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Chapter

Accounting for the Impact of Sustainable Agriculture: The Role of Community Based Organization and Local Governance Structures in Promoting Sustainable Agriculture

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Abstract

This chapter explores the role of community-based organizations (CBOs) in promoting and sustaining an organic/sustainable food production system. The chapter argues that CBOs offer a unique platform for this purpose considering their potential to promote collective impact and overcome our ancestral tendencies that tend to discourage sustainable behavior. The chapter discusses the role of local governance in creating the institutional support that drives collective systemic impacts. The chapter uses data collected via a telephone survey of a census of Community Action Agencies (CAAs) to assess the level of support for sustainable agriculture, organic methods of production, and the responsibility of citizens in supporting locally produced food. The results show that CBOs believe in organic/sustainable and community-based food production system. CAAs support for a sustainable food production system speaks to their potential to serve as a linchpin in their communities for promoting sustainable agricultural production systems and ensuring collective impact.

Keywords: collective impact, community-based agriculture, participative governance, organic food production, community-based organizations

1. Introduction

Clarifying exactly what a concept represents provides the information needed for identifying its constituent elements and distinguishing it from other concepts. Description of an object or thing provides insight into the nature of what that thing is and what it can do. Since what a thing can do depends on what it is, insights into its nature enables us to hypothesize about potential courses of action regarding that thing. Or, to be more specific, insights developed from clarifying the definition of organic agriculture or, more broadly, a sustainable agricultural production system, enables us to design courses of action that lead to a more enduring and fruitful

relationship with our food system. Organic agriculture is inextricably linked to a sustainable food production system; simply because the ultimate motive for adopting organic production practices in agriculture is to achieve a more sustainable food production system.

In earlier work [1] synthesized the work of [2, 3] in proposing this definition of sustainable agriculture as: *the practice of agriculture to produce food and fiber that meets the needs of the current population without compromising the capacity of the ecological capital, on which it depends, to support the needs of future populations.*

And organic agriculture following Codex Alimentarius Commission as “*Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystems health including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, taking into account that regional conditions require locally adapted systems. This is accomplished by using, where possible, cultural, biological, and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system.*” (Quoted in [4], p. 6)

Given the definitions and the arguments presented above, it can be deduced that organic agriculture is the instrument through which people working within the limits of the overarching ecological system can achieve a sustainable food production system. It is generally agreed that the current conventional methods of food production are unsustainable at current levels of resource consumption [2, 5]. The need for a sustainable system of food production becomes even more urgent if the aspirations of the millions of people in developing countries for a first world lifestyle is taken into account. Many scholars believe that a first world lifestyle for everyone is not possible given our current endowment of resources, for example [5]. Therefore, our survival depends on more than just innovation in markets and science. If all this is true, our relationship with each other and the environment is central to progress toward sustainable food production system and ultimately our survival.

One indispensable aspect of progress in advancing a sustainable production system is the development and implementation of standards of production and marketing of organic food and fiber. The development of these essential standards is a political process as revealed by the interaction of multiple stakeholders in the USDA's design and promulgation of standard in the organic food and fiber production system [6]. As [6] argued, markets can work to weaken or strengthen standards. Whether this happens in a positive or negative direction will depend on the relative political strength of the committed stakeholders and the non-committed stakeholders. For example, [6] points out that stricter standards can act as a barrier to uncommitted farmers, in which case, well-established committed organic farmers might have an incentive to push for stricter standards in order to safeguard their market share. On the other hand, if farm businesses not committed to the organic philosophy and practice are able to exert influence in the market and related regulating agencies, there will be pressure to weaken the standards that may encourage a large number of uncommitted businesses to enter the marketplace. Then the possibility exists that we could end up with a quasi-organic/sustainable food production system, which would put in peril any hope of attaining levels of sustainability that would ensure future food security. Another crucial aspect is overcoming the usual delay and resistance associated with changing deeply held values and or the adoption of innovations [5]. Societies often cling stubbornly to the values that have served them well in the past, even when these same values are demonstrably inappropriate for the present [5, 7].

Corporate industrial agriculture with deep vested interest in conventional food and fiber production models, and their lobbying power buttressed by their deep seated belief in the power of the free market may hinder or slow the rate of change

toward the adoption of a organic/sustainable food and fiber production system. Thus, in a capitalist system, the tendency to focus on markets and profits can derail or impede progress toward the ideal by confusing organic production for its own sake with achieving the ultimate goal of a sustainable food system. This is where CBOs can play a really critical and pivotal role in exerting bottom up pressure to maintain standards and promote organic/sustainable values. CBOs are pivotal for creating and sustaining a collective impact because they provide a platform through which strategies can be applied to overcome ancestral tendencies that tend to discourage sustainable behavior [8]. Research suggests that strong community ties and group identity tend to promote sustainable behavior [9] and small interdependent social groups will foster pro-environmental behavior [10].

The following statistics on a few key indicators provide a glimpse of the global impact of organic agriculture: As of 2016, the number of hectares (in millions) under organic production worldwide: Oceania 27.3, Europe 13.5, Latin America 7.1, Asia 4.9, North America 3.1, Africa 1.8. In 2016, 57.8 million hectares were under organic production compared to 11 million hectares in 1999, even though the 57.8 million hectares represent just 1.2% of total crop land worldwide. The number of producers engaged in organic production was 2.7 million in 2016 up from 200,000 in 1999, and total sales amounted to 89.7 billion US dollars up from 17.9 billion in 2000. A reasonable inference to be drawn is that 57.8 million hectares under production represent this many acres of increased soil fertility, farm and field diversity. Even more significant, in terms of impact, is the increase in the number of farms producing higher added value and the increased income that flows from this value [11]. These statistics indicate movement in the right direction, even though slow, if progress is judged by just the percentage of crop land under organic cultivation. To achieve faster and sustained progress requires applying an approach that leads to collective impact instead of isolated impact.

It is difficult to achieve progress in the wide adoption of organic/sustainable food production system without achieving collective impact. More generally, impact for the purpose of this chapter is defined as a change in condition that supports a desirable change in behavior. And where appropriate supporting values become infused in the value system of the individual or group from which it operates to reinforce the desired behavior. For the purpose of this chapter we distinguish between isolated and collective impact. In isolated impact, a single organization is assumed to have the solution to the problem, and works in isolation to address one aspect of the problem. Further, it is often assumed that the solution can be scaled up and applied to address the problem in disparate contexts. On the other hand, collective impact assumes that the problem is complex and cannot be solved by any single organization working in isolation. Here, multiple organizations learn, share and act together from the same perspective and agenda [12] to produce system wide and emergent solutions instead of localized solutions with narrow impacts.

CBOs facilitate the development of the type of social community infrastructure that supports collective impact, hence their potential for promoting organic/sustainable food production system. Additionally, because of their cohesiveness and strict commitment to core values, community-based organizations can check the tendency of the market to water down standards, and serve as a source of steadfast support and champions of the organic/sustainable food production philosophy. [13–16] have argued convincingly in support of the capacity of alternative agricultural models (referred to as, community supported agriculture (CSA), community-based agriculture, civic agriculture and farmers markets) to support holistic community development and food production in an environmentally sustainable manner. CBOs have played a pivotal role in promoting and supporting these production models rooted in local communities.

2. Rationale for local action in designing sustainable agricultural production systems

Forces operating in the current global economic and political environments tend to favor and catalyze local community action in solving problems affecting local communities—especially those having their genesis in the local political, social, economic and natural environments. For example, market failure, devolution due to the pressures of globalization [17], a shift to open macro economies and the inability of the state to offer protection from powerful global market forces [18] have combined to create opportunities for local action by civil society, for example CBOs. Under these conditions, governments at all levels are too preoccupied with trade issues, security issues, global financial markets, competing for investments to create jobs and balancing budgets to shepherd local communities. In such situations, many local communities are left to fend for themselves [19].

Additionally, a reflective and proactive citizenry living in the same information-rich environment as their leaders realize that neither the church nor the state nor other bulwarks of authority are omnipotent, and that leaders are more or less ordinary people. Consequently, citizens living in a global world assign less significance to the guidance of their leaders and institutions and have opted to become more self-regulating [20]. Proactive and reflective citizens in a complex globalizing political and social environments are more concerned with economic and political questions and issues about which they feel politicians neglected to address. In this situation, people turn to groups which promise to offer what conventional politics is unable to deliver. Thus, people are increasingly becoming more involved in single issue groups, which play a pivotal role in raising important issues and problems that may otherwise go unnoticed in conventional political circles until it is too late [21]. Since sustainable agricultural practices are specific to local conditions, and since there are many diverse stakeholders with a vested interest in sustainable agricultural systems, decisions regarding the design and development of sustainable agricultural production systems are best made utilizing participative approaches. Therefore, to advance organic agriculture/sustainable food system in the current context, it is not likely that top down solutions would be prescribed, and, if they were prescribed, it is unlikely that they would produce desirable outcomes. Thus, under the current socio-political context, locally based participative action seems more likely to succeed in advancing the development of a sustainable agricultural production system. Two other reasons for local bottom up action make clear the indispensable role of CBOs in promoting and sustaining the practice of organic/sustainable food system. First, from an evolutionary perspective, [8] explains that adaptive instincts tend to dictate human behavior. That is, humans tend to exhibit patterns of behavior adapted to our past environment but which behavior is inappropriate in our present one. For example, humans prioritize their self-interest at the expense of cooperating with the group. Thus, our adaptive instincts would dictate that we cooperate with and imitate behavior that is practiced by those with whom we share a kindred spirit or kinship relationship [22]. Accordingly, because of the kindred spirit that exist and is fostered in a CBO, a network of local CBOs would be more effective in promoting organic/sustainable production practices than top down prescriptions that originate from organizations and agencies to which people do not feel a special connection. Modern communities with a densely connected and codependent social networks resembling those that would exist in ancestral communities are found to be more effective in preserving communal resources, and by implication promoting sustainability [9, 23]—Note italics our emphasis. We believe that CBOs provide the substrate for nurturing such networks.

[24, 25] community framework offers a rationale for the role of community-based organizations in supporting a sustainable food production system. It posits that communities are embodied rather than abstract, i.e., residents are attached to place by several institutions and community-based organizations [26]. Businesses are linked via a web of institutional and community-based organizational networks [27, 28], which form an integral part of the community's problem solving capability [24, 25]. From our perspective, an embodied community provides valuable institutional support for sustainable food production system via a community network of CBOs—their mode of governance facilitates collective or participatory decision-making. CBOs serve as a repository of community experience, values and indigenous knowledge because they are well connected to the community. Such a repository provides a readily available reference which establishes a context for interpreting and evaluating information and action with respect to addressing current or future problem situations. As community agents, CBOs provide a critical mass for action by serving as the hub that brings community members together to deal with problems.

Designing and supporting a sustainable food system is a complex process. It involves synthesizing knowledge from different sources, working within a complex and dynamic natural and social environment, and dealing with several stakeholders with competing interests. Complex phenomena are not amenable to rule of thumb or recipe-like solutions. Because a sustainable agricultural production system is linked to local conditions—closely tied to social, economic and political infrastructure—developing a sustainable food production system means working with a process that accommodates many different perspectives and value systems, and attracts information, expertise and other resources from diverse sources. Additionally, the process must be participative, which means honoring openness, trust, transparency [28, 29], and must include a willingness to accommodate conflicting value positions [30]. Finally, to negate our evolutionary tendencies toward prioritizing and pursuing selfish ends, participants must feel a sense of belonging or kinship with the group or strongly identify with the group. Strong group identity will likely encourage greater self-sacrifice for the communal good by activating a psychological sense of kinship [9].

In summary, CBOs are ideally suited for mobilizing support for developing organic/sustainable agricultural food system throughout communities for these reasons: (1) CBOs have unique knowledge of and connections with the community; (2) CBOs provide a platform on which strategies that support sustainable behavior can be developed to overcome ancestral tendencies that discourage sustainable behavior; (3) the character of a sustainable food production system is determined by local conditions, which requires significant local resources—CBOs with their unique knowledge of community have the potential to mobilize local support and resource; (4) CBOs adaptive governance structure equips them to deal with a dynamic and uncertain environment; and (5) a network of CBOs informed by the same perspective, working from a collective agenda, learning together and sharing ensures collective impact.

3. Relevance of governance structures

Governance may be viewed from several perspectives: (1) the creation or adoption of means and processes for guiding planning, decision-making, implementing decisions, and ensuring accountability and responsibility for actions taken [31]; (2) as the capacity of an organization to stay on course in a turbulent and changing world [28], (3) self organizing inter-organizational networks [32]; and

(4) multi-level governance, which represents the dispersion of authority to supra-national, e.g. the UN, sub national authorities (states, counties, local municipalities, development districts) and informal networks (non-governmental organizations and community-based organizations) [33].

Implicit in all the above views of governance is the authority, official or otherwise bestowed, to make decisions with regards to the allocation of resources for the production of goods or services for a particular constituency. We regard the definition by [31] as generic process views of governance, since it identifies the core concepts of governing without suggesting how these activities should be prosecuted. Conceptually, one can locate the way governance as a process activity is practiced on a continuum. At one end would be a highly bureaucratic regulatory approach to enacting governance, at the other would be a participative open approach to governance. [29] concept of governance is a process view of governance, which specifies a participative approach for discharging governance activities. In the participative model, decision-making is decentralized; freedom, autonomy, trust, transparency, continual learning and creativity are nurtured. In contrast, in the bureaucratic regulatory process model, decision making is centralized; freedom, autonomy, trust, transparency and learning are constrained. The two perspectives by [32, 33] offer a structural political view of governance, i.e., the relationship among the entities involved in discharging the process of governance. Any of these structural forms could conceivably discharge their governance function in either a bureaucratic regulatory or participative mode. Considering the above background and the work of [34, 37]; we use the term governance in this chapter to mean action taken by groups or communities to address problems in the public sphere that cannot be handled either by individuals acting alone or by markets and government.

In our field studies across the southeastern states we have observed many community-based organizations (CBOs) and neighborhood groups that provide valuable and indispensable social services for community residents. CBOs such as North Carolina Coalition of Rural Farm and Families, Alabama Watch, Rural Georgia Development Collaborative, Friends of Children of Mississippi exemplify governance as self-organizing inter-organizational networks. They are self-organizing because they are autonomous and self-governing [32]; implying that they are not controlled by any superior power and were not brought into being by official edict. These networks operate to fill a void in the provisioning of goods and services resulting from the failure of the state and market to provide similar goods and services. In other words, they are self-organizing inter-organizational networks which practice governance as per [31] process definition. They operate in the public sphere without the designated formal authority of government. The network status of these groups derives from the fact that they interact with each other and with government agencies and private entities in exchanging information and garnering resources; they depend on this interaction to survive. An example would be the Georgia rural development collaborative comprising eight independent CBOs agreeing to work in a partnership. The collaborative also interacts with government agencies and foundations as they practice governance in rural Georgia. They receive technical assistance and funding from foundations and government agencies and share information among themselves, government agencies and foundations. Another example would be The North Carolina Coalition of Rural Farms and Families, a grouping of six small CBOs. In their case, they interact with cooperative extension, USDA agencies, with each other and with foundations as they work to provide services to small farmers in Eastern North Carolina. Many scholars of political science believe that this form of governance—the interactive, social, political network mode of governing—is evolving to be the dominant form of governance, eclipsing governing by a super-ordinate authority as in conventional

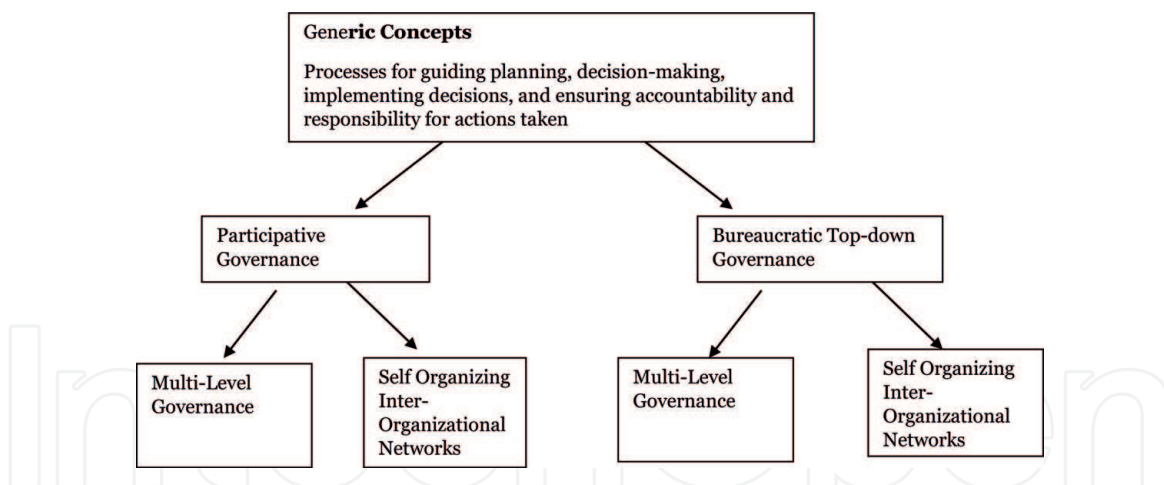


Figure 1.
Schematic representation of the relationship among concepts, process and structure of governance.

government [32, 33]. Within these networks, it is conceivable that groups may adopt a bureaucratic or a participative form of governance.

Multilevel governance may be viewed as being similar to the networks described above with one minor difference; some members of the network are not self-organizing since they were established under the auspices of federal, state, or local government or some other influential entity, e.g., a foundation. Nonetheless, they interact in a network fashion and discharge the role of governance described above. So then, multilevel governance can include self-organizing networks as well as quasi governmental groups (groups established under the auspices of government or government agencies) or groups established under the auspice of large foundations. Community action agencies would be good examples of community-based organizations established under the auspices of government, these agencies were established under the economic opportunity act of 1964. The relationship among the various concept of governance may be depicted as shown in **Figure 1**. Generic concepts describe the activities that are the focus of governance in general. Entities may operationalize these functions of governance either as a bureaucratic top-down or participative process. The actual operations of governance may be carried out by entities organized in a multi-level governance or self-organizing inter-organizational network structure.

4. What difference does it make which governance model a community or organization adopts to coordinate the production of goods and services?

What difference does it make which governance model a community or organization adopts to coordinate the production of goods and services? Many scholars of organizational theory believe that the particular form of governance process adopted by a particular entity affects their ability to adapt to changes in the environment in which they operate—their task environment. Organizational theorists believe that organizations that adopt the perspective of governance as coordination and control—the bureaucratic regulatory model—are inflexible and unresponsive to their task environment. Bureaucratic organizations lack the participative culture that nurtures freedom, transparency, commitment, creativity and continuous learning among members. These latter qualities are indispensable for promoting participation, innovation and responsiveness in addressing complex diverse issues and the varied perspectives of an increasingly heterogeneous stakeholder—these are key capabilities for survival in a continually changing, complex and turbulent environment. An

environment that requires increasing integration with the ecological sustenance base in order to achieve sustainability. Consequently, these qualities determine the capacity of the organization or the community to adapt to its ever changing environment.

Under a bureaucratic type of governance, decisions are always made by management at a level above where the work is actually done. Thinking and doing are seen as separate tasks carried out by different individuals. Decision making is centralized and autonomy and freedom to be creative are curtailed. Here, the task of governance is discharged by a privileged few on behalf of the organization. Such organizations are tightly integrated and emphasize control to maintain order and protect the organization from external threats that would disrupt established structures and ways of doing things. The stability of these organizations depends on the extent to which they can be insulated from disrupting forces. These organizations operate as closed systems which react to change by attempting to manage or transform the environment in an adversarial or competitive manner rather than responding to the environment in a proactive manner [29].

Globalization, the proliferation of communication possibilities, continual technological change, the easy movement of technology and capital across countries, and the need to reorder our relationship with the sustenance base (the ecological realignment of our industrial, economic and social institutions) create unprecedented complexity and dynamism that require organizations to continually adjust and adopt. To increase the odds of survival, an organization must become more participative, i.e., decision-making is decentralized; freedom, autonomy, trust, transparency and continual learning and creativity are nurtured. In this context, participative organization processes—freedom, autonomy, openness, learning and innovation—create the flexibility the organization needs to become an adaptive and open system as opposed to being closed and rigid. As an open system, participative organizations develop a symbiotic relationship with the environment—influencing the environment and being influenced by it. The interface of the participative organization and the environment becomes the “focal point” of activity where the purpose and mission of the organization achieve meaning [29]. In this sense then, an organization achieves meaning when it responds adaptively to the needs existing in the environment, which includes not only the need for products but also for quality service, non-invasive, unsustainable use of resources, collaborative partnering with stakeholders and the participation of stakeholders in charting the course of the organization as well as steering the organization on course. The central role of governance is to define purpose and chart a course for achieving the defined purpose. However, achieving purpose in a turbulent and dynamic environment is a function of adaptive capacity, and since adaptive capacity is a function of participative processes, then, the role of governance in a dynamic environment is to create conditions under which participative processes can take root and flourish. Trust, freedom, autonomy, creativity, and openness are the touchstones of participative governance. These principles enable organizations such as CBOs and communities to deal effectively with complexity and change because each member is vested in the participatory process, which nurtures commitment to working to develop solutions to problems.

As discussed in [9, 10], our ancestral tendencies can thwart our ability to advance sustainable practices. Moreover, in many cases the strategies we pursue are ones that do not match these tendencies—in that they do not take into account our natural tendency to promote and prioritize our own self-interests above that of the group or common good. They recommend strategies that take advantage of these natural tendencies (which resemble our ancestral mode of behavior) such as creating small dense interdependent social networks and foster group identities. CBOs provide a platform to facilitate the implementation of these strategies that promote sustainable behavior.

5. Material and methods

5.1 Population and sample

In this section, our objective is to answer the question: What is the level of support among CBOs in the southeastern black belt states (BBS) for sustainable agricultural practices? To answer this question, we conducted a telephone survey of community action agencies (CAAs) located in eleven Black Belt States in the southeastern U.S. Namely, Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. BBS was defined as a state with an African American population that is equal to or greater than 12% of the population of the state. Following [34], we defined community-based organizations as nonprofit civic entities that are locally controlled; and whose mission is to serve a particular constituency that is tied to a defined locality. These entities comprise groups of people who interact directly, frequently and in multi-faceted ways to deliver service to their constituency [34]. We chose to use CAAs as our population of CBOs because they have a long operational history as a group, and they were specifically established by federal mandate to address poverty, by engaging the community in the problem solving process. Additionally, an easily accessible data base was available, and they fit neatly the profile of CBOs as defined in this chapter. The sample frame for CAAs was obtained from U.S. Department of Health and Human Services Web site. We retrieved lists of CAAs for the BBS listed above and combined them into a single master roster containing 315 CAAs. Since the population size is a relatively small one, and all the CAAs on our list were accessible, we decided to do a census instead of drawing a random sample from this small sample frame.

5.2 Instrumentation

Respondents to our interview were CAA leaders. Based on our discussion above on the practice of sustainable agricultural production system at the community level, we asked the following questions:

1. In your opinion, how important is it for more farmers to use organic methods for producing food? As we have explained previously, sustainable agricultural production is practiced at the community level via CSAs or community-based agriculture. Drawing on the literature, [35] defined a CSA as community-based organizations of consumers and producers. This collective of producers and consumers focus on using organic and sustainable methods to produce their products.
2. We also asked respondents to use a five-point scale anchored with “strongly agree” through “strongly disagree” to indicate the extent of their agreement with the following statements: Part of the duty of a good citizen is to buy locally grown farm produce. Vibrant community-based farming is more likely to keep family farmers on the land than large corporate farming (factory farming, large plantation). Community-based farming is more likely to do a better job of preserving the quality of the land than large corporate farming. Small farms are better for the environment than large corporate farms. These questions are based on the rationale presented above, in addition to the following considerations: A persistent critique of corporate commodity agriculture is that it has depleted the natural resource base and degraded the environment from which it draws its support [2, 14]. The advent and growth of civic agriculture or community-based agriculture systems is seen as a response to

the socioeconomic and ecological concerns associated with corporate commodity agriculture or, more broadly, conventional food production systems [2, 14, 36, 37]. Community-based agriculture with its emphasis on holistic and locally based agriculture systems has catalyzed regionally based economic activity, the focus of which is to reinvigorate rural communities and economies and improve farmer income [13]. The growing interest and belief in the potential of civic agriculture systems to bolster rural communities and their economies rests on the findings of [2, 24, 38], which indicate that several small locally owned and operated businesses (farms) are positively correlated with economically vibrant communities and superior income equity. These findings speak to the thesis that a sustainable agricultural production system must meet economic and social criteria in addition to addressing ecological concerns (see **Figure 1**).

3. CAA leaders were asked to indicate how they felt about farmers cooperatives. Their responses were measured on a five point Likert-type scale, anchored with very unfavorable to very favorable.
4. Leaders were also asked to use a “yes” or “no” response to indicate whether their organization supports community-based food production, the local farmers’ market, and whether they encouraged clients to participate in urban agriculture.

The questionnaire was reviewed by faculty of the Applied Survey Laboratory at North Carolina A&T State University and two leaders of CAAs. The response rate for the survey was approximately 39%. We acknowledge that the results are probably biased because of the relatively low response rate. However, because CAAs are probably subjected to similar socializing influences with regard to the variables of the study, we believe that the low response rate is not a very serious problem. [39] suggested that discrepancies and bias due to non-response are a greater threat for variables denoting characteristics of an entity than for those variables that represent opinions, attitudes or processes. Nonetheless, the results should be interpreted with this weakness in mind.

6. Results

6.1 Support for community-based agriculture

Figure 2 shows that 48% of CAAs provide program support for community based food production, 53% support local farmers market and 36% support urban agriculture.

The data in **Figure 3** show that approximately 85% of CAAs rated the importance of farmers using organic methods to produce food greater than a 5 on a 7 point scale. We see this as indicating that CAAs believe that it is important for farmers to use organic methods, which is in contrast to the relatively small number (48%) of CAAs that offer program support for community-based food production.

Response is based on a 7-point scale Where (1) = not important and (7) = extremely important.

The response pattern in **Figure 3** also shows that over 80% of CAAs believe that it is important for farmers to use organic methods of production. The response pattern shown in **Table 1** below indicates that CAAs overwhelmingly agree that community-based farming is more likely to do a better job of preserving the land:

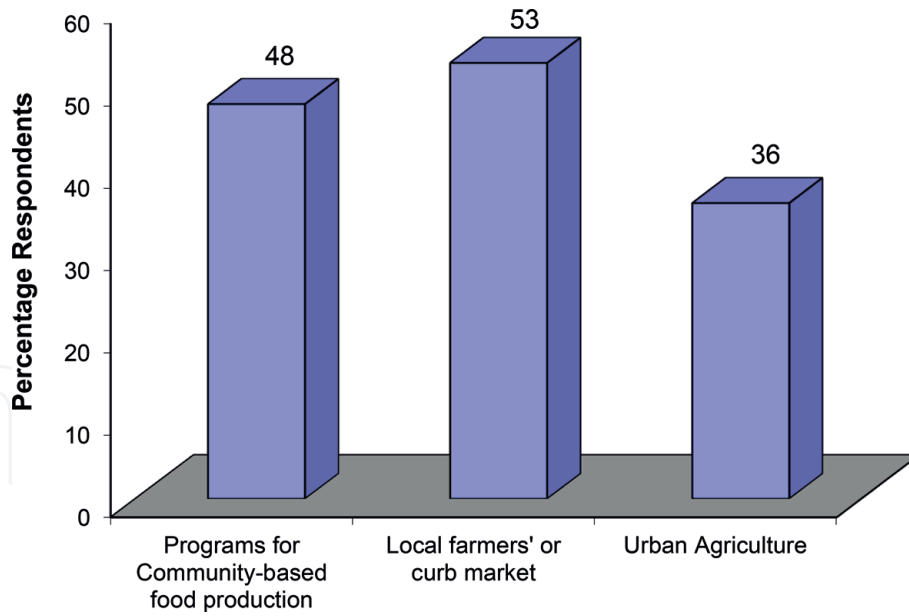


Figure 2.
 Support for community-based agriculture (N = 124).

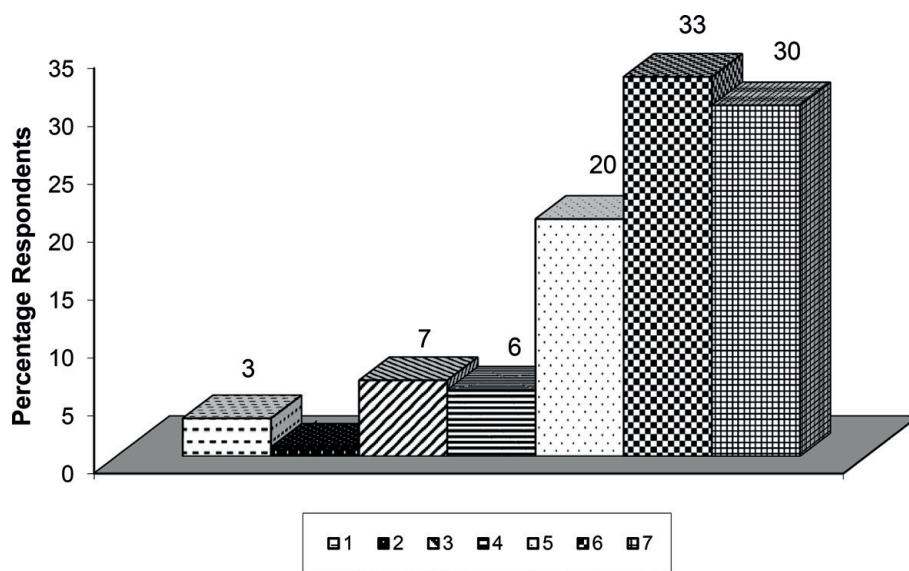


Figure 3.
 How important is it for more farmers to use organic methods for producing food? (N = 122).

Items	Ratings (%)				
	1	2	3	4	5
Land	1	2	7	71	20
Environment	2	6	8	67	18
Cooperative*	3	2	11	59	25
Promote	2	1	5	69	23

Response is based on a 5-point scale, where (1) = strongly disagree and (5) = very strongly disagree. *(1) = very unfavorable and (5) = very favorable.

Table 1.
 Summary of descriptives for selected variables.

	Model 1		Model 2		Model 3		Model 4	
	b	e ^b	b	e ^b	b	e ^b	b	e ^b
Program	2.380***	10.806	2.411***	11.150	2.420***	11.251	2.414***	11.173
Urban	1.208**	3.347	1.187**	3.278	1.159**	3.187	1.146**	3.146
Land	0.801**	2.228	0.641	1.898	0.563	1.755	0.510	1.666
Environment			0.213	1.237	0.208	1.232	0.203	1.225
Cooperatives					0.160	1.173	0.155	1.167
Promote							0.099	1.104
Constant	-8.620***		-8.818		-1.353		-1.191	
-2 log likelihood	117.071		116.698		116.425		116.369	
Chi-square	45.289***		45.662***		45.936***		45.991***	
R square	0.319		0.321		0.322		0.323	

Note: *b* = unstandardized coefficient estimate; *e^b* = exponential of *b* (the odds ratio); ****p* < 0.001.

***p* < 0.05.

Program = CAAs with programs that support community-based food production; urban = CAAs which encourage its clients to participate in urban agriculture (grow fresh fruits and vegetables for home use); land = opinion on the statement that community-based farming preserves the quality of land better than large corporate farms; environment = opinion on the statement that community-based farming preserves the environment better than large corporate farms; cooperatives = extent of favorable perception of farmers' cooperatives; promote = opinion on the duty of citizens to buy locally grown farm produce.

Table 2.

Logistic regressions results: Factors that influence the likelihood of supporting local farmers market.

71% agree and 20% strongly agree. The pattern also shows that there is very strong agreement among CAAs' leadership that small farms are better for the environment than large cooperate farms. 67% of CAAs' leadership agrees with the statement, and 18% strongly agree. Only 15% of CAAs' leadership can be collectively categorized as strongly disagree, disagree or are indifferent to the statement that small farms are better for the environment. A similar pattern is also evident among CAA leaders with respect to their opinion concerning the duty of citizens to purchase (promote) locally grown produce. Here, 69% agree and 23% strongly agree that it is the duty of good citizens to purchase (promote) locally grown farm products. CAA leaders' pattern of response to the statement that vibrant community-based farming is more likely to keep family farmers on the land than large corporate farming is similar to the overall pattern response shown in **Table 1**. Generally, the data in **Figures 2** and **3** and **Table 1** show that CAAs believe in organic/sustainable and community-based food production system. CAAs support for a sustainable food production system speaks to their potential to serve as a linchpin in their communities for promoting sustainable agricultural production systems and ensuring collective impact.

6.2 Predicting support for sustainable agricultural production systems

Table 2 shows the results of logit models using the stepwise procedure (backward deletion) in SPSS. The use of stepwise procedures when the object of the analysis is prediction and there is no formal theory to guide the selection of variables to enter the model. The overall goal of the procedure is to maximize R^2 while minimizing the number of predictors. In our case, we employed common sense logic. We used the arguments in the instrumentation section to explain the relevance of questions to the study objective and the size of the correlation with the dependent variable. Based on this, we selected the initial set of six variables shown in **Table 2**. In all models, all variables have the anticipated sign in the right direction, i.e., all the variables should have a positive effect on the likelihood of CAAs supporting farmer's market. The best model is Model 1, with three variables predicting CAAs support for local farmers' market. Those CAAs with programs supporting community based food production, those that encourage clients to participate in urban agriculture and those that believe that community-based farming is better than corporate farming for preserving the quality of the land are more likely to support the local farmers market. These three variables have coefficients of 3.380, 1.208 and 0.801 respectively. The model Chi-square 45.289 was significant at the 0.001 level. These variables produced R^2 of 0.319, odds ratio of 10.806, 3.347 and 2.228 respectively. The size of the odds ratios indicates that there would be substantial improvement in support for farmers markets with a unit change in the independent variables.

For example, CAAs with programs supporting community-based agriculture are almost 11 times more likely to support farmers markets. We believe that support for farmers markets is the most meaningful measure of CAAs overall support for community-based agriculture, since this form of support translates into income for farmers and the community in general through the multiplier effect.

7. Discussion

The data show that there is moderate support for community based agriculture (see **Figure 3**). 53% of CAAs report that they support farmers markets and 48 and 36% report program support for community-based and urban agriculture respectively. These results are encouraging, given that community-based agriculture is not

seen as a program priority for CAAs, considering the demand on their resources for other programs to address persistent poverty in the BBS [40]. The overwhelmingly strong positive opinion among CAAs concerning the use of organic methods, the role of citizens in supporting farmer's markets, the value of community-based farming in preserving the land, environment and family farms and their favorable view of cooperatives indicate that CAAs have the potential for providing strong institutional support for the development and promotion of sustainable agricultural production systems at the community level. In conducting 40 listening sessions with CBOs across 9 states in the Black Belt region, we discovered that advocacy is a core component of their programs. Thus, they possess the requisite experience and skills to advance sustainable agricultural production systems. CBOs represent a form of social capital and their networks foster coordination and cooperation for the common good and the promotion of sustainable behavior [9, 10, 24, 41]. Social capital is able to reduce transaction cost associated with collective action directed at solving complex problems. Increased social capital is linked with movement toward sustainable agriculture. Collective action facilitated by community organizations such as CBOs can make a difference in achieving goals because the farmer and community are more proactive in solving their own problems and are no longer dependent on the whims of government or other outside entities [20, 42]. In the context of developing and promoting sustainable agricultural systems, CBOs and their networks provide the institutional support that empowers communities to be more self-regulating and to act independently, collectively and proactively.

Promoting and developing organic/sustainable agriculture is unlike solving a technical problem, although the tendency is to treat it like a purely technical problem. A technical problem by definition is straightforward because the solution is known and protocols for implementing solutions are well defined and results are predictable and in many cases a single organization has the capacity to solve it, for example producing a crop of corn or building a bridge. On the other hand, developing and promoting organic/sustainable food production system is akin to solving an adaptive problem. An adaptive problem is complex. Its solution is not known or well understood and even when solutions are known, it requires several organizations working in unison to solve it. Developing a sustainable food production system is a collective impact initiative that seeks to find a solution to an adaptive problem. Such an initiative requires many stakeholders—a network of organizations—from different sectors learning and working together to systematically address the system of variables that will define a solution to the problem. In addition, all involved stakeholders must be committed to changing their own behavior in order to adapt to the change they seek to bring about [12]. CBOs, as we have discussed, are indispensable members of this network.

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