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# Research and assistance in support of the Foodsheds in the Upper Midwest Initiative to measure the economic impacts of increased local food production and consumption

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# Research and assistance in support of the Foodsheds in the Upper Midwest Initiative to measure the economic impacts of increased local food production and consumption

## **Abstract**

This report, produced for an upper Midwest consortium of Iowa, Illinois, Indiana, Michigan, Wisconsin and Minnesota, demonstrated the economic value of local food production and direct marketing under two scenarios.

## **Keywords**

Economics, Economic and environmental impacts, Market research and feasibility studies

## **Disciplines**

Agricultural and Resource Economics | Regional Economics



## Research and assistance in support of the *Foodsheds in the Upper Midwest Initiative* to measure the economic impacts of increased local food production and consumption

**Abstract:** This report, produced for an upper Midwest consortium of Iowa, Illinois, Indiana, Michigan, Wisconsin and Minnesota, demonstrated the economic value of local food production and direct marketing under two scenarios.

### Principal Investigator:

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Economics  
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**Budget:**  
\$9,000 for year one

**Q** Given a relatively large geographic region, what might be the regional economic gains to be expected from the production of meaningful and realistic quantity of local foods and vegetables for local consumption?

**A** The project, after controlling for the region's existing production of major fruits and vegetables, statistically substituted locally grown farm products for products that would have had to have been imported from outside of the region. The value of that production and consumption was measured first in terms of each state producing for its in-state population only. That assessment allowed state policy makers and advocates to particularize the findings in a manner that made sense to regional and state advocates. The second method ignored state boundaries and began with a premise that dense metropolitan demand would be the chief regional driver of nearby, successful local foods production. That evaluation took into consideration regional production capacities and distances to metropolitan markets, irrespective of state boundaries, in analyzing the amount and the location of expected production gains. That evaluation also produced a much more market-realistic projection of consumption and production relationships in the Upper Midwest.



**MARKETING**

### Background

The PI was asked to prepare a technical report of the methods used to investigate the economic outcomes from expanding local fresh fruit and vegetable agricultural production in the upper Midwest. The goal was determine what it would take to satisfy a portion of the resident population's expected annual demand. Illinois, Indiana, Iowa, Michigan, Minnesota and Wisconsin were the states covered in the two-part analysis.

In the first part of the study, estimated economic activity associated with fruit and vegetable production was calculated with the assumption that statewide demands for fresh fruits and vegetables were met solely by that state's producers for a specific period of time. That resulted in a state-contained local production and consumption summary of interest to single-state marketing and promotion interests as well as state-specific policy developers.

The second segment was more complicated, but more realistic in that state boundaries were not a constraint in determining potential sales. That evaluation began at the county level and estimated the potential sales possible from any county in the region to any and all metropolitan areas (250,000+ population) within the region or within 150 miles of the region's boundaries. That evaluation considered the effects of distance from markets on the producers' decisions, the level of farmer interest in producing the needed fruits and vegetables, and the amount of available cropland per county.

## Approach and methods

The research isolated 28 fresh fruits and vegetables that were not already produced in sufficient quantities to satisfy the multi-state regional demand, determined the capacity of the respective states to produce those fruits and vegetables by estimating likely yields per acre per state, determined the value of that produce to farmers, and further estimated the retail value of that produce if 50 percent of it were distributed by farmer-retailers.

## Results and discussion

Under the first scenario in the study:

- 270,025 cropland acres would be needed to produce the partial-year demands of 28 fresh fruits and vegetables in the six-state region. That is roughly equivalent to the average amount of cropland in one of Iowa's 99 counties. Those acres would produce \$882.44 million in farm-level sales, which would be worth \$3.31 billion when sold at retail.
- Considering all industrial linkages, farm-level production would have regional results of 9,302 total jobs earning a total of \$395.12 million in labor incomes.
- The land required to produce those fruits and vegetables would have to come from conventional agriculture as the amount of cropland is fixed. Considering all industrial linkages, corn and soybean production on those same acres supported 2,578 jobs and \$59.12 million in labor incomes.
- If 50 percent of that production were sold via producer-owned markets, the region would need 1,405 establishments staffed by 9,652 jobs earning \$287.64 million in labor incomes.

Under the second scenario studied by the PI:

- The 28 metropolitan markets would require 195,669 fruit and vegetable acres to produce \$637.44 million in farm-level sales.
- Considering all relevant multipliers, that farm-level production would support 6,694 jobs and \$284.61 million in labor income in the six-state area.
- The land needed to produce the fruits and vegetables would have to come from conventional agriculture as the amount of cropland is fixed. Considering all industrial linkages, corn and soybean production on those same acres supported 1,892 jobs and \$42.517 million in labor incomes.
- It would take 875 fruit and vegetable markets run by the producer-retailers to distribute those crops in the metropolitan areas that were within the region. This activity would support 6,021 jobs in those establishments earning \$180.7 million in labor incomes.

## Conclusions

This research clearly demonstrated the economic value of local fresh fruit and vegetable production in the upper Midwest as well as the practical limits to that production.

Scenario Two was a much more realistic depiction of a potential producer-to-consumer relationship in space and in overall farm economic values. Dense metropolitan demand hypothetically will induce production proximate to that demand. Suppliers at greater distances will incur higher costs and will be less inclined to engage in this type of production. It is probably unrealistic to expect significant fresh fruit and veg-

etable production in many sparsely populated areas located at a distance from metropolitan demand, which is what Scenario One did assume.

This project involved a very detailed modeling process to produce sets of reasonable results given the chosen assumptions and the limits to the data. The job and income projections presupposed regional abilities to produce at much higher levels than was the case at the time of the study, except for the state of Michigan which has extensive fruit and vegetable production experience. It also assumed a much larger network of farmer-retailers would be available to emulate national sales patterns for establishments of that type. That assumption presupposed merchant and managerial maturity capable in the aggregate of providing those services.

Given those expectations, one must not forget that very high levels of fresh fruit and vegetable consumption in the study states currently are not met by regional producers or direct-distributed by farmer retailers. There are sound and powerful market antecedents for those facts that, despite this research, cannot be assumed away.

### **Impact of results**

This research has two important outcomes for Iowa agriculture. First, it clearly describes the production possibilities for Iowa farmers who might think of producing for metropolitan demand. Second, it also demonstrates that there are significant areas of Iowa, owing to distances from dense demand locations, that are not likely candidates for this type of production. More importantly, this research implies that both policy making and Extension programming require considerable additional research before significant public funds are dedicated to expanding local foods production.

### **Education and outreach**

These research activities resulted in the Leopold Center publication “Selected Measures of the Economic Impacts of Increased Local Food Production and Consumption in the Upper Midwest.” ([www.leopold.iastate.edu/pubs-and-papers/2010-03-selected-measure](http://www.leopold.iastate.edu/pubs-and-papers/2010-03-selected-measure)). Separate press reports were prepared in each of the six participating states, and the findings of the study were used in local foods policy development in 2010 and 2011. This study also was summarized and cited in the USDA’s 2010 local foods study, “Local Food Systems: Concepts, Impacts, and Issues,” ERR 97, US Department of Agriculture, Economic Research Service ([www.ers.usda.gov/Publications/ERR97/ERR97.pdf](http://www.ers.usda.gov/Publications/ERR97/ERR97.pdf)). This research also resulted in a further refinement of the research process for the state of Iowa, yielding the Department of Economics Staff Report, “The Regional Economic Development Potential and Constraints to Local Foods Development in the Midwest.” ([www.econ.iastate.edu/sites/default/files/publications/papers/p12697-2011-03-30.pdf](http://www.econ.iastate.edu/sites/default/files/publications/papers/p12697-2011-03-30.pdf)).

Presentations on local food production potential were made by the PI at the Woodrow Wilson International School for Scholars, Washington, D.C.; New York State Agriculture Society Annual Meeting, Syracuse, NY. ; and Federal Reserve Bank of Chicago.

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No additional funds were leveraged by this project.