STATUS OF WISCONSIN AGRICULTURE, 2005

Status of the Wisconsin Farm Economy

Situation and Outlook: Farm Products, Farm Inputs and the General Economy

Special Articles

- *Expansion, Modernization, and Specialization in the Wisconsin Dairy Industry*
- *The Economic Importance of Value-added Agriculture in Wisconsin*
- *The Economic Value of Wisconsin's Green Industry*

Department of Agricultural and Applied Economics
College of Agricultural and Life Sciences
University of Wisconsin-Madison

Cooperative Extension
University of Wisconsin-Extension

STATUS OF WISCONSIN AGRICULTURE, 2005

An Annual Report by:

Department of Agricultural and Applied Economics
College of Agricultural and Life Sciences
University of Wisconsin-Madison

And

Cooperative Extension
University of Wisconsin-Extension

PREFACE

Status of Wisconsin Agriculture is an annual agricultural situation and outlook report authored principally by faculty in the Department of Agricultural and Applied Economics. The report contains three parts. Part I provides a brief overview of the financial environment in the Wisconsin farming sector. In Part II, market analysts review current conditions in major Wisconsin commodity sub-sectors and offer their forecasts for 2005. Part III contains special articles dealing with longer-term issues facing Wisconsin agriculture.

Additional copies of this report may be purchased for $5, including postage. Send requests to Ms. Linda Davis, Department of Agricultural and Applied Economics, UW-Madison, 427 Lorch Street, Madison, WI 53706. Copies may also be downloaded free from the Internet in Adobe Acrobat® format at http://www.aae.wisc.edu/www/pub/

The faculty of the Department of Agricultural and Applied Economics welcomes your comments and questions on material in this report. We also encourage your suggestions on rural Wisconsin issues that we might address in subsequent editions.

Acknowledgements

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Summary

For most Wisconsin farmers, 2004 was a very good year. For dairy farmers, it was a spectacular year, one that will likely serve for many years as the yardstick in coffee shop debates about the good times.

The Class III milk price (the basic reference milk price representing the value of milk used to make cheese) was record high every month from March through June. The Class III price for May, at $20.58 per hundredweight, was $6.75 above the previous record May price. For the year, the Class III price will supercede the old annual average high-water mark set in 1998 by more than $1 per hundredweight.

Strong milk prices were the product of several factors. Two years of low milk prices had stimulated culling and dairy farmer exits, leaving a depleted dairy herd that could not be quickly rebuilt due to a limited supply of replacement heifers. Milk yields suffered from low-quality forages, restricted availability of rBST, and a higher than usual proportion of older, less productive cows in the dairy herd. Consumption recovered from the doldrums dating to the 9/11 terrorist attack. Weak supply and strong demand combined to create what some called the perfect storm for dairy prices.

Most livestock producers also fared well, though not as well as dairy. Red meat producers enjoyed another year of the "low carb" craze, with strong demand for meat despite high retail prices. The December 2003 finding of a cow infected with bovine spongiform encephalopathy (mad cow disease) in the United States severely cut U.S. beef exports, but domestic demand growth offset that market loss. Choice cattle prices stayed at 2003's record level and boning cow prices were up 14 percent in 2004.

Pork exports benefited from bans on U.S. beef by serving as a substitute red meat for foreign consumers. Larger exports helped elevate 2004 hog prices by more than 30 percent over 2003, even though the supply of pork was larger than last year. Broiler prices set a new record and turkey prices averaged about 12 percent higher than 2003. Egg producers, who saw prices plummet after a good first quarter, were about the only livestock producers with little to smile about.

Corn and soybean prices were strong early in the year, thanks to **s**hort 2003 crops plus excellent demand supported by larger exports. During the 2003/04 marketing year, corn prices reached levels not achieved since 1996 and soybeans topped $10/bushel for the first time since 1988. But record 2004 crops caused prices for both corn and soybeans to collapse when the size of the harvests became apparent. So farmers did well on scarce old crop sales, but not on abundant new crop sales.

Wisconsin fruit and vegetable producers had mixed news. Production was generally down in 2004 due mainly to cool, wet weather during the growing season. Prices were comparable to 2003 for apples, tart cherries, and cranberries; higher for potatoes; and lower for processing sweet corn.

Higher costs for farm inputs during 2004 offset some of the revenue gains from strong markets. Prices for fuel, fertilizer and other petroleum-based inputs were up the most due to much higher oil prices. The cost of replacement animals was also up sharply. Interest rates climbed slightly. So did cash rents.

Indications are that Wisconsin farm income set a record. When everything is added up, we expect Wisconsin net farm income for 2004 to be in the range of $1.8 billion to $2 billion, which would exceed the previous record (1989) by $100 million to $300 million.

Things will not be quite as rosy in 2005, but the Wisconsin farm economy should remain robust compared to the early part of the decade. Our market analysts forecast the following scenario:

The nation's dairy herd will not expand in 2005, but milk production per cow will grow by about 2 percent over last year. As a result, U.S. dairy farms will produce about 2 percent more milk this year than they did in 2004. Consumption will grow by 1 percent to 2 percent. The growth in consumption will be less than the growth in production, but part of the added milk will be needed to rebuild depleted stocks. The average Wisconsin milk price will be around $14 per hundredweight, down about $2 from 2004, but more than $1 above the 1999–2003 average.

A larger supply of beef in 2005 along with continued disruptions in export markets will pull cattle prices down modestly from 2004. Hog prices will also be down slightly due to more pork and more competition with broiler meat, which will be in ample supply at lower prices than 2004. Egg prices will remain low while turkey prices will match those seen in 2004.

The bin-busting 2004 crops of corn and soybeans will keep prices low during the first part of 2005. The amount of downward price pressure will depend on corn and soybean output in southern hemisphere countries — soybean production in Brazil and Argentina now exceeds that in the United States. Prices in the last half of the year will be influenced by growing conditions for 2005 plantings. USDA forecasts season-average 2004/05 prices of $1.90/bu. for corn and $4.95/bu. for soybeans, very low prices by recent standards.

Farm input costs will hinge partly on oil prices in 2005. Falling fuel prices in late 2004 are encouraging, but the oil market remains volatile. Livestock replacement costs are expected to remain at 2004 levels. The cost of credit is a question mark, but unless inflation picks up substantially, no big increases in interest rates are anticipated.

The general economy will likely be strong in 2005, with real Gross Domestic Product (GDP) growing by about 3.4 percent. This is roughly comparable to 2003 and 2004, and much stronger than the anemic sub-2 percent growth rates seen in 2001 and 2002. The U.S. dollar will remain weak against the Euro, which should promote U.S. agricultural exports. But the positive impact of a weak dollar on exports is mitigated by some major traders, especially China, pegging their currencies to the dollar.

We expect Wisconsin net farm income in 2005 to range between $1.2 billion and $1.5 billion. This would place net farm income between 2002's $1 billion and 2003's $1.6 billion — not a great year, but not a bad one.

Wisconsin's aggregate farm balance sheet is sound, but assets are heavily padded by escalating real estate values that do not reflect the earning potential of the land in crop and livestock production. Real estate assets are illiquid and cannot easily support the farming enterprise. The value of machinery has declined by more than $250 million over the last 10 years. Hopefully, two back-to-back good years will help Wisconsin farmers build back their farm machinery complement.

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This year's *Status of Wisconsin Agriculture* contains three special articles. Two are written by faculty and staff affiliated with the University of Wisconsin-Madison Program on Agricultural Technology Studies. The first deals with the extent and nature of modernization in the Wisconsin dairy farm sector. The second depicts the magnitude of value-added agriculture in the state. The third special article is written by Laura Jull, a faculty member of the Department of Horticulture. It summarizes the results of a recent survey related to Wisconsin's Green industry, an important contributor to the state's economy.

I. Status of the Wisconsin Farm Economy

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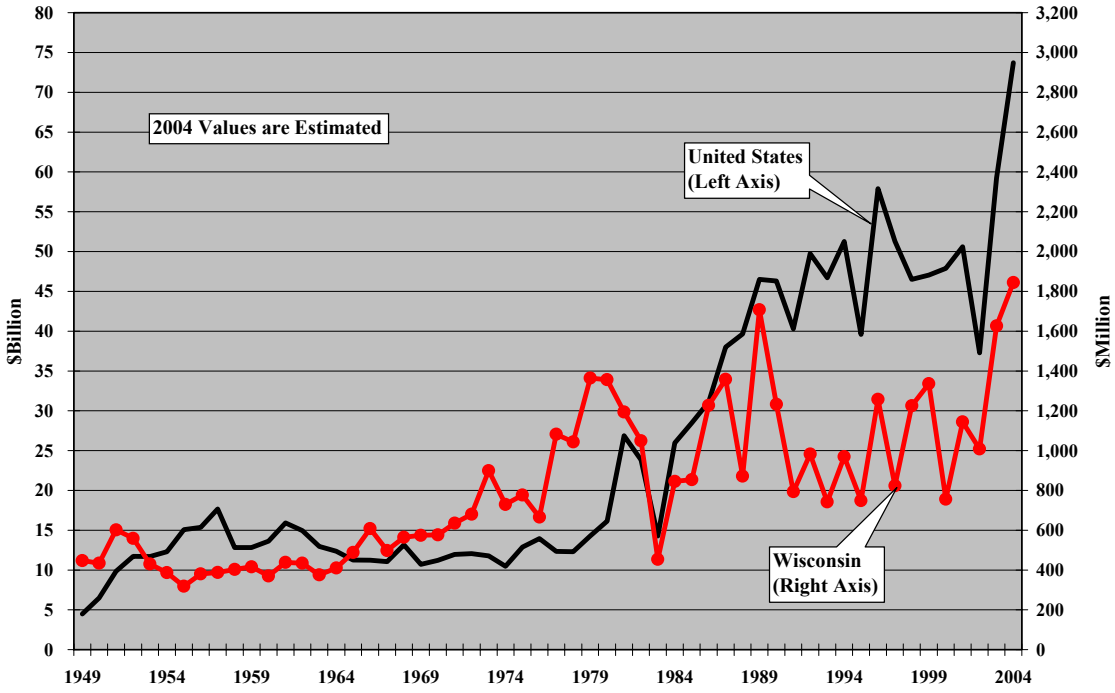
Wisconsin Farm Income Situation

Wisconsin farmer's net income in 2004 will be record high — our estimate is in the range of $1.8 billion to $2 billion compared to the previous record of $1.7 billion set in 1989. This follows near-record 2003 net farm income of about $1.6 billion.

Back-to-back good years have finally given Wisconsin farmers an opportunity to recover somewhat from a 12-year stretch during which net farm income averaged less than $1 billion. Net returns during the last two years have also brought Wisconsin farmers closer to parity with those in other states. The trend in Wisconsin net farm income had diverged markedly from that of U.S. net farm income in 1990 and 1991, when milk prices were very low and remained relatively flat until 2003.

Net Farm Income: U.S. and Wisconsin



Derivation of Wisconsin Net Farm Income ($1,000)

		2002	2003	2004 Est.
	Value of crop production:			
	Food grains	38,047	39,123	50,000
	Feed crops	682,807	717,576	750,000
	Oil crops	244,565	230,787	260,000
	Fruits and tree nuts	124,037	152,615	200,000
	Vegetables	378,344	380,751	400,000
	All other crops	254,781	254,814	260,000
	Home consumption	7,421	7,658	7,000
	Inventory adjustment	80,912	(101,319)	0
	Total Crops	1,816,884	1,688,685	1,927,000
plus:	**Value of livestock production**:			
	Meat animals	716,622	823,624	900,000
	Dairy products	2,662,650	2,838,258	3,600,000
	Poultry and eggs	227,521	249,351	300,000
	Miscellaneous livestock	185,455	182,473	200,000
	Home consumption	2,730	2,818	3,000
	Value of inventory adjustment	50,183	(2,187)	0
	Total Livestock	3,845,161	4,094,337	5,003,000
plus:	**Revenues from services and forestry:**			
	Machine hire and custom work	56,458	84,033	80,000
	Forest products sold	151,700	150,000	150,000
	Other farm income	192,809	192,503	190,000
	Gross imputed rental value of farm dwellings	537,743	546,149	550,000
	Total	938,710	972,685	970,000
equals	**Value of agricultural sector production**	6,600,756	6,755,707	7,900,000
less:	**Purchased inputs:**			
	Farm origin	1,003,376	1,137,516	1,220,000
	Manufactured inputs	843,825	700,904	900,000
	Other purchased inputs	1,537,670	1,325,803	1,600,000
	Total	3,384,871	3,164,223	3,720,000
plus:	**Government transactions:**			
+	Direct Government payments	330,604	484,302	350,000
-	Motor vehicle registration and licensing fees	12,038	7,192	15,000
-	Property taxes	304,052	309,990	320,000
	Total	13,729	167,120	15,000
equals	**Gross value added**	3,230,399	3,758,604	4,195,000
less:	**Depreciation**	969,854	965,153	1,000,000
equals	**Net value added**	2,260,545	2,793,451	3,195,000
less:	**Payments to stakeholders**			
	Employee compensation (total hired labor)	605,417	517,237	660,000
	Net rent received by non-operator landlords	198,959	195,450	220,000
	Real estate and non-real estate interest	448,526	454,783	470,000
	Total	1,252,902	1,167,470	1,350,000
Equals	**Net farm income**	**1,007,643**	**1,625,981**	**1,845,000**

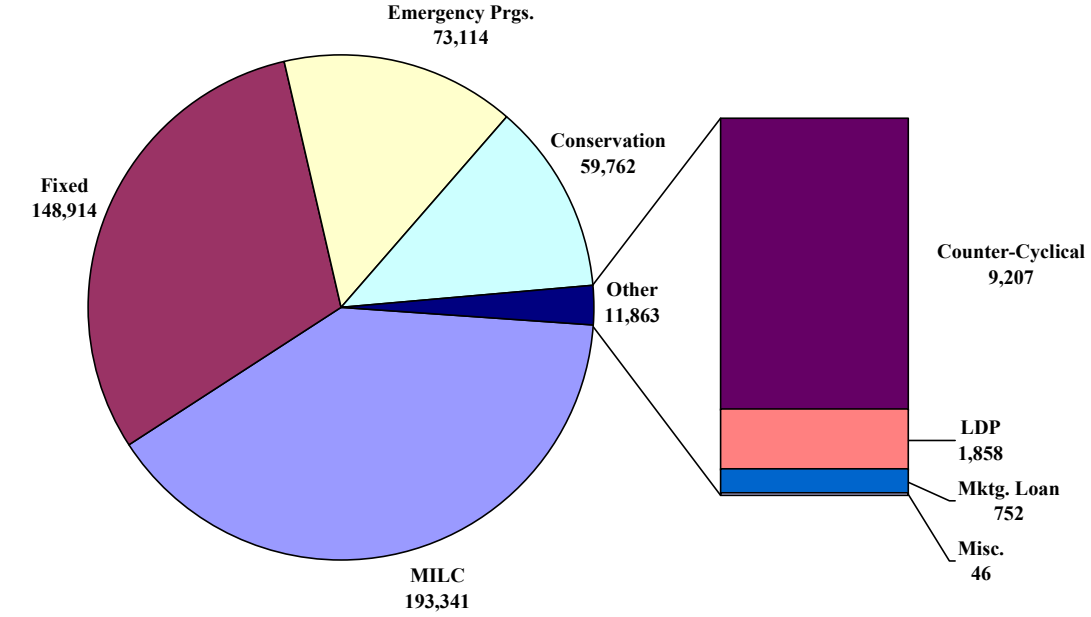
Source: Economic Research Service, USDA for 2002–2003; authors estimates for 2004

Wisconsin's net farm income improved in 2004 mostly because of much stronger milk prices, but other commodity sectors also fared well. Livestock prices remained much stronger than we had anticipated a year ago, and grain and oilseed prices rose sharply early in the year before sinking rapidly in response to large harvests.

Production expenses were higher in 2004. We estimate that higher prices for most inputs and larger purchases from pent-up demand raised the cost of inputs by about $560 million over 2003. Larger capital expenditures also meant more depreciation expense.

Direct government payments to Wisconsin farmers were much smaller in 2004 — we estimate about $350 million compared to the $484 million received in 2003. High milk prices meant that Milk Income Loss Contract (MILC) payments were paid only in the first four months of the year compared to eight months in 2003. While government payments were historically large in 2003, MILC payments made up only about 40 percent of total payments.

Direct Government Payments to Wisconsin Farmers, 2003
($1,000)



Total = $484 Mil.

Farm Balance Sheet

The aggregate balance sheet for Wisconsin's farmers remained strong in 2004, buttressed by high and rising prices for farm real estate. Between the end of 1993 and the end of 2003, farm real estate value increased from $13.5 billion to $32.6 billion. The percent of total farm assets represented by real estate increased from 57 percent to 75 percent.

Over the same ten-year period, farm assets other than real estate increased in value by only $880 million, a gain of 8.7 percent. Higher values for livestock inventories and financial assets made up for most of the increase in non-real estate assets. The value of machinery and motor vehicles fell by more than $250 million.

Wisconsin Farm Balance Sheet, December 31, 1993 and 2003

	1993	*2003*	*% Change, 1993-03*
Farm assets:	**23,611**	**43,642**	**84.8**
Real estate	13,452	32,603	142.4
Livestock and poultry	3,037	3,625	19.3
Machinery and motor vehicles	4,267	4,009	(6.0)
Crops	989	899	(9.1)
Purchased inputs	209	315	50.7
Financial	1,657	2,191	32.2
Farm debt:	**4,649**	**6,699**	**44.1**
Real estate	2,171	3,427	57.8
Farm Credit System	596	1,034	73.6
Farm Service Agency	153	74	(51.6)
Commercial banks	791	1,549	95.8
Life insurance companies	58	74	27.3
Individuals and others	573	696	21.4
Nonreal estate	**2,477**	**3,272**	**32.1**
Farm Credit System	680	1,027	50.9
Farm Service Agency	246	152	(38.0)
Commercial banks	1,105	1,361	23.2
Individuals and others	447	732	63.9
Equity	**18,962**	**36,943**	**94.8**
Ratios:			
Debt/equity	24.5	18.1	(26.1)
Debt/assets	19.7	15.4	(22.0)

Source: Economic Research Service, USDA

Farm debt went up by $2 billion between 1993 and 2003. The increase was split 60/40 between real estate and non-real estate debt. Real estate debt now comprises a larger share of total farm debt than non-real estate debt.

Because of real estate appreciation, farm equity nearly doubled between 1993 and 2003. Higher-valued farmland improved the debt/asset and debt/equity ratios of Wisconsin farmers by four and six percentage points, respectively.

Wisconsin farm financial ratios

An analysis of data from USDA's Economic Research Service suggests that the financial performance of Wisconsin farms is slipping below the average for all U.S. farms. ERS calculates various aggregate financial ratios for U.S. farms and for farms of each state. These are the same ratios that a bookkeeper would use to measure the financial performance of an individual farm business enterprise. A comparison of these ratios between Wisconsin and all U.S. farms brings to light some significant differences in performance.

Rate of return on assets (ROROA) measures profitability as the returns earned per dollar of assets. The higher the value of this ratio, the greater the returns being earned on assets. The measure of income used in this calculation can either be operating returns or the sum of operating returns and capital gains.

Using operating returns to measure income, there was little difference between ROROAs for all U.S. farms and those for Wisconsin during 1960–1985. But this has changed over the last decade. ROROAs for all U.S. farms declined modestly, from around 4 percent to about 2 percent, while the ROROAs for Wisconsin farms have been negative for most of the decade. This indicates a serious profitability problem for Wisconsin farms in the aggregate.[1]

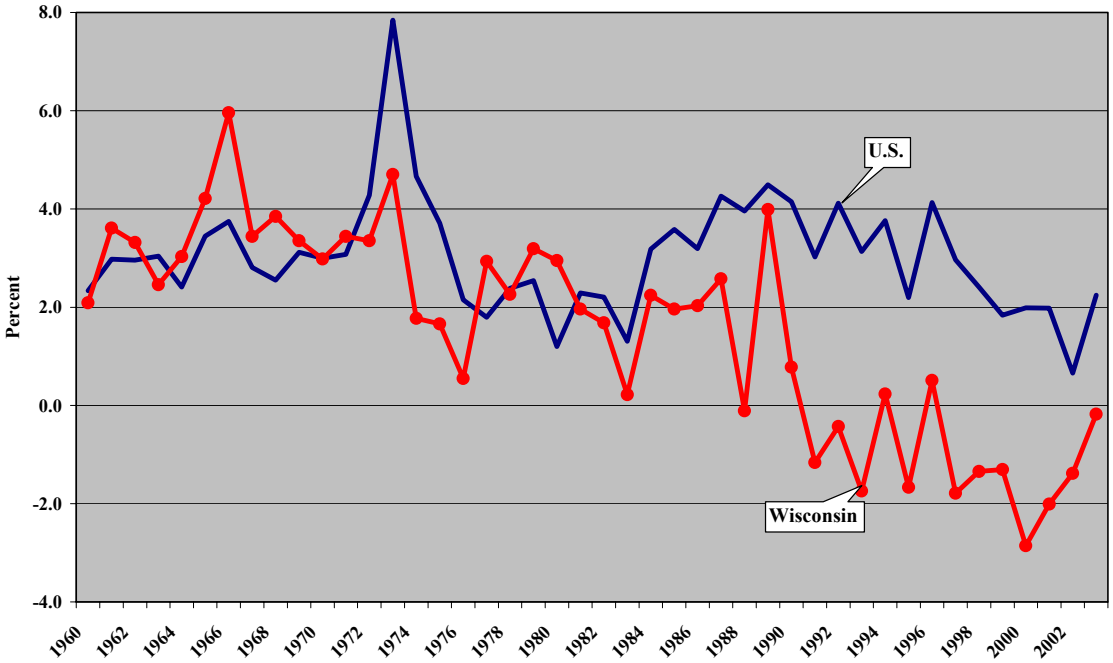
Two factors determine ROROAs. One is *asset turnover ratio*, which relates to productivity. The other is *operating profit margin*, which is a measure of efficiency. The higher the values for both turnover and profit margin, the higher the return on assets. By both measures, there were marked differences in the productivity and efficiency of Wisconsin farms compared with those for all U.S. farms.

In almost all years between 1960 and 2000, the asset turnover ratio for Wisconsin farms was higher than it was for all U.S. farms. This indicates that the productivity of Wisconsin farms has exceeded that of all U.S. farms in most years. This may be changing based on the most recent years, when the turnover of Wisconsin farms has fallen to the levels being achieved by U.S. farms.

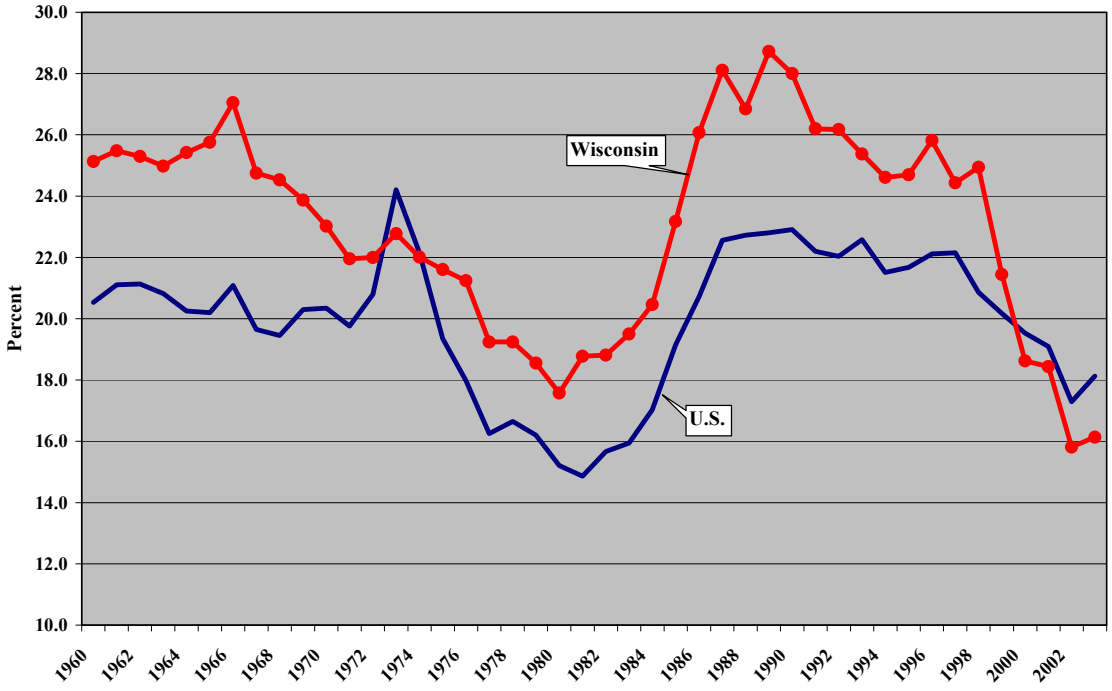
A higher turnover ratio for Wisconsin farms would, by itself, suggest that Wisconsin farms should be generating rates of return on assets higher than those for all U.S. farms. Since this is not the case, relatively low return on assets for Wisconsin must be linked to low profit margins.

[1] Negative ROROAs would appear to be inconsistent with positive net farm income. The ROROAs are calculated after imputing a return to unpaid family and operator labor which, in the aggregate has exceeded net farm income.

Rate of Return on Assets based on Operating Revenue: U.S. and Wisconsin Farms



Asset Turnover Ratio: U.S. and Wisconsin Farms

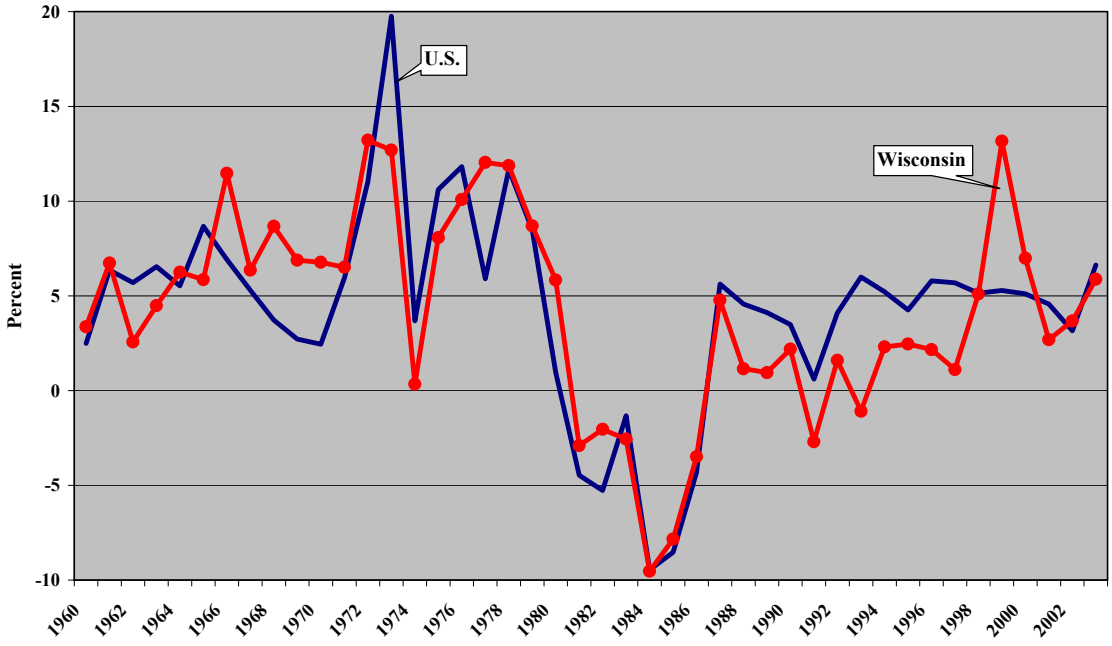


Indeed, profit margins for Wisconsin farms are not only below those for U.S. farms; they have been negative almost every year since 1990. On average, Wisconsin farms have not been able to produce product at a cost (including the opportunity cost of unpaid labor and management) that is below the selling price for that product. This is not a sustainable situation in the long run unless off-farm income is large enough to both offset farm losses and cover reasonable family living expenses.

The calculated return on assets for Wisconsin farms is not as bleak if capital gains are added into farm returns. Capital gains come largely from farmland appreciation, which has been considerable in recent years. These capital gains are wealth gains. They represent an indirect source of income for farmers. They can only be captured if farmland is sold or used as collateral for loans.

The rates of return on assets calculated by including both capital gains and operating revenue are roughly the same for U.S. and Wisconsin farms and have moved in a similar fashion. Positive returns for Wisconsin farms are solely the result of appreciation in land values. In fact, Wisconsin's farmland appreciation has exceeded that of other states, which has offset relatively low operating profit margins and brought Wisconsin farm total returns in line with the national average.

Rate of Return on Assets Based on Operating Revenue and Capital Gains: U.S. and Wisconsin Farms



Comparing Wisconsin and U.S. financial measures suggests that the aggregate efficiency of Wisconsin farms needs to improve to bring returns to Wisconsin farm assets on par with those being earned on U.S. farm assets. Such improvement will occur as farms adopt more cost-effective technologies and production practices. As noted in a subsequent special article, these changes are occurring in Wisconsin, particularly in the dairy sector. This should lead to improvements in the profitability of Wisconsin farms in the near future.

II. Current Outlook: Wisconsin Agricultural Commodities and Inputs and the General Economy

In this section, marketing and farm management specialists offer their insights on economic conditions for Wisconsin agriculture by commodity sub-sector. Forecasts for the general economy are also offered. Interested readers are encouraged to contact these specialists for more current or more detailed information.

Dairy

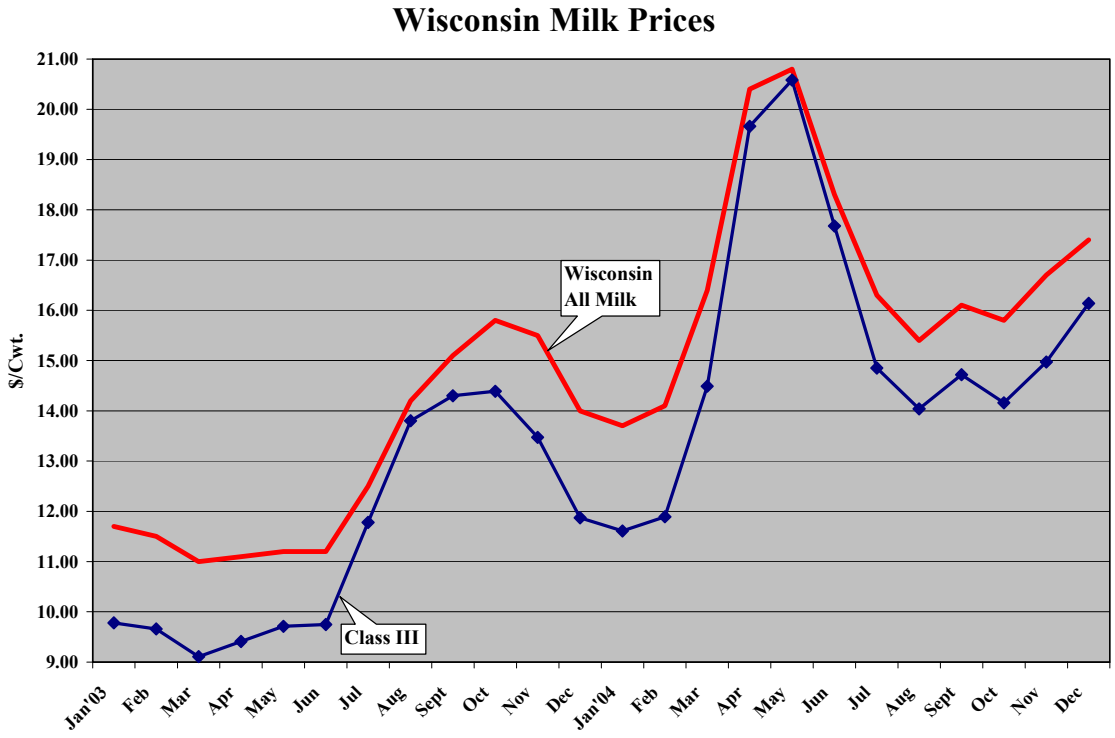
Bob Cropp (608-262-9483)

2004 in Review

Regardless of how you look at it, 2004 was a very interesting year in the dairy sector. Analysts had predicted that farm milk prices in 2004 would be much improved over 2002 and the first half of 2003. But no one dreamed that we would see the prices that materialized.

The year started with a January Class III price of $11.61 per hundredweight. That was a good price for January, but it turned out to be the low for the year. By April, the Class III price reached an all-time high of $19.66, only to be topped by $20.58 in May, which was $10.87 higher than May 2003. Although Class III prices did decline from this peak, reaching a low of $14.04 in August, they remained very strong compared to recent years. And unlike most years, when prices tail off in the last quarter, prices continued to climb, with the December Class III price announced at $16.14.

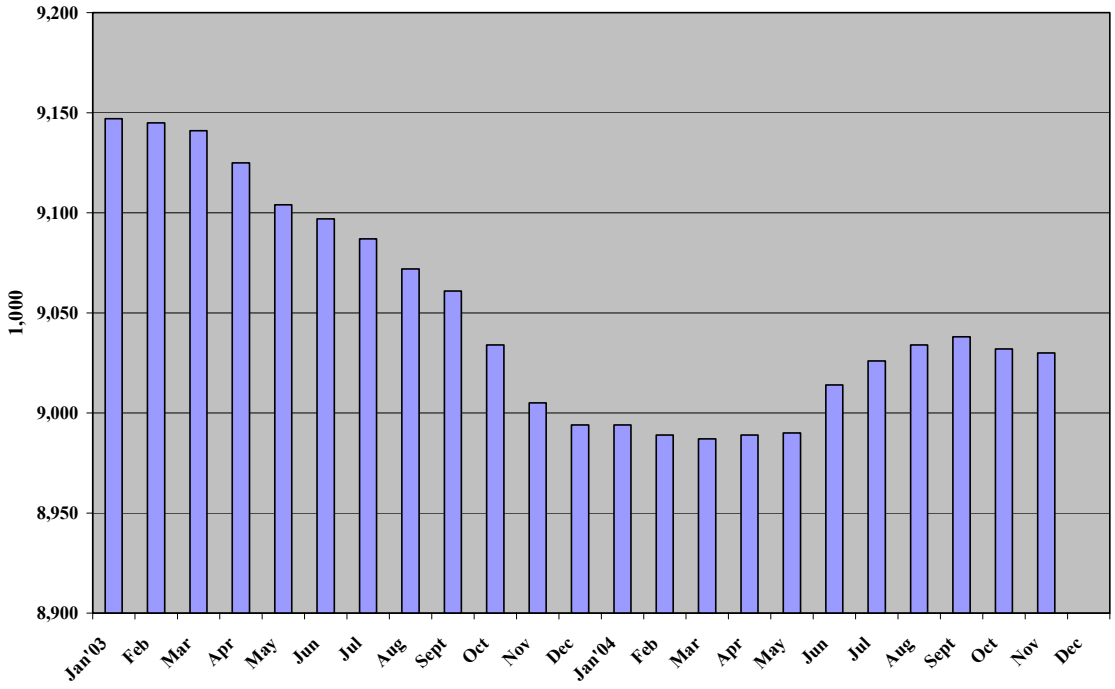
So 2004 will go down as a banner year for dairy. The average Class III price averaged $15.39 compared to $11.42 for 2003 and the very low average of only $10.42 experienced in 2002. The previous record annual average was set in 1998 at $14.20. The average all-milk price received by Wisconsin farmers was a record $16.84 compared to $12.90 in 2003 and $12.18 in 2002. The previous record all-milk price was $15.55, also set in 1998.



Good prices are always welcome, but especially so in 2004. Dairy farmers clearly needed the boost in revenue after receiving very depressed prices all of 2000, most of 2001, all of 2002 and the first half of 2003. Due to low milk prices, Milk Income Loss Contract (MILC) payments started in December 2001 (the month the program began) and were made every month in 2002, averaging $1.206 per hundredweight on eligible milk. MILC payments were made January through August of 2003 and averaged $1.0909 per hundredweight for the year. MILC payments were made for the first four months of 2004 (January $0.8280, February $0.9450, March $0.7875, and April $0.0225). There were no payments for the rest of the year because milk prices were above the trigger.

A combination of factors contributed to record 2004 milk prices. The nation's milk cow numbers were lower in 2004, averaging 9.011 million head, a decline of 0.8 percent from 2003. Cow numbers fell every month in 2003 and until April 2004. From May to September, numbers increased slightly, but declined again in October and November. History shows that when cow numbers are on the decline, milk prices improve. The reverse is also true.

U.S. Milk Cows



Increases in productivity have been below historical trend. For the 10-year period 1993–2002, the average annual increase in milk per cow was 1.8 percent. But for 2003, the increase over 2002 was only 0.8 percent. The year-to-year increase in 2004 (adjusted to a daily basis to account for leap year) will also be about 0.7 percent.

One explanation for this slower growth in milk yield is that a larger-than-normal share of the cows being milked were older or late in the lactation cycle. Replacement cows were relatively scarce and therefore pricey, due to a ban on dairy replacements from Canada (U.S. dairy farmers normally import 60,000 to 70,000 head per year) and lack of growth in the domestic supply. The July 1, 2004, inventory of replacement heifers was 3.6 million head, the same as 2003. The price of replacements in 2004 averaged about $1,700 per head versus $1,340 a year ago.

With higher milk prices, it is more profitable to retain less-productive older cows than to cull them and buy high-cost replacements. Despite historically attractive slaughter cow prices in the $55 to $60 per hundred pound range, dairy cow slaughter was down 16 percent from a year ago for the period of January through November. A shortage of BST may have contributed slightly to this low productivity as well. These late lactation cows would have been candidates for BST.

The combined factors of fewer milk cows and below-normal cow productivity meant no growth in total milk production in 2004. For the first six months, milk production ran below the previous year. It has been inching up

since then, running more than 1 percent higher than the previous year's production for the last quarter. For the year, U.S. milk production is estimated at 170.6 billion pounds, no increase from the 170.3 billion pounds produced in 2003 when the extra day in the leap year is factored in. This makes the second consecutive year with virtually no increase in milk production.

Wisconsin's 2004 milk production is estimated at 22.08 billion pounds, a 0.8 percent decline from the 22.266 billion pounds produced in 2003 (a 1-percent decline when adjusted for the extra day in the year). This production decline was the result of 1.2 percent fewer milk cows and a negligible 0.3 percent increase in milk per cow.

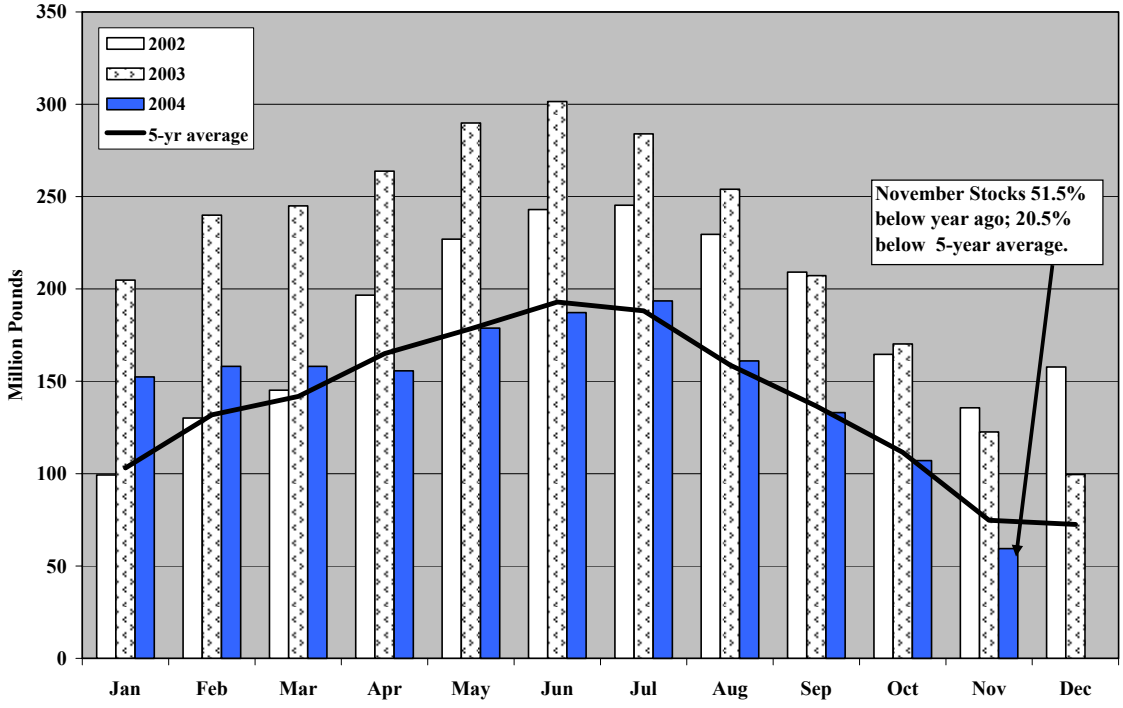
The quantity of milk produced determines the quantity of dairy products manufactured. January through September 2004 dairy production compared to a year earlier showed butter down 3.8 percent, nonfat dry milk for human consumption down 8.5 percent, cheddar cheese up just 0.4 percent and all cheese up 3.0 percent. Hurricanes hurt Florida's milk production, increasing the deficit of milk for beverage use, which required Florida to acquire additional shipments of milk from other areas. Much of the extra milk sent to Florida would otherwise have gone into manufactured dairy products.

After two consecutive years of poor commercial disappearance (an increase of 0.4 percent in 2001 followed by an increase of 0.8 percent in 2002), consumption showed relatively strong growth of 2.2 percent in 2003. This reduced the level of dairy stocks going into 2004. Final commercial disappearance for 2004 is yet unclear, but indications are that while higher retail prices hurt fluid milk sales, cheese and butter sales have been fairly strong.[2] As a result, butter stocks have been substantially reduced and cheese stocks, while ample, are not burdensome. November 30th butter stocks were down 51.5 percent from a year ago and 20.5 percent below the five-year average for this date. November 30th cheese stocks were 1.7 percent higher than a year ago and 6.7 percent higher than the five-year average for this date.

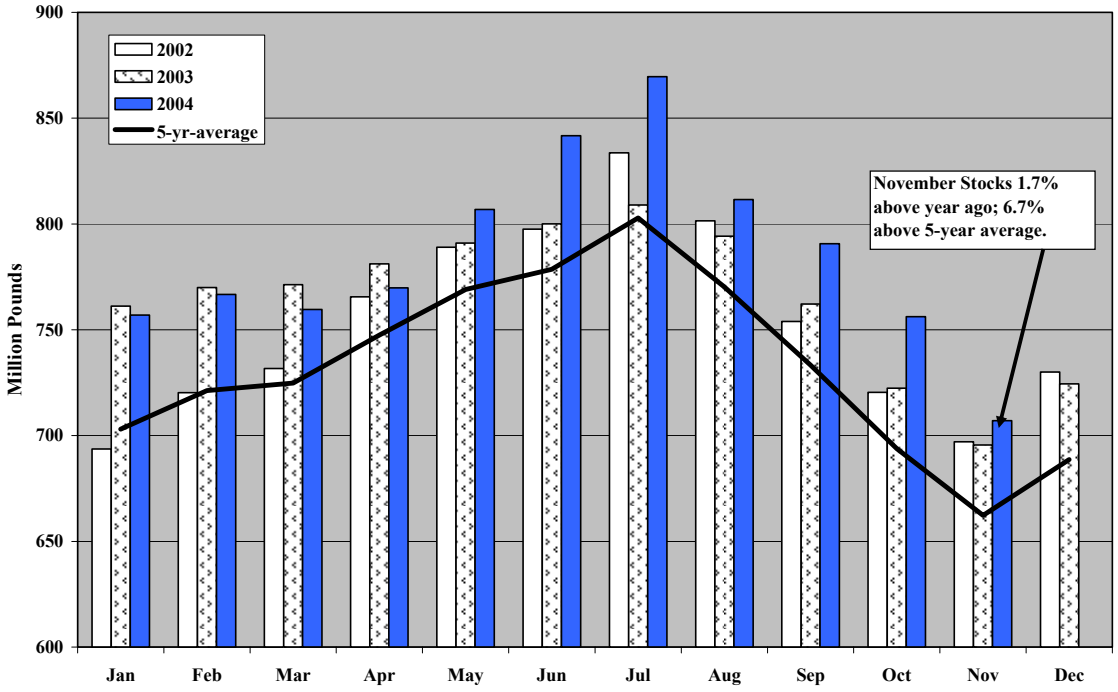
Despite reasonable butter and cheese inventories, supplies of fresh butter and newer cheese (less than 30 days old) were both inadequate to fill orders for the Thanksgiving and Christmas holidays. Butter and cheese supplies were more plentiful in the West but a shortage of transportation hindered movement into the national market. Apparently in response to tightened markets, both CME butter and cheese prices strengthened during November, driving up farm milk prices in the last quarter. While there may be some short-run factors in play, these relatively high butter and cheese prices were hard to explain using market fundamentals.

[2] Dairy Management Incorporated's November newsletter reported that a recent MilkPEP study found that milk sales at retail are affected by price to a significant degree. USDA reported fluid milk sales through August were down 1.8 percent compared to the first eight months of 2003, mainly attributed to sharp price increases.

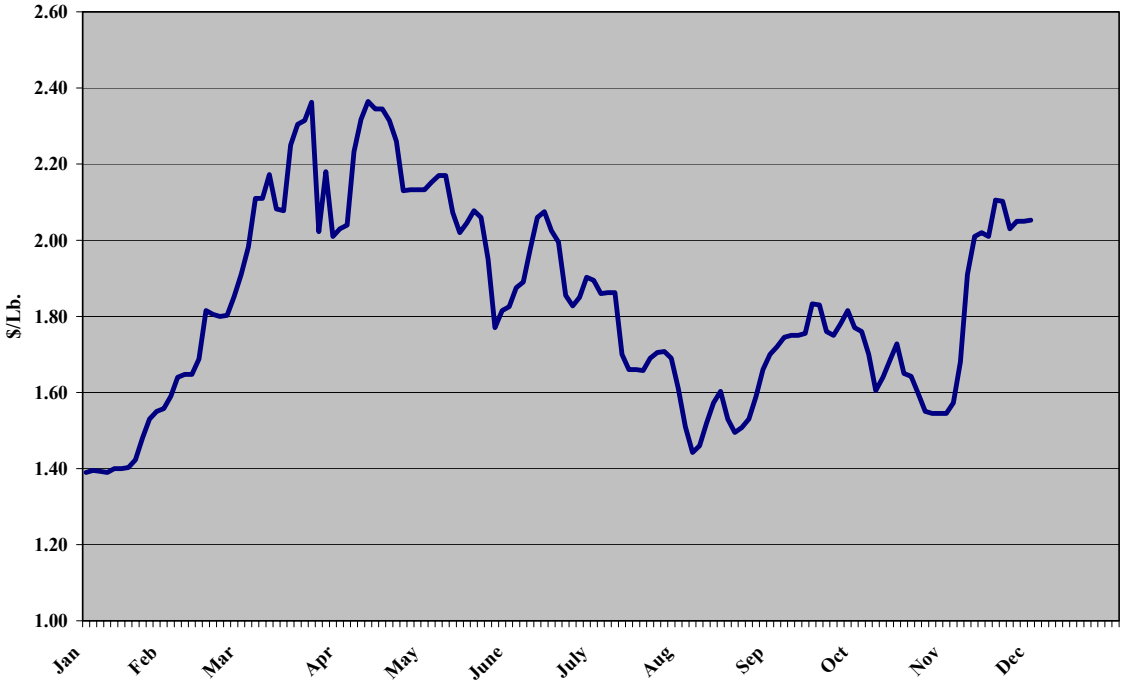
U.S. Total Butter Stocks



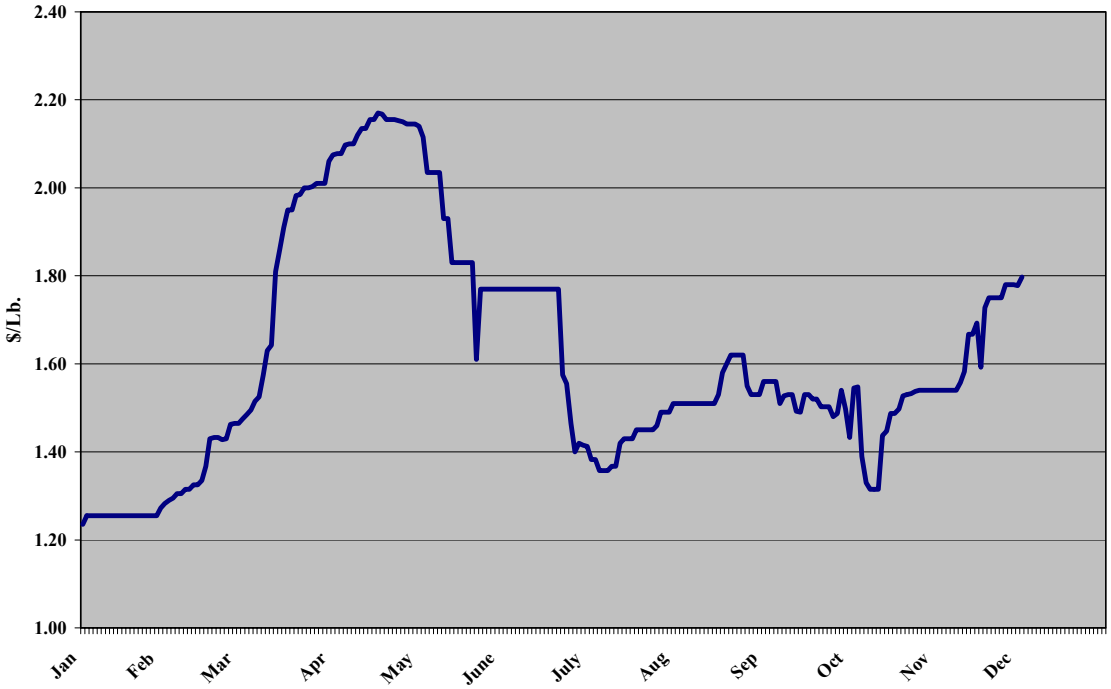
U.S. Total Cheese Stocks



CME Grade AA Butter Price



CME Block Cheddar Cheese Price



Burdensome government stocks of nonfat dry milk were substantially reduced during 2004. September 30th government nonfat dry milk stocks were 523 million pounds, down 54 percent from a year ago. A larger quantity of government stocks of nonfat dry milk was exported under the federal Dairy Export Incentive Program. Further, higher milk prices plus reduced production of nonfat dry milk meant that the CCC purchased a smaller volume of surplus dairy products. On a skim milk equivalent basis, CCC purchases (mostly purchases of nonfat dry milk) totaled 8.3 billion pounds in 2003 compared to an estimate of just 1 billion pounds for 2004.

In September, the National Milk Producers Federation announced the second round of its Cooperatives Working Together (CWT) supply management program. This announcement appeared to positively impact the cheese market, at least psychologically. This second round is for the period of October 1, 2004 through September 30, 2005. The CWT Export Assistance Program is targeted to remove about 332 million pounds of milk equivalent from the market. Export assistance is to be implemented whenever the CME butter price is $1.30 or lower or the CME cheese price is $1.40 or lower.

In late November, the CWT Herd Retirement Program accepted bids from 378 dairy farmers who will slaughter approximately 51,700 cows (equal to about one week of normal cow slaughter) thereby reducing the milk supply by about 931 million pounds. These herd retirements will begin late December 2004 and are to be completed by early February 2005. The total amount of milk that will be removed under both programs is equivalent to about 0.7 percent of annual milk production. The impact on milk prices will be the greatest the first half of 2005 once the herd reduction is completed.

Outlook for 2005

Predicting future milk prices is a challenge. A look at milk prices during the past two years demonstrates that prices are very sensitive to small actual or anticipated changes in either milk production or commercial disappearance.

Predicting the direction of change is somewhat easier than predicting the magnitude of change. For 2005, it's quite likely that prices will average below those of 2004. The only uncertainty has to do with when and how far milk prices will fall. While milk prices are likely to be lower in 2005, they are expected to average above recent historical levels.

Even though milk cow numbers were slowly increasing during the last six months of 2004, there is good reason to believe that U.S. cow numbers will decline about 0.3 percent in 2005. The July 1, 2004, replacement numbers were unchanged from a year ago. Unless the ban on replacements from Canada is lifted, the supply of replacements for major herd expansions will remain tight and prices of replacements relatively high. Further, compared to the 1999-2001 period, relatively few major dairy expansions are being planned. Two

major factors have put the brakes on expansions. First, farmers don't expect current high milk prices to continue for long. Second, the depressed milk prices during the 2000 to 2003 period caused lingering equity erosion and cash flow problems. These two factors may have made agricultural lenders more cautious about financing expansions.

The size of the dairy herd may simply decline as milk prices come down and dairy producers cull a larger share of their older and less productive cows. Slaughter cow prices are predicted to stay high enough to encourage culling. Finally, the rate of farmers exiting dairying is not likely to slow in 2005, and many of the cows from these herds will go to slaughter. Wisconsin will likely see a decline in the number of dairy herds in the 800- to 1,000-cow range, reducing the number of milk cows about 1 percent.

Average cow numbers, milk per cow, total milk production, and commercial disappearance, estimated for 2004 and projected 2005, U.S. and Wisconsin

	U.S.	*Wisconsin*
Average cow numbers (million head)		
2004	9.011	1.241
2005	8.984	1.229
Change	-0.3%	-1.0%
Average milk per cow (pounds)		
2004	18,935	17,790
2005	19,310	18,145
Change	+2.0%	+2.0%
Total milk production (billion pounds)		
2004	170.6	22.077
2005	173.5	22.300
Change	+1.7%	+1.0%
Commercial disappearance (billion pounds)		
2004	176.2	
2005	178.4	
Change	+1.25%	

Source: Author's estimates

After two consecutive years of sluggish productivity, it is likely that milk per cow will gradually improve during 2005. For the year, milk per cow could increase around 2 percent for both Wisconsin and the nation. Average milk yield will improve if older and less productive cows are actually culled. Even with anticipated lower milk prices, lower corn and soybean prices will keep the milk/feed-price ratio at or above 3.0, the level generally considered favorable to feeding for top cow performance.[3]

[3] The milk-feed price ratio is the number of pounds of 16 percent mixed dairy feed (51 pounds of corn, 8 pounds of soybeans and 41 pounds of alfalfa hay) equal in value to one pound of whole milk.

However, the price of high-quality alfalfa hay will be higher, particularly in the West, where 20 percent to 30 percent increases are expected. The effect of feeding lower quality forages can only be partially offset by feeding more relatively cheap protein. Forages are in good supply In Wisconsin, but there are concerns about the quality of both hay and corn silage in some key dairy counties.

Further, Monsanto has increased the allocation of BST from 50 percent to 85 percent and may provide full allocation later in 2005. In addition, FDA recently cleared the feeding of Rumensin® to dairy cows. How much the use of these two technologies will increase average milk production per cow is not clear, but they will contribute something. Also a factor is the amount of heat and humidity this summer.

If predicted cow numbers and milk per cow prove accurate, then 2005 milk production for Wisconsin and the nation will increase. Improvements in milk per cow will more than offset the decrease in milk cows. For the nation, total milk production is estimated at 173.5 billion pounds, up nearly 1.7 percent over 2004. Wisconsin's milk production is estimated at 22.3 billion pounds, an increase of about 1 percent.

Commercial disappearance depends upon dairy product prices, the state of the general economy and consumer confidence levels. Retail prices during 2004 were up sharply from the previous year and this did dampen commercial disappearance. For example, in June, retail prices for dairy products as a whole were 15.2 percent higher, with fresh whole milk up 28.9 percent, cheese up 10.7 percent and butter up 46.6 percent. As farm milk prices came down from their April and May peaks, so did retail prices. By October the retail price index for all dairy products was only 6.0 percent above 2003, with fresh whole milk up 7.9 percent, cheese up 6.0 percent and butter 29.5 percent higher. Since then, there have been store promotions of butter and some cheeses, so retail prices for the later part of the year were probably even lower. But for 2005, lower farm level milk prices will mean a much smaller increase and possibly a decline in retail prices for some months compared to 2004. This will improve commercial disappearance. Further, if the economy continues to show strength, employment stays strong and consumer confidence remains favorable, it is reasonable to assume that commercial disappearance will grow at least 1.25 percent during 2005.

We will be entering 2005 with butter stocks substantially below the five-year average, cheese stocks a little higher than the five-year average but not burdensome, and a substantial improvement in nonfat dry milk stocks. If milk production gains 1.7 percent for the year and commercial disappearance increases 1.25 percent, then the dairy industry will remain in balance. Butter, cheese, dry whey and nonfat dry milk prices should achieve levels that keep farm-level milk prices at or above recent historical averages.

Changes in dairy exports and imports are not likely to be big factors for 2005. If anything, a weakening dollar and lower domestic prices for dairy products could spur U.S. dairy exports and discourage dairy imports. A tight world dairy supply could further reduce imports.

Predicted 2005 dairy product prices and resulting farm-level milk prices are shown below. These prices are low compared to 2004 but are above recent years' averages. First-quarter Class III milk prices will peak around $13.40 in January, falling to $11.85 by March. These prices are well above the five-year (1999-2003) average of $10.78 for the first quarter of the year.

Forecast 2005 Milk and Dairy Product Prices

Month	***Butter***	***Cheese***	***Dry Whey***	***Nonfat Dry Milk***	***Class III Milk***
	$/Lb.				*$/Cwt*
January	1.50	1.45	0.23	0.83	13.42
February	1.35	1.40	0.23	0.83	12.84
March	1.30	1.30	0.23	0.83	11.86
April	1.35	1.30	0.23	0.83	11.87
May	1.40	1.31	0.23	0.83	11.99
June	1.50	1.32	0.24	0.83	12.19
July	1.60	1.38	0.24	0.83	12.81
August	1.70	1.42	0.24	0.83	13.05
September	1.70	1.48	0.24	0.83	13.82
October	1.70	1.41	0.24	0.83	13.14
November	1.50	1.37	0.23	0.83	12.61
December	1.40	1.31	0.23	0.83	11.99
Average Class III Price					12.63
Average All-milk Price					14.43

Source: Author's estimates. Class III prices are derived from the federal order Class III price formula using the estimated butter, cheese and dry whey prices.

Class III prices in the second quarter should stay above their five-year average, increasing seasonally with April at $11.85 and June at $12.20. If milk production continues to improve as anticipated, prices for the remainder of the year will be closer to historical averages. The Class III price is expected to peak early at around $13.80 in September and then decline slowly to around $12.00 by year's end.

The Class III price for the year should average around $12.60. This is more than $1.00 above the 1999-2003 Class III average of $11.42. The average all-milk price for Wisconsin dairy farmers would average around $14.40, almost $2.00 higher than the $12.33 average for the period of 1999–2003.[4] While these prices are well below the record year of 2004, they would reflect a better-than-average price year for Wisconsin dairy farmers.

[4] Note that improvements in milk quality and milk composition have widened the spread between the Class III and the all-milk price.

In addition to these market prices, MILC payments will be in effect at least through September 30, 2005, when MILC is scheduled to be terminated but could be extended. With the estimated Class III prices, MILC payments would be made on eligible milk each month during 2005 except September. MILC payments would average about $0.45 per hundredweight on eligible milk during the January through September period, and, if extended, average $0.40 per hundredweight for the entire year.

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Livestock and Poultry

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2004 In Review

- Total U.S. meat production moved sidewise in 2004 for the second consecutive year after rising for 20 consecutive years (64 percent from 1982 to 2002). Combined with a substantial rise in domestic and export demand, flat production yielded sizable increases in meat and livestock prices in 2004.

- Broiler production increased about 4 percent in 2004 and represented 40 percent of total U.S. meat production compared with 26 percent 25 years ago.

- Non-economic events in 2004 were very important for the meat sector. After the discovery in 2003 of cows testing positive for bovine spongiform encephalopathy (BSE) (one in Canada in May and another in the United States in December) many countries banned imports of U.S. beef in 2004, and cattle and beef trade between this country and Canada was disrupted.

- Late in 2004, the United States imposed a 14 percent tariff on the importation of Canadian hogs as a result of alleged excessive subsidization of hog production by the Canadian government. A final ruling is expected in the first half of 2005. If the tariff is upheld, it is expected to result in slightly decreased pork supplies and slightly increased U.S pork and hog prices in the near term.

- U.S demand for meat was strong in 2004 as the result of the popularity of high-protein diets and increases in employment and consumer incomes.

- There was increased foreign demand for U.S. pork and decreased foreign demand for U.S. beef, largely due to the BSE issue.

- Hog prices averaged about one-third higher than in 2003 despite the fact that pork production

increased 3 percent to an all-time record high. Average hog prices for the year were the fourth highest on record. Domestic consumption of pork was up less than 1 percent in 2004.

- U.S. beef output was down about 7 percent in 2004 to its lowest level since 1994. This was the second largest single-year decline in more than a half century. Beef exports were down more than 80 percent. Domestic beef consumption was up about 1 percent. Choice cattle prices averaged about the same as in 2003, which was the highest on record**.**

- Cow slaughter fell more than 15 percent to the lowest level since 1963.

- Boning cow prices were up about 14 percent from 2003 and up 35 percent from 2002 to near the all-time record high set in 1990.

- The 2004 U.S. calf crop of about 37.7 million head was the smallest since 1951.

- Average retail beef, pork and poultry prices all reached new all-time highs in 2004.

U.S. Meat Production and Consumption Higher in 2005

U.S. meat production, which has been stable at about 85.5 billion pounds during the past three years, is expected to rise about 2 percent in 2005. The increase will be led by a 3 percent to 4 percent hike in broiler output while beef, pork and turkey production are all expected to be up 1 percent to 2 percent.

Total U.S. consumption of meat should reach a new record high of about 224 pounds per person. Broiler meat consumption should hit a new high of nearly 87 pounds per capita, while beef (66 pounds), pork (52 pounds) and turkey (17 pounds) will remain near recent levels. Lamb consumption remains at a little over one pound per person and other meats add another pound.

Cattle Prices High But Questions Remain

Choice cattle prices in 2004 averaged near their record highs set in 2003. They were helped by the continued lack of cattle imports from Canada but hurt by the loss of important beef export markets, most notably Japan. The resolution of these trading bans, the result of the finding of two BSE-infected animals in 2003, will influence demand and average prices in 2005. However, it is likely that the strong demand for beef of the past five or six years will continue and keep cattle prices from falling too far below the averages of the past two years

Cow Prices May Slip a Little

Cow prices were very strong in 2003 and 2004, rising to near their 1990 all-time high and should remain near there in 2005. Most of the strength in 2004 was the result of a large reduction in cow slaughter to the lowest level in over

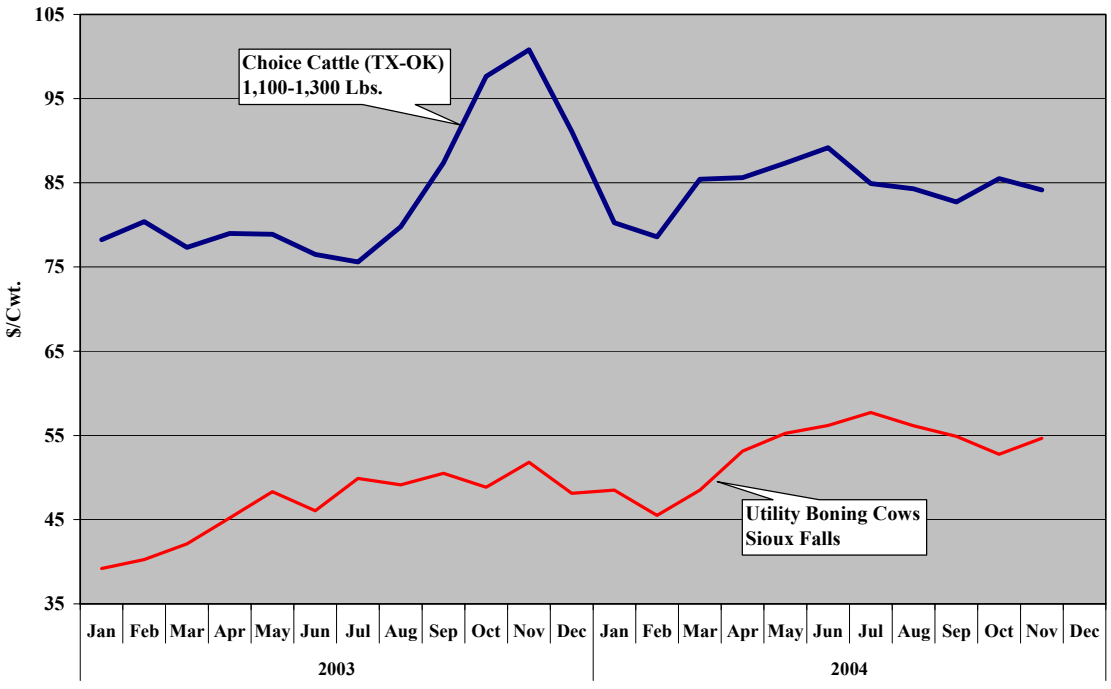
four decades. Much improved financial returns to dairy and cow-calf operators and improved moisture conditions in the western United States resulted in substantially lower cow marketings at much higher prices. These conditions will not likely be repeated in 2005, and continued BSE-related restrictions on beef exports could expand the domestic beef supply. Nevertheless, any slippage in cow prices will be modest.

The relatively long cattle production cycle, with reduced numbers of cattle and calves on farms and ranches each year since 1996, appears to be coming to an end. Larger beef production and lower cow prices are likely later in this decade.

Hog Prices Likely to Fall Slightly

Both domestic and export demand for pork were very strong in 2004, bringing the annual average hog price to its highest level in eight years and to the fourth highest ever. The average price should be a little lower in 2005, with the pressure of slightly increased pork production and more competition from increased broiler output. The relatively low level of frozen pork stocks and the much higher level of retail beef and broiler prices in 2004 were important factors in the recent bullish year. Neither is likely to be repeated in 2005. The seasonal price pattern should be more normal than in 2004 with falling prices in the fourth quarter.

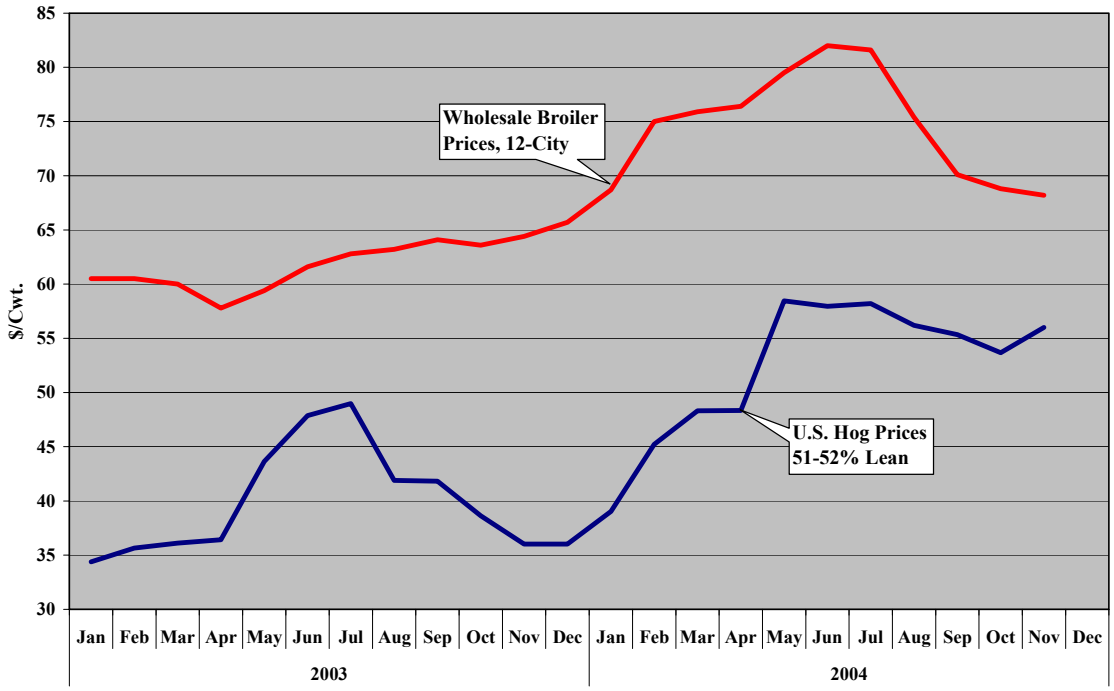
Selected Cattle Prices



Broiler Output Up, Prices down in 2005

Record high broiler prices in 2004, averaging about one-sixth above the old record set in 1998, plus low feed prices later in the year resulted in favorable returns to broiler producers. This sets the stage for the largest increase in annual broiler output since 1999 and for lower prices in 2005. However, broiler prices are still likely to average higher than in any year prior to 2004 and another year of positive returns is likely.

Hog and Broiler Prices



Lambs Should Hold Most of Recent Price Gains

Choice lamb prices were very strong in 2003 and 2004, reaching a peak in the first quarter of 2004. The price rise was fueled by strong prices of competing meats and lower levels of lamb production. It is likely that lamb output may rise a trifle in 2005. Lamb prices may not match those of 2004 but should hold above the 2003 level.

Egg Prices Fell in 2004; Will Likely Average Lower in 2005

Egg prices collapsed after a very strong first quarter in 2004 and averaged well below the preceding year despite an increase of less than 1 percent in egg output. A similar small increase in production is expected in 2005. Prices should average near those of the last half of 2004 and well below the average for the year.

Only Small Changes in Turkey Prices, Production in 2005

Following several years of low prices and low financial returns, turkey producers cut back production in 2003 and again in 2004. The large frozen inventories that had overhung the market for several years were reduced, and whole turkey prices finally responded upward in 2004, averaging about 12 percent higher than in 2003. Turkey breast meat and thigh meat prices were even stronger, reaching the highest average prices in many years. Turkey output is likely to be up slightly and average prices down a bit in 2005.

Meat Exports Depend Partly Upon BSE Decisions

Pork exports grew by about 20 percent in 2004 and beef exports fell more than 80 percent. Both were due in large part to the ban on U.S. exports of beef by many countries following the December 2003 discovery of a BSE-infected cow in the state of Washington. Most of the decline in beef exports was accounted for by the complete elimination of shipments to Japan and South Korea and significantly reduced exports to Mexico and Canada. There were large increases in pork exports to Mexico, Japan and Canada, our three largest pork export markets.

Meanwhile, beef imports increased by nearly 20 percent, while pork imports declined about 5 percent. Most of the increase in beef imports came from Canada and Uruguay. Uruguay was declared free of hoof and mouth disease in early 2003 and an increase in beef imports has followed. Most of the decline in pork imports was from Canada, the largest source of imported pork in recent years.

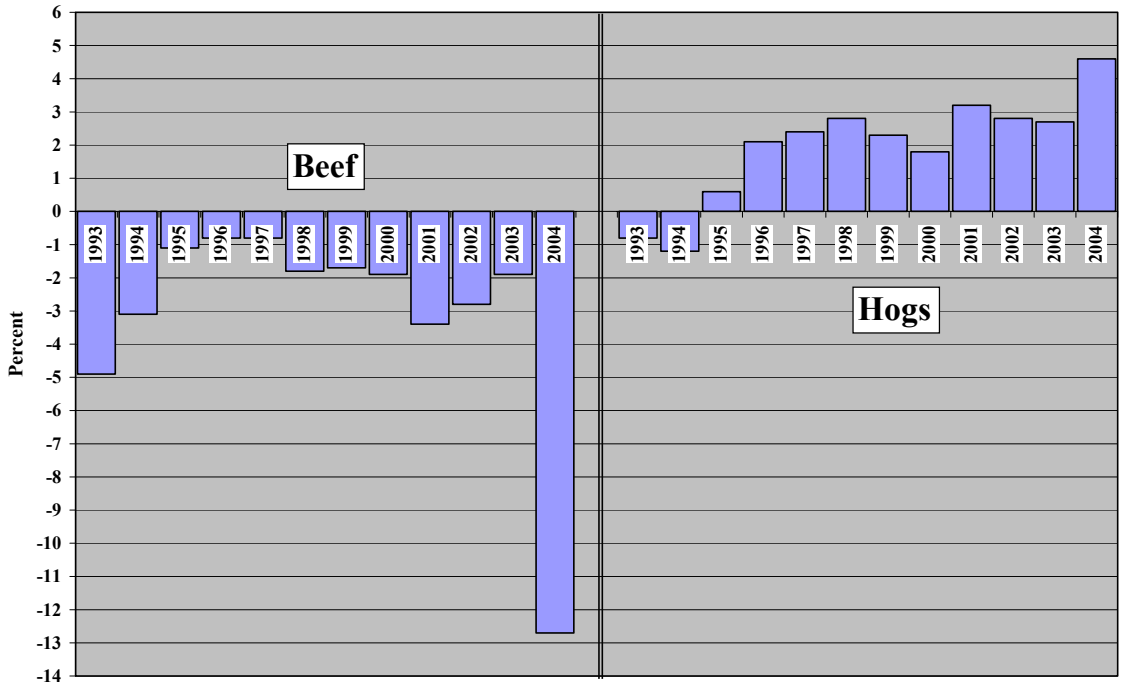
In data going back to 1960, U.S. beef imports have exceeded U.S. beef exports each year. In 1979, net beef imports (imports minus exports) amounted to 10.5 percent of U.S. production. Since then, increasing attention to beef export markets narrowed the gap to 0.8 percent of beef output in 1996 and 1997. Net beef imports averaged only 1.9 percent of domestic production in the 1994-2003 decade. However, net beef imports ballooned to almost 13 percent of U.S. output in 2004, due largely to the BSE incident.

Pork imports exceeded exports each year from 1960 through 1994, topping out at 7.6 percent of U.S. pork output in 1987. However, pork exports exceeded imports each year from 1995 through 2003 by an average of 2.2 percent of pork production. In 2004, net pork exports rose to about 4.6 percent of U.S. output, the highest in decades.

Broiler exports rose to a record 18.2 percent of U.S. production in 2000 but declined to about 13 percent in 2004. Turkey exports have accounted for about 7 to 9 percent of U.S. output each year since 1996 and were about 8 percent in 2004.

Meat exports are currently being assisted by the weakening U.S. dollar, but some of this has been offset by relatively high U.S. meat prices. But, by far the most important factor in the near term is the timing and extent of the solution to the BSE problem.

Foreign Trade Balance as a Percent of Production



Retail Meat Prices Strong in 2003 and 2004; Should Level Off in 2004

Retail meat prices rose rapidly during 2003 and the first half of 2004. However, the pace of increase slowed in late 2004 and should continue to moderate in 2005.

Most of the recent beef price rise occurred in 2003 when beef prices increased over 23 percent in the eleven months from January to an all-time high in December. Retail beef prices moved sidewise during 2004, although the average for the year will show an 11 percent increase over the average for 2003.

Retail pork prices trended sidewise from 1997 into early 2003. However, they moved up 13 percent in the 17 months from April 2003 to September 2004. The average retail price of pork in 2004 was about 6 percent higher than in 2003.

Retail poultry prices increased an average of only 1.3 percent per year for the six years from 1998 through 2003. However, they moved up more than 10 percent in the 14 months from August 2003 to October 2004. The average price will be up 8 percent over a year earlier.

In general, retail meat prices have risen rapidly from relatively low levels. From the end of 2002 to the end of 2004, retail beef prices rose about 22 percent, pork prices were up more than 10 percent and poultry prices climbed about 12 percent.

Due to the likely increase in meat production in 2005, consumer resistance to recent meat price increases and higher cost of health care, fuel and other needs, retail meat prices in 2005 will likely remain near those reached in the last half of 2004.

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Corn and Soybeans

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Introduction

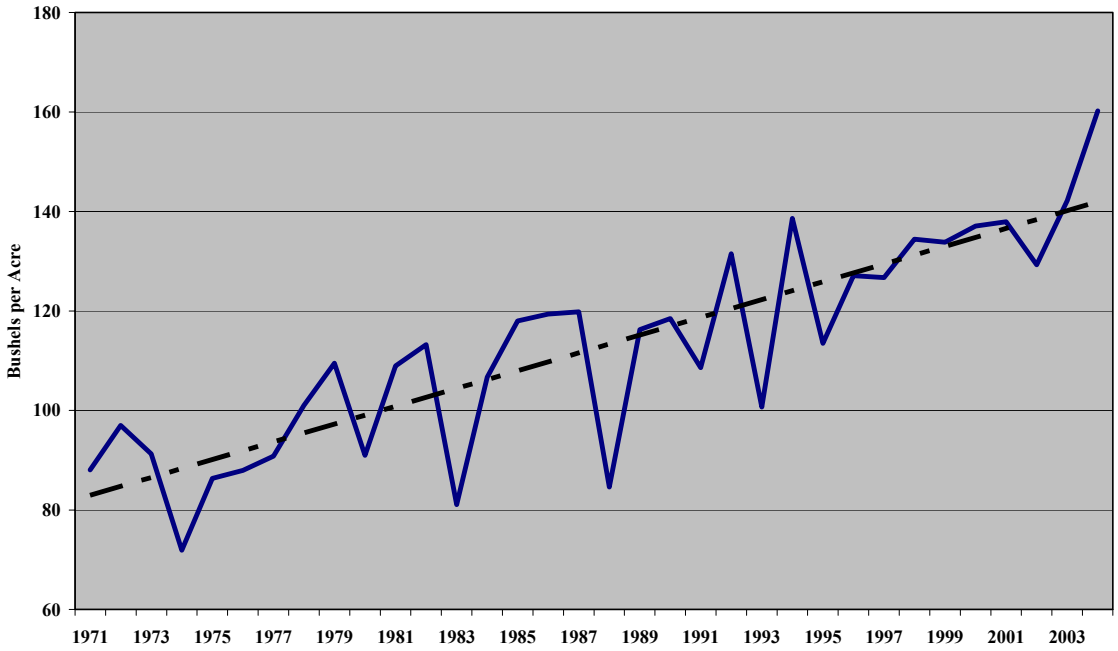
Prices for both corn and soybeans in early 2004 added to the strength of late 2003. Soybean prices exceeded $10 per bushel (basis July futures) for the first time since 1988, and corn prices achieved their highest levels since the summer of 1996.

Prices were supported by a combination of excellent demand, aided in part by a relatively weak dollar value and production concerns in both the United States and South America. However, as often happens in times of abnormally high prices, the 2004 harvest was accompanied by a drastic reduction in prices. Harvest prices across much of the country reached levels at or below loan rates for the first time in a couple of years. In a matter of only a few weeks, producers went from enjoying some of the highest prices in the last decade to attempting to maximize potential returns from loan deficiency payments.

Corn

According to the most recent USDA estimates, U.S. farmers harvested 73.3 million acres of corn in 2004, an increase of about 3 percent over 2003. Yields increased as well, averaging 160.2 bushels per acre in 2004 compared to 142.2 bushels per acre in 2003. The net result was a U.S. corn crop that exceeded 11 billion bushels for the first time ever. Producers who priced their crop pre-harvest enjoyed one of the best corn marketing years in the last couple of decades.

U.S. Average Corn Yield vs. Trend



Corn producers will face several significant challenges in the 2004/05 marketing year, however. Most important is the size of the crop, which at 11.7 billion bushels is more that 1.5 billion bushels larger than the previous record crop. As the following table shows, record production this year is expected to be complemented by record consumption. Specifically, feed use of corn is expected to increase 5 percent over last year to total over 6 billion bushels. Industrial uses of corn are also expected to increase significantly compared to previous years. A large part of the increase in industrial use will go to ethanol production. For the first time, corn used in ethanol production will account for over half of total industrial use.

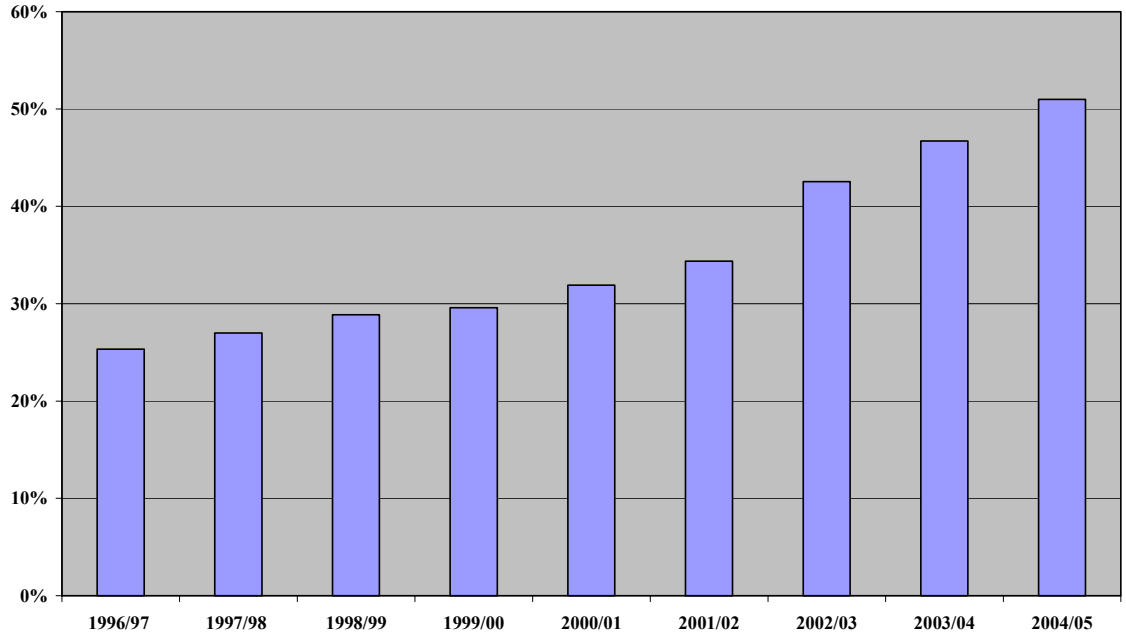
Despite record strong demand, production will overpower consumption this year, resulting in a projected 48 percent increase in ending stocks for August 2005. Ending stocks are expected to total over 1.8 billion bushels, the highest level since August 2001.

USDA is projecting a $1.90 per bushel average farm price for the 2004/05 corn marketing year. If realized, this will be the lowest price in four years following some of the best prices since 1996.

US Corn Balance Sheet (Sep/Aug)								
Mktg. Year	***97/98***	***98/99***	***99/00***	***00/01***	***01/02***	***02/03***	***03/04****	***04/05****
	Million Bushels (Except as Noted)							
Beg. Stocks	883	1,308	1,787	1,718	1,899	1,596	1,087	958
Imports	9	19	15	7	10	14	14	15
Acres Planted (Mil.)	79.5	80.2	77.4	79.5	75.8	79.1	78.7	81
Acres Hvst. (Mil.)	72.7	72.6	70.5	72.7	68.8	69.3	71.1	73.3
% Harvested	91.4%	90.5%	91.1%	91.4%	90.8%	87.6%	90.3%	90.5%
Yield (Bu./A.)	126.6	134.4	133.8	137.1	138.2	130.0	142.2	160.2
Production	9,207	9,759	9,431	9,968	9,507	9,008	10,114	11,741
Total Supply	**10,099**	**11,085**	**11,232**	**11,693**	**11,416**	**10,619**	**11,215**	**12,714**
Feed & Res.	5,505	5,496	5,664	5,890	5,861	5,642	5,783	6,075
Food/Seed/Ind.	1,782	1,822	1,913	1,967	2,054	2,298	2,577	2,795
Exports	1,504	1,981	1,937	1,937	1,905	1,592	1,897	2,000
Total Demand	**8,791**	**9,298**	**9,515**	**9,794**	**9,820**	**9,533**	**10,257**	**10,870**
Ending Stocks	**1,308**	**1,787**	**1,717**	**1,899**	**1,596**	**1,086**	**958**	**1,844**
Stocks to Use (%)	14.88%	19.22%	18.05%	19.39%	16.25%	11.39%	9.34%	16.96%
Average Farm Price ($/Bu.)	**$2.43**	**$1.94**	**$1.82**	**$1.85**	**$1.97**	**$2.32**	**$2.42**	**$1.90**

*USDA Estimate as of December 2004
**USDA Forecast as of December 2004

Corn Use in Ethanol as a Percent of Total Food, Seed, and Industrial Use



Corn producers in Wisconsin shared in the nation's year-over-year production increase, but the increase here came solely from higher yields. Wisconsin producers harvested corn for grain off 2.75 million acres, 100 thousand fewer than harvested in 2003. However, average yield for the 2004 harvest was 136 bushels to the acre, compared to 129 in 2003. The net result was a corn harvest of 347 million bushels, an increase of 6.35 million bushels over last year.

In view of current price levels and near-normal basis levels early in the marketing year, corn buyers may want to get aggressive in forward-pricing purchases through the late spring. Prices may not rally dramatically unless the South American corn crop comes up short this spring. On the other hand, the weak U.S. dollar makes U.S. corn attractive in the export market, which should lead to stronger foreign sales and a commensurate increase in price. Basis levels in Wisconsin will likely strengthen as the marketing year progresses, and the futures market is currently offering attractive storage opportunities on a national basis (i.e., futures prices are significantly higher for more distant delivery dates). Thus, upside price risk for buyers is significant.

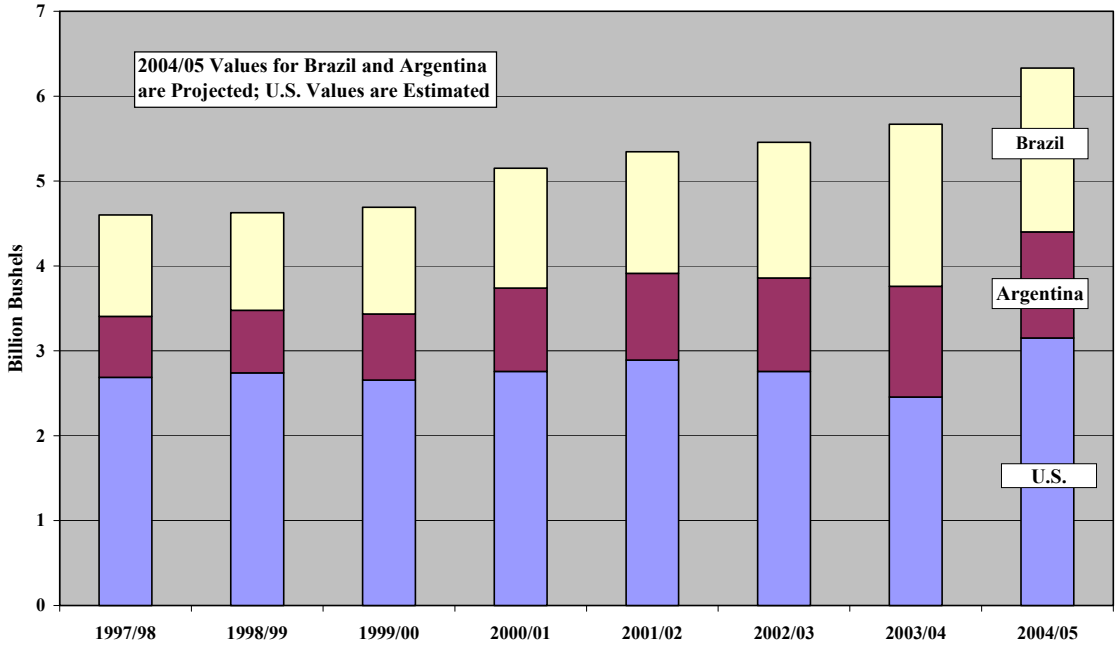
For those corn producers who did not collect a loan deficiency payment (LDP) at harvest, market conditions suggest that corn storage may be attractive this year because the loan rate will protect against downside risk if prices fall. However, downside risk appears limited even for those who did collect an LDP. Cash prices are near the bottom end of expected price ranges for the marketing year, and as noted above, the futures market indicates that cash prices are expected to increase enough to cover costs of storage. Any additional strength in the futures market this spring will increase storage returns.

Soybeans

The 2004 U.S. soybean harvest was estimated at 3.1 billion bushels (USDA December estimate). The crop set a new record and topped 3 billion bushels for the first time. This is an increase of 28 percent over the short 2003/04 crop. Strong prices in spring 2004 encouraged a 2.3 percent increase in planted acres, and average yields improved to 46.2 bushels per acre this year, compared to 33.9 bushels per acre in 2003. Harvested soybean acres exceeded 2003 harvested acres by 1.5 million.

Based on both the record U.S. soybean crop, and current expectations for records in both Brazil and Argentina this year, world soybean supplies for 2004/05 are expected to increase by 22 percent and total more than 231 million metric tons. China is also projected to harvest a record 2004 soybean crop (28 million metric tons), and the EU is projected to increase soybean production by 13 percent over 2003. Argentina is expected to show a 15 percent gain over last year, to 39 million metric tons. Brazil is currently projected to harvest 64.5 million metric tons. This is only 1.5 million tons more than was projected in early 2004, but 11.9 million tons more than they actually produced last year.

U.S. and South American Soybean Production



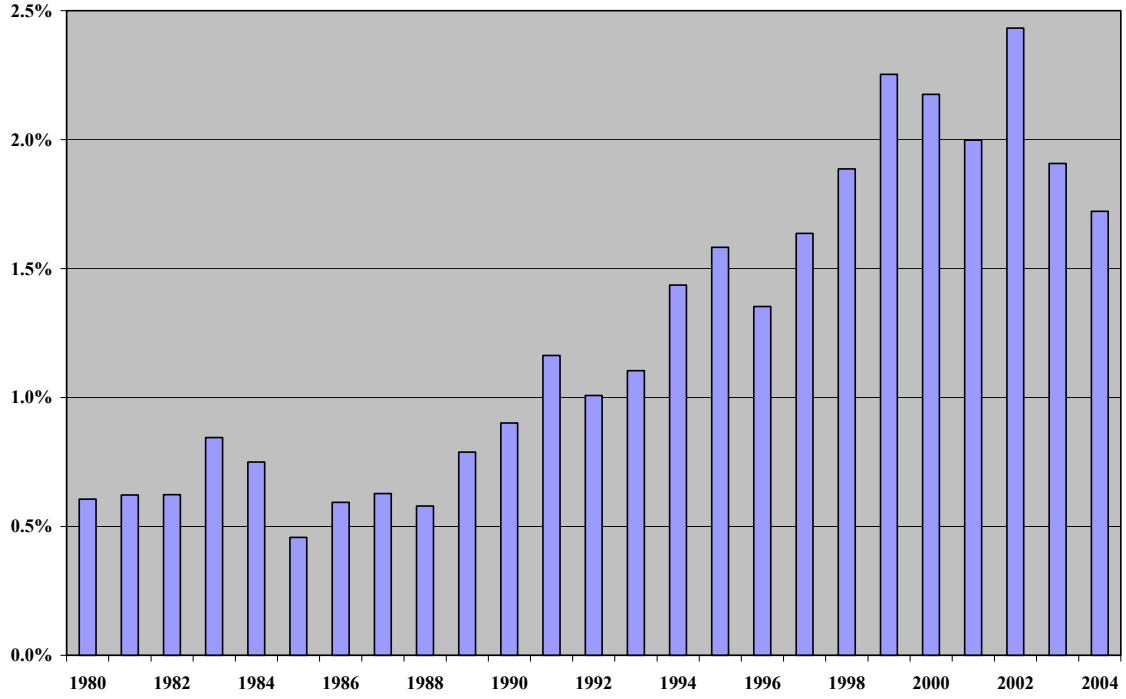
US Soybean Balance Sheet (Sep/Aug)								
Mktg. Year	***97/98***	***98/99***	***99/00***	***00/01***	***01/02***	***02/03***	***03/04****	***04/05*****
				Million Bushels (Except as Noted)				
Beg Stocks	132	200	348	290	248	208	178	112
Imports	5	3	4	4	2	5	6	6
Acres Planted (Mil.)	70	72	73.7	74.3	74.1	73.9	73.4	75.1
Acres Hvst. (Mil.)	69.1	70.4	72.4	72.4	73.0	72.4	72.5	74
% Harvested	98.7%	97.8%	98.2%	97.4%	98.5%	98.0%	98.8%	98.5%
Yield	38.9	38.9	36.6	38.1	39.6	38	33.9	42.6
Production	2,689	2,741	2,654	2,758	2,891	2,749	2,454	3,150
Total Supply	**2,826**	**2,944**	**3,006**	**3,052**	**3,141**	**2,962**	**2,638**	**3,269**
Crush Sep/Aug	1,597	1,590	1,578	1,641	1,700	1,615	1,530	1,645
Exports	873	801	973	998	1,064	1,045	885	1,010
F/S/R	156	205	165	165	169	132	111	153
Total Demand	**2,626**	**2,595**	**2,716**	**2,804**	**2,933**	**2,793**	**2,525**	**2,808**
Ending Stocks	**200**	**348**	**290**	**248**	**208**	**169**	**112**	**460**
Stocks To Use (%)	7.60%	13.41%	10.68%	8.84%	7.09%	6.05%	4.44%	16.38%
Avg. Farm Price	**$6.47**	**$4.93**	**$4.63**	**$4.54**	**$4.38**	**$5.53**	**$7.34**	**$4.95**

*USDA Estimate as of December 2004
**USDA Forecast as of December 2004

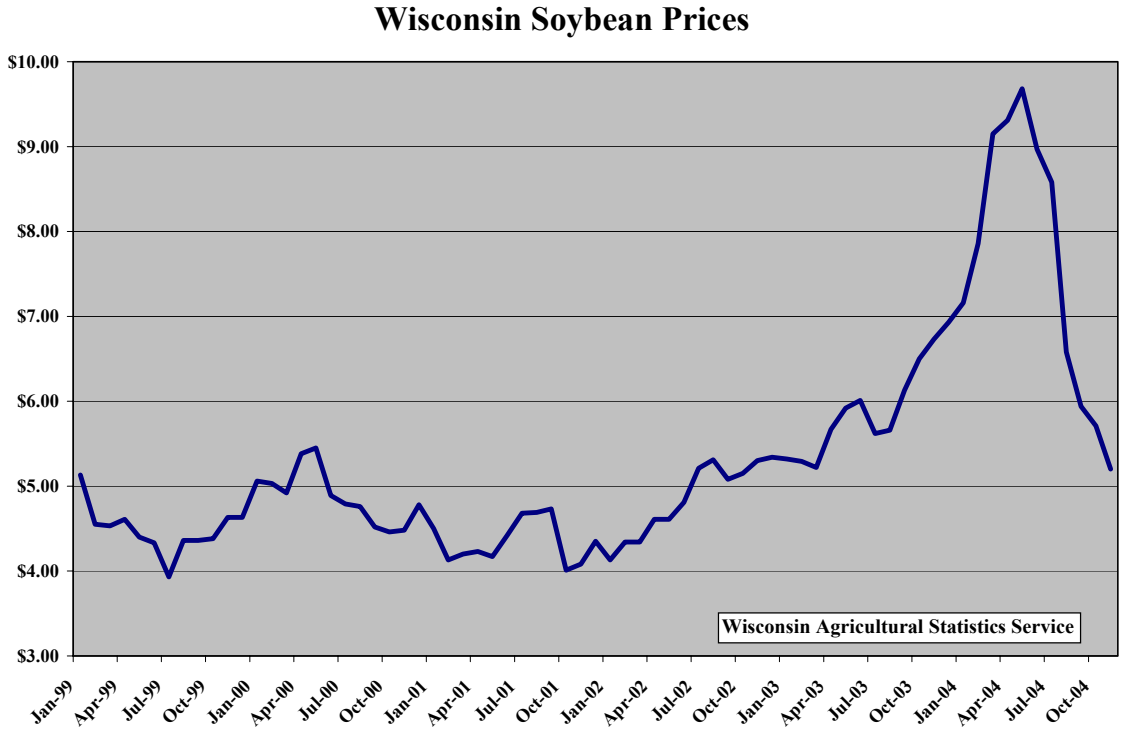
As with corn, the record U.S. soybean crop is expected to be accompanied by record consumption. December USDA projections put the U.S. crush for 2004/05 at 1.65 billion bushels, up 7.5 percent from last year. Exports are expected to exceed 1 billion bushels, making up most of the volume lost between last year and 2002/03. Total use is projected to be 2.8 billion bushels, significantly larger than production in fall 2003, but less than production this year. As a result, soybean ending stocks will likely be about 460 million bushels by August 2005, an increase of 310 percent. This will put significant pressure on soybean prices in the coming months unless current demand expectations prove too conservative or the record production currently anticipated for South America is not realized.

According to November USDA estimates, Wisconsin soybean farmers harvested 54.52 million bushels of soybeans. This was an increase of 16 percent over last year, but still well below production levels of each of the four years leading up to last year. Wisconsin's harvested acreage in 2004 was actually 120 thousand acres below 2003, but increased yields more than offset the acreage reduction. Wisconsin producers averaged 35 bushels per acre in 2004, compared to 28 bushels per acre in 2003. Despite the production increase, however, Wisconsin's share of national soybean production appears to be in decline after aggressive growth in the 1990's.

Wisconsin Share of US Soybean Production



Soybean prices reacted violently to pre-harvest surprises of crop size and quality, losing 50 percent of their value over just a few months. This is not uncommon. Markets trading near record levels often correct quickly. The USDA is projecting an average U.S. soybean price for 2004/05 of $4.95 per bushel (December projection). This is well below price levels each of the last two years, and is consistent with prices producers faced in the late 1990's. This price level is 20 to 30 cents below price levels available to many of Wisconsin's producers in mid-December. So, if USDA is correct, there may still be some downside price risk in the soybean market. Also, unlike corn, the futures market for soybeans is not offering an attractive carry (i.e., premiums for distant delivery dates compared to contracts close to maturity), thus storage opportunities are more risky than for corn. However, the cheap dollar will make U.S. soybeans competitive in the world market. If the dollar remains weak, exports may exceed current projections.



Fruits and Vegetables

Teryl Roper (608) 262-9751[5]

Synopsis

Fruit and vegetable production do not occupy substantial acreage in Wisconsin, but they do generate a substantial portion of the state's agricultural income and provide important agricultural diversity. Apple, tart cherry and cranberry production declined in 2004. Production of potatoes and sweet corn for processing were down in 2004, but production of snap beans increased.

Apples

USDA's July 2004 apple production estimates predicted Wisconsin production at 62 million pounds, down slightly from 2003's 68 million-pound crop. Orchard area in the state was constant at about 6,000 acres, meaning yield per acre was slightly lower. Wisconsin ranks 12th in the nation in apple production, yet produces only about 0.05 percent of U.S. apples. Apple prices were expected to remain constant at about $0.39 per pound, giving a farm gate value of $24.2 million.

Tart Cherries

Wet and cold conditions during most of the spring caused pollination problems in Wisconsin's cherry production areas. The 2004 tart cherry crop was expected to decline to 8 million pounds, a 40 percent drop from 13.3 million pounds in 2003. While Wisconsin ranks fourth in U.S. tart cherry production, it produces less than 4 percent of the total crop. Acreage of tart cherries continues to decline slowly over time. The 2004 price was very similar to 2003 at about $0.41 per pound for a farm gate value of about $3.3 million.

Cranberries

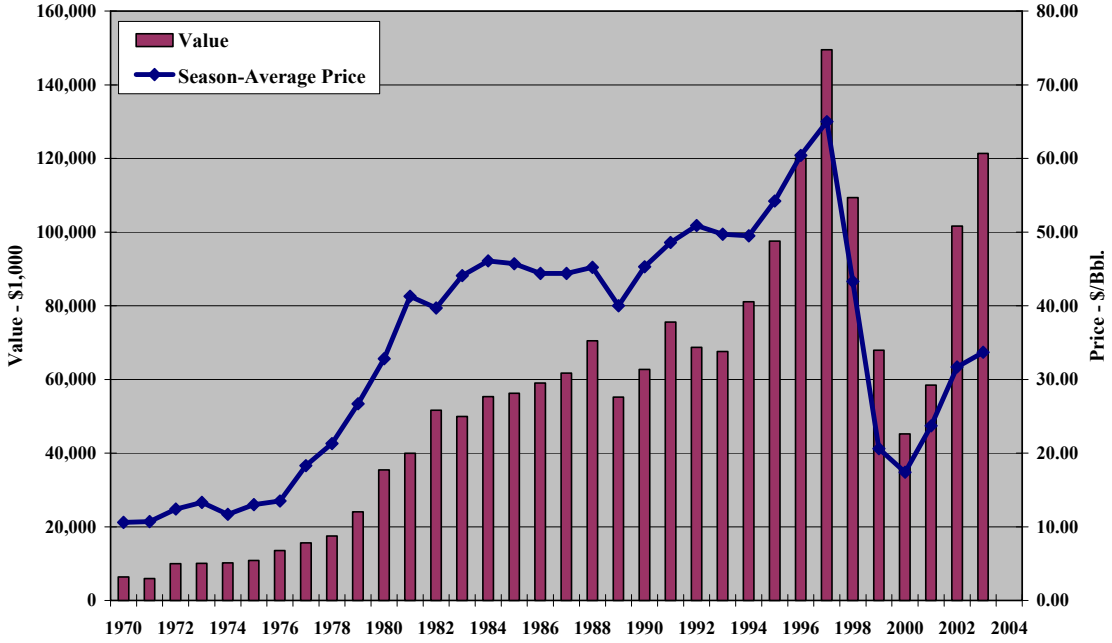
Wisconsin's 2004 cranberry crop is forecast at 3.56 million barrels (one barrel = 100 pounds). This is down 1 percent from 2003, but up 11 percent from 2002. The slight reduction in the crop compared to 2003 is result of a cool summer that reduced berry size.

Wisconsin ranks first in cranberry production, growing 54 percent of the 2004 U.S. cranberry crop. Prices are expected to remain near 2003's $33.70 per barrel, even though reduced color from a warm September may reduce growers' color incentive payments.

The past five years have been very challenging for cranberry growers. After peaking at $65.00 per barrel in 1997, prices declined for three years, troughing at $17.40 per barrel in 2000. In three years, the farm value of the Wisconsin crop went from $150 million to $45 million. Prices have slowly recovered to reach $33.70 in 2003.

[5] Teryl Roper is a Professor and Extension Fruit Crops Specialist in the Department of Horticulture, UW-Madison/Extension

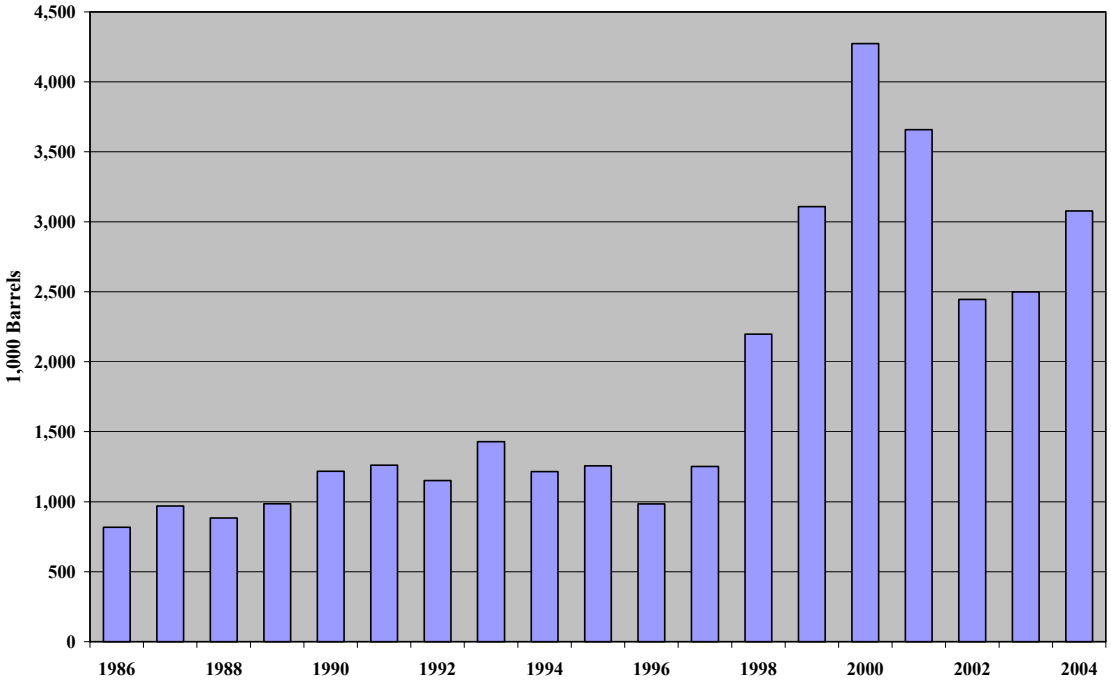
Wisconsin Cranberries: Season-Average Grower Price and Total Crop Value



Improved prices since 2000 are due in part to implementation of the cranberry industry's federal marketing order in the 2001 and 2002 crop years. Between 1997 and 2000 carryover almost quadrupled from 1.2 million barrels to 4.3 million barrels. Marketing order limits on producer deliveries along with large government purchases of cranberry products for feeding programs helped to shrink burdensome inventories to 2.5 million barrels by 2002. However, August 31, 2004, stocks were up more than 500,000 barrels over 2003, suggesting the industry still faces an oversupply problem.

The purchase of the processing facilities, grower contracts, and some production facilities of Northland Cranberries by Ocean Spray Cranberries may have a stabilizing effect on the industry by reducing the amount of bidding for non-contracted fruit. This purchase also gives Ocean Spray much needed receiving and processing capacity in Wisconsin and allows Northland to focus on beverage sales.

August 31 U.S. Cranberry Inventory



Potatoes

USDA's November estimate of potato production for Wisconsin was 30,710 hundredweight on 75,000 acres. That represents a drop of 7 percent in acreage and 6 percent in production from 2003. Yield per acre was up 1 percent from 2003. Potato prices are expected to average slightly higher for the 2004 crop, as national acreage and production are down from 2003. Russet Burbank is still the most important cultivar, accounting for 23 percent of the acreage.

Sweet Corn

At 519,420 tons, production of sweet corn for processing was down 22 percent from 2003, the result of both reduced acreage (down 12 percent) and reduced yield per acre (down 11 percent). Cool and wet early season weather delayed planting and cool weather delayed development. The price for sweet corn for processing is expected to be down about 4 percent compared to 2003 due to a larger national crop.

Snap Beans

Production of green snap beans increased by 6 percent from 2003 to 288,410 tons. Acreage remained unchanged at 66,300, but yield per acre was up 6 percent from last year, reaching 4.35 tons per acre. Wisconsin's crop was late maturing because of wet and cool conditions early in the season.

Farm Production Resources

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Farm Inputs

For the most part, the cost of the inputs farmers use in production rose in 2004. The exception was feed prices, which in November were down about 18 percent from 2003. This was good news for livestock producers and dairy farmers but bad news for the farmers who produced the feed.

The cost savings that livestock producers derived from lower feed prices in 2004 were partly offset by increased costs for young stock. Prices for feeder livestock and dairy heifers rose 12 percent over 2003. This increase is explained by strong prices for finished cattle, slaughter hogs, and milk.

Prices for livestock replacements could go even higher in 2005 if feed prices remain low. Cheaper feed means higher profit margins for producers. The prospect of higher profits should encourage producers to expand production, which in turn would spur demand for young stock.

Prices for fuel and fertilizer also rose dramatically in 2004. Fuel prices in November 2004 were more than 60 percent higher than a year ago. Fertilizer prices were up almost 16 percent, mainly due to higher prices for nitrogen. Higher nitrogen prices reflect higher prices for natural gas, which is used to make anhydrous ammonia, a common nitrogen fertilizer.

The supply and demand conditions that elevated oil prices in 2004 are likely to continue through 2005. Thus, petroleum-based products such as diesel fuel and gasoline are likely to stay as high as they were in 2004. Oil prices could rise even further in 2005 if supplies are disrupted.

The costs of building materials for farm structures were up 10 percent in 2004. This is due mainly to the strong activity in the residential housing market and other construction. The higher cost of building materials drives up the cost of modernization projects for dairy farmers and other livestock producers.

Farm Credit

Interest rates on farm loans increased modestly in 2004, due to the fact that the Federal Reserve Board (FRB) ratcheted up interest rates a total of 1.25 percentage points between June and December. Interest rates are expected to move even higher in 2005.

Chairman Alan Greenspan and his colleagues on the Federal Reserve Board have pledged that they will raise interest rates at a “measured pace” to keep inflation at manageable levels. The goal of controlling inflation has been a priority of the Fed for the last decade.

Agricultural Prices Paid Indexes (1990-92 = 100) November 2004 versus November 2003			
	Nov. 2003	*Nov. 2004*	*% Change*
Production Items	126	131	3.97
Feed	118	97	-17.80
Livestock & Poultry	122	137	12.30
Seeds	157	158	0.64
Fertilizer	126	146	15.87
Agricultural Chemicals	121	121	0.00
Fuels	128	207	61.72
Farm Supplies & Repairs	134	139	3.73
Autos & Trucks	114	113	-0.88
Farm Machinery	154	170	10.39
Building Materials	125	137	9.60
Farm Services	122	124	1.64
Rent	120	120	0.00
Interest	104	104	0.00
Taxes	128	130	1.56
Wage Rates	156	161	3.21
Family Living (CPI)	137	142	3.65

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, *Agricultural Prices*, November 2004

But controlling inflation by raising interest rates also slows down economic growth. This can be a problem if the economy begins losing momentum. Raising interest rates too much too fast can drive the economy into recession. Consequently, it is highly unlikely that the Fed will increase interest rates more than a half a percentage point in the first half of 2005. If the economy seems to be taking a dip in the last half of the year, it is quite possible the Fed will elect to cut interest rates.

According to survey data and other information reported in the November 2004 issue of the *AgLetter*, published by the Federal Reserve Bank of Chicago, bankers in the Seventh Federal Reserve District believe that farm credit conditions are brighter in the fall of 2004 than they were a year ago. Both loan demand and fund availability are reported up and loan repayment was better than in 2003.

Demands for non-real estate loans were mixed across the five states that comprise the 7th district. Loan demands in Illinois were unchanged between 2003 and 2004, while loan demands were up in Iowa and Indiana. Both Michigan and Wisconsin bankers said that demand for loans has dropped from what it was in

2003. Declining loan demand in Michigan and Wisconsin could be explained by the large role that dairy plays in these states' farm economies. Since dairy incomes were strong in 2004 it follows that farmers in these two states would have less need to borrow for operating expenses.

Repayments on non-real estate loans throughout most of 2004 were higher than they were during the previous three years. This boost in repayments is attributed to higher farm incomes generated by strong agricultural commodity prices in 2003 and early 2004.

Bankers also indicated that fewer farmers are seeking to renew or extend farm loans compared to recent years. Almost one-third of Wisconsin bankers reported fewer loan renewals and extensions. This suggests that debt reduction is an immediate priority for Wisconsin farmers.

Credit conditions in Wisconsin are generally better than they have been in the last couple of years. Higher milk prices boosted dairy farmers' incomes and allowed them to generate surplus cash flows since late summer of 2003. The reports of higher repayment rates and lower loan renewal rates are evidence that Wisconsin farmers are using much of this surplus cash to pay down loans or finance day-to-day operating costs. This means farmers' are building credit reserves that they can tap in the future if farm income were to fall below current levels.

Interest Rates On Farm Loans, Seventh Federal Reserve District, July-September 2004

Year	*Operating Loans (%)*	*Real Estate Loans (%)*
1998	9.43	8.33
1999	9.32	8.42
2000	10.17	9.18
2001	8.01	7.47
2002	7.21	6.84
2003	6.41	6.12
2004	6.57	6.28

Source: *AgLetter: The Agricultural Newsletter for the Federal Reserve Bank of Chicago*, November 2004

Cash Rents

Cash rents for crop land increased $2 per acre in 2004, from $68 per acre to $70 per acre. This was slightly higher than recent trend increases of about $1 per acre per year.

The higher cash rents may reflect the rise in farmland values over the last five years. Landowners must raise rents if they want to continue to receive a return on their land investment that is on par with what they could earn if they invested their money elsewhere. Of course, landlords cannot raise rents above what tenants are willing to pay. But given that crop land rents are rising, some farmers are clearly willing to pay the higher rents

Rents for pasture rose by $1 per acre in 2004, the first increase since 2001. The going rate for pasture in 2004 was $37.

The recent stability in pasture rents could change in 2005 if livestock prices remain strong. Pasture should be in higher demand as farmers look to add cows to their beef herds or background some feeder cattle.

The rise in cash rents for cropland continues a long-term trend. Between 1970 and 2004, cash rents for all Wisconsin cropland rose by about $50 per acre, from $21.20 to $70. For the most part this increase in rents has been rather steady, at about 3.5 percent per year. The exception was the boom-and-bust period of 1974–1986, when cash rents shadowed land values by first soaring, then plummeting.

Even though cash rents have been increasing, they have not risen at the rate of inflation. Inflation-adjusted cash rents have declined from what they were from 1970–1986. In 1980-82 dollars, cash rents have remained steady at $40 per acre for roughly the last seven years. This means that recent increases in land values cannot be attributed to higher returns generated by rents.

Land Values

The value of Wisconsin farmland continues to rise at robust rates. The average selling price of $3,268 per acre for 2003 was 16 percent above the 2002 price and nearly 75 percent higher than 1999.

The value of land being diverted from farming increased substantially more than the value of land continuing in agriculture. The average selling price of land leaving farming rose 21 percent in 2003 from a value of $4,514 per acre in 2002 to $5,500 per acre. The value of land staying in farming rose from $2,251 to $2,480 per acre.

This appreciation in the value of land continuing in farming is a respectable 10 percent, which is on par with the returns or capital gains available from other investments.

The number of farmland sales and the acres sold have dropped markedly in the last five years. The total number of land sales declined from 3,793 in 1999 to 3,005 in 2003. Similarly the total amount of land changing hands sold decreased from 244,475 acres in 1999 to 180,244 in 2003. This drop in both the number of transactions and total acres sold could indicate that less farmland is being put on the market. Diminished supply coupled with constant or increasing demand helps explain why farmland values have risen so rapidly.

The General Economy

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Synopsis

Except for a sharp run-up in oil prices, no big surprises hit the U.S. economy in late 2003 and most of 2004. The economy continued to recover from the 2001 recession and the slow-growth periods of 2002 and early 2003. In the first three quarters of 2004, growth of Real Gross Domestic Product ranged from 3.3 percent to 4.5 percent. U.S. real GDP is expected to grow by an average of about 3.4 percent during 2005. While inflation and interest rates in the United States are on the upswing, both will remain relatively low in 2005. U.S. unemployment is expected to stay relatively high compared to levels of 1999 and 2000.

During 2004 the U.S. economy grew a bit slower than many analysts predicted. Partly this reflects the impacts of higher oil prices. High oil prices, the mammoth U.S. current account deficit, and the declining value of the U.S. dollar are significant concerns facing the U.S. economy as we enter 2005.

Storm Clouds

Oil Prices. Oil prices peaked at around $55 per barrel in October 2004, pushing up prices of gasoline and other petroleum-based products. Oil prices retreated in early December 2004, and, barring major supply restrictions, they

Macroeconomic Statistics for the U.S. Economy

Year or Quarter	*Real GDP Growth*	*Unemployment Rate*	*Price of Oil*	*Current Account Balance (deficit)*	*Federal FY Surplus (deficit)*
	%	%	$/Bbl.	$Billion	$Billion
1999	4.4	4.2	19.27	(296.8)	124.4
2000	3.7	4.0	30.35	(413.5)	236.9
2001	0.8	4.8	25.96	(385.7)	127.3
2002	1.9	5.8	26.11	(473.9)	(157.8)
2003	3.0	6.0	31.12	(530.7)	(377.1)
2004:					
Q1	4.5	5.6	35.35	(588.7)	(170.8)
Q2	3.3	5.6	38.31	(664.7)	(25.7)
Q3	4.0	5.4	43.91	(678.5)	(85.9)

Source: *Global Insight*, U.S. Economic Service, various issues, 2004. Quarterly current account deficit figures for 2004 are estimates of the annual current account deficit.

likely will settle in the low- to mid-$40 per barrel range in the next few months. While this may comfort motorists, oil prices in this range would still be $15 to $17 dollars per barrel higher than expected a year ago.

Analysts at Global Insight forecast that oil prices will average about $46 per barrel in 2005 before settling into the mid-$30 range for much of the remainder of the 2006 through 2009 period. This forecast, of course, is speculative. Any significant supply disruptions — particularly if magnified by OPEC supply restrictions — will push oil prices back near the high levels recorded early in the fourth quarter of 2004.

A rule of thumb is that each $10-per-barrel increase in oil prices above baseline or normal levels will erase about 0.3 point from real GDP. This suggests that the higher oil prices reduced the average real GDP from about 4.4 percent to 3.9 percent in the first three quarters of 2004. Moreover, oil prices in the mid-$40 per barrel range in 2005 will cause real GDP growth to fall to about 3.4 percent rather than the approximately 4 percent growth that would have materialized with oil prices around $28 per barrel.

A host of forces in world oil markets pushed oil prices to unexpectedly high levels in 2004. On the demand side, oil consumption increased in the rapidly growing, massive economies of China and India. The recovery of the U.S. economy also pumped up demand. Several disruptions on the supply side put upward pressure on prices. Iraq has not yet realized its full potential as an oil supplier. Venezuela, traditionally a major supplier of oil to the United States, has failed to push production from the country's antiquated oil infrastructure up to levels recorded two to three years ago. Russia also has experienced production problems, and these have been aggravated by squabbles between the government and the major Russian oil firm, Yukos. Saudi Arabia has not stepped up oil production enough to offset the impacts of these demand and supply pressures.

The Current Account Deficit. During the second and third quarters of 2004, the United States ran current account deficits of $665 billion and $678 billion, respectively. In simplest terms, this means that we import substantially more than we export. Many analysts question whether such a large negative trade balance, equivalent to nearly 6 percent of GDP, is sustainable.

The U.S. dollar dropped sharply in foreign exchange markets during the last half of 2004, especially against the euro. This decline in the dollar, which makes U.S. goods cheaper in foreign markets, should eventually reduce the size of the current account deficit.

However, foreign exchange markets don't work in ways that rapidly reduce the size of the U.S. current account deficit. Partly, this is because China — a huge exporter — pegs its exchange rate to the U.S. dollar at 8.28 Yuan to the dollar. This means that China's exports become cheaper in many markets when the U.S. dollar declines. Moreover, the central banks of countries such as Japan and South Korea intervene in currency markets to shore up the value of the U.S. dollar relative to the currencies of those countries. This helps to keep exports

from such countries competitive. Accordingly, the U.S. dollar must decline in value against currencies that are not pegged to the dollar or strongly affected by foreign central bank operations. This explains, in part, why the value of the U.S. dollar has fallen so sharply against the euro, which is relatively free to rise in relation to the dollar. Thus, the U.S. dollar has dropped by more than a third against the euro in the past three years. By the end of 2004, the cost of a euro had risen to more than $1.36.

Why is this a cause for concern? A big worry is that foreigners and foreign central banks will stop lending money to the United States to cover much of the current account deficit. For an extended period, foreigners have purchased U.S. Treasury securities or other U.S. assets in amounts equivalent to the current account deficit and portions of the U.S. federal budget deficit. People who worry about such things speculate that foreigners and foreign central banks will grow weary of purchasing U.S. Treasury securities and other U.S. assets because the falling U.S. dollar erodes the value of those investments.

If the U.S. dollar continues to decline in an orderly fashion, the damage to the U.S. economy is likely to be small. Under this scenario, U.S. exports will increase and gradually reduce the country's current account deficit. However, if foreigners rapidly jettison their U.S. dollar-denominated securities, the dollar could collapse. Such a collapse would likely be followed by a sharp rise in U.S. interest rates (to keep investments in dollar-denominated securities attractive to foreigners) and possibly a recession. The recession would reduce U.S. imports (in a painful fashion) and reduce the current account deficit. And a recession in the United States would lead to slower growth or recessions in foreign economies that sell to the United States.

Implications for the Wisconsin and U.S. Agricultural Sectors

As in the past, supply and demand conditions for individual farm products will influence agricultural prices more than the overall macroeconomic environment. However, the U.S. economy's reasonably strong growth (above 3 percent) in 2005 should strengthen markets for farm products. Continued low interest rates also will help the interest-sensitive farm sector. However, high oil prices promise to push up fuel and nitrogen fertilizer prices in 2005.

U.S. agriculture, which recorded a positive trade balance of about $25 billion a decade ago, will contribute little or nothing to a positive U.S. trade balance in fiscal 2005. In fact, U.S. agricultural exports and imports are expected to be approximately equal at $56 billion in fiscal 2005. This is due in part to U.S. consumers' growing appetite for foreign foods. Other factors helping to reduce the value of U.S. farm exports in fiscal 2005 include large crops in the United States, which will reduce prices for grains, oilseeds and cotton, and the continued ban imposed by Japan on imports of U.S. beef. The export-enhancing effects of a weaker U.S. dollar will not offset the impacts of these developments.

III. Special Articles

Expansion, Modernization, and Specialization In the Wisconsin Dairy Industry

Bradford L. Barham, Jeremy Foltz, and Ursula Aldana

Introduction

America's Dairyland is undergoing major changes. Two well-known trends on Wisconsin dairy farms are the sharp decline in overall farm numbers and the rapid expansion of many continuing dairy operations. These trends in farm structure have been accompanied by less well documented but significant changes in the types of buildings, equipment, organization, management practices, and activities undertaken on dairy farms.

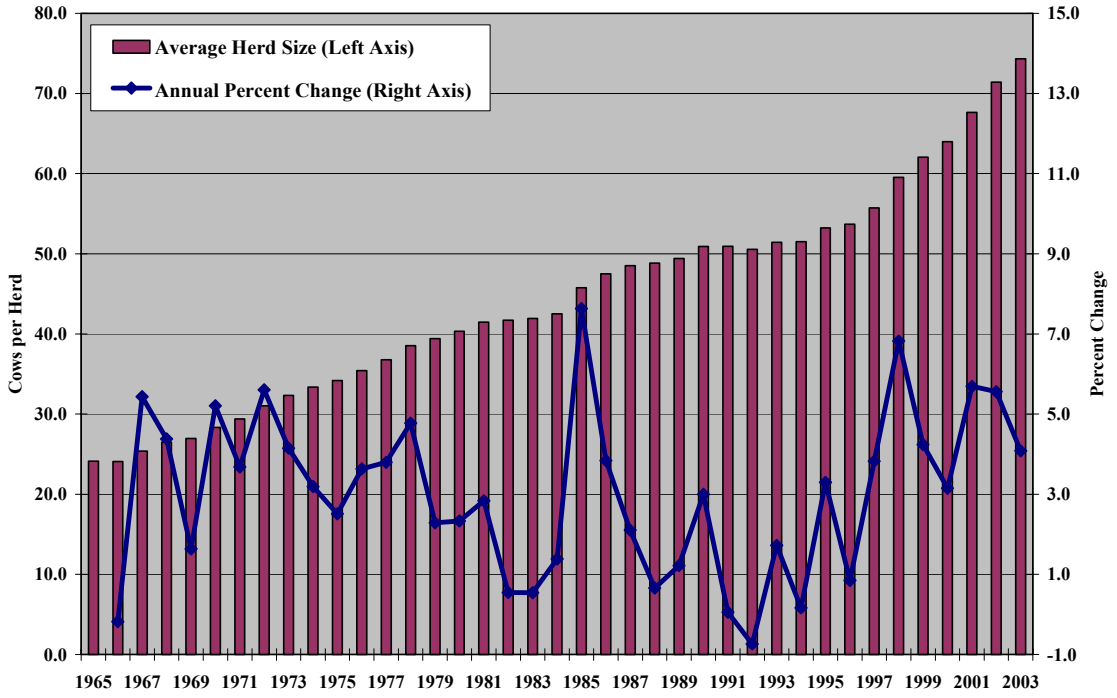
The modernization of Wisconsin dairy farms is typically thought of as a large-farm phenomenon, but it is happening to different extents on all sizes of farms. Most dramatic of late has been the growth in the number of producers who are milking in parlors and housing their herds in freestall barns. But Wisconsin dairy farmers are making other major changes in the organization and management of their operations. The increased use of intensive grazing techniques and growth in the number of organic dairy farms are two examples.

It is the combination of these changes on farms that shape the Wisconsin dairy industry's impacts and performance at the family, community, and industry levels. What follows is a brief account of the main trends in expansion, modernization, and specialization in Wisconsin's dairy industry. It uses the results from the 2003 Wisconsin Dairy Farm Poll, which asked a random sample of 1400 Wisconsin dairy farmers about changes that had taken place on their farms between 1997 and 2002. The answers offer a look at how Wisconsin dairy farms are changing. A forth-coming report from the UW-Madison Program on Agricultural Technology Studies will examine these trends in more detail and explore their implications for the performance of Wisconsin dairy farms.

Expansion

While much attention has been paid to the recent expansion of Wisconsin dairy farms, the most notable feature of the industry is actually how steady and gradual the growth in herd sizes has been over time. Indeed, over the past half century, average herd size grew at a rate of about 3 percent annually. That growth rate dipped the early 1990s to less than 1 percent and then accelerated in the late 1990s to just over 5 percent. The average herd size in Wisconsin increased from 50 cows in 1990 to 74 cows in 2003, which shows that moderate-size dairy farms remain the predominant type of dairy operation.

Wisconsin Dairy Herds



As of 2002, 93 percent of the state's dairy farms milked fewer than 200 cows. Eighty percent milked fewer than 100 cows, a moderate size when compared with the large industrial farms that predominate in many western states.

Nonetheless, the pace of expansion on Wisconsin dairy farms has been relatively strong in recent years, especially on farms with more than 150 cows. This expansion is changing the face of Wisconsin's dairy industry. The proportion of Wisconsin dairy farms with more than 200 cows grew by 135 percent between 1997 and 2002, from about 3 percent to almost 7 percent of all herds. As a result, farms with more than 200 cows account for a much larger share of the state's cow numbers and milk production. In 1997, farms with over 200 cows had 14 percent of the cows and produced 16 percent of the state's milk. In 2002, they held 31 percent of the cows and produced 34 percent of the milk. Indeed, until very recently, farms with fewer than 100 cows had accounted for the majority of cows and milk production, a clear marker of the predominant influence of moderate-size farms in America's Dairyland. Now, however, the 20 percent of Wisconsin farms that milk more than 100 cows account for more than half of the milk produced in Wisconsin.

Distribution of Wisconsin Dairy Farms, Cows, and Milk Production by Herd Size							
		Herd size (No. of cows)					
		<25	*25 to 49*	*50 to 74*	*75 to 99*	*100 to 199*	*200+*
Percent of Farms	1997	7.7	36.9	31.5	11.0	10.1	2.8
	2002	8.1	29.2	32.2	11.1	12.8	6.7
	% Change	5.4	-20.9	2.3	0.8	26.6	134.7
Percent of Cows	1997	1.9	21.5	28.4	13.9	19.8	14.6
	2002	1.7	13.0	22.9	11.0	20.1	31.0
	% Change	-11.9	-39.6	-19.1	-20.9	1.3	112.7
Percent of Milk	1997	1.6	19.6	28.7	14.1	20.9	15.6
	2002	1.3	11.4	21.8	11.0	20.3	34.2
	% Change	-20.5	-41.9	-23.8	-21.8	-2.8	119.1

Three more trends also characterize dairy farm expansion in Wisconsin. First, herd size remained stable on almost two-thirds of the dairy farms in our sample (that is, cow numbers changed by less than 10 in either direction) between 1997 and 2002. Second, farms with fewer than 100 cows were far more likely to expand at a moderate pace, while expansion on farms with over 100 cows was often quite rapid. In fact, among farms milking fewer than 100 cows in 1997, only those milking 75–99 cows showed any significant movement into the over-100-cow range and thus some large changes in herd size. Third, almost all of the rapid dairy farm expansions took place on larger operations (generally on farms that were already milking more than 150 cows).

In sum, these data paint of picture of expansion that is mostly moderate on the small-to-medium-sized operations and rapid on larger farms. This offers insight on the types of strategies that might be useful to farm operators. It suggests that strategies which help operators of moderate-size farms manage this growth process, or perhaps improve other aspects of their operations, are more likely to meet their needs than efforts that promote only rapid expansions.

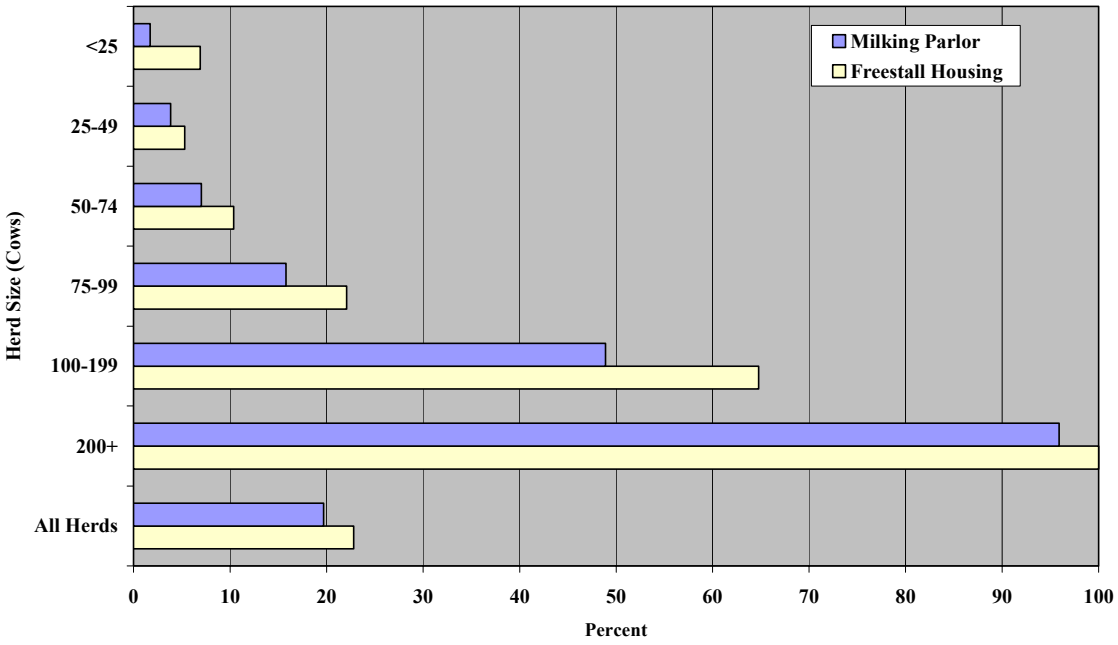
Modernization

"Modernization" generally refers to changes in the types of facilities, technologies and management practices used on a dairy farm. The data show that expansion and modernization go hand-in-hand but also that there are different paths of expansion and modernization. Clearly, thousands of Wisconsin dairy farmers face important decisions about the types of milking and housing facilities they will use in the years ahead.

The vast majority of Wisconsin dairy farms still milk in stanchion or tie-stall barns. As shown below, only 20 percent

of Wisconsin dairy farms were using parlors in 2002. The remaining 80 percent milked in stanchion or stall barns. Of farms with more than 200 cows, 96 percent milk in parlors, as compared to 49 percent of farms in the 100–199-cow size range and under 10 percent on farms with fewer than 75 cows. The adoption of freestall housing facilities was also closely correlated to herd size.

Wisconsin Dairy Farms Using Milking Parlors and Freestall Housing, 2002



Use of milking parlors also grew substantially between 1997 and 2002 in Wisconsin, from 8 percent to about 20 percent of farms. That means that more than 1600 Wisconsin dairy farm operators changed their milking and housing facilities between 1997 and 2002, a major shift that was very closely linked with the growth in farms with large herds.

What may be surprising about these figures is the fact that fewer than half of the farms with 100–199 cows have converted to milking in parlors, either new or retrofitted. This suggests that Wisconsin is poised for a sizable increase in parlor use. For example, if two-thirds of the farms milking 100–199 cows are currently milking in tie stalls or stanchions were to adopt some type of parlor system, Wisconsin would have another 650–700 parlors in use. If another 10 percent of the farms milking 50–99 cows also converted to parlors, that would add roughly 650 or more parlors. Combined, these estimates would add 1,300–1,400 parlors. In addition, since there are a sizeable number of retrofitted parlors on farms milking fewer than 200 cows, Wisconsin may also see be a secondary wave of parlor construction as many of these farms continue to expand and opt to

replace their retrofitted parlors with larger, new ones.

Another way to analyze modernization trends on Wisconsin dairy farms is to look at the adoption of major technologies. The table below reports adoption rates for several technologies by herd size. What is striking here is the extent to which the adoption rate of many of these technologies increases with herd size. The most extreme example might be total mixed ration equipment, which was used by 100 percent of the farms with more than 200 cows and less than 10 percent of the farms with fewer than 50 cows. Several other technologies show similar patterns of adoption biased toward large farms. The only technology that doesn't fit this pattern is management intensive rotational grazing, which is used far more frequently on the smaller-size operations.

Technology Adoption Rates by Herd Size, Wisconsin Dairy Herds, 2002

Technology/Mgt. Practice	***Herd Size (No. of Cows)***						
	<25	***25-49***	***50-74***	***75-99***	***100-199***	***>200***	***All Farms***
	Percent						
Total Mixed Rations	3	14	36	49	75	100	37
rBST	5	7	17	26	36	70	20
Individual Cow Production Records	34	50	71	72	67	89	63
Mgt. Intensive Rotational Grazing	51	33	20	13	7	2	23
3X Milking	5	2	3	3	3	53	6
Hedging or Forward Contracting	5	4	10	14	21	64	13
Computer use	14	25	36	32	57	89	37
Nutrient Management Plan	8	20	32	43	46	81	33

Specialization

Dating back to the classic work of Adam Smith, economists have looked to specialization within and across enterprises as a way to enhance efficiency and profitability. This is of particular interest here in Wisconsin, where dairy operations have historically taken the other tack: The vast majority of the feed was raised on the farm and the farm family provided most of the labor. This approach involves little specialization and perhaps considerable economies of scope (opportunities to enhance efficiency by coordinating across activities).

One way that producers increase specialization is to hire custom services for certain aspects of the operation, such as raising heifers, baling hay, harvesting grain, and hauling manure. As of 2002, about 90 percent of the farms surveyed raised their own heifers, and more than 80 percent hauled their own manure. Custom hay baling and grain harvesting were more common. About 40 percent of the farms reported using these services.

Percent of Wisconsin Dairy Farms Using Selected Custom Services		
Custom Service	***1997***	***2002***
Hay Baling	29.7	39.4
Grain Harvesting	36.9	42.8
Manure Hauling	12.6	16.4

The contracting-out of these services has grown rather slowly over the past five years. Interestingly, the use of these custom services is only slightly more common on the larger farms than on the smaller ones (with the exception of custom manure hauling, which occurs predominantly on the larger farms).

Another indicator of specialization is labor use and changes in management on the farm. The table below shows clearly that farms with more than 200 cows hire more labor and are increasing their use of hired labor compared to the other farm sizes.

Number of Full Time Hired Employees on Wisconsin Dairy Farms		
Herd Size	***1997***	***2002***
<25	0.05	0.05
25-49	0.11	0.11
50-74	0.34	0.32
75-99	0.59	0.64
100-199	1.07	1.20
200+	3.24	5.88
Average	0.57	0.77

Put differently, large farms appear more likely to use hired labor as a way of specializing on specific farm tasks, for example having the hired help do the milking while family members undertake other major activities of an integrated operation.

The table below shows that large farms also have a greater propensity to make significant management changes. One way that they may achieve specialization is by division of labor within the operation. Note that large farms are also far more likely to have brought a non-family member into the management or to have hired a herd manager. It is worth noting that on the smaller farms, the higher use of management intensive rotational grazing can be a form of specialization when it is coupled with reduced or no crop cultivation.

Percentage of Survey Farms that Made Management Changes, 1997 to 2002							
Management Change	***Herd Size***						
	<25	***25-49***	***50-74***	***75-99***	***100-199***	***200+***	***Average***
Changes in farm management	3.4	7.8	12.2	28.2	28.9	42.9	16.2
Family member joins management	1.7	4.4	8.7	17.9	21.1	22.4	10.4
Non family member joins management	0.0	0.0	0.0	1.3	1.1	8.2	0.8
Joined operations with a family member	0.0	0.5	0.0	0.0	0.0	4.1	0.4
Hired a herd manager	0.0	0.0	0.0	0.0	1.1	6.1	0.6

Conclusion

This article documents the ways in which expansion, modernization, and specialization appear to fit together on Wisconsin dairy farms, especially on the larger size farms. It portrays a sector that is changing dramatically at the upper end with rapid herd-size growth, changes in milking and housing structures, adoption of a suite of new technologies, and increased use of hired labor and potentially more farm-level specialization. It also depicts a sector where the majority of more moderate-sized dairy farms appear to be approaching change much more gradually. Many of these farms face fundamental choices about what path to take in the years ahead, including whether to upgrade the efficiency and scale of their milking facilities. What they decide to do will determine whether Wisconsin dairy farming undergoes another round of major expansions, and probably whether or not the sector will be dynamic or slowly decline in terms of milk production and processing. It seems like a propitious time to provide these farmers with new options for managing their futures

The Economic Importance of Value-added Agriculture in Wisconsin

Jeremy Foltz, Carol Roth, and Christa Lachenmayr

Introduction

Value-added agriculture has attracted considerable attention in the last decade. Various food movements have raised awareness, more consumers have requested locally produced products, and more farmers markets have sprung up around the state. Despite the growth in demand for these products, relatively little was known about the scope and diversity of the farmers producing value-added products in Wisconsin. This analysis represents a first look at the data from a UW-Madison Program on Agricultural Technology Studies survey of 1,500 value-added farmers in Wisconsin.[6]

The Relative Size and Economic Importance of Value-added Agriculture

The Program on Agricultural Technology Studies conducted an extensive effort to identify all of the value-added farms in Wisconsin. We used the following definition of value-added farming:

Any activity that allows producers to capture greater value than would normally be secured through conventional commodity channels. The additional value can come from production, marketing and processing strategies that distinguish the products from standard agricultural commodities.

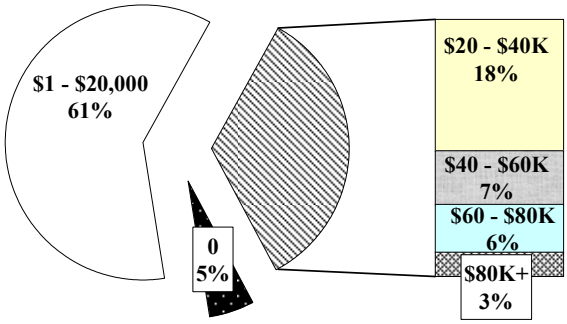
We estimate that in 2004 there were approximately 7,000 farms in Wisconsin that could be classified as doing value-added agriculture by this definition. As a point of reference, there are approximately 16,000 dairy farms in Wisconsin. Thus, in terms of numbers of farms, the value-added sector has slightly less than half as many farms as the dairy sector.

Such a raw number-of-farms count, however, grossly overstates the economic importance of the value-added sector in terms of its economic and land-use impacts. In terms of land-use impacts of the sector, the average value-added farm had 141 acres of cropland, while the average dairy farm had 357 acres of cropland. Thus the value-added sector has a relatively small footprint compared to other parts of the agricultural industry. However, it is this small size and relatively high sales per acre that makes value-added agriculture viable in some of the state's rapidly urbanizing areas.

The median value-added farm only generates $17,500 in sales. More than 60 percent of value-added farms sell less than $20,000 per year in produce. Very few (3 percent) have more than $80,000 in sales. While it is hard to estimate actual per-farm profit from sales data, it is clear that few if any of these farms would make enough profit from farming alone to put an average-sized family above the poverty line.

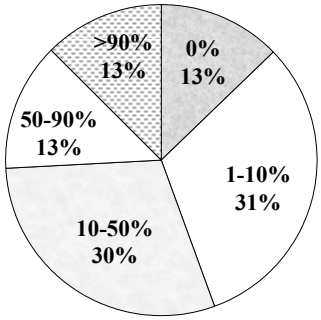
[6]The survey was sent to a stratified random sample of 1,500 value-added farmers. The sample was stratified by the type of farming so that we would have representative information by farm type. After culling out those who no longer farm, duplicates, and other non-farmers, the 495 respondents represented a 41 percent response rate.

Total Annual Sales



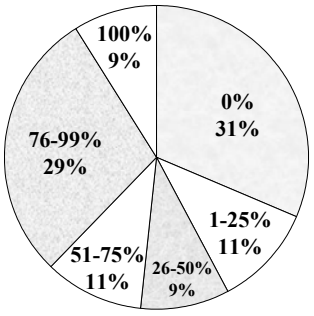
A large percent of the farm families earn very little from their farms. Thirteen percent earn no income at all from value-added farming, and nearly three-quarters of value-added farm families earn less than half of their income from farming. Given the low revenues from value-added farming, these low percentages are not surprising. In fact off-farm income is an important feature of the farm households who engage in value-added farming.

Percent of Family Income from Value Added Farming Activities



Nearly 40 percent of Wisconsin value-added farmers earn more than three-quarters of their family income from off-farm sources. Perhaps equally striking is that 31 percent of value-added farms had

Percent of Family Income from Off-Farm Sources



no off-farm income source. Given the low levels of revenue associated with value-added farming this suggests that some of the families engaged in value-added farming are barely making ends meet.

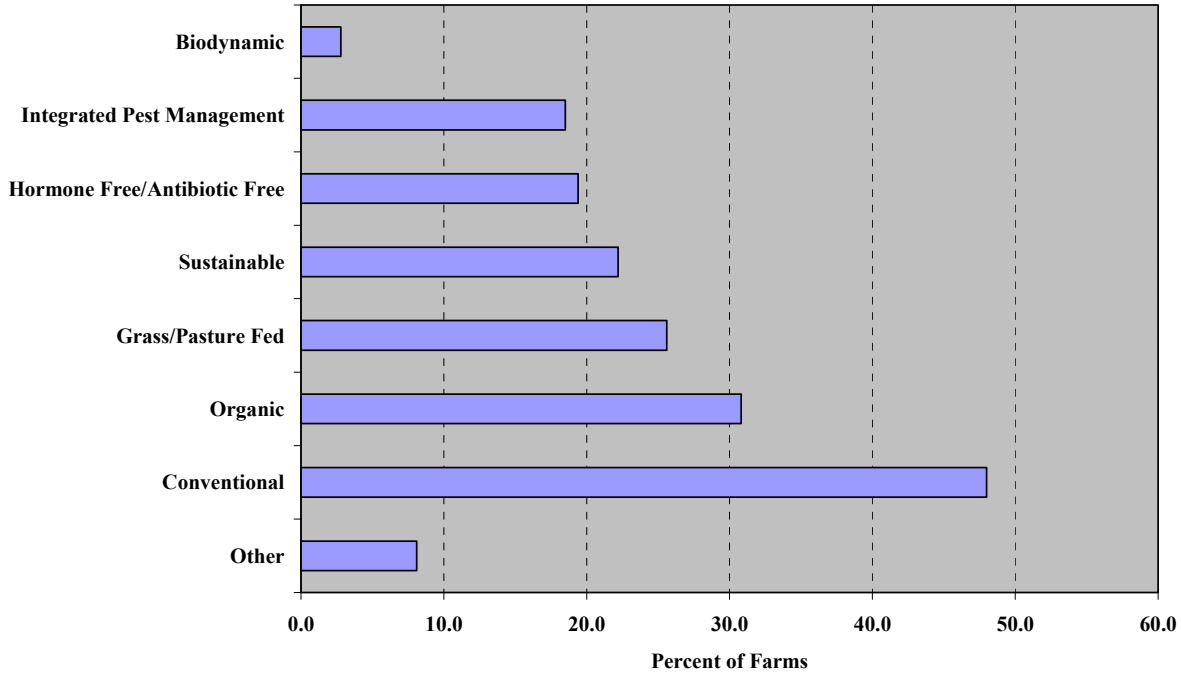
The Scope and Diversity of Value-added Agriculture

The value-added sector is almost by definition highly diverse. It ranges from small, organic vegetable operations on a few acres with less than $10,000 of sales to large specialized operations. That diversity shows up in types of commodities (fruits, vegetables, livestock, etc.), production practices (conventional, organic, pasture fed, biodynamic, etc.), marketing methods (farmers' markets, wholesale, community supported agriculture, restaurants, etc.) and size of operation (measured by sales, acreage, or number of animals).

Production practices. Nearly half (48 percent) of the value-added farms use conventional production practices, while 31 percent are organic, 26 percent use grass or pasture feeding for animals, and 22 percent describe their production practices as sustainable agriculture.[7]

[7] Note that farmers may use more than one of the listed production practices, so that the percentages add to more than 100 percent.

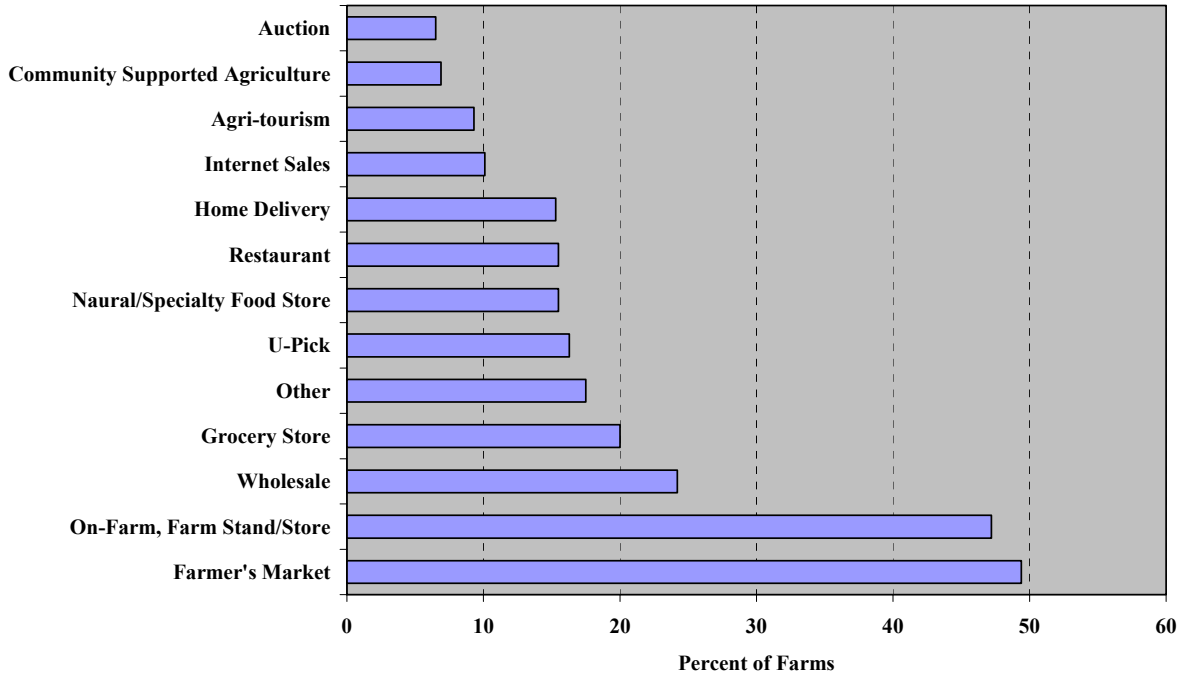
Production Practices Used on Value-Added Farms in Wisconsin, 2004



In contrast, less than 2 percent of Wisconsin dairy farms produce organic milk and 23 percent rely on pasture feeding of their animals. This demonstrates the relative importance of non-traditional production methods in the value-added sector.

Marketing methods. There is considerable diversity among the marketing methods used by value-added farmers. Nearly half of those surveyed sold their goods at farmers' markets (49 percent) or on-farm stands or stores (47 percent). Twenty-four percent sold their product wholesale while 20 percent said they sold to grocery stores. In addition, about 15 percent of the farms sell primarily to natural or specialty stores, restaurants, or deliver their product to homes. Slightly less than 10 percent of the value-added farms engage in some type of agro-tourism by offering attractions such as hayrides, corn mazes, and tours. About 7 percent are community-supported agriculture farms, in which members of the community purchase shares of the farms' produce at the beginning of the season and receive a weekly allocation of fruits, vegetables, or flowers.

Marketing Methods Used by Value-Added Farmers in Wisconsin, 2004



Conclusions

This first comprehensive investigation of the Wisconsin's value-added agriculture sector has identified a growing and diversified group of farms. While this sector is not especially large in terms of sales or acres, the approximately 7,000 value-added operations represent about 10 percent of the farms in the state. Clearly some of these operators aren't making much of a living off of farming, suggesting that for many this may be more of a hobby rather than an enterprise intended to feed a family. Nonetheless many consumers in Wisconsin and neighboring states benefit from the high-quality products made by Wisconsin value-added farmers, suggesting that the state as a whole may benefit from this sector in ways not directly measured by farm income statistics.

Further analysis of these and other data are needed to help determine how best to foster a growing and vital value-added sector in Wisconsin. PATS will continue to analyze the data from this survey in order to provide directions for UW-Extension and Wisconsin policy makers in how to provide resources to aid this sector.

Authors' note: We acknowledge with thanks Caroline Brock, Jill Rubin, and Candice Slaney for their work on the data collection and entry phases of this study. In addition we would like to thank all the value-added agriculture groups who were willing to help us contact their members.

The Economic Value of Wisconsin's Green Industry

Laura Jull

Introduction

The Wisconsin "Green Industry" is an often-overlooked but important part of Wisconsin agriculture. This article summarizes the results of a recent survey documenting the scope and the economic contribution of this diverse sector.

The Green Industry includes operations, both businesses and individuals, that design, produce, sell, install, or maintain flowers, foliage plants, sod, nursery, landscape products, or Christmas trees. Services are also part of the Green Industry and include landscape and floral design, exterior and interior landscape or irrigation installation and maintenance, fertilizer and pesticide application, arboricultural services and lawn care. The Green Industry also comprises sales of items directly related to the production and maintenance of products such as mulch, soil, fertilizer, pesticides, stone, pavers, pots, garden tools and equipment.

The Survey

Several Green Industry trade associations have long supported a survey designed to better understand their industry but the diversity of the industry prevented a coordinated funding effort. In 2000, USDA allocated funds through the Specialty Crop Block Grant program, which provides funding to states via formula to conduct research and other activities to support high-value, non-agronomic crops. The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) was assigned to manage the grant for USDA. DATCP subsequently solicited grant proposals from relevant commodity groups, including those representing the Green Industry.

Four Green Industry commodity organizations submitted successful proposals that collectively requested funding for an industry survey. The Wisconsin Agricultural Statistics Service (WASS) was commissioned to conduct the survey.

A committee representing various Green Industry stakeholders was organized to advise WASS on questions to be included and other aspects of the survey. The target year was 2002, with data to be collected over a 12-month period beginning March 2003.

Three forms were used to separately survey producers, households, and the public/government sector. Producers included businesses and individuals that design, produce, sell, install, or maintain green and green-related products as their primary business. Not included were discount and department stores and other mass merchandisers. Information obtained from this survey included sales data of green and green-related items (retail, wholesale, choose and cut), receipts for green-related services performed, number of full- and part-time employees, wages and benefits paid, sales taxes, production area used for

green products, and data on industry limitations, beneficial activities, and future plans.

The household sector summarized household expenses for green products and services. Information that was obtained from this sector included purchases of green and green-related items, where purchases were made (general retailer, non-franchised private, contractor, or charities), expenses for green services, utilization of service providers, equipment purchases, size of property, years at location, and information resources.

The public or government sector included organizations that maintain green-related facilities with their own employees such as state organizations, counties, cities, towns, and villages, public and private schools, colleges, and universities, cemeteries, public gardens, research stations, public utilities, and golf courses. Information that was obtained from this last sector included full-time employees involved in green-related maintenance, total expenses for green-related projects, and information resources.

Data from the three surveys were collected and analyzed by WASS with non-response from the producer and public sectors adjusted based on type stratification. A non-response adjustment was not needed for the homeowner sector as data collected from all the personal interviews were used (i.e. 100 percent response rate). Data from the homeowner sector were expanded based on area frame stratification to account for all single-family and duplex households in Wisconsin.

Duplicate data collected in the producer survey were not included in the homeowner or public/government surveys. For example, homeowner purchases at a nursery or garden center were not included because they were already tabulated in producer sector sales. This avoided double counting of sales and expenditures while simultaneously capturing expenditures at outlets that were not included in the producer survey.

The response rate for the producer sector was 65 percent. Of these responses, 20 percent of the reports were not counted because either the business was no longer operating or not green-related or because the surveys were duplicated. Two mailings were sent to the producer and public sector groups, spaced 4–5 weeks apart. If the business did not respond, a phone call was placed to try to obtain the report. The public/government sector had a 50 percent response rate. Generally, a 35 percent response rate can be expected on surveys of this type.

The Results

The survey results indicated that the Green Industry in Wisconsin was valued at $2.7 billion in 2002. Over 4,700 green-related businesses are in Wisconsin, employing more than 43,000 workers (18,300 full-time, 19,700 part-time, and 5,000 public/government).

Of the $696 million in products sold, a majority was from floriculture products (36 percent) and miscellaneous goods (35 percent). Trees and shrubs accounted for 18 percent of the total sales with 7 percent from Christmas

Wisconsin Green Industry: Overall Economic Impact, 2002	
Sector	***$Million***
Producer-Services	819
Producer-Sales	696
Producer-Wages	471
Producer-WI Sales Taxes	53
Household-Equipment Sales	302
Household-Purchases	118
Public/Government Expenses	149
Golf Course Expenses	98
Total	**2,706**

trees and wreaths, and 4 percent from sod. Wages paid to employees in Wisconsin totaled $471 million with an additional $53 million from Wisconsin sales taxes. In terms of acreage in 2002, the largest crop was Christmas trees (36,000 acres) with 1,800,000 trees cut. Trees and shrubs accounted for 14,300 acres (with 850,000ft^2 of greenhouse space); sod, 10,000 acres; and floriculture products, 1,500 acres (with 10,500,000ft^2 of greenhouse space).

Fifty-four percent of the producer sector sales were from services provided to customers. Nearly half of these services are for landscape installation. Arboricultural service receipts were also substantial for landscape/lawn/or garden maintenance, tree and shrub service, and fertilizer/pesticide application.

Producer Sector: Receipts by Product, 2002				
Product	***Resales****	***Retail***	***Wholesale***	***Total***
		$1,000		
Floriculture	127,790	54,970	66,900	249,660
Trees & Shrubs	59,700	30,220	33,750	123,670
Christmas Trees & Wreaths	21,050	3,040	22,720	50,000**
Sod	11,690	2,970	13,500	28,160
Misc. Products***	180,600	7,910	56,400	244,910
Totals	**400,830**	**99,110**	**193,270**	**696,400**

*Resales are products purchased from a grower or supplier with the intent to resale.
**Includes $3,190,000 from choose and cut sales.
***Miscellaneous products include mulch, soil, fertilizer, pesticides, and hard goods.

Producer Sector: Receipts by Service, 2002		
Green Service	***Receipts $1,000***	***% of Total***
Landscape Installation	382,550	47
Landscape/Lawn/Garden Maintenance	125,790	15
Landscape Architecture, Design, or Planning	82,890	10
Tree and Shrub Service	78,660	10
Fertilizer and Pesticide Application	55,800	7
Irrigation Installation/Maintenance	43,420	5
Florist Services	9,800	1
Interiorscape	4,820	1
Other	35,720	4
Totals	**819,450**	**100**

Respondents in the producer survey were asked about their productivity and profitability limitations. The top three limitations were shortage of skilled labor (45 percent), shortage of capital (42 percent), and environmental regulations (37 percent). The top three activities that the industry found beneficial included industry promotion to the public (72 percent), government/political awareness of the industry (62 percent), and development of professional standards (60 percent). Over half of the producer sector respondents named pest management and ornamental horticulture research as being beneficial to their business. Of the businesses surveyed, 44 percent stated they intend to maintain the current size of their business, whereas 39 percent expected to expand their business.

Average per household expenses for 2002 were highest for hired services ($167), equipment ($157), and floriculture products ($130). Miscellaneous products, such as mulch, soil, fertilizer, pesticides, and hard goods accounted for an average of $103 spent per household, $78 for trees and shrubs, and $18 for Christmas trees and wreaths.

Of the floriculture products purchased by homeowners, 55 percent were bought from a non-franchised private retailer. These small businesses also account for 48 percent of tree and shrub sales and 70 percent of Christmas tree and wreath sales. Contractors supplied homeowners mainly with trees and shrubs (40 percent of homeowner sales). Large general retailers, such as Home Depot, Wal-Mart, Kmart, etc. made up 35 percent of floriculture product sales, 11 percent of tree and shrub sales, and 12 percent of Christmas tree and wreath sales.

It is interesting to note that of the $302 million in household equipment sales, 70 percent were from riding lawnmowers and 14 percent were from walk-behind lawnmowers. The remaining homeowner equipment expenses were from garden tools and other lawn and garden equipment. The top four green-related services that homeowners purchased in 2002 were fertilizing turf or landscape plants (13 percent) weed, insect, or disease control (13 percent), tree and shrub removal (11 percent), and tree and shrub pruning (10 percent. The survey also showed that in most households, these activities are done either by the homeowners themselves or not at all. Additionally, it was found that 55 percent of homeowners had lived in their current residence for ten years or more and 38 percent 1–10 years. This leaves 7 percent as new homeowners of 1 year or less.

Survey Follow-up

How can the Green Industry benefit from the survey results? Accurate evidence documenting the importance of the industry to Wisconsin's economy is now available. Future benefits from this could include recognition of the industry at the state and local government level, statewide public recognition of the industry's value and size, promotion of a positive image to the people of Wisconsin, and acknowledgement of the industry as a viable and substantial agricultural commodity in Wisconsin. The industry will have a stronger voice in political issues and regulatory decisions. City foresters and other municipal or non-profit organizations may be better able to justify their budgets and need for their services and labor force to their funding sources. The Green Industry may now get broader recognition from college and university administrators, perhaps leading to expanded resources to support educational and research needs.

About the author: Laura Jull is an assistant professor and Extension Ornamentals Specialist in the Department of Horticulture, UW-Madison/Extension. She was the project coordinator for the Green Industry Survey. *Complete survey details are available in a special interagency report titled,* ***Economic Impact of Wisconsin's Green Industry $2.7 billion,*** *available in hard copy from the author [(608) 262-1450] or on the web at http://www.nass.usda.gov/wi/green_wa-0151.pdf*