

A Smiling Face Is Half The Meal:

The Role of Cooperation in Sustaining Maine's Local Food Industry

by Ethan Tremblay and Timothy Waring

Maine is among the states leading a national resurgence in local food production. This article examines the role of cooperation in Maine's local food industry across a range of organizations. Cooperation plays different yet crucial roles in these organizations and is a big part of the success of the local food industry as whole. Policymakers need to be mindful of the importance of social proximity and cooperative behavior to the vitality of the local food industry.

INTRODUCTION

Maine is one of the leaders in a growing nationwide trend of local food consumption. Interest in regional and in-state produce appears to be spreading at a remarkable rate, and it's not just the number of farm stands that is increasing. Planners and policymakers are devising regional strategic plans, grocery stores are placing token local fare in prime shopping real estate, candidates for office are emphasizing their commitment to the local food sector, and one of Maine's largest newspapers has launched a feature section dedicated to local production. A recent consumer survey conducted by the Maine Food Strategy indicates that nearly 80 percent of Mainers prefer buying food produced in Maine than food produced elsewhere (Maine Food Strategy 2014). A majority of respondents (64 percent) explained their choice as an effort to support local farmers, fishermen, and businesses, implying both a strong personal connection to food providers and a willingness to go out of their way to express such a preference.

This re-localization of the food economy in Maine, and across the nation, is often described as a social and political movement that developed in response to centralized, industrial food production. This movement toward a more localized food system has three primary dimensions: a "green" dimension, concerned with the environmental costs of a geographically widespread food system; a food-security dimension, concerned with the self-sufficiency and resilience of local communities and food networks; and an activist dimension, concerned with the democratic impacts of corporate consolidation within the globalized food system (Guptill and Wilkins

2002). The same set of concerns, and the social momentum they generate, may also be fueling the local food economy.

THE EMERGENCE OF LOCAL

For some time, the organic movement has been seen as the standard-bearer for the expression of these values in food production. The organic movement also has significant roots in Maine. The Maine Organic Farmers and Gardeners Association (MOFGA), founded in 1971, is both the largest and oldest organic farming organization in the country and has been a model for similar organizations nationwide. In part due to the group's programs and advocacy, the number of certified organic farms in Maine has increased from 21 in 1987 to 635 in 2008 (Maine Department of Agriculture 2008; Beck et al. 2011).

Some scholars argue that the local food trend emerged as an evolution of the organic movement, which suffered when new federal standards allowed companies to label food as organic in a manner that did not meet the ethical expectations of consumers accustomed to small-scale organic agriculture (Adams and Adams 2011; Adams and Salois 2010). Today, organic food is subject to stringent regulation overseen by the USDA in compliance with the Organic Food Production Act of 1990. According to Adams and Salois (2010: 333), "'Organic' was federally defined as an input-driven technical process rather than a concept based in sustainability; food could still be labeled organic if it was made by General Mills corporation, produced in China using forced labor, and sold only

through Wal-Mart.” Thus, for many consumers, organic food no longer represents all the values they seek in food.

In the late 1990s, consumer preferences began a marked shift from organic to local. Unlike organic, local food has no commonly accepted or codified definition.¹ Adams and Salois found consumers to be divided on the topic of what exactly “local” means, with most indicating geographic concepts such as state, county, municipal, or regional borders, or an arbitrary radius of 100 miles. Others choose temporal criteria, such as no more than a day’s drive (Adams and Salois 2010). The Maine Food Strategy found 61 percent of Mainers consider food produced in Maine to be local, with the next closest group (19 percent) defining it by county (Maine Food Strategy 2014). Other surveys such as Hunt (2007) and Brown and Miller (2008), however, have detected a social component in the public’s conception of local food. These suggest that consumers are less concerned with precise geographical criteria and more with an array of preferences related to the local economy, food quality, and personal interactions over food exchange for which conventional and industrial organic sources have been found lacking. For example, some consumers identify local farm ownership as a key component they value.

Consumers appear to be increasingly drawn to local food while consistently rejecting a consensus about its geographic definition. What is clear is that the emergence of local food organizations in Maine and New England indicates that demand for local food is strong. It may be that the rise of local and its coincidence with the waning strength of organic is due largely to semantics—individuals have found that the rigid, input-driven institutional interpretation of organic leaves much to be desired, while local remains a suitably nebulous indicator of a socially acceptable food source. We suggest that consumers participate in local food organizations because they are less interested in geographic locality than they are in social proximity. A preference for social proximity may signal the presence of social capital in the form of small social networks, personal relationships, and patterns of cooperation common within and among local food organizations. We explore some of these traits that unite local food organizations and consider their implications for the development of the local food movement and the growth of the local food industry.

COOPERATION IN LOCAL FOOD

The social fabric of the local food industry is expressed through a number of traits. In many local food settings, consumers and producers engage in more personal interactions, which often lead to lasting personal relationships. Individuals also build relationships with their peers, as farmers get to know their fellow farmers and consumers meet and build rapport over mutual food preferences. Consumers also clearly recognize and appreciate the impact of their economic activity on the individuals with whom they have fostered social relationships, a phenomenon that has been well documented (Brown and Miller 2008; Hunt 2007; Maine Food Strategy 2014). This contrasts with the traditional grocery store food-buying experience, which is both highly efficient and highly depersonalized. We argue that (a) people seek and enjoy this social proximity in their food exchanges, (b) personal social interactions in the exchange of local food is helping to drive growth in the local food industry, and (c) these social factors influence the economic success through increased cooperation.

In everyday usage, cooperation refers to obliging to help someone. Scientists have studied patterns of human cooperation for decades and have accumulated a large body of knowledge on the factors that make cooperation more or less likely to emerge (Nowak 2006) and the social, psychological and economic conditions that make cooperation more persistent. The canonical scientific definition of cooperation is an action that benefits someone else, but comes at a strict cost to oneself (Rapoport 1965). By this definition, actions that benefit others at no personal cost to oneself are not cooperative. Similarly, an action that greatly benefits someone else but benefits oneself only less so, is not cooperation, strictly speaking. In this way, cooperation can only happen when individuals are embedded in a social dilemma that pits the interests of one against the other. Economists and biologists use a simple strategy game called the prisoner’s dilemma to model cooperation (Figure 1). In the prisoner’s dilemma, the best outcome for Player A is the worst outcome for Player B. This is true for all social dilemmas, which are common in daily life.

The payoffs to individuals in the prisoner’s dilemma can be contrasted with those of a coordination game (Figure 2), in which both players improve their personal

FIGURE 1: **Prisoner’s Dilemma**

		Player B	
		Cooperate	Defect
Player A	Cooperate	2, 2	0, 3
	Defect	3, 0	1, 1

In a prisoner’s dilemma each combination of choices from the two players results in a set of payoff for those players, given as (A, B). The scenario in which both players cooperate is costly to each, but maximizes the total payoff, while the best individual payoff can only be obtained by taking advantage of the other player’s cooperation by defecting. Payoffs illustrate comparative outcomes and are not drawn from any empirical case.

FIGURE 2: **Coordination**

		Player B	
		Coordinate	Solo
Player A	Coordinate	2, 2	0, 1
	Solo	1, 0	1, 1

A coordination game payoff matrix with outcomes (A, B). Both players maximize their payoff by coordinating. Payoffs illustrate comparative outcomes only.

benefits by taking a coordinated action. In the coordination game, the best outcome for both players is to coordinate.

Both cooperation and coordination are fundamental parts of human society. Because of their differences, however, coordination problems are easier to solve than social dilemmas because in social dilemmas, the best outcome for the group can only be achieved with some amount of individual sacrifice, or cooperation.

When first encountered, social dilemmas are difficult to solve. In many cases, individuals might cooperate at first to accomplish a group goal, but because doing so comes at a cost, cooperation is only temporary. Over time people will often either learn to avoid the dilemma or find ways to change the circumstances so that the same goals can be achieved without individual sacrifice. That is, people often learn to “change the game” from a social dilemma to a coordination problem to the advantage of themselves and others. As a result, young organizations often rely heavily on cooperation, while well-established institutions are typically those that have been effective at coordinating the actions of individuals and avoiding the need for costly individual cooperation

(Cordes et al. 2008). In this way, cooperation is critical in the emergence of new organizations, industries, and social and political movements. Research showing how cooperation links social factors with economic interactions (e.g. Henrich et al. 2004; Strassmann et al. 2011) therefore carries some unique value for policy discussions and may be of use in understanding and supporting Maine’s local food industry.

It is important to differentiate cooperative behavior, in the strict sense denoted above, from “cooperative” organizations. Producer and consumer cooperatives have played a significant role in supporting the development of agriculture at both small and large scales. For instance, groups of farmers may band together to share transportation or processing costs in a producer cooperative. Consumer cooperatives are organizations that aim to benefit from lower food prices by buying in bulk. In both cases, however, the interests of members are in basic alignment, which means that individuals may be coordinating to achieve a common objective more than they are cooperating for group benefit at individual cost. Nonetheless, both cooperation and coordination will fluctuate over time, often with profound consequences for organizational success (Cordes et al. 2008).

We suggest that cooperation is important in the businesses and organizations in Maine’s emerging local food sector. To demonstrate this, we examine a handful of different business and political organizations that play a role in local food. We focus on food-buying clubs, community-supported-agriculture arrangements, farmers’ markets, and food sovereignty ordinances.

Buying Clubs

Food-buying clubs are groups of consumers who band together to purchase wholesale quantities of food from distributors. They allow individuals to get access to bulk foods at a lower price and to buy specialty food items that cannot be purchased elsewhere. This creates a dilemma, however, when club members have divergent food preferences. As a result, members must cooperate to buy in bulk by filling orders for bulk items they may not need or prefer. This costly order splitting, along with the significant organizational challenges of collating orders, handling split payments, and coordinating food distribution, represents the costly individual effort required to make buying clubs successful. As that effort and its benefits are rarely shared evenly, these tasks may be cooperative in nature. For food buying clubs, the central task—buying in bulk—is often directly cooperative in

nature. However, people always find ways to reduce the costs of participation. Most buying clubs divide the tasks between members who take on different roles such as a treasurer, a coordinator, a delivery host, splitters. These roles, routines, and other organizational innovations such as software systems for order planning and compilation, help lower the costs of participation, shifting the balance toward less cooperation and more coordination.

Modern buying clubs have their roots in the end of the nineteenth century, when the emergence of fast, reliable shipping and higher levels of disposable income allowed mail-order companies to replace traveling peddlers as the main source of household goods (Stanger 2008). The sorts of food-buying clubs we observe today first began to emerge in the mid-1970s, with the new availability of natural food distributors. It is difficult to determine the total number of active buying clubs in the state, in part due to their informal structure and lack of inter-group associations. Crown O'Maine Organic Cooperative, a distributor of Maine organic food, sells to 55 buying clubs, and the presence of numerous other distributors such as United Natural Foods, Inc., indicates that the total number of clubs must be greater.

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Some of the pioneering buying clubs in Maine grew to such a volume that they became “food coops” and established storefronts such as those in Belfast, Blue Hill, and Damariscotta. Centralized warehousing and further organizational routines and innovations such as spreadsheets, software, and websites especially designed for buying clubs (e.g., buyingclubsoftware.com, foodclub.org, and wholeshare.com) reduce the costs of participation for food coop members and shift the balance toward increased coordination and reduced individual costs. If these innovations are effective and efficient at reducing costs, they might trigger an institutional renaissance in shared wholesale buying and transform the

social dilemma of repeated bulk ordering into a mere coordination problem that does not require as much cooperative action to overcome.

Community-Supported Agriculture

Community-supported agriculture (CSA) is a business model in which a farm operation sells shares in its produce before the season begins. Customers, or shareholders, pay in advance for a portion of the output to be received at harvest. The agricultural mix produced ranges from traditional vegetables and fruits to flowers, meats, dairy, eggs, maple syrup, honey, and virtually any other locally available agricultural good. Because of the complexities that make small-scale agriculture unpredictable, such as planting times, weather, and other external factors, the specific makeup of a share can vary significantly. The element of cooperation most crucial for the survival of CSAs, however, is the willingness of members to purchase output before it is produced. This pre-purchase leaves consumers vulnerable to a loss caused by inherent fluctuations in agricultural output. Even if the farm yields less than expected, the consumers have pledged and paid their payment to the farmer. In such a case, the difference between the cost of membership and the market value of actual goods received can be considered an explicit monetary cost of cooperation. In essence, the consumers have paid not just for fruits and vegetables, but also for the continued viability of the farmer and a chance at a better yield the next season. This is cooperation in the strict behavioral sense.

The first CSAs in the United States were pioneered in 1986 on a pair of farms in New Hampshire and Massachusetts (McFadden 1990). Over the following three decades, CSA operations have expanded across the country, with the 2012 USDA Census of Agriculture recording 12,617 nationally. In Maine, the number of CSAs has exploded from 159 in 2007 to 406 in 2012, an increase of 155 percent. Over the same period, CSA grew nationally by a rate of only 0.5 percent (USDA NASS 2009, 2014).

While the defining characteristic of a CSA is the ability of the farmer to mitigate risk by receiving a fixed—and presumably sustainable—payment from subscribers in lieu of selling produce in a market setting, the rest of the organizational features seem to vary significantly across cases. For instance, traditional, self-employed farmers seeking a stable market for their produce facilitate most CSAs. Some, however, are governed by community groups who own land, often in

TABLE 1: **Cooperation in Local Food Organizations**

Local Food Organization	Initial Cooperation	Cooperation Required for Maintenance?	Number in Maine	Number in U.S.
Farmers’ market	Farmers cooperate to co-locate farm stands	Minimal	115	8,144
Community-supported agriculture	Consumers cooperate to buffer local farmers’ production volatility	Yes	406	12,617
Food sovereignty ordinance	Citizens cooperate to pass ordinance	None	11	0 ^a
Food-buying club	Consumers cooperate to buy in bulk	Yes	At least 55	Estimated in the low thousands

^a Various communities across the United States, from California to Massachusetts, have discussed the concept of food sovereignty, but none have reached the critical mass exhibited by Maine’s 11 towns that have adopted identical ordinances and begun to see them clash with state regulators.
Sources: USDA, NASS 2014, the *Bangor Daily News*, Crown O’Maine Organic Cooperative.

a trust, and hire a farmer to cultivate it and distribute produce to community members (McFadden 2004). In some cases, a core group of members play a larger role in the promotion or governance of the group or assist with farm production directly (Lass and Lizio 2005). In both cases consumers bear an additional financial and temporal cost—paying more and accepting an inflexible delivery schedule—to benefit their producer.

Research has also discovered that some farmers, in efforts to avoid the possibility of providing a below-average share, occasionally purchase additional produce from the market to supplement their shareholders’ installment (Galt 2013). Such a reciprocal act of altruism seems to undermine the principle of the CSA, i.e., providing financial stability for the farmer regardless of output. This reciprocity highlights an important fact about social dynamics that are distinct from traditional market dynamics. Cooperative acts are often repaid with future cooperation, generating a reciprocal relationship or network that helps maintain both social and economic structures. If the growing local food industry depends on patterns of reciprocal cooperation as we suggest, then policy should be crafted not just to support the economic success of local food businesses, but to enable the cooperation between producers and consumers that make those businesses viable in the first place.

Farmers’ Markets

Farmers’ markets are likely the most commonly acknowledged and well-known examples of local food

organizations. The USDA defines a farmers’ market as “a multi-stall market at which farmer-producers sell agricultural products directly to the general public at a central or fixed location.” The offerings of individual markets vary, but generally vendors can be found selling both fresh fruits and vegetables in season as well as value-added products such as baked goods, dried meats, and other minimally processed foodstuffs. Farmers participate in farmers’ markets because they benefit by avoiding wholesale prices and middlemen. Consumers frequent farmers’ markets to purchase foods they like and to absorb the social atmosphere.

While it appears that farmers’ markets—unlike buying clubs and CSAs—do not require high levels of cooperation to persist, they nonetheless constitute a rich social environment that entails many relationships, expectations, and obligations. In New England, farmers at farmers’ markets will assist one another, offering advice and help. Farmers will also sell seedlings and give gardening and husbandry advice to consumers that serve to undercut their business. Most importantly, returning consumers, embedded in developing relationships with farmers, often feel compelled to continue to purchase from them. In this way, farmers’ markets may be successful in part because of the social obligations and cooperative relationships they generate. One study concluded that the most significant motivations for both consumers and farmers who frequent markets in Maine are the various social relationships that are fostered there (Hunt 2007).

Again, benefitting others who are socially proximate emerges as a focus for consumers, and therefore an economic driver.

Food Sovereignty Ordinances

The local food and community self-governance ordinance is a municipal ordinance that renounces state-level oversight of food produced and sold within the municipality and shifts the burden of quality monitoring to the personal relationships between individual producers and consumers.² The ordinance functions to waive health, environment, and other food production regulations at the municipal scale. This perceived removal of regulatory structures allows for greater flexibility for citizens to produce and sell food within their municipality. According to an article by Judy Harrison in the *Bangor Daily News* (May 13, 2014), food sovereignty activists contend that food safety standards are excessively expensive and onerous and do not take into account the structural advantages of small farming. Eleven Maine towns, generally clustered in the midcoast region, have currently adopted identical ordinances, although the state has warned that these ordinances are preempted by state law.

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The ordinance can be seen as an act of noncooperation because it reduces costs to local farmers by waiving regulations. However, the ordinance also increases potential costs to consumers or the public in the lack of certainty about food quality or environmental practices. Despite the noncooperative aspect of the ordinance itself, such local rules only come into existence when an organized political movement achieves their passage. That such political movements often rely heavily on the cooperative contributions of many individual citizens underscores the social value of local food.

The emergence of the food sovereignty ordinance also signals the importance of the political dimension of local food. Simply put, some Maine citizens are so invested in local food that for them, it is a political matter. While the economic impact of the food sovereignty ordinance is likely foremost in the minds of most consumers and policymakers, any new industry necessarily encounters the political forces as it expands. It is natural to expect, then, that the local food industry, which relies in part on cooperation to sell its goods, may also turn to similar social dynamics and political movements when seeking to increase its viability through policy.

DISCUSSION

We highlighted four types of local food organizations that fully represent neither the wide range of local food activity in Maine nor the great variety of cooperative patterns within policy groups, business, and charities. They do, however, provide a starting point for a more detailed consideration of cooperation within the local food industry. Although the patterns of cooperation differ in each type of local food organization, cooperation and various forms of social cohesion appear to be a prevalent and strong force behind the success of the industry. These organizational designs and apparent reliance on cooperation may have implications for long-run sustainability, however, as individuals and groups naturally seek to lower costs and maximize gains. What may be a viable cooperative cost for a short time may become too great a burden in the long run. However, the expansion and diversification of the industry, the entrance of new and different consumers, and technological innovations all hold the potential to alter or eliminate the cooperative requirements as they are currently observed.

Maine's local food industry should be an attractive target for policymakers as it keeps profits within the state. However, as an emerging industry, local food in Maine faces a set of challenges for which finding solutions may prove difficult with the traditional lens of industrial growth via economies of scale. For instance, regional planners are currently confronting the question of the ability of Maine's agriculture sector to increase its scale should demand continue to rise. Traditional approaches would point toward a set of solutions, from increasing the size of existing farms, streamlining on-farm operations, reducing the farm agro-ecological diversity, lowering costs of bringing food to market, and increasing productivity across the industry. However, if

farms and food systems grow beyond the scale that enables the social proximity that consumers value, their products may stop being considered local food and lose value. Consumers do not just value the short distance local food travels: they value supporting small local farms. Therefore, planners and policymakers should consider innovative solutions to allow the proliferation of small local farms and attractive small-scale venues for consumers to buy from them.

Designing regulatory regimes that protect public health while fostering a robust business climate for small-scale producers is another tricky problem facing state and local administrators. One solution to this problem is to support a statewide network of food processing hubs. These hubs, such as the Vermont Food Venture Center, are designed as food business incubators and provide technical and business training and access to industrial equipment and health-standards compliant facilities. As policymakers approach these issues, they will do well to remember the importance of social proximity and cooperative behavior to the vitality of the local food industry. If the growing local food industry depends in part on patterns of reciprocal cooperation as we suggest, then policy should be crafted not just to support the economic success of local food businesses, but to enable the cooperation between producers and consumers that make those businesses viable in the first place.

Understanding the evolution of any industry is difficult, and local food is no exception. Further research ought to analyze the social and economic factors contributing to and obstructing the emergence of new organizations, and seek to chart the development of cooperation in the industry as a whole. Often, the economic myth of purely competitive market forces dominates the policy discussion, ignoring the very real and crucial role of cooperative behavior among individuals—behavior that, in the case of the fledgling local food industry, is fundamentally important. 🐟

ENDNOTES

1. The Food, Conservation and Energy Act of 2008 defined local as “within 400 miles, or within state.” This definition, however, is not widely acknowledged or used by consumers or producers. In addition, many large retail outlets offer their own definitions of local, which range from state boundaries to under a day’s travel from production to point of sale (Burnett, Kuethe, and Price 2011). It is unclear whether consumers place significant value on these definitions.
2. Town of Sedgwick Local Food and Community Self-Governance Ordinance 2011 sec. 5(2). <http://www.sedgwickmaine.org/images/stories/local-food-ordinance.pdf>.

REFERENCES

- Adams, Damian C., and Alison E. Adams. 2011. “De-Placing Local at the Farmers’ Market: Consumer Conceptions of Local Foods.” *Journal of Rural Social Sciences* 26(2): 74–100.
- Adams, Damian C., and Matthew J. Salois. 2010. “Local versus Organic: A Turn in Consumer Preferences and Willingness-to-Pay.” *Renewable Agriculture and Food Systems* 25(04): 331–341.
- Beck, D. Robin, Nikkilee Carleton, Hedda Steinhoff, Daniel Wallace, and Mark Lapping. 2011. “Maine’s Food System: An Overview and Assessment.” *Maine Policy Review* 20(1): 18–34.
- Brown, Cheryl, and Stacy Miller. 2008. “The Impacts of Local Markets: A Review of Research on Farmers’ Markets and Community Supported Agriculture (CSA).” *American Journal of Agricultural Economics* 90(5): 1296–1302.
- Burnett, Perry, Todd Kuethe, and Curtis Price. 2011. “Consumer Preference for Locally Grown Produce: An Analysis of Willingness-to-Pay and Geographic Scale.” *Journal of Agriculture, Food Systems, and Community Development*. <http://naldc.nal.usda.gov/download/53969/PDF>
- Cordes, Christian, Peter J. Richerson, Ricard McElreath, and Ponus Strimling. 2008. “A Naturalistic Approach to the Theory of the Firm: The role of Cooperation and Cultural Evolution.” *Journal of Economic Behavior & Organization* 68(1): 125–139.
- Galt, Ryan E. 2013. “The Moral Economy Is a Double-Edged Sword: Explaining Farmers’ Earnings and Self-Exploitation in Community-Supported Agriculture.” *Economic Geography* 89(4): 341–365. doi:10.1111/ecge.12015.
- Guptill, Amy, and Jennifer L. Wilkins. 2002. “Buying into the Food System: Trends in Food Retailing in the US and Implications for Local Foods.” *Agriculture and Human Values* 19(1): 39–51. doi:10.1023/A:1015024827047.
- Henrich, Joseph, Robert Boyd, Samuel Bowles, Colin Camerer, Ernst Fehr, Herbert Gintis, and Richard McElreath. 2004. *Foundations of Human Sociality: Economic Experiments and Ethnographic Evidence from Fifteen Small-Scale Societies*. Oxford University Press, Oxford.
- Hunt, Alan R. 2007. “Consumer Interactions and Influences on Farmers’ Market Vendors.” *Renewable Agriculture and Food Systems* 22(1): 54–66. doi:10.1017/S1742170507001597.

- Lass, Daniel A., and Warren Lizio. 2005. CSA 2001: An Evolving Platform for Ecological and Economical Agricultural Marketing and Production. Department of Resource Economics, University of Massachusetts, Amherst. <http://preview.tinyurl.com/lfddbop>
- Maine Department of Agriculture. 2008. The Agricultural Creative Economy: Needs, Opportunities, and Market Analysis. Maine Department of Agriculture, Augusta. http://www.maine.gov/dacf/ard/business_and_market_development/market_development/agcreativeeconomyv5%5B1%5D.pdf
- Maine Food Strategy. 2014. Maine Food Strategy Consumer Food Survey. Maine Food Strategy. <http://mainefoodstrategy.com/wp-content/uploads/2014/05/mainefood-strategys-consumer-survey-report.pdf>
- McFadden, Steven. 1990. The History of Community Supported Agriculture, Part 1—Community Farms in the 21st Century: Poised for Another Wave of Growth? Rodale Institute, Kutztown, PA. <http://www.newfarm.org/features/0104/csa-history/part1.shtml>
- McFadden, Steven. 2004. The History of Community Supported Agriculture, Part 2—CSA's World of Possibilities. Rodale Institute, Kutztown, PA. <http://www.newfarm.org/features/0204/csa2/part2.shtml>
- Nowak, Martin A. 2006. "Five Rules for the Evolution of Cooperation." *Science* 314(5805): 1560–1563.
- Rapoport, Anatol. 1965. *Prisoner's Dilemma: A Study in Conflict and Cooperation*. University of Michigan Press, Ann Arbor.
- Stanger, Howard R. 2008. "The Larkin Clubs of Ten: Consumer Buying Clubs and Mail-Order Commerce, 1890–1940." *Enterprise & Society* 9(1): 125–164.
- Strassmann, Joan E., David C. Queller, John C. Avise, and Francisco J. Ayala. 2011. "In the Light of Evolution V: Cooperation and Conflict." *Proceedings of the National Academy of Sciences* 108(Supplement 2): 10787–10791.
- U.S. Department of Agriculture, National Agricultural Statistics Service (USDA NASS). 2009. 2007 Census of Agriculture Maine State and County Data. USDA, NASS, Washington, DC. http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_044_044.pdf
- U.S. Department of Agriculture, National Agricultural Statistics Service (USDA NASS). 2014. 2012 Census of Agriculture Maine State and County Data. USDA, NASS, Washington, DC. http://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_2_US_State_Level/st99_2_043_043.pdf



on policy making.

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