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FOR SUSTAINABLE AGRICULTURE

Market analysis of alternative crop production in Iowa

Abstract: A spreadsheet was created to provide producers, distributors, and marketers with more information about county-level supplies of local food products.

Question & Answer

Q: How much of my product is consumed by counties in Iowa? What produce items are least supplied by Iowa farmers to meet demand?

A: This kind of information may be found by using a simplified version of the spreadsheet at <http://www.leopold.iastate.edu/research/marketing.htm>. We will be working with the Leopold Center to train food system educators who will use a more comprehensive version of the spreadsheet.

Background

In a perfect world, fresh produce would be grown at the exact time and location that is needed for individual consumption. Things are much more complex today; while consumption occurs daily and is dispersed across a wide geographical area, crop cycles remain seasonal, hampered by weather, and frequently limited to particular growing regions.

Transportation and storage historically have been the key elements used to smooth the imbalances between seasonal supply and daily demand. Market stability has been based on continually moving physical inventory through increasingly centralized locations for sales and distribution. However, there are increasing advantages to producing smaller, pre-distributed volumes that are located incrementally closer to areas of end use.

A key objective of this project was to focus attention on aligning county-level production targets with county-level

demand estimates for those fresh produce items that are currently grown in Iowa. More specifically, the stated objectives were to assemble data, analyze, and develop methods to illustrate the following:

1. County-level estimates of retail sales (value and tonnage) for specific items of fresh produce;
2. Components of supply chain costs and other operational factors for specific fresh produce items, including comparative transportation, fuel, storage, and other components; and
3. Analyses that identify key cost and operating factors likely to influence the competitiveness of local produce relative to that of other domestically sourced produce.

Approach and methods

The primary project activity was the development of a spreadsheet that can be used to identify strategic and policy targets, areas of local priority, and tactical objectives. This spreadsheet would serve as a convenient tool for producers, distributors, and policy makers to selectively and independently evaluate parameters that relate to those produce items that *could* be grown and distributed more directly in Iowa. Information used to create the spreadsheet came primarily from census data and business expense reports.

The range of estimates that can be identified from the spreadsheet is extensive. It currently includes production and consumption data for 48 fresh fruit and vegetable

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Budget:
\$15,816 for year one
\$ 9,183 for year two

items that can be indexed to each of Iowa's 99 counties in 14 different units of measure.

Five units of time also can be manually adjusted by percentages to identify targets for change. A secondary component of the spreadsheet approximates how retail revenue for each item may be distributed as costs (on average) among major sectors of the supply chain. The second component of the spreadsheet allows users to benchmark a point of comparison that shows producers how to seek out advantages and distribution strategies for growing food locally.

Planners and development officials will note that the spreadsheet provides a tool whose output can be used in economic impact models to help make a case for community- and state-based investment in local and regional food systems.

Results and discussion

Without including percentage adjustments, it is estimated that the spreadsheet can calculate more than 8.5 million data points for more than 40,000 different groups of parameters, using only the variables that are currently included. Additional variables can be inserted in the future with minimal difficulty.

The detailed assumptions used to construct the spreadsheet have been reviewed by the Iowa Agricultural Statistics Service of the U.S. Department of Agriculture and were considered valid for the intended purposes. It was recommended that whenever possible, the pricing variables should be updated regularly and this can be done easily as new data are released.

These are some potential applications for the spreadsheet:

- Help wholesalers, retailers, and foodservice enterprises assess how much and where they currently might be able to access particular fresh produce items grown in Iowa,
- Help small-scale producers of apples (or other crops) match acreage to a targeted level of market share within a particular county or region,

- Help entrepreneurs approximate the cost and volume targets for growing highly perishable crops (i.e., lettuce or tomatoes) in greenhouses or by other alternative methods,
- Help researchers target particular crops and yield improvement in studies relating to alternative production methods,
- Help policy makers determine the extent of direct and intermediary revenue that is exported from the state for particular items, and
- Help integrate economic development targets into state purchasing programs relating to dietary improvements and school lunch programs.

Conclusions

Use of the spreadsheet was demonstrated to a number of potential users to obtain answers to the following questions:

1. Are the assumptions used to construct the spreadsheet valid within the context of providing general information for strategic and policy planning?
2. How can the way in which the spreadsheet functions be improved?

The responses showed that the assumptions used to construct the spreadsheet were generally valid for the purposes for which it was developed. There were a few suggestions that some of the variables needed updating.

The main comment on the second question was that the current format presents an overwhelming volume of information to digest at one time. Other ideas were to add capabilities to group information for several counties and/or populations at once, to add the capability to identify comprehensive data for individual items or counties, and to include the option to directly adjust to specific values in addition to adjusting by percentage. A three-month project to adapt the current spreadsheet to illustrate parameters for five and seven serving per day dietary guidelines has been awarded by the Leopold Center's Marketing and Food Systems Regional Food Systems Working Group and this includes activities to address the formatting recommendations.

Impact of results

It is envisioned that producers will access the project spreadsheet for a marketing perspective that will aid them in targeting levels of production for fresh produce items to be grown in Iowa. A parallel impact is that wholesale, retail, and foodservice outlets will use the spreadsheet to identify volumes and locations that could be alternatively sourced in Iowa.

A longer term impact is that making this information readily available to both ends of the marketing spectrum will prompt discussion, and will foster direct marketing relationships and problem solving that will lead to incrementally larger shares of fresh produce being sourced locally.

Education and outreach

The primary product of the project, the "Spreadsheet for

balancing fresh produce supply to demand at the county level in Iowa" is available from the Leopold Center. The spreadsheet was demonstrated to several groups for comments and suggestions, including:

- Leopold Center's Regional Food Systems Working Group,
- Iowa Department of Agriculture and Land Stewardship,
- Iowa State University Extension,
- U.S. Department of Agriculture, National Agricultural Statistics Association,
- Iowa Farm Bureau Federation,
- ISU Department of Economics,
- Iowa Department of Public Health, and
- Leopold Center Advisory Board.

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