

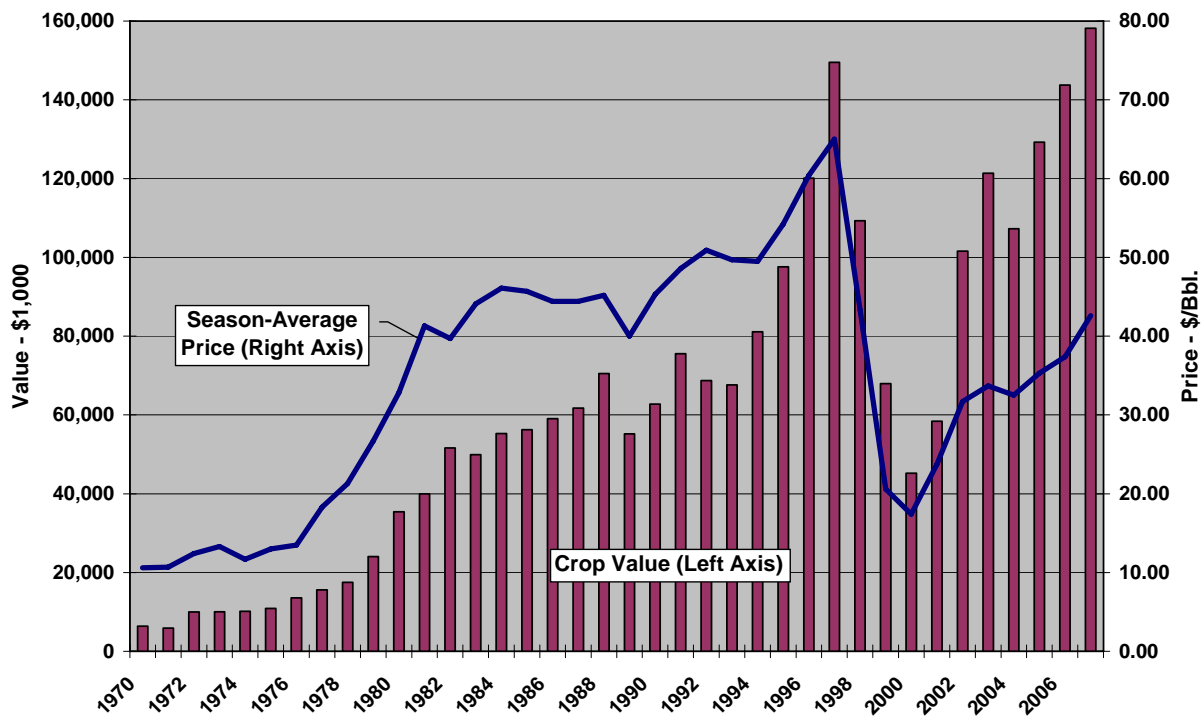
Wisconsin Cranberry Production¹

Industry Background

The farm value of the 2007 Wisconsin cranberry crop was estimated at nearly \$160 million, accounting for more than 80 percent of cash receipts to Wisconsin's fruit growers. The state produced 3.51 million barrels (1 barrel = 100 pounds), 58 percent of the U.S. crop and more than double the production of Massachusetts, the second leading state.

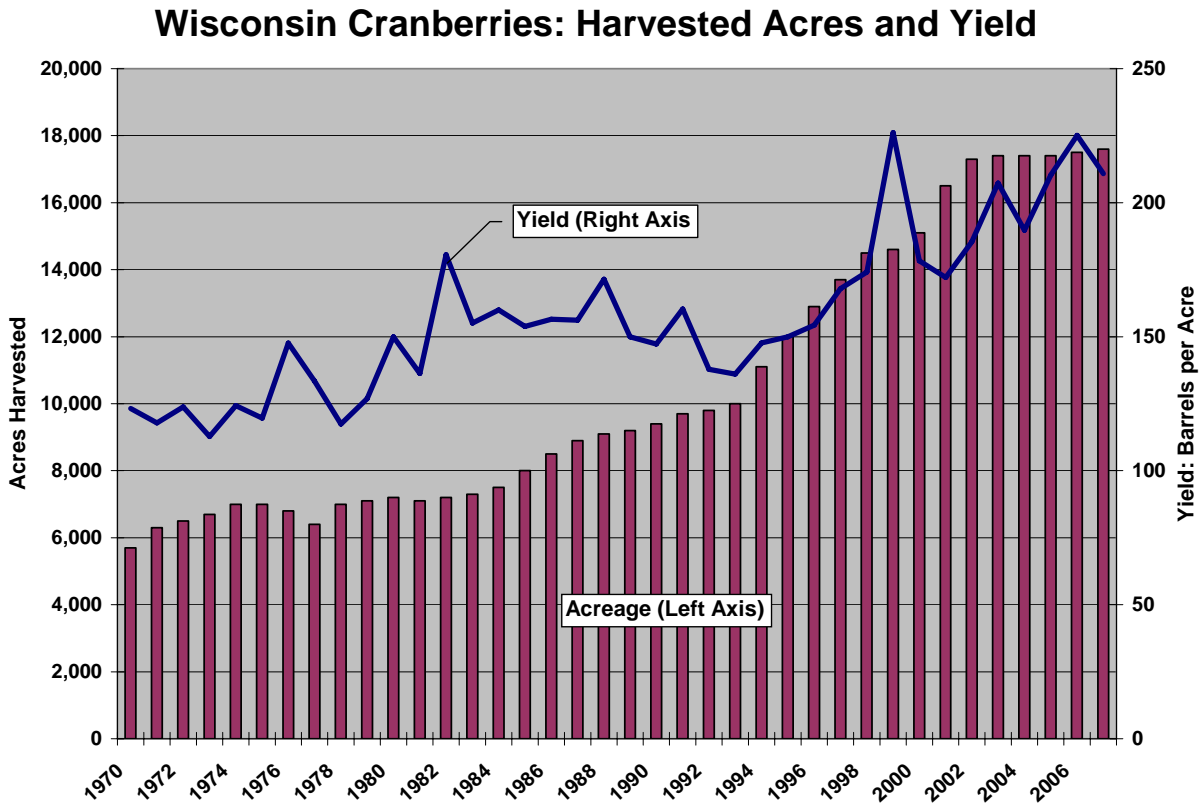
Wisconsin cranberry revenue in 2007 was record high, \$10 million above the previous record set in 1997. The industry has recovered from overproduction that resulted in a precipitous price decline between 1997 and 2000. While still well-below the record high prices set in the 1990s, cranberry prices have more than doubled since 2000. The state is well-positioned to take advantage of increasing domestic and foreign demand for cranberry products.

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



¹ This paper was prepared at the request of the Wisconsin State Cranberry Growers Association to describe the scope and economic characteristics of cranberry production in the state and to estimate the economic impact of the industry. Contributors are Edward V. Jesse and Steven C. Deller, Professors and Extension specialists in the Department of Agricultural and Applied Economics, University of Wisconsin-Madison/Extension, Professor Teryl Roper (Department of Horticulture, UW-Madison/Extension), Matt Lippert (UW-Extension, Wood County) and Ken Barnett (UW-Extension, Ag. and Natural Resources program area Extension Educator). Please direct questions to Jesse at 608-262-6348 or evjesse@wisc.edu.

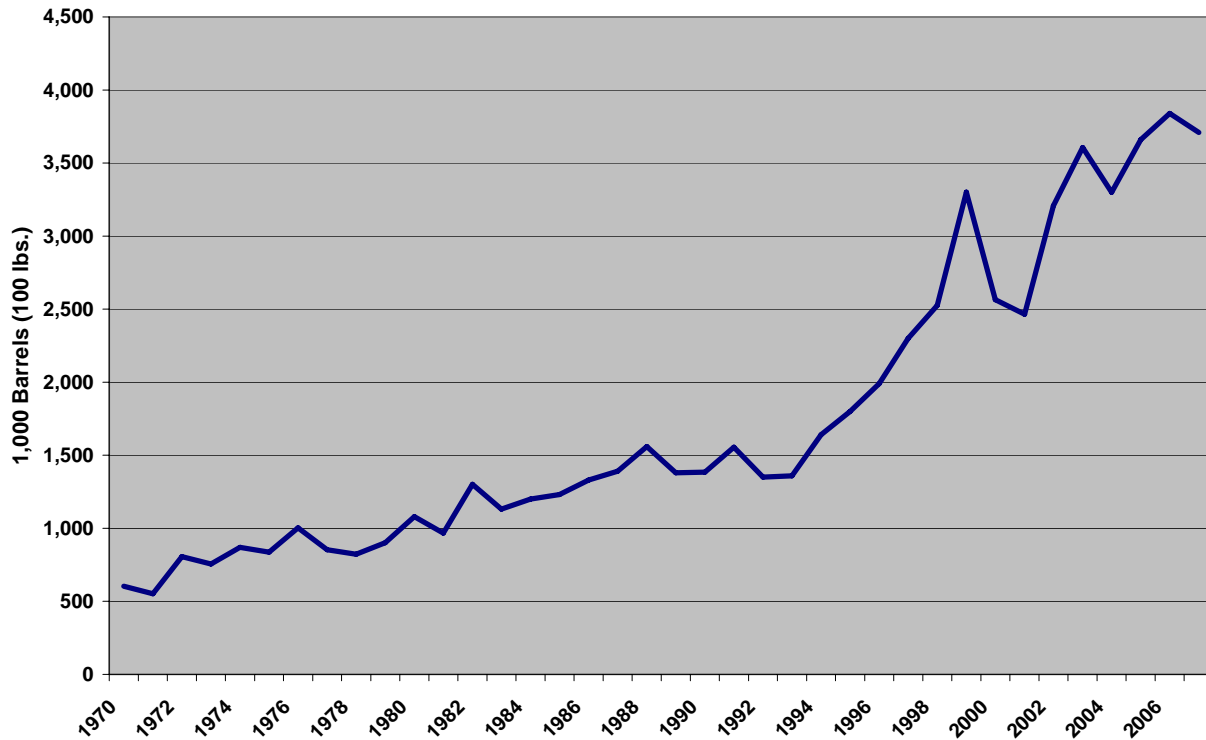
In response to the high prices of the 1990's, Wisconsin cranberry growers significantly increased plantings. Bearing acreage grew from 10,000 acres in 1993 to 17,300 acres in 2002. Acreage growth since then has been muted by low profitability until recently. Bearing acreage stood at 17,600 acres in 2007.



Following 10 years of stagnant yields from 1985 to 1995, Wisconsin cranberry production per bearing acre has increased by 5.1 barrels per year. This remarkable growth is attributable to higher-yielding varieties on new acreage, more effective pest and disease control, and improved management. In 2007, yield per acre was estimated at 211 barrels compared to the U.S. average yield of 165 barrels. While yields are subject to localized weather, Wisconsin growers have consistently achieved higher yields than growers in other states. Over the last five years, Wisconsin has experienced 28 percent higher yields than the national average, representing 46 barrels more fruit per bearing acre.

Wisconsin cranberry production has shown steady growth since 1994 at an annual rate of 8 percent. Exceptions to this even rate of growth were 1999, when yield reached an unprecedented 226 barrels per acre during an outstanding growing season, and 2000 and 2001, when allotments imposed under the federal Cranberry Marketing Order restricted grower deliveries. Despite nearly constant bearing acreage since 2002, the growth in yields has resulted in continued expansion of production.

Wisconsin Cranberries: Total Production



Economics of Cranberry Production

Cranberries are a high-value crop. Estimated average gross revenue per bearing acre was more than \$8,000 per acre in 2006 and more than \$9,000 in 2007. Comparable 2006 values for other Wisconsin crops are shown below:

Wisconsin Crop Values, 2006			
<i>Crop</i>	<i>Harvested Acreage</i>	<i>Value of Production</i>	
		<i>Total (\$1,000)</i>	<i>\$ Per Acre</i>
Corn	2,800,000	1,321,320	473
Soybeans	1,640,000	725,744	443
All Hay (dry)	2,140,000	331,744	155
Wheat	240,000	57,939	241
Oats	230,000	24,633	107
Potatoes	66,000	232,023	3,515
Sweet Corn (Processed)	82,800	38,300	463
Snap Beans	70,900	36,641	517
Green Peas	31,000	15,587	503
Apples	5,700	25,396	4,455
Tart Cherries	1,700	1,365	798
Strawberries	680	5,762	8,473
Cranberries	17,500	143,740	8,213

Source: USDA/NASS, 2007 Wisconsin Agricultural Statistics.

Cranberries are also a high-cost crop that requires expensive specialized equipment and production inputs. Labor requirements, about 150 hours per acre for established beds, are also very high compared to most other crops grown in Wisconsin.

Estimated 2008 cranberry costs of production are itemized below. These costs are based on UW-Extension budgets for 2003 updated to 2008 conditions using input price indices published by USDA/NASS in *Agricultural Prices*.

Estimated 2008 Cranberry Production Costs, Mature Beds*	
<i>Cost Item</i>	<i>\$/Acre</i>
Variable Production Inputs:	
Fertility	290
Weed Control	390
Insect & Disease Control	75
Fruit Hauling Charges	810
Fuel, lubricants and electricity	915
Repairs and Maintenance	470
Crop Insurance	325
Misc. Inputs	100
Subtotal	3,375
Labor	2,160
Fixed Costs	
Other insurance and Interest	1,050
Property Taxes	875
Depreciation	875
Subtotal	2,800
Grand Total	8,335

*4 years + since planting

Besides the costs noted here, development of a cranberry marsh requires the construction of beds and the purchase and planting of cranberry vines. Estimated marsh development costs vary widely, but generally fall in the range of \$30,000 -\$40,000 per bed acre. Growers also incur cultural costs on new beds for 2-3 years before commercial yields are attained.

Economic Impact

With few exceptions, inputs to cranberry production are local in nature. Cranberry growers utilize local labor, generally purchase their fertilizer, chemicals, and insurance locally, and use local equipment dealers for purchase and repair of most machinery. In turn, the owners and employees of the firms selling goods and services to cranberry growers generate further economic activity from related wages and profits. This is called the multiplier effect.

To measure the multiplier effect of cranberry production, we used an input-output modeling tool called Micro-IMPLAN, which details interrelationships among economic sectors of the economy.² We modeled a very specific question: What would be the economic impact on the Wisconsin economy of adding an additional 1,000 acres of cranberries in the state? Note that our analysis only measures the impact of cranberry production. This understates the contribution of added acreage because it does not account for added processing activity associated with expanded production.

We used the reported 2007 Wisconsin season-average price of \$42.70 per barrel and the average Wisconsin yield for 2005-07 (215 barrels per acre) in our analysis.

The gross economic impact of adding 1,000 acres to Wisconsin’s current bearing cranberry acreage on Total Industrial Output (e.g., gross state product), income, and employment are shown in Table 1. Initial impact measures the increase in grower level sales, income to marsh owners and hired labor, and number of jobs associated with cranberry production on the expanded acreage. Indirect effects are the result of “business-to-business” transactions related to expanded acreage, and induced effects result from labor expenditures on goods and services.

Table 1. State Economic impact of Adding 1,000 Cranberry Acres					
	<i>Initial</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>	<i>Multiplier</i>
Total Industrial Output (\$)	9,159,000	2,281,921	3,930,581	15,371,502	1.678
Total Income (\$)	5,123,865	1,094,189	2,286,146	8,504,200	1.660
Employment (No. of Jobs)	162.3	22.8	38.2	223.3	1.376

The results show that the spillover effect of 1,000 more cranberry acres in the state multiplies total industry output by a factor of 1.678, income by 1.660, and employment by 1.376. A breakout of the indirect and induced effect by economic sector is shown in Table 2.

² Input-Output modeling and the Micro-IMPLAN algorithm as applied to the Wisconsin cranberry industry are described in detail in E.V. Jesse (coordinator), *The Economic Impact of the Wisconsin Cranberry Industry*, A Report to The Cranberry Institute, College of Agricultural and Life Sciences, University of Wisconsin-Madison, July 1993. This analysis was updated in 1997 under a Wisconsin Cranberry Board, Inc. project also coordinated by Jesse.

Table 2. Distribution of the Multiplier Effect of Adding 1,000 Cranberry Acres			
	<i>Total Industrial Output (\$)</i>	<i>Employment (No. of Jobs)</i>	<i>Total Income (\$)</i>
Ag, Forestry, Fish & Hunting	480,378	13.9	277,376
Mining	6,752	0.0	4,226
Utilities	113,937	0.3	86,774
Construction	45,186	0.4	19,608
Manufacturing	1,250,827	2.7	330,260
Wholesale Trade	422,488	2.6	284,815
Transportation & Warehousing	224,986	2.2	127,811
Retail Trade	506,159	8.4	325,869
Information	123,414	0.5	52,967
Finance & Insurance	465,175	2.5	241,047
Real Estate & Rental	401,533	3.2	269,980
Professional, Scientific & Tech. Services	223,922	2.0	115,157
Management of Companies	69,274	0.3	41,570
Administrative & Waste Services	105,788	2.0	61,568
Educational Services	71,751	1.4	40,029
Health & Social Services	637,501	7.8	383,348
Arts, Entertainment & Recreation	62,312	1.4	33,672
Accommodation & Food Services	249,226	5.5	111,780
Other Services	175,132	3.5	88,343
Government & unspecified	576,764	0.3	484,136
Total	6,212,502	61	3,380,335

Expanded cranberry acreage would also increase state tax revenue. Again, the increase in tax receipts would reflect not only the taxes paid by marsh owners, but also taxes paid by businesses and employees benefiting from the multiplier effect. An estimate of gains in tax revenue is shown in Table 3.

Table 3. Tax Impact, State and Local, Non-K12*	
Property Taxes	\$224,122
Sales Taxes	\$184,791
Income Taxes	\$188,843
Other	\$220,630
Total	\$818,385

*Does not include local property tax levy for elementary and secondary education.