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Estimates of Consumption of Locally-Grown Agricultural Products in Connecticut

Prepared for the Connecticut Governor's Council on Agricultural Development

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EXECUTIVE SUMMARY

Objective and Scope

The objective of this report is to provide a benchmark of the percentage of Connecticut residents' expenditures on locally-grown agricultural products. To this end, two specific assessments are conducted:

- Consumer expenditures accounted for by locally-grown food (fruit, vegetables, dairy, poultry, eggs, meat and fish); and
- Expenditures accounted for by locally-grown nursery and greenhouse (green industry) products relative to all such expenditures in the state.

This report was produced at the request of the Connecticut Governor's Council on Agricultural Development (GCAD). An overarching goal of GCAD is to "increase the percentage of consumer dollars spent on Connecticut-grown fresh produce and farm products, including, but not limited to, ways to increase the amount of money spent by residents of the state on locally-grown farm products, by 2020, to not less than five per cent of all money spent by such residents on food." Thus, a corollary objective of this report is to document a methodology that can be replicated in the future to assess progress towards this goal.

Major Findings

Using secondary data from Federal and industry sources as well as expert opinions, the following constituted the best estimates based on available data for 2010:

- Locally-produced food accounts for approximately **2.5 percent** of Connecticut's total expenditures on food. If all locally-grown food were consumed in-state, this would only account for 3.5 percent of total food expenditures.
- Locally-produced greenhouse and nursery products **exceed** the potential demand for local products.

Recommendations

To develop and enhance local agricultural production, it is recommended that GCAD focus on:

- Increasing value-added food production and/or quantities of food produced to practicably double Connecticut consumer expenditures on locally grown food.
- Examining avenues for growth in the local green industry from increased out-of-state sales of existing products or new products, with some possible redirection towards fruit and vegetables.
- Furthering research in order to better understand consumption patterns, distribution channels, constraints, and opportunities for new strategic products, marketing and processing initiatives.

ESTIMATES OF CONSUMPTION OF LOCALLY-GROWN AGRICULTURAL PRODUCTS IN CONNECTICUT

Introduction

This report is in response to a request by the Connecticut Governor's Council on Agriculture Development (GCAD). An overarching goal of GCAD is "to increase the percentage of state consumer dollars spent on Connecticut-grown fresh produce and farm products, including, but not limited to, ways to increase the amount of money spent by residents of the state on locally-grown farm products, by 2020, to not less than five per cent of all money spent by such residents on food" (State of Connecticut, 2011). In order to achieve this goal, a benchmark of the current amount and percentage of money that Connecticut residents spend on local farm products is needed.

Increasing the local consumption of agricultural products can be a significant driver of state-level economic development. For instance, economic development benefits may include improved health and nutrition, improved food security, and reduction in environmental externalities including energy use and greenhouse gas emissions (Martinez, 2010). In addition, the economic impacts of expanding both local food and green industry production in Connecticut are substantial (Lopez et al., 2010). However, similar economic impacts can be attained through exports out of state, obviating the need to have an exclusive intra-state consumption strategy as the only viable alternative for creating jobs and local wealth.

Previous state-level and regional studies that assess the consumption of locally-grown food are constrained by a lack of direct data. These studies do, however, provide a starting point and an upper bound for the purposes of this report. Of particular note is a 2008 study reported in the *Journal of Extension* (Timmons et al., 2008) which provides a methodology for estimating the "maximum food percentage" in a given region. This study, referenced in a later report from New Hampshire (Magnusson et al., 2010), estimates that Connecticut agriculture could produce as much as 8.8 percent (including food manufacturing not locally-grown) of the state's food needs.

Other states (notably Vermont) have conducted studies of local food systems in support of efforts to increase local food consumption (Vermont Sustainable Jobs Fund, 2011). It was not possible to directly adapt other states' methodologies to the present analysis, however, due to the differences between Connecticut's food and agricultural sectors and those of the other states. First, nursery and greenhouse production are more significant in Connecticut and of more direct interest to the Governor's council. Secondly, the focus of Connecticut's interest was on locally *grown* products, and not necessarily on the processing or manufacture of foodstuffs in general. This necessitated that we develop our own technique for estimating local agricultural product consumption.

Methodology and Findings

The analysis described in this report follows a three-step approach to benchmark locally grown farm products. First, the value of farm production sold in the state is computed after deducting exports out of state. Second, a marketing margin is added to bring farm production values to retail level values to make them comparable to consumer expenditures. Third, Connecticut residents' expenditures on all food or green industry products are approximated.

Letting X denote the retail value of farm production sold in the state, and Y the amount state residents spent on all food or green industry products, the percent spent on locally-grown products is simply $(X/Y)100$. The remainder of this report presents the methodology followed, data used, and the main findings for these percentages for two farm product categories: food, and nursery and greenhouse (e.g., green industry) products.

Locally-Grown Food

Estimating locally-grown food consumption entailed first determining which categories of agricultural production should be considered for human consumption. (Note that all data sources can be found in appendix Table 1). Of the total \$684.7 million in agricultural production in Connecticut in 2010, only \$258 million involved food production. This included five food categories: (1) fruit and vegetables, (2) dairy, (3) poultry and eggs, (4) meat, and (5) fish. Excluded are non-food crops (e.g., tobacco, nursery), forestry, and animal feed. However, it is unreasonable to assume that all food products grown in Connecticut are consumed in Connecticut. Adjusting for exports, an estimated \$196 million (or 76%) is sold in-state.¹

The next step was to add the processing (if any) and marketing mark-up to adjust the \$196 million in food production revenues to retail prices paid by consumers. Applying national averages for retail-farm price spreads for these categories (USDA, 2010), it is estimated that the retail value of Connecticut locally-consumed food production was approximately \$437 million in 2010. This provides the estimate for X for the food category.

¹ Exports applied may be biased downwards because of lack of reporting. There is clearly some movement of products across state lines, from vegetable producers in border towns selling tomatoes from their farm stands to out-of-state residents, to the largest egg facility (Kolkoff Farms) in New England supplying the whole region via large retailers like Wal-Mart. In order to derive a reasonable approximation of exports, the UConn team, in consultation with personnel from the CT Department of Agriculture, examined each product category separately and applied export percentages to the categories. More detail about how these percentages were derived is included in Table 1 in the Appendix to this report.

Next we proceed to estimate total food expenditures by Connecticut consumers. Taking the national average of 10% of per capita disposable income spent on food (USDA Economic Research Service, 2010) and multiplying it by the average Connecticut per capita disposable income reported at \$48,000 reported in 2010 (Bureau of Economic Analysis), and by the population of the state in that year (3.5 million), we arrive at \$17 billion spent on food by Connecticut residents in 2010. This provides the estimate for *Y* in the food category.

Therefore, we estimate that Connecticut-grown food accounts for approximately 2.5 percent $[(\$437 \text{ million} / \$17 \text{ billion})100]$ of state food expenditures. This represents half of the goal stated by GCAD. In other words, to attain the 2020 goal, local food expenditures will have to double as a percentage of food expenditures by Connecticut residents.² This is a formidable challenge.

Locally-Grown Nursery and Greenhouse Products

For the green industry, exports to other states/countries vary considerably by plant type and year; however, exports generally max at 40 percent, implying that local purchasing of plants is no less than 60 percent of production (Bob Heffernan, personal communication). This is consistent with the National Green Industry Survey (2009) which found that 78 percent of greenhouse and nursery sales were in-state. Given these numbers it is clear that the greenhouse and nursery industry exceeds the 5 percent number that GCAD aspires to attain.

However, as with the local food analysis, we need to put the results in terms of expenditures. According to the 2010 USDA Census of Agriculture, Connecticut sales of greenhouse and nursery products totaled \$241.9 million. Applying the National Green Industry Survey (2009) average of 78 percent sales within state, CT residents spent \$188.7 million on locally produced greenhouse and nursery products.

In order to assess the potential for increasing in-state sales of Connecticut-grown nursery and greenhouse products, we turn to national averages for lawn and garden expenditures. According to the National Gardening Survey, Americans spent \$28.4 billion on lawn and garden activities in 2010 (National Gardening Association, 2012). This equates to an average of \$355 per household in 2010. Of this, 31.8 percent was spent on plants (non-lawn care or landscaping activities) (National Gardening Association, 2012). If we apply those averages to Connecticut households (approximately 1.41 million households), the implied total demand for greenhouse and nursery products is \$159.7 million. The demand estimate of \$159.7 million is about \$30 million less than the \$188.7 million sales estimate from industry statistics. It is highly probable that the difference is attributable to amount of exports. For instance, using 60%, 70%, 80% in-state sales would

² If all local-grown food were consumed in the state, the retail value of locally-produced food would total approximately \$582 million in 2010. This still would represent only 3.5 percent of state food expenditures.

show local sales at \$145.1 million, \$169.3 million, and \$193.5 million, respectively. In this context, the sales from the two calculation methods are quite similar, especially given the yearly variability associated with greenhouse and nursery crops. From this analysis, it seems clear that Connecticut greenhouse and nursery producers can and do supply a large percentage of the state's demand for greenhouse and nursery crops.

The Way Forward

To develop and enhance local agricultural production, it is recommended that GCAD focus on:

- Increasing value-added food production and/or quantities of food produced to practicably double the expenditures on locally grown sources.
- Examining avenues for growth in the local green industry from increased out-of-state sales of existing products or new products, with some possible redirection towards fruit and vegetables.
- Furthering research in order to better understand consumption patterns, distribution channels, constraints and opportunities for new strategic products, marketing and processing initiatives.

Opportunities for growth vary markedly between the two agricultural sectors we are considering. For food, the first strategy to consider would be to *increase local market penetration* with current Connecticut grown food products, either by increasing quantities grown in the state or by displacing some exports. Although it may be possible to increase CT-grown market share for some food products (e.g. fruits and vegetables), this strategy alone would not achieve the GCAD's goal. While the market for locally produced food is growing in general (Thilmany et al., 2008) there is a limit to growth achievable through this strategy. First, as noted above, even if all food currently produced in-state were consumed in-state, it would only represent 3.5 percent of CT consumer expenditures on food. Secondly, it is unlikely to be possible to even achieve 3.5 percent. Well entrenched marketing and distribution channels for key sectors (poultry, dairy, and fish) limit the market potential. Therefore, other strategies for growth must be considered.³ One such strategy would be to *develop new and value-added products* using locally produced food, for sale to the local market. This would provide additional sources of revenues for farmers or entrepreneurs and might revitalize cottage industries that have languished in recent years.

In contrast, the opportunities for growth in the nursery/greenhouse segment arise from the *development of new markets*, either through sales of existing products, or through *diversification* into new product lines (such as fruits and vegetables under glass). As noted above, Connecticut greenhouse and nursery producers already supply a large percentage of the local market for their product. There is simply no

³ The four strategies discussed here (market penetration and/or product development for the food sector, and market development and/or diversification for the green industry) represent standards of the Business Strategy literature and are generally displayed in a two-by-two matrix known as the Ansoff Matrix (after H.I. Ansoff, 1965).

space to grow local consumption of locally-produced (existing) nursery products. Connecticut, however, is conveniently situated midway between two major consumer markets (Boston and New York). Increasing exports to these markets could enhance both profitability and employment in this sector. In addition, there may be opportunities to grow vegetables and/or fruits under glass, diversifying growers' product lines and smoothing their revenue streams. This strategy also enables greenhouse growers to take advantage of the aforementioned growth in consumer interest in locally-produced food.

Finally, in order to assess progress toward stated goals as well as identify new and potentially fruitful areas for agricultural development, it is recommended that the GCAD actively foster research activities. Primary research will enable us to better understand consumption patterns, distribution channels, constraints and opportunities for new strategic products, marketing and processing initiatives. Such research could take the form of interviews with growers and/or consumers, value chain analysis, consumer surveys, or analysis of supermarket scanner data. Any of these research approaches would result in a better understanding of the market and opportunities for Growing Connecticut's Agriculture.

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Appendix: Data Sources

Table 1: Food production data values and sources

	Value	Source
Per capita disposable personal income in CT (PCDI)	\$48,000	Bureau of Economic analysis
Percent of PCDI spent on food	10%	USDA Economic Research Service www.ers.usda.gov/.../Food_Expenditures/2010table7.xls
Farm shares	vary	USDA Economic Research Service http://www.ers.usda.gov/data-products/price-spreads-from-farm-to-consumer.aspx
Proportion of farm product in aggregated data categories	Vary	Agriculture yearbooks: http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1377
Fruit, vegetable, dairy, beef, poultry, and commercial fishery production value	\$196 million	2010 Census of Ag, reported as <i>Table A3, Input Data for Connecticut's Agriculture and Forestry, 2010</i>
Pork production farm value	\$1 million	2012 US Census bureau statistical abstract http://www.census.gov/compendia/statab/cats/agriculture.html
Dairy category proportional breakdown and export percentage	58% raw milk, 9% ice cream; 12% net exports	Adam Rabinowitz, compilation of various data sources
Export percentage of CT commercial fishery	50%	Estimated via the consensus of UConn project team
Export percentage of CT's poultry industry	70%	Estimated via compilation of various data sources and consensus of project team
Export percentage of CT's fruit and vegetable production	12% (approx.)	USDA export data http://www.ers.usda.gov/data-products/state-export-data.aspx

Table 2: Local Green Industry Purchases

	Value	Source
Greenhouse, nursery, and floriculture production	241.9 million	2010 Census of Agriculture
Wholesale to retail markup	50%	Illinois Department of Commerce
Percent retail sales	64%	S-1051 National Green Industry Survey 2009
Percent in-state sales	78%	S-1051 National Green Industry Survey 2009
National average lawn and garden expenditures per household	\$355	National Gardening Association
Percent of lawn and garden expenditures spent on plants	31.8%	National Gardening Association