Rural Sociology

Wednesday, September 1, 2004
Volume 69; Issue 3; ISSN: 00360112
Commodity Agriculture, Civic Agriculture and the Future of U.S. Farming
Lyson, Thomas A; Guptill, Amy

ABSTRACT Commodity agriculture and civic agriculture represent two distinct types of farming found in the U.S. today. Commodity agriculture is grounded on the belief that the primary objectives of farming should be to produce as much food/fiber as possible for the least cost. It is driven by the twin goals of productivity and efficiency. Civic agriculture, on the other hand, represents the rebirth of a more locally oriented agriculture and food system. Using data from the 1992 and 1997 Censuses of Agriculture and other secondary data sets, we examine factors and conditions associated with the presence and growth of both types of agriculture. Our findings show that civic agriculture is associated with particular commodities and with specific social, economic and demographic characteristics of localities. Commodity agriculture, on the other hand, is more sensitive to the classic economic factors of production, namely, land, labor, and capital.

Introduction

Production agriculture in the United States has changed dramatically over the past 50 years. Smaller, family-labor farms have declined substantially in number while larger, increasingly industrial-like operations have become the main source of food and other agricultural products. Technologically sophisticated and highly standardized production techniques have penetrated most segments of production agriculture, and advances in plant and animal sciences have resulted in substantial increases in production. These advances are linked tightly to a narrow range of products (Drabenstott 1999).

As U.S. agriculture modernized, it also regionalized. Areas that were once characterized by diverse agricultural activities were driven to exploit their "comparative advantage." Farmers in the Great Lake States, for example, have established and maintained a niche in dairy production. Producers in the Plains States have been able to raise hogs cheaper than farmers elsewhere, while farmers in California and several other Sunbelt states have used subsidized water and a favorable growing season to become the leading producers of fresh fruits and vegetables.

Currently, no region of the United States is substantially self-sufficient in food production. Consumers depend heavily on imported products that can be produced only in climates and soils outside of their regions. In many areas of the country, there is little or no locally produced food in commercial channels.

Despite the geographical distancing of the food system (Kneen 1993), a counter trend toward relocalization of some agricultural and food production has emerged in many places. This rebirth of locally-based agricultural and food production has been labeled civic agriculture (DeLind 2002; Lyson 2000), because in almost all cases these activities are tightly linked to a community's social and economic development. The organizational manifestations of civic agriculture include farmers' markets, community gardens, and community supported agriculture (CSA) and other forms of direct marketing.

What most fundamentally distinguishes the emerging civic agriculture from conventional commodity agriculture is its downstream linkages. Whereas commodity agriculture is incorporated into an increasingly global and corporate-controlled food system, civic agriculture is linked to local or regional markets, often through direct sales to consumers. Other recent studies have shown how marketing linkages play a major role in shaping the characteristics and viability of farms, underscoring the persistent importance of place (Lobao and Meyer 2001; Lyson and Gillespie 1995; Schwarzweller and Davidson 1997). The concepts of commodity agriculture and civic agriculture serve as ideal types, representing divergent trends in the U.S. food system that are remaking the agricultural landscape. Following a theoretical and historical overview of these two types of agriculture, we use data from the 1992 and 1997 Censuses of Agriculture and other secondary sources to identify and examine the factors and conditions associated with their presence and growth.

Commodity Agriculture

Perhaps civic agriculture is best understood when cast against the commodity-focused model of agriculture and food production that has driven agricultural change in the 20th century (Lobao and Meyer 2001). Commodity agriculture is the system of production that over the past 120 years has been developed and promoted by researchers and outreach workers at agricultural colleges and universities and by government personnel affiliated with ministries and departments of agriculture, mainly in North America and Europe. It represents the accumulated knowledge and wisdom about the most widely accepted procedures and techniques for growing crops and raising livestock (Heady 1976). Commodity agriculture is grounded on the belief that the primary objectives of farming should be to produce as much food/fiber as possible for the least cost. It is driven by the twin goals of productivity and efficiency. More specifically, the disciplinary underpinnings of commodity agriculture rest within both experimental biology and neoclassical economics (Lyson and Welsh 1993).

The logic of experimental biology dictates that increasing output is the primary goal of scientific agriculture. Neoclassical economics, on the other hand, posits that optimal efficiency, and presumably maximum profitability in production agriculture, can be achieved by balancing the four factors of production: 1) land, 2) labor, 3) capital, and 4) management or entrepreneurship. These four factors form the basis of the production function (Kay 1986).

The prime movers behind the conventional model of production in the United States have been the land grant colleges and universities, the U.S. Department of Agriculture, and, more recently, large, multi-national agribusiness firms (Fisher and Zuiches 1994). The land grant system was organized to bring the methods of scientific research to agriculture. At U.S. land grant universities, the emphasis in the classroom and research laboratory has been production. As different production-oriented agricultural disciplines were formed, such as agronomy, plant pathology, the animal sciences, plant breeding, and entomology, they broke apart "farming" bit by bit into disciplinary niches.

The goals were the same, however, across disciplines. In the plant sciences, attention was directed at increasing yields by enhancing soil fertility, reducing pests, and developing new genetic varieties. Animal scientists, on the other hand, focused on health, nutrition, and breeding. The scientific and technological advances wrought by land grant scientists were filtered through a farm management paradigm in agricultural economics that championed sets of "best management practices" as the blueprints for successful and presumably profitable operations (cf. Kadlec 1985; James and Eberle 2000).

The production model of agriculture focuses primarily on commodities as units of observation, analysis, experimentation, and intervention. Farmers and farms have largely been ignored by the conventional agricultural community. Indeed, farmers are often reduced to workers whose primary tasks are to follow production procedures outlined from above. And farms are simply places where production occurs independent of the local community or social order (Kay 1986).

Industrialization is the motor behind the production model of agriculture. In a report to the Wallace Institute for Alternative Agriculture, Welsh (1996:3) noted: "Industrialization has traditionally referred to the process whereby agricultural production has become less of a subsistence activity and more of a commercial activity." While it is difficult to pinpoint an exact starting date for the industrialization process in the United States, it is safe to say that the mechanization of farming in the early part of the 20th century was a first giant step that led to increasing intensification, concentration, and specialization of production.

The industrialization of agriculture has proceeded relatively unabated from the 1920s through today, propelled by mechanization, the increased use of chemicals (i.e., synthetic fertilizers and pesticides), and, most recently, the introduction of advanced biotechnologies. Over the past 50 years, farms have become larger in size and fewer in number. Land is being used more intensively and yields per acre of farmland have increased dramatically. The amount of farmland has decreased while capital investments on the farm have increased. Management skills have become critical for economic survival (Brester and Penn 1999). At the same time, farms have been woven into ever tighter marketing channels (Drabenstott 1999).

Civic Agriculture

As the production, processing, and distribution of agricultural commodities in the U.S. have become increasingly concentrated both organizationally and geographically, many small and medium scale producers are turning to alternative strategies to remain economically viable. Fundamental shifts in the structure of the economy encouraged farmers to find a stable livelihood in serving the needs of their own community or region.

The theoretical and conceptual underpinnings of a civic agriculture are based largely on the literature on industrial districts (cf. Zeitlin 1989; Sabel 1992; Perrow 1993). Zeitlin (1989:370), for example, has noted that smaller-scale, locally oriented, production and distribution systems "... require a broad set of infrastructural institutions and services to coordinate relationships among economic actors..." and compensate for the inefficiencies of a fragmented system of food production. Rclaledly, Snbcl (1992) noted that the success arid survival of locally based economic systems is directly tied to the democratic efforts of the community to which they belong. Similarly, Perrow (1993:298) states that "Small organizations are linked together by a sense of community of fate, rather than a link based on employees sharing the goals of the owners and top executives of a big organization."

From a community perspective, the work of Walter Goldschmidt (1978) and C. Wright Mills and Melville Ulmer (1946) have illustrated the benefits of smaller scale, locally oriented enterprises. They showed that communities in which the economic base consisted of many small, locally owned firms manifested higher levels of social, economic, and political welfare than communities where the economic base was dominated by a few, large, absentee owned firms.

Goldschmidt studied agricultural communities in the Central Valley of California. One community, Dinuba, was supported by relatively small, family operated farms. The other community, Arvin, was surrounded by large, corporate run enterprises. According to Goldschmidt (1978:420), these communities were "... selected for their divergence in scale of farm operations." However, they were also very similar in "... most fundamental economic and geographic factors, particularly richness of potential resources, agricultural production, relationship to other communities, and the more general techniques and institutional patterns of production." Using a broad array of data collection and analysis techniques, Goldschmidt concluded that "the community surrounded by large-scale farm operations offered the poorer social environment according to every test made."

The study by Mills and Ulmer (1946) was similar in design to the Goldschmidt study. However, Mills and Ulmer focused on manufacturing communities. They studied three matched pairs of small to medium size American cities. Two pairs provided big business-small business contrasts, while the third provided an intermediate case. Their findings were consistent with those of Goldschmidt. According to Mills and Ulmer (1946:1-2): "1) Small-business cities provided their residents a considerably more balanced economic life than did big business cities; 2) The general level of civic welfare was appreciably higher in the small business cities; 3) These differences between life in big- and small-business cities were due largely to differences in industrial organization-that is, specifically to the dominance of big business on the one hand and the prevalence of small business on the other."

Direct Marketing

As one form of civic agriculture, direct marketing offers farmers both the advantage of a market for high-value products and the opportunity to cut out middle-level handlers and capture more of the purchase price for the product (Bills et al. 2000). As Hamilton (1996) suggests, direct marketing is part of a class of activities in agriculture that seeks to move the focus from undifferentiated commodities to craft-style products, paralleling similar patterns of differentiation in the manufacturing sector (Piore and Sabel 1984).

Much of the literature on civic agriculture in the U.S. and elsewhere has focused on how direct marketing creates new kinds of social relations around food (Hinrichs 2000; Lapping and Pfeffer 1997). The experience of purchasing products directly from a grower in a farmers' market, pick-your-own, or farm stand context is part of the product that is for sale. DeLind (1999) and Hinrichs (2000) both note that agricultural products sold directly to consumers are sometimes promoted and consumed as "premium" products, and in this way are more frequently purchased by higher-income shoppers. Thus, the higher incomes associated with urban and peri-urban areas may explain the greater concentration of direct sales/civic agriculture in these places (Govindasamy et al. 1998). Furthermore, we would also expect certain products such as fruits and vegetables to be more closely associated with direct marketing than bulk commodities such as grains.

In the U.S., the number of farms selling directly to the public has grown rapidly over the course of the last decade. The 1997 Census of Agriculture reported over 93,000 direct sales farms in the continental U.S. These farms had sales of over $550 million. While this is still only five percent of all farms and less than one percent of all agricultural sales, there has been significant growth since 1992 when 86,000 farmers reported direct sales totaling $404 million. Similarly, the USDA currently counts over 3,100 farmers' markets in the U.S., up from 1,060 in 1994. The number of Community Supported Agriculture farms has also grown from the first appearance of one in the U.S. in 1985 to over 1,000 in 1999. These figures indicate that the direct sales trend has not yet peaked.

Commodity agriculture and civic agriculture represent two recognized types of farming found in the U.S. today. The current structure and landscape of commodity agriculture is the outcome of a logic of production that emphasized producing standardized commodities as cheaply as possible (James and Eberle 2000). The structure and landscape of civic agriculture, on the other hand, is presumably being configured by consumer demand for fresh, diverse, and locally produced food. However, unlike commodity agriculture, which produces undifferentiated products for the mass market, civic agriculture is sensitive to the social and demographic characteristics of local communities (DeLind 2002; Lyson 2000).

Research Design, Data and Methods

In this paper, we use both cross-sectional and lagged-panel regression techniques to identify factors and conditions associated with 1) civic agriculture farms that sell directly to the public and 2) conventional, larger-scale, commodity-oriented farms. Based on numerous case study accounts of civic agriculture activities, we expect that the direct marketing of agricultural products is driven by affluent, well-educated, urban consumers. Farmers in areas in and around metropolitan areas are poised to benefit from consumer demand for fresh, locally produced food. Conversely, we do not expect to find direct marketing to be an important phenomenon in more isolated rural regions.

Commodity agriculture should flourish in those areas in which the factors of production (land, labor, and capital) can be combined in the most "efficient" manner to maximize production. In other words, commodity agriculture should be less sensitive to the social, economic, and demographic characteristics of local communities and more sensitive to variables directly related to production.

All of the data used in this analysis come from either the 1992 and 1997 Censuses of Agriculture, the 1992 County Business Patterns, or from the 1990 Census of Population and Housing. The 1992 Census of Agriculture was the first to collect and report information on the number of farms selling directly to consumers for human consumption. Thus, comprehensive county-level data on direct marketing are available in the 1992 and 1997 Censuses of Agriculture. In order to make use of these data on direct sales, we chose to use the county as our unit of analysis and to include all counties in the continental United States in our analysis (N = 3053).

Dependent Variables

The dependent variables in both the cross-sectional and the lagged-panel models are simple counts of the number of farms selling directly to the public in 1992 and 1997 as an indicator of civic agriculture farms and the number of farms with sales of $250,000/year or more as an indicator of larger-scale, commercial, commodity agriculture farms. We do not know what percentage of the farms with direct sales sell over $250,000 a year. However, according to the 1997 Census of Agriculture, there were only 2,112 farms out of 93,410 direct sales farms with sales over $50,000 in 1997. On the other hand, there were 156,571 farms with sales over $250,000 in 1997. Given these figures, there appears to be virtually no overlap between the civic agriculture/direct market farm category and the large-scale commercial/commodity farm category. For use in the regression model all of the dependent variables were corrected for skewness by transformation to the natural log.

Independent Variables

We selected a set of independent measures that tap factors, conditions, and contexts that have been shown in previous research to be related to either direct sales or large commodity farms or both. Thus, we introduce two measures of the urban hierarchy that should be positively related to direct sales. Metropolitan status is coded 1 if the county is part of an SMSA and O if it is not. Urban adjacency is coded 1 if a nonmetropolitan county is adjacent to a metropolitan county and O if it is not. We also control for population change between 1980 and 1990. Further, we introduce three regional dummy variables, South, West, and Midwest, to identify areas of the country that might be more conducive to commodity agriculture compared to the omitted region, the Northeast.

We control for two commodities typically associated with direct sales, the number of fruit farms and the number of vegetable farms. These are measured as the percentage of all farms in the county. We also control for the absolute number of non-civic/non-commodity farms in a county to test whether farms that sell directly to the public move into places that already have a strong agricultural base or whether they represent a form of farming that moves into places that are devoid of agriculture. This variable is operationalized as the total number of farms in a county minus either the number of direct marketing farms or the number of large commodity farms. We also control for the number of large-scale food processors in a county to examine Drabenstott's (1999) contention that supply chains are forming in areas dominated by commodity agriculture. Large-scale food processors are those with 500 or more employees.

We introduce three variables that tap different dimensions of the production function. We expect each of these variables to be positively associated with commodity agriculture. Percent of farmland in a county that is rented indicates the extent to which commodity-oriented farms can minimize risk by not investing in a fixed asset (land) and still expand to maximize economies of scale. The percentage of farms in a county with five or more workers is a marker for large-scale commodity production (see Lyson et al. 2001). Finally, the average value per farm of all machinery and equipment taps the extent to which commodity farms are able to substitute capital for land and labor.

Median family income and median years of schooling are used to characterize the social and economic characteristics of a county. These variables will allow us to differentiate more affluent places from those that are less well off and should correlate positively with direct marketing/civic agriculture.

Methods

Our analysis is comprised of a series of cross-sectional and lagged-panel OLS regression models that look at both the number of civic agriculture farms and the number of commodity agriculture farms. The first set of cross-sectional models regresses the number of civic and commodity agriculture farms on a set of social, economic, and agriculture structural variables circa 1992. The second set of lagged-panel regressions uses the number of direct sales farms and the number of large commercial farms in 1997 and regresses the 1992 independent measures on them.

In a lagged-panel design, independent variables are measured at points earlier in time than the dependent measures. Additionally, lagged panel models also include dependent variables measured at earlier points in time as regressors as well. This type of analysis is more rigorous than simple cross-sectional analysis, since it will provide an assessment of which variables are associated with changes in the number of civic agriculture farms selling directly to the public and the number of commodity-oriented farms over the 1992-1997 time period.

Because our regression analyses are based on a total population of counties, and thus none of lhc observed differences are due to random sampling error, we use the T statistic not as a measure of statistical significance but rather as an indicator of the strength and consistency of the relationship between the independent and dependent variables.

Results

Between 1992 and 1997, the percentage of farms selling directly to the public as a percentage of all farms rose from 4.49 percent to 4.82 percent. During the same period, the percentage of commodity agriculture farms increased from 6.52 percent to 8.19 percent. Civic agriculture farms that sell directly to the public accounted for a larger share of all farms in the Northeast in 1997 (12.96%) than elsewhere (Table 1). In fact, only 3.15 percent of farms in the South and 3.98 percent of the farms in the Midwest region sold directly to the public. Commodity agriculture farms, on the other hand, represented 10.83 percent of all farms in the West and 9.33 percent of all farms in the Midwest region, compared to just 6.39 percent of the farms in the South and 7.21 percent of the farms in the Northeast. Table 1. Percentage of Direct Marketing and Commodity Agriculture Farms and Zero Order Correlations Between the Number of Farms Selling Directly to the Public and the Number of Farms with Sales Over $250,000/Year by Region: 1992 and 1997

The zero order correlation between commodity agriculture and civic agriculture was r = .350 in 1992 and r = .335 in 1997 (Table 1). This suggests that large-scale production agriculture can coexist with smaller, direct marketing operations. However, there are significant regional differences in these relationships. The relationship between commodity oriented farms and direct sales farms is strongest in the Northeast (r = .651 and r = .661) and weakest in the Midwest (r = .260 and r = .181) and in the South (r =. 211 and r = .246). The dearth of civic agriculture, in general, and direct marketing, in particular, in the Midwest and South no doubt contribute to the weak relationships.

Table 2 reports the correlations between commodity agriculture and civic agriculture and the independent measures. Compared to commodity agriculture, direct marketing civic agriculture farms are more likely to be found in metropolitan counties, in nonmetropolitan counties that are adjacent to metropolitan counties, and in the Northeast. Commodity agriculture is more likely to be located in counties with large-scale food processors and in the Midwest.

Direct marketing forms of civic agriculture are associated with fruit farms and vegetable farms, two enterprises that are conducive to direct marketing. On the other hand, commodity agriculture is associated with counties that have higher percentages of rented land, counties in which the percentage of farms with five or more workers is higher, and counties characterized by capital intensive farms.

Median years of schooling is positively associated with both commodity agriculture and civic agriculture. On the other hand, direct market, civic agriculture is more likely to be found in counties with higher median family incomes. Median family income is not as highly associated with commodity agriculture. Table 2. Zero Order Correlations Between the Number of Commodity and Civic Agriculture Farms and Selected Independent Measures: 1992 and 1997

Table 3 reports the results from both the cross-sectional and lagged-panel regressions. The cross-sectional results for civic agriculture (panel A) show that farms that sell directly to the public are found in metropolitan areas and in nonmetropolitan counties that are adjacent to metropolitan areas. These types of farms are less likely to be found in the Midwest, South, or West, compared to the Northeast. Direct market farms are part of a broader structure of agriculture that includes other types of farms as well. Net of other variables, civic agriculture is related to vegetable farming, but not fruit farming. And civic agriculture farms tend to be located in counties that are characterized by less capital intensive production. Finally, median family income is higher in counties where direct marketing predominates.

Commodity agriculture is more likely to be found in counties outside the Northeast (panel B). It is less likely to be found in metropolitan areas, although there is a weak positive relationship with nonmetropolitan adjacent counties. As expected, rented land and capital intensity are positively associated with commodity agriculture. However, net of other variables, the percentage of farms with five or more workers is not. related Lo Uns form of farming. Median years of schooling and median family income are also positively associated with larger-scale, commodity farming. Table 3. Cross-sectional and Lagged-panel Regressions (Unstandardized Coefficients in Parentheses)

The results of the lagged-panel analysis (panels C and D) identify variables that are associated with changes in the number of direct market, civic agriculture farms and the number of larger-scale, commodity agriculture farms. Between 1992 and 1997, direct marketing farms expanded in metropolitan and nonmetropolitan adjacent counties. Direct marketing increased at a faster rate in the Northeast compared to other regions. This form of civic agriculture also expanded in areas in which farming was already established, as opposed to emerging in places devoid of agriculture. As expected, the percentage of fruit and vegetable farms served as a marker for further growth of direct marketing. On the other hand, direct marketing did not expand into counties characterized by more capital intensive farming. Finally, this type of civic agriculture expanded in places populated by well-educated and affluent residents.

Commodity agriculture diminished in both metropolitan and nonmetropolitan adjacent counties between 1992 and 1997. In places that lost population, commodity agriculture also declined. On the other hand, compared to the Northeast, commodity farms were strongest in the Midwest and South. Commodity agriculture was also sensitive to places where the classic factors of production were most favorable. Counties with abundant land to rent, counties with a pool of farm labor, and counties in which capital intensive agriculture was well established saw commodity agriculture expand between 1992 and 1997. Like direct marketing, commodity agriculture was also most viable in places with a well-educated and affluent population.

Conclusions

Civic agriculture and commodity agriculture represent two fundamentally different types of farming. As expected, direct marketing/civic agriculture is associated with particular commodities and with specific social, economic, and demographic characteristics of localities. Commodity agriculture, on the other hand, is more sensitive to measures that tap the classic economic factors of production, namely, land, labor, and capital.

It should be noted that the number of civic agriculture enterprises as well as the number of very large commodity farms are increasing in the U.S. At the same time, there is a hollowing-out of the middle-size, family labor farms (Buttel et al. 1990). If current trends continue, the landscape of agricultural production could be characterized by many small, civically oriented enterprises in and around metropolitan areas and a relatively few very large, geographically concentrated commodity producers. These commodity producers are likely to be woven into the "supply chains" described by Drabenstott (1999).

For farmers in the U.S. and elsewhere, the globalization of the food system means that a much smaller number of producers will articulate with a small number of processors in a highly integrated business alliance. Drabenstott (1999) estimates that "... 40 or fewer chains will control nearly all U.S. pork production in a matter of a few years, and that these chains will engage a mere fraction [italics added] of the 100,000 hog farms now scattered across the nation." In a similar vein, the CEO of Dairy Farms of America (the U.S.'s largest dairy cooperative), Gary Hanman, recently noted that: "We would need only 7,468 farms [out of over 100,000 today] with 1,000 cows if they produced 20,857 pounds of milk which is the average of the top four milk producing states" (Northeast Dairy Business 1999). The consequences are clear, "... supply chains will locate in relatively few rural communities. And with fewer farmers and fewer suppliers where they do locate, the economic impact will be different from the commodity agriculture of the past" (Drabenstott 1999).

Commodity agriculture is firmly rooted and supported by the USDA, land grant universities, and large multinational agribusiness firms. Large-scale, commodity producers account for the bulk of the nation's food and fiber. However, commodity agriculture today is being propped up by tens of billions of dollars of subsidies each year (Edwards and DeHaven, 2001). In the long run, commodity agriculture will have to accommodate the concerns raised by farmers (Kirschenmann 1995), environmentalists (Buttel 1995), and consumers (Rifkin 1992) who are calling for a more socially, economically, and environmentally sustainable food and agricultural system.

Civic forms of agriculture, like farms that market directly to the public, are also expanding, and there are many observers who feel that locally organized agriculture and food enterprises may be able to account for a significantly larger share of the nation's food production than they do now. Unlike commodity agriculture, civic forms of agriculture are often deemed more sustainable and more sensitive to the needs of local consumers.

Over the past 10 years, an accumulating body of research has begun to assess the benefits of small enterprises on the level of civic and community welfare in the United States and elsewhere (Piore and Sabel 1984, Lyson and Tolbert 1996). This research suggests that there may be many positive benefits to communities that embrace a community capitalism model of economic development (see Tolbert et al. 1998 for a discussion of community capitalism and corporate capitalism). Communities that nurture civic agriculture activities, as one part of a broader plan of diversified economic development, can gain greater control over their economic destinies. They can also enhance the level of social capital among their residents, contribute to rising levels of civic welfare and socioeconomic well-being, revitalize rural landscapes, improve environmental quality, and, ultimately, promote long-term sustainability (Berry 1996).

The decentralized nature of civic agriculture, its geographic specificity, and its relatively small scale, however, pose problems that could put a limit on how much it can expand. Further, the USDA, the land grant universities, and the agribusiness community have not shown much interest in supporting this form of agriculture. However, as long as civic agriculture has the potential to nurture local economic development, maintain diversity and quality in products and provide forums where producers and consumers can come together as food citizens to solidify bonds of community, it merits increased attention by both researchers and policy makers.

References

Berry, W. 1996. "Conserving Communities." Pp. 407-18 in The case Against the, Global Economy, edited by J. Mander and E. Goldsmith. San Francisco: Sierra Club Books.

Bills, N., M. Roth, and J. Maestro-Scherer. 2000. Direct Marketing Today: Challenges and Opportunities. Washington, DC: USDA Agricultural Marketing Service.

Brester, G.W. and J.B. Penn. 1999. Strategic Business Management Principles for the Agricultural Production sector in a Changing Global Food System. Policy Issues Paper No. 11. Trade Research Center, MontanaState University, Bozeman, MT. Retrieved on October 1, 2002 (http://agecon.lib.umn.edu/cgi-bin/pdf_view.pl?paperid = 1801&ftype = .pdf).

Buttel, F.H. 1995. "Twentieth Century Agricultural-Environmental Transitions: A Preliminary Analysis." Pp. 1-21 in Research in Rural Sociology and Development: Sustainable Agriculture and Rural Communities, Vol. 6, edited by U.K. Schwarzwellcr and T.A. Lyson. Greenwich, CT: JAI Press.

Buttel, F.H., O.F. Larson, and G. W. Gillespie, Jr. 1990. The Sociology of Agriculture. Westport, CT: Greenwood Press.

DeLind, L.B. 1999. "Close Encounters with a CSA: The Reflections of a Bruised and Somewhat Wiser Anthropologist." Agriculture and Human Values 16:3-9.

_____. 2002. "Place, Work, and Civic Agriculture: Fields for Cultivation." Agriculture and Human Values 19:217-224.

Drabenstott, M. 1999. "New Futures for Rural America: The Role for Land-Grant Universities." William Henry Hatch Memorial Lecture presented to the Annual meeting of the national Association of State Universities and Land-Grant Colleges, November 8, San Francisco, CA.

Edwards, C. and T. DeHaven. 2001. "Farm Subsidies at Record Levels as Congress Considers New Farm Bill." Briefing Paper no. 70. CATO Institute. Washington, DC. Retrieved on September 15, 2002 (http://www.cato.org/pubs/briefs/bp70.pdf).

Fisher, J.R. and JJ. Zuiches. 1994. "Challenges Confronting Agricultural Research at Land Grant Universities." Issue paper 5. Council for Agricultural Science and Technology. Ames: IA. Retrieved on September 8, 2002 (http://www.cast-science.org/ chal_ip.htm).

Goldschmidt, W.R. 1978. Ai You Sow. Montclair, NJ: Allanheld, Osmun.

Govindasamy, R., J. Italia, and D. Thatch. 1998. "Consumer Awareness of State-Sponsored Marketing Programs: An Evaluation of the Jersey Fresh Program." Journal of Food Distribution Research 29:7-15.

Hamilton, N. 1996. "Tending the seeds: The Emergence of a New Agriculture in theUnited States." Drake Journal of Agricultural Law 1:7-29.

Heady, E. 1976. "The Agriculture of the U.S." Scientific American 235:107-127.

Hinrichs, C.C. 2000. "The Embeddedness of Local Food Systems: Notes on Two Types of Direct Agricultural Markets." Journal of Rural Studies 16:295-303.

James, S.C. and PR. Eberle. 2000. Economic and Business Principles in Farm Planning and Production. Ames: Iowa State University Press.

Kadlec, J.E. 1985. Farm Management: Decisions, Operation, Control. Englewood Cliffs, NJ: Prentice Hall.

Kay, R.D. 1986. Farm Management: Planning, Control and Implementation. New York: McGraw-Hill.

Kirschenmann, F. 1995. "Reinvigorating Rural Economies." Pp. 215-225 in Research in Rural Sociology and Development: Sustainable Agriculture and Rural Communities, Vol. 6, edited by H.K. Schwarzweller and TA. Lyson. Greenwich, CT: JAI Press.

Kneen, B. 1993. From Land to Mouth. Toronto: NC Press.

Lapping, M.B. and MJ. Pfeffer. 1997. "City and Country: Forging New Connections Through Agriculture." Pp. 91-104 in Visions of American Agriculture, edited by W. Lockeretz. Ames: Iowa State University Press.

Lobao, L. and K. Meyer. 2001. "The Great Agricultural Transition: Crisis, Change, and Social Consequences of Twentieth Century U.S. Farming." Annual Review of Sociology 27:103-124.

Lyson, TA. 2000. "Moving Toward Civic Agriculture." Choices Third Quarter:42-45.

Lyson, TA. and G.W. Gillespie. 1995. "Producing More Milk on Fewer Farms: Neoclassical and Neostructural Explanations of Changes in Dairy Farming." Rural Sociology 60: 493-504.

Lyson, TA. and C.M. Tolbert. 1996. "Small Manufacturing and Nonmetropolitan Socioeconomic Well-being." Environment and Planning-A 28:1779-1794.

Lyson, T.A., R. Torres, and R. Welsh. 2001. "Scale of Agricultural Production, Civic Engagement and Community Welfare." Social Forces 80:311-327.

Lyson, TA. and R. Welsh. 1993. "Crop Diversity, the Production Function and the Debate Between Conventional and Sustainable Agriculture." Rural Sociology 58:424-39.

Mills, C.W. and M. Ulmer. 1946. Small Business and Civic Welfare. Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business. Document 135. U.S. Senate, 79th Congress, 2nd session, February 13. Washington, DC: U.S. Government Printing Office.

National Commission on Small Farms. 1998. A Time to Act. United States Department of Agriculture MP-1545. Washington, DC: National Commission on Small Farms.

Northeast Dairy Business. 1999. "Market Gorilla." Northeast Dairy Business 1(6):11.

Perrow, C. 1993. "Small Firm Networks." Pp. 377-402 in Explorations in Economic Sociology, edited by R. Swedberg. New York: Russell Sage Foundation.

Piore, MJ. and C.F. Sabel. 1984. The second Industrial Divide. New York: Basic Books.

Rifkin, J. 1992. Beyond Beef: The Rise and Fall of the Cattle Culture. New York: Dutton.

Sabel, C.F. 1992. "Studied Trust: Building New Forms of Cooperation in a Volatile Economy." Pp. 104-44 in Explorations in Economic Sociology, edited by R. Swedberg. New York: Russell Sage Foundation.

Schwarzweller, H.K. and A.P. Davidson. 1997. "Perspectives on Regional and Enterprise Marginality: Dairying in Michigan's North Country." Rural Sociology 62:157-179.

Tolbert, C.M., TA. Lyson, and M. Irwin. 1998. "Local Capitalism, Civic Engagement, and Socioeconomic Well-Being." Social Forces 77:401-428.

Welsh, R. 1996. The Industrial Reorganization of U.S. Agriculture. Policy Studies Report No. 6. Henry A. Wallace Institute for Alternative Agriculture, Greenbelt, Maryland.

Zeitlin, J. 1989. "Introduction." Economy and Society 18:367-373.