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## **Agents' Perceptions Of Structure: How Illinois Organic Farmers View Political, Economic, Social, and Ecological Factors**

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**Abstract:** Various structural factors influence organic farmer decision-making. Analyses that combine structure and agency provide an opportunity for understanding farmers' perceptions of the political, economic, and social "world" in which they operate. Rich conversational interviews, conducted with twenty certified organic farmers in Illinois and analyzed with multiple qualitative methods, show how farmers mediate structural concerns. In addition to political, economic, and social structures, a fourth structure is needed. Indeed these organic farmers emphasize the importance of ecological factors in their decision-making. Within the perceived economic, political, social, and ecological structures, numerous topics (i.e., marketing, policy, family, ecosystems) and subtopics (i.e., diversification, farm programs, traditions, soils) exist. Farmers' quotations provide detailed information of how they view and mediate structures in their daily on-farm decision-making.

**Keywords:** Agency, Alternative agriculture, Farmer decision-making, Organic farming, Perception, Structures (economic, political, social, ecological).

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### **Influences On US Organic Agriculture**

Organic farming is based on specific management techniques (e.g., rotational cropping, beneficial insects) that exclude prohibited synthetic chemicals. Organic production in the US is increasing in response to market expansion. Indeed organic markets have grown 20% annually since 1989, and the value of all organic products sold in the US was \$3.5 billion in 1996 (Natural Foods Merchandiser, 1997). According to a 1995 US Congressional Report, retail markets for organic foods are driven by consumers who increasingly favor reduced pesticide use (US Congress, 1995). In addition to US organic markets, exports totaled \$204 million in 1994 (Dunn, 1995). American organic farmers are tapping into an expanding export market, particularly meeting the Japanese demand for organic food grade soybeans.

In addition to market changes, organic agricultural policies are in transition. The United States Department of Agriculture (USDA) is currently revising proposed federal standards regulating organic production, which received substantial public comment in 1998. National organic standards may provide added credibility to organic products in the eyes of the consumer. A key component in the success of organic production is market identification and reliability (Lockeretz and Madden, 1987). Without unified organic standards, organic markets are plagued with confusion over the definition of "organic," which affects consumer confidence (Merrigan, 1993). Critics of federal regulation caution that if national organic standards are lax, export markets would decline and trust in organic products could falter.

Policies at the state level also influence production. “Organic farming is just a fad,” according to one agricultural marketing specialist with the Illinois Department of Agriculture. Indeed, the agricultural establishment in this Corn Belt state seems to have little interest in promoting organic production. Many in the farming community also hold entrenched ideals of agricultural success here; capital accumulation, large-scale, chemical intensive production is the most common goal (Walter, 1997). Yet, agrichemicals are a known source of environmental degradation in the region (EPA, 1998). According to a congressional study, the Corn Belt should be targeted for multiple agroenvironmental programs that address “water quality, wildlife habitat, and soil quality.” (US Congress, 1995: 2).

Both federal legislation and public awareness increasingly acknowledge agriculture’s contribution to water quality problems. This stimulates an awareness of alternative methods of production that require fewer agrichemicals. Adoption of such alternatives, such as organic farming, may have both environmental and social consequences. According to a major study by the National Research Council: “Wider adoption of proven alternative systems would result in greater economic benefits to farmers and environmental gains to the nation.” (NRC, 1989:6). Thus economic, political, and social factors are potentially influential in organic production. Yet, the extent to which individual organic farmers perceive these structures and base their land use decisions upon them, remains an open avenue of investigation.

### **Structure and Agency in Organic Farming**

There is an active dialogue addressing structure and agency in social science agricultural literature. Structures are the enduring economic, political, and social factors that act to limit human actions (Giddens, 1979; Johnston, 1980). From a structural viewpoint, agricultural research runs “the risk of reducing social change to behaviorism” by looking at individual farmers’ motivations and behaviors, removed from broader political or economic factors (Roberts and Hollander, 1997: 56). In political-economy terms: “petty commodity producers” (i.e., family farmers) face the “contradictory interests of the two predominant classes of capitalism” (i.e., farmers own land and work on the farm) (Friedmann, 1986: 188; Marsden, 1991: 16). Indeed, some argue that research “attention has shifted from farming as such to encompass the social, economic, and technological interrelations right across the food chain” (Lowe *et al.*, 1994: 4).

Research on the structural aspects of organic farming in California depict highly capitalized, large-scale, industrial production that increasingly mirrors conventional agriculture (Buck *et al.*, 1997). Further research in California indicates that as agribusiness makes in-roads into organic production, sustainability may be sacrificed (Guthman, 1998). The link between organic farming and environmentalism, often taken for granted as a unified social movement, may be tenuous when production goals conflict with the preservation of nature (Tovey, 1997). Thus, some research indicates that structural factors now overshadow the traditional grassroots, independent tradition of organic farming.

On the other hand, research on individual farmers (i.e., agents) describes who adopts sustainable practices and what influences their agricultural decision-making. Agency refers to individuals or groups of individuals whose actions are based on their perceptions and past experiences (Gold, 1980; Golledge *et al.*, 1972). For example, farmers who adopt sustainable methods of production must be aware of a problem, know of alternatives, and have the resources to implement a change (Padgitt and Petrzela, 1994: 272). By conducting surveys of individual farmers, researchers identify the links between production methods and socio-economic factors such as age, education, and cultural background (Bultena and Hoiberg, 1986; Korsching and Hoban, 1990; Curry-Roper, 1997). Individuals act in response to their perceptions, knowledge, and experience (Kates, 1962). By understanding individual farmers’ characteristics, researchers learn the reality upon which farmers base their daily decisions, which have long-term ecological and economic impacts on society as a whole.

Organic farmers are highly diverse, so personal factors and operational behaviors are often difficult to predict and must be investigated on an individual basis (Lockeretz, 1997). Using a Massachusetts example, Lockeretz (1995) found that social, economic, and personal factors are each influential, but the specific locale is fundamentally important in determining a farming operation; organic farmers act in response to their individual context, rather than as a uniform theoretical farm type. Sources of information, educational background, and personal environmental concern commonly influence an individual’s decision to adopt organic methods (Beus and Dunlap, 1991; Duram, 1997). In this sense, the structures that are tangible to farmers are the opportunities and constraints they perceive, which comprise their objective world.

This article combines structure and agency in a unique manner: by discovering organic farmers’ perceptions of, and behaviors toward, structural constraints in their farming operations. It is a challenge to link individual,

experience-based, perceptual research with overarching national and global structural factors. This exploratory research is best accomplished through qualitative analysis, which allows for a discovery of information. Some structural factors may affect one farmer, but be viewed as unimportant to another. For example, specialized vegetable growers may perceive a certain structure (e.g., distance to specialized restaurant markets) as highly influential, while grain producers deem this unimportant. This research leads to a pragmatic understanding of farmer decision-making, by discovering the complex economic, political, and social structures that influence actual farmers.

## **Study Methods**

The Organic Crop Improvement Association (OCIA) is the primary certifying agency in Illinois, which like many states, has no state governmental regulatory body for organic production (Duram, 1998). On-farm interviews were conducted with 20 of the 71 OCIA certified organic farmers listed in 1996 (Figure 1). This sample was chosen based on farmer's willingness to participate in on-farm interviews; the group was identified after a mail survey was conducted of the entire population. Interviews followed a conversational style and flowed to topics of interest to the farmer. Since the research goal was to fully understand organic farmers in the region, topics included all aspects of operational and personal factors involved on the farm. I began by asking the broad question, "Please tell me about your farm." Farmers then guided the conversations, but if there was a lull, I prompted them with general questions, such as: "Please tell me about your marketing options" or "Why did you decide to grow these specific crops?" During my on-farm visit, I toured the premises, which added to the richness of operational information gathered. This also provided internal validity, since I could see specific operational activities that had been described in the farmer's interviews.

(Figure 1 about here)

Interviews were tape recorded and later transcribed. The transcribed texts were between 15-30 single-spaced, typed pages for each farmer. These texts were then coded for analysis. This analysis began with a "start list" of codes that was developed based on literature that indicates broad economic, political, and social structures are most prominent in sustainable agriculture.

Based on the "start list," several particularly rich interview transcripts were read to discover common topics within the broader categories (Miles and Huberman, 1994). The farmers' comments were then coded by topic (Agar, 1980). For example: economic structures include topics such as marketing and production costs; political structures include certification and agricultural policy; and social structures include family and culture. Eventually, more specific subtopics were discovered; the code list evolved, and all transcripts were re-coded. Using the concepts: context, perspectives, process, activities, strategies, and relationships; further helped in identifying subtopics in the texts (Bogdan and Biklen, 1992). For example, within the economic structure category, marketing was a prominent topic; farmers noted specific information about identifying markets and also about marketing problems and diversification.

After this discovery phase of analysis was completed, the transcripts were analyzed by key word searches and sorting of texts. In this phase, the subtopics discovered through the coding process were used in computer searches of the transcripts. This was a supplemental procedure to assure a comprehensive analysis of the lengthy text documents that totaled 435 single-spaced pages. An important initial discovery was that the three main categories of economic, political, and social structures are incomplete. In fact, the farmers repeatedly described a fourth structure: ecological factors. Thus the code list eventually included four main categories, 14 topics, and 24 subtopics (Table 1).

(Table 1 about here)

Moving from description to explanation required displaying the data and conducting cross-case analysis. First, flow charts were created to display each farmer's key motivations and barriers in organic farming, focusing on the economic, political, social, and ecological structures each perceived. Second, variables were compared across cases, while the contextual sequence of each interview was maintained as much as possible (Abbott, 1992). A standard format for displaying descriptive data from all cases was composed, similar to a meta-matrix used by Miles and Huberman (1994:178). Then categories were sorted to increase clarity. This provided a better understanding of cross-case similarities and points of divergence among farmers' experiences.

## **Discovering Structure According To Agents**

Demographic characteristics provide background information for understanding farmers' perceptions of structure (Table 2). The 20 farmer participants represent the diversity of organic operators in Illinois. Certified acres range from 2.5 to 1,800 per farm. The number of acres certified is lower than total acreage on six farms because these are split operations in which organic methods are used on certified fields and conventional methods are employed on separate fields. This is sometimes the approach a farmer takes in transition from conventional to organic. The initial year in which these farms were certified ranges from 1987-1996. Of the 20 interviewed farmers, in 11 cases either they or their spouse work full time off-farm, four work part time off-farm, and only six operate with no off-farm income. In terms of land tenure, six of these farmers own all of their land, the remaining rent at least some of their land: 12 from family members and two from non-family landlords. Crop types vary from adzuki beans to zucchini, but a useful way to describe these variations is with general marketing categories. Eleven of the farmers deal in organic grain markets, while nine direct market their produce through farmers' markets, roadside stands, community supported agriculture (CSA) groups, and local stores. This greatly simplifies their actual marketing activities, however, as many organic grain farmers also have livestock or dairy products they direct market, or conventional grain that they market separately. Still, these marketing categories provide a generalization by which to describe the diversity of crops grown.

(Table 2 about here)

This analysis focused on the outside structural factors as perceived by organic farmers, thus specific personal characteristics were considered only in relation to the structural aspects of organic farming. It is notable, however, that it was extremely challenging to focus on structural factors. Farmers tended to say "my decision" and "my independence" far more than they cited the influence of outside economic, political and social factors. In other words, farmers were proactive in decision-making, rather than expressing resignation toward a difficult situation or barrier.

After careful coding, re-coding, and analysis, perceptions of outside structural factors emerged. Perceived economic, political, social and ecological structures, as discovered through farmer interviews, are described below (Table 1). The farmers' own descriptions are highly effective in conveying the meaning and subtle variations within each topic. Quotations noted below were selected based on their relevance and clarity in expressing common perceptions among the interviewed farmers.

### **Economic Structures**

Economic variables were commonly discussed in the farmers' interviews. These included several broad topics: marketing, agribusiness and independence, production costs, and related factors. Each of these topics is comprised of several subtopics, as described below.

#### *Marketing*

Farmers noted that they tailor their production to match market demands, and that marketing organic products takes a great deal of effort and time. Diversification was a common theme among the farmers. Crop rotations are required in an organic operation, but many farmers grow more than the necessary crops. In addition, one-third of the farmers noted that they were identifying new ideas: producing emus or garlic, for example. Those who were not operationally diverse instead noted that their particular market niche was very specific, such as homemade pesto, tomatoes marketed to exclusive restaurants, or a country crafts open house. Small-scale, organic vegetable producers travel far and frequently to market their produce. They have multi-faceted marketing plans including a combination of: farmers' markets, Community Supported Agriculture (CSA) groups, roadside stands, and small grocery stores.

Organic markets tend to be less stable than conventional marketing channels. Indeed, several grain farmers noted they had lost money to dishonest grain brokers. Organic farmers grow numerous crops to maintain their rotation, which eliminates pest and builds the soil. However, farmers state that organic markets are lacking for some of these crops. Because farmers perceive that organic markets are not available for some crops, they sometimes market their organically produced crops as conventional.

#6: I have like 500 different varieties of vegetables. It's a three-hour drive to the farmers' market every Saturday. We get up at 2:30 a.m., get there by 5:30 and people are ready to buy at 7. Plus I sell to a CSA, and to a couple of stores about an hour and a half away.

#9: We grow the pumpkins organically, not because anyone cares, but because it is important to us out there picking them. Nobody who buys a pumpkin out here asks, but if their kids want to lick them on the way home they can!

#11: You have to make phone calls. I like to get people bidding for the price of my crop. That's the advantage of the organic farmer.

#13: What are we going to do with the wheat? It would make less money, and less yield than conventional wheat. There is no organic market for wheat.

#16: I sold some wheat to a guy—he took many farmers for a few million dollars. He went bankrupt. I worked for 2 years to get that money, but I never did.

#17: The whole farm is certified organic, but I don't market all my crops that way. The markets aren't there.

#19: We go corn, soybeans, oats or wheat, and then alfalfa or red clover for one or two years.

#20: I prefer to diversify even though it's much more laborious, much more difficult. But it's probably safer until we learn all the ins and outs of the complexities and interactions of all the biochemistry and synergies of all the different botany that we put out.

### *Agribusiness and Independence*

Farmers view agribusiness and their personal struggle for independence as closely linked. According to these organic farmers, agribusiness “fixes” conventional input prices, “brainwashes” farmers into thinking they need conventional inputs, and has political power that directs government farm programs and sets the level of production. In breaking away from agribusiness, organic farmers share a common goal: their desire for independence. They strive to be independent from chemical companies, grain corporations, and banks, which they perceive as having considerable power in conventional agriculture. Many of the farmers state that components of their independence include self-sufficiency and operational integration that require few off-farm inputs. Indeed these farmers often feed crops to their cattle and then compost the manure and use it on their crops. In addition, farmers grow their own seed, which lessens their need for off-farm inputs. These activities assist in reaching their goal of independence from agribusiness.

#13: The farm programs are run by agribusiness. The commodity businesses want 10 billion bushel crops—but already farmers only get \$5 a bushel! Farmers have to finally start controlling production. Then agribusiness wouldn't do it.

#14: Conventional farmers have been brainwashed by the chemical companies. They say you can't do it without chemicals, but I can prove that you can.

#15: I just got mad! I drove by the bank one day and I just got mad that they owned everything.

#16: Controlled by the chemical companies and grain corporations — the high investment in capital and the big equipment — it's just not what I want to do.

#17: The farm is pretty much self-contained with the grain and dairy herd.

### *Production Costs*

Farmers' commented on several key points in regard to the production costs of organic farming: net income, labor, landlords, off-farm work, and debts and loans. First, they feel that in terms of net income, organic production is at least equal to, and often better than conventional production. Second, family members and part-time local young people conducted most of the labor on these organic farms. They did not perceive labor shortages or problems, and indeed several farmers noted they were pleased to hire local people. Third, although three quarters of these organic farmers rent their land, most of the landlord relationships are with family members (e.g., uncle, father, wife, mother, sister-in-law). The landlords' opinions of and support for organic production varies. While a few landlords requested low input techniques, many of the farmers noted that they faced opposition from their landlord regarding implementation of organic methods. Fourth, over half of the organic farmers noted that it is important that either they or their spouse works full time off-farm to support the family. They were quite matter-of-fact in explaining this, as they noted most conventional farm families are in the same situation. Fifth, debt and loans were an important consideration for the farmers, and they all felt that reducing debt or operating debt-free was an important goal.

Several farmers noted the difficulty in obtaining loans for organic agriculture, which requires fallow fields as part of the rotation for soil rejuvenation. They commonly mentioned that they had old equipment and did not compete with their conventional neighbors for owning the largest and newest machinery.

#7: If you are highly leveraged you can't even consider letting ground stay in green manure for a year, the bankers won't allow it.

#11: My tractor is a '69 and my combine is a 1977. I have 3 more payments on the combine. I want to stay out of debt.

#13: Right, my wife has a job also. It has to be that way if you are going to survive in farming.

#14: I am doing okay, because when I figured out the bottom line, I don't have the chemical companies to pay.

#16: I've got part-time help. I hire a few kids to help put up hay and walk the soybeans [weeding; and pulling insects]. That is one thing I like about organics. On my small farm I can hire a couple of kids. Most big farmers don't need help. So, a lot of kids have to work for a fast food place their profits do not stay in this area. I hire kids. They get wages. It keeps them off the streets.

#18: Well, my uncle [landlord] is accepting organic more and more. I told him up front that it wasn't going to be easy, that he was going to have to get used to seeing a few weeds out there. He was raised by what I call the "clean, green" era, where you are judged by how many weeds are in your fields and not how much money is in your pocket at the end of the year.

#19: We're all a family. Dad and I work together. Mom works with us. I have a brother who works off-farm, but he helps too. My uncle owns the land. He wants it organic.

### *Related Factors*

The interviewed farmers indicate that their operational decision-making was not purely economic in nature, rather other factors influence what crops they produce and where they market them. Perhaps these activities could be seen as market substitution (e.g., cropping for fertilizer), but these farmers also identify non-economic motivations. Several of these farmers view organic production as the only opportunity for them to remain in agriculture due to the high capital required in conventional agriculture. Indeed several of these farmers grew up on farms, left farming, and only came back in because of the perceived economic benefits of organic production.

#5: On the farm, I want to grow good food for me and my friends. It's not just to make money.

#10: It's an economic trade-off. I have some acres in rye [low profit crop] because it releases nutrients, but I could be growing corn or beans [high profit crop]. As far as dollars and cents go... I feel good about doing it, so that helps too.

#11: I'm growing it for other reasons than profit: it's a special type of alfalfa that grows late in the fall for soil structure and it puts nitrogen in the soil.

#18: I couldn't make it chemically. I thought I was either quitting farming or switching to organic.

#19: This was a fabulous way to start farming on my own, because the money I needed to start up was so much less than the other guys: the chemical and fertilizer bill, the machinery are too high.

### **Political Structures**

The sampled farmers perceive of several political structures: organic certification, government policy, and information dissemination. They note that the link between policy and information is especially important, and they believe that research and information on organic methods is lacking. They blame these information dissemination problems on extension agents and university researchers. Indeed, farmers note that a key source of information is their own on-farm experiments, which are closely linked to local environmental conditions.

### *Organic Certification*

Most farmers see organic certification as an important component of their operation. Indeed, several noted that certification assured them that they were using the best production methods possible. They believe certification is necessary to maintain a clear definition of organic. Several of the smaller producers, however, stated that certification was not necessary for farmers' markets and small-scale marketing.

#3: We didn't feel we got much from certification except a bunch of paperwork. If you are growing soybeans, you need certification. But if you are doing it from a philosophical point and selling at farmers' markets, we don't feel it is necessary.

#4: There was a five-year period between reading about being certified and actually doing it. At first, I thought: "No way," but then it sank in, and I went for it.

#11: The certification gives you a good feeling that you are producing something good.

### *Agricultural Policy*

Agricultural policy was a topic of interest to most of the farmers. Most had negative opinions of governmental involvement in organic production and agriculture in general. Indeed, they felt that government policy supports large-scale conventional agriculture only, while downplaying economic and ecological concerns, and ignoring organic farming altogether. In addition, several farmers noted that government policy was determined in collaboration with agribusiness corporations. Although they specifically voice derogatory opinions about agricultural policies, for a variety of reasons, half of the farmers participate in federal agricultural programs. They note that they need the base income it provides, or that their landlord requests participation. In addition to federal policy, the interviewed farmers noted concern with state agricultural agencies. The Illinois Department of Agriculture, the University of Illinois Regional Cooperative Extension, and conventional agricultural organizations were mentioned by these farmers, often as interrelated entities. The farmers feel that these agencies only promote chemical intensive agricultural production and provide little information on organic methods.

#2: We can't compete with Wisconsin or Minnesota. There is more of an organic organization there. Illinois is not on the ball at all. You know, Monsanto is in the state of Illinois. You know, it's just politics.

#6: Extension is geared to help people with 3,000 acres of corn, but not me with an eighth of an acre. They only help you by telling you what chemical to put on your crop.

#8: There is basically nothing out there for small vegetable farmers to have any kind of safety net. I can't get crop insurance. Go to the Farm Service Agency; they have no idea.

#13: The government knows what they are doing. They know farmers can't survive on \$2 a bushel. They call it a farm program, but it should be called "the agribusiness and processors program." It's for them, not the farmers.

#15: The government is locked into the conventional mode of operating. If they stick their head out for organic, they think they'll lose everything. They're in the "don't change" mode.

#18: The farm program is teaching us not to think for ourselves. It's a form of welfare. I do it for my landlord. But I won't change the way I farm to keep in it.

### *Information Sources*

Indeed many farmers noted that information on organic methods is not available through typical agricultural agencies. They claim that university research provides no help regarding their farming techniques. The University of Illinois, as the state's large land grant institution, was often named specifically but several farmers also voiced opinions about university research in general, and their lack of information on organic production.

Since farmers feel that the political and education structures do not provide information on organic farming, where do they get information? They noted that their sources of information include: other organic farmers, reading a variety of books and magazines, and conducting their own on-farm experiments. On-farm experiments are an important information source for many farmers. These farmers explain that they try new techniques and then modify them to meet the conditions of their farm. One farmer joked that he is like a university researcher, except that he does not have grant funding. Other farmers warn that one should not experiment with their worst land, which is the tendency, but rather with the average land on the farm.

#2: You can't go to the U. of I. and study organic ag, because they tell you exactly the opposite.

#7: The colleges give lip service to farm families and all the rest. The fact is there are not many businesses that would take as low a return as farmers do on their investment.

#8: I took a nuts and bolts, small business class and then did some market research.



#9: It was really hard to find good information on organics unless you went back to the archive on pre-chemical farming. We got information from there: a 1933 agronomy handbook!

#10: People should pick the better ground to experiment with to give it the best chance it's going to succeed.

#12: Although I only went to school for 8 years, I've learned more since I've been out of school than I ever would have learned in school — by doing it. I use compost and compost tea. We've done some research here on that.

#15: The U. of I. is not quick to pick up new ideas. They don't generate new ideas.

#16: I've learned by talking with other farmers, reading lots of articles, and probably mostly by trying a lot out myself. You can't be afraid to be a pioneer and try things.

#20: I'm not taking away from the university except that, because of the commercial interest involved, they have a tendency to project that *this* [conventional method] is the way it should be done if you want to survive. That is not always the case.

## Social Structures

Social structures were discovered that influence on-farm decisions. Interviewed farmers perceive many social structures that affect US agriculture: family, health, views of organic and conventional production systems, and aspects of American culture.

### *Family*

Intergenerational and family influences have been both positive and negative, according to the farmers. Farmland is sometimes available from family members, thus helping farmers establish their operations. But these relatives, often from a conventional agricultural background, may be unwilling to accept organic production techniques. On the other hand, some farmers noted that their parents or grandparents had been a guide for their farming techniques. Although not termed organic — these previous generations showed farmers the importance of integrating crops and livestock.

#5: Most the Dad's problems with organic ag is that if he admits it's good he admits that what he's been doing is detrimental to someone's health. Me and my dad have arguments all the time.

#9: If it were up to us, it would all be organic. But his dad and brother have different viewpoints. We don't get help from them on the organic land.

#12: We are Amish Mennonite. As a congregation we farm what I consider "biological," not necessarily organic.

#15: My cousin (who farms with me) didn't want to do organic. I had to convince him.

#17: This farm was bought in 1924 by my grandfather. He was a diversified farmer. It was innovative in a lot of ways; one of the first to grow legumes in a rotation so we could get more nitrogen for the corn.

### *Human Health*

An important social theme evolved from the interviews: human health issues. Nearly all the farmers noted a link between chemicals and health problems. Many of them had seen friends or relatives die of cancer, which they attribute to agrichemicals. Several farmers noted their general interest in health issues and personal health consciousness.

#9: I'm a conventional nurse, but I study herbal medicine too. I see what people are doing to themselves, but they don't see it.

#14: I figure that the less you take in, the better off you are. Those chemicals are all poisons.

#17: We are using far too many chemical herbicides in our environment. We do not know what their actual effect is on the environment or on us as human beings. If it's strong enough to kill a bird, fish or frog, what's it going to do to us in the long term?

#18: My dad has Parkinson's. It's from the chemicals — no one will change my mind. He thinks so too—it's from the herbicides and exposure to it.

#20: I watched a lot of neighbors die from cancer who didn't particularly heed the labels. I mean, their shoes would be yellow from the stuff.

### *Organic Agriculture in Society*

These farmers decided to adopt organic methods. Some are from farm backgrounds, while others came directly into agriculture without that previous experience. Each has an opinion on what organic production requires (mentally, physically, and financially). While some feel organic farming is not fully separate from US agriculture and the conventional system, others argue it requires a completely different mind set. Nearly all the farmers noted that organic farming was very challenging and requires a wide variety of tasks.

While these farmers have quite optimistic opinions about organic agriculture, they describe how their conventional neighbors and much of society view them differently. In many cases, the farmers note that they have little contact with their conventional neighbors. Others were actually warned by their neighbors, that organic methods would fail. They noted that conventional farmers ask indirectly, through relatives or friends, about the organic methods they see as they drive past their farm.

#3: It's a small business. You have to wear a multitude of hats — sometimes you're a marketer, sometimes a salesman, a weed puller, a producer, a bookkeeper.

#9: His mother says, the way people put it is: "Is your son still farming a little bit differently?" She hears it more because she has a store in town. They don't know what it is, but he is doing it a little bit differently! It's a renegade thing to do, really.

#12: I personally feel that within the next 20 years, the majority of agriculture will be either organic or biologically farmed.

#16: What's said behind my back? Who knows? But I think I have a good relationship with my neighbors. They would not farm this way, and I would not farm their way. That's how it works.

#17: I'm sure I'm the talk of some coffee shops around here, because of the weedy looking fields I have or because I'm two weeks behind harvesting. I'm an oddball in the community.

#20: I came pretty much out of the whole sustainable ag thing and just didn't stop. We just kept doing it; it was a natural progression from conventional to organic. But, people I thought were my friends-- they'd take my wife aside and say, "Damn, he's going to go broke. He'll never make it. It can't be done!"

### *Conventional Agriculture in Society*

These farmers feel that they often confront negative views of organic farming. In response, they have developed strong opinions regarding conventional agriculture in the US. They feel that the conventional production system has distanced farmers from their land, and replaced their skills and knowledge with off-farm inputs that attempt to control nature. They believe that conventional farmers are harming the environment, losing money, and producing crops of inferior quality. While these organic farmers blame conventional farmers for degrading the environment, they also perceive broader social forces at work. They see that land agglomeration has forced out many smaller farms, and fewer large farms now comprise their rural areas. This has led to obvious rural decline, and few opportunities for small farmers. In addition, farmers note that large-scale agriculture has brought social change and stress to the daily lives of rural residents.

#8: We are creatures of habit. We don't like change, none of us do. But I think for the most part, there is still a large amount of farmers in the country that if they were showed how, they would want to do what was right for their land.

#13: If you come back here in 20 years, these farms won't be here. It'll be farmed by 5,000 to 10,000 acre farms — if something doesn't happen.

#14: There are no nutrients in a lot of these chemical crops, especially corn. The micronutrients aren't there and the protein is low. You've got a high yield, but a high yield of nothing!

#16: A lot of guys are selling out because they can't make it. A big farmer might need 3,000 or 4,000 acres to make it. I don't see that as progress. I see that as going backwards.

#18: I have set, as one of my goals, to make as much money — net — as the guy farming 1,000 acres. I know I will attain it. That's my goal on my 370 acres. I know that is possible.

#20: I know a guy who farms 30,000 acres, cash rent. He doesn't care about the land. It's maximizing profit potential and they see that with synthesizing the system and with economies of scale that they can just go in and cover so much ground. But those are the things that decimate rural communities.

### *American Culture*

Three social concerns emerged from the farmers: issues of food cost, materialism, and suburban sprawl. While each is a distinct factor, they are all fundamental components of current American culture. First, these farmers noted that the cost of food in the US is very low, and that farmers do not earn a fair amount of money for their products. They feel that attitudes concerning food cost are ingrained in our culture, but Americans must learn to pay the real cost of the food they eat. Second, farmers note that American society is increasingly materialistic and this plays into the hands of large corporations. Small farms, like local businesses, are declining as larger operations buy them out. These farmers mentioned that large chain discount stores, have an obvious, negative impact on local businesses. Third, suburban sprawl even effects farmers seemingly far from urban areas. The ripple effects of increasing suburbanization, and the concomitant increased land prices has broad impacts on agriculture and society.

#1: It bothers me that people will pay \$5 for a bouquet of flowers that will last 2 days, but haggle over the price of organic carrots.

#4: Chicago is 70 miles away. People commute from here. This is the next open space that exists.

#7: Many people wouldn't think of buying a car without electric windows, but ask them to pay 10% more for healthy produce and they won't do it.

#10: If society says, "I don't care what it costs, it better be good," then what I'm doing is very important. But if society says, "I don't care what it is, just so it's cheap" then I'm out of business.

#13: We're getting rid of all the farmers with technology. It's killed communities. Like what happened to the "Mom and Pop" grocery stores.

#17: I say it is a shame that this country is so bent on cheap food that they have to force their farmers to find second jobs to be equal to their urban counterparts.

#18: What is happening is people by the city are getting bought out for these huge amounts — \$30,000 an acre. And they move here to find a nice place. Unfortunately, it doesn't make me feel good. They go into my uncle's office [his landlord] and ask how much he'd sell for. I don't think my son will have a chance to farm.

### **Ecological Structures**

Interview analysis discovered that these farmers perceive the environment as a predominant structure that affects their individual decision-making. Thus, ecological structures must be added to economic, political, and social structures that comprise the reality that organic farmers perceive. Environmental factors are both reflected within the other three structures, and as a separate structure. Within economic considerations, the environment plays a role in determining a farm's physical ability to produce certain types of crops. Thus, farmers perceive that diversification is linked to ecological factors as well as profit motivations. Policy structures overlap with ecological factors, as these farmers conduct on-farm experiments because information on organic methods is not available. Yet, they must know their local conditions well enough to tailor their techniques to fit their local environment. Social structures overlap with environmental concerns in a philosophical and pragmatic way: the farmers note that society values materialism and agglomeration, which has ramifications on the local and regional environment.

Thus the environment is perceived as influential in economic, political, and social concerns. Yet, ecological structures are described as distinct and independent factors, as well. First, farmers emphasize the value of maintaining ecosystemic processes and environmental balance in farming. Second, soil health and chemistry is a common theme among the interviewed farmers. They show a deep understanding of their local natural environment and believe it is a fundamental consideration in their decision-making.

### *Ecosystems*

Interviewed farmers state that organic farming demands knowledge and management skills based on local ecological conditions. This is related to the farmers' perceptions of the physical environment, particularly biodiversity and ecosystemic balance, and its role in agricultural production.

#6: I think you can't farm without causing some harm to the environment. It's a good goal, but impossible. Every time I till the soil I destroy the structure. It's a violent act. I try to be nice to the soil. I grow such a huge variety that it mimics nature. I rarely have insect problems.

#8: The weeds have taught us. Actually, for the insects living there, if every weed is gone—they are going to eat whatever else is in there!

#10: You can't "corn-bean it" and "corn-bean it." That is what you call a monoculture. Then problems arise and you put chemicals on it to kill the bugs and weeds. After a few years, the chemicals won't work so hot. If there's more diversity, we maybe won't have these problems. Nature is very diverse. I wouldn't be happy just growing soybeans. The wetlands and trees are the best part of my farm.

#17: If we understand Einstein's theory of relativity, everything in this world is interrelated — matter and energy and time . . . so if we interject something into it that is foreign, what does that do to the whole scheme of things? The universe and the future?

#20: We're stacking up some chemistry here with some residual overlaps in soil and water systems. We have no research. We don't know what is going to happen. I've always had a concern about that. What are the "inerts" in those cans of chemicals?

### *Soil Health*

Just as farmers expressed concepts of ecological balance and symbiosis, they also noted the importance of soil health on their farm. Half of them indicated an understanding of the complex physical and chemical processes present in soil health. Nearly all expressed opinions on what comprises healthy soil structure, particularly that infiltration, high humus content, and good drainage are key.

#3: We think we've figured this all out. The soil is just a medium to hold the seed and you add herbicides to keep the weeds down and fertilizers for the nutrients you need. Pretty soon that medium cannot be sustained anymore — you are washing away topsoil.

#9: I think there is a parallel with the health of people and the soil health. People who don't farm organically don't understand that. They can force 200 bushel of corn off of 150 bushel an acre land, but what is that doing to the land? Organic is a philosophy and a lifestyle, not a short term reward.

#11: I'm learning that soil structure is more important than NPK. I'm a big proponent of calcium-magnesium balances. I think you get less weeds with a 7:1 ratio. I care very much for the soil. It's the basis of the environment.

#14: You can't do away with weeds, but you can control them. God put them here for a reason. You kill all the weeds and everything in the ground, then a big rain comes and washes your ground off. Chemicals destroy your humus. And when you get rid of your humus, all you've got is a poor grade of concrete.

#19: After the plow, you think you're a mass murderer. You throw the worms all over the place and the birds come in from miles around because there aren't any worms in anybody else's fields.

### **Overview of Structures**

To understand the context in which farmers decide to adopt organic methods, we must understand the structural factors that individual farmers perceive and mediate.

Economic structures are perceived as both positive and negative to the interviewed organic farmers. Many farmers believe that organic production allowed them into farming and that they will only be economically viable with organic methods. Others caution that marketing concerns (distance from organic vegetable markets or instability in organic grain markets) are hazards for organic producers. However, one common link between these organic farmers is that they all have strong anti-agribusiness sentiments that stimulate their vehement goals of independence.

Political structures affect organic farmers and they particularly note that policy affects agricultural research and information dissemination. They perceive a lack of support for organic agriculture at all levels, as they see ineffective USDA organic programs, an intransigent state department of agriculture, and extension agents who are ignorant of organic methods. Overall, these farmers feel that agricultural policies have encouraged large-scale, chemical intensive production that, they argue, is not economically or environmentally sustainable.

Social structures include family and cultural influences. Family can be a positive influence, if family members provide land availability, but can also inhibit organic farming, if family members advocate conventional methods. They perceive society's role in determining the future of US agriculture, both organic and conventional. They note that several aspects of American culture directly affect farmers: expectations of low food costs, entrenched consumerism, and sprawling suburbanization.

While economic, political, and social structures influence organic farming, this research indicates that ecological factors are perceived as fundamental to organic farming. These ecological structures take two forms. First, farmers describe a broad philosophical understanding of ecosystemic processes and symbiosis, which they consider important in organic farming. Second, an understanding of local, on-farm soil health is noted as important in organic farmer decision-making. The interviewed farmers articulate a high degree of consideration for soil chemistry and agroecosystem balance, as a basis for decision-making, which is not obvious in political-economic structural studies of sustainable agriculture. Thus, this study suggests that a new component be included in structural agricultural research: farmers' perceptions of and responses to ecological structures are influential in decision-making.

## **Future Directions**

This research provides a pragmatic view of perceived barriers to organic agricultural production: farmers describe the economic, political, social, and ecological factors that influence their decision-making. But the implications of this work are broader, as we can now discuss several agricultural issues with new insight: information availability, policy change, informal social structures, and market stability.

First, the adoption of organic methods entails education of farmers and adequate funding of research and outreach efforts. As discovered in this analysis, the process of conducting and disseminating information on organic agriculture is currently ineffective. Efforts must be made both to increase research on organic production and to make this information available to farmers. Thus educational and political structures must respond to this farmer (i.e., agency) demand for relevant and available information.

Second, interviews provided rich documentation of how organic farmers feel slighted by agricultural policy that favors large-scale, conventional farming. Although the US has implemented a multitude of agricultural policies (often in response to American social movements that sporadically exalt the need to "save the family farm"), these policies have been largely ineffective. Radically new approaches are needed to slow suburban sprawl that drives up agricultural land prices; to regulate large-scale producers; and to provide opportunities to smaller, diverse farming operations.

This raises a third key idea — that of social change and informal structures. Farmers perceive potent cultural influences, such as the demand for cheap food and consumerism, at the core of current declines in farming opportunities. Society must learn about and acknowledge the importance of family farms. Then people would be more likely to pay a reasonable price for food, which could strengthen farmers' incomes. This entails cutting out some middlemen and corporate profits, and incorporating a new view of food that is not based on advertising and packaging, but rather on quality and community. These ideas begin with informal structures such as the relationship between producers and consumers at the local level. Farmers' markets provide an opportunity for development of trust and understanding among the public and farmers. Education of the public as to the value of small-scale farming will also help change attitudes and possibility consumer behavior.

Lastly, market stability is necessary for successful organic farming. This is related to both social relations and national policies. At a local level, informed consumers can opt to buy local products at prices that support family farmers. At a regional, national, or international scale, informed consumers can also opt to buy food produced with organic methods, but government regulations are needed to provide a foundation for fair marketing and trade policies. National organic standards, if stringent, may assist in export expansion and provide more consumer trust in organic products.

Farmers' views of structures give us insight into how we can encourage sustainable agriculture through our own actions and with government policy. Agricultural policy is driven by real problems, as perceived by farmers, lobbyists, politicians, and the voting public. Thus structural factors are important if they are articulated and literally felt by people. This study assists in identifying potentially obtuse structural concerns and investigating the impact of structures on organic farmers' decision-making. Given that economic, political, social, and ecological structures play an increasingly important role in organic agriculture, it is necessary to understand structures from the viewpoint of individual farmers who mediate them to help create our rural landscape. The way people interact with structures and the manner in which structures evolve, will determine how our agricultural system looks in the future.

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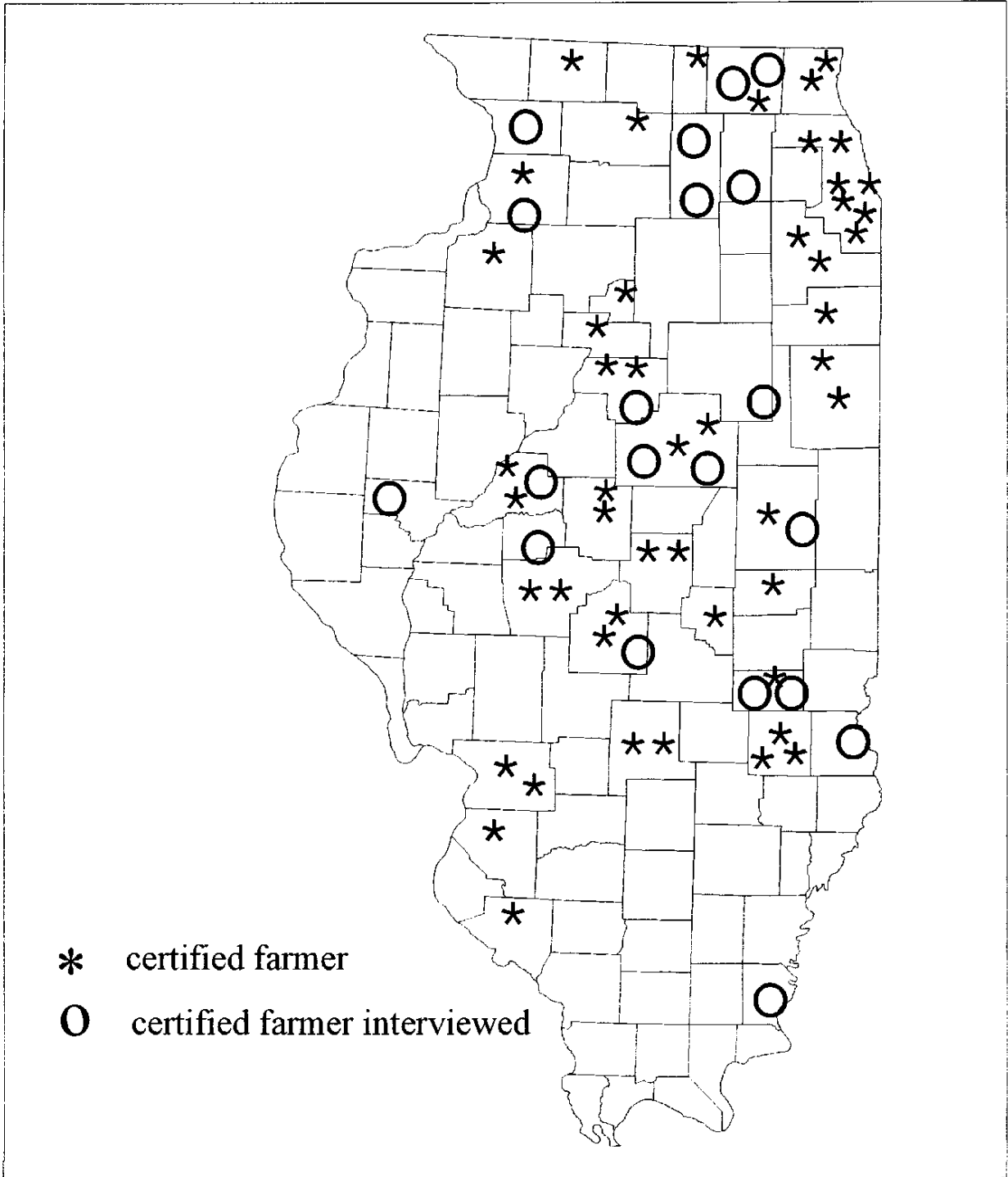


Figure 1: 1996 Certified Organic Farmers in Illinois: population and sample (approximate location by county).





**Table 1: Perceived Structural Factors, as Discovered in Farmer Interviews**

| <i><b>ECONOMIC STRUCTURES</b></i>   | <i><b>POLITICAL STRUCTURES</b></i>   | <i><b>SOCIAL STRUCTURES</b></i>  | <i><b>ECOLOGICAL STRUCTURES</b></i>                |
|---|--|--|--|
| <p><b>Markets</b><br/>                     diversification<br/>                     market instability<br/>                     organic as conventional</p> <p><b>Agribusiness and Independence</b></p> <p><b>Production Costs</b><br/>                     net income<br/>                     Labor<br/>                     Landlord<br/>                     off-farm work<br/>                     debt and loans</p> <p><b>Related Factors</b><br/>                     non-economic factors<br/>                     organic opportunity</p> | <p><b>Organic Certification</b></p> <p><b>Agricultural Policy</b><br/>                     government policy<br/>                     farm programs<br/>                     agricultural agencies</p> <p><b>Information Sources</b><br/>                     university research<br/>                     on-farm experiments</p> | <p><b>Family</b><br/>                     land<br/>                     opinions<br/>                     family tradition</p> <p><b>Human Health</b><br/>                     Health consciousness</p> <p><b>Organic Ag in Society</b><br/>                     views of organic</p> <p><b>Conventional Ag in Society</b><br/>                     land agglomeration</p> <p><b>American Culture</b><br/>                     attitudes about food cost<br/>                     materialism<br/>                     suburbs</p> | <p><b>Ecosystems</b></p> <p><b>Soil Health</b></p> |

Table 2: Demographic Characteristics of Interviewed Organic Farmers

| <b>Farmer #</b> | <b>Certified Organic Acres</b> | <b>Total Acres</b> | <b>1st Year Certified</b> | <b>Off-farm Work</b><br>F= Farmer, Sp= Spouse<br>FT= full time, PT= part time | <b>Land Ownership</b><br>Own= Farmer owns land<br>R= rent from non-family<br>RF= rent from family | <b>Marketing Categories</b><br>o.= organic, c.= conventional<br>DM= direct market, G= grain market, L= livestock | <b>Main Crops</b><br>Vegetables= multiple varieties<br>+= additional activities |
|-----------------|--------------------------------|--------------------|---------------------------|---|---|--|---|
| 1               | 2.5                            | 2.5                | 1994                      | Sp- FT  | Own all   | o. DM  | vegetables, herbs   |
| 2               | 5                              | 5                  | 1992                      | F-FT  | R   | o. DM  | vegetables  |
| 3               | 5                              | 100                | 1994                      | No  | RF  | o. DM  | herbs, flowers, plants  |
| 4               | 6                              | 6                  | 1994                      | Sp- FT  | Own all   | o. DM  | vegetables  |
| 5               | 10                             | 10                 | 1994                      | Sp-FT   | Own all   | o. DM  | vegetables, herbs, perenials  |
| 6               | 16                             | 16                 | 1995                      | F-PT  | RF  | o. DM  | vegetables  |
| 7               | 30                             | 550                | 1993                      | F-FT  | RF  | o. G, c. G   | soybeans, vetch, wheat  |
| 8               | 35                             | 70                 | 1996                      | F-FT  | Own all   | o. DM  | vegetables; soybeans, wheat. +C. Pumpkins                                       |
| 9               | 40                             | 130                | 1987                      | F-FT, Sp-PT   | Own:40, RF:90   | o. G, c. G   | clover, vetch, wheat. + C. pumpkins. +80 cattle. +C. grains                     |
| 10              | 40                             | 700                | 1996                      | Sp-FT   | Own:400, RF:300   | o. G, c. G   | buckwheat, corn, rye, soybeans, vetch   |
| 11              | 70                             | 70                 | 1995                      | F-PT  | RF  | o. G   | alfalfa, corn, rye, soybean, vetch, wheat                                       |
| 12              | 80                             | 120                | 1996                      | F-PT  | RF  | o. G, c. G   | corn, oats, soybeans  |
| 13              | 80                             | 680                | 1994                      | Sp-FT   | Own:40, RF: 640   | o. G, c. G   | alfalfa, clover, corn, soybeans, vetch, wheat                                   |
| 14              | 100                            | 100                | 1994                      | No  | Own all   | o. G   | clover, corn, soybean, wheat. +17 cattle.                                       |
| 15              | 150                            | 150                | 1991                      | F-FT  | Own all   | o. G, o. DM  | vegetables, buckwheat, rye, spelt, wheat. + Flour mill                          |
| 16              | 153                            | 200                | 1991                      | No  | RF  | o. G, o. DM  | alfalfa, hay, oat, soybean, wheat   |
| 17              | 320                            | 320                | 1987                      | No  | Own:160, RF:160   | o. G, L  | corn, oats, soybeans. +Dairy  |
| 18              | 372                            | 372                | 1996                      | No  | RF  | o. G, L  | alfalfa, barley, corn, oats, soybeans, vetch, wheat. +150 cattle. +259 chickens |
| 19              | 660                            | 660                | 1991                      | Sp-FT   | RF  | o. G, L  | alfalfa, clover, corn, oat, soybean. +140 cattle.                               |
| 20              | 1800                           | 1800               | 1993                      | No  | Own:800, R:1000   | o. G, L  | buckwheat, corn, fallow, hay, oat, soybean, wheat. +200 cattle.                 |