press story on the immigrant worker exodus from Alabama cited attempts to use the H-2A program, leaving crops to rot on the vine, efforts to hire local workers, downsizing, ending the production of organic crops (blueberries in this case), and mechanization as options farm operators were considering as their previous work force disappeared.

Despite unprecedented flood damage at harvest time in eastern New York and along the southern tier, many fruit and vegetable growers in the state's important production regions have completed another harvest successfully. Milk prices through October, 2011 were up more than an average $4.00/cwt. over the previous year; production remained steady or higher than in 2010; and producers and processors alike are looking ahead to new, very tangible market opportunities. Yet throughout agriculture's familiar cycles of market, price and weather uncertainty, overriding concerns about the risks associated with securing a reliable labor force will influence farm business plans for next year and the longer-term future. One tree fruit grower in western New York describes the situation this way, "I have no confidence that things will change. We have lost the public relations and therefore the political battle. We need to find ways to use less labor, or make the job easier so locals will do it."

Immigration Enforcement

Farm employers are increasingly concerned about immigration enforcement activities by ICE and Border Patrol and their potential impacts on the farm operations. In April 2011 a farmer in Jefferson County New York was charged with harboring illegal immigrants after a Guatemalan employee died in a farm accident, prompting an investigation by law enforcement. The case is still pending.

Earlier this fall, two owners of Aquila Farms LLC in Bad Axe, Michigan were ordered to pay more than $2.7 million in penalties for harboring illegal aliens. Cases like these cause great concern in the farm community and farmers are thinking more carefully about the liability of the farm business if immigrant employees are found to be unauthorized. As a result some farm managers are seeking the counsel of immigration attorneys regarding their legal rights and potential exposure of the farm business to penalties.

Management Options for Labor Intensive Farms

The prospects for constructive congressional action on immigration reform in 2012 are dubious. Grim reports are rolling in from states where state versions of mandatory E-Verify and other restrictions on immigrant workers and farm employers will be in full effect in 2012. National elections traditionally stop federal reform efforts very effectively. For these reasons, it is more important than ever for farm employers, their associations and their advisors to explore, with some urgency, management options available to them in the prevailing political climate. A number of alternative strategies being considered by farm managers today are outlined below.

- Using the H-2A program to secure a legal workforce - While the H-2A program assures that the workers are legally authorized to work in the United States many employers find the program costly and difficult to utilize. Nonetheless some farm managers have come to rely on the program, have used it for many years, and want to see it continue.

- Becoming involved in the political process to promote policies that will ensure a legal workforce for farm employers - Many farm owners are actively involved in promoting AgJOBS and other legislation to help resolve the unauthorized worker problem.

- Mechanization of farm production practices in a way that will reduce the need for labor, especially immigrant labor - There is always a trade-off between the high capital investment for mechanization versus hiring more workers. The more risks there are associated with hiring immigrant workers, the more likely farm managers are to look at substituting capital for labor.

- Increasing wages and benefits - Offering better compensation packages is a way to expand the pool of qualified workers are authorized to work in the United States. A growing number of

anecdotal reports document efforts by farm employers to employ more local workers to reduce the risks associated with employing immigrants who may be unauthorized.

- Shift to less labor intensive enterprises - The production and harvest of fresh fruits and vegetables is extremely labor intensive. Managers who believe the risks of not harvesting labor intensive crops will lead to lost income and profitability are likely to consider growing only those crops that can be harvested mechanically. In the dairy industry managers are considering robotics as a way to reduce dependency on foreign labor.

- Hiring refugees - Some employers report success in hiring refugees who have been given legal status to come to the United States. This strategy has worked effectively for some employers but is not for everyone due to the limited number of refugees available.

- Downsizing the farm business - By reducing the size of the business or the number of acres planted, farm managers can reduce the size of the hired labor force required and therefore the risk of growing and producing labor intensive products.

- Seek the advice of an immigration attorney - Because fraudulent documents are frequently presented at the time of hire, employers may be at risk. An attorney can be extremely helpful in reducing the legal exposure and potential fines to the farm business by advising during I-9 audits and law enforcement inspections.

New York Agricultural Labor Outlook for 2012

New York's farm managers depend heavily upon immigrant workers who perform the most labor intensive agricultural tasks both, seasonal and year-round. A 2009 Cornell study of fruit, vegetable and dairy farms in New York State indicates that there are 13,800 Hispanic immigrants working in these agricultural sectors. The prevalence of fraudulent documentation makes it likely that a large portion of those immigrants so heavily depended upon by agricultural employers are not legally authorized to work in the U.S. Farm employers and their immigrant workers have become strong advocates for immigration reform. However, the upcoming presidential election and political gridlock over immigration issues make it unlikely that any substantial immigration reform legislation will move forward in 2012. At the same time there is likely to be heavy emphasis on immigration enforcement efforts including I-9 audits and routine ICE and Border Patrol surveillance of work sites, transportation systems and other community locations frequented by immigrant workers. Mandatory E-Verify, considered the biggest threat to labor intensive farm businesses in 2011 is currently stalled. Farmers and the groups that represent them legislatively will continue to oppose this legislation unless it also includes provisions for access to a legal immigrant workforce. The agricultural labor outlook for farm employers in 2012 carries more risks for those who hire Hispanic immigrants and those who don't. The following is our agricultural labor Outlook for 2012:

1) Continued high unemployment in New York State translates into adequate labor supplies in the general economy as well as the farm economy to a certain extent. However, farm employers have come to depend on Hispanic immigrants to perform the most labor intensive farm jobs. Farm managers who rely on Hispanic immigrants will face more risk and uncertainty related to attracting and hiring an adequate workforce particularly for seasonal jobs.

2) There is likely to be heavy emphasis on immigration enforcement efforts including I-9 audits and routine ICE and Border Patrol surveillance of work sites, transportation hubs and other community locations frequented by immigrant workers. Farm employers should have I-9 forms and related employment records up to date and readily accessible in the event of audits by

immigration or labor related agencies. As legal questions arise related to the immigrant workers, farm employers should be prepared to consult an immigration attorney to reduce the liability.

3) To date, employer groups, including those in agriculture, have been successful at forestalling mandatory E-Verify legislation at the federal level. Passage of this legislation would mean the potential loss of thousands of immigrant workers and jeopardize the viability of farm businesses that rely on immigrants to perform the most labor intensive farm jobs. The risk of losing immigrant employees to enforcement actions will be reduced as long as E-Verify does not become mandatory. Continued strong opposition to E-verify from farm employers and agribusiness groups is expected.

4) Farm employers will continue to actively seek legislative solutions that will allow them to hire legally authorized workers on a timely basis. A 2009 Cornell study indicated that farm employers feel that improvements in immigration policy are very important to their businesses. However, prospects for new legislation that would provide greater opportunities for farm employers to hire a legally documented workforce are doubtful. While immigration policies are likely to be heavily debated during the run-up to the presidential election, no substantive changes in immigration policies that farm employers support are expected.

5) Agricultural employers especially those who hire Hispanic workers are likely to continue to evaluate their options for minimizing risks related to illegal immigration. Increasingly farm managers will look at capital investments in mechanization, alternative labor pools and other options to minimize the risks involved with hiring unauthorized workers.

Chapter 9. Fruits and Vegetables

Bradley J. Rickard, Assistant Professor

Specialty crops are an important component of New York State's agricultural economy. In 2010 the total farm value of all agricultural products produced in New York was approximately $4.7 billion, which changed little from the total farm value over the period between 2006 and 2009. In 2010, fruit and vegetable crops accounted for nearly 16% 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, and onions have been the three highest revenue vegetable crops in recent years; the value of production for each of these crops exceeded $50 million in 2010.

Below I divide fruits and vegetables into two categories and take a closer look at market conditions in each category. I examine production patterns, and provide an outlook, for fruit and berries, and vegetables (fresh and processing) in New York State. In each case I review production and price data between 2008 and 2011, give an economic outlook on expected market conditions in 2012, and also provide some thoughts on the long term marketing and policy issues for horticultural crops produced in New York State.

Fruit and Berry Situation and Outlook

Market conditions for major fruit crops in New York State were, overall, slightly more favorable in 2010 compared to 2009. Prices for the two major fruit crops in New York State, apples and grapes, were higher in 2010 compared to 2009, and this is a key driver of the higher total values for these fruit crops in 2010. Crop values for several other fruit crops were also higher in 2010 relative to 2009, and this is mostly due to improved prices for producers. Here I take a closer look at domestic prices and production values, consumption patterns, and international market conditions for major fruit crops in 2010. 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 2010 was $322 million, up 12% from the value in 2009, but less than the peak values observed in 2007 and 2008. Once the official data from 2010 are released, I expect to see statistics that show a slight decrease in New York State apple production but an increase in apple prices in 2011 compared to 2010.

Table 9-1 shows that 630 thousand tons of apples were produced in New York State in 2010, and that this crop was valued at $226.8 million. The overall value of the 2010 crop was up relative to the 2009 crop; values of both the fresh and processing crops were up in 2010 compared to 2009. Table 9-1 also indicates that the average price of New York State apples increased in 2010 compared to 2009; the price of apples increased in both fresh and processing markets. The average price for New York apples used in processing market was $209 per ton in 2010, and although this is lower than the prices in 2007 and 2008, it remains much higher than the five-year average price observed between 2005 and 2010. Prices in 2010 were also higher in the fresh apple market, and are expected to be slightly higher in 2011. Early evidence from the

USDA Fruit and Tree Nuts Outlook shows that U.S. retail apple prices were 6% to 17% higher in 2011 compared to 2010.

Relative to other states, New York continued to be a major national producer of apples in 2010. As shown in Table 9-2, the value of U.S. apple production in 2010 was $2,242 million based on production of 9,302 million pounds and an average price of $0.241 per pound. In 2011, total apple production is expected to be close to 9,500 million pounds. Washington State typically produces approximately 55 to 60% of the U.S. apple crop and New York State is the second largest producer growing about 15% of the national crop. Production in Washington State in 2011 is forecasted to be down relative to 2010, due mostly to a reduction in fresh market apples, while production in some central states, notably Michigan is expected to be higher in 2011 compared to 2010. In New York State the overall apple production in 2011 is expected to be 4% lower in 2011 compared to 2010. This decrease is due in a large part to the hot and dry weather experienced during the summer months which influenced fruit size and development.

In addition to apples, New York State is also a top producer of several other tree fruit and berry crops. Table 9-1 shows that pear and stone fruit (cherries and peaches) production decreased in 2010 versus 2009; crop values increased for peaches and sweet cherries but fell for pears and tart cherries. In 2010 New York State produced approximately $4.2 million in cherries ($1.4 million was tart cherries and $2.8 was sweet cherries), $7.1 million in peaches, and $4.3 million in pears. Although not shown in Table 10-1, berry production (including strawberries, blueberries, and red raspberries) was lower in 2010 versus 2009, and the total value of berries produced in New York State decreased by approximately $2.5 million in 2010 compared to 2009. The *USDA Fruit and Tree Nuts Outlook* reports higher producer prices for peaches and berry crops in 2011 yet lower prices for pears.

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

	Production			Prices		
	2008	2009	2010	2008	2009	2010
	------ Thousand Tons ------			*------ Dollars per Ton ------*		
Apples	625	680	630	$418	$308	$360
Fresh	265	338	300	624	450	526
Processed	345	342	330	260	166	209
Tart Cherries	4.8	5.1	3.9	826	486	348
Pears	10.3	9.9	8.3	504	490	519
Peaches	5.5	6.5	5.9	922	845	1200
Sweet Cherries	1.1	1.2	1.0	3,520	2,440	2,820

Sources: New York Agricultural Statistics, 2011

Table 9-2 highlights the values of tree fruit crops in New York between 2008 and 2010; I also show the total value of these crops nationally in 2008 and 2009 (USDA Agricultural Statistics data for 2010 had not been released when the *Outlook Handbook* was being prepared). 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 decreased in 2010 relative to 2009. The value of peaches increased nationally in 2009, but the value of pears and cherries decreased nationally in 2009. The

smaller changes in production for pears and stone fruits 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 329 million pounds of fresh apples in 2010/11 and is expected to import approximately 381 million pounds in 2011/12. 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 1,500 million pounds per year. U.S. exports exceeded 1,750 million pounds in 2008/09 and 2010/11, and are expected to be approximately 1,750 million pounds in 2011/12. 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 AND NONGRAPE FRUITS
NEW YORK AND UNITED STATES

	New York			U.S.		
	2008	2009	2010	2008	2009	2010
			------ Million Dollars ------			
Apples	$255.2	$208.9	$226.8	$2,599.5	$2,290.4	$2,241.7
Fresh	165.4	151.9	157.8	-	-	-
Processed	89.7	56.9	68.9	-	-	-
Tart Cherries	3.9	2.5	1.4	82.1	63.2	-
Pears	4.7	4.9	4.3	386.8	355.2	-
Peaches	4.8	5.4	7.1	539.5	593.7	-
Sweet Cherries	3.2	2.3	2.8	570.8	505.9	-
Total	271.8	224.0	242.4	4,178.7	3,808.4	-

Sources: New York Agricultural Statistics, 2011; USDA Agricultural Statistics, 2010

U.S. consumption patterns for fresh, frozen, and canned fruit products between 2002 and 2007 were examined in the 2010 *Agricultural Outlook Handbook*. Overall, we saw that per capita consumption rates for most fresh and processed fruits had been relatively stable over this time. Consumption rates had been very stable for frozen fruit products and showed a slight decline for many canned products. As shown in the 2011 *Agricultural Outlook Handbook*, the per capita apple consumption rates in the United States have been 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. 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, yet the trends in other countries are surprisingly different. In Canada per capita consumption of apples has been closer to 26 pounds per person per year, and in many western European countries it 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.

Fruit Outlook: Marketing and Policy Issues

It is surprising how stable per capita apple consumption is in the various countries listed in Table 9-3, and this indicates that apple marketers need to develop very strategic plans to reach new consumers or expand apple sales to existing consumers. 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.

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

	Consumption				
	1991-93	2001-03	2004-06	2007-09	2009
	------ Pounds per Capita -------				
Apples					
United States	18.92	15.84	18.04	17.82	18.04
United Kingdom	24.64	20.46	22.00	22.22	22.66
Japan	12.32	12.76	11.22	12.54	12.76
Canada	26.40	25.08	29.48	28.60	28.82
Germany	52.36	40.26	41.80	42.90	42.90
France	30.80	35.64	35.64	33.22	33.88
Spain	38.94	41.14	33.88	30.36	27.94
Italy	46.64	44.00	37.84	37.84	38.94
New Zealand	32.34	35.64	29.92	29.04	28.82
China	11.88	28.38	29.04	36.30	43.34
Japan	12.32	12.76	11.22	12.54	12.76
Turkey	71.06	72.60	64.68	69.96	69.52
Bananas					
United States	24.42	28.38	25.08	25.08	-
United Kingdom	14.30	24.42	25.74	26.40	-
Japan	15.40	14.52	16.28	17.60	-
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	13.20	-

Source: World Apple Review, Belrose Inc., 2010

In last year's *Agricultural Outlook Handbook* I discussed the market potential for "club" apple varieties. Producing the so-called "club" or managed apple varieties provides an interesting opportunity for growers to market new and exciting apple varieties. The producers' objective here is to stimulate additional demand for new apple products, manage the supply of these varieties such that price premiums can be achieved, and receive higher net returns per acre. However, the management of "club" varieties is not a straightforward marketing exercise and much thought needs to be spent regarding market size, pricing strategies, and promotional efforts. The *2010 World Apple Review* points to the following eight new apples

that have the best chance of becoming the most successful managed varieties by 2015: Pinova (or Piñata), Ambrosia, Envy, Kanzi, Belchard, Junami, Rubens, and Tentation. Several growers in New York State have also committed acreage for producing two new varieties developed by Cornell's plant breeding program, currently named NY1 and NY2. Whether any of these apples can be successfully grown and marketed in New York State is an important marketing question.

Industry experts argue that the new managed varieties will not cannibalize the shelf space of existing varieties, but instead will replace existing varieties that need to be retired. Managed apple varieties are marketed by an organization that obtains an exclusive license on a patent held by a plant breeding program, and in turn agrees to pay some combination of fees for the trees and royalties on all fruit sold. Developing and marketing new varieties is essential to sales and profit growth in fruit markets. The ability to acquire intellectual property rights for these new varieties provides an interesting marketing opportunity for growers; introducing new varieties is one way to increase product differentiation in tree fruit markets. Given the large number of new patented varieties that are under development, it is important for producers to understand the market potential for each new variety and to understand factors that influence consumer response to new varieties.

Research shows that consumer response to new fruit varieties is driven largely by fruit size and sweetness. However, apples are one of the few fresh produce items where varietal names take on the role of brands, and brands have been widely shown to influence consumer response in food and beverage markets Traditionally, varietal names for apples have been selected by the plant breeding program; however, with the introduction of patented varieties, the license holders have become more engaged in the process of selecting varietal names. We find that consumers are willing to pay a premium for NY1; furthermore, we gave NY1 different fictitious names to potential consumers, and we found that the name also influenced their willingness to pay for the apple. When this new managed apple variety was introduced to consumers with a sensory name it generated a $0.49 per pound price premium over the Empire variety; when introduced with an appearance type of name or a namesake name it did not generate a significant price premium over those observed for Fuji, Honeycrisp, and Piñata (all relative to the Empire variety).

Our results also indicate that the use of different varietal names had very little spillover effects in the markets for the traditional apple varieties included in the experiment, yet had statistically significant impacts for the NY1 and Piñata, the other managed variety included in the experiment. Findings from our study suggest that adopting a sensory name for the new variety would be best for the new variety, and it would be also be best for the other competing managed variety. This type of branding arrangement would allow for greater differentiation between the two managed varieties; that is, a strategy whereby the new variety adopts a sensory name given Piñata's association with an appearance name generates greater valuations for both varieties. Overall, the results suggest that consumers may consider managed apple varieties to be in a separate market from traditional varieties, and that the impacts from branding strategies for managed varieties will be greatest among these very closely-related products.

Ultimately the success of a new product will depend on consumer response, and it is especially difficult to measure how well a new apple variety will perform in the marketplace given the long lag between adoption and fruit sales. Our analysis collects consumer valuations on a new variety using different names and offers useful information for apple producers and plant breeders on the market potential for new managed apple varieties. Our results are also being used as a starting point for additional research that investigates the value of a license (generated through upfront fees and/or royalty payments on all boxes of fruit sold) that producers would pay in order to be eligible to grow and market patented apple varieties.

Vegetable Situation

Total land planted to vegetables in New York State increased from 119,700 acres in 2009 to 128,500 acres in 2010; planted and harvested acres of both fresh and processing vegetables were up in 2010, yet the increase in processing vegetable acreage was more significant. The value of New York vegetable production (including principal vegetables for fresh and processing markets but not including potatoes and dry beans) increased from $325 million in 2009 to $409 million in 2010; the value of fresh vegetables increased by about $60 million in 2010 compared to 2009. In 2010 fresh market vegetables contributed $361 million to the total (up from $301 million in 2009) while processed market vegetables contributed $47.6 million in 2010 (which was mostly unchanged from the value of production in 2009). The increase in planted acreage of vegetables in 2010 relative to 2009 was mostly due to favorable weather conditions during the spring of 2010.

Preliminary market conditions reported in the October 2001 edition of the *USDA Vegetables and Melons Outlook* suggest that prices for most fresh vegetables will be up slightly in 2011 compared to levels observed in 2010. The same *Outlook* report shows that total acreage of fresh vegetables in the United States has been relatively stable between 2008 and 2011, yet acreage of processing vegetables has fallen by approximately 150 thousand acres between 2008 and 2011. Similar trends are observed for total crop values; crop values for fresh vegetables are up in 2011 and have fallen from levels observed in 2009 for processing vegetables. Producer price indices show that prices for fresh vegetables were higher in 2011 relative to 2010, yet some vegetables saw lower prices in 2011 (including green peas, onions, and spinach). Relative to 2010, exports of fresh vegetables were up in 2011 by 6%, and imports were down by 8%. Much of the change in trade patterns in 2011 was due to the continued weakness in the U.S. dollar, easing energy prices, and cheap credit. Key export markets for vegetables are Canada, Mexico, Japan, Taiwan, and the United Kingdom.

New York State continues to be a significant producer of onions, cabbage, and sweet corn; for each of these commodities, New York State has often produced crops that have a value of $50 million or more. Historically New York State has produced a snap bean crop that had a value exceeding $50 million, but the snap bean crop in 2009 and 2010 has fallen short of this mark. In the tables and discussion that follow, 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 2008 and 2010. 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 down in 2010 relative to 2009; in some cases production was up significantly. Onions are the one crop listed in Table 9-4 that showed a decrease in production in 2010 compared to 2009. Prices for sweet corn, snap beans, cucumbers, tomatoes, pumpkins and squash were down in 2010 compared to 2009. Given the trends in production and prices in Tables 9-4, it should come as no surprise that the values for most of the fresh vegetable products were higher, and in some cases substantially higher, in 2010 relative to 2009 (see Table 9-5). The total value of the cabbage crop increased significantly in 2010, as did the value of the pumpkin and squash crops in New York State. 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 20% of the crop nationally.

Recent USDA information indicates that national shipment levels of fresh vegetables were approximately 4% lower than a year earlier; given depressed demand for various consumer products, aggregate prices for fresh vegetables were approximately 3% lower in 2011. 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. Excessive summer temperatures in New York State reduced vegetable yields. Pumpkin supplies, in particular, were much lower in 2011 along the eastern seaboard where hurricane and tropical storm weather devastated the crop. USDA data shows that contracted production of key processing vegetables has fallen between 2008 and 2011, and this trend has also been occurring in New York State. National production and contracted tons of sweet corn, snap beans, and green peas is down, and the drop in production has been most obvious for snap beans and green peas.

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

	Production			Price		
	2008	2009	2010	2008	2009	2010
Fresh	------ *Thousand Cwt* ------			------ *Dollars per Cwt* ------		
Sweet corn	2,863	2,150	2,736	$25.80	$27.10	$26.00
Cabbage	5,605	3,496	4,343	19.20	17.00	18.70
Onions	4,141	4,275	3,087	16.80	18.60	19.70
Snap beans	482	268	469	84.10	88.00	83.60
Cucumbers	468	384	476	34.50	41.80	38.80
Tomatoes	513	350	392	84.00	93.50	72.70
Pumpkins	1,062	750	1,462	36.20	29.00	24.00
Squash	760	540	897	42.80	42.60	41.00
Cauliflower	34	52	67	52.40	45.50	51.00
Processing	------ *Thousand Tons* ------			------ *Dollars per Cwt* ------		
Sweet corn	-	-	-	-	-	-
Snap beans	77.6	55.7	86.5	$278.00	$267.00	$250.00
Green peas	-	-	-	-	-	-
Cabbage	-	-	-	-	-	-

Source: New York Agricultural Statistics, 2011

Vegetable Outlook: Marketing and Policy Issues

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, and generic promotion efforts will certainly affect vegetable markets, and in some cases the effects in vegetable markets may be different from the effects in fruit markets. In New York State, the decline of certain sectors in the processing vegetable industry is particularly alarming. Next we take a closer look at the processing vegetable industry nationally, and consider the future of processing vegetable production in New York State.

Across the United States, the production of processing snap beans and green peas has decreased substantially between 2000 and 2010. 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. 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 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. In 2011, record rainfall in April and May also led to a sharp reduction in acres planted.

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

	New York			U.S.		
	2008	2009	2010	2008	2009	2010
Fresh			*------ Million Dollars ------*			
Sweet corn	$73.9	$58.3	$71.1	$752.6	$835.8	$ -
Cabbage	79.1	54.5	74.5	366.6	341.4	-
Onions	58.9	67.6	53.7	865.4	843.6	-
Snap beans	40.5	23.6	39.2	331.2	259.9	-
Cucumbers	16.1	16.1	18.5	242.7	220.8	-
Tomatoes	43.1	32.7	28.5	1,414.1	1,313.9	-
Pumpkins	38.4	21.8	35.1	140.8	102.7	-
Squash	32.5	23.0	36.8	204.3	203.5	-
Cauliflower	1.8	2.4	3.4	261.1	286.7	-
Processing						
Sweet corn	-	-	-	$330.3	$335.6	$ -
Snap beans	21.5	14.9	21.5	177.3	155.4	-
Green peas	-	-	-	148.1	140.7	-
Cabbage	-	-	-	-	-	-

Sources: New York Agricultural Statistics, 2011; USDA Agricultural Statistics, 2010

Recent research from Cornell University using survey information from farms producing processing vegetables shows that average costs of production for snap beans and green peas are similar to what is calculated in other regions that grow processing vegetables; this provides evidence that New York State is a competitive region to produce these crops from a cost-of-production standpoint. We also consider three additional factors that may have influenced production of processing vegetables in New York State over the past 20 years. We consider the role of changing consumer demand, agricultural policy, and structural issues and capacity constraints among plants that process vegetables.

Between 2000 and 2011, the consumption (measured in pounds per capita) of processing beans and peas has decreased. Processing bean consumption fell by 10.2% and processing pea production fell by 26.7%. Over the same time period, per capita consumption of all processing vegetables fell by only 2.6%. It appears that processing beans and peas, especially peas, are losing market share to other food products and that producers need to reassess consumer demand for the various processing vegetables.

U.S. farm policy has traditionally had very few provisions that directly affect horticultural markets. The largest share of current U.S. farm programs for agricultural commodities make payments to farmers based, in part, on historical base acres planted to program crops such as wheat, corn, barley, grain sorghum, oats, cotton, rice, oilseeds, peanuts, and sugar. Starting with the 1990 Farm Bill, eligibility for payments included regulations on the crops allowed to be grown on base acres, and there continue to be restrictions on planting horticultural crops on such base acres. These planting restrictions for fruits and vegetables on base acres have potentially influenced the number of acres planted to horticultural crops over the past two decades, yet the degree of their impact is still being debated.

Recent Farm Bills have considered the elimination of planting restrictions, but they remain in place. In the 2008 Farm Bill, a Planting Flexibility Pilot Program (Pilot Program) was introduced to better understand the impact of planting restrictions, and to see how producers would respond to such a change. The Pilot Program was particularly designed to examine the impact of planting restrictions on the production of processing vegetables given its geographical focus. The Pilot Program allows up to 75,000 acres of seven key processing vegetables to be planted on base acres without penalty in seven states – Illinois, Indiana, Michigan, Minnesota, Wisconsin, Iowa and Ohio—between 2009 and 2012. Surprisingly New York State was not a part of the Pilot Program. The seven states included in the program comprise approximately 20% of U.S. processing vegetables produced in the United States. It is widely expected that policymakers will debate the effects of the planting restrictions in the discussions leading up to the next Farm Bill. USDA research suggests that the restrictions on fruits and vegetables may have encouraged some program participants to shift acreage away from fruits and vegetables to program crops, such as corn or soybeans, but overall the planting restrictions have had a negligible effect on the production of horticultural crops. In addition to the Pilot Program states, there are five southern states: New Mexico, Florida, Arizona, California and Texas, also known as the Sun Belt region, that are also considered to be affected by the planting restrictions because these states are major producers of fruits and vegetables, notably fresh vegetables. Research at Cornell University finds that planting restrictions may have had the greatest effect in the Sun Belt region. In this case, the focus of the current Pilot Program, which centers on the Great Lakes region may be misguided, and a follow-up program may be needed in the Sun Belt region.

In addition to examining the role of changing consumption patterns and farm policy considerations, we also need to highlight issues related to the processing of vegetables in New York State. The production and processing of vegetables has changed substantially since Thomas Kensett opened the nation's first commercial canning plant in New York City in 1812. The processing industry has deep roots in New York State since the original commercial pea viner was developed in Springville in 1890. In 1900, Fairport became home to the first commercially introduced sanitary can while the first successful mechanical bean harvester was introduced in Vernon, New York, followed by commercial production of the harvester in Niagara Falls in 1950. During the period between 1880 and 1950, hundreds of on-farm and family-owned vegetable canning and freezing firms disappeared in New York State. As time went on, the end of World War II further spelled the end of critical government contracts for these small food processors. However, in the decades thereafter, business structures, marketing strategies and processing technologies developed rather rapidly to the meet the evolving demands of consumers in the marketplace.

Since 1950, New York's processing and production leaders have worked to address the frequently conflicting goals among balancing market power, improving the efficiency of planting, harvest, canning and freezing systems, expanding export market share and encouraging the financial interests of investors and

owners in various processing facilities and market brands. Also, the history of the processing vegetable industry illustrates the critical role that farmer-owned cooperatives have played in New York State agriculture for the past decades. In response to such upheaval in post-war market, Pro-Fac Cooperative, established in 1960, attempted to reconcile the conflicting interests of its grower members with the market demands from processors or, as the name itself implies, the interests of producers with the requirements associated with operating facilities. Evolving with such long-lasting conflicts and negotiation, the arc of this organization's storied history will end in liquidation in 2012.

Even though there were, once, hundreds of relatively important vegetable processors, only two major firms remain. The future of snap bean and green pea production in New York State will hinge in many ways on how Pro-Fac's privately held successor, Allen Canning, Inc., along with its competitor and potential merger partner, Seneca Foods Corporation, will be able to cope with a variety of market and financial challenges that have materialized during the last five years. Recently terminated merger talks between Allen Canning, Inc. and Seneca Foods represent the latest milestone in New York's long history of economic adjustment for processors and growers involved in the production and marketing of fruits and vegetables. New York growers will continue to adjust their planting and management decisions to deal with factors associated with the shift in control of the state's processing industry away from farmer-owned cooperatives to closely held family corporations.

There are additional outlook issues that may be particularly important to vegetable markets in New York State during 2012 and 2013 as negotiations concerning the next Farm Bill commence. 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. In particular, Title I in the current Farm Bill includes provisions concerning planting restrictions for fruits and vegetables on base acres. 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. Reductions to many of these programs were discussed in plans that seeked to reduce $23 billion over 10 years from Farm Bill legislation under the auspices of the so-called super committee. Although those discussions are now over, there will be a continued effort to critically examine various provisions that were maintained, and introduced, in the 2008 Farm Bill in upcoming negotiations leading up to the next Farm Bill.

Chapter 10. Grapes, Wine and Ornamental Crops

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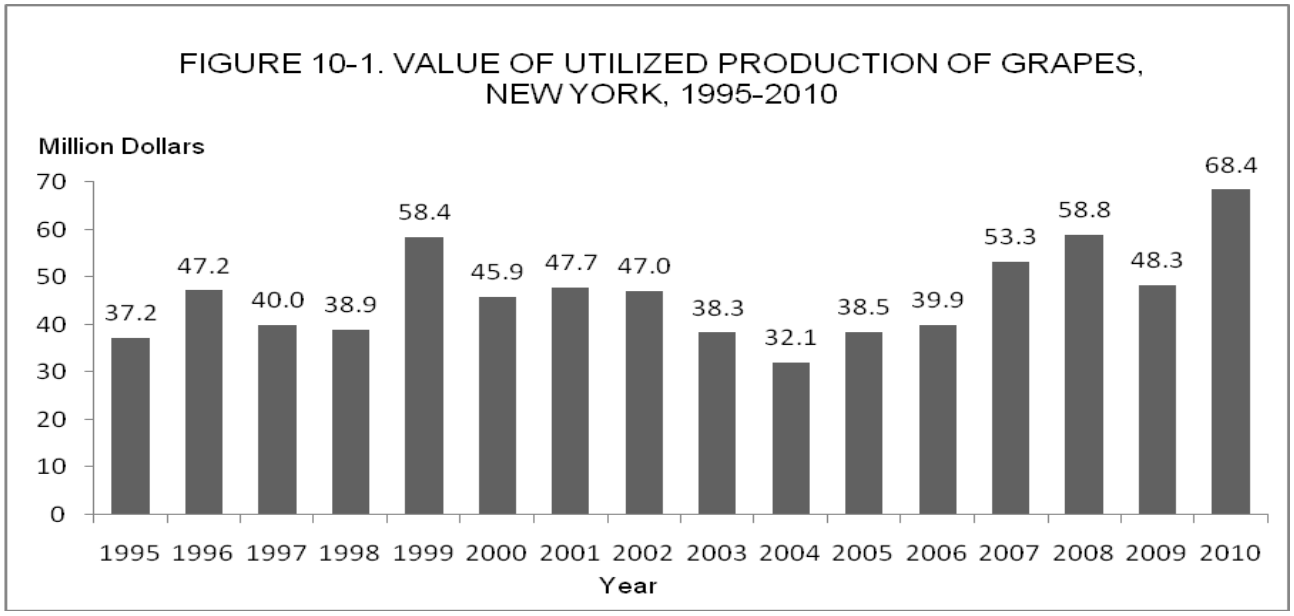
Specialty crops are an important component of New York State's agricultural economy. In 2010 the agricultural products returned approximately $4.7 billion, which changed little from the total farm value in 2009. About 23 percent of the state's land area or 7 million acres are used by the 36,300 farms to produce a very diverse array of food products. Fruit and vegetable crops accounted for nearly 15.8% of the total value of agricultural production in New York State and another 3.9% was generated from production of ornamental crops. 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. Grapes are the second highest revenue fruit crops in New York with a value of production exceeding 68 million dollars. The floriculture products were valued at 183 million dollars which placed New York the seventh in the nation.

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 2006 and 2011, give an economic outlook on expected market conditions in 2012, 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.

Grapes

Wine and juice grapes production placed New York the third behind California and Washington. According National Agricultural Statistical Service, the 2011 New York grape crop is forecast to be 188 thousand tons which or 7 percent more than the 2010 crop of 176 thousand tons. Grape growers in New York State experienced a much better season than last year. In the Lake Erie region, growers had a good growing season this year, but a few growers reported decreased yields due to a wet spring and dry summer. The Finger Lakes grape region also enjoyed excellent growing conditions, reflected in the high quality of this year's crop. However, the Long Island grower reported difficult growing conditions due to hot, dry summer and Hurricane Irene. After experience a decline from 2008 to 2009, the New York crop value has increased significantly from $48.3 million in 2009 to $68.4 million in 2010 (Figure 10-1), and increase of 41.6 percent from last year. Among the total value of production, 68 percent of the production was for juice and 30 percent went into wines and 2 percent for fresh market. Crop values for 2011 are not available yet, but they will be substantially higher than the 2010 crop values due to increased yields and quality.



Source: New York Agricultural Statistics, 2011

In 2010, total grape crop production in U.S was 7.41 million with 2.3 percent above the 2009 crop. The National Agricultural Statistical Service (NASS) forecasts a U.S. grape crop of 7.08 million tons in 2011, or 4% below the 2010 crop. This is the third consecutive year experiencing declines. This is primarily due to forecasted production declines from major producers such as California, Washington, Oregon, and Michigan. As the California growers are expecting their total crop production to be down somewhere between 25 and 30 percent due to late springs rains, cooler summer, and fall rains. Just like California, Oregon is experiencing production declines as well, due to Mother Nature. Harvest in Washington State is also running behind the usual years (http://www.reuters.com/article/2011/10/27/us-wine-harvest-idUSTRE79Q70520111027). Despite significant damage from Hurricane Irene, New York grape production is expected to increase from last year production. Grower prices for table grapes have increased relative to 2010. Overall, steady demand in both domestic as well as export markets is likely to keep the grower price higher than in 2010, despite the increased production (http://nfapp.east.asu.edu/Outlook09/FILES/Fruits/Graph%20Grapes.htm).

Grapes and Prices in New York State

Relative to 2009, grape prices changes were up for almost all the varieties including both native Varieties and French American Hybrid, except for a French American Hybrid *de Chaunac* (Table 10-1). Average listed prices for major native varieties such as *Catawba* and *Delaware* increased by 9.1% and 16% between 2009 and 2010, respectively. The increase of average price also occurs to the most French American Hybrid varieties, except that *de Chaunac* variety, which dropped from $525 per ton in 2009 to $512 per ton in 2010, a slightly reduction of about 2.5 percent. The average price for *Vitis Vinifera* and *de Chaunac* varieties in 2010 is lower than the 2008-2010 average. Between 2009 and 2010 there were price increases for *Cayuga White* (8.6 percent), *Baco Noir* (6.4 percent), *Seyval Blanc* (6.1 percent) and *Rougeon* (4.3 percent). In contrast, substantial price declines were recorded for *de Chaunac* (2.5%).

Concords are still the predominant variety grown and processed in New York (Table 10-2). After experiencing a substantial decline from 2008 to 2009, there were 117,300 tons of Concords New York-grown grapes processed in 2009. This represent a substantial increase of 38% relative to 2009 and is a little above the 5-year production average. Over the past five years, in average *Concords* comprised 71.6 % of total tonnage utilized in the state. The second leading variety is *Niagara* followed by *Catawba*. There was a huge

increase in production of *Niagara* since last year from 12,400 tons to 21,600 tons, or up 74.2 %. *Vitis Vinifera*, with an annual average of 7,162 tons utilized over the past five years, accounting for a 4.5 % of the NY crush. However, *Vitis Vinifera* production has increased substantially in the past four years, from 5,200 tons in 2006 to 9,800 tons in 2009.

TABLE 10-1. GRAPES: PRICES PAID FOR NEW YORK GROWN GRAPES PROCESSED 2008-2010

variety	2008	2009	2010	3-Year Avg.
American Varieties				
Catawba	262	287	313	287
Concord	253	264	287	268
Delaware	374	376	436	395
Niagara	280	271	285	279
French American Hybrid				
Aurora	411	409	411	410
Baco Noir	546	529	563	546
Cayuga White	484	502	545	510
de Chaunac	592	525	512	543
Rougeon	517	484	505	502
Seyval Blanc	499	523	555	526
Vitis Vinifera(all)	1,581	1,304	1378	1421
Other varieties	414	422	544	460
Total, all varieties	334	352	363	350

Source: Survey of Wineries and Grape Processing Plants New York, 2011

TABLE 10-2. GRAPES: NEW YORK GROWN RECEIVED BY WINERIES AND PROCESSING PLANTS, 2006-2010

variety	2006	2007	2008	2009	2010	5-year Avg.
Catawba	4,120	4,930	3,670	5,150	7,110	4,996
Concord	108,600	131,000	127,000	84,900	117,300	113,760
Delaware	510	430	470	340	350	420
Niagara	18,500	21,000	15,000	12,400	21,600	17,700
Aurora	3,300	2,480	3,320	3,530	2,990	3,124
Baco Noir	350	430	520	820	610	546
Cayuga White	1,020	1,090	1,460	1,650	1,540	1,352
de Chaunac	110	180	180	420	240	226
Rougeon	320	270	380	370	260	320
Seyval Blanc	650	430	760	1,280	680	760
Vitis Vinifera.(all)	5,200	5,770	7,170	7,880	9790	7,162
Other varieties	7320	7890	8070	9260	4310	7,370
Total, all varieties	150,000	176,000	168,000	128,000	172000	158,800

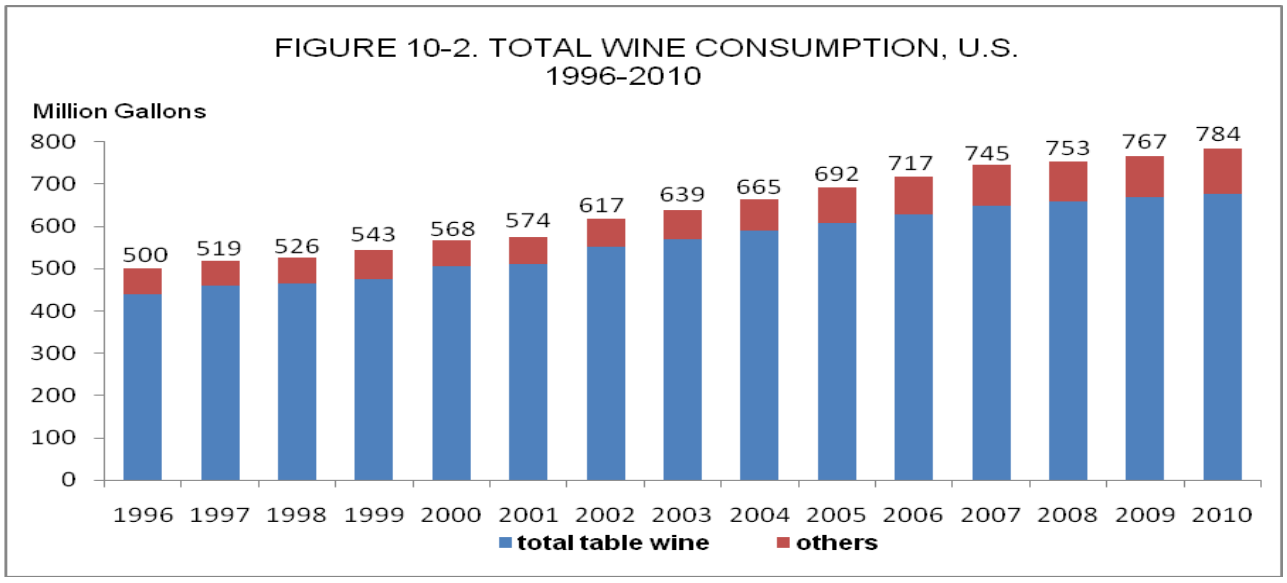
Source: New York Agricultural Statistics, 2011

Wine

According to the fruit report from NASS New York Field Office, in 2010, wineries and processing plants located in New York State crushed a total of 170,155 tons of grapes grown in New York or other states, up 24 % from the 137,056 tons processed from the 2009 crop. Receipts of New York growers accounted for

83 percent of the total with the remaining 17 percent of receipts of growers in other states. Grape crushed for wine in New York increased 17 percent from last year to 59,305 tons and accounted for 35 percent of all grapes processed (the rest 65 percent went to grape juice and other products). Tonnage utilized for juice and other products increased by 29 percent from 2009 to 110,850 tons.

In 2010, the U.S. became the largest wine-consuming nation followed by France. The U.S. wine industry continues its expansion, although somehow at a slower than in the early 2000s, driven mostly by increased table wine consumption (Figure 10-2). Shipments into U.S. trade channels of wine from California, other states and foreign suppliers reached 784 million gallons which is nearly 330 million cases, a record high for the industry in 2010 and a 2.2 % increase compared to the previous year. Table wine sales led wine sales in 2010 with a total of $26 billion retail value for 9 liter cases, while dessert and sparkling wines accounted for $2.65 billion and $1.4 billion, respectively (Table 10-4). According to the Wine Institute, volume sales between 2008 and 2009 increased, but the dollar sales values decreased slightly. After experiencing a decline in retail value in 2009, the retail value reached nearly $30 billion with a 4 % increase between 2009 and 2010. California wine accounted for about 90% of the wine produced in the country and for over 60% share of total wine sales in the country.



Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2011

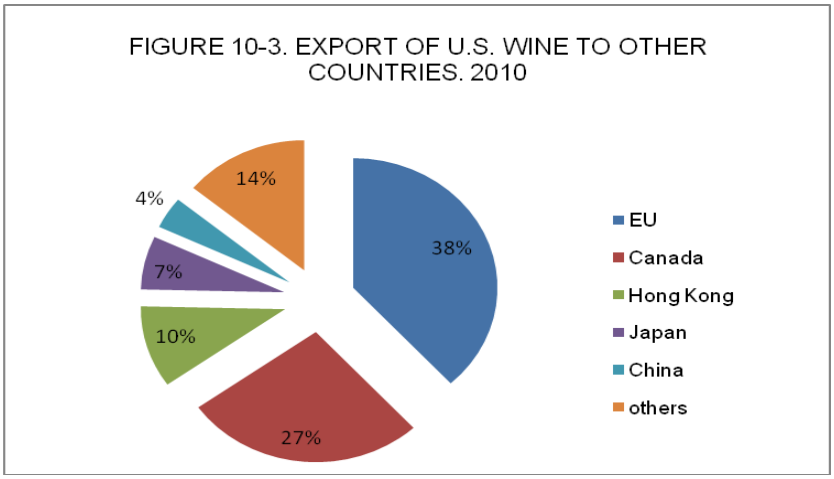
TABLE 10-3. WINE SALES IN THE U.S.
2006-2010 IN MILLIONS OF 9-LITER CASES
(Wine shipments from California, other states and foreign producers entering U.S distribution)

Year	Table Wine	Dessert Wine	Sparkling Wine/ Champagne	Total Wine	Total Retail Value
2010	285.2	29.1	15.4	329.7	$30.0 billion
2009	281.5	27.4	13.9	322.8	$28.7 billion
2008	274.7	27.6	13.5	315.8	$30.0 billion
2007	273.5	26.5	13.8	313.8	$30.4 billion
2006	264	24.1	13.6	301.6	$27.8 billion

Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2011

In 2010, U.S. wine exports jumped 25.6% in value from 2009 to an estimated $1.14 billion in winery revenues. Volume shipments rose 1.9% to 47.3 million of nine-liter twelve-bottle cases, according to U.S. Department of Commerce data. U.S. wine export volume has nearly doubled in the last decade. Thirty-eight percent of U.S. wine exports by value were shipped to the 27-member countries of the European Union (EU), accounting for $435 million of the revenues, up 14% from 2009. Volume shipments to the EU reached 27.6 million cases in 2010, up 11% from the previous year. Changes in the dollar exchange rate, a gradually recovering economy and California's effective marketing and high wine quality are the main factor contributing to increased exports. Other top markets were Canada ($308 million) Hong Kong ($116 million), Japan ($76 million) and China ($45 million) (Figure 10-3).

FIGURE 10-3. EXPORT OF U.S. WINE TO OTHER COUNTRIES. 2010



Source: Wine Institute; Department of Commerce; Gomberg, Fredrickson and Associates, 2011

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 2010, there were 4,000 tons of fresh grapes, while 172,000 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 is likely to go down in 2011-2012, mostly

driven by the reduced wine grape production in the state and in Washington. This may drive up prices growers will receive for grapes sold to wineries this season. While California diverts some of its raisin and table grapes in wine production, the demand for California wine grapes from wineries remained unchanged during 2010-2011 (in comparison to 2009-2010). The average grower prices were mostly higher in such states as Washington, Michigan, New York, Oregon, Pennsylvania, and Virginia than in California. Despite the fact that grower prices have increased consecutively in the past three years, the lower average price in California drove down the overall 2010/11 national average grower price.

Considering the grape juice market, after two consecutive years of reduced juice grape production, the total quantity of grapes available for juice processing from this year's harvested crop is experiencing a rebound due to recovering production levels in Michigan, Ohio, New York and Pennsylvania. This will likely drive down prices growers will receive from juice processors in 2011/12. Juice processors in the United States increased their international grape juice purchases by 13 percent from the previous season. This was caused by a tightening grape juice inventory in the United States, due to the upward domestic grape juice consumption, reduced domestic juice grape production and lower imports in 2009/10. Imports in 2011/12 could see a downward adjustment as domestic juice grape output returns to normal levels in 2011/12.

The USDA forecasts U.S. raisin production to be down 4 percent in 2011/12 from the previous season with a total 738.5 million lbs. (dried weight). The primary reason for this decline is the lower quantity of available grapes for drying this year and the forecasted smaller harvest for raisin and table grapes in California. Another reason for this decline was the cool and wet weather early this summer that caused delays in crop maturity and increases in the dying ratio, which lowered U.S raisin production in 2011/12. Grower prices for raisin grapes are expected to be high due to reduced raisin production and tight inventories. Since the early 2000s, raisin grower prices averaged at least $1,000 per ton. In 2010/11, prices averaged $1,540 per ton, up from $1,130 per ton in the previous season and the highest since 2004. While this season's domestic raisin production is anticipated to decrease, exports of U.S. raisins in 2011/12 are forecasted to increase by 6 percent from last season to 343.0 million pounds (dried weight). Raisin exports will increase primarily to Europe and China.

Table grape production is forecasted to drop again during the 2011-2012 marketing season. With California supplying about 99 percent of all U.S. table grapes, the forecasted decrease in table grape will likely limit production moving through the fresh market during 2011/12. ERS projects a reduction of about 4% in fresh-market grape production in 2011-2012, for a total of 1.9 billion pounds. If this is accurate, table grape production would be above the average fresh-market output during the past five years by 3%. As a result, there would be enough supplies of U.S. grapes this season to meet export and domestic demand for fresh-market grapes, provided that there is a slight to increase in imports.

Table 10-4 shows forecasts for the period 2012- 2014 from the National Food and Agricultural Policy Project (NFAPP), prepared in 2010. According to NFAPP, total grape output will grow steadily. 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, 2012-2014

	U.S. (unless noted otherwise)		
	2012	2013	2014
Total			
Acres (1,000)	974	974	974
Yield (tons per acre)	8	8	8
Total U.S. Production (1,000 tons)	7,643	7,686	7726
Total Production Outside California (1,000 tons)	850	876	905
Table Grapes			
Production (million pounds)	2,023	2,045	2069
Farm Price (dollars per ton)	758	775	805
Retail Price (dollars per pound)	2.38	2.44	2.54
Exports (million pounds)	885	912	938
Imports (million pounds)	1,443	1,500	1557
Per capita consumption (pounds)	8.13	8.22	8.31
Wine			
Production (million gallons)	632	641	651
Farm Price (dollars per ton)	650	678	711
Retail Price (dollars per gallon)	31.41	32.35	33.46
Exports (million gallons)	127	128	129
Imports (million gallons)	259	272	285
Per capita consumption (gallons)	2.41	2.45	2.5
Raisins			
Production (million pounds)	673	677	681
Farm Price (dollars per ton)	218	221	223
Retail Price (dollars per pound)	NA	NA	NA
Exports (million pounds)	343	360	368
Imports (million pounds)	46	48	51
Per capita consumption (pounds)	1.64	1.62	1.6
Grape Juice			
Production (million gallons)	94	95	96
Farm Price (dollars per ton)	331	336	340
Retail Price (dollars per gallon)	4.64	4.7	4.82
Exports (million gallons)	23	28	29
Imports (million gallons)	80	83	85
Per capita consumption (gallons)	0.47	0.47	0.47

Sources: National Food and Agricultural Policy Project, 2011.

Ornamentals

According to the 2009 Census of Horticultural Specialty Crops, the sales of the ornamental products (including annual bedding/garden plants, potted perennial plants, potted following plants, foliage plants, cut flowers, cut cultivated greens, nursery stock, sod, spring, Christmas trees) in New York reached $229 million, which only accounts for 2.3% of the sales in the U.S.

TABLE 10-5. GROWER CASH RECEIPTS OF FLORICULTURE AND NURSERY CROPS, NEW YORK, 2004-2010

	2004	2005	2006	2007	2008	2009	2010
			--- Million dollars ---				
Floriculture[a, b]	183.0	200.6	203.5	209.1	204.3.1	182.6	183.1
Nursery[c]	172.4	181.3	205.5	NA	NA	NA	NA
Floriculture and nursery crops	355.4	381.9	409.0	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 Crops Situation and Outlook Yearbook, Economic Research Service, USDA, various years; Floriculture Crops 2009 Summary, National Agricultural Statistical Service

TABLE 10-6. VALUE OF FLORICULTURE PRODUCTION BY PLANT CATEGORY, NEW YORK, 2006-2010

	2006	2007	2008	2009	2010	5-yr. avg. 2006-2010	2010 vs. 5-yr. avg.	2010 vs. 2009
							%	**%**
Bedding/garden plants[a]	107.6	111.8	108.9	98.6	103	106.0	-2.8%	4.5%
Potted flowering plants[a]	48.9	41.4	42	42.3	40.2	43.0	-6.4%	-5.0%
Cut flowers[a]	2.9	4.6	NA	2.3	1.9	2.9	-35.0%	-17.4%
Foliage Plants[a]	5.1	3.3	4.2	2.94	2.63	3.6	-27.6%	-10.5%
Propagative materials[a]	17.4	20.7	19.8	16.8	16.5	18.2	-9.5%	-1.8%
Grower sales								
$10,000-$99,999								
(Unspecified crops)	21.6	27.1	26.4	17.7	18.8	22.3	-15.8%	6.2%
Total[b]	**203.5**	**209.1**	**204.3**	**182.6**	**183.1**	**196.5**	**-6.8%**	**0.3%**

a Sales by operations with annual sales of $100,000 or more.

b Total reported crops include categories not listed – cut cultivated greens and propagative materials.

p Preliminary.

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

In 2009, the commercial sales value of New York floriculture production totaled $183 million, a slightly increase from the year before, ranking New York 7th in the nation (Table 10-5). Unfortunately, data on nurseries is not available after 2006, due to changes in data collection procedures at USDA's National Agricultural Statistical Service, thus this situation analysis considers only floriculture. Table 10-6 indicates that bedding and garden plants are the number one component with total value of sales at $103million in 2010. Potted flowering plants were second with a value of sales of $40.2 million in 2010. Propagative materials were third at $16.5 million, a slightly decrease from the previous year (Table 10-6). In 2010, there were 657 growers (down from 667 in 2009) and the open ground area used to produce floriculture crops decreased to 903 acres in New York, a sharp decrease of 65 percent from the previous year (Table 10-7). However, according to NYS Department of Agriculture and Markets, these data on open ground area are not comparable to previous years due to the combined data collection efforts of the Census of Horticulture and the Annual Floriculture Survey. The data in 2010 include area used for production of nursery crops as well as floriculture crops.

TABLE 10-7. GROWING AREA FOR FLORICULTURE CROPS IN NEW YORK[a], 2006-2010

Year	Total greenhouse cover	Shade and temporary cover	Total covered area	Open ground	Total covered & open ground
	-- 1,000 square feet --			*--- acres ---*	
2006	25,121	507	25,628	942	1,531
2007	25,619	705	26,324	1,068	1,673
2008	23,473	531	24,404	1,382	1,943
2009	23,042	405	23,447	2,606	3,127
2010	21,912	566	22,478	903	1,419

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.

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 2010, compared with $4.00 billion for 2009 (Table 10-8). The value of production from large and small growers increased by 3% and by 7% with respect to 2009, respectively. The 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 is 10.1%, which is high compared to the 3.6 % in the U.S. In New York, the value of production from small growers increased to $18.8 million in 2010 or up by 8.7% from 2009. While the value from large growers decreased slightly relative to 2009.

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 2004-2005 data in Table 10-8 were adjusted to include only the 15 states surveyed in 2007 and 2008 for comparison. The leading state is still California with a crop valued at $1.01 billion, up 8 % from the 2009 value, then followed by Florida with a value at $810 million. These two states account for 44 percent of the 15-state total value.

The 2009 wholesale value of floriculture crops is up 3% compared to 2009. The crop value at wholesale for growers with $10,000 or more in sales is estimated at $3.98 billion for 2010, compared with $3.83 billion for 2009. Bedding and Garden plants wholesale value of bedding and garden plants, at $1.91

billion, is up about 4% from the previous year. Potted flowering plants for indoor or patio use, were valued at $1.1 billion in 2010, down 4% from 2009. The value of 2010 foliage plant production, at $640 million, is up 7% from the previous year. The value of cut flowers, at $375 million, is up 4%; while cut cultivated greens, at $78 million, are up by 6 % in comparison to 2010.

TABLE 10-8. WHOLESALE VALUES OF FLORICULTURE PRODUCTION, BY GROWER SIZE[a], NEW YORK AND UNITED STATES, 2009-2010[b]

	New York			U.S.		
	2008	2009	2010	2008	2009	2010
	------ *Million dollars* ------					
Small growers	26.3	17.3	18.8	182	140	150
Large growers	175.8	165.3	164.3	4,038	3,860	3,980
All growers	204.3	182.6	183.1	4,220	4,000	4,130

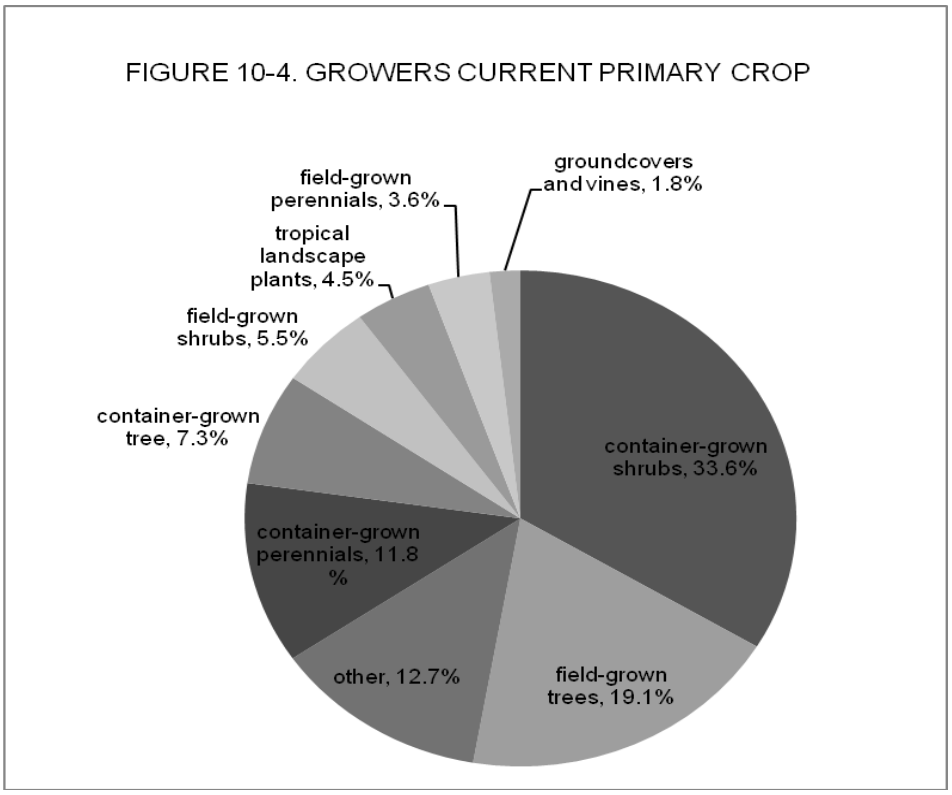
a Small growers have between $10,000 and $100,000 in annual floriculture sales; large growers have at least $100,000.
b Wholesale value of sales of growers with at least $10,000 in annual floriculture sales. Growers are located in the 36 surveyed states.

p Preliminary.

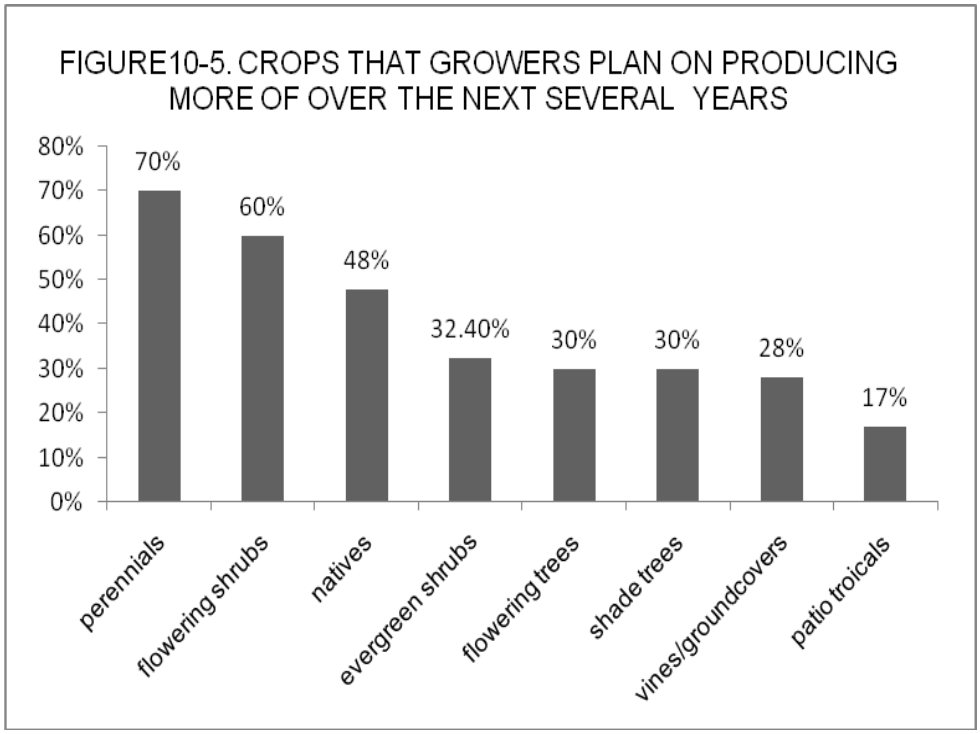
Source: Floriculture Crop, National Agricultural Statistic Service (NASS), USDA, 2010.

According to Nursery Management's *2011 State of the Industry* research report, overall sector sales are down and sales margin are down from previous years. However, many predict that sales and margins will rise over the next several years. The survey results show that only 35% growers have better profit margins this year than in 2010, but 56% of the growers are faithful that the market for nursery products will grow in 2012. About 20% of companies are considering labor reductions in the next 12 months, compared with 16% of companies which are likely to increase their labor base. This survey shows that 62% of growers are not planning to change their production space in 2011; and only 20% plan on adding production space.

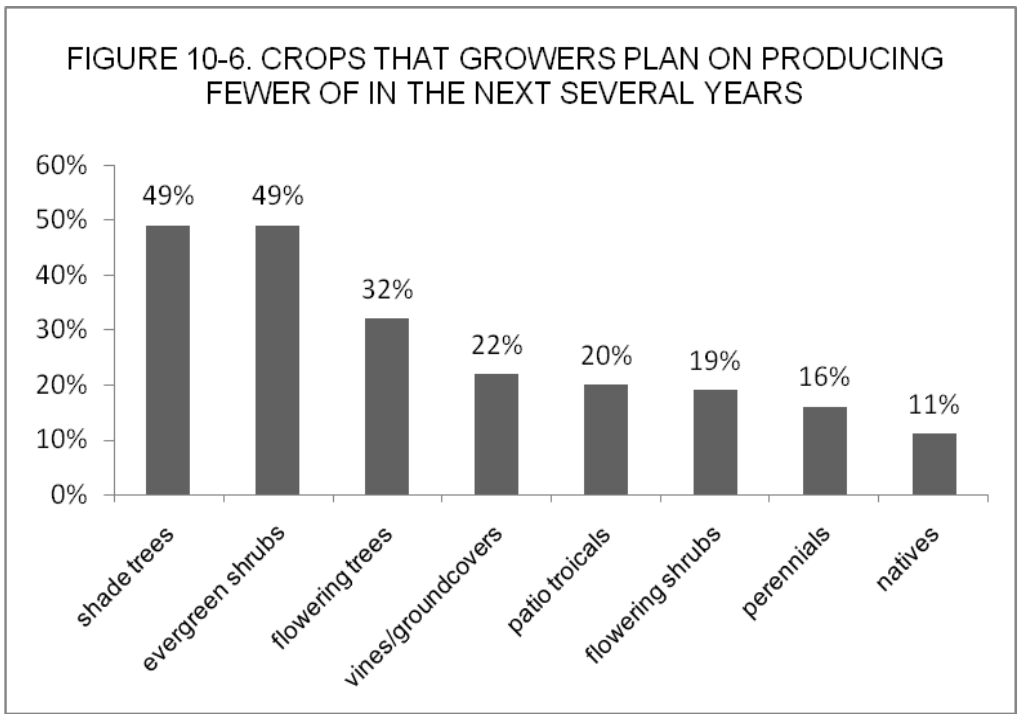
According to the report, the primary product in this sector is container-grown shrubs, which account for 33.6% of whole sample, followed by field-grown trees and container-grown perennials (Figure10-4). A late-August survey showed that growers are adapting to current economic conditions by increasing flowering crops and covered production, as well as by growing more high-value crops. Data indicates that covered production is increasing, despite the fact that the overall nursery acreage is down. Growers are investing in covered production which indicates that they plan on growing more high-value crops while backing away from producing both evergreen shrubs and trees. More are growing perennials and flowering shrubs to meet the needs of retail customers. 70 % of the growers plan on producing more of perennials over the next several years, and 60 % of them are likely to grow more flowering shrubs (Figure 10-5). Finally, almost half of the growers plan to grow less of shade trees and evergreen shrubs in the next several years (Figure 10-6).



Source: Nursery Management, 2011



Source: Nursery Management, 2011



Source: Nursery Management, 2011

Outlook

The economic outlook for ornamentals is quite similar to the one prepared for last year. Macroeconomic indicators appear to be more stable now but it is hard to believe that we will experience a period of steady sustained growth. In fact, the predictions are that we will experience a period of sluggish growth with a slow recovery in the next few years. The implications for the floriculture industry and for nurseries and landscape industries are mixed, when looking at leading indicators relevant for these industries.

The floriculture industry is undergoing two developments which have already had and continue to have effect on the whole industry. It is going to have increased competition in production and distribution. U.S floriculture industry will face competitions not only from the established producers such as Ecuador, Kenya, Malaysia, also from the growth of industry in China, India. There will more distribution centers which are forecasted to affect overall efficiency and lower transactions costs for distant producers which may drive up the price of cut followers and foliage. The second is to some extent about increased competition and considerable progress in consolidation and vertical integration. Trade will be increased through the direct sales channels such as supermarkets and retail outlet. Wal-Mart is continuing to increase the purchase acquired from the growers under long-term contracts, which will encourage intergradations of the producers.

Regard floriculture marketing, substantial changes will happen in next several years. There will be some room in the market for the tailor-made products or delicate flowers and plants that could not handle in the standard system with supermarkets maximizing volume and efficiency in logistic. The trade channels for specialized florists and products in such markets as weddings, funerals, corporate events are continue to grow in the next several years. The online sales channel for floriculture products is emerging and will be steadily growing in the recent years with increasing urbanization.

Many small growers have been facing problems due to uneconomic returns and high overheads, which has been considerable during the economic slowdown. This may give them some thoughts and motivations to improve the quality of planting materials and infrastructure, take training programs in production, manage harvesting and post-harvesting techniques, diversify their products, and improve product availability and quality.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2011-07	Dairy Farm Business Summary, Northern New York Region, 2010		Knoblauch, W., Putnam, L., Karszes, J., Murray, P., Vokey, F., Hayes, C., Deming, A., Balbian, D., Buxton, S., Manning, J., Collins, B., Overton, R. and C. Dymond
2011-06	Dairy Farm Business Summary, Intensive Grazing Farms, New York, 2010		Conneman, G., Karszes, J., Grace, J., Murray, P., Carlberg, V., Benson, A., Staehr, A., Glazier, N., Overton, R., Dymond, C. and L. Putnam
2011-05	Dairy Farm Business Summary, Hudson and Central NY Region, 2010	($12.00)	Knoblauch, W., Conneman, G., Putnam, L., Karszes, J., Buxton, S., Kiraly, M. Shoen, K., Westenbroek, P., Walsh, J., Overton, R. and C. Dymond
2011-04	Dairy Farm Business Summary, New York Small Herd Farms, 120 Cows or Fewer, 2010	($16.00)	Knoblauch, W., Putnam, L., Karszes, J., Kiraly, M. and C. Dymond
2011-03	Cost of Establishment and Production of Vinifera Grapes in the Finger Lakes Region of New York - 2010		White, G.
2011-02	Dairy Farm Business Summary, Western New York Region, 2010	($12.00)	Knoblauch, W., Putnam, L., Karszes, J., Hanchar, J., Grace, J., Carlberg., V., Petzen, J., Welch, D., Overton, R. and C. Dymond
2011-01	Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 2010	($16.00)	Karszes, J., Knoblauch, W., Putnam, L. and A. Angell
2010-19	Legislative Actions on Overtime Pay and Collective Bargaining and Their Implications for Farm Employers In New York State, 2009-2010		Telega, L. and T. Maloney
2010-18	Dairy Farm Business Summary, New York Dairy Farm Renters, 2009	($16.00)	Knoblauch, W. and L. Putnam
2010-17	New York Economic Outlook, 2011		Extension Staff
2010-16	A Compilation of Smart Marketing Articles January 2008 – October 2010		Park, K. and T. Schmitt

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