The Emergence of Retail Agriculture:

Its Outlook, Capital Needs, and Role in Supporting Young, Beginning, and Small Farmers

A Report to the Farm Credit Council

Prepared by Local Food Strategies LLC

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About the Report

This report aims to bridge knowledge gaps on how young and beginning farm operators and small farm operators utilize newly emerging domestic marketing opportunities.

In accordance with the System's guiding legislation, Farm Credit Associations must have programs that serve the credit and financial related services needs of young, beginning, and small farmers and ranchers. The Farm Credit Council, the System's trade association, promotes this mission internally to its 88 Farm Credit System retail lending Associations and externally to public policy makers, the public, and media.

The Farm Credit System has over 93 years of experience lending to U.S. farmers. It is a system of cooperatives governed by farmer-elected boards of directors. It currently serves more than 30% of the nation's agricultural real estate loans and is the nation's most prominent, dedicated agricultural lender. The majority of loans made are less than $50,000 in size. As a farmer-owned cooperative dedicated to the mutual development of all forms of agriculture – regardless of sector, scale of operation, or geography – borrowers are part owners and may be eligible for annual patronage dividends.

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Young farmer, Hunterdon County Farmers' Market, New Jersey
Alan Hunt

Mobile Slaughter Unit, Puget Sound Meat Producers Cooperative, Washington
posted by Stephen Thompson, USDA Blog January 26, 2011

High Tunnel, Earl Snell (left) & James Currington (NRCS), Skipperviller, Alabama, by
posted by Fay Garner, USDA Blog January 7, 2011

Local Food Hub, Ivy, Virginia
posted by Lucas Knowles, USDA Blog December 15, 2010

Food Hub Diagram, Common Market, Philadelphia
posted by James Barham, USDA Blog January 27, 2012

Table of Contents

Table of Figures

Section A. Retail Agriculture Narrative

I. Overview: The Business Basis for Retail Agriculture

Retail Agriculture is a revival of the small business potential of agriculture, where producers structure their businesses around a more direct relationship to consumers. Often producers retail their products directly to consumers or use marketing channels with a significant retail influence.

> ***Most new farms start small.***
>
> ***Beginning farmers represent 21% of the farm population but only 9% of total farm acres.[12]***
>
> ***Also, new farmer entry rates decline for farms over 260 acres.[13][p.20]***

The growth in the local and regional food marketing, organic production, and other marketing-oriented forms of agriculture is a response to changing consumer trends in food demand. This new "Retail Agriculture" is a product of increasingly heterogeneous and sophisticated consumer tastes.[20, 21] The agriculture sector's responsiveness to these changing consumer demands is most frequently observed via the growth in farmers' markets, community supported agriculture, and other direct-to-consumer marketing arrangements; rising sales of natural, organic, local, and other specialty foods in grocery stores, and purchases of locally and regionally-sourced products by food service providers at public schools, universities, hospitals, and restaurants. For example, a 2011 consumer survey ranked locally grown foods as the highest priority for grocery store improvements, ranking it above cost savings.[22]

For the farmers and ranchers meeting this market demand, it is not a return to their grandparent's way of agriculture. Their businesses rely upon differentiated marketing and distribution channels supported by an array of new technologies (e.g. logistics software and online order management[1], internet-based marketing and promotion, and computer-based record-keeping) and new research-based growing techniques (e.g. Management Intensive Grazing, Integrated Pest Management, Relay and Inter-cropping, and hoop-house season extension). Generally, the farms best able to meet this type of demand are small and medium-sized operations.[3, 19, 23]

Many young and beginning farmers find that these markets require relatively low start-up capital needs, have low overhead, and need a relatively small land base[12, 15]. Young and beginning farmers alike are often motivated to take up these types of agriculture due to the increased interaction with customers and land stewardship goals.[3, 18] In short, a newer generation of young, beginning, and smaller-sized farm operators are attracted to a very entrepreneurial,[19] high-margin[3] form of agricultural marketing and production.

When compared to conventional agricultural production and marketing, farmers and ranchers engaged in this entrepreneurial, retail-oriented agriculture, are generally:

- **Consumer-oriented in their marketing rather than processor/integrator oriented**
  - Examples: Community Supported Agriculture, Certified Organic production, and marketing

1 For an example, see Farmigo, a software program which allows a Community Supported Agriculture to operate an online purchasing system: http://www.farmigo.com/.

alliances such as the 150 farmers involved in Good Natured Family Farms (KS).

- **Diversified in agricultural production instead of specialized**
  - Examples: farmers' market vendors which may sell 30 varieties of produce, inclusion of livestock operations to provide farm nutrients and diversify product offerings.
- **Highly-diversified in marketing arrangements**
  - Examples: For the organic sector, the top five marketing channels for producers are: Processors/Millers (29%), Distributors/wholesalers (27%), Grower Co-ops (10%), Direct to Consumer Sales (10%), and Conventional Supermarkets as wholesale(7%).[24]
- **Have different business models but are viable and profitable**
  - Example: Average annual sales of "commercial" Organic and Direct to Consumer farms (those with annual sales over $50,000) are comparable to the average of all farm's sales (Figure 11).
- **Have a less well-developed distribution system, as well as other supporting infrastructure and policy**
  - Example: "Although demand exists for locally and regionally produced foods, producers in many parts of the country have difficulties finding markets and processing facilities as well as and establishing distribution channels." – from the 2008 Farm Bill's Statement of the Managers, Section 6015.[25][129]
- **Gain efficiency from intensive layering of multiple related businesses into one entity**
  - **Example:** Of farms with direct to consumer sales, each additional entrepreneurial activity (e.g. custom work, agritourism, organic production, etc.) increased farm income by about $9,000 for each additional activity.[19][p.22]
- **Productive increases come from adding new farms in direct-to-consumer markets and networking together many medium-sized farms to access larger-volume markets**
  - Example: Markets with direct to consumer relationships (e.g. farmers' markets, restaurant sales) are more likely to meet increasing demand through the addition of new vendors, while intermediated supply chains, which rely on product aggregation, can grow internally through logistics, transportation, and processing efficiencies.[3][p.67]
- **Gain profit from utilizing new production techniques and information technology.**
  - **Examples:** Hoop house season extension, logistics software, processing innovations such as flash-freezing, and creative marketing strategies to lower the marketing, distribution, and processing costs for the farmer.
- **Promote community between farmers and non-farmers, as well across groups of shoppers.**
  - **Examples:** Farmers interactions with shoppers at farmers' markets can promote agricultural awareness and contribute to sales as well as provide a meeting place for community residents.[2, 26] Consumer-producer buying partnerships, like the Oklahoma Food Cooperative, facilitate sales as well as facilitate interaction between urban, rural, farmer, and low-income groups.

Year-round Supply Meets Year-round Demand.

Winter markets grew 33% from 2010 to 2011 to 1,200.

Michigan and Ohio rank in the top ten states with winter markets.[14]

The increase in Retail Agriculture comes at a time of significant changes in agriculture, many of which are due to longer-term demographic changes. The farm population is aging as the baby boomers mature and their children begin to enter into agriculture. Many rural and agricultural communities continue to witness population declines, while counties near to metro areas see their agriculture fragment into smaller sized farms or are removed from agricultural production entirely. Other cultural changes are underway: new farmers are more likely to be college educated that current farmers,[2] land-grant university educations are no longer dominant prerequisites for agricultural careers, women are increasingly primary operators, and members of Hispanic communities are increasingly beginning their own farm operations.[2]

The nature of agricultural production is also changing, due to continuing agricultural productivity gains and greater global demand for food and fiber markets. Yet, many of the opportunities available from trade, energy crops, and improved crop varieties typically require large land areas for producers to operate profitably in markets with slim profit margins.[27] Also, increased agricultural trade and production from developing countries like Brazil and China has elevated competitive pressure on US commodity production. Simultaneously, the input costs of agriculture have increased, especially for inputs which have energy-intense production methods. Consequently, a combination of factors constrains the economic viability of mid-sized producers marketing undifferentiated commodities. In response these producers often acquire more farmland by lease or purchase to improve their economies of scale, exit, or down-size their operations to limit capital expense or land base.[28, 29]

Yet, even as the viability of mid-sized farms was constrained, a new window of opportunity emerged. Producers interested in in differentiating their products found opportunities with consumer-oriented marketing strategies.

Most of Today's New Farms will Stay in their Size Class.

However mid-sized farms are the most likely to change size class by contracting in size rather than expanding.[13[p.20-21]]

The timing of this window of opportunity coincided with broader trends toward increasingly fragmented and diverse consumer tastes in all products, including food. Retailers and food manufactures alike responded to this trend by increasing their introduction of new product lines, many of which emphasized healthy, natural, and organic characteristics.[30] Simultaneously, competition in the retail sector increased – a sector, which like agricultural commodities, is also known for its thin profit margins – with the supercenter, warehouse store, buy club, and expanded pharmacy store formats.[31, 32] To control costs, retailers increasingly sourced products from large-volume, low-cost national and international food purveyors,[33] which resulted in a marketing opportunity for producers of fresh products bypassing normal retail and distribution supply chains and selling products directly to consumers. Thus, the need for small and medium sized farm operations to diversify their operations coincided with a consumer trend of increasingly diversified food preferences.

These two coinciding trends amplify each other due to the unique marketing focus established through direct-to-consumer relationships which gives producers quick and immediate feedback to consumer buying preferences. For example, Organic certification, once the "gold standard" for choosy consumers[3] has yielded to other characteristics, such as local, grass-fed, and pasture-raised.[34] Likewise,

2 Of beginning farms with production, 29% have at least a 4 year college degree, compared to 23% of established farms with production.[13[p.7]]

3 Consumer research studies have contradictory findings about the importance of education levels, income, and ethnicity

The Connected Farm.

Interacting with customers is a top motivation for producers who sell products at farmers' markets.[1, 2, 3]

mainstream retailers incorporate innovations from these direct markets, such as heirloom tomato and apple varieties, purple colored carrots, blue potatoes, and regionally sourced products. This countervailing, consumer-driven trend towards Retail Agriculture has provided a critical, profitable market for many small and mid-sized agricultural producers.

Quite simply these trends in agriculture are a re-emergence of the small business potential of agriculture – a twenty year trend of a return to Retail Agriculture. The success of this sector is reliant upon access to new information technologies and research-based production methods. From a business perspective, Retail Agriculture employs many of the same marketing strategies that small business utilize, including marketing differentiation, product diversification, and relationship-based marketing. Likewise, Retail Agriculture faces similar challenges to other small businesses, such as access to business technical assistance and under-capitalization. For example, a rural farmer coop in Mississippi required seven years of fund-raising to develop a $500,000 packing facility[35[p.62-67]] and a food processor required two years to find financing for a $150,000 machine to crinkle-cut carrots into bite-sized pieces for New York City Public Schools.[36] While this sector has successfully incorporated many information technologies, inadequate access to capital limits the efficient development of processing and distribution systems.[37, 38]

The top three priorities for regional food distribution systems, as identified by USDA, are 1) start-up capital, 2) working capital, and 3) enterprise development training and technical assistance.[39[25]]

II. Retail Agriculture's Policy-related Challenges and Needs

Young, Beginning, Small farmers are well-matched for meeting the demand for value-added, organic, and locally/regionally sourced foods.

As many beginning and young farmers start with small farming operations – and generally stick with smaller-sized operations[13[p.21]] – diversified marketing and production options are often necessary to maintain farm profitability.[4] New entrants[5] to farming represent only 10% of agricultural production by volume, they represent 30% of the agricultural sector's overall sales. Pursuing higher-value, lower-volume marketing arrangements seems to be a common business start-up starting for many beginning and new farming entrants.

Beginning farmers are at a higher risk of loss due to inexperience and the start-up nature of their farming operation. While some beginning farmers may bring additional non-production skills to bear

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in predicting organic purchases despite their generally higher prices.[18[p.3-5]]

4 Off-farm income also plays in important role, especially for beginning farmers. However, when on farm income increases the role of off-farm income appears to decrease. This may explain in part why organic agriculture, which enjoys a price premium well-suited for smaller acreages – has the highest number proportion of full-time farmers – more than 50% of any age group – well above the average of all US farms (see Figure 33).

5 A "new entrant" means any new farm business start observed in a year data is collected for the Agricultural Census. As a result, a "new entrant" can include a newly reorganized farm entity, an experienced farmer who has moved farms, and a beginning farmer. This particular observation was developed from analyzing new entrants since the 1978 Agricultural Census.[13[p.19-20]]

(about 1 in 3 beginning farmers over age 54 are pursuing second careers[13[p.22]]), all beginning farmers bear some risks associated with starting a new business. Providing farming related services, such as custom plowing and value-adding, are common strategies for beginning and small farms to generate additional income and overcome some of these production and start-up risks. Diversifying into higher-price or higher margin marketing arrangements are common strategies for beginning and small farmers to mitigate their production risks.[3, 12, 13, 23]

Retail Agriculture Expands Despite Industry Contraction.

"Despite the expected continued consolidation of farmland and the projected decline in overall employment of this occupation, an increasing number of small-scale farmers have developed successful market niches that involve personalized, direct contact with their customers.

Many are finding opportunities in horticulture and organic food production, which are among the fastest growing segments of agriculture."[17]

U.S. Bureau of Labor Statistics

In addition, a number of producers in this sector are new farmers – young and old. They are increasingly likely to be college graduates (though not necessarily from land grant universities), women, or Hispanic. They have less knowledge of the resources available to farmers and utilize federal resources half as much as established farms.[13[p.15-16]] They keep their initial costs low by operating small farms, have a high rate of farm ownership, have lower rates of personal non-farm debt.[13[p.9]] Their net incomes are comparable to more established farms and other sectors of agriculture, especially in consideration of their generally below average farm sizes (see Figure 11 and Figure 13).

The success of agricultural producers participating in retail-oriented supply chains is predicated on the same factors as other farms: efficient risk mitigation of crop production and human resource factors and the ability to access a profitable market.[40] Where this sector and its market demand differ is that producers are rewarded for the diversity of products they can supply or that their marketing group can supply. Thus their approach to business management and production relies on layering together many similar aspects of their business.[19] For example, if their business calls for bringing their products from the farm to a supermarket warehouse, the producer may add products from other farms to the delivery and effectively become a broker or distributor.

With an unprecedented generational shift in agricultural land tenure looming, improving the viability of beginning farm operations would seem an obvious and necessary policy goal to ensure an ongoing market for agricultural credit. Developing public policies which encourage both private sector and public sector actions to support young, beginning, and small farmers would therefore also have to support the markets relied upon by most of these new entrants to farming. Without moving away from existing agricultural policies, positive steps can be made to support beginning farmers involved in Retail Agriculture. Such policy actions could seek to improve the credit access, business skills, and management capacity for producers engaged in diverse agricultural markets such as organic production, direct marketing, and local/regional production.

New Generation. New Ideas.

From 2002 to 2007, the number of farmers aged 25-34 decreased by 34%.

The number of farmers with organic production aged 25-34 increased by 51% during the same period.[11]

Aside from its own internal currents, agriculture is being asked to do more to help address the nation's health and wellness.[6] While farm policy has traditionally focused on needs related to land acquisition, capital access, and market development, now consumer and health experts are asking agriculture to address the nation's high rates of diet-related diseases such as obesity and diabetes. In many cases the solutions to increasing consumer access to a healthy diet are complimentary to the market development and access required for farmers involved in Retail Agriculture.[7] Bolstering existing supply chains[8] and complimenting them with new enterprise opportunities[9] can increase producer market access.[3] Such supply chain and retail-sector investments are well-established priorities of public-health motivated policymakers.[10] Significantly, these interests have a coincidental benefit for farmers and ranchers, in that more consumer access to fresh, healthy, safe, local foods translates into more marketing opportunities for producers. Some of the Federal policy changes needed to facilitate such investment would have no federal budget impact. With increasing public attention on what agricultural policy can do to meet the need for improved dietary health, the 2012 Farm Bill is an opportunity to translate public motivation to seek local foods into the pragmatic development of markets which can be accessed by young, beginning, and small farmers.

Small Farms "Scale Out" Rather than "Scale Up."

With less access to farmland,[15] some small and beginning farm operators increase sales by 1) shared marketing channels that "cluster" individual customer demand, 2) working together in marketing alliances to reach medium-sized markets, and 3) layering multiple activities in a single farm business.[3, 12, 18, 19[p.23]]

A. The Dearth of Data for Retail Agriculture

The lack of readily available information regarding this sector's performance can unnecessarily increase the perception of sector risk, hamper private sector investments, and negatively influence new entrants to the sector.[41, 42] The most accurate information available concerns organic production (which has had minimal tracking since the 2002 Agricultural Census) and direct to consumer sales.[11]

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6 For example, The White House Childhood Obesity Task Force Report (2010) notes than the cultivation of 10 million acres of fruits and vegetables would be needed if Americans ate the minimum recommended daily level of produce – and if the produce were grown in the U.S.

7 From a health perspective, some doctors have begun issuing overweight patients "veggie prescriptions" as part of their treatment (see: Doctor's Orders – Eat an Apple", New York Times Business front page, August 12, 2010). From an economic development perspective, upgrading exist grocery stores and financing new stores can increase the flow of products, such as produce, to areas underserved by food retailers (e.g. Pennsylvania Fresh Food Financing Initiative).

8 The Economic Research Service[3] found that regions local and regional food distribution systems do develop in areas with preexisting national and international supply chains – a benefit of which is a cluster-effect of improved access to technical resources (e.g. university researched growing techniques). However, the supply chains operate separately.

9 For example, Appalachian Sustainable Development, which serves southwestern Virginia, North Carolina, and northeastern Tennessee, found no preexisting infrastructure in their region for produce distribution: "There was also no infrastructure for aggregating and distributing local foods and very little support from university extension services or training available for organic production. We had to create all these things."[35[p.47]]

10 One of these proposals, the Healthy Food Financing Initiative, would increase the sales of produce nationwide by financing new supermarkets. A similar state model in Pennsylvania financed 83 stores, increased produce access for 400,000 residents, and created 5,000 new jobs. Additionally, the First Lady has indicated that between 9 and 17 million additional acres of produce production would be needed for Americans to meet their daily dietary requirements.

11 Perhaps only one quarter of local and regional food sales by farms are represented by direct to consumer markets.[43, 44]

In addition, "Agricultural data collection efforts usually focus on farm production issues, not human capital issues" or marketing practices.[15[p. 1]] Analyses related to marketing, processing, and distribution arrangements, marketing activities, and management decisions are rare. Where detailed data is available, it often comes from one-off surveys, like the Organic Production Survey which tracked 17 marketing channels,[24] or the from the Agricultural Resource Management Survey, which changed its survey question format for direct sales four times in five years.[4, 5, 6, 7, 8] A lack of consistent, reliable, time-series information limits the understanding of Retail Agriculture and its connection to beginning farmers.[45]

A lack of information in these areas may be a contributing factor to: organic demand outpacing organic farming production and new farm starts;[18[p.10-13]] lower than anticipated upstream supplier development (e.g. organic seed production); limited down-stream supply chain investments (e.g. small livestock slaughter facilities); limited allocation of research funding; challenges in accessing credit among farmers[46] and supply chain businesses,[47] and regulations that do not recognize the sector's unique characteristics (e.g. food safety).[12] Collecting and analyzing credit usage data is likewise limited by federal borrower confidentiality regulations within the Farm Credit System, which curtails private sector information development.[13]

Data Gaps Hide Retail Agriculture's Impacts.

The five-year Census of Agriculture does not track beginning farmer status.

Beginning farmer data comes from the annual Agricultural Resource Management Survey (ARMS).

However, the ARMS data on local food sales was too inconsistent and unreliable for USDA researchers to estimate farm sales.[9, 10, 11]

Access to credit in rural areas is more limited, even with the support of federal programs like the Small Business Administration.[42, 49, 50, 51] Further, most USDA Rural Development and Small Business Administration financing programs are oversubscribed.[50] The challenge of small and rural business capital access was a fact noted in a recent House Agriculture Committee Hearing focused on increasing the distribution of healthy food in low-income areas.[52] While agricultural lending is not the primary purview of USDA Rural Development programs, about 14% of the Business and Industries Loan Guarantee program was to food related enterprises.[14] Many of these loans were characterized as enterprises that qualify under a 2008 Farm Bill establishing a 5% set aside for business dealing with locally and regionally produced food products. Yet, a concern with loan guarantees is that lenders may not have the same goals as those defined in the guarantee.[53] Further information on capital needs for rural and small businesses dealing in locally and regional produced foods is not available and limited sector-based information on rural credit needs is common.[54[p.9-10, 16, 17], 55]

12 For example, federal food safety regulations introduce a level of fixed costs which are borne more heavily by small processors: small meat plant processing costs range from 4-8 cents per pound compared to 1-2 cents per pound at large plants.[48[p.46]] A small slaughterhouse's start-up costs are estimated to be at least $2 million, in part due to food safety regulations.[47[p.19, 37]]

13 This is in part due to regulations which protect the confidentiality of borrower information, which in turn prohibits internal tracking of borrower characteristics and business types within the Farm Credit System.

14 USDA Rural Development has not made public its annual Congressional report on this provision's performance, so this usage level cannot be verified (as of August 30, 2010).

B. Young, Beginning Farmers Infrequently Access Credit and Risk Management Tools

Credit availability is a common concern among young farmers and policy makers alike. In the best available study of credit access to producers involved in local food production and marketing, four-fifths of farmers' market vendors provide all of their own start-up capital from personal savings.[26[p.33-34]] Nearly as many vendors relied upon credit cards (10%) as personal loans (15%).[26[p.33]] Also, many young and beginning farmers may be unaware of lending institutions such as the Farm Credit System or the Farm Services Agency, especially as some of these farmers did not grew up in agricultural areas, do not belong to an agricultural family, [15] have not attended a land-grant university, and may not belong to a farm association.[46]

In addition, beginning farmers participate less frequently than established farmers in several USDA programs including those for commodities, federal crop insurance, land retirement, and conservation. The Economic Research Service identified that beginning farmers with production participate in these programs *half* as often as established farms with production.[13[p.16]] And though beginning farmers are 1/3 more likely to experience crop loss than established farms, their participation in federal crop insurance programs is 2/3 less than established farms.[13[p.9, 16]] Some factors which influence participation rates that are below expectations (as well as program intent) likely include: the perceived additional cost of crop insurance, limited working capital, lack of market penetration, perception of paperwork complexity, and the relative ease of access to consumer credit card debt.[46]

Efforts which can reduce the risk of new farm starts, such as the beginning farmer and rancher development program that provides grants to entities providing business and planning support to new farmers, can help address these disparities in risk. However, this program is limited in scope and unable to address the systemic risks noted in the Economic Research Service's beginning farmer study.[13]

Other issues which may be important to this sector's success, but which are not the focus of this report, include: uneven access to production assistance, marketing support, and business planning assistance (particularly from Extension); [16][13, 46, 49, 54, 59] a perception of limited production and marketing risk insurance availability and affordability for farmers; regulatory uncertainty with food safety; and land access and affordability.[12]

Regional Food Hubs Fill Technical Assistance Gaps.

Half of food hubs provide training and technical assistance for agricultural and crop planning, production and post-harvest handling, and business management.

Two fifths of food hubs provide food safety training and liability insurance.[16[p. 29]]

15 This point was made by several conference attendees and agricultural policy experts at a National New Farmer conference held by Drake University in Washington, DC during March 2-3, 2010.

16 Local/regional food enterprises often find themselves in a default role of grower technical assistance provider for such roles as seed selection, planting technique, organic or other certifications, and training to meet food safety requirements. [35[p.47], 38, 39, 56, 57, 58]

III. Three Priority Policy Recommendations

A. Address barriers to credit in rural and small business lending through regulatory changes
B. Increase and improve public data collection on the retail-oriented agriculture sector
C. Reduce the risk of failure or loss of beginning farmers through training, capacity-building, and improved access to risk-management tools.

A. Address barriers to credit in rural and small business lending through regulatory changes

The vast majority of rural and small business lending is carried out by the private sector. With credit needs for small businesses and rural businesses likely unmet even prior to the recession (perhaps only 20% of debt demand is actually met),[42] access to financing likely has worsened.[60] In other words, businesses involved in an emerging sector of agriculture that are seeking lending capital have the cards stacked against them.

Problems:

1. **Informational Bias.** Lenders are unfamiliar with the sector, its economic potential, and its seasonal production cycles where equipment may idle 11 months out of 12 months.[41]
2. **False Perception of Riskiness.** Lenders lack reliable information on the sector's performance to assess credit worthiness.[41, 61]
3. **High Opportunity Costs.** Local food businesses do not compete well against other, more familiar business models and activities which have lower loan evaluation costs.[41, 42, 49, 50, 51, 62]
4. **Low Rate of Return on Small Loans**. The effort to process loan applications and loan guarantee applications for small loans has a lower rate of return than for larger loans.[41, 42, 51]

These problems were also factors that formerly affected the overall agricultural sector. However, over the past century provision of agricultural credit has become increasingly influenced by federal policy: creation of a separate Farm Credit System to increase competition in agricultural credit markets;[53] government loans and loan guarantees that provide credit to those who cannot access it in private markets;[53] numerous rural community banks that lend to a variety of sectors; and secondary markets for agricultural loans (Farmer Mac and the Federal Home Loan Bank System). This well-evolved policy environment may serve as a model approach for rural and small business lending to businesses involved in the local/regional food sector.[49]

Most Regional Food Hubs Are Ineligible for Farm Credit System Financing.

Producer-entrepreneurs lead only 1 in 4 food hubs. Producer cooperatives make up 4% of food hubs.[16]

Solutions:

Enhancing Private Sector Lending Opportunities - Addressing private sector rural and small business credit gaps by allowing experienced agricultural lenders to finance agricultural inputs, and agricultural and food processors and distributors for local/regional food systems.

1. **Reduce Informational Bias** by developing publically available data that links producer characteristics with marketing practices.

2. **Level the playing field for credit access** by businesses proposing credit-worthy activities in sectors which do not compete well against other, more familiar sectors
3. **Encourage small loan lending.** For example, more than half of Farm Credit System loans are for less than $50,000.
4. **Use policies with no federal cost.** The Farm Credit System requires no taxpayer funding for its operations.

Direct Lending – Congress could evaluate the effectiveness of current rural development programs and consider the potential for a direct lending program targeted at credit worthy small businesses that cannot access capital from private lenders.

1. **Improve targeting for economic development outcomes,**[53] as well as other social, environmental, and potentially health outcomes, as in the USDA's Healthy Urban Food Enterprise Development Center and the locally and regionally produced agricultural products priority in the USDA Business and Industries Loan and Loan Guarantee Program.
2. **Relatively low federal costs**[63] can be achieved through use of subsidized loans, re-lending programs, and micro-loan programs, all of which operate at lower cost compared to grants.
3. **Consider pros and cons of program reorganization**[54] for program effectiveness and delivery while understanding that institutional change is achieved incrementally.

Annual Public Reporting on Credit Availability - Regular evaluation of the credit availability (private and public) and the ease of access of small businesses which service the local and regional agricultural marketing, organic agriculture, input providers, and other types of agriculture-supporting industries.

1. **More data is necessary to assess impacts of policy changes**, as it would require a baseline assessment of the sector's potential economic performance and its potential credit demands.
2. **Reduce data inconsistencies.** Use consistent question formats on marketing questions used in the Agricultural Resource Management Survey so relationships between local/regional farm sales, beginning farmer status, and loan usage can be evaluated.

Of the options above, only the first set of recommendations has no federal budget impact. The last option for assessing credit availability likely could be done with low costs, either directly by a research unit at USDA (or USDA and Treasury), or on contract to a private entity such as a university. The development of a direct lending program would have lower costs than traditional grant programs. However, new program starts in years with federal budget control pressures would require clear, dedicated political championship. Since the 2012 Farm Bill may include agricultural budget reductions, enhancing private sector lending opportunities is likely the most feasible option for meeting the credit needs of Retail Agriculture.

B. Increase and improve public data collection on new, retail-oriented agricultural sectors

A lack of publicly available data on the economic characteristics and performance of the local and regional food sector, as well as other types of retail agriculture, hampers the sector's development. Whereas the organic sector benefited from a federal production standard that required retailers, distributors, and producers to make investments in a separate supply chain, the local/regional marketing of foods escapes a common definition.[17] However, certain common characteristics of local/regional

17 This is in part due to the regional variation of climate, relative distance between agricultural production regions and

food enterprises have been observed, albeit almost exclusively from case studies. For lenders and new entrants to agriculture alike, the availability of information on this sector's economic characteristics will assist lenders to better balance the sector's risks with its potential returns[41, 64] while helping potential farmers make informed career and business choices.

A plethora of reports has increased the quantity of information available on organic and direct-to-consumer agriculture[3, 9, 13, 19, 38, 56, 58, 65, 66]. Yet, these resources often are not synthesized across their separate topics. Nor have time-series data-sets been updated to reduce overlaps and insistencies[9]. As a result, a relatively simple question of *"Are more beginning farmers entering local/regional agriculture than in previous years?"* cannot be answered without access to the National Agricultural Statistics Service's data lab and customized data analysis—tasks that a loan officer or most of the public would not perform.

The Agricultural Resource Management Survey (ARMS): Flexible but Inconsistent

The ARMS tracked more than 10 marketing channels in 2008, but the question for direct to consumer sales changed 4 times in 5 years from 2006-2010.[4, 5, 6, 7,

Significant data gaps exist and can only be resolved with USDA or Congressional action, such as improving survey protocols within the Agricultural Resource Management Survey, or by introducing new questions in the Census of Agriculture. A model approach may be the USDA's Organic Data Collection Initiative, funded in the 2008 Farm Bill, which increased dedicated funding to a very distinct type of agriculture.

The Census of Agriculture: Reliable but Needs an Update

The Census of Agriculture has tracked direct-to-consumer sales since 1978 and Community Supported Agriculture since 2002, but was not updated to track more marketing channels in 2007 or 2012.[9, 10, 11]

Solutions:

1. **Introduce a Market-Channel orientation in data analyses,** since the markets into which producers sell products influence farm production decisions, and, thus, farm characteristics and management practices.
2. **Enhance existing USDA surveys** by introducing new questions or supplemental surveys in the Agricultural Census, the Agricultural Resource Management Survey, and other USDA (or other department) data. Detailed recommendations are in Hunt and Matteson 2012.[45]
3. **Track Federal Program Impacts** as is done with existing programs, such as that required for Section 6015 of the 2008 Farm Bill, and performed similarly for beginning farmer participation in FSA, Commodity, and Conservation programs.
4. **Introduce New Research & Data Collection Initiatives**, which could be patterned after the Organic Data Collection Initiative of the last Farm Bill, or incorporated into the priorities of existing research programs.

All of these recommendations could be accommodated within existing activities and budgets. However, the last one could result in an unintended shift away from other research priorities and would likely require a coalition-building approach with multiple stakeholders to avoid such an outcome.

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consumers, and different historical and cultural identities of regions. However, this regional variation is in part what creates the local/regional authenticity a consumer seeks.

C. Improve beginning farmer success through training, capacity building, and increased use of risk-management tools.

It is no surprise that in the early years of a start-up enterprise, whether in agriculture or elsewhere, there is an increased risk of failure until sufficient experience is gained in operating the business. Several USDA policies are designed to help address those risks, such as the FSA real estate and operating loans that are prioritized to assist beginning farmers and ranchers. Yet despite the availability of such resources, beginning farmer participation in USDA programs is half than of more experienced farmers.

With the baby-boom generation of farmers aging and new entrants to agriculture coming from a variety of non-agricultural backgrounds, USDA program access for young and beginning farmers should become a high priority component of agricultural policy. Identifying and developing the appropriate policy responses will likely take more than one Farm Bill cycle (perhaps two or three) and have already begun in the 2008 Farm Bill. For example, many of the conservation programs now include similar priorities for beginning farmers, in the form of set-asides where beginning farmers' proposals compete amongst each other, and not with more experienced farmers. Another program, the Beginning Farmer and Rancher Development Program, provides competitive grants for non-profits and universities to provide targeted business planning and technical assistance support to beginning farmers.

The existing beginning farmer and rancher programs likely need to be expanded to address what appears to be a new generation of farmers entering agriculture. This may not necessarily require new federal program expenditures, as the total number of farmers in the U.S. has remained relatively consistent, at about 2 million producers. Rather, Members of Congress may decide to shift the current allocation of some farm programs to ensure that the needs of beginning farmers are addressed, such as considering whether a 10% set-aside in a conservation program is more appropriate than a 5% set-aside. In prior Farm Bills, young and beginning farmer policies were mainly proposed through a coalition of small farm and sustainable agriculture interest groups focused primarily on USDA Credit, conservation, and national Cooperative Extension programs. However, other areas of policy, such as those related to risk management tools, could be new frontiers for beginning farmer policies.

IV. About This Report

This report aims to make a business case for local and regional agricultural development. We acknowledge that the viewpoint of agriculture written here is one of many perspectives. There are a great many details of local/regional food systems, direct-to-consumer markets, and organic agriculture that we do not present here, such as the environmental and social impacts of those forms of agriculture. Others are more knowledgeable about those impacts, some of which are known or are still being researched. We focus on a less-developed set of knowledge: a review of the economic factors and conditions which drive and shape the sector. Also, our intent is to expand the understanding of these sectors to broader audiences, especially those who are more familiar with the business perspective of agriculture. We seek to identify potential common ground on which further policy discussions can improve the prospects for agriculture.

The authors of this report collectively have over 40 years of experience in working with local and regional agriculture – experience which we believe has helped us to develop what we hope is a cohesive perspective on the business development and policy issues of Retail Agriculture. Gary Matteson has owned and operated a farm with both a wholesale greenhouse business and small beef operation for over 30 years. Alan Hunt has studied local agriculture in the United States and England

over the last ten years and been active in its policy formulation in Washington, DC since 2005. While of different generations, they both lived their farm lives in the Northeast.

There is great regional variation in agricultural sectors across the United States. Yet some of the most pressing issues surrounding the conversion of commercial agriculture from commodity production to Retail Agriculture have been dealt with in the Northeast over the last 50 years. Some of these issues are: the viability of mid-sized farms, the economic viability of agriculture in suburban and exurban communities, the interaction of farm operations with the non-farm public as communities and individuals, farmland and business transition to new generations, the business models which allow farms to be economically sound at many scales of operation or land-base, the financing of unfamiliar farm businesses emerging from the losses of non-competitive commodity production, and the potential of agriculture to attract new farmers from a wide variety of non-agricultural backgrounds. Increasingly these trends have been observed in other regions in the U.S.

Gaining an understanding of the future of farming would be impossible without examining the anticipated role of young, beginning and small farmers, particularly in comparison to the organic sector. This is by no means to say that organic farming is the future, but rather that the organic sector's development may foreshadow the expansion of local/regional agricultural marketing and production, including how such a developing sector can attract new entrants to farming. These discussions – the emergence of new business models, the participation of young and beginning farmers, the creation of new career opportunities – bring us quickly into a discussion of public policy, as both local/regional agriculture and beginning farmer policies have become increasingly important subjects of civic interest, local government policy, and national legislation.

These issues are not unique to the Northeast. They exist wherever there is rising pressure on farmland values to increase economic profitability, whether through increased agronomic efficiencies, production of specialized higher value crops, or sale of farmland for exurban residential development. There is unlimited ability in young and beginning farmers to adapt the tools of agricultural technology and creative marketing in order to establish successful farm business models in all parts of the country. It is incumbent on those in leadership positions to recognize that the energy of adaptability results in exceedingly diverse farm operations with substantively different ways to generate profit. This report does not set out prescriptions of how we think agriculture ought to be, but rather to identify policies which constructively respond to the opportunities of agriculture as we find it.

Section B. Data on Retail Agriculture

1. Consumer Demand & Sector Growth

Locally Produced Food Demand Trends

- **Combined local and organic food sales (if not overlapping), would represent about $31 billion in food sales[44, 67] – just over 5% of the U.S.'s $600 billion in annual food sales[68] for at home preparation.**

- **Local and regional food sales were estimated at $5 billion in 2007.**[44] Perhaps one-fourth of local and regional farm sales are made via direct-to-consumer sales[43] although these levels may be higher.[43]

- **7 out of 10 major, national retailers sell locally produced products**, including Safeway (30% of its produce is local) and Wal-Mart ($400 million annually).[19[p.13]]

- **9 out of 10 restaurants and 3 out of 10 quick-service operators serve locally-sourced foods.**[19[p.12], 69]

- **1 in 5 food service directors considering local food purchasing.**[70]

- **About 14% of public school districts made local food purchases in 2009, up from 2.7% in 2004** (Figure 1).[71]

- **Competition for farmers' market vendors is most intense in dense urban regions and small cities throughout the U.S.** (Figure 2).

- **Sales made from farmers directly to consumers more than doubled from 1997 to 2007**, increasing from $551 million to $1.2 billion.[19] Over a fifteen year period, direct to consumer sales have intensified in the Northeast, Florida, and the West Coast while direct to consumer sales have spread into the Eastern Plains and Rocky Mountain Region, including such states as Texas, Oklahoma, New Mexico, Wyoming, and Idaho. (see Figure 3, Figure 4, and Figure 5)

- **Farmers' Markets more than doubled from 2000-2010, growing by 114% to 6,132 in 2010** (Figure 6).[72]

- **All but one of the Top-10 growing farmers' market states in 2010 were in the Midwest**: Missouri (77), Minnesota (61), Idaho (60), Michigan (60), Indiana (47), South Dakota (46), Arkansas (41), Washington (37), Ohio (36) and Oklahoma (31).[73]

- **Year-round farmers' markets increased from 866 in 2010 to 1,200 in 2011, 33% increase** – many of which are in hard winter zones.[14, 73, 74]

- **There are at minimum 1,400 Community Supported Agriculture operations, but are probably more than 2,500** - some of which sell products from multiple local farms.[19[p.7-10]]

- **Nearly 80% of U.S. counties have between 1-10 farms with Community Supported Agriculture shares** (Figure 7 and Figure 8). Community Supported Agriculture (CSA) is most typically run as a profit-generating portion of farm revenue where an individual or family purchases a share in a farm's weekly, quarterly, or annual production (e.g. a package or box with produce, portions of meat, dairy, eggs, etc.)

- **Local food sales are forecasted to grow to $7 billion in 2011** from $4 billion in 2002.[44]

- **$860 million in unmet demand for local products in New York City alone.**[75]

Organic Demand

- **Over 11% of all U.S. produce sales are certified Organic** – a three-fold increase from about 3% in 2000.[67]

- **$26.6 billion in Organic food sales in 2009**, which is a 5.1% increase from 2008 (Figure 9).[67]

- **Organic food sales represent 3.7 percent of U.S. at home food sales.**[67]

- **Most organic sales (about 90%) are made in conventional and natural foods supermarkets**[76] with direct to consumer markets representing on average 10% of organic food sales from farms (see Figure 10).

- **Packaged and processed organic foods are the largest selling organic items** – a trend which has increased from 54% of sales in 1997 to 63% of sales in 2008.[18[p.6]]

- **In 2008, there were $3.2 billion of Organic product sales at the farm gate.**[11] This would put the average share of the food dollar retained by producers in Organic markets at 13%,[24, 77] less than the agriculture industry average of 19%.[78] By comparison, direct to consumer markets are estimated to let producers retain 75%-100% of the product's retail value.[3, 19, 43] However, there are discrepancies with organic sales and farm data collection, which may under-count the total number of organic farms and organic farm gate sales, as described in the Farm Sales, Farm Size, & Other Farm Characteristics section.

Motivators

- **Freshness (82%), supporting the local economy (75%), and knowing the source of the product (58%) are leading motivations to purchase locally produced foods.**[21]

- **70% of adult consumers indicate that they are more likely to visit a restaurant that offers locally produced food items**.[79]

Figure 1. Counties with 1 or more Farm to School Programs (2009 data).[80]

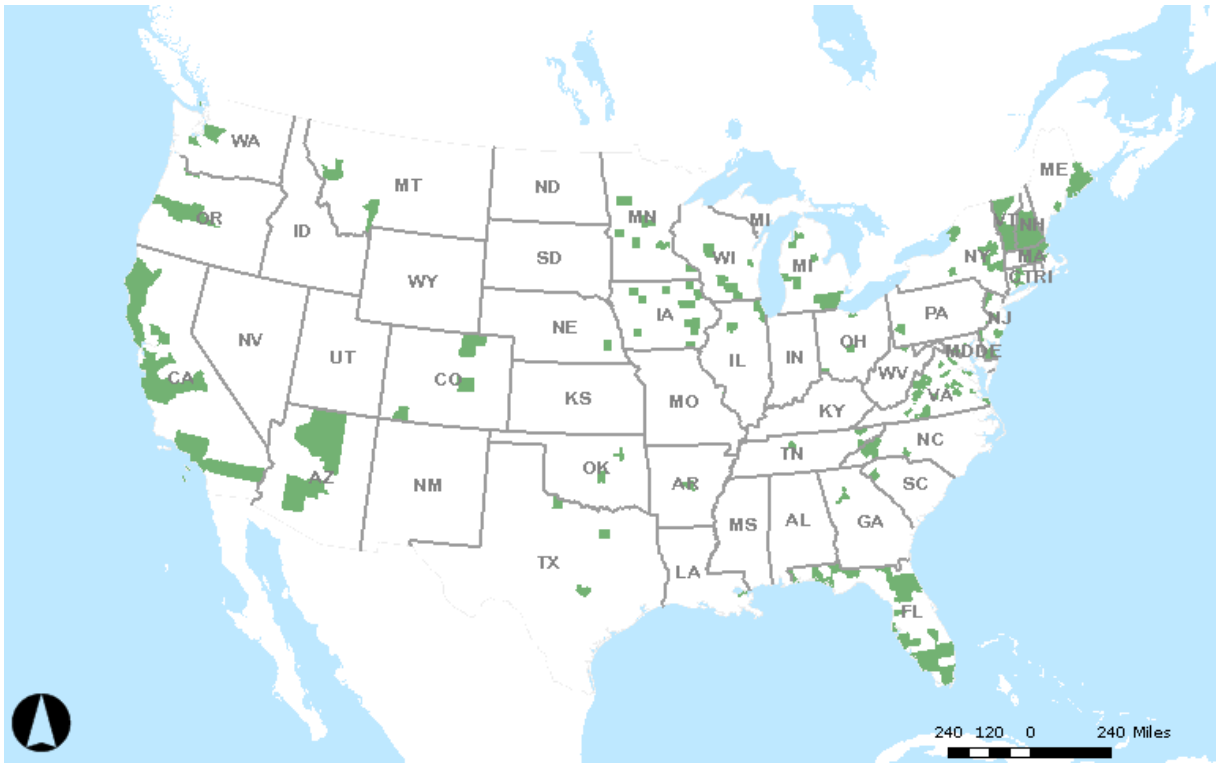


Figure 2. "Competition Zones" for Farmers' Markets Attracting Vendors.[65]

Figure 2. Vendor Competition Zones for Markets Listed in 2007 USDA Farmer's Market Directory

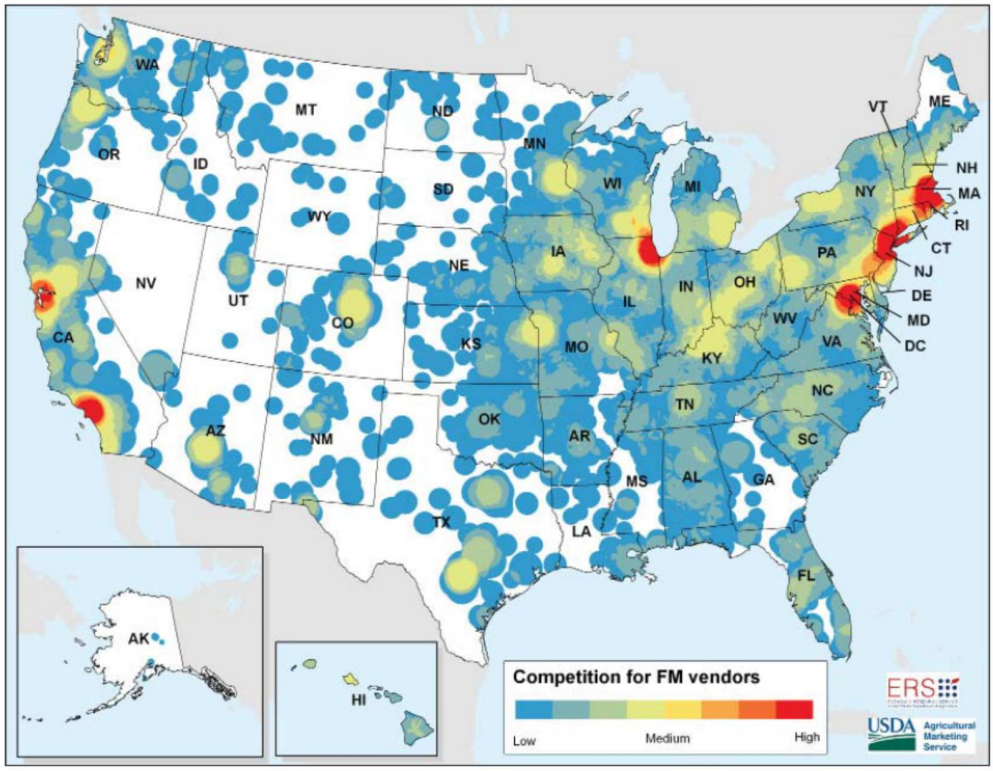


Figure 3. Direct to Consumer Sales 1992.[81]

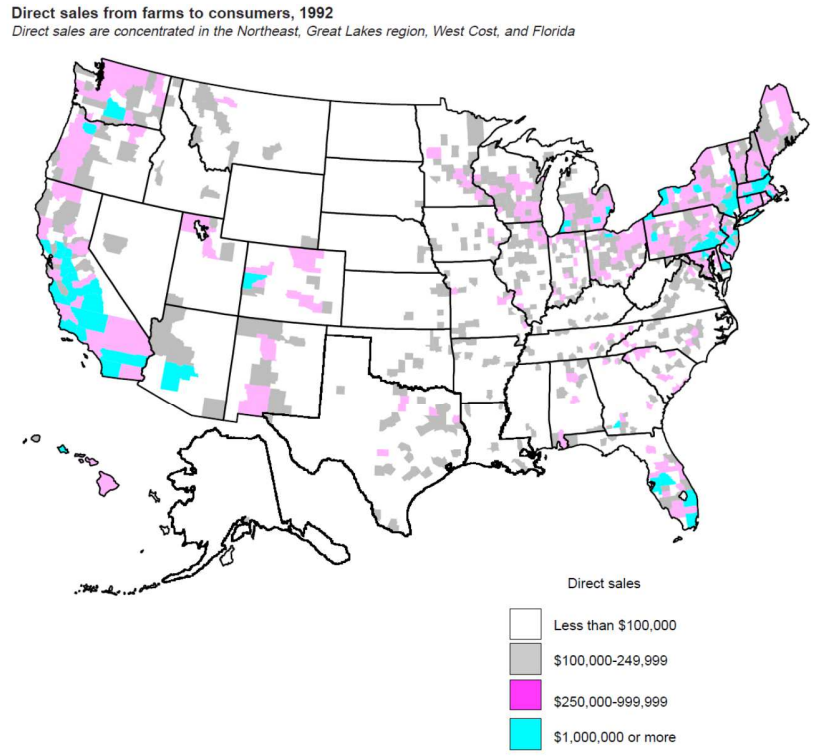


Figure 4. Direct to Consumer Sales 2002.

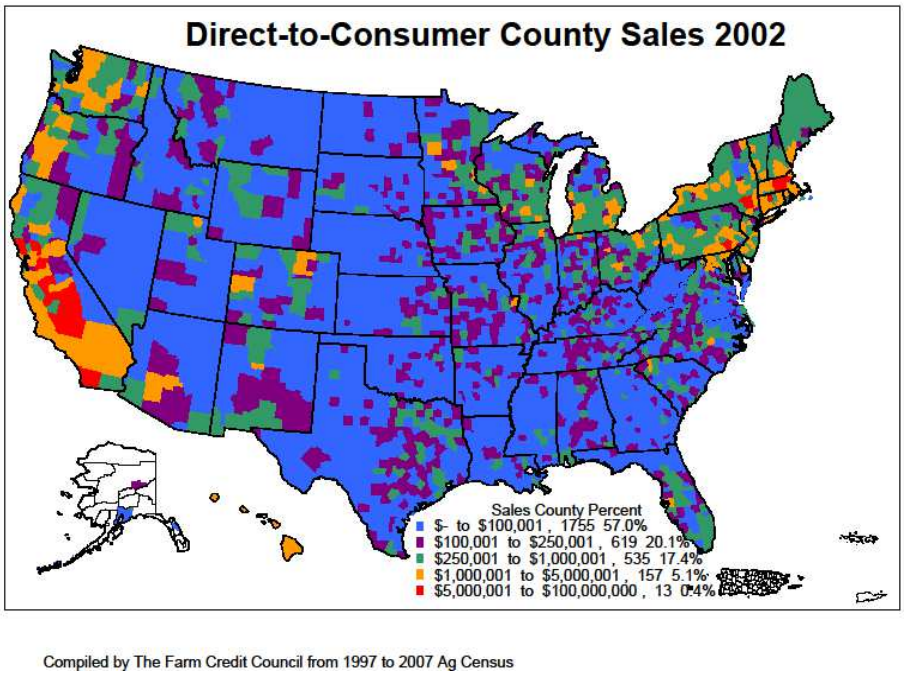


Figure 5. Direct to Consumer Sales 2007.

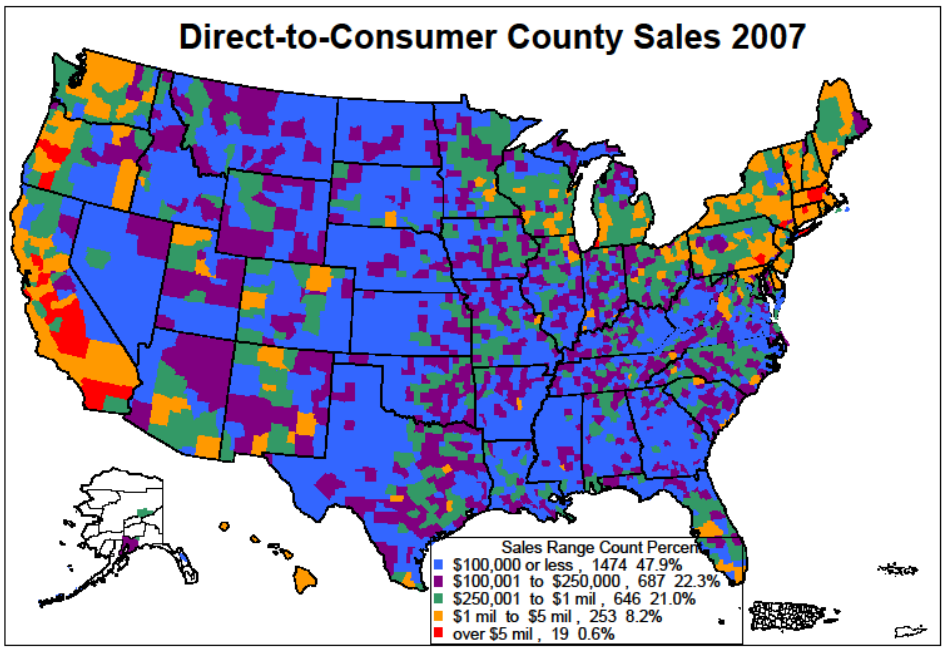


Figure 6. Growth of U.S. Farmers' Markets Since 1994. [72]

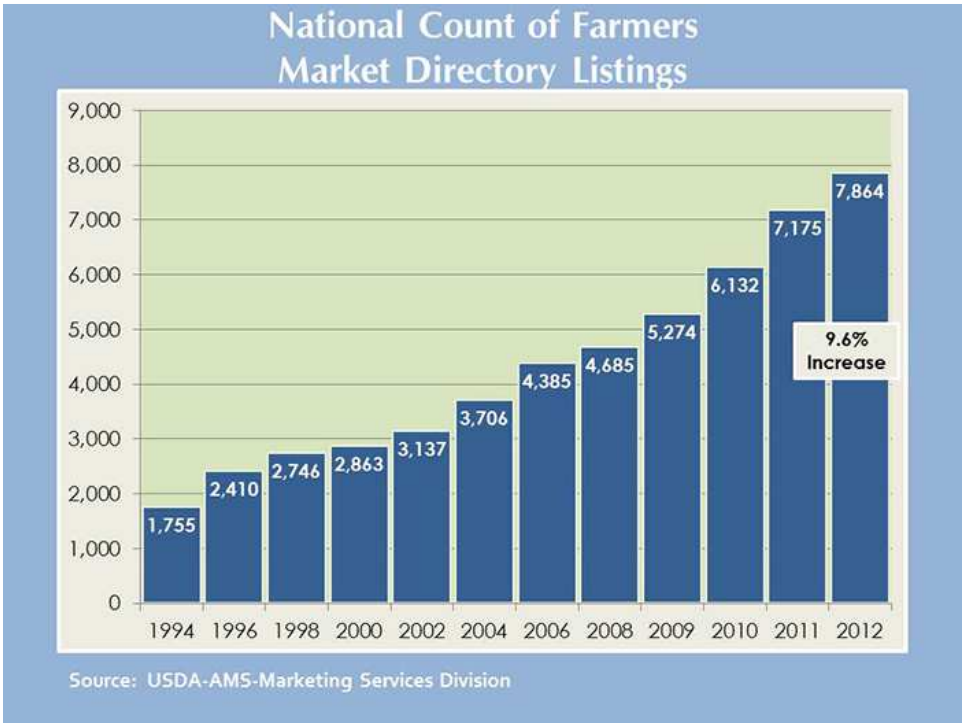
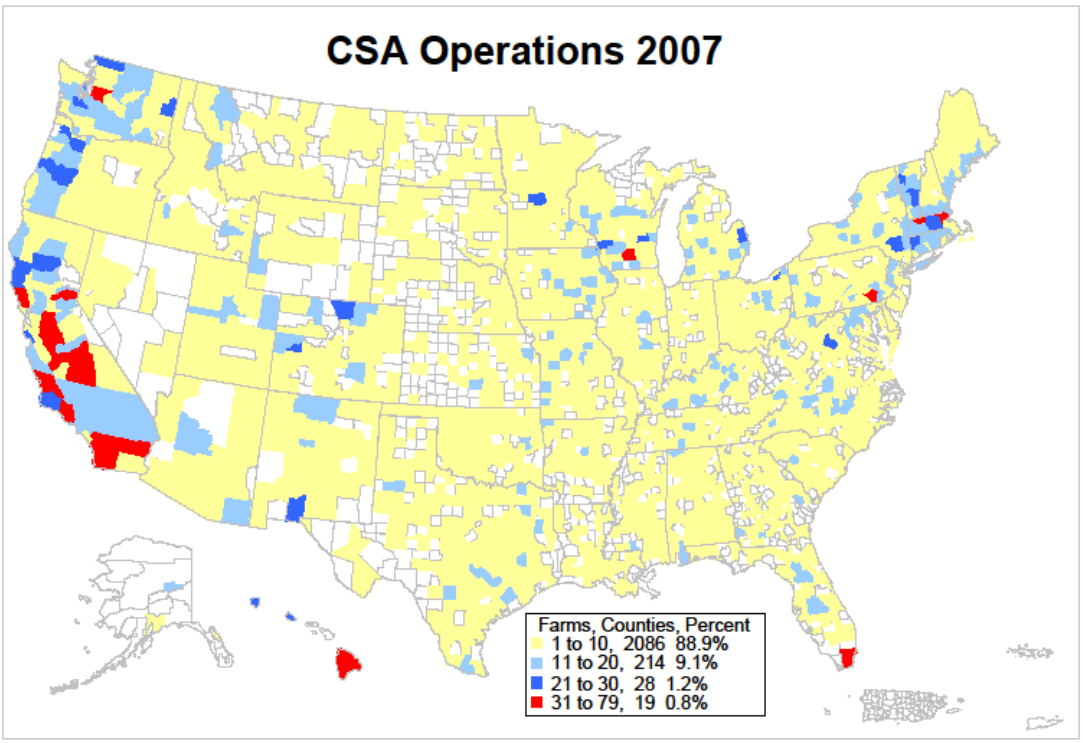


Figure 7. Number of Farms with Community Supported Agriculture Shares by County in 2007.



(Note the table represents the percent of counties with a CSA farm and NOT a percent of all counties with a CSA farm.)

Figure 8. Percent of CSA farms by County 2007.[82]

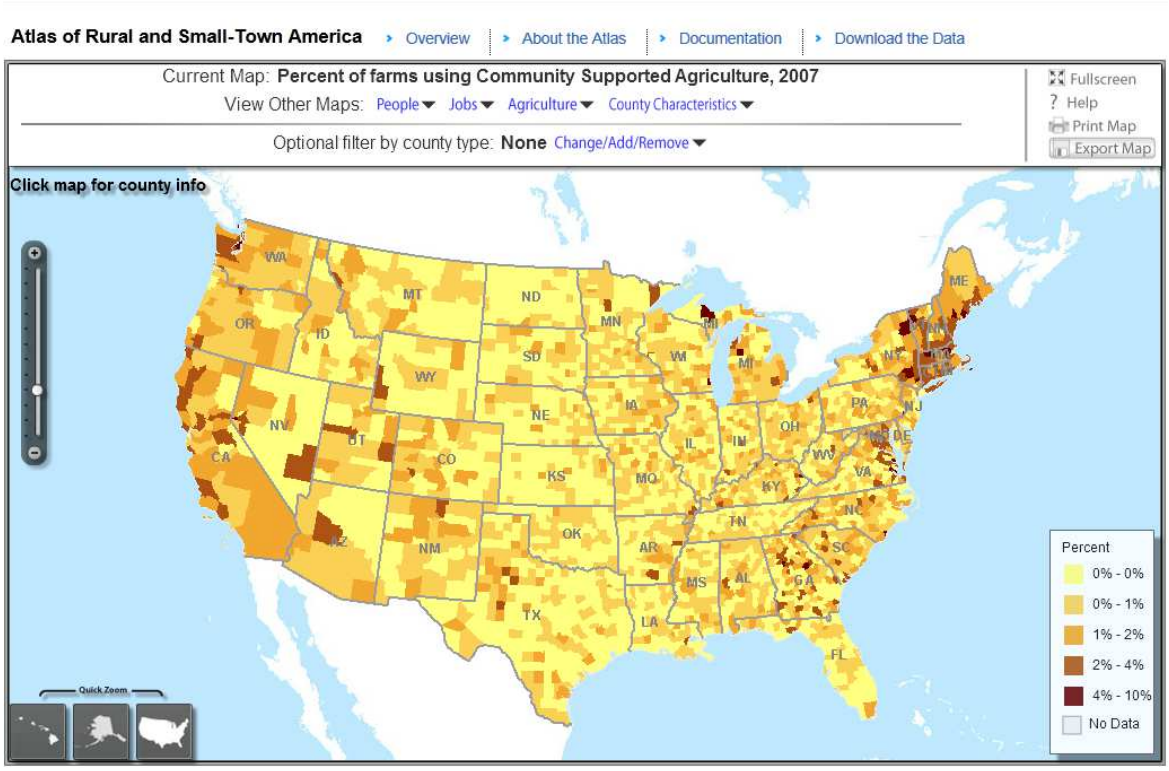


Figure 9. Growth in U.S. Organic Food Demand by Product Types.[76]

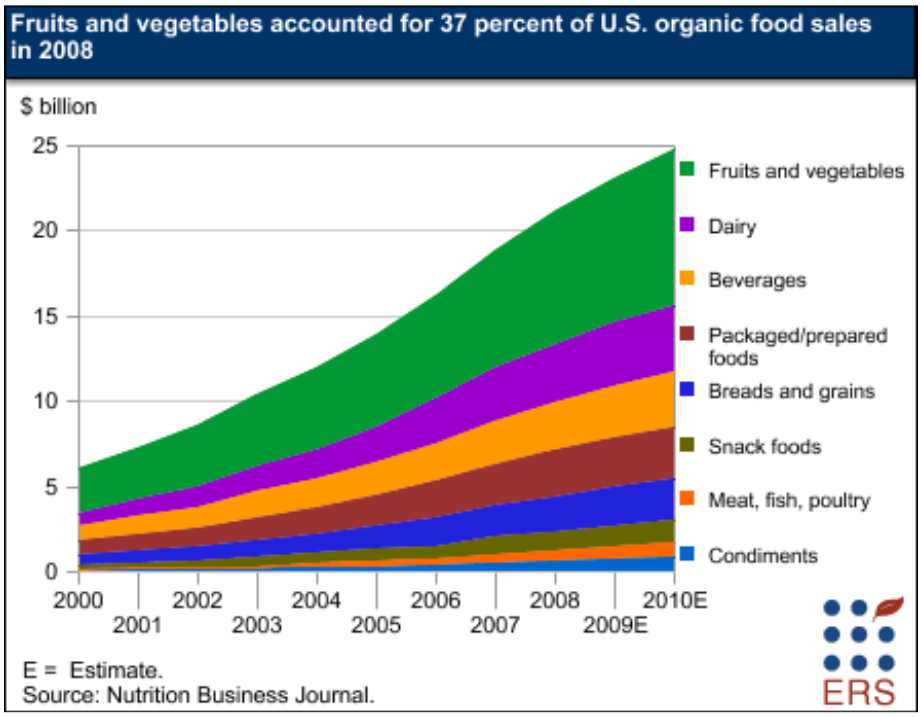
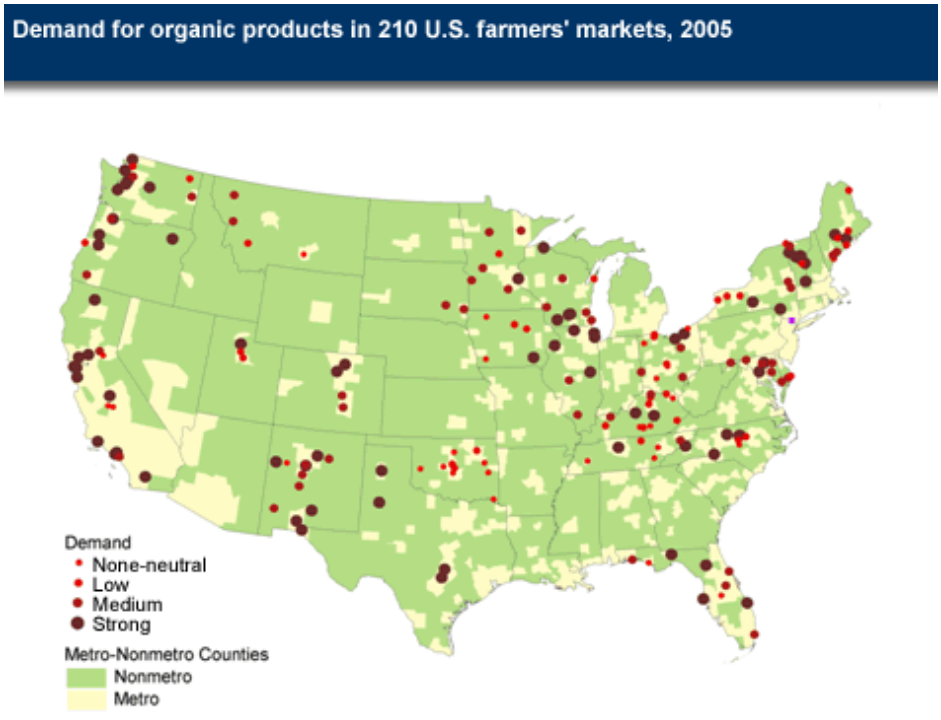


Figure 10. Estimated Demand for Organic Products at Selected U.S. Farmers' Markets.[76]



Source: USDA, Economic Research Service.

2. Farm Sales, Farm Size, & Other Farm Characteristics

Comparisons to All US Farms: Direct & Organic Sales

- **The average sales of commercial organic and direct to consumer farms (defined here as sales of $50,000 or more a year) exceeds the average sales of all farms (including those under $50,000 per year** (see Figure 11).[18]

- **Farms with a commercial level of direct to consumer sales averaged $181,000 in annual direct to consumer sales and farms with a commercial level of organic sales averaged $383,000 in annual organic sales in 2007**.[19] The 3% of farms with commercial direct to consumer sales made up 58% of the dollar value of direct to consumer sales. By comparison, 23% of farms with organic sales over $50,000 made 93% of farm organic sales – a similar ratio to the average for all farms (Figure 12).

- **Farms with Organic sales are on par with the average sales of US farms – and potentially *exceed the US average*** (Figure 13). The average annual sales of Organic farms may be $95,000 more per year than the average US farm.[20] Also, the average organic sales of commercial organic farms may be only $38,000 less than the average for all commercial US farms. Potentially, the *total* sales of commercial organic farms (including non-organic sales) may exceed the average sales of all US commercial farms by 25%.[21] Inconsistent data collection methods and under/over sampling of commercial organic farms limit further analysis (for an example, see Figure 13 where 2007 and 2008 Organic sales are compared from two different USDA sources).

- **The sales value from farms with organic production and direct to consumer sales is not necessarily related to farm size** (Figure 14). For all US farms, four-fifths of total farm sales are from farms 180 acres or more in size. The reverse is observed for farms with direct to consumer sales where four-fifths of direct to consumers sales are made from farms *under* 180 acres in size. The distribution of farm sales by size of farms with organic sales more closely resembles the average of all US farms, especially as one-fifth (22%) of total organic farm sales is from farms with 2,000 acres or more – a percentage closer to the average for all farms 2,000

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[18] One limitation of this data is that it does not account for organic sales or direct to consumer sales being *in addition to* other farm sales. For example, a farmer selling $8,000 in direct sales and $500,000 in total sales would be counted both in the "Average Farms" column with a sales of $500,000 and in the "Direct Farms" column with an average sales of $8,000. If there are farms which rely entirely on direct to consumer sales and have a moderate level of sales (e.g. $75,000 annually), the $8,000 sales figure would lower the average sales figure for direct to consumer sales from other farms which utilize direct to consumer sales as their primary marketing channel. Thus, the higher sales levels (which are limited to sales of $50,000 or more per year by the National Agricultural Statistics Service) are likely to be better indicators of the sales of farms which more heavily utilize direct to consumer marketing channels. Also, it is likely that this data issue is less pronounced with organic farms as most organic farms derive a majority of income from organic sales and as a farmer with conventional production may not sell a product as organic-certified, but may sell a product directly to a consumer.

[19] The percent of a farm's total sales from direct to consumer sales or organic sales is not available for public analysis, though Economic Research Service staff have demonstrated that such analyses are possible from Census of Agriculture data.[18, 19]

[20] Organic data is from the 2008 Organic Production Survey. Average farm data is from the 2007 Agricultural Census. Organic sales data collected in 2007 through the Census of Agriculture seems to be an under-estimate of Organic sales and the figures in the 2008 Organic Production Survey appear to be of better quality.

[21] Organic sales may not comprise total farm sales. If the average proportion of organic sales versus non-organic sales is applied – 70% – the average sales of these farms may be quite higher, perhaps $700,000 per year.

acres or larger (27%). However, the overall distribution of the size of organic farms is between the US average and the average for direct to consumer sales farms (Figure 15). The Organic market may support larger farms in part from the large and growing number of organic distributors capable of moving product to the high-volume demand of mainstream markets.[34] No similar data is available for direct to consumer markets or other local food markets.

- **The majority of farms involved in organic production and direct sales trend towards smaller acreages.** On average, one third of US farms are 180 acres or more in size and one third are less than 50 acres in size. By comparison, about 15% of farms involved in direct to consumer sales are over 180 acres in size and most (about 55%) are less than 50 acres in size. The distribution of size ranges of farms with organic production includes more large farms than with direct to consumer sales. However, the organic production area on a farm tends to be very small, with almost half (45%) of farms with organic acreage producing on an area between 1 and 9 acres. Eight-seven percent of organic production is on an area less than 180 acres in size (Figure 16).

- **Intermediated marketing options, via a local and regional food distributor, offer a middle-way for mid-sized producers to achieve a higher price for the products while limiting their direct processing, distribution, and marketing costs**. Additionally, producers are often able to maintain an economy of scale in their own production (or through cooperatively developed marketing arrangements) that allows for competitive pricing for larger-volume purchasers (e.g. supermarkets, food service).[3, 19, 23, 35] Two methods are viable to expand supply in this sector: 1) expanding the capacity of existing producers to produce – and where needed grade, process, pack, and value-add – products on the farm,[3] and 2) developing an efficient local and regional food distribution and processing infrastructure is needed to improve producer market access and gain economies of scale in distribution capacity.[19] While local products may reach mainstream markets, several ERS case indicated that distributors and processors involved in local food distribution exploit a different economy of scale than mainstream distribution systems thus preventing mainstream and local food distributions systems from overlapping. This structure of the local food distribution sector is very different from organic distribution which increasingly utilizes mainstream distributors which have added on organic handling capacity.[34]

Trends in the Organic Production & Farm Sales

- **Nearly three-fourths (70%) of farms with organic sales derive 75% or more of their total sales from organic production.** Just over half (56%) of organic farms derive 100% of their sales from organic products.[83]

- **92% of Organic farms have less than $500,000 in annual sales** (Figure 19). **However, 71% of the total value of organic farm sales is from farms with annual sales over $500,000 per year in 2008** (Figure 20). Thus, organic markets are important for both lower and higher sales volume farms. For example, the total sales from larger organic farms (2,000 acres and over) is nearly equal to those from midsized organic farms (180 to 499 acres), however the *sum* of total sales volume from farms under 2,000 acres is 3 ½ times higher than that of farms over 2,000 acres in 2007 (Figure 15).

Trends in Direct to Consumer Sales

- **The number of farms participating in direct to consumer sales increased – 33% from 2002 to 2007.** Data is not publically available for determining relative share of total farm sales derived from direct to consumer marketing with current data collection practices.[22]

- **Direct to consumer marketing improves the financial position of farms making 3% of the US's annual farm sales, about $9 billion** (see Figure 20 and Figure 21). As 86% of farms involved in direct to consumer marketing are in metropolitan and metro adjacent counties,[19[p.20]] direct to consumer marketing likely plays a role in maintaining farm viability in areas under farmland development pressure.

- **Half of farms (53%) with direct to consumer sales are in metropolitan counties. In these counties, direct to consumer sales represent nearly a fifth of all farm sales (18%).** One in three farms making direct to consumer sales are in nonmetro counties adjacent to urban counties. Fifteen percent of direct to consumer sales are made from farms in remote rural counties.[19[p.20]]

- **Farms with direct to consumer sales are geographically widespread and increasing rapidly in the Midwest and Plains states** (Figure 21 and Figure 22).

- **The majority of farms with direct to consumer sales (84%) have total farm sales[23] less than $50,000 per year. *However* the majority of sales (70%) are made by medium ($50,000-$499,999 annual sales) and large farms (over $500,000 annual sales) while representing only 15% of farms with direct to consumer sales.**[19[p.20]] (see Figure 21)

- **About one third (31%) of direct to consumer sales are made by farms with annual sales over $500,000 per year. The average annual direct sales level of farms in this sales class is $127,113** (Figure 21). Just over a third (38%) of direct to consumer sales are made by farms with annual sales between $50,000 and $500,000.[19[p.20]]

- **Livestock farms make up 3 out of 5 farms with direct to consumer sales.** The total dollar value of livestock and livestock product sales made directly to a consumer exceeds the total dollar value of vegetable sales (including melons) made directly to consumers ($377 million compared to $335 million in 2007**).** However, livestock and livestock product producers who make direct to consumer sales represent just about 7% of all livestock farmers.[19[p.20-21]] **Two out of five of all vegetable farms (including melons) make direct to consumer sales** and just under one in five of all fruit and nut farms make direct to consumer sales. Direct sales from these types of farms represent 58% of all direct to consumer sales.[19[p.20-21]]

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[22] Specifically, the Economic Research Service states that: "Future research on farm participation in local food markets will require more detailed data about the different types of local food activities. Data available could be improved along two dimensions. First, more detailed information about the relative magnitude of local food sales, including types of products sold by market type, would provide a more complete picture of the size of local food markets. Second, surveys that gather detailed farm business and operator characteristics, such as ARMS [Agricultural Resource Management Survey], are not designed to provide a detailed description of local food marketing activities."[19[p.50]]

[23] In their analysis, Economic Research Service staff classify farms with direct to consumer sales according to *total farm sales*, whereas only direct to consumer sales are published in the Census of Agriculture.

Sales Data Limitations & Inconsistencies

- **Organic and direct to consumer sales at the farm level are *at least* 1% of all agricultural sales ($2.9 billion in 2007), but perhaps are actually about 2.5% of all agricultural sales – more than rice and cotton combined.**[24] Total sales for Organic products are likely under-reported in the 2007 Agricultural Census. This is also likely the case with direct to consumer sales – which are perhaps only capture 25% of all *local food* farm sales.[43] For example, in the 2007 Agricultural Census, 18,211 farms reported Organic sales data and a total sales of $1.7 billion – but 20,347 farms had organic production. In the follow-up Organic Production Survey in 2008, 13,776 farms reported organic sales data and a total sales of $3.1 billion. The variation of nearly double the sales from one year to the next with about 30% fewer producers reporting could mean that the reported sales of organic and possibly direct could have actual sales two-times higher (possibly higher) than reported in the Agricultural Census (see Figure 11 and Figure 13). By contrast, in the 2008 Organic Production Survey, there were 52% fewer farms with sales under $10,000 and 37% more farms reporting sales over $50,000 compared to the 2007 Agricultural Census. Thus, sales figures reported in the Agricultural Census likely should be taken as *minimum measure* of activity in these sectors. Similarly, the Organic Production Survey underestimates organic farm sales. The Organic Production Survey (OPS) does not employ statistical sampling techniques to adjust for non-responses, so the exclusion of about 7,500 to 4,500 organic farms which had sales in 2007 (varies by table in the OPS) would result in the OPS organic sales figure being an underestimate of organic farm sales. Additionally, farms may make as much as $5 billion in local food sales each year – a figure not captured in the Agricultural Census's measure of direct to consumer sales.[43] *Thus, actual farm sales of organic or locally produced foods may be twice as high or higher than reported to the USDA in the Census of Agriculture.*

- **Use of follow-on surveys conducted after the Census of Agriculture, like the Organic Production Survey, lack comparability with other farm sectors and reduce limit their use.** (see above) Follow on surveys can fill an information gap, but are not a replacement for improvements to the Agricultural Census. Tools like the Census and the Agricultural Resource Management Survey, which generally yield valid results for very large trends in commodity agricultural production, will be increasingly challenged to portray the agricultural sector as more farmers produce products for increasingly heterogeneous American consumer preferences.

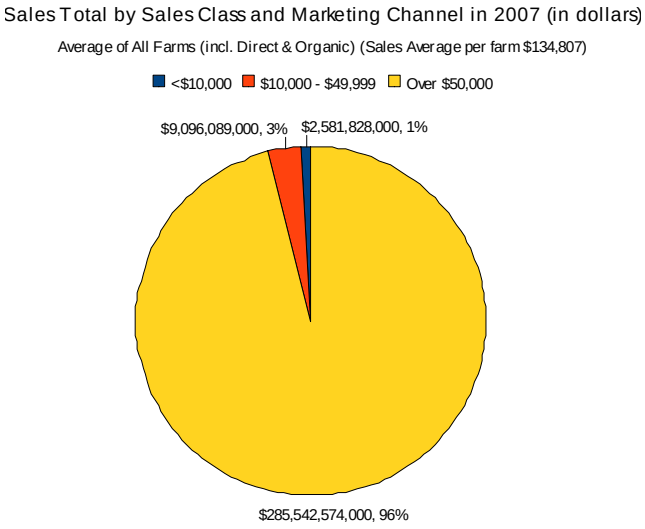
- **A lack of accurate information in the sector may be discouraging new farmer starts[18[p.10-13]] and limiting supply chain investments.**[46, 47] Improvements in data collection activities by USDA are needed to improve understandings of the economic performance and potential of these sectors.[19[p.50], 43] Limited data can increase the perception of risk to investors – perhaps unnecessarily. Further analysis of the economics performance of direct to consumer marketing and organic production and sales is limited by the 1) lack of in-depth data collected in the Agricultural Census, ARMS, and other USDA surveys, 2) severe data inconsistencies in how organic farms are counted and how their sales are observed, and 3) only limited case study data on farm-level economic performance, such as producer profit margins and production costs.

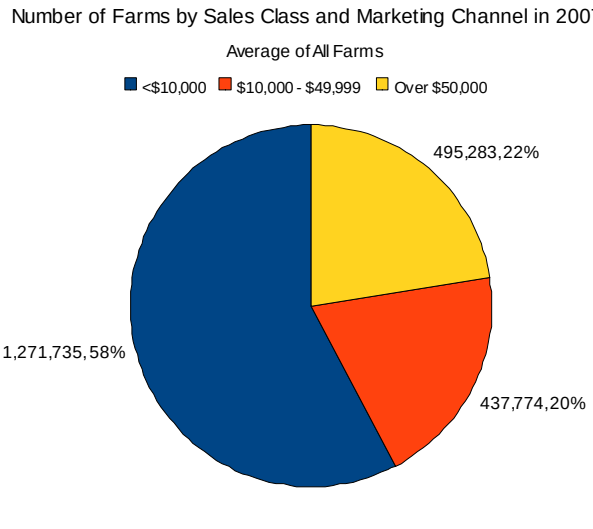
[24] If the organic production survey organic sales value of $2.9 billion is used, in combination with an estimated $5 billion in "local" food sales,[43, 44] about $8 billion could be estimated in organic and "local" food sales by farms. There may be a relatively insignificant 7% overlap between direct to consumer sales and Organic sales from the farm.[43] By comparison, in 2007, sales from cotton farms were $4,898,608,000 and rice farms were $2,020,231,000 – a total of $6,9118,839,000. By low estimates, the sum of $2.9 billion in Organic farm sales (from 2008)[66] and $1.2 billion in direct to consumer sales (from 2007) is $4.1 billion.

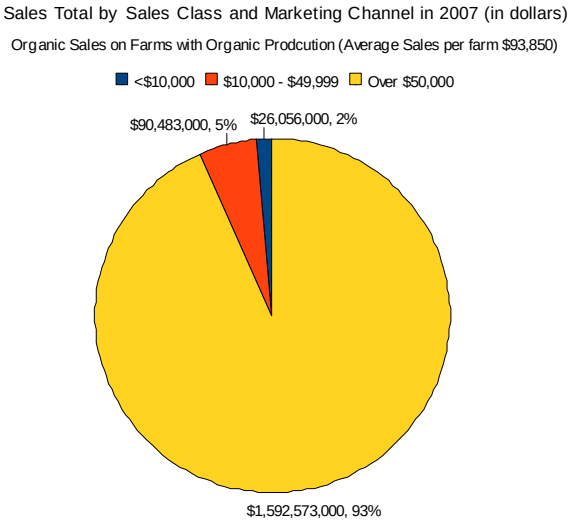
Figure 11. Average Farm Sales by Marketing Channel.

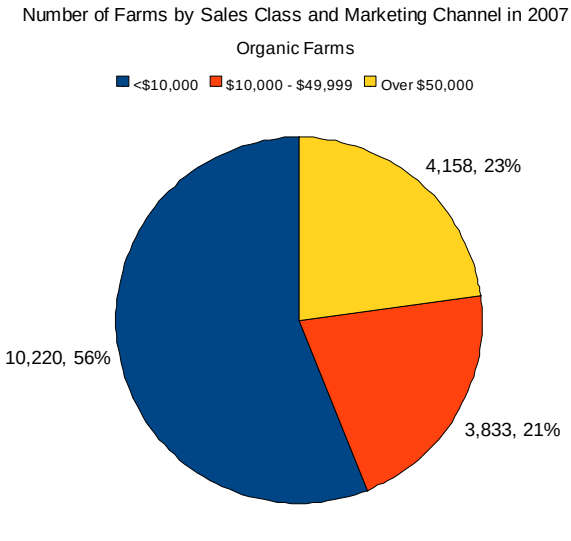
Average Farm Sales by Sales Class and Marketing Channel (in dollars) 2007 Census of Agriculture						
	All Farms		Farms with Direct Sales		Organic Farms with Organic Sales	
Sales Class	Average Sales per Farm	Number of Farms	Average Direct Sales per Direct Farm	Number of Farms with Direct Sales	Average Organic Sales per Farm	Number of Farms
<$10,000	$2,030	1,271,735	$1,877	119,004	$2,550	10,220
$10,000 - $49,999	$20,778	437,774	$20,408	13,935	$23,606	3,833
Over $50,000	$576,524	495,283	$181,412	3,878	$383,014	4,158
Average across all sales classes	$134,807	2,204,792	$8,853	136,817	$93,850	18,211

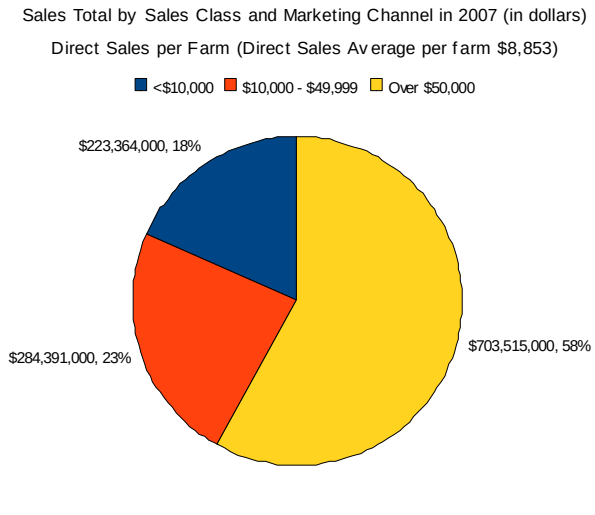
Figure 12. Comparisons of Farm Participation and Farm Sales Class by Marketing Channel.











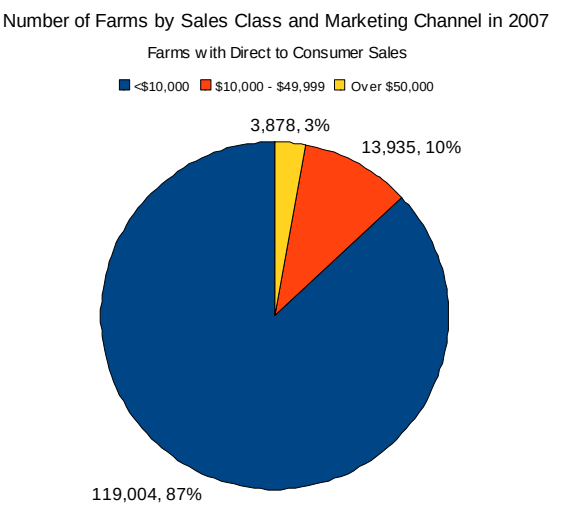


Figure 13. Comparison of Organic Farm Sales by Survey Instrument.

Comparison of Organic Farm Sales in the 2008 Organic Production Survey (OPS) and 2007 Census of Agriculture						
Farms Sales Class	2008 OPS Farms	2008 OPS Sales	2007 Census Farms	2007 Census Sales	Farms – Percent Difference OPS vs. Ag. Census	Sales – Percent Difference OPS vs. Ag. Census
<$10,000	4,862	$15,581,000	10,220	$26,056,000	-52%	-40%
$10,000 - $49,999	3,218	$81,428,000	3,833	$90,483,000	-16%	-10%
$50,000 and over	5,696	$3,067,985,000	4,158	$1,592,573,000	37%	93%
Average sales	-	$229,747	-	$93,850	-	145%
Average sales over $50,000	-	$538,621	-	$383,014	-	41%
Total	13,776	$3,164,994,000	18,211	$1,709,112,000	-31%	42%

Figure 14. Distribution of Farm Sales by Farm Size and Marketing Channel.

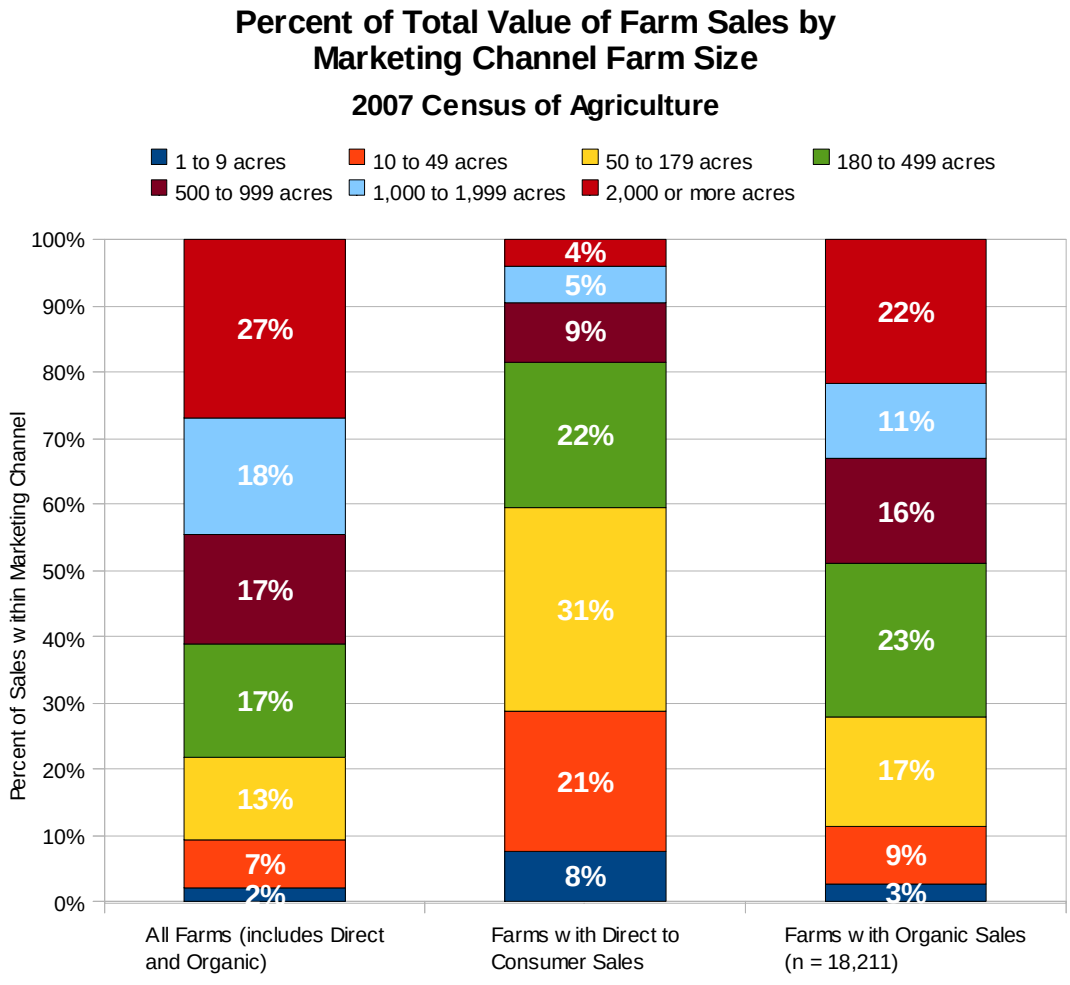


Figure 15. Direct and Organic Sales by Farm Size.

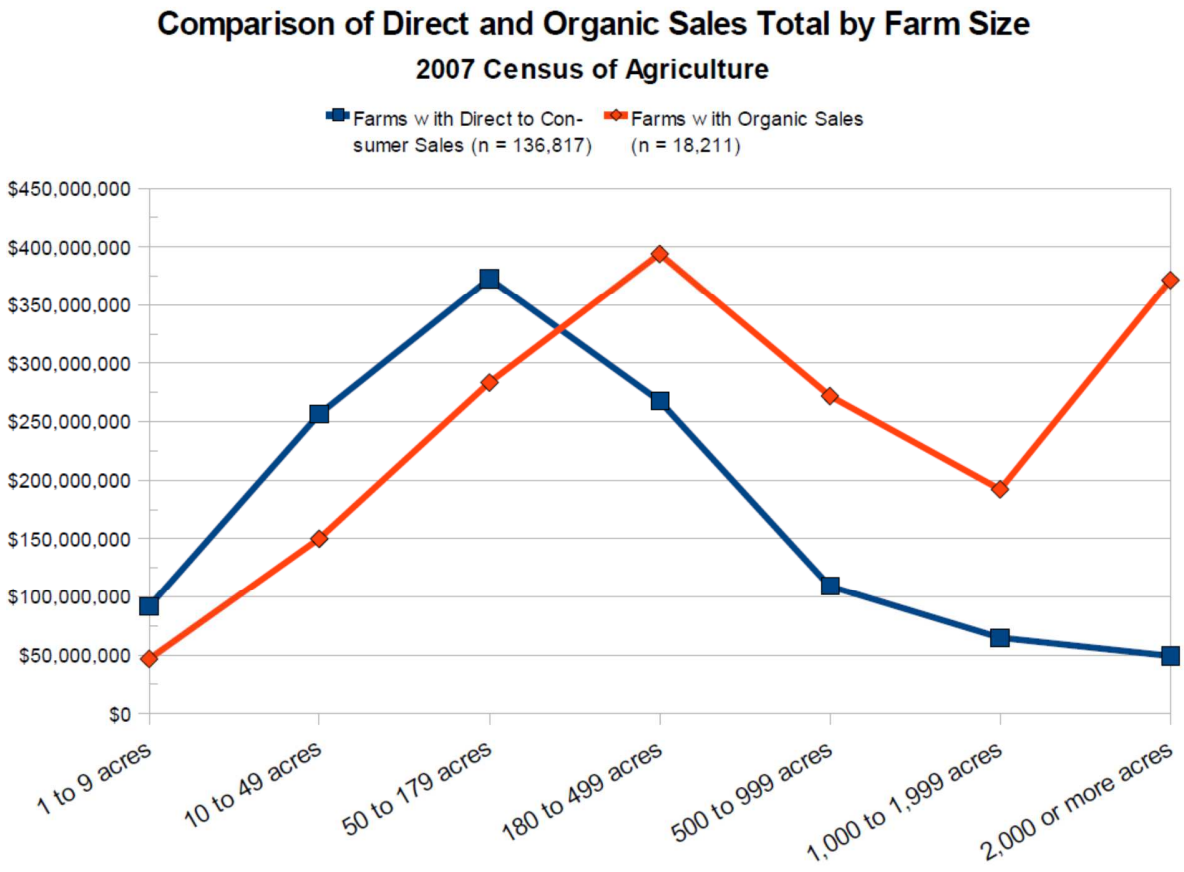
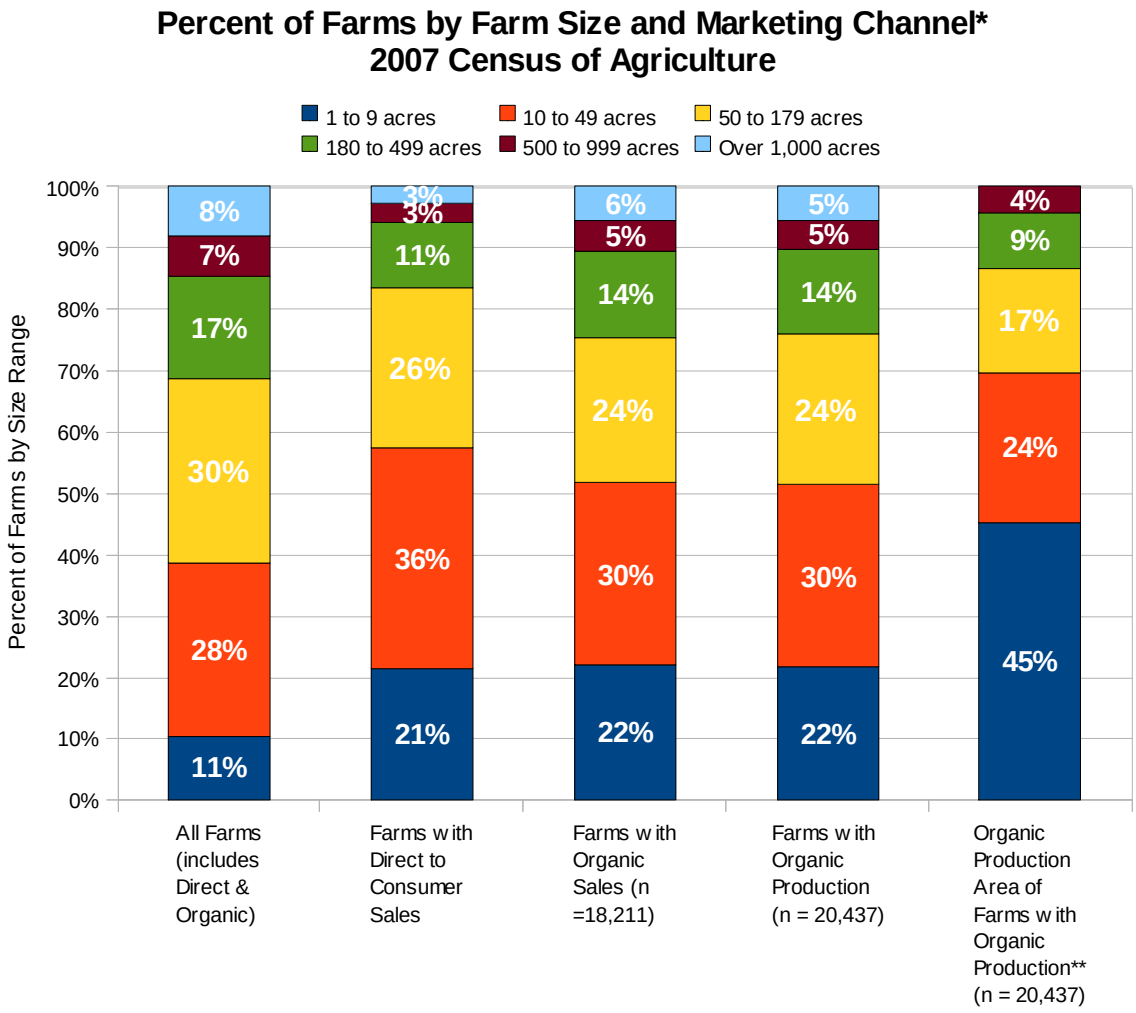


Figure 16. Distribution of Farm Size by Marketing Channel.



*Organic farms may not always sell all product into organic markets and may have less than their total acres in certifed organic production
**Data not differentiated above 500 acres or more

Figure 17. Number of Organic Farms By Sales Class (2008).

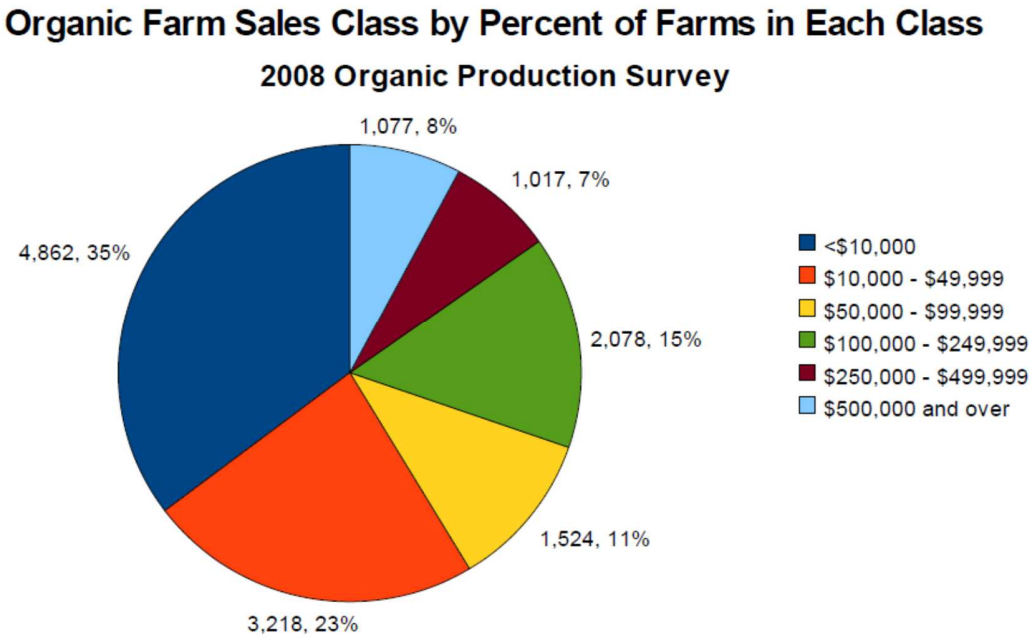


Figure 18. Organic Sales by Farm Sales Class (2008).

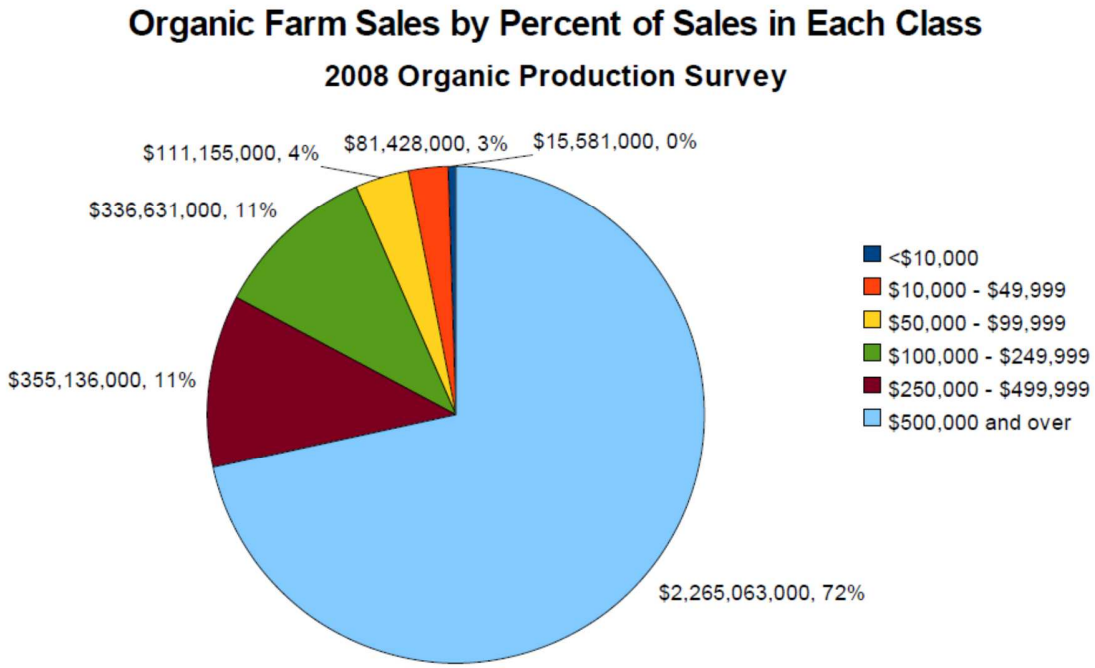


Figure 19. Estimated Total Sales of Farms Making Direct to Consumer Sales.

Estimated Total Sales of Farms Involved with Direct to Consumer Marketing *from the Economic Research Service, based on 2007 Census of Agriculture Data*				
Category	**Farms**	**Total Direct Sales of Farms with Direct Sales**	**Share of Direct Sales as Part of Total Farm Sales**	**Total Sales of Farms Invovled in Direct to Consumer Marketing**
Value of direct sales - farms with total sales under $50,000	116,000	$372,000,000	35.2%	$1,056,818,182
Value of direct sales - farms with total sales $50,000 and $499,999	17,900	$466,000,000	17.0%	$2,741,176,471
Value of direct sales - direct sales $500,000 and over	2,900	$373,000,000	7.5%	$4,973,333,333
Total Sales of Farms Involved in Direct to Consumer Marketing	136,800	$1,211,000,000	-	**$8,771,327,986**

Figure 20. Table Illustrating Multiple Trends in Direct to Consumer Agriculture.[19[p.20]]

Direct farm sales to consumers, by farm type, value of sales, and metro-adjacency status, 2007

	Farms reporting direct sales	Share of all farms[1]	Direct sales	Share of all sales[2]	Direct sales per farm[3]
	Thousands	*Percent*	*Million dollars*	*Percent*	*Dollars*
Farm type					
Vegetables & melons	18.0	44.1	335	25.1	18,611
Fruits and nuts	17.2	17.5	344	26.2	20,000
Other crops	22.4	2.4	155	7.2	6,920
Livestock & livestock products	79.3	6.9	377	9.3	4,754
Farm sales class (annual sales)					
Small farm (less than $50,000)	116.0	6.1	372	35.2	3,206
Medium farm ($50,000 to $499,999)	17.9	7.3	466	17.0	26,016
Large farm ($500,000 or more)	2.9	3.1	373	7.5	127,113
Urbanization					
Metropolitan counties	71.4	8.0	783	18.1	10,969
Nonmetro counties adjacent to metro areas	44.1	5.6	299	11.2	6,768
Remote rural counties	21.3	4.1	130	7.3	6,090
Total	136.8	6.2	1,211	13.8	8,853

[1]Direct sales farms as a percentage of all farms in this farm type, farm sales, or urbanization category.

[2]Direct sales as a percentage of total sales for farms reporting direct sales.

[3]Direct sales divided by number of farms reporting direct sales.

Source: USDA, Economic Research Service analysis of USDA, National Agricultural Statistics Service, 2007 Census of Agriculture data.

Figure 21. Map of Direct to Consumer Sales by Number of Farms per County.

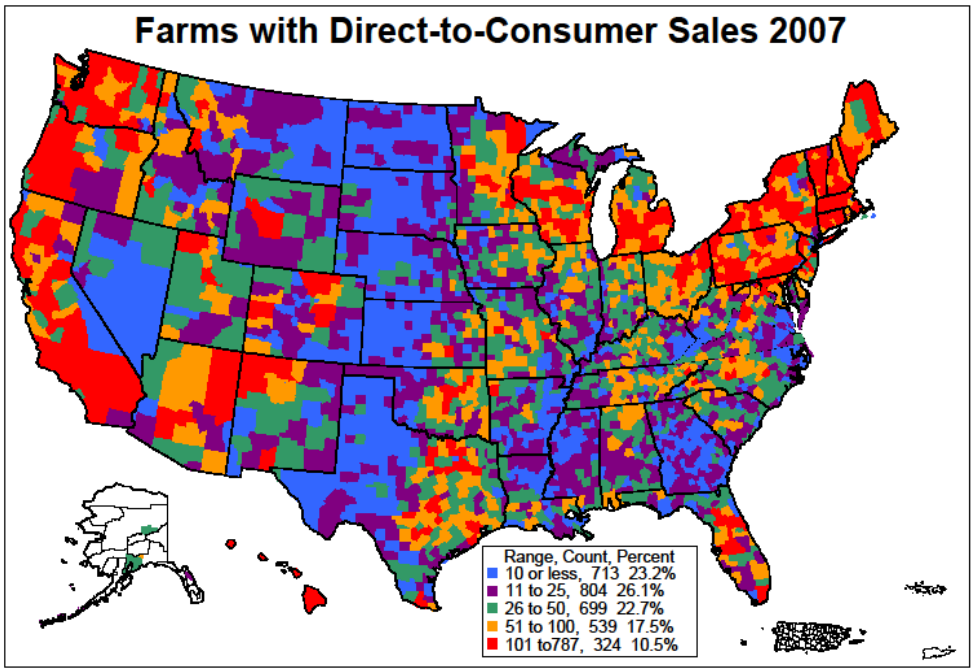
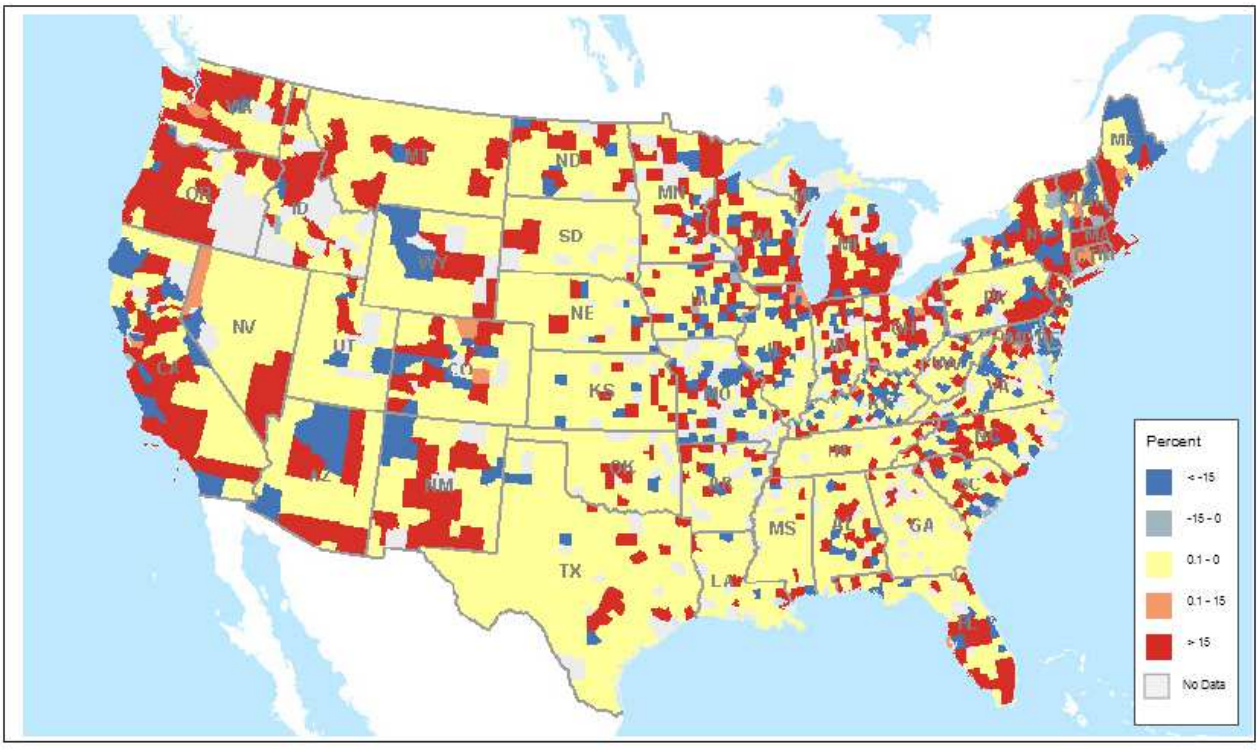


Figure 22. Farmers' Markets, Percent Change 2009 to 2011 (ARMS data).[84]



3. Beginning Farmers

Trends

- The U.S. Bureau of Labor Statistics predicted in 2010 that **"small-scale, local farming, particularly horticulture and organic farming, offer the best opportunities for entering the [farming] occupation**" over the next decade.[85]
    - **By 2012, small-scale agriculture had become one of the fastest growing segments of agriculture even as the number of agricultural managers declined.**[17]

- "According to the 2007 Census of Agriculture**, beginning farms were slightly more likely than established farms to be engaged in selling their production directly to individual consumers**, for example, at farmers' markets (8 and 6 percent, respectively)."[12]

- **Nearly 9 out of 10 of beginning farmers**[25] **(89%) are also starting a beginning farm.** Only 11% of beginning farmers jointly operate with experienced farmers on an established farm – about 3% of all farms.[86]

- **Nine percent of the value of agricultural production and ten percent of production volume is from beginning farms.**[86[p.22]]

- **About 1 in 4 farms have beginning operators, including both beginning and established farms (28% of all farms in 2008).**[86]

- **1 in 5 farms are operated solely by a beginning farmer (21% of all farms in 2007).**[13[p.3]]

- **2 out of 5 farms with direct sales are operated by beginning farmers.**[19[p.18-20]] This represents 53,000 farms out of the nearly 133,000 farms involved in direct to consumer sales (about 11%% of all beginning farms) and is more than twice the number of *all* farms with organic production.

- **Of counties with direct to consumer sales, 4 out of 5 counties (81%) have beginning farmers involved in direct to consumer marketing.** Fewer than twenty percent of counties with direct to consumer sales do not have a beginning farmer utilizing direct to consumer sales (Figure 23).

- **Of counties with CSA farms, 1 in 3 counties have a CSA run by a beginning farmer** (Figure 24). In ten percent of CSA counties, between one-third to two thirds of CSAs are operated by beginning farmers. Four percent of counties have all of CSAs operated by beginning farmers. Beginning farmers operating CSAs are distributed across metro and non-metro counties fairly evenly.

- **In half of counties with value-added production, 25-50% of value added farms are operated by beginning farmers** (Figure 25). In 30% of counties with value-added production half or more value-added operations are on beginning farms. Relative to the lower number of

[25] Beginning farmers as classified by the U.S. Department of Agriculture are individuals who have been farm operators for 10 or fewer years.

value-added farms in the Midwest and Plains regions, many value-added farms are operated by beginning farmers (Figure 27).

- **Of counties with value-added agriculture, 3 in 4 counties (74%) have beginning farmers involved in value-added production** (Figure 26). Relatively high concentrations are in Texas, Oklahoma, Colorado, and Hawaii as well as the West Coast.

- **1 in 3 beginning farmers are over the age of 54.** About 1 in 5 beginning farmers are under the age of 35.[13[p.7]]

- **Beginning farmers are more likely to be female, non-White, or Hispanic than established farm operators.**[13] For example, beginning farms with production are more than twice as likely to have non-white principal operators (12%) than established farm principal operators (6%).[13[p.7]]

- **The primary operator of a farm selling directly to consumers had 4 years less experience, on average, compared to operators not engaged in direct to consumer sales.**[19] In addition, the average age of farmers engaged in direct to consumer sales and organic production is less than the US average.[11]

- **Beginning farmers tend to be more educated than the average farmer.** About 3 in 10 of beginning farmers on farms (29%) with production have completed a 4 year college degree compared to about 2 in 10 of established farms with production (23%).[13[p.7]]

- **Beginning farmers are 1/3 more likely to experience crop loss than established farms, their participation in federal crop insurance programs is 2/3 less than established farms.**[13[p.9, 16]] Two-thirds of beginning farms with production (66%) had a loss compared to just under half (48%) established farms with production.[13[p.9]] However, 10% of beginning farms with production enrolled in federal crop insurance compared with 23% of established farms with production.

- **Overall beginning farmer participation in all USDA programs is *half* that of established farms**.[13[p.16]] The program in the ERS study included commodity, conservation, Conservation Reserve, and crop insurance programs – some of which include preferences for beginning farmers (e.g. EQIP).

- **Most new farm businesses[26] employ a start small strategy, including both beginning and experienced operators.** New farmer entry rates decline for farms over 260 acres in size.[13[p.20]]

- **Most new entrants stay within their size class, however mid-sized farms are the most likely to change their size class with more contracting in size than expanding.**[13[p.20-21]]

[26] New farm entrants are defined as new farms with new farm codes begun in the 4-5 interval between each Census of Agriculture. No qualification is made for the number of years of operator's experience. Thus, new farmer entrants will capture beginning farms, relocated farm operations operated by experienced farmers, a change in primary farm operator, and other situations which would lead to a new farm entity. Despite the range of potential start-up situations, most farms in this category are likely in some stage of business start-up not associated with normal management (e.g. ownership transition, change in primary contact for business relations, switch in legal responsibilities, change in production and management practices, etc.).

- **Most beginning operators purchase land from non-family members.** Only about 1 in 5 beginning farmers were gifted land or inherited it and about 1 in 10 purchased land from a relative. Purchases from non-relatives is highest in the Northeast, with about 2 out of 3 beginning farmers acquiring land this way.[13[p.20]]

Motivations

- **Beginning farmers were more likely to target practices to animal forage and plant productivity issues compared to other farmers receiving Environmental Quality Incentives Program (EQIP) contracts.**[87]

- **About half of organic farmers (49%) started as organic farmers.**[18[p.12]]

- **Among organic farmers, concern for environmental stewardship was more common motivation for adopting organic practices than farm income.** In the survey, about half (51%) of operators had switched from conventional production methods. Reducing chemical use over concerns for family, employee, and environmental health were also common motivations – above farm income.[18[p.12]]

- **Interacting with customers is a top motivation for producers who sell products at farmers' markets.**[1, 2, 3]

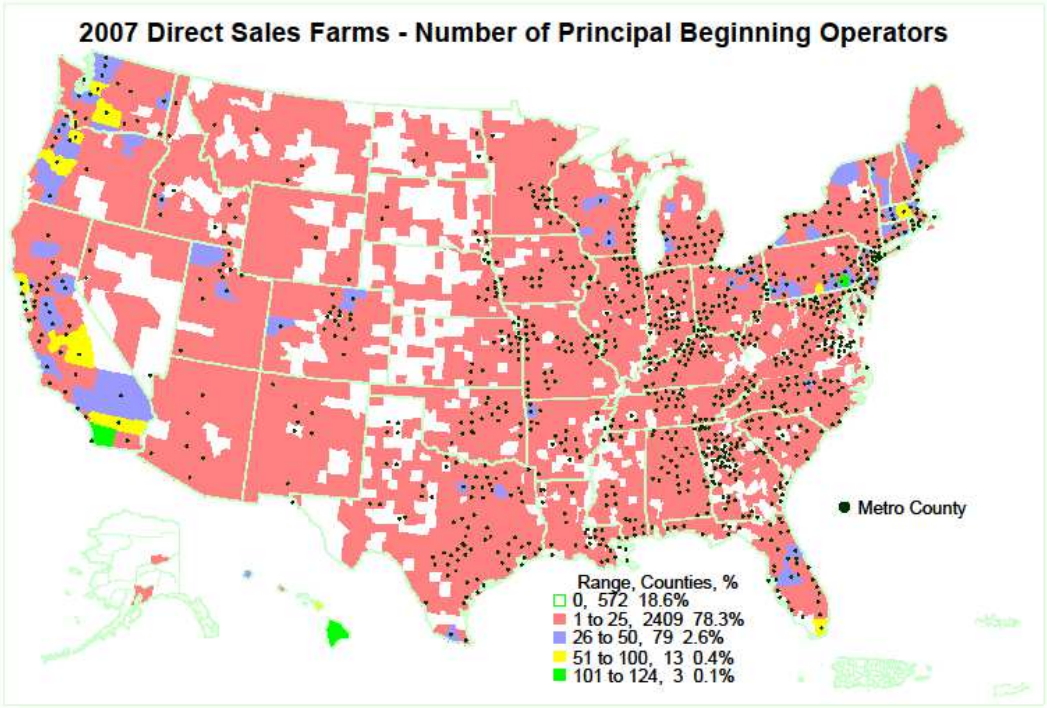
- **Increased levels of entrepreneurial activity are observed with farms involved in direct to consumer sales, organic production, and Community Supported Agriculture.** Increasing levels of farm entrepreneurship are related to increases in sales performance.[19[p.20-23]]

Data Limitations

- **Surprisingly little is known about beginning farmers, especially as federal policies increasingly target beginning farmers**. Perhaps a follow-on survey to Census of Agriculture respondents who are identified as beginning farmers and as new entrants could identify farmer characteristics, motivations, and production and management practices. Using the Census of Agriculture respondents would provide a wider-ranging sample pool than used in the Agricultural Resource Management Survey.

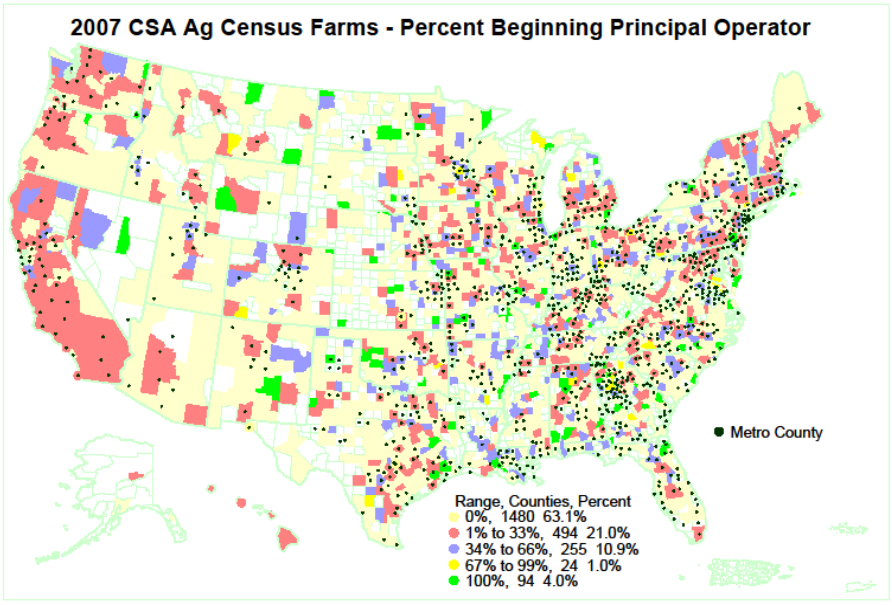
- **The most recent USDA analyses of new farm entrants and farm exits relies on data from 1997 and earlier**.[13, 28] One of these report's main conclusions is that cash grain farms had higher exit rates than livestock operations[13, 28] – a conclusion which may no longer stand as grain demand and prices have increased due in part to biofuel production since 1997. Also, the marketing activities of beginning farmers are not identified in these analyses. This would seem critical to understanding beginning farmers as their smaller farm sizes and limited start-up capital may influence the adoption of value-adding or production differentiation regardless of commodity type. Other USDA researchers have observed relatively high rates of beginning farmer participation in direct to consumer markets.[19]

Figure 23. Map of Number of Farms with Direct to Consumer Sales Operated by Beginning Farmers.



Compiled by The Farm Credit Council from the 2007 Ag Census

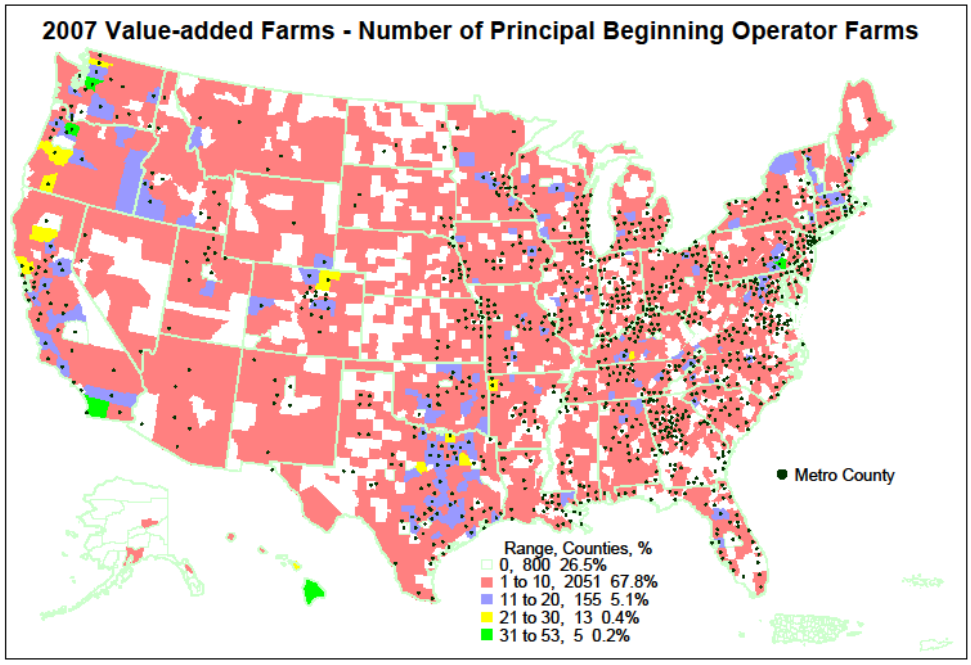
Figure 24. Map of the Percent of Farms with CSAs Operated by a Beginning Farmer by County.



Compiled by The Farm Credit Council from 2007 Ag Census Data

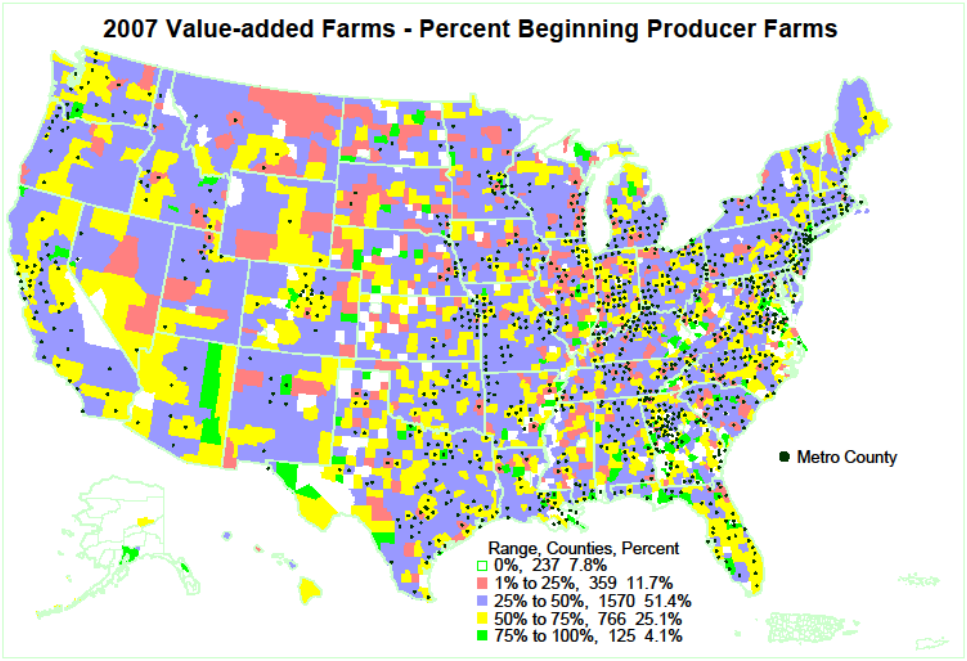
(Note that the percent of counties is a percentage of counties with CSAs and beginning farmers)

Figure 25. Map of the Number of Value-added Farms operated by a Beginning Farmer, by County.



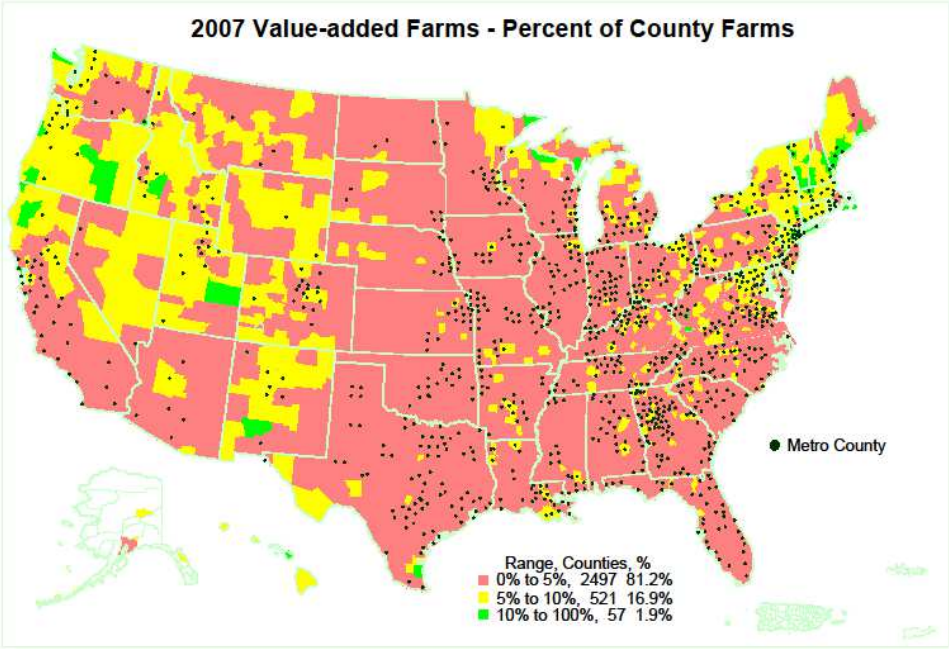
Compiled by The Farm Credit Council from the 2007 Ag Census

Figure 26. Percent of Farms with Value-added Production Operated by a Beginning Farmer, by County.



Compiled by The Farm Credit Council from the 2007 Ag Census

Figure 27. Map Showing the Percent of Total County Farms with Value-added Production.



Compiled by The Farm Credit Council from the 2007 Ag Census

4. Farmer Age & Market Participation

- **Farmers under the age of 35 have declined by about 50% since 1978.** About 1 in 20 farmers were under 35 in 2007. About 3 in 20 farmers were under 35 in 1978.[86]

- **One in three counties in the U.S. did not have a Principal Farm Operator younger than 25 years of age in 2002.** This decreased in 2007 when one in four U.S. counties did not have a farmer under 25 years of age (Figure 28). Many of these counties are rural or agricultural in nature.

- **If direct to consumer sales were measured as a farm product, rather than a marketing activity, it would be the fifth most popular form of agriculture in the U.S.** (Figure 29 and Figure 30).

- **More than half of full-time organic operators are under the age of 54 compared to a one-third average of all US farmers** (Figure 31). On average, 1 out of 3 full-time farmers is 65 or over. By comparison, about 1 in 5 full-time Organic producers is 65 or over. Additionally, Organic agriculture has one of the youngest age distributions of all types of agriculture.

- **Among Principal Operators with another primary occupation, hog and pig farming, milk and dairy production, and tobacco farming have relatively high percentages of principal operators under 25 years of age in 2007** (Figure 32).

- **Organic Principal Operators are about 1.5 times more likely to indicate farming as a primary occupation that average** (Figure 33).

- **Farmers are more likely to farm part-time in age ranges commonly associated with common child-raising years (35-64)** (Figure 33).

- **Principal Farm Operators involved in non-traditional marketing channels, such as organic and direct are younger than the average of other principal operators** (Figure 34 and Figure 35). Also, in the 65 and over range, it may be that when some operators "retire" from another occupation they are more likely to indicate farming as a primary occupation.

- **There is a possible net growth in principal operators with farming as a primary occupation in organic and direct markets between 2002 and 2007**. This is in contrast to a net decline in principal operators indicating farming as a primary occupation (Figure 36).

- **The rate of change (loss) of principal operators with farming as primary occupation is less than average for farms with direct to consumer sales or organic production** (Figure 36).

- **Farmers with organic production in young age ranges (e.g. 25-35) increased by half from 2002 to 2007, whereas the average for all farms over the same period was a 34% decrease in that age range** (Figure 36).

- **Principal operators with farming as a primary occupation seem to have increased in the 45 to 64 age ranges with farms with organic and direct sales – opposite the trend for all farms** (Figure 36). These individuals, if new entrants, likely bring non-farming oriented skills to their farm businesses.

- **Farmers selling at eight farmers' markets in Maine in 2005 were found to be younger, better-educated, and have higher household incomes than the average Maine farmer.** This group had an average age of 44 compared to the state's farmer average of 54, and half had completed four year degrees (53%) compared to 19% of the state's farmers.[2, 19[p.18]]

- **"Lifestyle farms" outnumber the number of part-time organic farms 100:1 and outnumber part-time farms with direct to consumer sales 10:1.** This indicates that the majority of lifestyle farms do not practice organic agriculture or make direct to consumer sales (Figure 37).

- **Full-time operators are more likely to be rent farms than part-time farmers.**[27] This may be related to higher income requirements (and thus land needs) to sustain a full-time commodity operation[13] as well as older farm households retaining farmland ownership and renting their land (Figure 38).[28]

[27] For convenience, producers are nicknamed "Full-time" (FT) if they indicated that farming was a primary occupation on the Census of Agriculture and are nicknamed "Part-time" (PT) if they indicated another occupation as their primary occupation.

Figure 28. Counties without a Farmer Younger than 25.

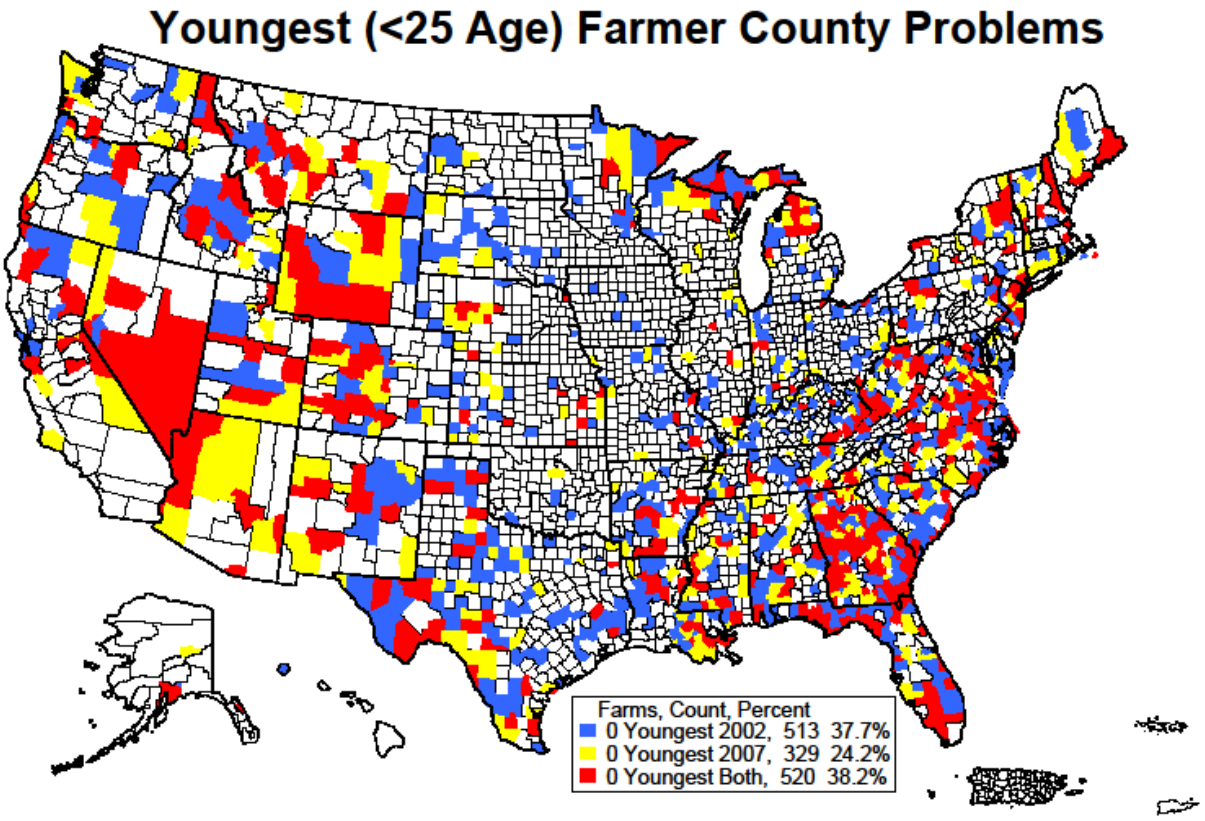


Figure 29. Age Distribution and Product/Market Participation of Principal Operators, Farming as Primary Occupation.

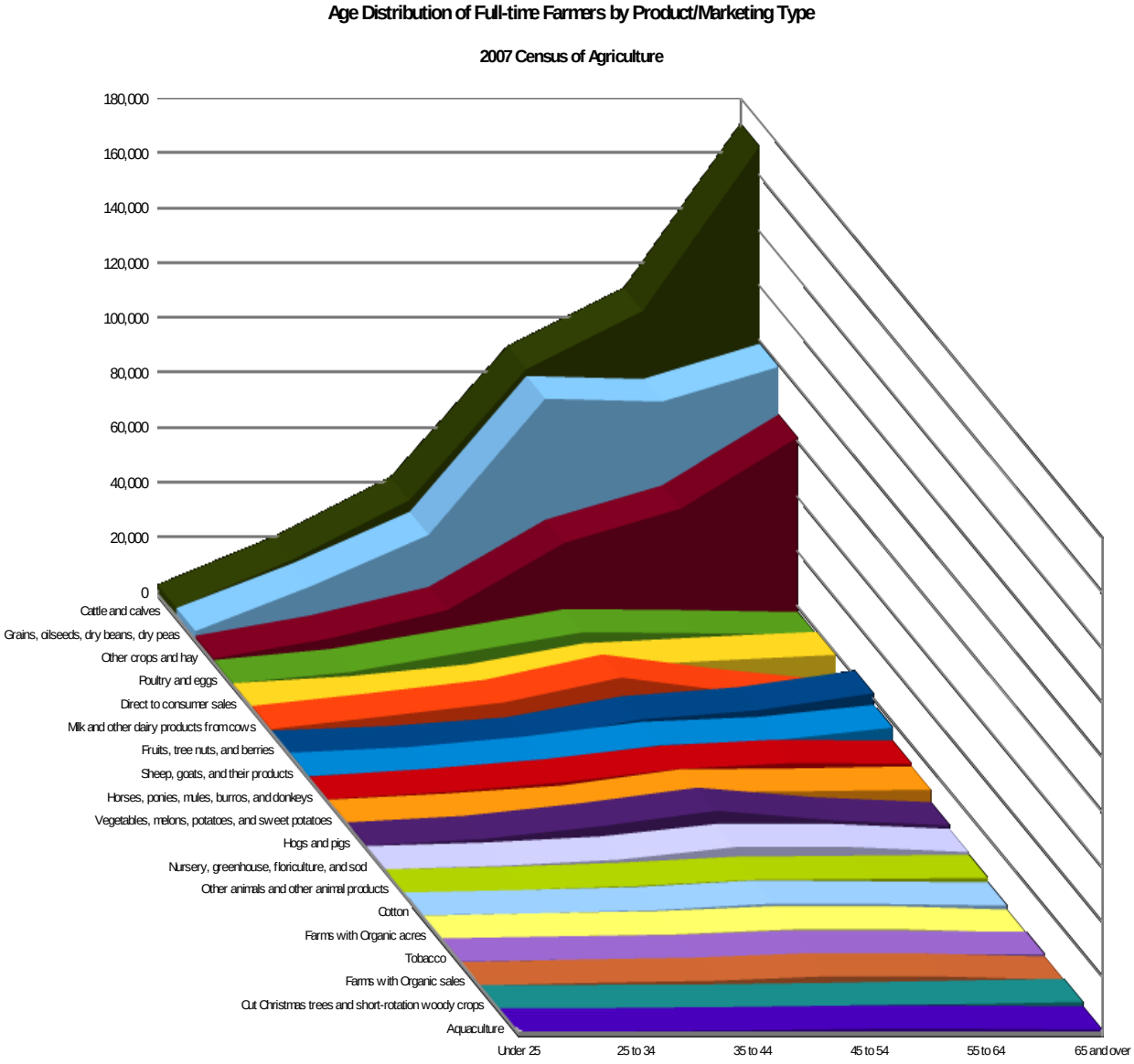


Figure 30. Age Distribution and Product/Market Participation of Principal Operators with another Primary Occupation.

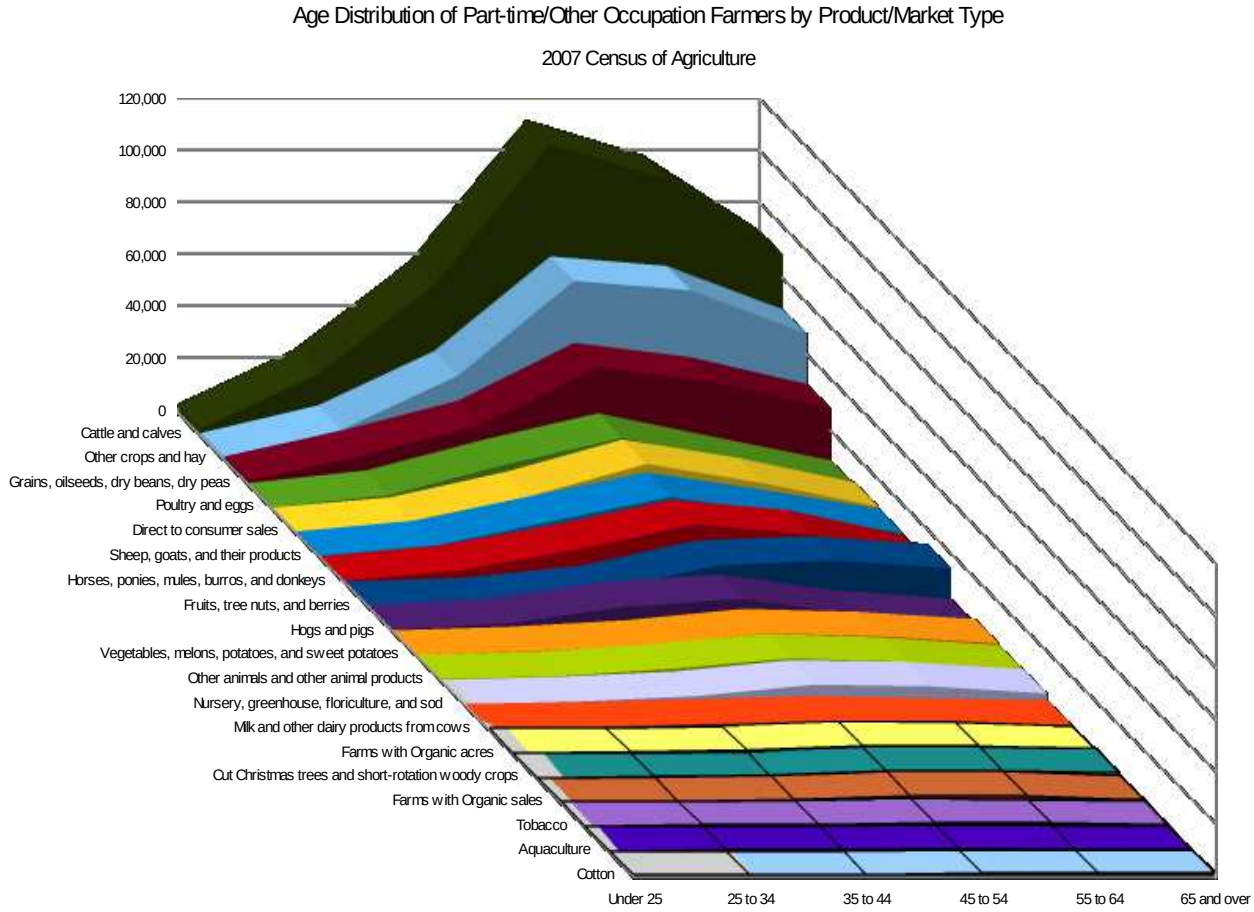


Figure 31. Percent of Farming Occupation Principal Operators by Age Range and Product/Market Channel.

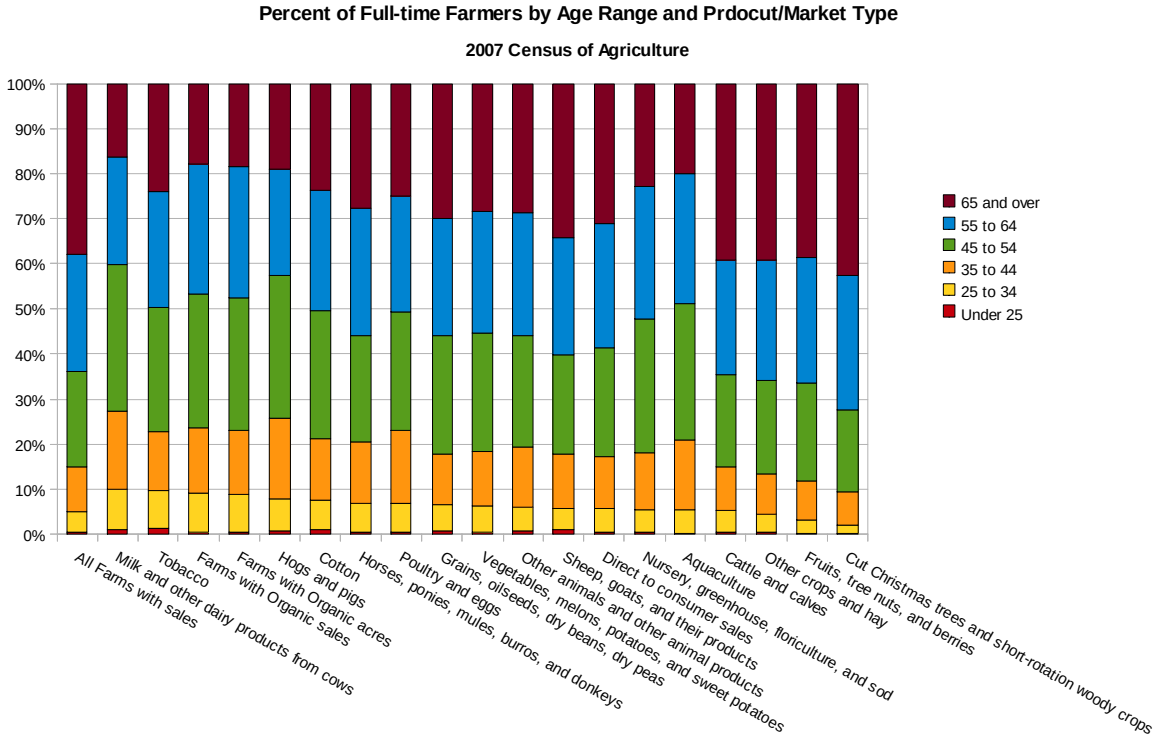


Figure 32. Percent of Principal Operators with Other Primary Occupations by Age Range and Product/Market Channel.

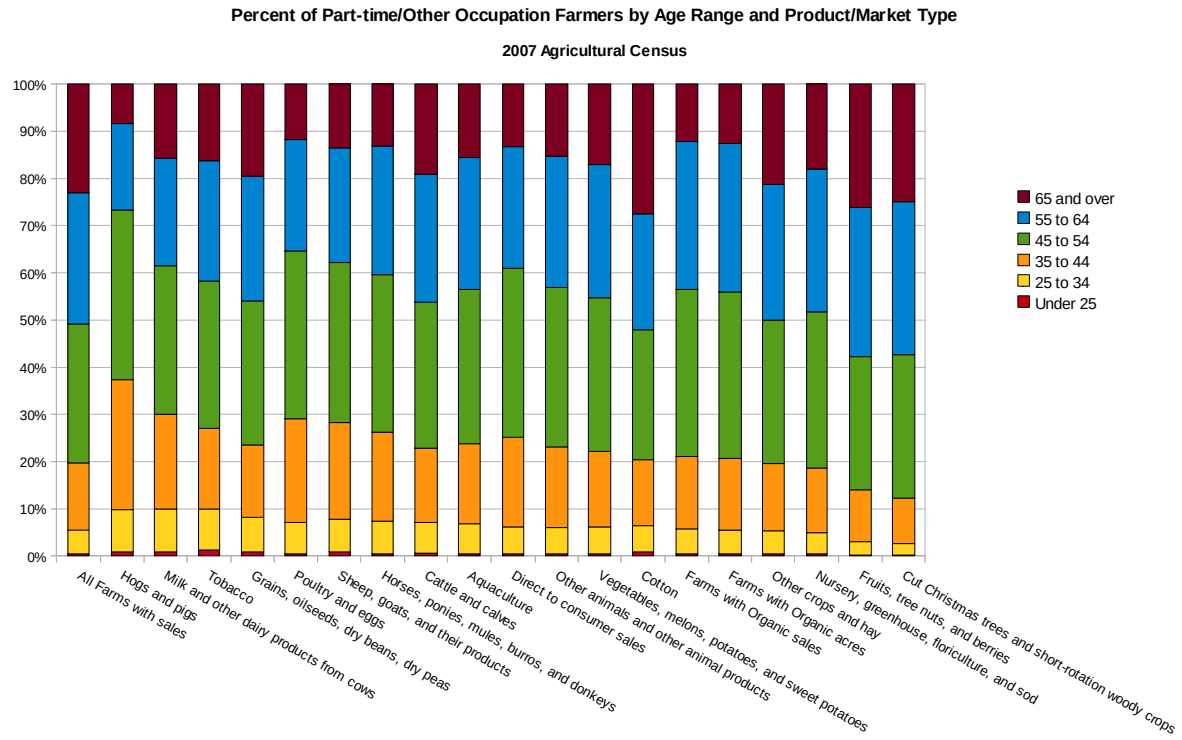


Figure 33. Percent of Primary/Other Occupation Principal Operators by Age and Market Channel.

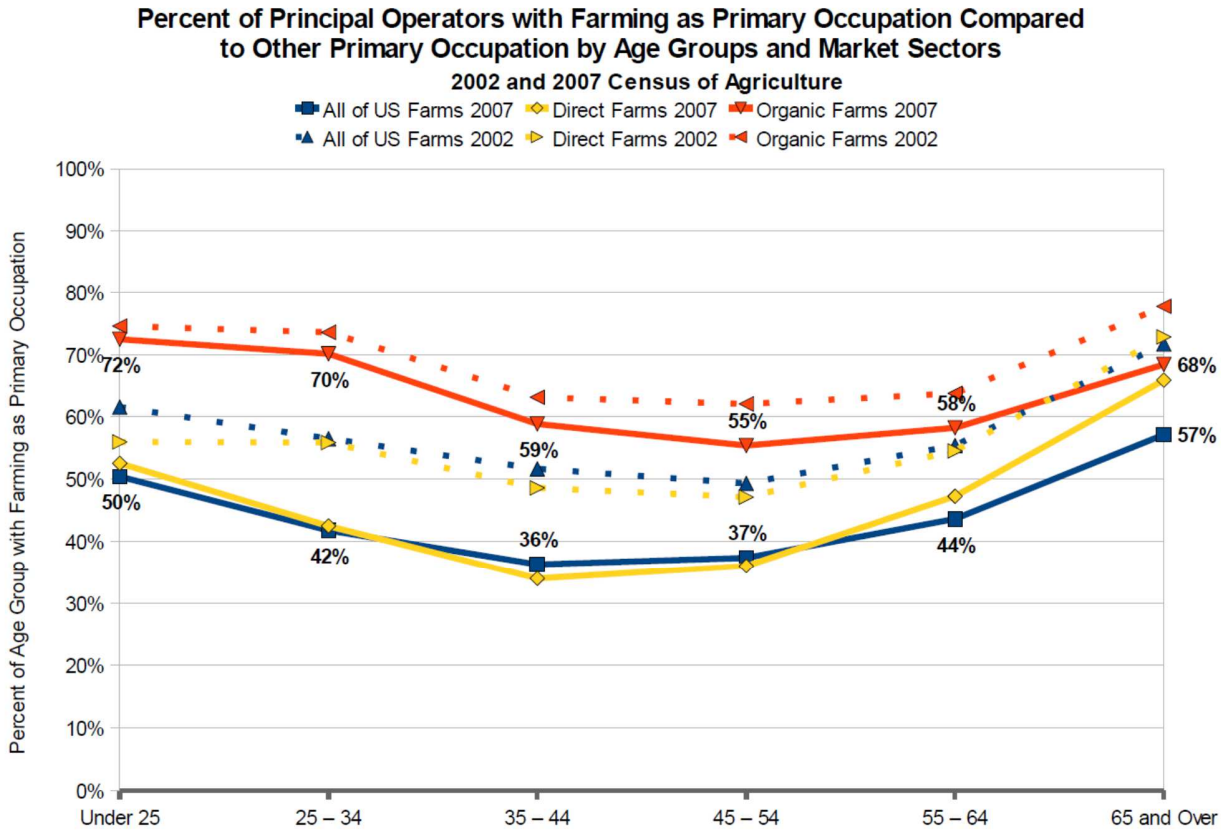


Figure 34. Age Distribution of Farming Occupation Principal Operators 2002 and 2007 by Market Channel.

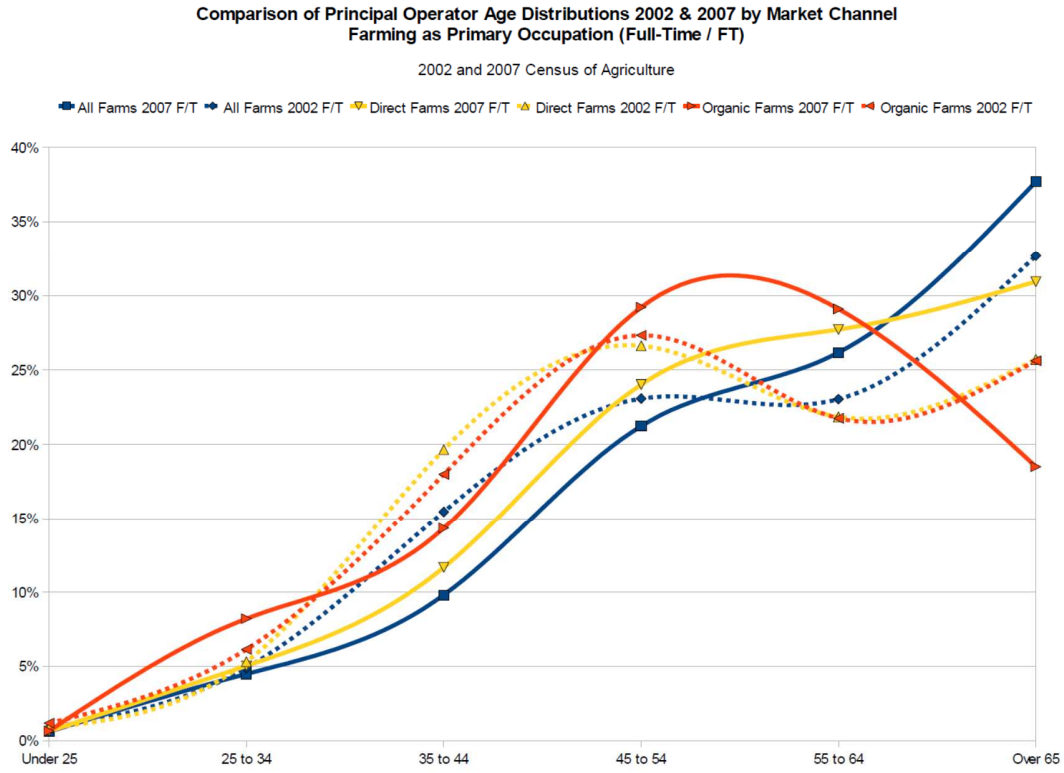


Figure 35. Age Distribution of Other Occupation Principal Operators 2002 and 2007 by Market Channel.

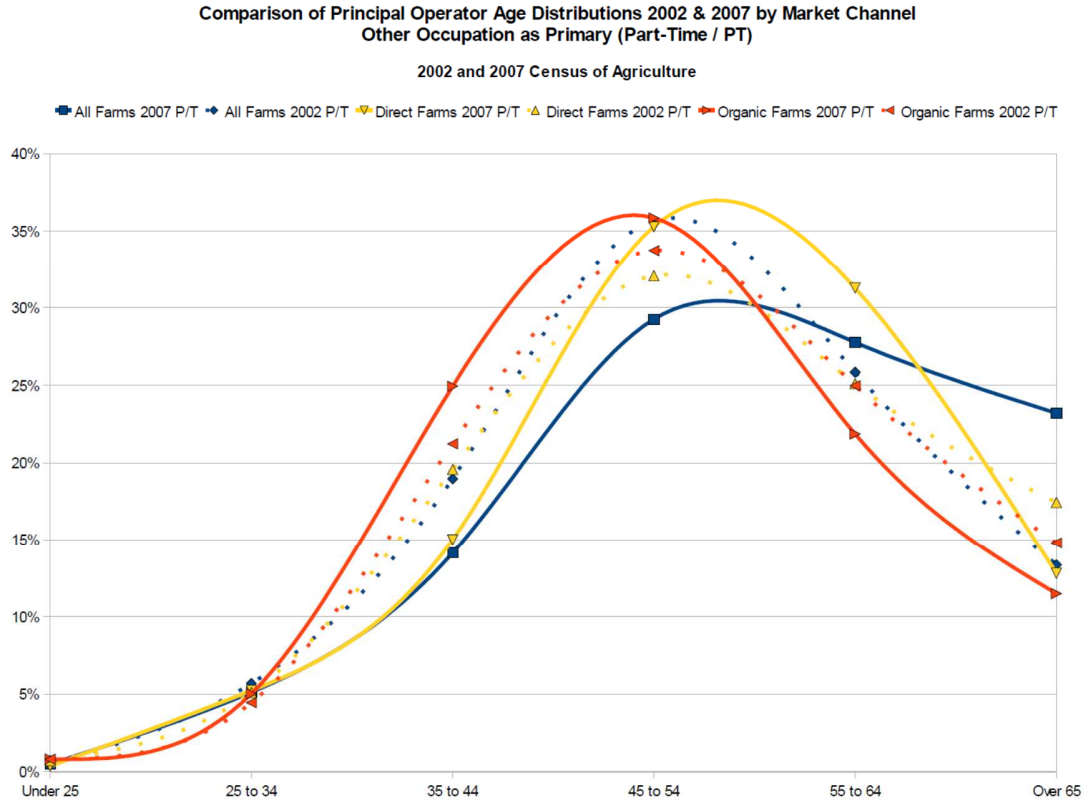


Figure 36. Change in Principal Operator Age (Farming as Primary Occupation) by Marketing Channel 2002 to 2007.

Farming as Main Occupation							
Rate of Change 2002-2007	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65	Net Change
All Farms	-74.4%	-34.4%	-94.1%	-33.9%	-8.5%	-6.8%	**-12.4%**
Direct Farms	-40.5%	-7.9%	-72.1%	-13.4%	19.4%	15.0%	**-9.0%**
Organic Farms	-19.0%	51.0%	17.8%	38.8%	51.1%	9.4%	**-6.9%**
Net Change 2002-2007	Under 25	25 to 34	35 to 44	45 to 54	55 to 64	Over 65	Net Change Total
All Farms	-4,455	-15,359	-91,730	-71,462	-22,004	-25,355	**-230,365**
Direct Farms	-159	-247	-5,242	-1,998	3,344	2,891	**-1,411**
Organic Farms	-15	514	313	1,388	1,821	213	**4,234**

Figure 37. Relative Number of Lifestyle Farms Compared to Farms with Organic and Direct Sales in 2007.

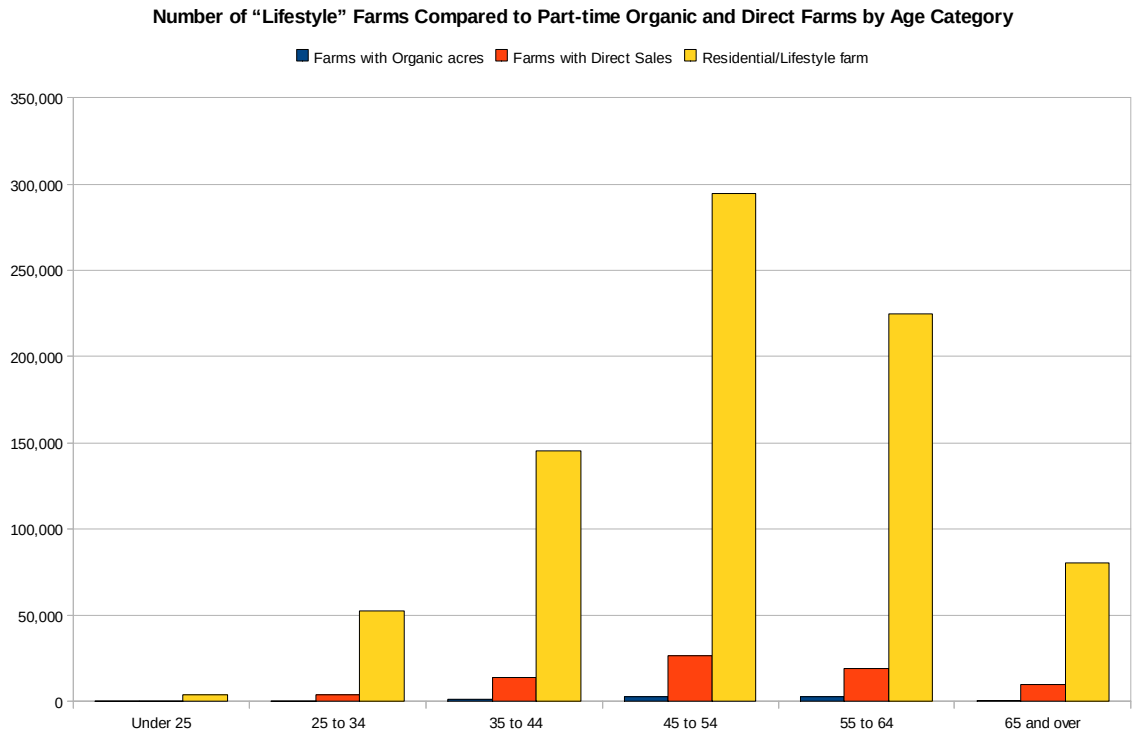
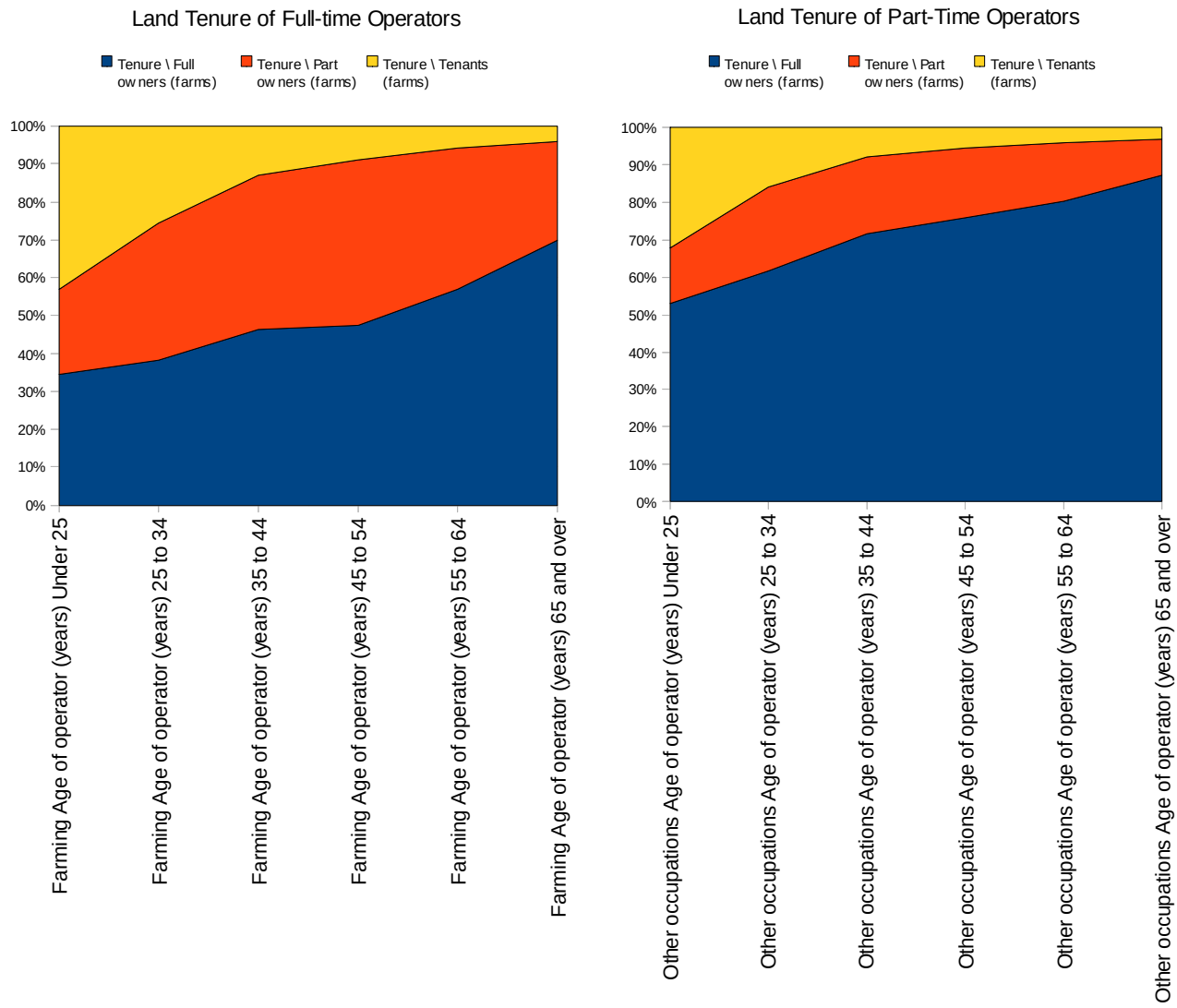


Figure 38. Land Tenure by Age and Primary Occupation in 2007.



5. Distribution Supply Chain Characteristics

Sector Characteristics

- **"Almost all of the wage and business proprietor income generated in the local food supply chains (direct and intermediated) accrues within their respective local areas"** (USDA Economic Research Service report conclusion).[3[p.67, 70]]

- **"Local food supply chains tend to place more emphasis on social capital creation and civic engagement**."[3[p.68]]

- **Nearly 20 important types of marketing channels exist for producers** (Figure 39).

- **Nearly half (48%) of organic food distribution is destined for local and regional markets** in 2007, an increase from 40% in 2004 (Figure 40).[18[p.14]]

- **Three general models to achieve an economy of scale:**
  - **Increasing the number of farms** networked together which market separately or jointly in a common a distribution channel[3[p.14, 66]]
  - **Increasing the production volume** of farms networked together which market jointly or share a distribution channel (e.g. Good Natured Family Farms, KS; Nebraska Food Cooperative, NE)[3[p.66], 52]
  - **Layering multiple enterprises or marketing channels** into individual farms or small businesses[3, 18, 19[p.23]]

- **Meat processing capacity and availability for some species is limited in some areas** of the U.S., especially with small and very small USDA inspected slaughterhouses.[19, 47] For example, the number of slaughterhouses in the US declined from 1,211 in 1992 to 809 in 2008 – a major factor cited in unmet demand for locally produced livestock products.[88]

- **Demand for locally produced meat products may be higher in rural areas** and demand for locally produced produce may be higher in urban areas.[89]

- **Product aggregation/distribution is a major barrier.**[19[p.25]] Additional research is needed to systemically identified aggregation and distribution gaps.[28]

Distributor Characteristics

- **Local, Regional, and Organic processors and handlers are located in urban and rural areas**, with processing/distribution facilities often located near or in urban areas. For example, 1 in 2 organic producers are located in urban ZIP codes, but 7 out of 10 organic handlers are located in urban ZIP codes (see Figure 41 and Figure 42). This may make some critical supply chain businesses ineligible for USDA funding from either Rural Development programs or Farm Service Agencies programs.

[28] Another Economic Research Service report reaches a different conclusion, that in their 5 selected regions of study they did not find limited processing and distribution capacity. However, in their study design, the ERS team indicated that they only selected regions to study which had local and regional distribution systems in place. This would seem to negate their conclusion because areas without local/regional supply chains were not part of their study.[3]

- **Presence of a mainstream distribution chain allows local and regional food enterprises to purchase smaller-scale processing, distribution, and warehousing facilities as they become vacant** due to increasing scale of mainstream distribution channels.[3, 35, 52, 90] Otherwise, **local and regional distribution systems operate in parallel but separately from mainstream distribution systems** – even if national buyers purchase the local and regional products – because they have different methods to achieve product value and scale efficiencies.[3]

- **Variety of ownership types and business models,** including for-profits, non-profits, cooperatives, producer owned/operated, sole proprietors, partnerships, and occasionally public-operated (e.g. a public market, a university with some processing capability, a business incubator).[3, 35, 38, 56] (See Figure 43 and Figure 50)

- While no definitive study of **local and regional food distributor characteristics** exists, we reviewed firms available from several case studies (see also Figure 49 and Figure 50):
    - **Annual revenue ranges from $300,000 to $27,000,000**
    - **Average revenue is about $4.5 million**
    - **Job impacts range from 5 to 525 per firm**
    - **Half (50%) were organized as non-profits**
    - **3 out of 12 were cooperatives**
    - **The minimum number of producers impacted was 12, however the average was 218 per firm**
    - **5 out of 12 firms operated in locations ineligible for USDA Rural Development financing**

- **A survey of Ohioans indicates that 98% of Ohioans would support public policy at the state and local level address local and regional food supply chain needs**.[91] National policy support has already been demonstrated through policies related to local and regional supply chain investments passed into law via the 2008 Farm Bill (e.g. Section 6015 (a local/regional food enterprises priority in the Business and Industries Loan Guarantee and the Value-added Producer Market Development Grant).

Regional Food Hubs (New Section 2012)

- **Capital and business services are the top needs for food hubs – all services provided by FCS.** The top three priorities for regional food distribution systems, as identified by USDA, are
    - start-up capital,
    - working capital, and
    - enterprise development training and technical assistance.[39][25]

- **However, most Regional Food Hubs are ineligible for Farm Credit System financing.**
    - Producer-entrepreneurs lead only 1 in 4 food hubs (Figure 43).[16]
    - Producer cooperatives make up 4% of food hubs.[16]
    - **About 1 in 4 Regional Food Hubs are eligible for Farm Credit financing.**

- **Low loan usage: only 1 in 5 food hubs (20%) utilize business or personal loans to start up operations** (Figure 44).[16]

- The **average annual sales of a food hub are $3.7 million per year** (median of $700,000), ranging from $46,000 to $40 million (n=35).[16]

- **Regional food hubs are essential infrastructure links for small and medium sized farmers, enabling small-volume producers to access larger volume markets.**
    - 71% of regional food hubs serve 21 or more producers.[16]

- **Food hubs reduce a farmers' share of distribution and marketing costs yet provide high-margin access to top-value markets.**
    - Nearly 90% of regional food hubs provide distribution services[16]
        - Over 80% provide marketing services for producers
        - Nearly 80% aggregate products from multiple farms
        - About 75% coordinate transportation/pickup/delivery of farm products
    - The top 7 markets for regional food hubs are:
        1. Restaurants (about 85% sell to these)
        2. Grocery Stores (about 67% sell to these)
        3. Colleges/Universities (about 60% sell to these
        4. Food cooperatives (more than half sell to these)
        5. Other distributors (more than half sell to these)
        6. School food service (more than half sell to these)
        7. Multi-farm CSAs (more than half sell via these)

        (from Figure 45)[16]

- "**Regional food hubs are filling a market niche not adequately addressed by the current distribution system**: the aggregation and distribution of food products from small to mid-sized producers into local/regional wholesale market channels."[57]
    - Top "lessons learned" for food hubs: **"Don't Sell Commodities"**[57]

- **Regional Food Hubs fill technical assistance gaps, providing services important to all farmers, but especially beginning farmers.**
    - Half of food hubs provide training and technical assistance for agricultural and crop planning, production and post-harvest handling, and business management.
    - Two fifths of food hubs provide food safety training and liability insurance.[16]

- Most all food hubs distribute produce. However, **about two thirds of food hubs distribute eggs, dairy products, meat, and poultry.** More than half of food hubs deliver grains.[16]

- **Food hubs are expanding as rapidly as farmers' markets did in the 1990s and 2000s.** There are *at least* 168 food hubs in 2011. There were *at least* 45 in 2000.[57]

- **More than half of food hubs are located in traditional agricultural areas.**
    - Of 72 food hubs identified in a USDA survey, about 60% were located in the Midwest, South, and Southwest (Figure 46).[16] (See also Figure 47 and Figure 48)

Economic Impacts

- **In intermediated supply chains, 33-60% of retail food dollar is retained by the producer**.[3[p.54]]

- **Use of written and verbal contracts, as well as spot markets**.[3, 34]

- **With direct to consumer supply chains at 80%-100% of the retail food dollar is retained by the producer**.[3[p.v, 54]]

- **Food prices at farmers' markets for some locally produced foods were observed to be less than supermarket prices** in several case studies conducted by the Economic Research Service.[3[p.9, 10, 12]] While local food prices are not linked to commodity prices, they do not always reflect a price premium as with organic products and vary market to market.[3[p.13, 16, 22, 33, 36, 41, 57, 67]]

- For example**, beef producers who sell through Thousand Hills Cattle Co., an upper-Midwest regional food marketing alliance, have a margin of $138-$563 per steer, compared to an average U.S. margin of $45 per steer**.[47[p.39]]

- Producers selling through the Local Food Hub in Charlottesville, Virginia
  - **Retain 80% of the retail sales** price
  - **Increased farm sales by 25%** during the Hub's 2 year operation
  - Benefitted from the 120 **buyers who increased local food purchasing by 30%**[57[p. 15-16]]

- **To participate in these chains, producers generally take on some distribution, marketing, or processing responsibilities** (e.g. on-farm milk bottling, produce grading and packaging, managing client relationships, participating in a cooperative).[3]

Regulatory Impacts

- **The fixed costs of regulation limit firm entry[47] and firm growth[3[p.32]]** in meat processing, leafy green, and other sectors.[19[p.25]] [29]

- **Higher food safety regulatory costs per pound for small and very small slaughterhouses**, due in part to fixed regulatory costs and lower product volumes. For example, regulatory costs for small meat plants are 4-8 cents per pound compared to 1-2 cents per pound for large plants.[47[p.5, 12], 48[p.46]]

[29] Another Economic Research Service report concluded that "fixed costs for compliance with regulatory and operating standards … are not currently viewed as a major constraint on the ability of low-volume local food products to use mainstream supply chains."[3[p.66]] However, in the ERS team's study, they only observed firms who were successfully operating within current regulatory frameworks. As they did not observe firms in a start-up phase or observe firms which had closed, this conclusion cannot be extrapolated further and should not be considered as a conclusion which can be extrapolated – especially as other internal ERS and external researchers have observed otherwise.[19[p.25], 47[p.6, 14-15, 26-31]]

- **Slaughterhouse start-up costs may be $2 million or higher and limit sector growth.**[47[p.12]] Additionally, USDA Rural Development loan guarantees which may appear to provide necessary credit access impose impractical restrictions, such as a 20% loan limit on construction costs.[47[p.12]]

- **Small Meat Processors declined 112% from 1977 to 1996.**[92] **Between 1998 and 2007, the rate of decline was about 20%**, in part due to competition from larger-volume plants, but other factors such as regulatory change and uncertainty, plant owner children not wanting to enter the business, lack of training by universities and schools, declining knowledge base, and a small potential employees pool.[19[p.27], 47[p.3, 5, 6, 8, 12-13]]

- **There may be regional shortages of meat processing capacity across the U.S.**[19, 47, 88] (Figure 51, Figure 52, and Figure 53)

Information Barriers

- **A lack of accurate information in the sector may be discouraging new farmer starts**[18[p.10-13]] **and limiting supply chain investments.**[46, 47] **Improvements in data collection activities by USDA are necessary to needed to improve understandings of the economic performance and potential of these sectors.**[19[p.50], 43] Without consistent, high quality economic data on direct, organic, and local/regional food sectors, these sectors can appear riskier to investors – perhaps unnecessarily. Further analysis of the economics performance of direct to consumer marketing and organic production and sales is limited by the 1) lack of in-depth data collected in the Agricultural Census, ARMS, and other USDA surveys, 2) severe data inconsistencies in how organic farms are counted and how their sales are observed, and 3) only limited case study data on farm-level economic performance, such as producer profit margins and production costs.

Figure 39. Diversity of Organic Product Marketing Channels by Percent of Organic Farms Participating in Each Channel.

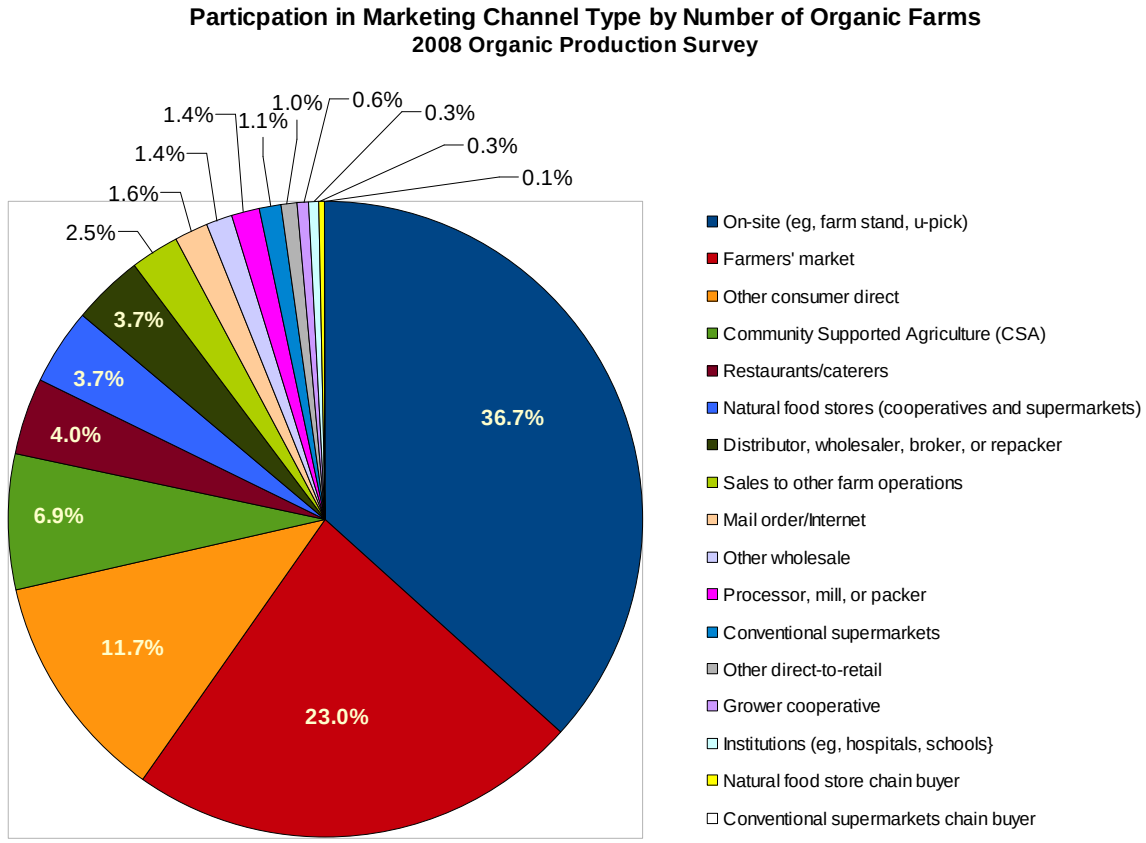
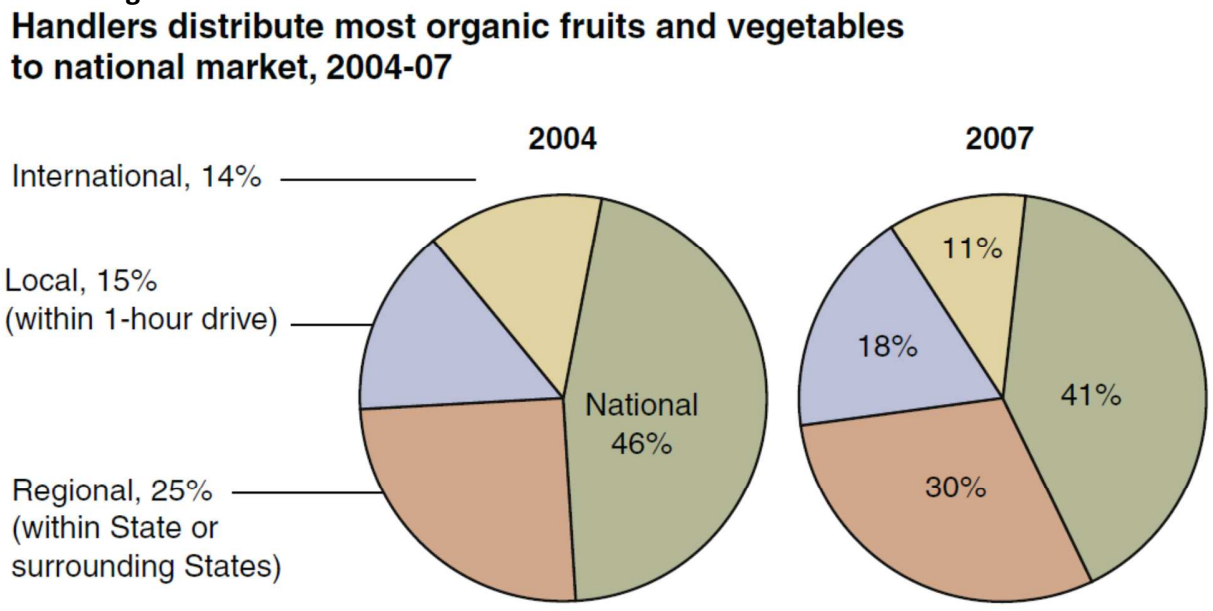
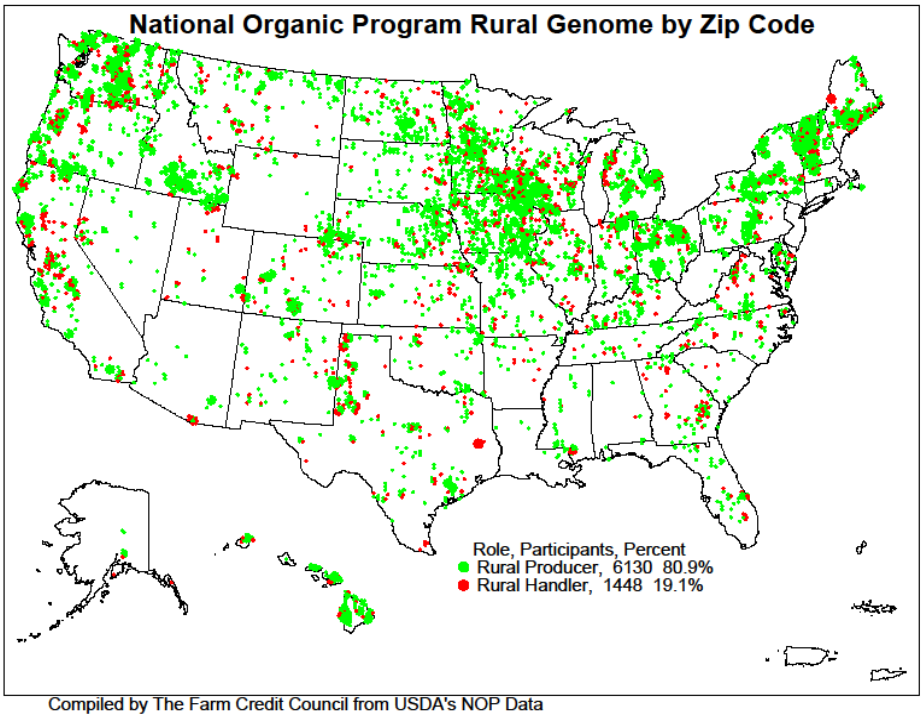


Figure 40. Organic Food Handlers' Product Destinations.



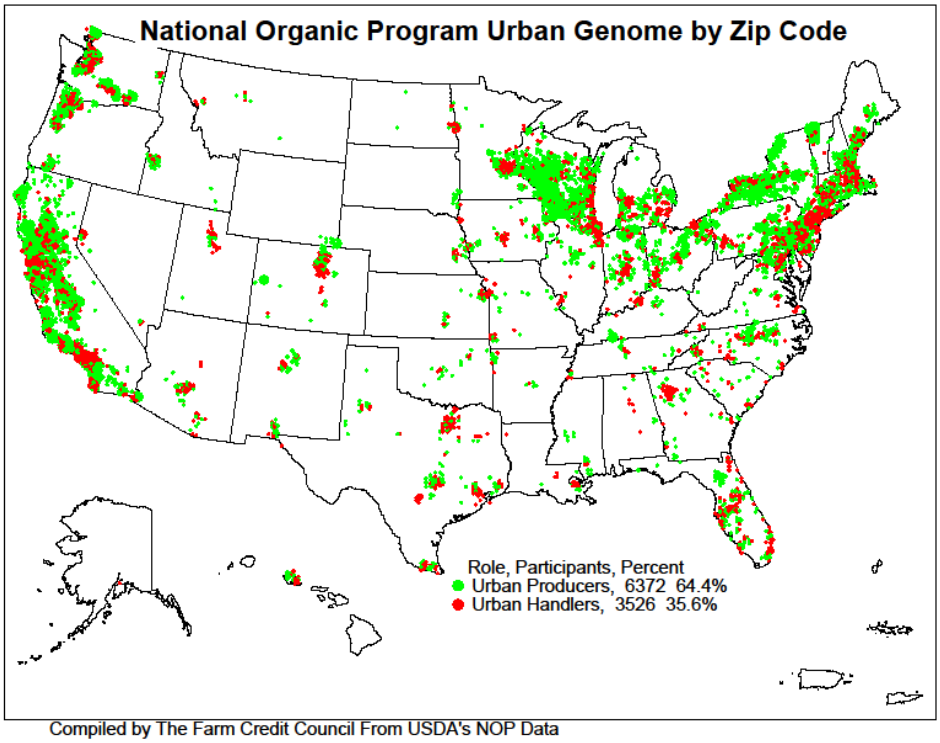
Note: Charts represent percent of sales made in each geographic region.
Source: USDA, Economic Research Service.

Figure 41. Location of Rural Organic Producers and Handlers 2010.



Compiled by The Farm Credit Council from USDA's NOP Data

Figure 42. Location of Urban Organic Producers and Handlers 2010.



Compiled by The Farm Credit Council From USDA's NOP Data

Figure 43. Food Hub Operators.[16]

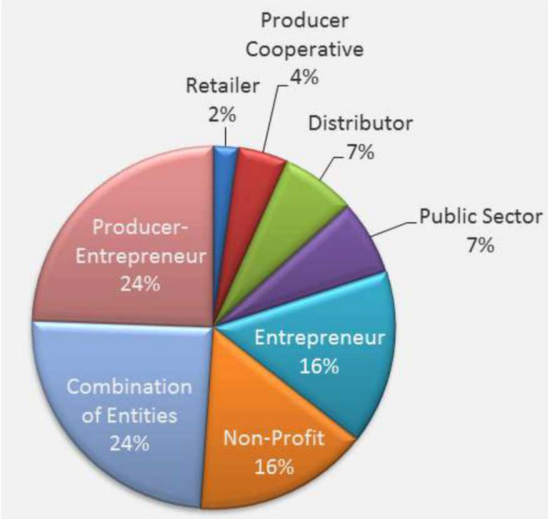


Figure 44. Food Hub Funding by Source.[16]

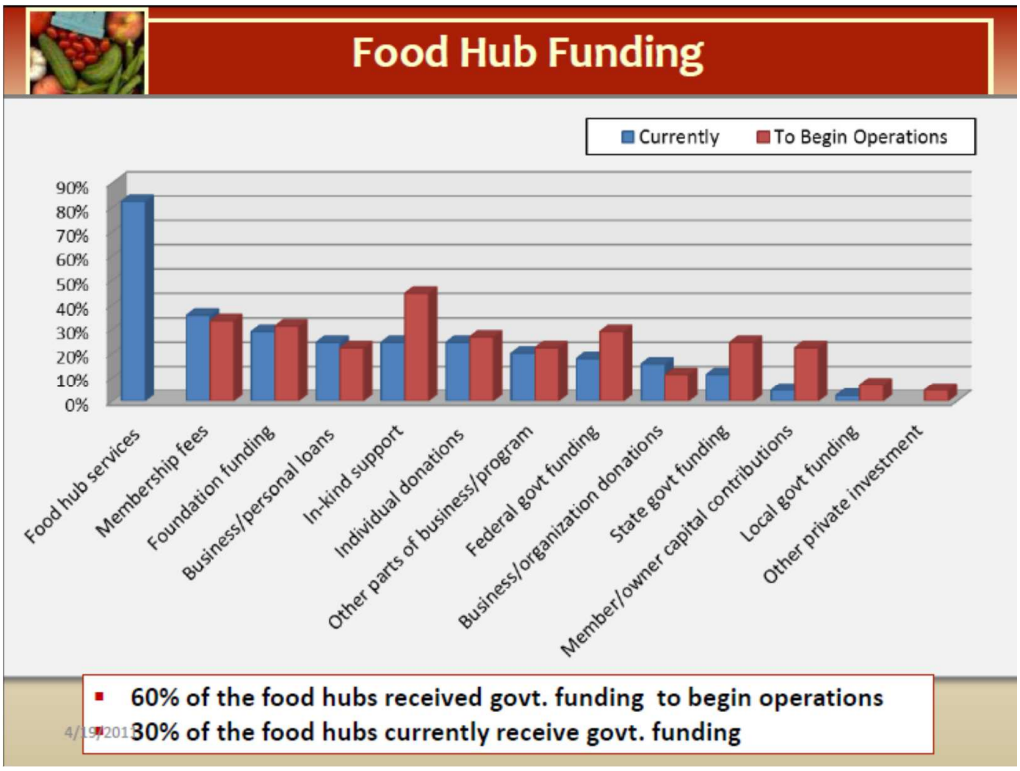


Figure 45. Food Hub Customers.[16]

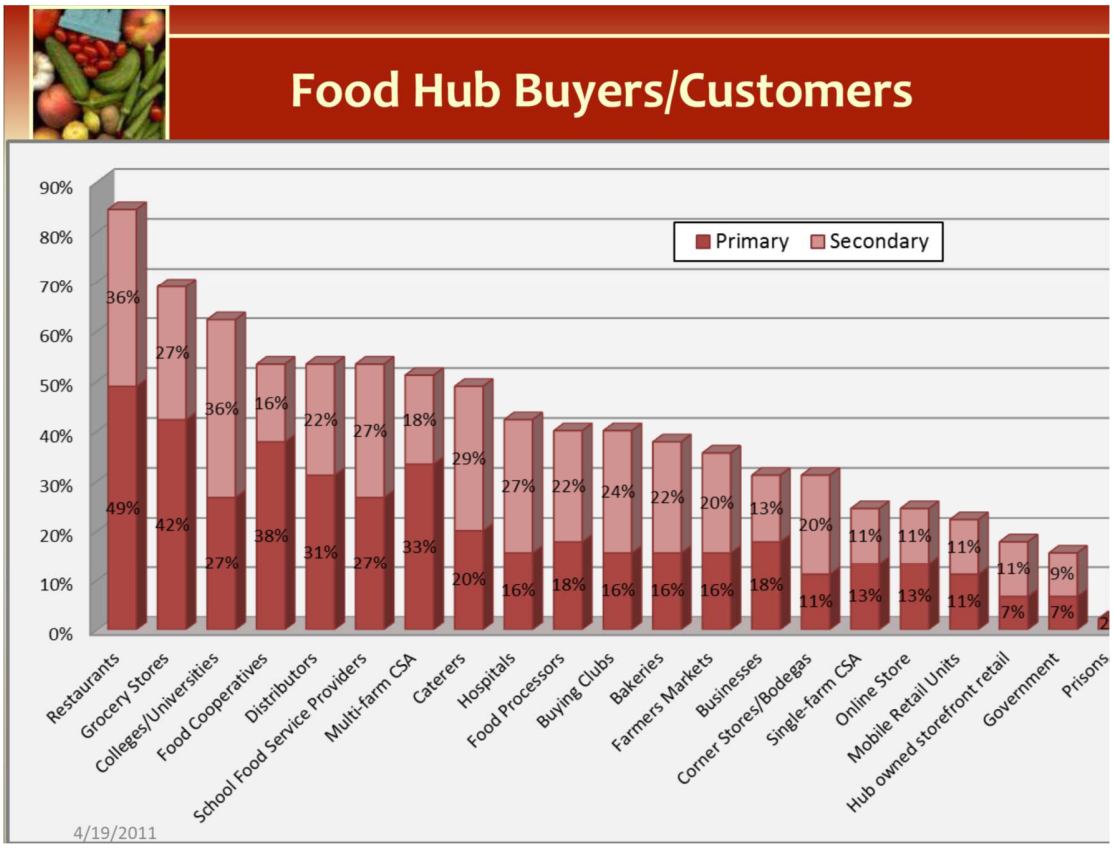
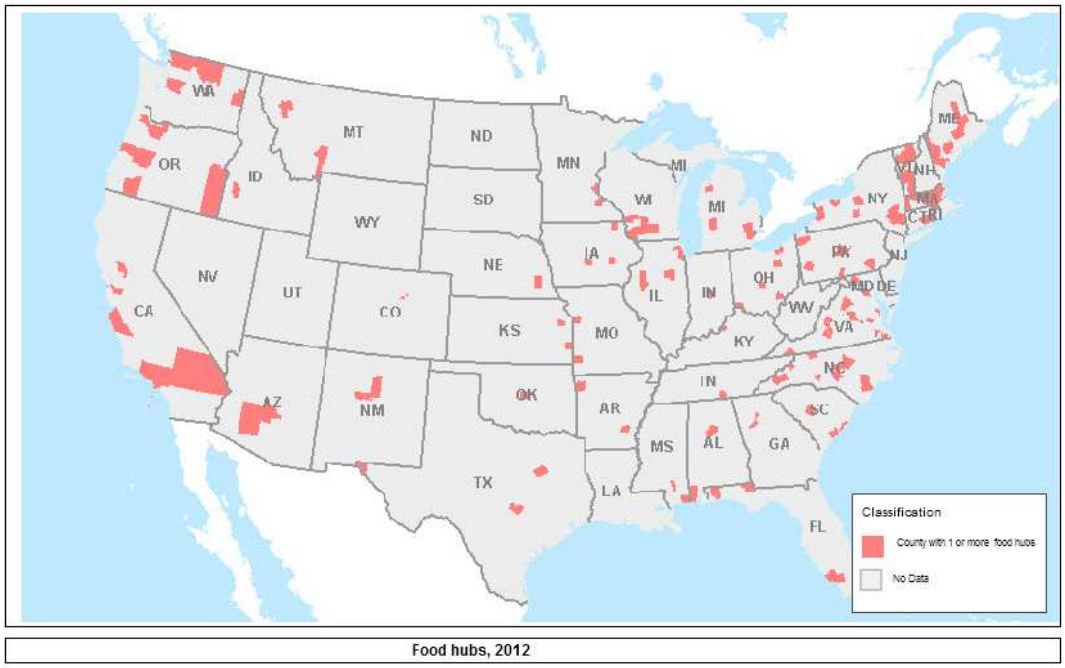


Figure 46. Food Hubs included in USDA Survey.[16]

	West	Southwest	Midwest	South	Northeast	TOTAL
Food Hubs	11 (15%)	5 (7%)	22 (31%)	15 (21%)	19 (26%)	72

Figure 47. Food Hub Locations April 2012 (dots).[57]

Figure 48. Food Hub Locations April 2012 (by county).[94]



Food hubs, 2012

Figure 49. Selected Local and Regional Food Enterprises with Economic, Employment, and Farm Impacts.

Business or Service Type	Name & Location	Ownership Type	Financial Data	Job Impact	Number of Farmers Impacted	USDA Rural/ Non-Rural?	Products	Primary Buyers
-Aggregator -Packer -Distributor	**Appalachian Harvest Network**[35] *Abingdon, VA*	Non-profit	$515,000 *annual revenue 2008*	35	Over 50	Rural Eligible	Organic produce (30 types), free range eggs, grass-fed lamb	650 Retail grocery stores; local colleges
-Aggregator -Packer -Distributor	**Indian Springs Farmers Cooperative**[35] *Petal, MS*	Producer Co-op	$300,000 of producer sales*	Up to 11	About 30	Rural Eligible	Produce (peas, greens, peppers, watermelon, etc.)	1-4 Retail stores, wholesale brokers, restaurants
-New Farmer Incubator -Distributor -CSA -Composting	**Intervale**[35] *Burlington, VT*	Non-profit	$2,154,874 *annual revenue 2008*	14	About 12	Rural Eligible	Organic produce and livestock	Direct sales, restaurants, City contract for composting
-Butcher & Meat Processor	**Lorentz Meats**[35] *Cannon Falls, MN*	C-Corp	About $4 million *Annual revenue 2008*; Products processed worth over $14 million	45	Two large co-ops: CROPP and Thousand Hills Cattle; plus 400 other farmers	Rural Eligible	USDA certified processor for beef, bison, pork, elk	CROPP (Organic Valley), Thousand Hills Cattle (co-op), direct to consumer farmers
-Consumer-Producer Buying Co-op	**Oklahoma Food Cooperative**[35] *Oklahoma City & State-wide*	Co-op	$780,829 *Annual revenue 2008*	1 FT, 4 PT	Not known	Urban Location	2,131 items, including produce, meat, and value-added	Estimated to be 7,000
-Bakery -Restaurant -Creamery -Coffee Roaster -Mail Order -Consultancy	**Zingerman's**[35] *Ann Arbor, MI*	C-Corps & LLCs	$27 million *Annual sales 2007*	525	Not known, most food products sourced locally	Urban Location	Value-added	Deli, Restaurant, grocery sales, catering, training, mail order
-Community Kitchen Incubator	**Nelson Farms at Morrisville State College**[93] *Cazenovia, NY*	Non-profit	$2 million *Value of products sold 2005*	25	300 food entrepreneurs (not all farmers)	Rural Eligible	Baked goods, processed and preserved foods, other value-added	Direct, restaurant & store sales; brand development & sales

Business or Service Type	Name & Location	Owner-ship Type	Financial Data	Job Impact	Number of Farmers Impacted	USDA Rural/ Non-Rural?	Products	Primary Buyers
-Community Kitchen Incubator -Food Manufactur-ing Facility -Loan Provider	**ACENet**[94] *Athens, OH*	Non-profit	$1.4 million *annual economic impact 2005*	250	111 food enterprises	Rural Eligible	Baked goods, processed and preserved foods, other value-added	Direct, restaurant & store sales; brand development & sales
-Meat processor	**Lake Geneva Meats**[95] *Lake Geneva, WI*	For-profit	Not Known	20	Not Known	Rural Eligible	Beef, pork, lamb, buffalo	USDA certified beef, pork, lamb, buffalo
-Local Food Buying Network -Farmer-Chef Collaborative	**Vermont Food Network** *State-wide*	Non-profit	No sales	Not Estima ted	93 farms, 3 co-ops	Internet-based; some members urban & rural	Meat, produce, dairy, value-added	Over 89 chefs, 4 distributors, 19 institutions
-Retail Co-ops -Distributor	**La Montanita Co-op**[90] *Multiple locations*	Non-profit co-op	$2.7 million *in local food sales only 2009 (20% of total)*	Over 200	Over 700 farmers;	1 of 4 retail sites eligible; ware-house not eligible	1,100 local products	Retail stores; regional distributor for CROPP
-Aggregator -Distributor -Meat Processor -Trademark Brand -Farm	**Good Natured Family Farms**[52] *Benson, KS; Warehouse in Kansas City, KS*	For-profit; market-ing alliance	About $4 million annually 2010 (all local)	30	150	HQ Eligible; Ware-house not eligible	Meat, produce, dairy, value-added	29 retail stores including warehouse stores; farm to school; corporate CSAs

Summary Table	**Sales/Impacts**	**Jobs**	**Farms**	(see Figure 50 for detail on estimates)
Average	$4,485,070	105	218	• 7 out of 12 Rural eligible • 5 out of 12 with Urban locations which may not be rural eligible
Maximum	$27,000,000	525	700	
Minimum	$300,000	5	12	

Figure 50. Estimates Used to Calculate Average Firm Impacts.

Estimates Used to Calculate Average Impacts				
Name	Ownership Type	Financial Data	Job Impact	Number of Farmers
Appalachian Harvest Network	Non-profit	$515,000	35	50
Indian Springs Farmers Cooperative	Producer Co-op	$300,000	11	30
Intervale	Non-profit	$2,154,874	14	12
Lorentz Meats	C-Corp	$4,000,000	45	600
Oklahoma Food Cooperative	Producer and consumer co-op	$780,829	5	
Zingerman's	C-Corps & LLCs	$27,000,000	525	
Nelson Farms	Non-profit	$2,000,000	25	50
ACENet	Non-profit	$1,400,000	250	
Lake Geneva Meats	For-profit		20	
Vermont Food Network	Non-profit			150
La Montanita Co-op	Non-profit cooperative	$2,700,000	200	700
Good Natured Family Farms	For-profit; marketing alliance	$4,000,000	30	150
		Sales	Employees	Farmers
Average		$4,485,070	105	218
Max		$27,000,000	525	700
Min		$300,000	5	12

Figure 51. USDA Map Indicating Counties with limited Chicken Slaughter Facility Access.[96]

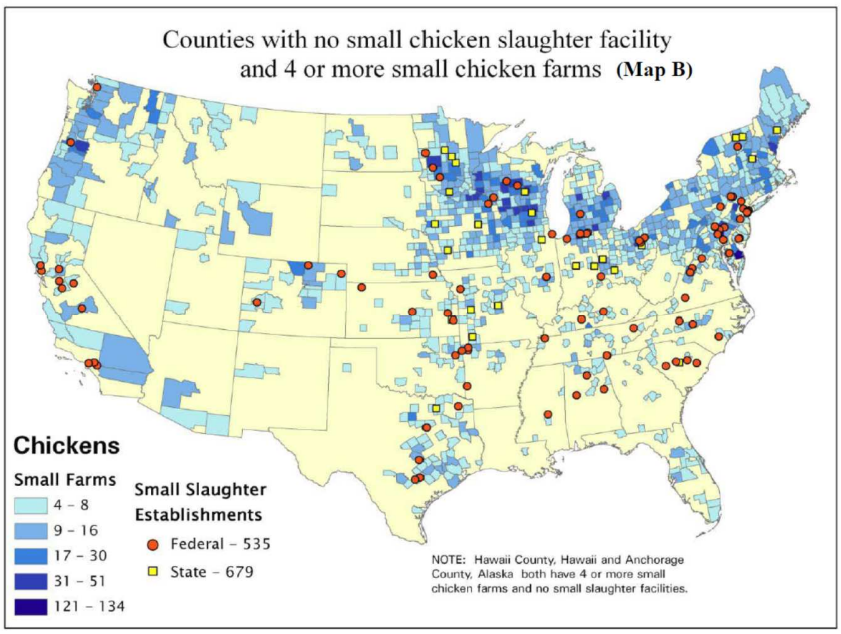


Figure 52. USDA Map Indicating Counties with limited Hog Slaughter Facility Access.[96]

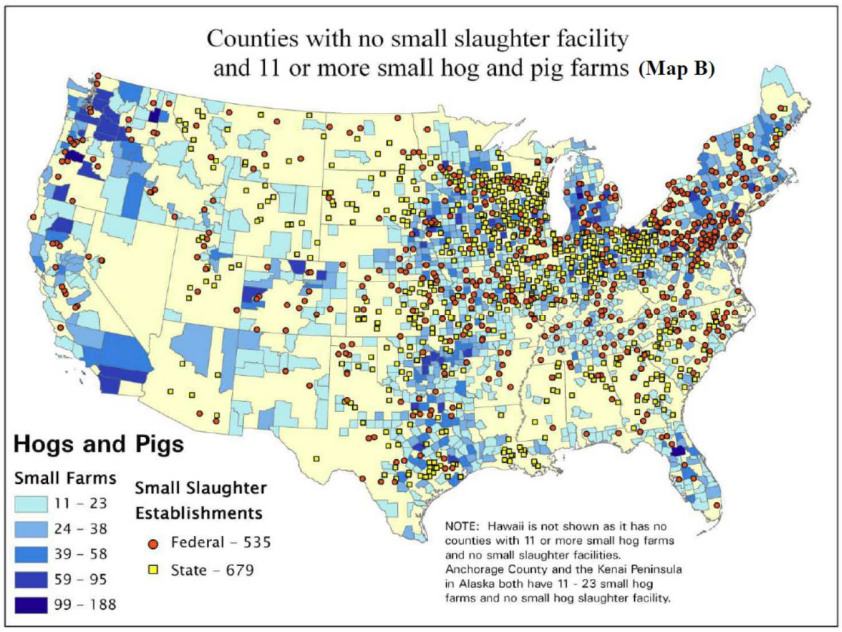
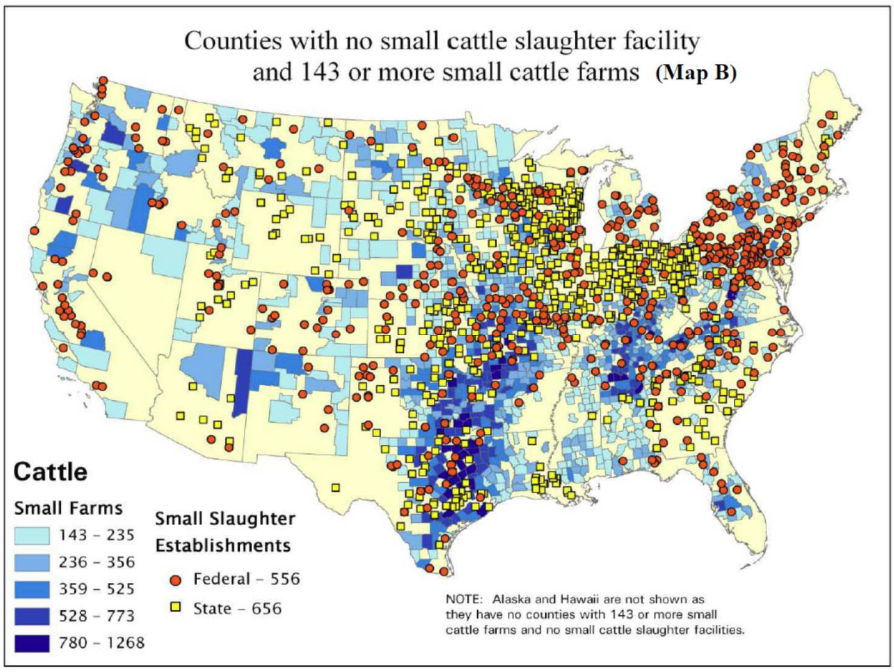


Figure 53. USDA Map Indicating Counties with limited Beef Slaughter Facility Access.[96]



6. Economic, Employment, and Rural Impacts

Economic Impacts from Data-driven Analyses

National Studies

- **About 40% of farmers' markets in the US have paid staff**, on average 1-2 employees per market, and a median of 4-6 employees per market (regional variation affects the ranges).[97] A rough low estimate of total market staff employment in the US would be at least 3,600 farmers' market employees/staff to manager the markets (based upon the number of farmers' markets in 2010 (6,100), assuming 40% have paid staff, and on average there are 1.5 staff at those markets). Most of these jobs, but not all, are probably part-time.

- **Local food supply chains appear to retain a greater share of wages, income, and farm revenues within local areas, relative to mainstream supply chains**, as observed in a fifteen case study report conducted by the Economic Research Service.[3[p.70]] While mainstream supply chains can retain 50-100% of wages and an income in a local economy, nearly *all* wages and income from local food supply chains are retained in the local economy.[3[p.67]]

Regional and Local Studies

- **The Rochester Public Market, in New York, made sales of $38 million** – one third of total food sales in a 1 mile radius – including $8 million in wholesale to neighboring businesses in 1995.[98[p.9]]

- **West Virginia's farmers' markets were estimated to have generated $2.4 million in sale**s, $656,000 in annual labor income, and 69.2 full-time equivalent jobs in 2005. These impacts were calculated as a net gain of $1.3 million to the state economy even though the estimates suggested a loss of 26.4 full time equivalent jobs from the mainstream retail sector.[99]

- **Economic multiplier effects associated with farmers' markets were found to be $1.47 to $1.58 for each dollar spent in Iowa[100] and $1.41 to $1.78 for each dollar spent in Oklahoma**.[101]

- **In Oregon, consumer spending near an in-session farmers' market ranged from $4,400 to $38,000 at area businesses on the same shopping trip.**[102]

- **Restaurants in Iowa which purchased locally sourced foods found that locally produced foods cost less per pound on average than foods from a national vendor ($3.80/lb. vs. $4.30/lb.).** However, it took 128 hours on average for buyers to find locally sourced food, compared to 92 hours from national vendors.[103]

- **In Pennsylvania, a $30 million public investment in Fresh Food Financing catalyzed $160 million in private investments for 83 new or upgraded supermarkets in urban and rural low income areas, leading to 5,000 new jobs** and 400,000 residents with improved food access.[104]

- **The local economic impacts of local food purchases by restaurants and farm production had higher than average economic impacts in the Black Hawk county region of Iowa.** Specifically:
    1. Restaurants with local food purchases had a 1.94 multiplier on total output, a 1.65 multiplier on labor income, and 1.54 multiplier on jobs compared to regional restaurants which had a 1.53 multiplier on total output, a 1.54 multiplier on labor income, and a 1.20 multiplier on jobs.
    2. Farms providing local foods had a 1.92 multiplier on total output, a 1.65 multiplier on labor income, and a 1.83 multiplier on jobs compared to the average regional grain farm which had a 1.35 multiplier on total output, a 1.44 multiplier on job income, and a 1.56 multiplier on jobs.[105[p.33]]

Potential Economic Impacts from Estimates

State-level Estimates

- **In Iowa, if state residents purchased 25 percent of food products from local sources (10 percent estimated as current level), then net impacts could be an agricultural sales increase of $92 million annually, $33.5 million in new wage income, and more than 1,100 jobs.**[106[p.18]]

- **In Michigan, if state residents purchased twice as many food products from local sources, then the *net impacts* would include $164 million in new farm sales annually, $23 million in new wage income, up to 1,889 new jobs, and 15,000 acres of farmland kept active.**[107]

- **In Detroit, a 20 percent increase in the purchase of local products would increase farm sales by nearly half a billion dollars annually, create $125 million in new wage income, produce nearly $20 million in business taxes, and raise the average Detroit income by $2,900.**[108]

- **In North Carolina, a study of the demand of local foods in the western part of the state identified $491 million in demand for local products, with a net potential economic impact of $678 to $1.4 billion annually.**[109]

- **In Washington, a 20% increase in the purchase of local food products would increase the local economic impact of the food and farm sector by nearly half a billion dollars annually.**[110]

- **A state-wide Virginia study found that if each Virginia household purchased $10 per week of local produce of Virginia raised product, the impact would be an increase of $555 million in farm sales in the state.**[111]

- **In Georgia, an increase of $23.6 million in state economic output was estimated if Georgia producers were to achieve the average level of direct to consumer sales per U.S. farm, creating an additional 232 jobs.** Additionally, University of Georgia researchers estimated that for each 5% increase in consumer food spending on Georgia-produced foods, 345 jobs would be created and economic output would increase by $43.7 million. If Georgia households spent $10 per week on locally grown products – from any retail venue – the total economic impact would be $1.94 billion per year.[112]

County/City-level Estimates

- **In Garfield County, Oklahoma, a five percent increase in local food purchases from county farmers would raise the average county farm income by $2,340 above the average net farm income of $19,963.**[113[p.115]]

- **In one Ohio county, Knox County, increasing local food retail sales by 10% and would increase local economic development by $1.2 billion and create 243 new jobs**. The introduction of a new local food distributor would have a total economic impact of $1.5 billion and create a total of 96 new jobs.[114]

- **A Louisville, Kentucky study[115] identified several local food investment opportunities:**
  - Permanent Downtown Public Market:
    - $11,000,000 3-yr. investment;
    - $15,300,000 return to KY farmers; and a
    - **1.4 investment return ratio**
  - Meat and Poultry Processing Facility:
    - $5,000,000 3-yr. investment;
    - $15,225,000 return to KY farmers; and a
    - **3.0 investment return ratio**
  - Farmers' Market Coordination, Management Improvement, and Marketing:
    - $900,000 3-yr investment;
    - $5,400,000 return to KY farmers; and a
    - **6.0 investment return ratio**
  - Aggregation Points for Local Food Distribution:
    - $795,000 3-yr. investment;
    - $3,300,000 return to KY farmers; and a
    - **4.2 investment return ratio**
  - Restaurant Purchasing Increases & a "Public Interest Broker":
    - $450,000 3-yr. investment;
    - $2,250,000 return to KY farmers; and a
    - **5.0 investment return ratio**
  - Doubling of Community Supported Agriculture Sales:
    - $450,000 3-yr. investment costs;
    - $789,000 return to KY farmers; and a
    - **1.8 investment return ratio**
  - Agritourism Promotion:
    - $450,000 3-yr. investment;
    - $600,000 return to KY farmers; and a
    - **1.3 investment return ratio**

- **In Detroit, a 20 percent increase in the purchase of local products would increase farm sales by nearly half a billion dollars annually, create $125 million in new wage income, produce nearly $20 million in business taxes, and raise the average Detroit income by $2,900.**[108]

7. Methodology

Quantitative data on the diverse variety of marketing options available to young, beginning, and small farmers is very limited. The most reliable and consistent time-series data available for identifying the characteristics of producers and farms associated with sales of locally and regionally produced agricultural products is the Census of Agriculture. Local Food Strategies LLC performed a custom, descriptive analysis of the Census of Agriculture data from 2002 and 2007 on direct to consumer sales, Community Supported Agriculture, organic agriculture, farm size, and farm age. Other data sources, such as the Organic Production Survey of 2008 and Census of Agriculture data re-published in other USDA sources, such as Martinez et al. (2012) supplemented this analysis. Also, Local Food Strategies LLC was granted access to the publically available organic handler and producer database maintained by the National Organic Program at USDA.

Custom maps from the 2002 and 2007 Census of Agriculture data were made by John Hays, Vice President, of the Farm Credit Council. With access to the NASS data lab, Mr. Hays was able to sort beginning farmer status based upon comparing new farm entries in 2002 and 2007 using methods developed by Gale (1997). Also, Mr. Hays mapped the location of organic handlers and organic producers.

Despite the limited time series data and somewhat restrictive sets of questions asked in USDA surveys, the data from these sources is has illustrated basic trends among farmer age, farm size, farm sales, and producer marketing options. To the extent possible, we have tried to illustrate trends in a much broader array of producer marketing options (e.g. local and regional food system foods) with data that only partially overlaps with those other options. Unfortunately, until USDA surveys published more data by marketing channel, these overlaps cannot be addressed.[45]

Data from other non-academic and non-governmental sources are relied upon heavily in this report, often without the authors able to access either proprietary or confidential information. While an academic literature search was performed, often the most descriptive information available at a national level comes from government reports, notably those from the Economic Research Service.

In areas where there were particular information gaps, regional, state, and local sources are presented. When this is the case, we try to present similar information from multiple sources so readers can interpret the magnitude of the findings we present. Some of these references the authors have personally come into contact with, especially print materials, in a happenstance manner (often from attending conference, meetings, or from email listserves). It is quite likely that other such information exists across the U.S. We anticipate that it may be similar in nature and findings to what we present here. However, we cannot assess the accuracy of this assumption, as there is not an efficient vehicle for searching for and obtaining all such similar documents.

We cannot and do not make any qualification on information obtained from others sources, including the accuracy of methodologies used by other authors. We have tried to interpret other authors' findings as accurately as possible. Limited revisions to the September 2010 report, which was presented in final draft form to the Farm Credit Council, were made in August 2010. Citations from 2011 and 2012, as well as the call-out boxes and regional food hub section were introduced from that revision.

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