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**The Economic Impact of Expanded Cranberry
Production**

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The Economic Impact of Expanded Cranberry Production

Introduction

This study is an effort to estimate the economic impact of expanded cranberry production in Michigan. This estimate will look at two scenarios. In the first scenario, cranberry production is expanded by 500 acres. In the second scenario, cranberry production is expanded by 2,500 acres. In the 2,500 acre scenario it is assumed that juice production will expand to process the additional cranberry production.

The analysis will also include the investment necessary to prepare the land for cranberry production for both scenarios. The study will also discuss the market outlook for cranberries. IMPLAN a standard economic impact software package is used to generate the estimates. The annual economic impact of producing 500 additional acres of cranberries is \$5.93 million with an additional 75 jobs created. It is estimated that the one-time economic impact of the investment in 500 additional acres is \$30.66 million with 216 jobs created during the construction.

The annual economic impact of producing an additional 2,500 acres of cranberries is estimated to be \$29.67 million with an additional 383 jobs created. The one-time economic impact during the construction of 2,500 acres of cranberries is \$153.28 million with an employment of 1,082.

The economic impacts do not consider further processing, retailing, and other activities, therefore these results should be considered minimum impacts. The actual economic impact is greater than the figures shown in this report.

The market for cranberries is strong. Cranberry prices are increasing as is demand both in the U.S. and foreign markets. Investments in cranberry production will occur. Michigan has the potential to be a location for some of this increased investment but there are other locations that may be the beneficiaries. Other areas include the Maritime Provinces of Canada and Wisconsin.

Market Outlook

The outlook for cranberries is extremely strong. The value of cranberry juice concentrate is in the range of \$75 to \$80 a gallon, which according to some sources is a high price by historical standards. From 1999 to 2006, the pool price for Ocean Spray growers rose from \$14.79 a barrel to \$47.69 a barrel, an increase of 222 percent (Ocean Spray). Ocean Spray is the largest handler of cranberries in the U.S., and is a producer owned cooperative. Ocean Spray has a 60 percent market share of the U.S. cranberry juice market, a 70 percent market share of fresh cranberry market, a 70 percent market share of the cranberry sauce market and an 80 percent market share of the dried cranberry market (Ocean Spray). The pool price is the average price members receive for their cranberries and is based on the weighted average of the value of the products that are produced from cranberries.

Almost 96 percent of all cranberries produced are processed. The primary product is cranberry juice and cranberry juice blends. Cranberry sauce and fresh cranberries are also products produced by cranberries. Dried cranberries, sometimes referred to as craisins is a growing product line, and has some potential in Michigan because the equipment used to dry cherries can also be used to dry cranberries. From 2002 to 2006, Ocean Spray's sales of sweetened dried cranberries essentially tripled from \$34 million to \$100 million (Ocean Spray).

The juice market is especially interesting. For most juice products demand is flat, and many juice firms face declines. From 2005 to 2006, the amount of juice consumed declined by 2.6 percent. This is not the case for cranberry juice and cranberry juice blends which continue to see growth; Ocean Spray's volume increased by 9.9 percent from 2005 to 2006 (Ocean Spray).

The international market is also showing growth. Ocean Spray's international sales increased by 18 percent in 2006, with increases in Canada, Europe and developing markets. The strategy of Ocean Spray, the largest marketer of cranberries in the U.S. is to increase market share and product offerings in existing international markets (Ocean Spray).

In order to meet these goals additional fruit needs to be produced. This is not just an issue for Ocean Spray; other Michigan based processors and handlers have also expressed an interest in obtaining additional supplies of cranberries. The compound annual growth rate of cranberry production from 2000 to 2006 has only been 1.1 percent, which is substantially lagging the increase in demand for cranberry products. Ocean Spray projects that in order to meet potential demand another 6,000 acres of cranberries need to be produced (Ocean Spray).

Michigan is well suited to meet some of this demand. It has the climate and other environmental factors necessary for cranberry production. The state also has a well established fruit processing and handling industry. However, despite these advantages other areas are being considered for expanded cranberry production.

Output from Wisconsin continues to grow; as much as 1,000 acres per year are being devoted to expanded cranberry production in that state, according to one source. Other sources believe that Wisconsin will soon be at its maximum acreage. Perhaps the greatest potential source of competition is the Maritime Provinces of Canada: Nova Scotia, New Brunswick, Prince Edward Island and Labrador and Newfoundland. Ocean Spray identified the following attributes that make the Maritime Provinces desirable locations for cranberry production: ample land and water, cooperative regulatory environment, supportive business climate, great outdoors and quality of life (Ocean Spray).

With the possible exception of a cooperative regulatory environment, the same could be said for Michigan. Also, with the appreciation of the Canadian dollar, most, if not all of

the cost advantage of locating in Canada is now gone. However, many in the cranberry industry in Michigan believe that the current regulatory environment in the state will not allow Michigan producers to take advantage of the current situation.

To summarize, the market for cranberries is strong and is likely to remain strong for some time. This is true for both the domestic and international markets. As a result cranberry production is likely to expand somewhere. Wisconsin, Michigan and the Maritime Provinces are likely candidates for this expansion.

Economic Impacts

This analysis used IMPLAN, a standard economic impact software program. IMPLAN analyzes the direct, indirect and induced effects to determine the overall level of economic activity resulting from new or expanded business.

- Direct effects are the changes in the industry under analysis (in this case cranberry farming, juice production, and construction of cranberry bogs).
- Indirect effects are the changes in inter industry purchases as they respond to the new demands of the directly affected industries.
- Induced effects measure the changes in household spending resulting from the changes in output (MIG, p.102).

This analysis looks at two scenarios, expanding cranberry acreage by 500 acres, Scenario I, and expanding acreage by 2,500 acres, Scenario II. Under Scenario II, juice production in Michigan is increased. To determine the price at the farm level, the average of the national price for the last three years was used. It should be noted that recent cranberry prices are above the three year average and as a result the economic impact may be somewhat understated. An average of output per acre for the last three years in Wisconsin was used to determine the additional output. It was assumed that the growing conditions in Michigan are more similar to Wisconsin than conditions in Massachusetts or Washington which are other cranberry growing areas.

Table 1 shows the annual economic impact and the additional jobs created as a result of increasing cranberry production by 500 acres.

Impact	Economic (\$1,000)	Employment
Direct	4,126	57
Indirect	690	8
Induced	1,118	10
Total	5,934	75

The additional economic impact is estimated to be slightly more than \$5.9 million dollars a year with 75 additional jobs, of which 57 are on-farm jobs. Some of these jobs

especially in the industry will likely be part-time or seasonal. The figures in table 1 are not full-time equivalents.

Table 2 shows the annual economic impact of expanding cranberry production by 2,500 acres.

Table 2: Economic Impact of 2,500 Additional Acres of Cranberry Production

Impact	Economic (\$1,000)	Employment
Direct	20,632	288
Indirect	3,451	42
Induced	5,589	53
Total	29,672	383

The additional economic impact is estimated to be \$29.67 million with an estimated 383 additional jobs created, of which 288 are on-farm jobs. It should be noted however, that this would increase total acreage in the U.S. by 6.4 percent which may put downward pressure on prices and reduce the economic impact. Conversely, if the demand for cranberry products remains strong and the market continues to grow, the estimate will be valid.

IMPLAN was also used to estimate the impacts of investment in cranberry bogs. Good numbers on the cost of cranberry bog construction is difficult to come by. The figures used in this analysis are derived from Wisconsin figures in 1996. At that time it was estimated that the investment in cranberry bogs was in the range of \$20,000 to \$30,000 per acre (Wisconsin State Cranberry Growers Association, p.4). The Producer Price Index was used to take inflation into account between 1996 and 2008. Table 3 gives the economic impact for constructing an additional 500 acres of cranberry bogs.

Table 3: One-Time Economic Impact of Constructing 500 Acres of Cranberry Bogs

Impact	Economic (\$1,000)	Employment
Direct	17,400	127
Indirect	5,143	32
Induced	8,113	57
Total	30,656	216

It is estimated that the level of investment for 500 acres of cranberries results in a one-time economic impact of approximately \$30.66 million with 216 jobs created during the construction of the bogs.

Table 4 gives the economic impact of investing in 2,500 acres of cranberry bogs.

Table 4: One-Time Economic Impact of Constructing 2,500 Acres of Cranberry Bogs

Impact	Economic (\$1,000)	Employment
Direct	87,000	637
Indirect	25,718	160
Induced	40,567	285
Total	153,285	1,082

It is estimated that the one-time economic impact of an investment in 2,500 acres of cranberries is approximately \$153.28 million with 1,082 jobs created during the construction of the bogs. It is important to note that the figures in tables 3 and 4 represent one-time economic activity resulting from the construction process. It is not on-going economic activity from the production of cranberries. As a result the economic impacts from tables 1 and 2 which represent on-going annual economic activity cannot be added to tables 3 and 4 which is the economic activity of a one-time event.

To estimate the impact of juice production, the price of cranberry juice concentrate is assumed to be \$75 a gallon. It is estimated that that 1.66 barrels of cranberries are used to produce one gallon of cranberry juice concentrate and that an acre of produces 210 barrels of cranberries. The economic impact of 2,500 acres of cranberries converted into cranberry juice concentrate is shown in table 5.

Table 5: Economic Impact of Cranberry Juice Concentrate Production

Impact	Economic (\$1,000)	Employment
Direct	23,720	18
Indirect	8,831	59
Induced	2,784	26
Total	35,335	103
Less Value of Cranberries	20,632	
Total	14,703	103

The net impact of cranberry juice concentrate manufacturing is \$14.70 million with an additional 103 jobs created. It is likely that this number is an underestimate perhaps a large underestimate. If unconcentrated juice or reconstituted juice is sold the impact could be much larger. This should be considered a very conservative estimate.

It should be noted that these figures do not analyze the economic impact of selling, transporting, marketing, etc. the juice further down the supply chain to the consumer. As a result, this analysis underestimates the full economic impact of expanded cranberry and cranberry juice production. Also, production of cranberries, especially if those cranberries are dried, would improve the utilization of equipment currently used to

process cherries. This would enhance the efficiency of Michigan's cherry sector and also improve the viability of the state's fruit industry.

Another possible economic impact is increased tourism in cranberry growing regions. Some cranberry producers sponsor activities during the harvest in the fall that promotes tourism. While this does appear to have a positive economic impact especially in the local communities a good estimate is difficult to determine. Since tourism is not included in the analysis, the economic impact is somewhat understated.

Conclusion

The market demand for cranberries and products made from cranberries is strong. The market in both the U.S. and in foreign countries is growing. This creates opportunities to expand production. Michigan is well situated to increase cranberry production. However, so are other areas such as Wisconsin and the Maritime Provinces of Canada. Cranberry production is likely to increase; Michigan may or may not be the beneficiary of this increase in output.

This paper analyzed the economic impact of increasing cranberry production by 500 and 2,500 acres. It also analyzed the economic impact of increasing the production of cranberry juice concentrate if 2,500 acres enter into production. The economic impact of increasing cranberry production by 500 acres is estimated to be \$5.93 million with an additional 75 jobs created. The one-time economic impact of an investment in 500 acres of cranberry bogs is estimated to be approximately \$30.66 million with 216 jobs created during the construction phase.

The economic impact of increasing cranberry production is estimated to be \$29.67 million with an additional 383 jobs created. This would require a one-time investment with an economic impact estimated to be \$153.28 million and an employment impact of 1,082 during the construction of the bogs.

The net impact of juice concentrate manufacturing is \$14.70 million with an additional 103 jobs created. This is likely an underestimate given the value of juice in its natural or reconstituted form and the impacts of increased tourism are not explicitly analyzed.

These estimates should be considered minimum estimates. Actual economic activity will likely be greater due to increased marketing, retailing and other activities associated with increased cranberry production.

References

MIG. *IMPLAN Pro*. Stillwater: Minnesota IMPLAN Group, Inc. 2004.

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USDA, National Agricultural Statistics Service.