

## 2002 Cranberry Crop Forecasts and Related Grower Price Forecasts

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In developing its 2002 marketing policy statement, the Cranberry Marketing Committee (CMC) estimated domestic production, imports, shrink, beginning inventory, and sales for the 2002 crop year. The specific estimates derived at the February 25, 2002, meeting were as follows:

Estimate	1,000 Barrels	
8/31/02 Carryin		2,300
Domestic Production	5,685	
Imports	870	
Total Production		6,555
Available Supply		8,855
Shrink	305	
Adjusted Supply		8,550
Fresh Sales	270	
Processing Sales	6,100	
Total Use		6,370
8/31/03 Carryout		2,180

If actual conditions in 2002 match these estimates, carryout would be adequate to support sales during September-November 2003, but not excessive. Estimated season-average grower prices for the 2002 crop year would be in the range of \$24.50 to \$35.40 per barrel (see attached chart), a substantial improvement over the last two crop years.<sup>2</sup>

A key element in the CMC's marketing policy statement is domestic cranberry production. The procedure used to estimate production is subjective. It involves each grower member and alternate providing a forecast for the state they represent and then averaging the results.

Alternative production estimates can be made by reviewing trends in acreage and yield. This requires information on 2002 bearing acreage by state. Such information is somewhat speculative for at least three reasons. First, USDA does not report bearing acreage, but rather harvested acreage. Second, harvested acreage in 2000 and 2001 was affected by the producer allotment orders that were in effect then – many growers elected to meet their allotments by not harvesting some bearing acreage. Third, new cranberry acreage (not yet bearing) is not reported by USDA.

To estimate 2002 bearing acreage, USDA's 1999 reported harvested acreage was used as a base and augmented by CMC estimates of new acreage harvested for the first time in 2000 and 2001, and to be harvested in 2002. The CMC estimates are obtained from grower reports of new acreage coming on line. "New" acreage as reported by growers includes an unknown amount of renovated acreage. Arbitrary adjustments were made to back out renovated acreage from the reported state new acreage totals to derive net additions to the 1999 bearing acreage base. The resulting bearing acreage estimates by state are shown below:

State	1999 USDA Harvested Acres	CMC "New" Acres, 2000- 2002	Percent Renovated	Adjusted New Acres	Estimated 2002 Bearing Acres
MA	15,000	1,133	90	113	15,113
NJ	4,000	282	50	141	4,141
OR	2,300	383	10	345	2,645
WI	14,600	2,168	10	1,951	16,551
WA	1,600	168	90	17	1,617
US	37,500	4,134	--	2,567	40,067

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<sup>2</sup> Price estimates noted here are derived from a price forecasting model that uses two different statistical specifications to represent the relationship between season-average grower price and total available domestic supply (domestic production plus carryin). These specifications are summarized on the attached chart, which shows estimated prices for the 2002 crop year for varying levels of total available supply. A description of the model is provided in, Jesse, E.V., *Season-Average Cranberry Prices as related to Total Cranberry Supply: 2002 Update* (available from the author on request).

Yields per acre in 2002 are highly uncertain this early in the crop season. An "average" measure, which implicitly assumes normal growing conditions, can be calculated from a linear trend line. U.S. average yields from 1944 through 1999 increased at an average rate of 2.54 barrels per acre per year.<sup>3</sup> The associated 2002 trend value is 167.0 barrels per acre.

Applying U.S. average trend yield per acre to the 2002 bearing acreage estimate gives a production estimate of 6.7 million barrels. Adding the CMC carryin estimate of 2.3 million barrels yields total available domestic supply of 9.0 million barrels. This level of supply is estimated to result in a season-average grower price in the \$16.70 to \$23.60 range.

It is uncertain whether cranberry growers could achieve trend yields under normal growing conditions in 2002, at least in some areas. In response to marketing order volume limits, cash flow problems due to low prices, or both, some growers reduced production inputs, flooded bogs, and took other cultural measures that could have longer-term effects on yields. On the other hand, the proportion of total bearing acreage that is planted to higher-yielding new varieties will be higher in 2002 than it was in 1999. That would be expected to produce 2002 yields above trend.

If 40,000 acres of cranberries are harvested in 2002, the CMC production estimate of 5.7 million barrels translates to a U.S. average yield of only 142.5 barrels per acre. Yields during the volume-regulated 2000 and 2001 crops were 154 and 156 barrels per acre, respectively. The last year that U.S. average cranberry yields were below 142.5 barrels was 1996.

To recognize differences among states in yield potential, 2002 production was also estimated by applying state-specific yields for 2002 obtained by extrapolating linear trends for the period 1970-99.

State	Estimated 2002 Bearing Acres	2002 Trend Yield	Indicated Production, 1,000 Bbl
MA	15,113	157.2	2,376
NJ	4,141	154.2	639
OR	2,645	163.1	431
WI	16,551	180.0	2,979
WA*	1,617	112.1	181
<b>US</b>	<b>40,067</b>	<b>-----</b>	<b>6,606</b>

\*1970-99 yield trend for Washington is not significantly different from zero. The yield shown is the mean 1970-99 yield.

Disaggregating yields by state shows nearly the same 2002 production estimate as using national average yield. But the trend yields for some states, based on a 20-year period, seem out of line with recent experience. For example, it is not likely that Massachusetts could achieve a yield as high as 157 barrels per acre in 2002, while recent experience suggests that 180 barrels per acre for Wisconsin in 2002 may be conservative.

Finally, production and prices can be forecast under an assumption of good weather/growing conditions – a worst case scenario with respect to grower prices. This forecast was made by using the highest yield experienced in each producing state during 1993-99 applied to estimated state bearing acreage in 2002. Applicable yields and production under this scenario are shown below:

State	Estimated 2002 Bearing Acres	Maximum 1993-1999 yield, Bbl/A	Indicated Production, 1,000 Bbl
MA	15,113	144.6	2,185
NJ	4,141	172.8	716
OR	2,645	194.1	513
WI	16,551	226.1	3,742
WA	1,617	134.7	218
<b>US</b>	<b>40,067</b>	<b>-----</b>	<b>7,374</b>

This level of domestic production combined with estimated carryin of 2.3 million barrels would yield a season-average price forecast in the \$11.40 to \$15.60 range.

It is unlikely that all growing areas would simultaneously experience record or near record yields, thus leading to production as high as 7.3 million barrels. At the same time, 7.3 million barrels is less than the estimated industry sales history for 2002. And given that more acreage consists of higher yielding varieties, a record crop in any state in 2002 would likely be significantly higher than the highest yield experienced between 1993 and 1999.

<sup>3</sup> The R<sup>2</sup> value for the linear trend equation is 0.96. Yields for 2000 and 2001 were affected by the producer allotment marketing orders, and are therefore not included in estimating trend yield.

Cranberry Price Forecasting Model: 2002 Crop Year Price Forecast

