THE ROLE OF TRUST IN THE SITING OF LARGE-SCALE DAIRY FARMS:
A CASE STUDY OF THE ATTRIBUTES OF TRUST PRESENT
IN TWO COMMUNITIES

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By
Kellie Jo Warner, B. S.

* * * * *

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Master’s Examination Committee:
Dr. M. Susie Whittington, Adviser
Dr. Jeff S. Sharp

Approved by

Dr. M. Susie Whittington
Adviser
Department of Human and
Community Resource Development
ABSTRACT

The siting of large-scale dairy farms in Ohio resulted in a variety of reactions by citizens in the state. The potential risks associated with the operations led some communities to oppose the siting of such enterprises in their communities, while other communities accepted the farms with little or no opposition. This study described the attributes of trust that were present in a community that was generally opposed to the siting of a large-scale dairy farm, and the attributes of trust that were present in a community that was generally unopposed to the siting of a large-scale dairy farm.

The research design for the current study was an embedded, multiple case study, and was conducted in Wyandot County, Ohio, and Wood County, Ohio. Communities were purposefully selected based on their overall reaction to the siting of a large-scale farm, with Wyandot County being generally unopposed and Wood County being generally opposed. Two rounds of interviews were conducted in each community, yielding 20 interviews in Wyandot County and 27 interviews in Wood County. A review of documentation and archival records related to the siting of the farms was also conducted.

Overall, the findings of the study indicated that there were no overall community reactions. Rather, in each community were people with a variety of opinions about the farms, ranging from complete opposition to total acceptance. The study concluded that
individuals who opposed the dairy in each community generally did not possess attributes of trust toward those identified as responsible for controlling the risks associated with the farm. Similarly, individuals who were unopposed to the dairy in each community generally did possess attributes of trust in those identified as responsible for controlling the risks associated with the farm.
Dedicated to my parents,
David and Sally
ACKNOWLEDGMENTS

I extend my utmost gratitude to the citizens that participated in this study in Wyandot County, Ohio and Wood County, Ohio. Despite the intense feelings and opinions present in the communities, you graciously opened not only your doors, but also your minds and hearts to me. My interactions with each of you truly enriched my experience as a researcher.

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passion and persistence that it took to accomplish all that I have accomplished. And for that lesson, I will forever be grateful.
VITA

October 20, 1978.......................... Born, Sandusky, Ohio

June 2001................................. B.S. Agriculture, The Ohio State University, Columbus, Ohio

June 2001-June 2002...................... Graduate Research and Teaching Associate, Department of Human and Community Resource Development, The Ohio State University, Columbus, Ohio

FIELDS OF STUDY

Major Field: Agricultural Education
# TABLE OF CONTENTS

Abstract ................................................................................................ ii

Dedication ........................................................................................... iv

Acknowledgments ...................................................................................... v

Vita ..................................................................................................... vii

List of Tables ........................................................................................ xi

List of Figures ....................................................................................... xii

Chapters:

1. Introduction ........................................................................................... 1
   - Large-Scale Animal Agriculture in Ohio ........................................ 1
     - Community Responses to Large-Scale Animal Agriculture ........ 3
   - Problem Statement ........................................................................ 5
   - Purpose and Questions of the Study ................................................. 6
   - Definition of Terms ....................................................................... 6
   - Limitations of the Study ................................................................. 8

2. Review of Literature ............................................................................. 10
   - Large-Scale Animal Agriculture in the United States ............... 10
   - Factors Affecting the Growth of Large-Scale Animal Agriculture . 12
   - Ohio as a Location for Large-Scale Animal Agriculture .......... 15
   - Regulation of Large-Scale Animal Agriculture .......................... 16
   - Community Concerns ................................................................. 17
   - Community Reactions to Large-Scale Animal Agriculture ......... 22
   - Explanations for Community Reactions ....................................... 23
     - Overview of Risk ..................................................................... 25
     - Approaches to Evaluating Risk and Benefits ......................... 27
     - Trust ....................................................................................... 30
       - Level of Public Trust .............................................................. 31
       - Importance of Trust .............................................................. 32
       - Dimensions of Trust .............................................................. 34
### 3. Methods and Procedures

<table>
<thead>
<tr>
<th>Purpose and Questions of the Study</th>
<th>37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Design</td>
<td>38</td>
</tr>
<tr>
<td>Case Selection</td>
<td>39</td>
</tr>
<tr>
<td>Data Collection</td>
<td>40</td>
</tr>
<tr>
<td>Gaining Access</td>
<td>40</td>
</tr>
<tr>
<td>Key Informant Interviews</td>
<td>41</td>
</tr>
<tr>
<td>Participant Interviews</td>
<td>43</td>
</tr>
<tr>
<td>Pilot Study</td>
<td>43</td>
</tr>
<tr>
<td>Participant Interview Procedures</td>
<td>43</td>
</tr>
<tr>
<td>Review of Documentation</td>
<td>46</td>
</tr>
<tr>
<td>Review of Archival Records</td>
<td>47</td>
</tr>
<tr>
<td>Data Management and Analysis</td>
<td>47</td>
</tr>
<tr>
<td>Role of the Researcher</td>
<td>48</td>
</tr>
<tr>
<td>Ethical Considerations</td>
<td>48</td>
</tr>
<tr>
<td>Trustworthiness of the Study</td>
<td>49</td>
</tr>
</tbody>
</table>

### 4. Findings

<table>
<thead>
<tr>
<th>Dairy Development in Ohio</th>
<th>52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vreba-Hoff Dairy Development, LLC</td>
<td>53</td>
</tr>
<tr>
<td>Wyandot County</td>
<td>55</td>
</tr>
<tr>
<td>Large-Scale Animal Production in Wyandot County</td>
<td>56</td>
</tr>
<tr>
<td>Siting of Dairy A</td>
<td>57</td>
</tr>
<tr>
<td>Procedural Fairness in the Siting of Dairy A</td>
<td>62</td>
</tr>
<tr>
<td>Characteristics of Dairy A</td>
<td>64</td>
</tr>
<tr>
<td>Positive Impacts on the Community</td>
<td>66</td>
</tr>
<tr>
<td>Concerns of Citizens in the Community</td>
<td>68</td>
</tr>
<tr>
<td>Managers of the Risk</td>
<td>71</td>
</tr>
<tr>
<td>Farm Operators</td>
<td>71</td>
</tr>
<tr>
<td>Government and Environmental Agencies</td>
<td>72</td>
</tr>
<tr>
<td>Vreba-Hoff Dairy Development</td>
<td>74</td>
</tr>
<tr>
<td>Sources of Information</td>
<td>74</td>
</tr>
<tr>
<td>Wood County</td>
<td>76</td>
</tr>
<tr>
<td>The New York Dairy</td>
<td>77</td>
</tr>
<tr>
<td>Siting of Dairy B</td>
<td>79</td>
</tr>
<tr>
<td>Procedural Fairness in the Siting of Dairy B</td>
<td>81</td>
</tr>
<tr>
<td>General Community Reactions to Dairy B</td>
<td>82</td>
</tr>
<tr>
<td>Opposition to the Farm</td>
<td>84</td>
</tr>
<tr>
<td>Acceptance of the Farm</td>
<td>84</td>
</tr>
<tr>
<td>Opposition to the Opposition</td>
<td>85</td>
</tr>
<tr>
<td>Wood County Citizens Opposed to Factory Farms</td>
<td>86</td>
</tr>
<tr>
<td>Opposition to WCCOFF</td>
<td>87</td>
</tr>
<tr>
<td>Involvement of Public Agencies</td>
<td>89</td>
</tr>
</tbody>
</table>
Government Representatives ......................................................... .89
Farm Bureau .................................................................................. .93
Media ............................................................................................. .94
The Ohio State University ............................................................. .94
Characteristics of Dairy B ............................................................... .96
Positive Impacts of Dairy B ........................................................... .97
Concerns of Citizens in the Community ........................................... .99
Managers of the Risk ...................................................................... 102
Sources of Information .................................................................. 103

5. Conclusions, Implications, and Discussion ......................................................... 106

Purpose and Questions of the Study ....................................................... 106
Conclusions for Wyandot County ...................................................... 107
Conclusions for Wood County ........................................................... 114
Implications .................................................................................... 115
Discussion ....................................................................................... 118
  Overall Community Reactions .......................................................... 118
  Risk and Trust ............................................................................. 120
  Theoretical Framework ................................................................ 122
  Further Explanation ..................................................................... 124
Summary .......................................................................................... 125

References .......................................................................................... 127

Appendices:
  APPENDIX A: Informant Letter ....................................................... 134
  APPENDIX B: Informant Interview Guide ......................................... 136
  APPENDIX C: Participant Letter ...................................................... 138
  APPENDIX D: Participant Interview Questions ................................. 140
  APPENDIX E: Member Check Letter .............................................. 142
  APPENDIX F: List of Participants ................................................... 144
  APPENDIX G: Vreba-Hoff Dairies .................................................. 146
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Participant interviews conducted in Wyandot County and Wood County</td>
<td>44</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Anatomy of conflicts over large-scale animal operations</td>
<td>25</td>
</tr>
<tr>
<td>2.2</td>
<td>The role of trust in why people are opposed or unopposed to risks</td>
<td>36</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Large-Scale Animal Agriculture in Ohio

In 1998, Ohio’s agriculture industry contributed $67.7 billion to the state’s economy, and employed one-in-six Ohioans in areas such as wholesaling, retailing, farm production, marketing, processing, and agribusiness (Ohio Department of Agriculture, 1998). The swine, poultry, and dairy industries represented a $1.85 billion farm gate value in the state of Ohio. Ohio ranked first in the nation in egg production, producing seven billion eggs per year, and eleventh in the nation in milk production, with several large-scale dairy units being planned (National Agricultural Statistic Service, 2000). The value of animal agriculture in Ohio was also enhanced by the decision of many major animal product processors to locate in the state, due to its convenient and abundant animal industry.

A factor that contributed to the development, and increasing importance, of the animal agriculture industry in Ohio, was the expansion of farms throughout the state. Beginning with the poultry industry, and continuing with the swine and dairy industries, farms followed a national trend of growth in size, becoming large-scale producers of animal agriculture.
A commonly noted reason for the growth of large-scale animal agriculture was the desire of farmers to take advantage of economies of size and scale (Barrett, 1998). By capturing economies of size and scale, farmers were able to increase their profits; something that many farmers found necessary in order to survive in an increasingly competitive industry.

Farmers also expanded their operations in response to farm policy. In 1972, former Secretary of Agriculture, Earl Butz, became notable for his blunt statement to farmers to, “get big or get out.” Clearly, farm policy favored the expansion of large-scale animal agriculture over the past three decades (Davidson, 1996). The farm crisis of the 1980’s (Davidson, 1996), public demand for more uniform and higher quality meat products (Rhodes, 1995), productivity-enhancing technologies (Purvis & Outlaw, 1995), and policy governing United States (U.S.) immigrants, also escalated the growth of large-scale animal agriculture in Ohio.

Large-scale animal agriculture was welcomed by food processing plants in Ohio. Although there are currently approximately 800 food processing plants throughout the state, that number decreased in the 1990s when meat packing plants left Ohio due to a declining supply of meat (Moser & Smith, 2001). In addition, Ohio was a milk deficient state, producing less milk than it consumed. The lack of milk production in the state raised problems for milk processing facilities, such as the Dannon Company’s yogurt producing facility in Minster, Ohio, which alone could be supported by 10-12 dairy farms of about 1,000 cows each (Barrett, 1998).
Community Responses to Large-Scale Animal Agriculture

While Ohio was rich with agriculture, it was equally rich with metropolitan culture. Because Ohio ranked 6th in population, yet 35th in landmass among all states in 1998 (Ohio Department of Agriculture, 1998), its unprecedented margins of rural/urban interface became a crucible for "large-scale animal agriculture" versus "the community" conflicts. Most urban residents, many non-farm rural residents, and even many family farmers viewed large-scale animal agriculture as an undesirable neighbor.

The environmental concerns citizens raised about neighboring with large-scale animal agriculture facilities were supported by specific incidents. For example, in one well-publicized case, an egg laying large-scale animal enterprise produced a plague of flies that tormented surrounding communities for several seasons, as court cases proceeded and government intervention was delayed. Animal waste pollution in America: An emerging national problem (1997), reported that nationwide, 130 times more animal manure was produced than human waste, making handling of manure a critical issue for many citizens. Groundwater pollution from lagoons, declining air quality, and pollution of rivers and streams from runoff, were all threats posed by the abundance of manure produced by large-scale animal facilities.

In addition to environmental issues, concerned citizens addressed a variety of social issues associated with large-scale animal agriculture. Ninety-five percent of the complaints surrounding large-scale animal agriculture involved odor (Honeyman, 1996). Citizens expressed opposition to large-scale animal agriculture based on the impact it might have on existing farms, jobs, businesses, infrastructure, and property values, as
well as the change in the character of the rural landscape (Abdalla, Lanyon, & Hallberg, 1995).

Public concerns and fears were escalated by the extensive media attention that large-scale animal facilities received across the country. For example, in a Pulitzer Prize for Public Service winning series on the North Carolina hog industry, *The News and Observer* described the potential threats associated with large-scale hog operations:

> Imagine a city as big as New York suddenly grafted onto North Carolina's Coastal Plain. Double it. Now imagine that this city has no sewage treatment plants. All the wastes from 15 million inhabitants are simply flushed into open pits and sprayed onto fields. Turn these humans into hogs, and you don't have to imagine at all. It is already here (Warrick & Smith, as cited in McMillan, 2000).

Citizens in some communities united in their effort to keep large-scale animal agriculture out of their community. On the contrary, despite the numerous potential threats associated with large-scale animal agriculture, some communities in Ohio accepted the enterprises with little or no opposition. For example, in Wyandot County, Ohio, the community was generally unopposed to a large-scale dairy operation that was sited in the community. However, in Wood County, Ohio, some citizens reacted to the siting of a similar dairy with fervent opposition.

A study conducted in Pennsylvania offered an explanation for the different reactions among communities and individuals to large-scale animal operations (Abdalla, Becker, Cook-Huffman, Gray, & Welsh, 1999). As explained in Figure 2.1, the siting of large-scale animal operations resulted in a variety of cognitive and affective reactions among stakeholders in the study, including perceptions of uncertainty, risk, fairness, trust,
and identity threats. These factors led to a perception of control or lack of control, and ultimately a decision about whether or not to engage in conflict behavior. Slovic (1999) concluded that activities perceived as high in benefit and low in risk were considered acceptable, whereas activities perceived as low in benefit and high in risk were considered unacceptable. However, a high degree of trust in those responsible for controlling unacceptable activities led people to participate in the risky activities.

Research consistently concluded that trust accounted for a significant portion of the variance in perceptions of risk (Slovic, Flynn, & Layman, 1991; Siegrist, 2000). Numerous attributes of trust were identified (see Figure 2.2), including faith in the information provided about the risk, confidence in the institution(s) responsible for controlling the risk, perceptions of procedural fairness regarding the risk, and perceptions that the institution(s) responsible for controlling the risk acting in the best interest of the community.

Problem Statement

Potential risks associated with large-scale animal agriculture led some communities to oppose the siting of such enterprises in their communities. Similar sitings in other communities were accepted with little or no opposition. Previous literature suggested that perceptions of risk and trust led to opposition, or no opposition, regarding the siting of large-scale animal facilities. Further investigation was necessary to determine what attributes of trust were present in communities that were opposed, and unopposed, to the siting of large-scale animal operations.
Purpose and Questions of the Study

The purpose of this study was to describe the attributes of trust that were present in a community that was generally unopposed to the siting of a large-scale dairy farm, and to describe the attributes of trust that were present in a community that was generally opposed to the siting of a large-scale dairy farm. The specific questions that guided the study were:

1. How did communities perceive the impacts of the large-scale dairy farm?
2. How was the manager of the risk, associated with the large-scale dairy farm, defined by the communities?
3. How confident were communities in the manager(s) of the risk?
4. How did communities perceive that the manager(s) of the risk acted in the best interest of the community?
5. How did communities perceive the procedural fairness in the siting of the large-scale dairy farm?
6. How did communities perceive the trustworthiness of their sources of information regarding the large-scale dairy farm?

Definition of Terms

Animal Unit – “A unit of measurement calculated by adding the following numbers:

1. The number of slaughter and feeder cattle multiplied by one;
2. The number of mature dairy cattle whether milked or dry multiplied by one and four-tenths;
3. The number of swine each weighing over fifty-five pounds multiplied by forty-three hundredths;

4. The number of horses multiplied by two;

5. The number of sheep or lambs multiplied by one-tenth;

6. The number of turkeys multiplied by two-hundredths;

7. The number of laying hens or broilers multiplied by one-hundredth;

8. The number of ducks multiplied by two-tenths” (Ohio Department of Agriculture S. B. 141 Rule-Making Advisory Committee, 2001).

Community – a group of people who live in the same area, or the area itself (Merriam-Webster Online, 2002). In the current study, the areas, and thus communities, which were studied were vicinities surrounding the identified large-scale dairy farms, including Liberty Township, in Wood County, Ohio, and Jackson Township, in Wyandot County, Ohio.

Concentrated Animal Feeding Operation - livestock operations with more than 1,000 animal units were considered Concentrated Animal Feeding Operations (CAFO) and were required to file for permits and abide by specific government regulations (Ohio Environmental Protection Agency, 1996).

Large-Scale Animal Agriculture – an animal production enterprise in size and scope above the state average, yet below the state regulation requirements for a CAFO. For example, a CAFO for a dairy in Ohio was considered 700 cows, while the state average was 87 cows. In addition, large-scale animal production facilities statewide were of adequate size to arouse interest from communities and the media.
Manager of the risk – “Persons or agencies in government, business, science, and other institutions having responsibilities for making decisions and taking actions concerning environmental hazards. These decisions and actions might include identifying and mitigating hazards and related functions such as communicating to the general public or particular groups information about environmental hazards” (Cvetkovich & Lofstedt, 1999b, p. 1).

Oppose – to offer resistance to (Merriam-Webster Online, 2002). In the current study, individuals or communities who were identified as opposed to the large-scale dairy farms were those who presented resistance and objection to the siting of the dairies.

Unopposed – to do the opposite of oppose (Merriam-Webster Online, 2002). In the current study, individuals or communities who were identified as unopposed to the large-scale dairy farms were those who did not present resistance or objection to the siting of the dairies.

Limitations of the Study

The study was limited to two communities that had a history of either opposing or unopposing large-scale dairy farms. The communities were purposefully chosen through criterion, intensity, and chain sampling techniques. Individuals in the communities were purposefully chosen to participate in interviews through criterion and chain sampling. Because the communities and interviewees were purposefully selected, the results of the study can only be generalized to those individuals from each community who participated in the study.

The sheer number of characteristics present in the community reactions to large-scale dairy farms that were revealed through interviews, observations, documentations,
and archival records was overwhelming. With such a large volume of characteristics present in each community, precise answers to the research questions could have been deeply embedded in the mass of information gathered by the researcher. Thus, further analysis may be warranted.

Due to the high level of conflict associated with large-scale animal agriculture, interviewees could have felt compelled to give socially acceptable answers, rather than give their true opinions. Socially acceptable answers could have altered the outcome of the study, making the study less representative of the population studied than desired for reaching accurate conclusions.
CHAPTER 2

REVIEW OF LITERATURE

Large-Scale Animal Agriculture in the United States

Ohio was one of many states that experienced a change in animal production in recent years. Across the nation, the number of farms decreased, while the size of farms increased (Barrett, 1998). In 1975, there were over 2.5 million farms in the U.S. That number dropped to just over 2 million in 1997 (National Agricultural Statistic Service, 2000). From 1990 to 1996, the number of farms in Ohio decreased from 84,000 to 72,000 (Ohio Department of Agriculture, 1998). Nationwide, the average farm size increased from 440 acres in 1985, to 740 acres in 2000 (National Agricultural Statistic Service, 2000).

The poultry, swine, and dairy industries were the most impacted by the shift to large-scale production. From 1969 to 1992, the number of farms with broiler houses decreased by 35 percent, but production during that time tripled (Minority Staff of the United States Senate Committee on Agriculture, Nutrition, and Forestry, for Senator Tom Harkin [U.S. Senate], 1997). The broiler industry became so focused on large-scale production that in 1999, four companies controlled nearly 49 percent of the industry (Feedstuffs, as cited in Farm Aid, 2001).
Over the past 15 years, the number of hog farms in the U.S. decreased from 600,000 to 157,000. However, the amount of hogs produced did not decline (U.S. Senate, 1997). Of the remaining hog operations, 2% controlled nearly half of all hog inventory in 1997 (National Agricultural Statistics Service, as cited in Farm Aid, 2001).

The dairy industry was the latest to turn to large-scale production. From 1980 to 1996, the average herd size of a dairy operation in the U.S. more than doubled, from 32 cows, to 74 cows. Nationwide, 37% of all dairy farms had at least 200 cows in 1998 (Barrett).

Numerous advantages of large-scale animal agriculture were identified. First, large-scale producers could design and construct optimal animal housing conditions, thus improving animal welfare. Second, many large-scale producers had staff nutritionists to monitor the feeding program and ensure proper nutrition for the animals. Third, employees often received higher wages and increased benefits compared to a small farm. Fourth, large-scale operations could afford waste disposal treatment to protect air and water quality. Fifth, by totally controlling genetic, nutrition, and health programs, the farms could produce consistent, uniform, high quality products (Cheeke, 1999).

Proponents of large-scale animal agriculture claimed that the industry needed to go full speed ahead, or return to the organic farming of the 1800s. Former U.S. Secretary of Agriculture, Earl Butz, used to get laughs at: “Yes, we can go back to organic farming, but who will select the 50 million Americans who will starve to death?” Large-scale animal production offered the potential to ensure cheap, nourishing food for Americans, as well as many undernourished countries around the world (Cheeke, 1999).
While there were a number of positive aspects of large-scale animal production, a number of disadvantages were also identified. Those opposed to large-scale production believed it was not a natural way to raise animals and was non-sustainable, ultimately depleting natural resources. In addition, concern was raised over the lack of genetic variability in animals raised intensively. Critics feared that the control of animal genetics would end up totally in the hands of a few large-scale producers (Cheeke, 1999).

Even farmers who made the decision to expand their operations faced disadvantages associated with large-scale production. A study by the University of Illinois surveyed hog producers to determine the problems they faced when expanding an animal production facility. The following top problems were listed: building delays, market prices were below expectations, increased time commitment and time management, feed prices were above expectations, increased management time behind the desk, managing laborers, and budgeting and financial management (“Survey Producer Expansion Problems,” 1996).

Factors Affecting the Growth of Large-Scale Animal Agriculture

Much of the growth of large-scale animal agriculture was traced to governmental farm policies and economic pressures. During the 1960s, a new paradigm emerged in the U.S. that saw agriculture shift from a way of making a living with a way of life, to a way of making a living through a business enterprise (Kaktins, 1997). Former Secretary of Agriculture, Earl Butz, reinforced the new paradigm with his blunt statement to farmers to “get big or get out” (Cheeke, 1999). Many farmers, heeding Butz’s advice, expanded their operations during the 1970s to take advantage of easily accessible loans and skyrocketing land values. Just as American farmers began producing more food, other
countries increased their production as well. Thus began a vicious cycle for U.S. farmers: continually falling prices led farmers to increase production to earn more money, which resulted in even lower prices. Combined with out of control interest rates and declining values of farmland, these factors contributed to a farm crisis during the 1980s (Davidson, 1996).

In 1985, the total U.S. farm debt was $212 billion, the result of constant borrowing by farmers to increase farm size and purchase larger machinery. At the same time, from 1982-1985, farmland values decreased $146 billion, which equaled the combined assets of IBM, GE, Kodak, Proctor & Gamble, Dow, McDonald’s, RCA, Upjohn, Weyerhaeuser, & CBS (Davidson, 1996). The economic pinch squeezed out numerous small farmers and expedited the entry and expansion into that gap by those with access to capital. Most of the farmers with access to capital were those that had taken the opportunity to expand during the 1970s, while those that lost out were small farmers without a large capital (Rhodes, 1995).

The buzzword quickly changed from “diversification,” to “specialization,” as farmers struggled to increase their profits by increasing their farm size and becoming more focused (Rhodes, 1995). With that change came a shift from land-based to capital-intensive production (Abdalla et al., 1995). The success of animal production was no longer tied to the acres of associated corn land. Rather, the success was greatly determined by the size and number of facilities a farmer established (Rhodes, 1995).

Although the economy stabilized during the 1990s, many farmers were still faced with low profit margins. While prices remained relatively the same, production costs and investment costs to meet strict environmental regulations increased. The result was an
increased production cost per animal, which forced farmers to find solutions or dissolve their business (Bailey, 1997).

Many farmers found the solution in lowering costs, increasing their competitiveness, and improving their profits by expanding their herd size (Bailey, 1997). The fundamental economic decision to operate under economies of size and scale was a large factor that contributed to the growth of large-scale animal agriculture today (Barrett, 1998). Economies of scale were the decreases in long-run average costs that result from efficiencies of large-scale production (Kaktins, 1997). Hurt demonstrated the advantage of economies of scale by estimating a cost advantage of nearly $2/cwt of live hogs for a unit of 3,400 sows, versus a unit with 650 sows (Vansickle, 1995).

According to Bailey (1997), “Simple economics suggests that dairy farmers lower production costs, expand 30-50% every five years, or get out of the business” (p. 2764). For many years, farmers were forced to “get big or get out,” simply because economies of scale increased profit margins by decreasing production costs per animal.

Advances in technology also aided in the growth of large-scale animal agriculture. The development of new techniques, procedures, equipment, medicines, and feeds, made feasible the handling of more animals in one location. In 1970, relatively few producers had the capability to manage a farrowing unit that produced 3,500 pigs. Yet, by 1995, a farrowing unit of 3,500 sows, producing 70,000 pigs, was a standard size for some farms (Rhodes). Productivity-enhancing technologies such as growth hormones, precision mixing of feed rations, climate-controlled housing, and genetic improvements were some of the advancements that facilitated the growth of large-scale animal agriculture (Purvis & Outlaw, 1995).
According to Rhodes (1995), "...the driving force of structural change in hog production has not been unusual; it has been the prospect of significant profits or rather a stream of profits obtained by those who seize the new technologies and practices and continue to develop more of their own."

Ohio as a Location for Large-Scale Animal Agriculture

According to an Ohio State University Extension (OSUE) Fact Sheet (AS-0011-01), Ohio needed large-scale dairy production. The fact sheet indicated that the average farm size in Ohio was comparable to that of a large farm that existed 25 to 50 years ago. Many of the farms in Ohio were not efficient enough in their use of land, labor, and capital, to be competitive in U.S. markets. Nor were the farms capable of maintaining the dairy infrastructure of the state. Dairy veterinarians, equipment supply firms, feed manufacturers and dealers, consulting nutritionists, and agricultural lenders relied on the growth of dairy production in the state. Thus, the survival of the dairy infrastructure, and small dairy farms, was partially dependent on the ability of large farms to establish themselves in Ohio.

Large-scale animal agriculture continued to move into Ohio because the state offered many benefits to the producer. Large-scale animal production operations tended to locate where costs were the lowest. In 1998, the Ohio Department of Agriculture (ODA) stated that the cost of doing business in Ohio was among the lowest in the nation. Ohio’s location on the eastern edge of the cornbelt enabled farmers to take advantage of low feed costs due to an abundant supply of grain (Barrett, 1998). In addition, Ohio ranked fifth in the nation in soybean production, and sixth in the production of corn in 2000 (National Agricultural Statistics Service).
Ohio was also an ideal location for large-scale animal operations because of its proximity to large populations. Locating large-scale production facilities near large populations provided easier and cheaper transportation of products produced. Since sixty-one percent of the nation's population resides within 500 miles of Ohio, and the state ranks second in the number of cities with populations over 100,000 Ohio became a sought-after location for large-scale animal operations (Barrett, 1998).

Dairy farmers, specifically, chose to locate in Ohio because it was a milk deficient state, producing less milk than was consumed. While the national dairy market expanded by 40% over the past 30 years, milk production remained basically stagnant at 4.4 billion pounds. Thus, the markets for milk in the region were generally considered excellent (AS-0011-01).

Despite the numerous economic benefits of large-scale animal agriculture growth in Ohio, the state was also a prime location for controversies to arise regarding the farms. Although only 2.5 percent of Ohio's population lived on farms, 57 percent of the state land was designated for agricultural use (Ohio Agricultural Statistics, 1996, cited in Barrett, 1998). Of Ohio's 11.4 million residents, 34 percent lived in townships outside the boundaries of a city or village in 2001 (Fillipic, 2001). The sizeable interface between large-scale farms and other citizens was a prime location for disputes over large-scale production.

Regulation of Large-Scale Animal Agriculture

As animal agriculture began to consolidate and concentrate in certain regions of the U.S., state and federal governments responded by establishing regulatory programs. Of primary concern were the real and potential impacts of waste production, particularly
manures, on water quality. The main federal policy governing animal agriculture is section 306 of the Federal Water Pollution Control Act Amendments of 1972. This Act, along with its amendments became known as the Clean Water Act (Martin, 1997).

The Clean Water Act (CWA) was the first to identify animal feedlots as a point source of water pollutants, making them subject to regulation under the National Pollutant Discharge Elimination System (NPDES) permit program. The Act also required each state to develop waste management plans that controlled agricultural nonpoint sources, such as manure runoff. The CWA was the first federal law to require abatement of pollutant discharges from agricultural sources (Martin, 1997).

The Ohio Environmental Protection Agency (OEPA) was charged with administering the livestock-waste permitting program. However, according to Governor Bob Taft, under the OEPA, the livestock-waste permitting program did not have enough money or employees. Therefore, on December 14, 2000, after months of disputes, Governor Taft signed legislation that transferred the program to the ODA. Senate Bill 141 also provided $2 million to fund the program and to hire the appropriate amount of employees to review applications, issue permits and inspect facilities (Souhrada, 2000).

Community Concerns

The primary environmental concern associated with large-scale animal agriculture was the pollution of groundwater, streams, and rivers, by animal waste. Animal manure could be a valuable source of nutrients for crops when applied to land in proper amounts. However, when applied in amounts greater than could be used by crops and retained by the soil, nitrogen, phosphorus, and other nutrients leached and ran off into surface and groundwater. The Environmental Protection Agency (EPA) indicated that in 60 percent
of the rivers and streams identified as “impaired,” agricultural runoff, including animal waste, was the largest contributor to pollution (U.S. Senate, 1997).

The sheer amount of manure produced by large-scale facilities was a concern to some individuals. The manure from a 200-head dairy operation produced as much nitrogen as was in the sewage from a community of 5,000 to 10,000 people. Nationwide, 130 times more animal manure was produced than human waste in 1997 (U.S. Senate, 1997). Typically, only one-third of the nutrients fed to livestock left the farm with the animal or animal products (Abdalla et al., 1995). Two-thirds of the nutrients were left to be sources of nutrients to farmland, or sources of pollution to water.

In some instances, potential threats turned into disasters for regions with large-scale operations. In Minnesota, Iowa, and Missouri, animal waste spills doubled in three years; from 20 spills in 1992, killing 55,000 fish, to 40 spills in 1995, killing 670,000 fish. In 1995, 35 million gallons of spilled animal waste killed 10 million fish in North Carolina. When researchers examined manure lagoons across North Carolina in 1995, they found that half of those constructed prior to 1993 were leaking manure into the soil and groundwater (U.S. Senate, 1997). Fish kills were also documented in Ohio. For instance, Daylay Egg Farm was responsible for the contamination of Mill Creek in Union and Logan Counties in July, 2000. Manure that was spread on a wheat field ran off into the creek following a rain storm, resulting in the death of about 9,000 aquatic animals, including approximately 4,500 crayfish (Stratton, 2000).

State and federal regulations attempted to protect the environment from degradation by animal waste. Farmers needed to do their part as well by taking into consideration local conditions when siting their operation. Climate, soil, geology, and
existing levels of contamination all affected the ability of the environment to assimilate animal waste (Abdalla et al., 1995).

Concerns about large-scale farms extended beyond the environmental impacts associated with the farms. Such concerns contributed to what Ikerd (2002) called, “…one of the most contentious issues to confront rural America in recent history” (p. 3). Antibiotic resistance, odor and gasses, water consumption, devaluation of nearby properties, and the overall degradation of the family farmer’s image and quality of life in rural America were cited as points of concern for many citizens.

In the late 1990’s, 25 million pounds of antibiotics were used annually in the U.S. to treat hogs, poultry, and cattle. Only seven percent of the antibiotics were used to treat diseases, with the rest being used to promote more rapid growth in animals (Union of Concerned Scientists, 2001). The overuse of antibiotics in animals contributed to the development of antibiotic-resistant bacteria, which were passed to humans through the food supply. An estimated $30 billion was spent annually to treat antibiotic-resistant infections in humans (National Institute of Allergy and Infectious Diseases, 2000).

A report by Families Against Rural Messes (F.A.R.M.) cited an example of the impact of odor on families living near large-scale farms. A family in Henderson County, Illinois, was unable to utilize their yard 250 out of 300 days due to the intolerable odors that came from the neighboring hog farm (Hudson, 1998). The problem of air quality was more than just odor, also encompassing a multitude of health risks associated with the gases in the air around large-scale animal farms. A study of the neighbors of a 2,500 head swine operation showed that many residents living near the farm exhibited bronchitic and occupational asthma symptoms similar to those working on the farm.
The excessive odor from several large confinement operations in Renville County, Minnesota, led to the discovery that the Hydrogen Sulfide levels in the surrounding area actually exceeded the level for human safety. Citizens in the area reported symptoms of dizziness, nausea, vomiting, and blacking out. One family was forced to leave their home because they became so violently ill (Satchell, 1996, cited in Hudson, 2000).

The extreme use of water required by large-scale farms also concerned citizens. A typical hog-finishing unit with 80,000 head consumed about 200,000 gallons of water per day, or 73 million gallons each year. In Vernon County, Missouri, a 125-foot drop was recorded in the water table after a large-scale farm moved into the community. In addition, 17 wells in the county went dry (Allison, 1997).

A 1999 report by the University of Missouri Extension service indicated an alarming rate of land devaluation near large-scale animal farms. The report revealed that within a three-mile radius of large-scale farms, the average loss of land value was $112 per acre (Harmed, Johnson, & Miller, 1999). In McLean County, Illinois, the property taxes of those living near a CAFO were lowered by 37 percent to reflect the decrease in their quality of life and property value (Hudson, 1998).

Ikerd (2002) argued that the family farmer was traditionally respected and trusted by consumers. The enormous amount of negative publicity surrounding large-scale facilities “...is using up the farmer’s stock of public confidence and good will at an alarming rate” (p. 3). Ikerd suggested that the negative images of large-scale production would impact not only large-scale farmers, but also small to moderate-sized family farmers, with a loss of public trust for years to come.
Citizens voiced concerns about the overall well being of the communities in which large-scale farms were cited. Ikerd (2002) suggested that large-scale farms destroyed the basic resources that communities depended upon for their long-term viability and productivity. For instance, the influx of large-scale production brought low-skilled, low-paying jobs to the community, which contributed relatively little to the local economy. The workers that were brought into the community generally had no commitment to the community and potentially added more to the costs of social services than corporations would add to the tax base.

Goldschmidt’s comparative case study of two rural communities in California gave validation to the concerns raised by citizens. One community in the study, Arvin, was dominated by large-scale farms that employed outside laborers, while the other community, Dinuba, was primarily comprised of small, family operated farms. Goldschmidt concluded that Arvin had poorer socioeconomic conditions, including residents with less education, lower incomes, and lower levels of living. Arvin was also characterized by few civic and social organizations and less and lower quality schools and social services. On the contrary, the findings from Dinuba reported better socioeconomic conditions, a thriving non-farm business sector, and multiple civic organizations (Goldschmidt, 1947).

Goldschmidt’s study was conducted in 1944, and thirty years later the Small Farm Viability Project (1977, cited in Lobao, 1990) again did an assessment of Arvin and Dinuba. Confirming Goldschmidt’s findings, the study reported that:

The disparity in local economic activity, civic participation, and quality of life between Arvin and Dinuba...remains today. In fact, the disparity is greater. The
economic and social gaps have widened. There can be little doubt about the relative
effects of farm size and farm ownership on the communities in Arvin and Dinuba (p.
229-230).

In a nationwide study, Lobao (1990) found that while industrialized farming did
not relate to community well-being, communities with greater amounts of industrialized
farming at the first measurement showed poorer economic conditions when measured ten
years later. Thus, Lobao concluded that communities with industrialized farming were
described by internal disparities between rich and poor, and long-term underdevelopment
of the community.

Community Reactions to Large-Scale Animal Agriculture

In 1998, a hog farmer in Darke County announced his plans to expand his
operation to a 2,400 head-breeding farm, and locate in Noble County. The farmer wanted
to gain the support of the residents in Noble County, so he made public notice of his
plans and explained to people his intentions. His plans went awry when Noble County
citizens reacted by forming the Concerned Citizens of Southeast Ohio, whose purpose
was to keep large-scale animal agriculture out of southeast Ohio. The opposition to the
farm resulted in the owner downgrading the size of his operation significantly (Williams,
1998).

Throughout Ohio and the U.S., concerned citizens united in opposition to large-
scale animal agriculture moving into their communities. The situation mentioned above
was one of many examples of the influence citizen opposition had on the siting of large-
scale operations. Rhodes (1995) commented that community opposition not only slowed
the issuance of necessary regulatory permits, but also scared away potential developers.
In a survey of large hog producers in the U.S., 44 percent indicated that environmental hassles and local opposition were limitations on their expansion (Mo & Abdalla, 1998, cited in Barrett, 1998).

In 2000, the Sierra Club recognized CAFOs as one of the organization’s four national priority campaigns. In Michigan, the Sierra Club filed suit against four dairy farms that repeatedly polluted water (Woiwode & Isherwood, 2000). Countless grassroots organizations popped up throughout the country, whose purpose was to stop the expansion of large-scale animal agriculture. Examples of such organizations in Ohio included the Concerned Citizens of Central Ohio (central Ohio), the Ohio Family Farm Coalition (statewide), SAVE (central Ohio), the Wood County Citizens Opposed to Factory Farms (Wood County), Citizens for Clean Air and Water, Inc. (Darke County), Neighbors Against Pollution (Williams County), and Citizens of Putnam County for Clean Air and Water (Putnam County). Many of the organizations received input and guidance from the Ohio Environmental Council, as to the best procedures to follow in opposing large-scale animal operations. Concerned citizen organizations took actions such as sponsoring public information meetings, contacting local and state government officials, circulating petitions for moratoriums, and taking the initiative to monitor the activities of the large-scale farms in operation.

Explanations for Community Reactions

Abdalla et al. (1999) conducted interviews with 30 stakeholders involved in conflicts over large-scale animal operations in Pennsylvania to examine why people reacted differently to the siting of large-scale animal operations. The study produced a four-step model that explained reactions to large-scale farms (see Figure 2.1). In step A,
a stimulus occurred, which represented the siting of a large-scale animal operation. The
results of the stimulus, represented in step B, were cognitive and affective reactions.
Such reactions among stakeholders included perceptions of uncertainty, risk, lack of
fairness, threats to one’s identity, and mistrust. In step C, the cognitive or affective
reactions to the large-scale farm led people to make a judgment about the degree of
control they had over the situation. Individuals who had negative cognitive or affective
perceptions felt they had little control, whereas individuals who had positive cognitive or
affective perceptions felt they had considerable control over the situation. Individuals
with low perceptions of control felt that there was an inequality of power with regard to
the siting and regulation of the farm, or that they simply had no options for influencing
the siting of the farm. Finally, in step D, individuals assessed their degree of control and
made decisions as to how to behave, and the degree to which to become mobilized. The
less control individuals perceived, the more likely they were to engage in conflict or
resistance behaviors in an attempt to protect themselves.

The current study followed the model developed by Abdalla et al. (1999), which
suggested that perceptions of risk and trust influenced why individuals reacted differently
to the siting of large-scale animal operations.
Overview of Risk

The development of new technologies in recent decades was accompanied by the potential for catastrophic events that threatened the well-being of the environment and human lives. Although difficult to measure, the emerging potential hazards led to the creation of a new discipline called risk assessment. Risk assessment techniques were designed to identify, characterize, and quantify risk. Despite the advances made in risk assessment, laypeople continued to rely on their own intuitive judgments of risk that were not quantifiable, called risk perceptions (Slovic, 2000b).

Slovic (1999) noted two remarkable trends in society regarding risk. First, the American public became more concerned about risk over the past 20 years, despite the fact that billions of dollars were spent actually making society safer and healthier than ever before. Second, conflict between how experts and laypeople judged risk resulted in
the assessment of risk becoming more contentious, and controversies becoming more pervasive. The early stages of risk research cited the potential for the trends outlined by Slovic (1999). Studies found that experts judged risk primarily by estimating the annual fatalities expected from an event. However, laypeople judged risk with sensitivity to non-technical estimates, such as catastrophic potential, controllability, and threat to future generations (Slovic, 2000a).

The gap between the risk assessments made by experts and the perceptions of risk held by laypeople resulted in discontent within each party. Referring to the public perception of nuclear power, Cohen (1983) wrote:

The public has been driven insane over fear of radiation [from nuclear power]. I use the word ‘insane’ purposefully since one of its definitions is loss of contact with reality. The public’s understanding of radiation dangers has virtually lost all contact with the actual dangers as understood by scientists (p. 31).

The public responded with the general feeling that experts were oversimplifying risks, thus creating increased perceptions of riskiness.

In an attempt to alleviate some of the public concerns, risk communication efforts began to educate the public about risks (Slovic, 1999). Hadden (1989) noted that the task of risk communication was to provide citizens with understandable information about risk that was relevant to their needs and lifestyles. According to Slovic (1999), little evidence existed that risk communication efforts reduced the gap between expert risk assessments and public risk perceptions. One explanation was that risk communicators did not always provide understandable information to the public. For example, during the Three Mile Island controversy, the level of technical jargon was greater when experts
were communicating with the public than when experts were talking to each other. Another obstacle that prevented risk communication from being effective was that providing new evidence to people was not a guaranteed method of changing peoples’ minds. Research found that strong initial views were not changed by the presence of new information because the initial views influenced the way subsequent information was interpreted. New evidence was considered reliable when it was consistent with the initial views, but contrary evidence was dismissed as unreliable (Nisbett & Ross, 1980).

Approaches to Evaluating Risk and Benefit

The fundamental question in evaluating risk and benefit was whether or not the product being evaluated was acceptably safe. Several studies of risk indicated that risk was quantifiable and predictable (Slovic, 2000; Slovic, Fischhoff, & Lichtenstein, 2000). Methods used to quantify and predict risk varied in the literature. Annual fatality statistics, expected-utility figures, cost-benefit measurements, revealed preference results, and qualitative characteristics of risk were approaches explained in the literature.

Slovic et al. (2000) found that experts’ judgments of risk were highly correlated with the annual fatalities associated with the risk. When experts were given 25 risk situations, their judgments about the degree of risk associated with each were so closely related to the actual annual fatalities of those risks, it was concluded that experts viewed the risk of the activity as synonymous with its annual fatalities.

Rescher (1983) reported a traditional approach to evaluating risk based on economic theory that was called expected-utility. Also called cost-benefit analysis (Fischhoff, Slovic, & Lichtenstein, 2000), when using the approach an individual operated within the cognitive domain to make a rational choice based on the known
information about the expected costs and utilities of the risk (Fischhoff, Goitein, & Shapira, 1982). The expected utility of a risky activity was determined by weighing the utility of each possible outcome by its probability (Rescher, 1983). Viscusi and Magat (1987) stated that the expected-utility approach was frequently a predictor of actual behavior.

Starr (1959) proposed a method of evaluation that plotted risk against benefit to determine how risky activities could be and still gain acceptance. Risk was measured by the statistical expectation of fatalities per hour of exposure to the product. Benefit was equal to the average contribution that the risk made to a participant’s annual income. Starr derived the following laws of acceptable risk:

- the acceptability of risk is roughly proportional to the third power of the benefits;
- the public seems willing to accept risks from voluntary activities (skiing) roughly 1000 times greater than it would tolerate from involuntary activities (food preservatives) that provide the same level of benefit;
- the acceptable level of risk is inversely related to the number of persons exposed to that risk; and
- the level of risk tolerated for voluntary accepted hazards is quite similar to the level or risk from disease.

Scientists examining public perceptions of risk uncovered numerous qualitative factors that were shown to effect how laypeople judged risk. Fischhoff et al. (2000) evaluated the dimensions of risk that were hypothesized by Lowrance (1976), including voluntariness, immediacy of effect, scientific knowledge about the risk, public
knowledge about the risk, control over the risk, newness, potential for catastrophic versus chronic consequences, the degree of dread versus familiarity, and the severity of the consequences. The study concluded that none of the characteristics were correlated with perceived benefit, but that there was a relationship between perceived benefit and the acceptance of risk. The researchers reduced the nine characteristics into a two-factor space that demonstrated that high-risk activities were those which were involuntary, delayed, unknown, uncontrollable, new, certain to be fatal, dread, and catastrophic. Low-risk activities were characterized as voluntary, immediate, known, controllable, old, not certain to be fatal, common, and chronic.

Slovic et al. (2000) examined 18 hypothesized characteristics of risk and derived a three-dimensional model that explained the relationship between its attributes. The first factor was comprised of characteristics that were highly correlated with dread. The dread factor suggested that activities were perceived as more risky when characterized as uncontrollable, globally catastrophic, not equitable, dread, possessing fatal consequences, catastrophic, posing high risk to future generations, not easily reduced, risk increasing, involuntary, and affecting the individual. Factor two, familiarity, included those dimensions that were highly correlated with one another and less highly with other characteristics. Factor two consisted of activities that were perceived as high-risk when they were not observable, unknown to those exposed, new, unknown to science, and possessing delayed effects. The third factor was the number of people exposed to the risk.

According to Slovic (2000a), nearly every study of risk perception showed that women were more concerned about risks than men. For example, Flynn, Slovic, and
Mertz (1994, cited in Slovic, 2000) concluded from a survey of 1,500 people that females perceived risks to be greater than males in 25 hazard situations. About 30 percent of the white males in the study viewed all of the hazards as extremely small risks. Numerous studies supported the gender phenomenon (Brody, 1984; Siegrist, 1998; Sparks, Sheperd & Frewer, 1994).

Trust

Research on risk began by determining the levels of risk perceived as acceptable by society. Then, researchers proceeded to examine the differences between laypeople and experts in how risk was perceived and measured. Next, concepts of risk perception were applied to risk communication in an effort to bridge the gaps between laypeople and experts. The most recent stage of risk research focused on trust and its relationship with risk perceptions (Cvetkovich & Lofstedt, 1999b).

Most social scientists recognized that the definition of trust was still in the developmental stages. However, the primarily accepted core of trust could be defined by a dictionary definition. The Merriam-Webster Dictionary of American English stated that trust was “assured reliance on the character, ability, strength, or truth of someone or something” (in Cvetkovich & Lofstedt, 1999b). Four additional properties were proposed to improve the usefulness of trust in social sciences:

1. implies a difference in power and control, with the one who trusts assuming a position of subordination to the one who is trusted;

2. involves risk because the one who trusts relinquishes control to the one who is trusted;

3. is an expectation about a relationship;
4. individuals have a choice about when and who to trust (Cvetkovich & Lofstedt, 1999b).

While the literature often used trust and distrust on a continuum, it was pointed out that the concepts should be viewed and analyzed as separate items (Luhmann, 1979, Earle & Cvetkovich, 1995).

Level of Public Trust

Trust was vital to the proper functioning of all human social interactions (Slovic, 1999). However, Slovic wrote that, “One of the most fundamental qualities of trust has been known for ages. Trust is fragile. It is typically created rather slowly, but it can be destroyed in an instant – by a single mishap or mistake” (p. 45). Rothbart and Park (1986) tested Slovic’s statement by giving people 150 descriptive traits and asking them to rate the number of relative behaviors necessary to establish or disconfirm each trait. Favorable traits, such as trust, required many behavioral instances to acquire, but only a few to lose. Unfavorable traits, such as laziness, were easier to acquire and harder to lose.

Mishaps such as e-coli contamination of the public meat supply, unethical behaviors of individuals holding public offices, and increased water quality contamination (Cvetkovich & Lofstedt, 1999b) led to labeling the present as the “era of distrust” (Breyer, 1993). Among risk managers, there was a prevailing view that there has been a crisis-proportioned decrease in trust (Cvetkovich & Lofstedt, 1999b). However, several researchers questioned the decline in trust and claimed that levels of trust remained stagnant or actually increased (Kasperson, 1999, Golding & Krueger, 1997, Rosa, 1997, cited in Cvetkovich & Lofstedt, 1999b).
Barber (1983) proposed that a decline in trust in science was due to the increased influence professionals had over people's welfare, the increased value placed on equality, and a better educated public. Slovic (1999) offered four explanations for the public tendency toward low trust:

1. negative (trust-destroying) events were more visible and distinct than positive (trust-building) events;
2. negative events carried greater weight than positive events;
3. information about negative events was considered more credible than information about positive events;
4. distrust, once initiated, perpetuated distrust.

Importance of Trust

Numerous studies pointed to lack of trust as an underlying factor in the controversies surrounding the siting of hazardous industries and the management of technological risks (Slovic, et al., 1991). Freudenburg (1993) found that people who trusted the scientific and technical abilities to build safe nuclear waste disposal sites were less concerned with the risk associated with the sites than those who did not have trust in the necessary abilities. In another study, trust in the management of a radioactive waste repository had a strong influence on perceived risk (Flynn, Burns, Mertz, & Slovic, 1992, cited in Siegrist 2000).

Research consistently concluded that trust accounted for a significant portion of the variance in perceptions of risk (Slovic et al, 1991; Frewer, Howard, & Shepherd, 1997; & Siegrist, 2000). Slovic (1999) documented that people considered the use of medical radiation and chemicals (x-rays, prescription drugs) to be high in benefit, low in
risk, and clearly acceptable. However, people viewed industrial uses of radiation and chemicals (nuclear power, pesticides) as high in risk, low in benefit, and unacceptable. The high degree of trust in physicians outweighed the risks associated with medical radiation and chemicals, thus making them acceptable. On the contrary, numerous studies reported that government and industry officials who managed nuclear power and non-medical chemicals were not highly trusted (McCallun et al, 1990, cited in Slovic, 1999; Pijawka & Mushkate, 1991). Thus, the low degree of trust in the managers of the risk resulted in non-acceptance of the industrial technologies.

Trust also influenced the degree to which people accepted or rejected information presented to them through risk communication. When the public did not accept the initial stages of risk communication, which focused solely on providing accurate numerical information, experts displayed an “open contempt toward the public perception of risk” (Leiss, 1996, cited in Cvetkovich & Lofstedt, 1999b). The result was a public decline in trust of experts and a view that experts were self-serving and promoting hidden agendas (Cvetkovich & Lofstedt, 1999b).

Although experts began to change risk communication efforts to build public trust, failure to implement successful risk communication initiatives continued to be a result of public distrust in policy-makers and industry experts (Cvetkovich & Lofstedt, 1999b). Numerous researchers reported that if the layperson trusted the risk communicator, communication was effective. However, if trust was lacking, no process of communication was satisfactory (Fessendon-Rader, Fitchen, & Heath, 1987; Earl & Cvetkovich, 1995). Slovic (1999) went so far as to say that, “…trust is more fundamental to conflict resolution than is risk communication” (p. 45).
Dimensions of Trust

Scholars have speculated on the number of dimensions of trust, as well as their meanings. However, a consensus on what it is that attributes to trust has not been reached (Metlay, 1999). For example, Barber (1983) proposed a two-dimensional model of trust that contained the attributes of the expectation of technical competence and the expectation that the fiduciary responsibilities would be fulfilled.

The theoretical framework for the current study follows the model posited by Lewis and Weigert (1985). The model demonstrated that trust was a multi-faceted concept that contained cognitive, affective, and behavioral dimensions. As a cognitive function, trust involved making a choice that was based on reasoning about the available evidence and the degree of cognitive familiarity with the object of trust. The cognitive attributes of trust included expertise and technical competence (Hollander, 1958; French & Raven, 1959; Barber, 1983) and absence of bias (Kasperson, 1986) or objectivity (Renn & Levine, 1991), honesty and openness (Covello, 1992; Peters, Covello, & McCallum, 1997), and procedural fairness (Lind & Tyler, 1988).

The behavioral dimensions of trust reflected the actions that were taken by a participant with the belief that others would take similar actions (Bradbury, Branch, & Focht, 1999). Behavioral components of trust included fiduciary responsibility (Barber, 1983), acting in the interest of the community (Bradbury, Branch, Heerwagen, & Liebow, 1994, cited in Bradbury et al, 1999), caring, empathy (Covello, 1992), and care and concern (Peters, Covello, & McCallum, 1997).
Affective attributes of trust were those that involved an emotional bond between participants; a violation of which resulted in damaged trust (Bradbury et al., 1999). Shared values constituted the affective dimension of trust (Earle & Cvetkovich, 1995).

The theoretical framework for the current study is outlined in Figure 2.2. The model proposes that individuals or communities with perceptions of the attributes of high trust will perceive the farms as less risky, and therefore be unopposed to the operations. In addition, individuals or communities with perceptions of the attributes of low trust will perceive the dairies as more risky, and despite the benefits, will oppose the farms. The model indicates that there is a chance that individuals or communities with perceptions of the attributes of high trust will perceive the farms as more risky, and therefore oppose the farms, while individuals or communities with perceptions of the attributes of low trust may perceive the farms as less risky, and therefore be unopposed.
Institution operating in best interest of public
Procedural Fairness
Honesty, openness
Technical competence of experts
Confidence in manager of risk
Shared values
Faith in information
Absence of bias
High Empathy
Concern and care

HIGH TRUST

Lack of faith in information
Lack of shared values
Low confidence in manager of risk
Low technical competence of experts
Dishonesty
Procedural unfairness
Institution not operation in best interest of public
Bias present
Low empathy
Low concern and care

LOW TRUST

Voluntary
Immediate
Known
Controllable
Old
Not certain to be fatal
Common
Chronic
Low annual fatalities
High Utility

LESS RISKY

Involuntary
Delayed
Unknown
Uncontrollable
New
Certain to be fatal
Dread
Catastrophic
High annual fatalities
Low utility

MORE RISKY

PERCEIVED LEVEL OF BENEFIT

UNOPPOSE

OPPOSE

Figure 2.2: The role of trust in why people are opposed or unopposed to risks
CHAPTER 3

METHODS AND PROCEDURES

Purpose and Questions of the Study

The purpose of this study was to describe the attributes of trust that were present in a community that was generally unopposed to the siting of a large-scale dairy farm, and to describe the attributes of trust that were present in a community that was generally opposed to the siting of a large-scale dairy farm. The specific questions that guided the study were:

1. How did communities perceive the impacts of the large-scale dairy farm?

2. How was the manager of the risk, associated with the large-scale dairy farm, defined by the communities?

3. How confident were communities in the manager(s) of the risk?

4. How did communities perceive that the manager(s) of the risk acted in the best interest of the community?

5. How did communities perceive the procedural fairness in the siting of the large-scale dairy farm?

6. How did communities perceive the trustworthiness of their sources of information regarding the large-scale dairy farm?
Research Design

The research design for the study was an embedded, multiple case study. The case study method was chosen because the researcher sought to answer “how” and “why” questions about a contemporary phenomenon in a real-life context over which the researcher had no control. The case study strategy was appropriate because multiple sources of evidence were used to trace operational links over a period of time (Yin, 1994).

The case study method was documented in several studies of community reactions to large-scale animal operations. Researchers in North Carolina recently used case study to examine environmental controversies that resulted from the growth of large-scale hog production in the state (Thu and Durrenberger, 1994, as cited in McMillan, 2000). McMillan (2000) used a case study design to explore how different groups of people reacted to the influx of large-scale hog operations in North Carolina. In addition, Abdalla et al. (1999) used case study methods to examine how alternative conflict resolution strategies could be implemented in community conflicts over large-scale animal operations.

A multiple case study design was used in the study because the researcher sought to use replication logic to compare citizen reactions in two purposefully chosen communities. Data gathered from each community was used to create two separate cases that produced contrasting results, which demonstrated theoretical replication. Each case was embedded, with the community serving as the primary unit of analysis and individuals in the communities serving as the secondary units of analysis (Yin, 1994).
Case Selection

The goal of case study research was to gain an in-depth understanding of the complexities and nuances of a particular case (Stake, 1995). Patton (1990) stated that studying a case in-depth required the purposeful selection of information-rich cases. “Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research…” (Patton, 1990, p. 169). A combination purposeful sampling strategy, including criterion sampling, intensity sampling, and chain sampling (Patton, 1990), was used to identify cases for this study that met the information-rich criteria.

Criterion sampling was used to identify all cases that met the predetermined criterion of importance established by the researcher (Patton, 1990). The criterion of importance included the size, ownership, location, and the overall community reaction to the proposed farm. Cases were identified in which the proposed dairy farm was large-scale, but under the state regulation limit of 700 cows, and owned and operated by Dutch immigrants. Cases in which farms were proposed in traditionally agricultural areas were also identified. The size, ownership, and location criterion were set to limit the number of potential cases to those that were explained through personal communications as being typical of the large-scale dairy operations sited in Ohio.

The cases were then limited by intensity sampling to include only those communities were overall opposed or unopposed to the siting of a large-scale dairy farm. The purpose of intensity sampling was to recognize cases that exhibited differing reactions, but were not viewed as extreme (Patton, 1990).
Finally, chain sampling (Patton, 1990) was utilized to identify the two communities that would be the best cases for the study. Chain sampling was done through a series of personal communications with knowledgeable informants, during which the informants shared which communities would be the most information-rich cases.

Based on the combination purposeful sampling process, two Ohio communities were identified as information-rich cases for the study: Liberty Township, located in Wood County, and Jackson Township, located in Wyandot County.

Data Collection

A unique strength of the case study design is the use of multiple sources of evidence (Yin, 1994). The current study utilized transcribed interviews as the primary source of data, and reviews of documents and archival records as secondary sources of data.

Gaining Access

Prior to beginning the study, the researcher made efforts to gain access into each community. Gaining access refers to the researchers’ acquisition of consent to go where they want, talk to whomever they want, and obtain the information that they want for the study. Neither community had an individual whose consent was necessary before entering the community. Thus, the researcher did not gain access through a gatekeeper (Glesne, 1999).

The researcher followed the procedures outlined by Glesne (1999) to gain access with each interviewee. Confidentiality was guaranteed to informants and participants in the initial letter and phone call, and during the interview. To reduce ambiguity about the
study, the lay summary was presented for the participants during the initial phone call and at the time of the interview, which outlined the purpose and procedures of the study. The researcher listened to the concerns of the interviewees regarding the study or procedures and responded accordingly to establish rapport and trust. In addition, the researcher offered participants copies of the written cases and followed through on commitments made to each interviewee. Finally, the researcher communicated in advance the potential need for further discussion and assistance in the future, including a review of the interview report for the member check.

Key Informant Interviews

Key informant interviews were used to learn information about the culture being studied (Pelto & Pelto, 1978). In the current study, seven individuals were interviewed in Wood County and five individuals were interviewed in Wyandot County. Chain sampling through personal communications was used to identify key informants that would be knowledgeable about the siting of the dairy farm in their community and familiar with individuals who could serve as participants for the study. The key informants proposed for the study were: the Agricultural Education instructor at the public high school closest to the proposed farm; the Agriculture and Natural Resources Extension Agent who was working in the county when the farm was proposed; the Farm Bureau Organization Director who was working in the county at the time of the proposed siting; a Township Trustee in the township of the proposed siting; a representative of the county Soil and Water Conservation District; and a representative of the local media. The researcher was not able to conduct interviews with all of the proposed informants in each county. In Wood County, one individual who was contacted chose not to participate
due to the degree of conflict in the community. In Wyandot County, representatives of two of the identified groups were not found because individuals who were in the positions during the siting of the dairy had taken different jobs.

A letter was sent to each key informant in March of 2002, which outlined the purpose of the study and asked for their assistance in explaining the siting process and identifying participants for the study (see APPENDIX A). A follow-up phone call was made to answer questions the informants had and to set a date for an interview. Informant interviews were conducted during March and April of 2002. The interview guide approach was used for the informant interviews (see APPENDIX B). The interview guide approach outlined specific topics to be discussed during each interview, but provided flexibility in terms of the order of the topics and the questions used to learn about the topics. Strengths of the interview guide approach were that the interviews remained conversational, and the outline increased the comprehensiveness of the data collected. Weaknesses of the interview guide approach were that important topics could have been inadvertently overlooked, and the flexibility in sequencing and wording questions could have resulted in different responses from different perspectives that reduced the comparability of the responses (Patton, 1990).

Following the interviews, the informants were given the opportunity to review the interview report as part of the member check to ensure accuracy and completeness. To show appreciation to the informants for donating their time to the study, the informants were sent follow-up thank you letters.
Participant Interviews

Participant interviews were conducted to understand the inner perspectives of those affected by the dairy farms in each community. According to Patton (1990), “The purpose of interviewing is to find out what is in and on someone else’s mind” (p. 278). The questions were designed and sequenced following recommendations given by Patton (1990). Three qualitative researchers reviewed the questions and made suggestions to the research as to how to make improvements. The researcher used the suggestions to generate the initial list of interview questions.

Pilot Study

As recommended by Glesne (1999), a pilot study was conducted prior to the participant interviews to learn about the research process, and to test the interview questions. Two individuals that were close to the phenomenon being studied were interviewed in April of 2002. The researcher explained to each interviewee in the initial phone call and prior to the interview that their role was to answer the questions, and to also provide feedback on how to change the questions and procedures. The feedback received from the pilot study participants was used to modify the questions by making the wording easier to understand more specific.

Participant Interview Procedures

Participant interviewees were determined through criterion and chain sampling techniques (Patton, 1990). The researcher set the criteria for participants as: owners of the proposed farms, neighbors the proposed farms, operators of farms in close proximity to the proposed farms, individuals who vocally opposed the proposed farms, individuals who were vocally unopposed the proposed farms, and individuals who were
knowledgeable about citizen interactions in the communities. Key informants were asked to identify citizens who met the criteria and the researcher used chain sampling of the given answers to identify the participants. A list of the number of interviews conducted with citizens opposed and unopposed to the farms is shown in Table 3.1. Twelve individuals were initially contacted in each county by the researcher. The numbers increased because participants included friends, neighbors, or spouses in the interviews, as they deemed appropriate.

<table>
<thead>
<tr>
<th>Participant Group</th>
<th>Wyandot County</th>
<th>Wood County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opposed</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Unopposed</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Dairy Operators</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 3.1: Participant interviews conducted in Wyandot County and Wood County.

As cited in the literature, participants were interviewed until the researcher reached the point of redundancy. Redundancy was reached when negligible amounts of new information were gained from participant interviews (Patton, 1990).
Participants were sent a hand-written introduction letter (see APPENDIX C) in April of 2002. Follow-up phone calls were made to present the lay summary, answer participants’ questions, and set a date for an interview. The structure of the interviews was a combination of two structures outlined by Patton (1990). A combined standardized open-ended interview and interview guide approach was utilized for the participant interviews. Standardized open-ended interviews consisted of a set of predetermined questions that were carefully worded and ordered to take each participant through the same sequence of specific questions (see APPENDIX D). The strengths of standardized open-ended interviews were that the structure minimized interviewer effects on participant answers and was highly focused so as to use participant time carefully. The weaknesses of the standardized open-ended interview approach were that there was little flexibility for pursuing issues that were generated after the interview was written, and the structure constrained the researcher from using different lines of questions with people based on their unique experiences. The standardized open-ended approach was used to collect data that related to the research questions established by the researcher a priori.

The interview guide approach was utilized to provide more flexibility in using probing questions and determining which subjects to explore in greater depth. Using the interview guide approach enabled the researcher to better understand the complex behaviors, thoughts, and feelings of participants because it did not impose the a priori categorization that could limit the responses of the participants (Fontana & Frey, 1994).

The processes used for documenting the information gathered during the interview followed the recommendations made by Patton (1990). A tape recorder was used during the interviews in which consent was given by the participant. The use of a
tape recorder was beneficial to the interviewer because its use increased the accuracy of
the data gathered and permitted the researcher to be more attentive during the interview.
Notes were taken during the interview to document key points and behaviors of the
participant. Following the interview, the tape was checked to ensure that it functioned
properly. In cases when the recording was not clear, extensive notes were made
immediately to capture as much of the interview as possible. In addition, clarification
was made of the notes taken during the interview and observations about the interview
were written.

To show appreciation to the informants for donating their time to the study,
participants were sent follow-up thank you letters. The researcher also provided a copy
of the report to participants who requested one.

Review of Documentation

Documents related to the case under investigation play a vital role in the case
study method. Documents offer three uses in case study research: (1) verifying the
correct spellings of names, titles, and organizations mentioned during interviews; (2)
providing specific details to corroborate information from other sources; and (3)
supplying inferences for further investigation. However, documents are not necessarily
accurate, free of bias, or representative of the truth (Yin, 1994). The documents reviewed
for this study included letters, announcements of meetings, video tapes of public
meetings, and newspaper articles. Key informants and participants were asked to identify
sources of documentation regarding the case. The researcher reviewed the documents
that were identified.
Review of Archival Records

Archival records must be used in conjunction with other sources of information in case study research. It is important, however, to note the conditions under which the records were produced, as well as the accuracy (Yin, 1994). The archival records utilized in this study included maps for identifying the location of participants, census data on each community, and personal records of events. Key informants and participants were asked to identify archival records related to the case and the researcher reviewed the records.

Data Management and Analysis

The field notes taken during the informant interviews were typed, and upon approval from the informants, stored in computer files and as hard copies in a research notebook. The field notes and tape-recorded conversations obtained during participant interviews were transcribed, word-for-word. The transcriptions were modified based on comments received during the member check, and the documents were stored in computer files and as hard copies in a research notebook. In addition, documents and archival records were stored in a research notebook.

The initial analysis of the data involved coding of the participant interview transcripts, documentation, and archival records for the seven themes that served as the questions for the current study. Other themes that emerged were coded accordingly as well. Once coded, the data were used to create case studies by organizing the coded data into sections that represented the important themes in each community.
Role of the Researcher

The study was conducted from an interpretivist epistemology. Interpretivism assumed that realities were socially constructed by participants in the study and that variables were complex and interwoven (Glesne, 1999). Thus, the researcher served as the data collection instrument and meanings were created through the researcher’s interpretation of the participants’ complex realities (Schwandt, 2000). The researcher operated under the phenomenological doctrine of verstehen, which means “understanding.” Empathy toward participants allowed for the understanding of their feelings, experiences, and opinions. The data gathered from participants was filtered through the feelings and experiences of the researcher as the data collection instrument to generate the complete data for the study (Patton, 1990). To increase the trustworthiness of the study, the researcher reflexively identified his/her experiences and feelings that may have influenced the study: (1) a personal and educational background in agriculture; (2) an appreciation for rural life and traditional agricultural practices; (3) a belief in the need for agricultural progress; and (4) a concern for the well-being of the environment.

Ethical Considerations

Prior to conducting the study, the researcher examined the ethical issues of qualitative research. The ethical considerations reviewed included informed consent, deception, rights to privacy and confidentiality, accuracy, respect for persons, beneficence, justice (Christians, 2000), exploitation, intervening, advocating, friendship, and reciprocity (Glesne, 1999).

The researcher committed to the guidelines outlined by Christians (2000). Thus, informed consent was established by providing full and open information about the study.
through the lay summary, which was presented during the initial phone contact, and
during the interview. Participants were also informed through the lay summary and
during the interview that participation was voluntary, that they could choose to end
participation at any point in the study, and that they could choose to not respond to a
particular question. The researcher avoided deception by being honest with participants
about his/her status and the purpose of the research. Privacy and confidentiality was
guaranteed by the researcher during the initial phone call and at the interview. A member
check was conducted to ensure that participants felt the information they provided was
accurately reported.

Trustworthiness of the Study

Trustworthiness was explained by Lincoln and Guba (1985) as encompassing the
conventional components of internal validity, external validity, reliability, and
objectivity. Lincoln and Guba (1985) proposed that conventional measures of quality
were not appropriate for qualitative inquiries, and that the measure of trustworthiness was
appropriate. The components of trustworthiness included credibility, transferability,
dependability, and confirmability.

Credibility, or the likelihood that credible findings and interpretations were
produced, was addressed in the study by using methods outlined by Lincoln and Guba
(1985). Triangulation, which was the use of multiple sources of data-collection methods
and sources, was used in interviewing by comparing the findings from several individuals
in each community to validate answers. Triangulation was also used by utilizing
interviews, documents, and archival records to corroborate findings. Peer debriefings
were conducted throughout the duration of the study to probe the researchers’ biases,
explore the researchers’ meanings, and clarify the researchers’ interpretations. Peer
debriefings were conversations with a peer that provided the researcher with a mode of
external reflection to explore aspects of the study that had not been explored. Finally,
member checks were conducted with informants and participants in the study to ensure
that what was reported accurately represented the information provided during the
interviews. Through the member check process (see APPENDIX E), copies of the
interview transcriptions were sent to each interviewee to allow them the opportunity to
review the interview report and make adjustments as they deemed necessary, before the
data was analyzed.

Transferability addressed the question, “How can one determine the degree to
which the findings of an inquiry have applicability in other contexts or with other
respondents?” (Lincoln and Guba, 1985, p. 218). The current study provided a thick
description that will allow other researchers to decide if making a transfer between the
current study and future studies is possible. A thick description referred to the depth of
writing in the study that will allow the reader to enter into the context of the study to
determine if transferability is possible.

Dependability and confirmability were established through an audit of the audit
trail maintained by the researcher. Dependability referred to likelihood of the findings
being repeated if the study was replicated with the same respondents in the same context.
Confirmability ensured that the findings reflected the characteristics of the respondents
and the context, not the biases, motivations, interests and perspectives of the researcher
(Lincoln & Guba, 1985). The audit trail contained the six categories recommended by
from participant interviews and written field notes from informant and participant interviews. Data reduction and analysis products were write-ups of field notes from informant and participant interviews, transcriptions of participant interview tapes, and summaries of raw data. Data reconstruction and synthesis products included categorical themes and relationships and the final report of the study. Process notes referred to an explanation of the methodology, member check and peer debriefing reports, and evidence of triangulation. Intentions and disposition records were the written objectives of the study with relevant literature and the reflexive journal. Instrument development documents were rough draft, modifications, and final products of the interview questions.

A reflexive journal was kept by the researcher, which also established trustworthiness. The reflexive journal contained entries about schedules and logistics of the study, as well as the researcher's personal reflections upon what insights were gained from the study. Entries were made as needed to discuss methodological decisions and changes in the study (Lincoln & Guba, 1985).
CHAPTER 4

FINDINGS

This chapter presents the findings of the study that was conducted in Wyandot County, Ohio, and Wood County, Ohio. The chapter begins with an overview of the development of large-scale dairy production in Ohio. A case study of each community is also included that is based on information gathered from personal interviews and a review of documentation and archival records.

Dairy Development in Ohio

Following trends in animal agriculture nationwide, the dairy industry in Ohio has undergone a transformation resulting in an increasing number of large-scale farms. Farmers from Europe, specifically the Netherlands, have greatly contributed to the shift toward large-scale production. Dutch farmers immigrated to the Midwestern United States primarily for economic reasons. While Holland is geographically one-third the size of Ohio, it is home to 5.2 million more people and over 1.3 million more dairy cows (Souhrada, 2000). Dairy farmers in the Netherlands operated under a quota system that limited their production of milk, as well as stringent environmental regulations. As in the U.S., Dutch farmers found it necessary to expand in order to increase profits or sustain their farm for future generations. However, for each cow added to the farm, a cost of
$30,000 was incurred to pay for the cow, quota rights, and one hectare of land required for each cow. Farmers found expansion nearly impossible with farmland values reaching $25,000 per acre or more. Therefore, numerous Dutch farmers immigrated to Ohio and other states with the desire to milk cows and make a living.

**Vreba-Hoff Dairy Development, LLC**

Many of the farmers who relocated to Ohio did so by contracting with Vreba-Hoff Dairy Development, LLC. Vreba-Hoff was a partnership between two families that specialized in relocating dairy producers from Europe and Canada. The business began operating in 1998, and by 2002 had established 50 dairies in Ohio, Michigan, and Indiana (see APPENDIX G).

Vreba-Hoff provided a turn-key project for parties interested in relocating to the tri-state region. The company worked with the farmers and families to sell their assets in Europe, complete the necessary Visa applications, find a location for the new farm, complete the required permits for the farm, and learn about the culture and environment in which the farmers established themselves. While Vreba-Hoff did not finance the farms, the company did aid the producers in establishing business plans and finding banks to provide the necessary financing. Once established in the U.S., Vreba-Hoff provided two years of assistance and consultation to the farmers.

Vreba-Hoff contracted with the Christian Agricultural University in the Netherlands to provide a ten-week orientation program for farmers interested in relocating to the U.S. The program provided instruction in English and Spanish languages, cow nutrition, personnel management, and accounting. Equally as important, the orientation was a center of support for producers who were making a life-changing
transition. Once in the U.S., many of the Dutch farmers spent time working on another Vreba-Hoff dairy, or an established dairy in the community, to gain experience in operating a large-scale farm, since the average dairy size in the Netherlands is 70 cows. In addition, working on a farm in the U.S. allowed the Dutch producers to learn about American production techniques and technologies.

When looking for a location for a dairy, Vreba-Hoff advised the Dutch farmers to purchase tracts of 40-80 acres from local farmers who would contract to grow grain for the dairy and who would also accept the manure produced on the farm. In cases when the ideal situation was not found, the Dutch farmer was advised to buy land and search out other individuals in the community to fill the contracts. Local farmers who contracted with the dairy to raise grain or hay were typically required to accept the manure produced on the farm. Such contracts allowed the dairies to focus on cows and milk production, rather than on equipment and crop production. In addition, Vreba-Hoff looked for land that was isolated from housing in the area, and maintained an unwritten rule that there must be at least five miles between all of the dairy farms.

The scope of the investments made by the farmers required them to build farms with at least 300 cows. Most of the Vreba-Hoff farms began operating at 650-675 cows, primarily because that number of cows allowed them to produce one tank of milk each day. Most farms did not begin operating with the number of cows higher than the state regulation limit of 700 cows, so as to avoid filing for permits with the ODA. In addition, it was easier for the farmers to transition from 50 cow herds in the Netherlands to 650 cow herds, as opposed to transitioning from 50 cow herds to 1,000 cow herds.
Wyandot County

Wyandot County, Ohio, was settled in 1845, and Upper Sandusky was established as the county seat in 1848 (Upper Sandusky Chamber of Commerce). In 2000, the county population ranked 83rd out of the 88 Ohio counties in 2000 at 22,908 (Ohio Department of Development, 2000). Since 1950, the county population increased by only 3,123. Comprised of individuals primarily from European descent, 97.9 percent of the county population was Caucasian.

The agriculture, forestry, and fishing industry accounted for 1.1 percent of the employment in the county in 2000 (Ohio Department of Development). However, with over 80 percent of the land area in farms, the county had annual cash receipts of over $55 million from farm commodities. Wyandot County had 700 farms in 2000, with the average size being 309 acres. In 2001, the county housed approximately 1,100 milk cows (Ohio Agricultural Statistics Service).

The largest portion of the workforce in Wyandot County, 43.8 percent, was employed in manufacturing (Ohio Department of Development, 2000). Located in northwest Ohio, the county had numerous transportation routes, including U.S. Route 30, U.S. Route 23, and several state routes. According to one study informant, over the past ten to twenty years the county has seen an influx of manufacturing, primarily related to the auto industry. Such employment opportunities have allowed recent generations of farm children to carry on the family farm while working off the farm and earning a reliable income that includes health insurance.

Despite the growth of the manufacturing industry, a study informant noted that most people in the county had a direct or indirect connection to agriculture. Thus, most
people understood the needs of farmers and the hardships associated with farming. One participant said, “…in the spring farmers create dust, they’re hauling manure, smell a bit. And there’s tractors going up and down the road, slowing people down or working late at night, bothering them. I’ve never run into a problem with that.”

Large-Scale Animal Production in Wyandot County

At the time of the proposal of the large-scale dairy in Jackson Township, several other large-scale production facilities were in operation in Wyandot and surrounding counties. Another Dutch family was operating a 300-head dairy in Marseilles Township, directly south of the proposed site. Although not as large as the proposed dairy, the farm was noted by participants in the study as a clean operation.

The most highly recognized large-scale animal operation in close proximity to the proposed dairy was Buckeye Egg Farm, which operated farms in Hardin, Wyandot, Marion, and Licking counties. The company, which began operation in 1991 under the name AgriGeneral, consisted of over 100 barns, with a total of over 15 million hens. Buckeye Egg did not always live up to its motto of “Quality, Integrity and Service,” as the company’s history of poor management eventually led to a court order to close the facilities in 2002.

Buckeye Egg Farm originally owned the land in Forest, Ohio that later became the location of the large-scale dairy farm. However, according to one participant, “Their reputation for poor management preceded them when they were interested in building in the township.” Thus, there was a “very strong upsurge of resistance” in the community to Buckeye Egg’s proposal for a 3.3 million-hen egg farm on the property. Buckeye Egg Farm’s history of environmental and worker safety violations, lawsuits, and absentee
ownership concerned individuals living near the proposed operation. One participant who lived near one of Buckeye Egg Farm’s facilities said:

It’s a nightmare here sometimes. At our last family reunion here I had to run around and cover everything up with plastic just to keep the flies out of the food.

We can’t have picnics or reunions here anymore because of the flies.

Such concerns led to the formation of the Concerned Citizens of Central Ohio (CCCO). The CCCO opposed all large-scale operations in central Ohio, including the proposed Buckeye Egg Farm. Citizens formed another grassroots organization, called SAVE, specifically in opposition to the Buckeye Egg proposal in Forest. The organizations led the community in a strong resistance by producing publications, writing letters to the local newspapers, and promoting public hearings regarding the proposed facility. One such public hearing was attended by over 500 people and lasted for over five hours.

The Ohio EPA denied Buckeye Egg Farm the necessary permits to immediately begin operating in Jackson Township. The application, however, was to be revisited after a Buckeye Egg facility in Marseilles was in full operation for one year. In 1995, the Jackson Township Trustees adopted a new fire code, which included the Mid-Ohio Fire Code and some particular stipulations addressing concerns related to the township volunteer fire department. Buckeye Egg Farm responded with a lawsuit, which after four years in the courts was decided in favor of the township trustees.

Siting of Dairy A

The fire codes that were in place in Jackson Township required Buckeye Egg Farm to invest more money into the building of the production facility. In addition, the
delay in obtaining the necessary permits became a financial burden. Therefore, Buckeye Egg Farm chose to sell the property. For the purpose of this research, the dairy that the land was sold to will be called Dairy A

The community was not well informed about the transfer of land to the dairy. In fact, the County Commissioners did not know that a dairy was going to be built on the property until a county extension agent informed them. One participant who was opposed to the dairy said:

We found out about the farm moving in when we saw it starting to be built. There were about 10-12 trucks going down our road every day, so we knew something was going on. I actually called the engineer’s office to find out what was going on over there, and they said that it was a dairy.

Other participants noted finding out about the dairy through talk around town or the opposition groups that were in existence. Most people found out by chance, as there was no formal announcement. One participant who was unopposed to the dairy said:

I ran into a truck on the road with an excavator on it and the driver asked me for directions. So, I told him how to get to the site. He told me that the site was for a dairy. I watched the activity around the farm and the house. When I saw things were up and running I went over and talked to the family. I took him some American farm magazines and got to know them.

Two study participants indicated that, had they known that the land was being sold to a dairy, they would have purchased the land themselves. However, the study participants felt that the land transfer was basically snuck in behind their backs, so they were never given the option to buy the property. However, another participant said that
people in the community did approach Pohlmann about buying the land so that it wouldn’t be sold to another large-scale, but he would not sell it to the citizens. The participant said, “He was very spiteful toward us.”

A representative of the local media said that there was no media involvement in the beginning stages because the media did not know about the farm. In the summer of 2000, the local newspaper ran a three-part series about the dairy to introduce it to the community. The media representative said, “The dairy was treated like any other new business. We ran stories in the beginning to introduce it to the community, but since there weren’t any problems, we didn’t run any more stories.”

A representative of Dairy A said that the family chose to come to the U.S. because of decreased profits and increased regulations in the Netherlands. It was impossible to expand, but the operators needed to expand to survive. Michigan and Ohio were considered as locations for the farm. However, the operators were only in Forest a few minutes when they made the decision to purchase the land. The decision to locate in Forest was based on the small number of people surrounding the location, as well as the opportunity to help small local farmers.

Construction began on the farm in May, 2000. The farm began operating in April, 2001. The CCCO and SAVE did not continue to present opposition to the proposed large-scale dairy. However, several neighbors continued to voice concerns and to keep a close watch on the farm. One participant spoke in anger of a neighbor who resisted construction of the farm. The participant explained that the construction trucks caused a great deal of damage to roads in the area. At one point, there was a large hole on one side of the road that the trucks had to go around. The protesting neighbor parked
his truck on the road opposite the hole so the trucks had to go through the hole. However, most participants commented that there was no organized opposition to the dairy. One participant said, “I thought that there are two ways you can go about it. Ignore them and wish they never came or introduce yourself and try to make the most positive opportunity available.”

Although the family was initially viewed as “outsiders” by most, they were generally more widely accepted than the owner of Buckeye Egg Farm, Anton Pohlmann, because the dairy family lived on the site of the farm. Pohlmann operated Buckeye Egg Farm as an absentee owner. One community member commented that, “People who do that [absentee owners] are not concerned about what happens there [at the farm] and don’t consider the future ambitions of the sons, daughters, and grandkids of those in the community.” When the Dutch family moved onto the property, they spent time cleaning up the barns and house. In addition, the family’s belongings were lost in shipment for over a month after they arrived in the U.S., and they had to use air mattresses and lawn chairs in their home for a while. Largely due to their efforts to make improvements to the property and this situation, one person said:

Neighbors did not view them as ‘rich outsiders’ who were moving into the community. Rather, neighbors viewed them as a family in need and provided items to the family. Through this process, neighbors got to know ‘people,’ not ‘corporate farmers.’

One of the operators of the dairy stated that the community had provided them with a lot of support. People in the community stopped by often to get to know the family, as well
as help them find their way around the area. “People see us as a family, not just a big farm. People also see that we are doing our best.”

The operators of the dairy were careful in building the facility to follow all of the guidelines and regulations of the state of Ohio, Wyandot County, and Jackson Township. To meet the guidelines set forth by the fire code, the operators were forced to install a basement emergency exit, maintain a wider distance between buildings than originally planned, and lay a driveway completely around the farm. These extra measures added $40,000 to the cost of the facility. In addition, the farm worked with the Wyandot Soil and Water Conservation District (SWCD) to establish a Certified Nutrient Management Plan. The farm owners continued to work with the SWCD to determine when to apply manure, the correct amounts to apply, and how to improve the manure handling system.

However, the dairy did not begin operating without problems. The heavy truck traffic that occurred during construction damaged the roads surrounding the farm. The damage was so severe on some of the roads that signs were erected warning travelers to travel at their own risk. A participant in the community said, “They literally tore that road up, it has big holes in it, and people did not like that.” At the time of the study, the roads had not been repaired because there was still debate as to who would pay for the necessary repairs.

In addition, the first time manure was spread on nearby fields, it leached into the tiles, which were only approximately one foot deep. Although the farm operators used the consultation of the SWCD and followed the recommended guidelines, the manure spill caused a fish kill in the nearby streams. The streams had to be dammed and cleaned after the spill.
One participant made the effort to contact several local agencies to inform them of the spill. The person said:

I wanted to make sure they knew about the spill so they would get it taken care of. But, all of these people really didn’t want to deal with the situation. They came out and tried to fix what happened, but they wanted it off of their shoulders as quickly as possible.

SWCD sent a letter to the neighbors basically taking responsibility for the spill. Other participants in the study felt that the local agencies made every effort to take care of the spill and prevent more spills in the future. Some individuals interviewed saw the spill as a sign of poor management and a warning of what to expect in the future, while others viewed the spill as an accident and a learning experience for the farm operators.

Another commonly noted problem with the siting of the farm was the location. The soil that surrounded the farm was heavy, poorly drained clay. Therefore, the farm could not spread manure during six months of the year because the ground would be too saturated. Some participants commented with frustration that Vreba-Hoff had a reputation for putting dairies wherever they can, regardless of the quality of the ground.

Procedural Fairness in the Siting of Dairy A

Participants in the study were asked to explain the ideal process for siting a large-scale livestock operation to be fair to the community, as well as the degree to which Dairy A followed the ideal process. Several participants said that as long as the dairy met the zoning regulations and the guidelines set forth by the EPA, the process would be fair to the community. These participants said that Dairy A did meet the necessary regulations, and therefore was fair to the community.
Participants also felt that ideally the owners should be open with the community about their intentions. "I would suggest that they start out, be a little more open about it. Maybe in direct contact with the local neighbors. Talk to individuals. Let them know what's going on," said one participant. Another participant angrily replied, "I don’t think this farm should have come in without any notice. It was basically snuck in behind our backs." Another person noted the importance of the operation building on the "social bank account in the community," as opposed to drawing from it immediately. Participants agreed that communication was not made about the intentions of the farm. But, some participants felt that the farm was intentionally kept secret, whereas others did not. One participant suggested that the operators should search out opportunities to purchase neighboring houses. The participant felt the process with Dairy A was fair to the community because the operators did try to buy houses around the farm.

One resident in the community felt that the farm operators should do their best to make sure the community could handle another large-scale operation and that the operation would not be a nuisance. For instance, the participant suggested that the operators should meet with SWCD to ensure that the farmland in the area could handle the amount of manure produced by the farm. Although the participant did not know for sure, the assumption was made that the operators did meet with SWCD to ensure that the community could handle another large-scale farm.

Looking at Vreba-Hoff, one participant felt that the company should pay closer attention to the distance they maintain between the dairies. Putting dairies close together was not fair to people in the community and the participant said, "It's their way of doing anything they need to do to make money.” Another participant recommended that such
large-scale dairies should not be built in the Midwest because of the large populations of people:

I don’t know why they don’t just build their farm in Kansas. There isn’t anybody out there, so they would have a lot of room to build a farm and wouldn’t have to worry about any of this stuff.

From a county standpoint, a government representative indicated that the farm should communicate with local government ahead of time to make sure the necessary actions could be taken. For instance, the government could work on developing a haul route for the construction trucks, as well as connect the farmers with manure management specialists and SWCD to develop best management practices.

Characteristics of Dairy A

Dairy A was operated by a married couple with four children who came to the U.S. from the Netherlands. Dairy A was located on a 160-acre farm. In April 2002, the dairy milked 610 cows, with the capacity to milk 650. Cows were milked three times per day in a double-16 milking parlor. The average production per cow was 72 pounds per day, for a farm total of 43,000 pounds of milk. A unique component of the farm was that the control room for the milking parlor was below the parlor. The control room was placed downstairs to create a quieter working environment for employees and to allow for needed repairs to be made without interrupting the milking process. The farm utilized an advanced computer system to record milk production, health records, breeding records, and other pertinent information on each cow.

The farm was equipped with a six-month concrete storage lagoon with a 2.5 million gallon capacity. Plans were being made to add another 2.5 million gallon lagoon
during the summer of 2002. In addition, the farm owners were working with SWCD and EPA to design an innovative manure handling system. A leach bed was placed around the lagoon to provide an extra buffer against pollution. Inside the free-stall barn, a 24-hour per day scrape system was in place to keep the stalls clean.

When the operation began, bred heifers were purchased from the U.S. and Canada. The operators did not want to put their time and resources into raising heifer calves. Therefore, they participated in a program through Sunfall Heifer Raisers that allowed them to sell heifer calves and purchase replacement heifers when needed. Once the farm was established, the owners purchased some heifer calves from individuals in the community. Sand for bedding, corn silage, alfalfa haylage, and dry hay were also purchased locally when possible.

In addition to the two owners of the dairy, seven people are employed on the farm. All Hispanic men, one was responsible strictly for feeding, while the other six took care of general farm work. The herdsman was from Holland, but had three years of experience working on other Vreba-Hoff dairies in the U.S. In addition to the regular employees, Amish employees were also hired for construction work.

The owners of the farm indicated that the likelihood of increasing the size of the farm in the future was high. In order to maintain their Green Card granted by the government, the business had to make an initial investment of $1-1.5 million and employ ten people within the first five years of operation. The initial investment was made, but the operators needed to work toward employing ten people. The estimated number of cows that would need to be milked to support ten employees was 1,000. One of the operators said, “You can’t just come here and live here. You had to do something to be
able to live here. I wouldn’t have necessarily built a farm this big. I like running the farm, but the size was determined by the law…”.

Positive Impacts on the Community

One of the overarching reasons that community members suggested the farm was positive for the community was simply that it was better than having Buckeye Egg Farm operate there. Every community member interviewed commented that people in the community viewed the dairy farm as less threatening than the other proposed farm, which was Buckeye Egg. “We thought, ‘wow, we’re just going to get a dairy farm, we avoided, we sidestepped the biggie.’ Everybody sort of relaxed, you know.” Even a local government representative conveyed with a smile that the local government was “kind of tickled that the chicken farm sold it.” Some participants said that the dairy was better for the community because it would generate 40 times less waste than the chicken farm. Others thought that it was accepted better because of the perception that people get when they think of a few hundred cows out on pasture versus several million chickens locked in cages. Several community members felt that the dairy was a positive step because the owners were living on the site of the farm, whereas the owners of Buckeye Egg were not living on the farm:

But one thing I would see was that with the egg farm, when they came in it was a set of buildings and nobody to talk to. Sure you could call a public relations office or something, but it was just a big building in my back yard kind of thing. But the [dairy] family lived right there in the house. And we had neighbors that brought in a swing set for the kids and just did different things to try to make them feel… I think they admired the courage of some family just to leave their home and security to come
over here to invest and try a different life.

The other commonly cited positive impact of the farm was that it provided opportunities for local farmers and businesses to sell their products. One local farmer commented that, “The dairy has allowed us to produce on a larger scale; it quadrupled the amount of hay and straw we produce. The farm is allowing my sons to expand their business and to stay in farming.” Other participants recognized the benefits of the manure generated by the farm, as well as the opportunity for businesses to sell products and services such as trucking, sand, and electricity. Another farmer in the county said that the opportunity to put a large portion of his land into corn for silage allowed him to get much of his fall harvest done by mid-September and alleviated the problem of needing labor for corn harvesting.

Few participants thought that the dairy benefited the community by bringing in employment opportunities. “It should bring more work to the neighborhood, but it didn’t.” Some participants felt that the farm could have presented more positive impacts to the community if the operators utilized more local resources. For example, several participants disagreed with the hiring of migrant laborers to work on the farm. Another participant said that the farm could have provided more benefit to the community by purchasing more hay and grain from local farmers. However, participants also agreed that the migrant laborers were typically more reliable and hardworking than individuals the farm operators could hire from the community. In addition, participants recognized that from a business perspective, the operators could often get better products at lower prices from sources outside of the community.
In addition to being more positive than Buckeye Egg and providing local opportunities, community members said that the farm would be beneficial by increasing the tax base. Although citizens had not seen written proof, they speculated that the development of the bare land would generate tax benefits for the community.

Concerns of Citizens in the Community

Participants in the study were asked to explain the negative impacts that they were concerned about related to the large-scale dairy farm in their community. Several participants responded that there were no negative impacts associated with the farm. “I don’t really foresee any. My exposure to the people is they’re trying to get along, they are a young family like ours, they are raising their children, they are employing a number of people.” Another participant said, “If they can run a good ship, they can have a dairy farm. I don’t have any problem with that.”

Most participants were able to name at least one concern that they had with the dairy farm. Participants offered a range of concerns, including how the dairy operated in the past, potential threats in the future, and how the dairy affected them personally. The strongest and most frequent response by participants was concern about manure management. Every participant in the study reported the manure spill that took place on the farm during the first year of operation. “The whole problem with any of those places is, I don’t care whether you’re talking about chickens or hogs, it’s waste.” Participants who expressed concern about manure thought that it would cause a negative impact because of the type of soil upon which the manure is spread. The high clay content in the soil meant that it would stay saturated for much of the year, not allowing manure to be applied. A citizen opposed to the farm said, “We doubt if it could ever be managed
properly because this area used to be a swamp.” However, citizens who were not opposed to the farm noted the soil as a drawback, but in the same thought added that the farm was working with SWCD to manage the problem. One participant noted manure management as a concern, but also recognized that he had managed manure improperly in the past. “I’m ashamed of myself because I used to put manure on when I milked cows. We put too much on and should have watched better, but nobody talked about it.”

Some neighbors of the farm expressed concerns about how the farm directly impacted their lives, citing odor, flies, and devaluation of property as reasons. For instance, one neighbor said:

I have flies from the farm just about every day. There is a lot of noise every day too. There are always trucks going up and down the road that are heading to the dairy farm. In the summer, I don’t have central air. I’d like to be able to open my windows, but I can’t because there are so many flies.

In addition, the individual expressed concern for the value of his property. The participant estimated the value of his/her home to be $120,000, but said, “I am retired now, and am left with no choices because of the farm. I will have to take what I can get for my house, but it won’t be what it’s actually worth because of the farm.” Due to such problems, several neighbors also expressed concerns about the possibility of the farm expanding. “I’m concerned about how it’s going to be when they more than double in size. So far the management for 699 cows hasn’t been good, so what’s it going to be like with 1,500?”

A neighbor who lived within one-half mile of the farm noted damaged roads as a negative impact. The participant said, “The trucks have made the roads unsafe. Instead
of fixing the roads they just fill them with stone and put up unsafe signs. Signs are cheaper I guess.” Neighbors opposed to the farm also expressed concerns about the lack of regulation of the dairy. They suggested that if the dairy operated under set guidelines and did not take shortcuts to “cheat the system,” they would not have a problem with the farm.

Representatives of local government and agencies did not communicate impacts that they were personally concerned about. However, they did state that the main impact community members had brought to them was that of water usage and pollution. “The only concern that I heard was that a neighbor within a half-mile was concerned about his water,” said one representative of a local agriculture agency.

Although no participants said directly that the nationality of the farm owners was a concern, several commented that it was a threat to many people in the community. “I think there’s a lack of understanding. They see a foreign entity coming in, picking up and buying up a lot of farm ground putting in these multi-hundred head dairies,” one participant said. Another thought that if he had built the farm, there would not have been any opposition because he was a local farmer, not a foreign person “coming in and spoiling their [community members] lifestyle.”

Some of the participants who had contracts with the dairy operators felt that a threat was the farm’s association with Vreba-Hoff. While the participants did not communicate the concern as a threat to the community, they felt that the relationship was a threat to the well being of the dairy, stating that his “worst enemy is Vreba-Hoff. The company has lied to him a lot and hasn’t followed through with what they were supposed to do in constructing the buildings.”
Managers of the Risk

Community members were asked to identify who was responsible for controlling the negative impacts associated with the farm. Three categories emerged: (1) the farm operators; (2) government and environmental agencies; and (3) Vreba-Hoff Dairy Development.

Farm Operators

Numerous community members identified the operators of the farm as those responsible for controlling the potential negative impacts. One participant commented, "The farmer is the only person who can control what goes on over there. No one else can do anything because he doesn't have to be regulated." Others recognized that SWCD and Vreba-Hoff were useful for consultation, but that ultimately the operator of the farm had control of the risks.

When asked to rate their confidence in the operators' ability to manage the risks, community members who supported the dairy were very confident. For instance, one farmer who contracted with the operators said, "I'd give him a 10. [The operator] is even going to build another lagoon to be safe. He has one of the best milk qualities with low bacteria. He does an excellent job." Another participant was confident in the operators because he/she had milked cows in the past and felt that he/she understood what the operator was facing. On the contrary, some neighbors of the farm who were directly affected by some of the negative impacts were not confident in the operators. One angrily stated:

He can't control it himself though. He built on a marsh and he just can't do anything about it. He doesn't have any experience over here either. There's just no way he can
take care of the odor, flies, and manure.

Many community members believed that the operators of the farm took measures to act in the best interest of the entire community. Living on the premises, working closely with SWCD, being friendly and open to other members of the community, being active in local organizations, injecting the manure, spraying for flies, and running a clean operation were given as ways that the operators acted in the best interest of everyone around them. Comments from participants about the operators included, “To me, they are trying to do everything by the book,” “From being over on the farm a lot, I know that [the operator] is concerned about his operation,” and “He doesn’t seem to be a person who is just out being selfish.”

On the contrary, a few residents of the community noted ways in which the operators did not act in the community’s best interest. One participant felt that the farm enjoyed not having to follow the strict rules in the U.S. as they had to follow in the Netherlands, and the operators did a poor job managing the farm, which hurt the air and water. The participant said, “He just wants to make money and isn’t concerned about what he’s doing to other people.”

**Government and Environmental Agencies**

Numerous government and environmental agencies were identified as responsible for managing the potential negative impacts of the farm. County and township government was recognized as being responsible for ensuring the quality of the roads, as well as dealing with social concerns within the community. One participant indicated that the Health Department was responsible for managing the water quality and that the Department of Natural Resources would manage the rivers, streams, and aquatic life.
The Occupational Safety and Health Administration (OSHA) was identified by one participant because the agency regulated the employees at the farm. The EPA and SWCD were also identified because of their involvement in working with the farm to develop waste management plans.

Community members’ confidence in the government and environmental agencies varied. For instance, one participant said:

But from what I can see in the design, I would say their chances of keeping that in control is probably a seven or eight [on a ten-point scale]. I think they’ve taken a lot of steps. I think the owner has tried to work with these agencies and seek help when he needed to.

However, one participant who vocally opposed the farm said, “No one in government has helped us – trustees, commissioners, people in Columbus – none of them want to get their hands dirty with this problem.”

Participants who identified government and environmental agencies as the managers of the risk felt that they were operating in the best interest of the community. Individuals who were interviewed commented on the cooperation between the farm and such organizations, and indicated that the outcomes of the relationship were positive for the entire community. One individual who did not recognize government and environmental agencies as the managers of the risk did comment on their actions in the community. The participant felt that the organizations were not acting in the best interest of the community, as indicated by their delay in fixing roads and apathy toward citizen concerns.
Vreba-Hoff Dairy Development

Vreba-Hoff Dairy Development was also identified as a manager of the risks associated with the farm. While some participants felt that Vreba-Hoff was solely responsible, others meshed Vreba-Hoff with the dairy operators and gave both the responsibility. “I’m talking about everything from the family, all the way up to the corporation. They all share some responsibility.” Participants’ confidence in Vreba-Hoff’s ability to manage the risks was mixed. One participant said:

I think they want to. It gets back to the scale thing. I think they got 600-700 cows there now. Yeah, that’s manageable, I think they can do that. Now, if they go up to the 1,500 or 2,000 or whatever the next level is, I don’t know, I don’t know.

Sources of Information

Community members relied on numerous sources of information to formulate their opinions of the large-scale dairy farm. In general, individuals felt that their sources were reliable and trustworthy. However, several participants noted that many of the sources were biased or slanted in one direction on the issue of large-scale production. For example, a participant who did extensive research said:

The poultry industry had their people out there writing stuff that was slanted. And the Ohio Department of Agriculture had their spin on it, too. It tied right into Ohio State University. You should read the stuff that the Farm Bureau puts out, it’s all for these farms.

Other participants recognized the need to read information produced by non-agriculture organizations to get information on both sides of the issue.
A participant who expressed opposition to the farm said that a lot of the information he/she obtained came from talking to people. The individual spent a great deal of time calling local and state agencies to learn more about the dairy, but the agencies provided little help. “The people I talked to were trustworthy, but they didn’t help me any. All they wanted to do was get rid of the problem, not help me.” On the contrary, an individual interested in contracting with the dairy received extensive information from the county extension agent. The extension agent’s parents migrated from the Netherlands, so he provided the grain farmer and the Dutch dairy farmers information about agricultural practices in both countries. “So he’s helped bridge the gap considerably,” commented the grain producer. The grain producer found the information provided by the extension agent to be trustworthy.

Individuals in the community who used media publications as a source of information considered the sources to be trustworthy. Media publications mentioned were the Kenton Times in Kenton, Ohio, The Daily Chief Union in Upper Sandusky, Ohio, the Farm Journal magazine, and the Ohio Farmer magazine. Participants realized that the publications presented particular biases. For instance, participants thought that the Daily Chief Union was a staunch supporter of the opposition groups, whereas the farm publications presented positive views of large-scale operations.

One individual in the community based his/her opinion of the farm primarily on conversations with others in the community. As with media publications, the individual felt that the hearsay was trustworthy, but that it was necessary to sort through what was fact and what was exaggerated by emotions. “That’s one of the things that I’d kinda watch. There are emotions back there some place in the woodwork that come out a lot.”
Several residents in the community based their opinions on experiences. For example, one participant said:

...and our own personal experience. We dairied since we were married until 1970. The other morning the air was still and I walked out doors, and they were handling manure. You could smell it. But then the wind picked up and it didn’t last long. We’re used to that, we raised animals and animals are going to smell, I don’t care what you think.

Other participants relied on interactions with the operators of Dairy A. Participants who relied on their personal experiences and interactions viewed the dairy positively. In contrast, the individuals who opposed the farm had not interacted with the operators and had not been on the property to see the operation.

Wood County

Wood County, Ohio, was settled in 1820. With a land area of 617.4 square miles situated in northwest Ohio, the county seat was established as Bowling Green. Geological factors resulting from glacial movements in the area played a role in the timing of the development of the region. Wood County was home to the Great Black Swamp, which prevented settlements on lands other than ridges and low sand hills. Therefore, settlement did not occur until after drainage work took place shortly before the Civil War. In 2000, the county population was 121,065, which was more than double the county population in 1950 (Ohio Department of Development).

The manufacturing industry claimed the greatest portion of the employment opportunities in Wood County in 2000, which was 26.5 percent. The highway infrastructure offered great opportunity for the transportation of manufactured products.
Interstates 80, 90, 75, 280, and 475 ran through the county, as well as numerous U.S. and state routes. However, the government and service sectors were major employers, including Bowling Green State University, Owens Community College, NFO Worldwide, and the Wood County Hospital Association (Ohio Department of Development, 2000).

With 77 percent of the land area in farms, in 2000, Wood County ranked first in the state in wheat production, second in processing tomatoes, third in soybean production, and fourth in the production of corn. Agricultural cash receipts totaled over $87 million in 2000. The county was home to 1,190 farms, with the average size being 271 acres. However, the agriculture, forestry, and fishing industry employed 0.92 percent of the county population (Ohio Department of Development, 2000). In addition, in 2001 there were less than 1,000 dairy cows in the county (Ohio Agricultural Statistics Service, 2002).

The New York Dairy

The Dutch dairy proposed in Wood County in 2001 was not the first large-scale dairy to be proposed in the county. In 1999 a farmer from New York also proposed siting a 2,500 head dairy in the county. Each siting was met with both opposition and support in the community. For the purpose of this research, the dairy proposed in 1999 will be referred to as the New York Dairy, while the dairy proposed in 2001 will be referred to as Dairy B.

According to a representative of OSUE, a meeting was organized by OSU in February, 1999, which was attended by over a dozen large crop producers in the county.
All of the producers at that time expressed interest in working with a large-scale dairy, but nothing resulted from the meeting.

In July, 1999, a representative from OSU was in Wood County and asked the OSUE employee if the county had been contacted by a large-scale dairy. The OSUE employee said, “no,” but the following Monday received a call from a dairy farmer in New York. The farmer from New York was interested in building a 2,500 head dairy in Wood County. The farmer spent time in Wood County recruiting large-scale grain producers with whom to contract, promoting $50 per acre net premiums. One participant said that Monsanto, OSU, and OSUE were responsible for bringing the New York dairy to the community.

Community members who were concerned about the New York Dairy went to similar large-scale dairies to gain a better understanding of large-scale operations. One participant noted that a family went to New York and videotaped dairies in the farmer’s community to document the negative aspects of the farms. A group of people in the community began meeting in opposition to the farm. Members of the group were primarily neighbors of those who agreed to contract with the dairy farmer, and small farmers in the area. Quickly the dairy turned into “a really hot issue.” An informant recalled seeing one of the community members who was working with the dairy farmer at a store one day. The informant claimed the person “…was about in tears because the issue had gotten so verbally and physically abusive.”

In a public statement, the dairy farmer indicated that he chose not to locate in Wood County due to concerns about soil compaction and water quantity and quality. However, participants gave various explanations for the decision. One person heard that
a “mob” showed up at the farmer’s door one night shortly before the farmer announced he wouldn’t locate in the area. Others explained that the farmer did not have a choice because the individuals with whom he had contracted backed-out. Regardless of why the farmer did not locate in Wood County, a representative of OSUE suggested that OSU was “…ill-prepared for handling dairy expansion. Names were given out to large-scale dairy farmers, but nothing was done on main campus to have a vision of what was going to happen.”

Siting of Dairy B

The siting of Dairy B in Wood County began in spring, 2001. Residents in the community discovered that the farm was being built from a variety of sources. The digging of a well on the property was the first sign to most residents of a change occurring. Local government officials were notified by a neighbor of the property who noticed someone drilling a well. Others found out about the farm by reading about it in the newspaper, driving by and seeing the well, and by talking to people in the community. Individuals opposed to the farm indicated that they learned about the farm on a Saturday, and began working immediately on Sunday to develop opposition to the farm.

Several participants said that the intentions of the farm were not communicated to the community. One participant commented, “I mean nobody even knew who he was until they started building this. The only way you’re going to get them [the dairies] in is to sneak them in.” Nearly a year after construction began, one individual was still unclear as to where the operators of the farm were living.
Study participants gave a variety of reasons why the farm chose to locate in Wood County. Lack of opportunity to expand in the Netherlands was commonly suggested as a reason the operators came to the U.S. As to why they located in Wood County, participants said that it was because of influence from OSU, the environment, weather, and topography were similar to the Netherlands, and the regulations were easier than in the Netherlands. One participant thought the farm chose Wood County because of the age of the residents in the county and the opportunity to expand in the future. The participant said:

Because the retired people, they can’t usually cash rent their property. And if the dairy can’t have it by cash rent, well they’ll just wait until these people pass away and the kids that they are not interested in the farm or have gone off and done something else. So, that farm would come up for sale. So, they’ll get it. It’s just whether they get it now or later.

Participants indicated that there was a great deal of anger toward the person who sold the land to the dairy. The individual sold the property because he/she was at retirement age, and moved closer to town. Before moving the individual had a farm sale. Community members who opposed the dairy roped off the sides of the road along the farm so that people could not park their cars along the road and go to the sale. In addition, people placed signs in their yards directly attacking the individual.

Not all participants were upset with the individual though. One participant commented, “…but the bottom line is, it’s nobody’s business but his own. You know, if I want to sell something to whoever, that’s my personal business.” Other participants
commented on the fact that a neighbor who led the opposition was offered the opportunity to purchase the property for less than the dairy, but turned it down.

I know for a fact that the land was offered to him before the dairy, it was offered to him again after the dairy made an offer, and I know a phone call was made to him from a gentleman that knew him, well, basically telling him that if you want that land, you best buy it because it’s going to sell. And he turned it down. Now, I don’t have any sympathy for people like that.

**Procedural Fairness in the Siting of Dairy B**

Several members of the community felt that the process followed in the siting of Dairy B was in fact fair to the community as a whole. However, most citizens who opposed the farm named practices that the operators of Dairy B followed that were viewed as unfair. One of the main concerns raised by citizens opposed to the farm was that the dairy was brought in without notifying or getting the opinions of members of the community. One person challenged the current process used by Vreba-Hoff by stating, “There should be a public hearing with two weeks notice in the paper. These people have to come in and sell this dairy.” Participants also suggested that the operators should utilize the opinions of landowners in the area before building. However, participants said that neither of those procedures were followed in the siting of Dairy B. Two individuals who supported the farm disagreed with having the operators of the proposed dairy get permission from the community. One person said, “It’s just like renting a piece of land here. You don’t go tell everyone what you’re doing; you keep it to yourself.” The participant went on to say that the farm should host an open house once it is established.
though. In the case of Dairy B, an open house was not held, but the operators did maintain an open door policy with the community.

Several participants who opposed the farm thought the farm should follow more guidelines in handling the manure. Individuals wanted the farm operators to line the lagoon, cover the lagoon, and inject the manure. Participants indicated that the farm did not line or cover the lagoon. One person said, “All that lagoon is, is a big whole in the ground; it’s not even packed right. It won’t hold water.” Citizens did not know if the manure would be injected.

Other participants indicated that they would like more permits required for, and regulations placed on, the construction of large-scale farms. A participant who was frustrated that other industries required extensive permitting systems said, “They’re going to put in a $3 million processing plant down here by a foreign corporation and there’s not one stinking permit he needs. That’s what’s unfair to the communities.” Participants indicated that because Dairy B was under the state limit of 700 cows, the farm did not require permits and the construction was not regulated. One individual suggested greater setback limits for manure lagoons as well. However, Dairy B did not have large enough distance limitations, as evidenced by the participant saying, “Right now they can put it right up to the property line. My son was going to build a house right where this manure lagoon is, but he’s not going to build there now.”

General Community Reactions to Dairy B

Reactions among members of the community varied greatly, from outright resentment to complete acceptance. Three main constructs emerged in the community:
(1) opposition to the farm; (2) acceptance of the farm; and (3) opposition to the views of those opposed to the farm.

The one consistency was that participants recognized that most of the community was not impacted by or concerned about the farm. Participants suggested that those who lived close to the farm were concerned, but those who lived over a mile away were probably accepting enough to even contract with the farm. A group of participants said:

It's the old shxx on your neighbor routine. If I can make a buck and shxx on my neighbor, that's okay. That's literal. In a community, things like that don't go away. In a rural ag community, this dislike, mistrust, and hatred is going to be out here for 25 years.

Comments from other participants explained the farm had a drastic impact on the community. One person said, "The farm has definitely divided the county in half." Another participant agreed, "This community is divided like it has never been. You always have some competition. There's out and out bitterness." A representative of the local government said, "Very few people in the community were in favor of the dairy." However, another person explained that, "People in coffee shops and elevators are afraid to speak up. Those opposed to the farm are speaking loudly, while those in favor of the farm don't." A resident who adamantly opposed the farm said, "This has almost been like a soap opera in this county. It has been in the paper, I don't know, letters to the editor umpteen times. We've been on TV."

The issue was so intense, that one person contacted for an informant interview refused to participate, fearing that people in the community would find out. Another informant was careful to choose a meeting place where those involved in the conflict
would not see the individual meeting with the researcher. Some interviews with participants who were passionate about the issue lasted two to three times as long as scheduled, and participants included other community members in the interviews whom the researcher had not contacted.

**Opposition to the Farm**

One construct that emerged from participants was opposition to the farm coming into the community. According to representatives of local government, the main argument that people made was that it wasn’t fair for a foreign company to use the community resources and not give anything back to the community. Several other participants commented on other aspects of the dairy that were unfair. A participant commented that:

Well, the goofy thing is, if I wanted to put a trucking company down there that wouldn’t actually bother anybody, doesn’t stink or anything else. I’d have to jump through all kinds of zoning permits and all kinds of permitting processes. But they can come under the guise of farming, plunk it down, nobody asks them anything, and there they are.

**Acceptance of the Farm**

Another construct that emerged was acceptance of the dairy. Citizens who accepted Dairy B had a wide variety of opinions, but primarily commented on the fact that they accepted agriculture in their community. One of the overarching explanations was that the size of the dairy was simply following the trends in agriculture. A participant summarized the views of many people in the community: “…the small family farmer, unless you’ve got a niche market, you’re the thing of the past. Right or wrong,
I’m not saying that I like it, I’m just saying that’s reality.” Numerous participants also commented that the number of cows the farm was bringing in was not comparable to what was in the county in the past. Participants agreed with the community member who said, “I see this farm as agriculture, and if you’re for agriculture, then you’re for all types of agriculture, not just some.”

Several people said that they would prefer a farm over other potential developments that could come into the area, such as strip houses or factories. Referring to the negative aspects of agriculture, one participant said, “…I think if it does help stop some of the urban sprawl in the area, it’s not going to bother me that much.”

Finally, some participants accepted the farm because they related the Dutch immigrants to their ancestors. One person said:

But I guess we were all outsiders at one time. My family came from Germany, your family may have come from England, ya know. Mine came 150 years ago, these people are coming now. It seems like, America, to me is a land of opportunity and they should have as much opportunity as the next person.

Opposition to the Opposition

A third construct that emerged from participants was opposition to the views of those opposed to the farm. One participant summarized this group of opinions:

The real issue with the dairy, in my mind, is that it forces a lot of people to really come to face, without the ability to rationalize it, as to what is really happening in agriculture. They cannot ignore it. We have been somewhat isolated here because of our closeness to Toledo and some good off-farm jobs that we could kind of pretend that it wasn’t happening even though it was. It was happening, it was still going on.
But there would still be some guys who had a decent off-farm job, they could keep their little 100 acres and still be the weekend farmers. But when you see that dairy and realize that it’s not going to be the little 21-head herd, or the 7-head herd that your mom and dad had, or that your grandparents had, you cannot ignore it. It just comes up and just grabs you by the shirt and slaps you in the face.

Wood County Citizens Opposed to Factory Farms

The township hosted the first meeting for citizens concerned about Dairy B being built in their community. After that point, concerned citizens formed their own organization and held meetings two times per month. Called the Wood County Citizens Opposed to Factory Farms (WCCOFF), the group originally made efforts to stop the farm from being built. Once the group realized that they could not stop the farm, the focus was shifted toward pushing for a moratorium on large-scale animal operations in the State of Ohio. WCCOFF members circulated a petition that generated over 3,000 signatures, and sent it to the Governor of Ohio. A year after the petition was sent, the group had not received any notification from the Governor as to its’ status. In addition to pushing for a moratorium, members of WCCOFF brought experts to meetings to educate themselves, attended township meetings to “keep them on their toes,” encouraged evaluation of properties surrounding the farm, and learned how to test water to monitor nearby waterways. One member of the WCCOFF indicated that another member of the organization attempted to purchase the land that the dairy was built on, but that the previous owner sold it to the dairy while the member was on vacation for an amount less than what the member offered.
Members of the community made extensive commitments to the organization. One member of WCCOFF said that his/her involvement meant “Constant running. I mean just always meetings, meetings, meetings.” Another member who spent a great deal of time gathering sources of information said, “This is my life, right here, this is all that I do [stacks of information]. I gave up on a box.” A member of the organization commented that the reason they put forth so much effort was for the moral value of protecting what they had earned. The participant said:

It’s a moral issue to me more than anything. What gives the dairy people the right to ruin my life? I don’t plan on letting anybody take away what I’ve worked for. They’re going to have to fight to get it.

Once the farm started construction in 2001, the WCCOFF changed their focus from resisting the farm to pushing for stiffer regulations. In May, 2002, one member said:

Right now I think this group is, well I don’t want to say despondent, but we don’t have many options any more, do we? We’re getting this rammed down our throat and there’s just nothing we can do about it.

However, the WCCOFF did begin working with other concerned citizens organizations in Ohio to share ideas and experiences, as well as to unite in efforts.

Opposition to WCCOFF

One member of the community who was not a member of the WCCOFF commended the group for being very organized. However, several participants expressed frustration with the views and actions of the WCCOFF. For instance, two participants explained that they had approached members of the group asking for a definition of
‘factory farm,’ but the members couldn’t give a definition. One participant spoke of the group as a “little cult,” and stated that the members would not listen to facts. “The group that is opposing it, they would not accept facts. They’re just mad and unhappy. You can’t reason with them.”

Several people were frustrated by the fact that members of the WCCOFF were farmers themselves. A local farmer said, “I could understand if it were people who had moved out from the city and, ya know, if were gonna build or have already lived there and knew nothing about agriculture…”. Participants also expressed that double standards were being set. One livestock farmer in the community said:

You know, we’ve seen grain farms grow in this county from 120 or 160 to several thousand acres under one operation. I mean, there might be a couple brothers or a father-son type of thing, but multiple family members, but they’ve got hired help and everything. The very same thing that some of these people say make that livestock operation a factory farm instead of a family farm. Here seems to be two different standards here somehow.

Two participants commented on individual members of the WCCOFF. One person expressed frustration with the individual who had the opportunity to purchase the land, but didn’t, then led the opposition to the dairy farm. The other person questioned why an individual who used to run a trucking company 1/4 of a mile from the site of the dairy was opposing the farm. The participant felt that the traffic from the dairy would not be any worse than the traffic from the trucking company. “He’s turned around now and put pressure on the trustees to do something about this dairy when he did it himself.”
Local government officials expressed frustration with the actions of the WCCOFF. According to some government representatives, in an attempt to delay construction, the WCCOFF tried to influence the township trustees to require the farm to have a permit before building, which was illegal. In addition, the WCCOFF members brought inaccurate examples of what had happened in other communities to government officials.

Involvement of Public Agencies

As was the case in the siting of most large-scale animal operations, numerous public agencies became involved when the dairy was announced in Wood County. To citizens opposed to the farm, the controversy surrounding the dairy dealt as much with concerns about the farm itself as it did with how public agencies handled the situation. A common theme among participants who opposed the farm was one of hopelessness with regard to public agency support. One angry participants said, “We went to our politicians, we went to our university, we went to our health department, we’ve gotten a lawyer. There’s just nothing we can do.”

Government Representatives

Participants identified township trustees, county commissioners, state representatives, the Toledo Metropolitan Council of Area Governments (TMACOG), and the ODA as governmental agencies involved in the conflict. Few participants spoke in support of the agencies. However, citizens who opposed the dairy spoke with much anger about the agencies. Overall, many participants opposed to the farm expressed that, “…it’s a bunch of pointing fingers. They say, ‘we can’t do anything, you have to go to
them.' And you go to them and they say the same thing. Nobody will take accountability for this…”

Being the first line of communication with the government, the township trustees quickly became involved in the controversy. Both trustees and community members expressed frustration about the lack of authority trustees had over the situation. Trustees felt that they put forth a great deal of effort by researching large-scale dairy farms, attending meetings of the WCCOFF, learning from trustees in other townships where large-scale dairies were sited, researching their authoritative boundaries, checking on the construction of the facility, pointing concerned citizens in directions where they could find help, and establishing a travel route for construction trucks to minimize road damage. Overall, trustees maintained an open door policy with the farm so that they could work with the farm, rather than against it, if problems arose.

The trustees also initiated a trip to visit a Vreba-Hoff dairy in Michigan during the summer of 2001. The visit was an attempt for individuals involved in the issue to see firsthand the type of dairy that would be moving into the community. Numerous people attended the trip, including representatives from the Health Department, county commissioners, state government representatives, the trustees, and a writer for the local newspaper.

Another effort made by the trustees was to initiate an informational meeting for the community. The purpose of the meeting was to get people on both sides of the issue to hear facts, as well as each other’s opinions. The trustees contacted a state representatives office, which took charge of putting together an agenda and inviting speakers. Speakers at the meeting included representatives of local and state agencies.
Individuals opposed to the farm indicated that the meeting “had the potential to get violent. There were a couple hundred people there against this dairy. If somebody had yelled, ‘get a rope,’ they’d have hung people.” In fact, one community member made a physical threat against another member of the community. Individuals opposed to the farm felt that the information presented at the meeting was biased toward the farm. However, individuals unopposed to the farm expressed embarrassment for the behavior of the citizens. One person said, “I’d hate to think what they [speakers at the meeting] said about our community when they got back. They got ambushed, they got ambushed.”

Overall, the trustees felt that their efforts meant nothing to some people. Trustees thought they were unsuccessful at calming the concerns of citizens because people weren’t willing to listen to facts and did not understand what trustees could and could not do. Some members of the WCCOFF, however, perceived that the trustees did not help them because one of the trustees had personal interest in the farm. “…one of the trustees in this township, he’s buddies with one of the contractors, he’s just all for it.”

Participants did not explain the actions of the county commissioners in detail. Opinions toward the county commissioners’ actions varied. One local farmer perceived that the county commissioners were neutral on the issue. The participant, who was pleased with the commissioners, said, “They’ve recognized how important agriculture is in the county. I was concerned that they would perhaps be swayed by some of the opposition.” In the opinion of an individual who opposed the farm, the commissioners did little to help citizens in the community. The participant said that all the commissioners did was write a letter to OSU asking the university to take Wood County off of their list of potential sites for large-scale dairies.
Another local agency that got involved in the conflict surrounding the dairy was TMACOG. Formed as a consortium to handle regional planning, the group did not have the authority to take regulatory action, but could pass an influential resolution. Members of the opposition approached TMACOG with a proposal for stricter regulations on the manure management practices of livestock farms in the area. A farmer in the county who was pleased that the resolution did not pass was happy that the agricultural community came together to fight it. However, a citizen who was in favor of the resolution felt that it was stopped due to political pressures from the National Cattleman’s Association and the Farm Bureau.

Also on the local level, the Health Department made efforts to work with concerned citizens. Before the farm began operating, the Health Department tested all of the wells within a one-mile radius of the farm to establish benchmarks to test for contamination. A representative of the Health Department said that contaminants were found in many of the wells. In addition, the Health Department contacted Vreba-Hoff to obtain a manure management plan for the farm and helped design retention for potential manure overflow. Citizens opposed to the farm were the only people who discussed the Health Department involvement. One participant felt hopeless because when the issue started, the County Health Commissioner said to the individual, “I get my water from Bowling Green, what do I care?” Another citizen expressed frustration with the regulations in place. The person indicated that he/she had to pay for the Health Department to oversee the digging of a seven-foot test pit when building a house. However, the participants said:

…but not a half a mile away, he [dairy farmer] can dig a 24-foot deep open pit and put
nine million gallons of liquid manure, with no testing of the soil, no compaction, and no one telling them how to filter it so it doesn’t get into the groundwater. I don’t get it!

Citizens opposed to the farm said that state and national politicians told members of the community that the issue was a local issue, and therefore as state and national leaders they could not provide any help. Participants felt that the only way to get through to the politicians would be for something to directly impact them. One neighbor of the farm said, “Randy Gardner [State Senator] lives just on this end of Bowling Green and I hope somebody starts spreading shit right across the road from him, I hope he can’t stand to walk out of his house. I really do. I hope it gets in the water system in Bowling Green. Now don’t get me wrong on what I mean. But if his kids had to drink shxx, that would be different.”

The ODA was also identified as a governmental agency that sparked concern among citizens in the community. A representative of the ODA who attended the town meeting was viewed by some community members as being one-sided. A participant said, “Here’s this guy in charge of regulating factory farms and he had nothing but good to say about these things.” Another participant expressed low confidence in the agency, calling the director an “idiot.” However, one participant spoke in favor of the ODA taking over regulating large-scale farms.

Farm Bureau

Ohio Farm Bureau President, Terry McClure, made comments that led people to believe that the Farm Bureau supported, and even paid for large-scale operations that came into Ohio. However, a member of the Wood County Farm Bureau said that the
organization took a neutral stance on the issue and chose to sit back and listen to what was going on. Despite the member’s perception, several participants in the study perceived the Farm Bureau to be a top-down organization that worked with politicians to get what they wanted without concern for local farmers. In fact, one person said that a county commissioner admitted the reason the county did not take a stance on the issue of the dairy was that when they did, “...Ohio Farm Bureau got them almost un-elected.”

**Media**

As of May, 2002, writers for the Sentinel Tribune had written 42 stories about the proposed dairy farm and other large-scale operations. As the main source of media in the community, individuals offered mixed reactions about the involvement of the newspaper. Several people felt that the newspaper was in favor of the farm, and therefore did not represent the views of those opposed to the farm fairly. For instance, one participant said that it took up to six weeks for a letter to the editor to be printed in the paper. One individual felt that the bias that showed in the writing was due to the farm editor’s lack of experience in agriculture. However, one individual pointed out that the newspaper was interested in writing an article in support of the dairy. Due to the emotional state of the community when the issue emerged, the newspaper could not find anyone willing to speak in favor of the farm.

**The Ohio State University**

According to a representative of OSUE, Ohio State was involved with the siting of large-scale dairies in Ohio in several ways. First, the Dairy Restructuring Team was formed with experts in several subject areas that examined the needs of the industry in Ohio. Part of the mission of the team was to assist in expanding Ohio dairy farms and to
actively recruit dairies into the state. OSU also generated several press releases and fact sheets to educate the public about the dairy industry.

OSU’s perceived involvement in bringing the New York dairy to Wood County carried over when Dairy B was proposed. Several community members suggested that the county extension agent worked to get Dairy B to locate there. Shortly after the controversy arose over the dairy, the county extension agent assumed a different position within OSUE. Community members gave numerous explanations, including that OSU forced him/her out, he/she gave into the negative pressures in the community, and that he new position was a better opportunity.

A representative of OSU said that the agency was never contacted by Dairy B or citizens opposed to the farm. However, people in the community viewed the agency as favoring the farm because of its’ association with OSU. Information provided by OSUE was often rejected by those opposed to the farm, and a representative of OSU felt that it was because the facts did not agree with the raging emotions in the community.

Numerous reasons for a public mistrust of OSU were given. In 1998, a master’s thesis from OSU concluded that Wood County was the best location for large-scale dairy operations in the state of Ohio. Participants also suggested that OSU went to the Netherlands to recruit dairy farmers and that OSU was receiving financial support for promoting large-scale animal agriculture. In addition, several participants indicated that representatives from OSU were caught lying to the community about their intentions and involvement with the farm. Members of the WCCOFF commented on the fact that at a public meeting a representative of OSU’s geological department said that a large-scale farm was the worst use of the land in Wood County. Yet, individuals involved in
agriculture at OSU did not listen to even their own colleagues. One participant summarized the opinions of many participants by stating that, “What Ohio State did to this community is wrong.”

**Characteristics of Dairy B**

Dairy B was located on 40 acres of land in Weston, Ohio. The operators of Dairy B were two brothers who moved to the U.S. from the Netherlands in order to run a dairy farm. In the Netherlands, the family owned a 60-head dairy farm, but it was not enough to support the two men, as well as their brother and father, who were all interested in milking. Therefore, the men sold their quota rights in the Netherlands and made the decision to move to the U.S. to start a dairy farm.

One of the farm operators had a close connection with Vreba-Hoff Dairy Development, as he worked for one of the partners in the company for nine years in the Netherlands. When the men came to the U.S., Vreba-Hoff assisted them in finding a location for the farm. Originally the farm was to be placed on another property. A local crop farmer had offered to sell a portion of his property to Vreba-Hoff, but later backed out because he/she did not want to be the first person in the community to do so.

Construction for the dairy began on July 18, 2001, and the dairy began milking in June, 2002. The farm had a 650-head capacity, which was decided on because it was enough cows to produce one truckload of milk a day, but did not require a permit from the State. The farm had a manure lagoon with almost a year of storage space. Equipped with a double-16 milking parlor, the operators milked three times each day. The operators hired Mexican laborers to work on the farm because the laborers did consistent, quality work.
The operators contracted with grain farmers in the area to purchase corn and haylage, as well as to dispose of the manure. In addition, the operators intended to sell their calves to local farmers who were willing to raise them. The operators expressed concern for all of their neighbors, indicating that they would have to be careful about spreading manure so that it would not upset anyone.

Positive Impacts of Dairy B

When asked to identify the positive impacts that Dairy B would have on the community, most of the participants who were opposed to the dairy did not identify anything positive. Those opposed to the farm that did identify something positive pointed out that the benefits were only for a few, and not the whole community. The fact that the benefits would not reach everyone was a source of controversy in the community, as evidenced by one such participant who said, “I’d say the actual hatred is the whole community being trashed for the benefit of a few people.”

One of the commonly noted benefits that participants spoke of was the opportunity for some farmers to contract with the dairy. Simply put, one local farm said, “The farm will use up some corn. Any time you can use up corn, that’s a positive thing.” Several participants spoke of the opportunity to contract with the dairy, regardless of whether or not they had established or were interested in establishing contracts.

Another major benefit identified by community members was what one participant called a “ripple effect.” Several people believed the dairy would bring in or sustain services in the community. Milk processing plants, grain elevators, veterinarians, dairy equipment suppliers, hoof trimmers, feed consultants, and trucking companies were given as examples of businesses that would benefit from the dairy’s existence. In
addition, a local dairy farmer suggested that the growth of the dairy industry in the county could bring back more services for other small farmers. He/she said:

Well, as a dairyman, this whole part of the state has seen a decline in services, particularly in the livestock industry. We moved here, we’ve been here for 20 years. And when we first moved here, there were three different places we could take livestock to sell. Those are all gone.

In addition to bringing services to the community, one participant felt that he farm would provide employment opportunities for lower income people. Although the individuals working on the farm were migrant laborers, the participant felt that providing employment to anyone in need was a benefit of the dairy.

Two individuals thought that the dairy would provide a positive impact to the community because it would stop the growth of housing. The participants indicated that they would like to maintain the rural setting of the community, and that a dairy would be able to do so better than housing developments.

Finally, another opinion of community members was that the farm was positive because it was taking the community into the agriculture of the future. One participant felt that large-scale production was the direction in which the industry was moving, and that the farm introduced the new direction to the community. Another individual said:

In the next 20 years, we’ll see a big change in how fuel is produced. There will be a breakthrough and soon the lagoon will be a factory producing gas. Everything will be used. We have to do this because we’re running out of resources.
Concerns of Citizens in the Community

When asked what negative impacts Dairy B could have on their community, citizens replied with a variety of opinions. A couple of participants who were involved in farming indicated that they could not see any harmful impacts associated with the farm because they had seen more cows in the county in years past. They also said that many of the concerns brought up by people in the community were simply because people didn’t understand the downsides of livestock production. One person said, “We had livestock too, which meant we had flies. Having flies was just a factor of summer life.”

Most participants were able to identify concerns with regard to the farm, the most common being the agency involvement in the siting and regulation of the farm.

Numerous participants perceived the impacts that the farm would have on their quality of life to be negative. Flies, odor, and damage to roads were given as concerns about their quality of life. One participant who spoke with neighbors of another large-scale dairy adamantly expressed concern for the quality of his/her life, saying that:

And those people, they say that within like a mile of it you can’t even stand to be outside. The stink is so bad. They talk about you can’t tell what color a barn is because the flies are so thick on the side of it. And you know, you wonder, is that going to happen here? I mean, am I going to have to lock him in, so my son can’t go outside and play? It’s stuff like that that really concerns you and makes you sit down and think.

Manure was acknowledged as a concern for several participants. At a public meeting, a geologist from OSU indicated that Wood County was one of the worst locations for a large-scale animal operation because of the high potential for manure
leaching into the groundwater. In addition, numerous participants mentioned thousands of oil wells that were not capped and presented the risk of manure leaching into the groundwater via the wells. Community members also articulated concern about the lack of regulation placed on the management of the manure, including the construction of the manure lagoon. Participants said the lagoon was not compacted, the tile was not capped, and that it wouldn’t even hold water.

Consumption of groundwater was also a concern for citizens in the community. Several people believed that the dairy would consume so much water that the wells, which were the primary source of water for residents in the community, would go dry. Many individuals who spoke mainly in favor of the farm cited groundwater consumption as their primary concern.

Devaluation of property was a concern of citizens opposed to the farm, primarily neighbors. One participant said, “I think that it’s criminal that they can come in and devaluate property.” The participant had the intention of building a new home one-half mile from the farm, but chose not to after reading statistics about troubles other people had selling their property within three miles of large-scale animal operations. Members of the WCCOFF cited a study from the University of Missouri-Columbia that concluded that within two miles of a large-scale animal operation, properties were devalued by 40 percent. Members also spoke of the fact that a neighbor one-half mile from the farm could not find anyone to buy his home, so the person eventually had to sell it to the operators of Dairy B.

All of the interviews with participants opposed to the farm yielded the opinion that the nationality of the farm operators and laborers was negative for the community.
One participant said, “I don’t care one bit for them. I’ll tell you one thing. I was in World War II and we eliminated the Nazis from the Netherlands. And now they’re [Dutch] coming over here and taking over.” Other participants were concerned that the operators of the farm were not paying income taxes because they were not U.S. citizens, but that the U.S. government was providing subsidies to the farmers. In addition, several people were disturbed that the money generated by the farm would not benefit the community, but that it would go back to the Netherlands. Finally, several people also expressed anxiety about the government supporting foreign producers, but not those already established in the U.S. One person said:

They’re bringing in people from Holland to run these and people from Honduras or Mexico to milk cows. Now how is that helping any one of the neighbors around here that might need a job? There are local dairy farmers in Wood County that want to expand, and our State of Ohio will not help them put more dairy cows in.

Another common concern of community members, mainly those opposed to the farm, was the idea that the farm was operated like a factory with no regulations, by individuals with little experience. A member of the WCCOFF said, “I mean, it’s a large overseas company that’s coming in and buying up American farm ground, plunking these things down with no regards for the community.” Citizens were concerned about the farm operating with no regulations of the lagoons, no set back requirements, and no control of truck traffic.

Several community members, including some who supported Dairy B, conveyed concern about the long-term negative impacts on the community. For instance, a local farmer was concerned that if the dairy did not operate in a respectable manner, it could
blacken the eye for all farmers in the area, as well as instigate tougher regulations for all farmers. Another local farmer was afraid that if enough of the large-scale operations moved into the community, they could drive hay and corn prices up to the point that a small dairy would not be able to compete. Finally, some people felt that in the future the large-scale dairies might take over the feed and processing industries in the area, putting local people out of business.

**Managers of the Risk**

Community members were asked to identify who was responsible for controlling the risks posed to the community by Dairy B. In addition, participants were asked to explain their level of confidence in the manager of the risk, as well as the degree to which the manager of the risk acted in the best interest of the community. Some of the information gathered from participants was incomplete with regard to these questions. The researcher found that in many of the interviews conducted in Wood County, participants spoke with a great deal of emotion, both in support of and in opposition to the farm. In some of the interviews, the researcher was not able to ask the questions because the participants filled the time allotted with other thoughts and emotions.

Those interviews in which the questions were asked yielded a variety of answers among participants in Wood County. One common response was that no one could control the risks associated with the farm, as demonstrated by the “hands-off” approach taken by most individuals and agencies in handling the concerns raised by citizens.

The most commonly identified managers of the risk were the operators of the farm. Several people unopposed to the farm identified the farm operators, whereas one person opposed to the farm identified the farm operators as the managers of the risk.
However, all of the participants were confident in the operators’ ability to control the risks associated with the dairy. One participant said, “I’d give them a seven (on a scale of one to ten). You don’t stay in business unless you’re efficient and take care of your cows. You treat your farm as a part of you because you need it to run well to make a living.” In terms of acting in the best interest of the community, participants unopposed to the farm believed the operators were doing so, primarily for the well being of their operation. The participant opposed to the farm thought the operators were not acting in the best interest of the community, mainly because they were buying materials outside of the area and were bringing odor and flies into the neighborhood.

A group of citizens opposed to the farm identified politicians as the managers of the risk. However, the group unanimously rated the politicians as a zero, on a one to ten scale of confidence. Overall, the group had no confidence that the politicians would control the risks until the negative impacts affected them personally. In addition, the group felt that the politicians had not acted in the best interest of the community, as indicated by their lack of initiative in solving the problems brought to them by community members. One person said, “They have done nothing, they haven’t done a thing. They’re worried about their own personal agenda and that’s all that matters.”

One participant identified the ODA as the manager of the risk, but expressed very low confidence in the agency: “I met him [Director of ODA] and thought, ‘Oh my God, we’re in deep trouble.’ He could not answer one question that I had.”

Sources of Information

Individuals in the study were asked to identify the sources of information that they used to formulate an opinion of Dairy B. Some participants said that they began
learning about large-scale animal operations when the New York Dairy was proposed in 1999. At that time, individuals learned by attending meetings held through OSUE and by talking with others in the community.

Specifically related to Dairy B, participants who supported the farm named the Sentinel Tribune, general dairy publications, and OSUE publications as written sources of information. The participants viewed the dairy and OSUE publications as trustworthy, but expressed concern about the objectivity of the articles in the Sentinel Tribune. Speaking of the Sentinel Tribune, a local dairy farmer said, “he’s tried to cover some of the meetings that the opposition groups have had, and it’s gotten rather biased at times in my opinion. So I’ve tried to take those with a grain of salt sometimes when I read those articles.”

Community members who supported the farm also mentioned personal communications with the county extension agent, township trustees, extension agents in other counties, and the operators of Dairy B as sources of information. In addition, participants unopposed to the farm used personal experiences in agriculture to formulate opinions of Dairy B. Most individuals expressed confidence in the information gathered through personal communications. However, one farmer who was unopposed to the farm felt that the information provided to local farmers by the operators of Dairy B was not trustworthy. The grain farmer, who discussed contracting with the operators of Dairy B, said, “I think people are going to end up applying manure on their fields when they don’t want it because they listened to what they said and signed the contract.”

A group of participants opposed to the farm used OSU documents, as well as information from GRACE. The participants felt that the information was complete and
accurate, and therefore trustworthy. However, one individual did express frustration with
the information provided by OSU because it was difficult to locate and the guidelines
provided often weren’t practical for farmers interested in making a profit. Another
person opposed to the dairy cited information obtained from an OSU geologist who
spoke at a symposium sponsored by Bowling Green State University, as well as studies
produced by the University of Colorado.
CONCLUSIONS, IMPLICATIONS, AND DISCUSSION

Purpose and Questions of the Study

The purpose of this study was to describe the attributes of trust that were present in a community that was generally unopposed to the siting of a large-scale dairy farm, and to describe the attributes of trust that were present in a community that was generally opposed to the siting of a large-scale dairy farm. The specific questions that guided the study were:

1. How did communities perceive the impacts of the large-scale dairy farm?
2. How was the manager(s) of the risk, associated with the large-scale dairy farm, defined by the communities?
3. How confident were communities in the manager(s) of the risk?
4. How did communities perceive that the manager(s) of the risk acted in the best interest of the community?
5. How did communities perceive the procedural fairness in the siting of the large-scale dairy farm?
6. How did communities perceive the trustworthiness of their sources of information regarding the large-scale dairy farm?
Conclusions for Wyandot County

1. How did communities perceive the impacts of the large-scale dairy farm?

The negative impacts of Buckeye Egg Farm on other communities led individuals in this community to be more accepting of the dairy. Participants considered the dairy farm to be more positive than Buckeye Egg farm because it generated less waste, the owners lived on the site of the farm, and the thought of a few hundred cows was less threatening than several million chickens. It was the opinion of community members that opportunities for local businesses and farmers to sell their products, opportunities for employment, and an increased tax base were positive impacts the farm offered the community.

Some individuals in the community did not perceive that the dairy posed any negative risks to the community. However, those who identified potential negative impacts, overall, cited manure management as the most serious risk. Various community groups, though, expressed concerns that were unique to their group, with a notable discrepancy between the negative impacts perceived by citizens and government officials. For example, citizens opposed to the farm believed manure management was a greater risk than citizens unopposed to the farm. Neighbors who opposed the farm expressed the most concerns, including odor, flies, devaluation of property, damaged roads, lack of regulations on the dairy, and expansion of the farm. Government and agency representatives perceived threats to water availability and quality as the greatest risks associated with the farm.

Individuals who contracted with the dairy conveyed trust in the dairy operators, but not in Vreba-Hoff, as the farmers viewed the dairy’s association with Vreba-Hoff as a
threat to the well being of the dairy. In addition, community members perceived that some residents of the community felt the nationality of the farm operators was a risk.

2. **How was the manager of the risk, associated with the large-scale dairy farm, defined by communities?**

Participants in the study identified three managers of the risk associated with the dairy farm: (a) operators of the dairy; (b) government and environmental agencies; and (c) Vreba-Hoff Dairy Development LLC. The government and environmental agencies identified were county and township governments, the health department, the Ohio Department of Natural Resources, the Occupational Safety and Health Administration, the Environmental Protection Agency, and the Soil and Water Conservation District.

Citizens were not clear as to who was a part of the Vreba-Hoff company. Some participants who identified Vreba-Hoff as the manager of the risk perceived the farm operators to be part of the Vreba-Hoff organization.

3. **How confident were communities in the manager(s) of the risk?**

Individuals who supported the dairy, and identified the farm operators as the manager of the risk, were confident in the abilities of the farm operators to control the risk. Such participants were confident in the farm operators because they perceived the operators to be doing an excellent job or because they had milked cows themselves and understood the situation of the operators. Neighbors of the farm who opposed the dairy, and identified the farm operators as the manager of the risk, were not confident in the abilities of the farm operators to control the risk, due to lack of experience, poor quality soil, and a record of poor management.
Community members who identified government and environmental agencies as the manager of the risk varied in their confidence levels. For example, participants with high confidence in the agencies perceived that the agencies had done their best to work with the farm in the past, while participants with low confidence in the agencies believed the agencies were unwilling to get involved.

Participants who identified Vreba-Hoff as the manager of the risk were confident that the company could control the risks of the dairy at its' current size. However, participants were not confident that Vreba-Hoff could control the risks if the farm expanded in the future.

4. How did communities perceive that the manager(s) of the risk acted in the best interest of the community?

Many participants who identified the farm operators as the manager of the risk felt that the operators acted in the best interest of the community in the following ways: living on the site of the farm, working closely with SWCD, being friendly and open to the community, participating in local organizations, injecting the manure, spraying for flies, and operating a clean facility. Citizens who opposed the farm felt that the operators did not act in the best interest of the community, as evidenced by their record of poor management and apathy for the community.

Participants who identified government and environmental agencies as managers of the risk felt that they acted in the best interest of the community, due to their cooperation and assistance with the farm. A participant who opposed the farm felt that the government and environmental agencies did not act in the best interest of the community, as evidenced by their apathy toward handling citizen concerns.
5. How did communities perceive the procedural fairness in the siting of the large-scale dairy farm?

Efforts made by Vreba-Hoff and the farm operators to meet the needs of the community increased the likelihood of community acceptance. Therefore, the participants felt that the siting of Dairy A was fair because the farm operators took the necessary actions to abide by zoning and EPA regulations and tried to purchase properties surrounding the farm.

Participants believed the siting was unfair to the community because the dairy operators did not openly communicate their intentions to the community and they sited the farm in the densely populated Midwest. Citizens who perceived the procedure to be secretive had lower trust in the farm, and therefore were more likely to oppose the farm.

From the perspective of the local government, the procedures followed in the siting of the dairy were not fair because the operators did not provide the local government with advance notice so that necessary actions could be taken.

6. How did communities perceive the trustworthiness of their sources of information regarding the large-scale dairy farm?

Community members perceived their sources of information to be trustworthy. Participants’ perceptions of trustworthiness regarding sources of information did not influence their opinion toward the dairy. The sources of information utilized by community members included local and state agencies, the county extension agent, media publications, hearsay, and personal experiences.

Media publications used by participants in the study included the Kenton Times, the Daily Chief Union, the Farm Journal, and the Ohio Farmer. Participants indicated
that the Daily Chief Union was biased toward the opposition, while the farm publications were biased toward large-scale animal agriculture. Similarly, a participant who relied mainly on hearsay indicated that communications with others in the community had to be filtered for emotions and biases.

Individuals who based their opinions on personal experiences in agriculture or interactions with the dairy operators supported the dairy. Those who opposed the farm had not interacted with the operators of the dairy or visited the facility.

Conclusions for Wood County

1. **How did communities perceive the impacts of the large-scale dairy farm?**

   The impact that the dairy could have on the community was itself a point of controversy among citizens in Wood County. Whereas some individuals felt the farm would be very detrimental to the community, others perceived that the farm did not present any threats. In addition, some people named numerous benefits that the farm would have on the community, but others were quick to point out that the benefits were for only a few, and not the community as a whole. These different perceptions added fuel to the conflict in Wood County, helping to clarify the line between those who were opposed and those who were unopposed to the farm.

   Overall, participants who were opposed to the farm did not identify positive impacts. Others in the community who were unopposed to the farm identified several positive aspects, including the opportunity for some farmers to contract with the dairy, the potential to rebuild the dairy infrastructure of the area, and employment for lower income citizens. In addition, some people believed the farm was positive because it
could potentially stop the growth of housing in the area, and it would introduce a new
direction for agriculture to the county.

The perceived negative impacts of the farm varied between those who opposed
the farm and those who were unopposed to the farm. Neighbors of the farm and other
farmers in the county also indicated specific risks. The primary concern of individuals
unopposed to the dairy was groundwater consumption, whereas individuals opposed to
the farm cited manure management, the nationality of the farm operators, and factory-like
operation of the farm as threats. Neighbors of the farm expressed concerns about quality
of life, including flies, odor, and damage to roads, as well as devaluation of property.
Local farmers felt that the farm posed a risk to the community because it could ruin their
image in the community if operated poorly, and the expansion of large-scale operations in
the area could put local dairies and feed mills out of business.

2. **How was the manager of the risk, associated with the large-scale dairy farm,**
   defined by communities?

A commonly noted answer among citizens opposed to the farm was that no one
could control the risks associated with the dairy farm. Individuals perceived that no one
could control it because most individuals and agencies did not make sufficient efforts to
alleviate the concerns raised by citizens. Individuals who did identify a manager of the
risk often identified the farm operators. Citizens opposed to the farm identified
politicians and the ODA as managers of the risk.

3. **How confident were communities in the manager(s) of the risk?**

Participants varied in their confidence in the perceived managers of the risk. All
of the participants who identified the farm operators as the manager of the risk were
confident in the abilities of the farm operators to control the risk. Such participants were confident in the farm operators because they thought the operators had to run a clean, efficient operation in order to stay in business and make a profit. The group of individuals who identified politicians as the manager of the risk was not confident in the politicians’ abilities to control the risks. Participants were not confident in the politicians because they felt that the politicians were only looking out for their own political well being, and not the well being of the entire community. The individual who identified the ODA as the manager of the risk expressed very low confidence in the agency’s ability to control the risk.

4. How did communities perceive that the manager(s) of the risk acted in the best interest of the community?

Individuals who identified the farm operators as the managers of the risk varied in their perceptions of how the operators acted in the best interest of the community. Participants unopposed to the farm felt that the farm operators acted in the best interest of the community, primarily for the well being of the operation. On the contrary, the participant who opposed the farm thought the operators did not act in the best interest of the community because the operators purchased materials from outside of the community and brought in flies and odor. Citizens who identified politicians as the managers of the risk perceived that the politicians did not act in the best interest of the community, as demonstrated by their lack of initiative in solving the problems brought to them by citizens.

5. How did communities perceive the procedural fairness in the siting of the large-scale dairy farm?
Citizens who opposed the farm felt that the procedures that were followed in the siting of the farm were unfair to the community. Individuals suggested that before building, the operators should notify and get the opinions of neighbors, and utilize the opinions of local landowners. In addition, the participants suggested that the operators should follow stricter guidelines with regard to manure management, such as lining and covering the lagoon, increasing setback limits from the lagoon, and injecting the manure. Finally, the participants also felt that more permits should be required for the siting of such facilities. The procedures that participants suggested were not followed, thus making participants view the procedural siting as unfair.

6. How did communities perceive the trustworthiness of their sources of information regarding the large-scale dairy farm?

Individuals in this community began learning about large-scale dairies prior to the siting of Dairy B, due to the proposal of the New York Dairy. Overall, community members reported that their sources of information were trustworthy, although some presented biases.

Individuals who were unopposed to the farm cited written and verbal communications, as well as personal experiences, as sources of information. The written sources of information mentioned included the Sentinel Tribune, general dairy publications, and OSUE publications. Participants questioned the objectivity of the information found in the Sentinel Tribune. Citizens opposed to the farm felt the Sentinel Tribune was in favor of the dairy, whereas citizens unopposed to the farm felt the Sentinel Tribune was opposed to the dairy. Participants who supported the farm also identified verbal communications as sources of information, including communications
with the county extension agent, township trustees, extension agents in other counties, and the operators of Dairy B. One participant who was unopposed to the farm felt that the information provided to local farmers by Dairy B was untrustworthy.

Overall, participants opposed to the farm indicated that they referred to more research-based documents than citizens unopposed to the farm. Participants opposed to the farm listed OSU fact sheets, the Global Resource Action Center for the Environment (GRACE) website, research studies from the University of Colorado, and information presented at a public meeting as sources of information. Participants felt that these sources of information were trustworthy.

**Implications**

Based on the conclusions drawn from the studies conducted in Wyandot and Wood counties, the following implications can be made:

1. **The success of large-scale animal agriculture operations greatly depends on the management of the farms.** The negative publicity received by large-scale operations such as Buckeye Egg has alerted the public to the potential hazards that result from poor management of the farms. The actions of large-scale operations are watched closely by communities, and therefore, the success of the operations in Ohio communities depends on the farm operators’ ability to properly manage the facilities.

2. **A consequence of community members and governmental representatives not identifying the same risks associated with the dairy is that in the future, regulations may be made that do not address the actual concerns of citizens.**
3. The Vreba-Hoff siting procedures involve only a selected group of individuals in the community, primarily the large grain producers with whom the farm will contract. Involving only the large producers creates a division between the small and large grain producers in some communities. Until Vreba-Hoff changes their siting procedures to involve both large and small grain producers, agricultural communities will continue to experience tension and mistrust as a result of the siting of the dairies.

4. The wide variety of managers of the risk identified suggests that communities do not know who is actually responsible for controlling the risks associated with the farm. It also raises the question of how many managers of the risk are responsible for the farm.

5. Some citizens feel hopeless because governmental agencies have not alleviated any of the concerns of the citizens. It is appropriate to question if the democratic system is truly functional in the siting of the dairies, as many citizens feel that their voices are not being heard and that they are being ignored by representatives of local and state governments. In addition, it is appropriate to question if suitable laws are in place to allow citizen concerns to have an impact on the siting of the dairies.

6. Personal experience in agriculture leads to greater understanding of large-scale animal production, and thus confidence that farm operators can control the risk of the farm. This suggests that as the number of people with a background in agriculture continues to decrease, communities will have less understanding of
large-scale animal production and less confidence that farm operators can control the risks of the farms.

7. Large-scale animal operations bring about a cultural shift in many Ohio communities, representing a type of agriculture that is not business as usual. Therefore, large-scale operations cannot be treated as such. Large-scale operations are a business, and must take steps in the community to gain the trust of citizens, as all businesses must. For example, the operations must maintain a history of excellent management, provide open communication to the community through public relations initiatives, and ensure that the representatives of the farm are active and friendly in the community.

8. Two-way communication with the public would allow for easier access into communities. Vreba-Hoff should share information about the intentions of the farm, the farm operators, the benefits and threats presented to the entire community, and the involvement of Vreba-Hoff. In addition, Vreba-Hoff should listen to concerns of citizens and make adjustments to the siting plans accordingly. Presenting information to civic organizations, cooperating with neighbors of the farm, and acting on concerns of the community would lead to better acceptance, as well as a healthier community environment in which to live.

9. The perceived benefits and risks associated with the farms vary between communities. Therefore, communication with community members must be community-specific, so as to address the actual perceptions of the individuals. Communication efforts made by agencies, government, and Vreba-Hoff should not be standard procedures established for all communities.
10. Extra efforts made by the farm to ensure a safe operation leads to greater acceptance by communities. The study suggested that farm operators should abide by state laws for CAFOs, even when the farms operate under the CAFO limits. In addition, farms should make efforts to cover and line lagoons, increase setback distances from other properties, and inject the manure in order to gain better acceptance in communities.

11. There are many sources of information available to people regarding large-scale animal production. However, each source of information represents its’ own biases, and people generally form their opinions of large-scale production based on their reliable sources of information. As large-scale animal agriculture grows, more information containing biases may be generated, leading to further escalation of the opposing views regarding large-scale production.

Discussion

Overall Community Reactions

The current study sought to examine the predictors of trust were present in a community that opposed the siting of a large-scale dairy farm, and a community that was unopposed to the siting of a large-scale dairy farm. Thus, communities were identified primarily based on their overall reaction to the siting of a farm, as either opposed or unopposed. However, the study revealed that there were no true overall community reactions. Within each community existed individuals who were adamantly opposed and unopposed to the dairy farm. One difference between the communities was that the community identified as unopposed, Wyandot County, did not have vocal organized opposition to the farm, whereas the community identified as opposed, Wood County, did
have a strong vocal opposition group. In addition, the study also revealed that each community had its' own variety of unique circumstances and sequences of events, which not only made the situation of the community distinctive, but also influenced the opinions and perceptions of each individual within the community in different ways. It would be rare that the unique circumstances and sequences of events of one community would be duplicated in another community, or that members of the community would perceive them in a similar manner. Based on these findings, representatives of Vreba-Hoff, agencies, and dairy farmers interested in building a large-scale farm will find it nearly impossible to identify communities that are truly opposed or unopposed to such operations.

The perceptions of nearby large-scale animal operations influenced the opinions of most citizens with regard to the large-scale dairy that was sited in their community. In Wyandot County, several large-scale animal operations existed in close proximity to the proposed dairy, including Buckeye Egg Farm, and a similar large-scale dairy. Most people perceived the nearby dairy to be a clean operation, whereas Buckeye Egg Farm was perceived as a monster foreign corporation that was harming the region. Therefore, it should be expected that people would react with relief when the land that was originally owned by Buckeye Egg was sold to Vreba-Hoff for the siting of a dairy similar to the existing dairy in the community. The organized opposition that was in place to fight Buckeye Egg did not follow through with resisting the dairy, as it was perceived as better than Buckeye Egg, and people already saw an existing dairy operating well in the community. On the contrary, in Wood County citizens most often referred to other Vreba-Hoff dairies in Michigan as the basis for their opinions. The dairies that
individuals referred to had experienced a number of problems, thus leading citizens in
Wood County to base their opinions of the proposed dairy on a company and industry
that they did not trust. Therefore, it should be expected that citizens in Wood County
would organize opposition to the dairy that was proposed in their community.

In general, citizens in both counties who opposed the farms exhibited
characteristics that supported the anatomy of conflicts over large-scale animal operations
(see Figure 2.1) proposed by Abdalla et al. (1999). Individuals who possessed attributes
of low trust and perceptions of high risk often spoke of lack of control over the farms,
and thus engaged in resistance. Individuals who resisted the farms did so to different
degrees, ranging from having concerns about the farms to participating in strong
organized opposition. However, individuals who were not opposed to the farms did not
support the model proposed by Abdalla et al. (1999). While such individuals often
possessed high trust, they did not always express perceptions of low risk or control over
the farms. Therefore, the model did not offer explanation as to why individuals did not
resist the farms.

Risk and Trust

Many citizens who opposed the farms perceived the siting of the dairies as a top-
down procedure, with officials and agencies seeking to fulfill their own agendas. The
negative perception led individuals to sense low trust in the officials and agencies, as well
as the information that they provided, which was one of the roots of the conflicts that
arose. According to Nisbett and Ross (1980), due to these attitudes, new information
provided by officials and agencies to such citizens at community meetings or through the
media would not be considered as reliable because it was not consistent with the citizens’ initial views.

In 1983, Cohen wrote:

The public has been driven insane over fear of radiation [from nuclear power]. I use the word ‘insane’ purposefully since one of its definitions is loss of contact with reality. The public’s understanding of radiation dangers has virtually lost all contact with the actual dangers as understood by scientists (p. 31).

Many people unopposed to the farms, including representatives of agencies and government, viewed the concerns of citizens related to the large-scale dairy farm in their community as similar to what Cohen wrote about citizens nearly twenty years ago with regard to nuclear power. When citizens expressed concerns, most felt that the concerns were never addressed, or even recognized by government representatives, agencies, and Vreba-Hoff. Therefore, the citizens continued to more adamantly express their concerns, while at the same time rejecting the new information that was presented to them. This cycle further escalated the conflict in the communities by concerned citizens being viewed as irrational by those unopposed to the farm, and agencies, government representatives and Vreba-Hoff being viewed as untrustworthy and apathetic by concerned citizens.

In Wyandot County, every informant and participant interviewed mentioned the manure spill that the farm experienced within the first year of operation. In Wood County, most citizens spoke of manure spills at other Vreba-Hoff dairies. Citizens in both communities mentioned the countless manure spills and problems at Buckeye Egg facilities. Clearly, the actions of large-scale animal operations were not easily forgotten.
According to Slovic (1999), such actions on other large-scale operations could have led to low trust with regard to the proposed dairy farms because:

1. negative (trust-destroying) events were more visible and distinct than positive (trust-building) events
2. negative events carried greater weight than positive events;
3. information about negative events was considered more credible than information about positive events;
4. distrust, once initiated, perpetuated distrust.

There is a low level of trust in large-scale animal agriculture as a result of trust-destroying activities that have occurred in the past. The resistance put forth by citizens will continue to grow as individual farms representing the agriculture industry continues to operate in unsafe and unethical manners. The agriculture industry must realize that the actions of each individual farm are under scrutiny, and that citizen resistance will continue to grow, ultimately threatening the freedom of all farmers to operate under few regulations. Specific farms have put the agriculture industry has put itself in a position in which the public does not trust agriculture, and now the industry must deal with the situation that has been created. Individuals in the current study clearly felt that the agriculture industry has not been accountable for its’ actions in the past.

Theoretical Framework

The theoretical framework for the current study was based on Figure 2.2. The first stage in the framework was identifying who or what communities defined as the manager of the risk associated with the large-scale dairies. Establishing trust among the entire community was impossible because some citizens were not able to identify the
manager of the risk. Those who did identify a manager of the risk varied greatly in their responses, meaning that all of the people identified would have to be trusted to have community-wide trust, which was probably impossible.

The theoretical framework for the current study offered an explanation as to why some individuals opposed large-scale dairy farms. While citizens did not display all of the predictors of low trust or high risk cited in Figure 2.2, many of the characteristics were present among people who opposed the farms. The predictors of low trust that were common among those who opposed the farms were low confidence in the manager of the risk, lack of faith in the information provided by agencies and government, views that the siting procedures were unfair, feelings that agencies and government were dishonest, biased, and had low concern and empathy, and perceptions that the manager of the risk did not act in the best interest of the community. Further, most individuals opposed to the farm viewed the dairy as more risky, often citing concerns that the risks would be involuntarily placed in the community, uncontrollable, and new. While the citizens did perceive benefits of the farm, most did not perceive high enough levels of benefits to overcome their perceptions of low trust and high risk, thus leading them to oppose the farm.

The theoretical framework for the current study also offered an explanation as to why some individuals were unopposed to the large-scale dairy farm in their community. While citizens did not display all of the predictors of high trust or low risk cited in Figure 2.2, many of the characteristics were present among people who were unopposed the farms. The predictors of high trust present among those unopposed to the farm included faith in the information provided to them, perceptions that the farm was sited fairly,
confidence in the manager of the risk, faith in the technical competence of experts, and perceptions that the manager of the risk operated in the best interest of the community. The attributes of less risky activities often cited by individuals unopposed to the farm included that the farm was controllable, known, provided high utility, and voluntary. Most of the citizens also perceived high levels of benefits related to the farm, and thus were unopposed to the operation.

Further Explanation

While the factors of trust and risk played an important role in explaining citizens’ behaviors in Wyandot County and Wood County, several other factors were present that were also potential contributors. First, the agricultural characteristics of each county could have contributed. Wood County was a top grain and vegetable producer in the state, but had few dairy cows. While Wyandot County was a prime agricultural county, the county was not a competitive crop producing area of the state. Wyandot County also housed over 1,000 dairy cows. In addition, citizens in Wyandot County often commented that everyone in the area generally accepted the practices associated with farming, whereas in Wood County many citizens indicated that farming was not understood by many people in the community. Thus, it would be expected that organized opposition would appear in Wood County regarding a large-scale dairy farm, but not in Wyandot County.

The location of each county may have also contributed to the difference in citizens’ behaviors regarding the large-scale dairies. Several concerned citizens organizations were present in Northwest Ohio that resisted Dutch-owned large-scale dairy farms. The organizations received substantial media attention prior to the siting of
the dairy in Wood County, so citizens in the county were aware of what people were doing in surrounding areas. However, in Wyandot County the opposition groups that were in existence in the area were formed for the purpose of fighting Buckeye Egg. The citizens in Wyandot County did not have the lead to follow from nearby counties in resisting large-scale dairy operations.

For citizens opposed to the farms, the involvement of government and public agencies was as much of a concern as was the dairy. Overall, citizens opposed to the farms exhibited outright resentment and anger toward government and agencies, including township trustees, county commissioners, state representatives, ODA, EPA, SWCD, Farm Bureau, OSU, and OSUE. Many interviews shifted focus from the actual farm, to the involvement of such agencies. It was evident that there was not a sufficient system in place for handling the concerns raised by citizens. People displayed feelings of hopelessness and fear, yet no one had the ability to meet the needs of the citizens. The agriculture industry operates under very few regulations, and thus the government and agencies representatives that citizens approached with concerns felt that their hands were tied and that they had no control as well. The concerns of citizens were abundant and extensive. Yet, there was not a democratic system in place that allowed for their concerns to be heard, their opinions to make a difference, or their logic to be utilized.

Summary

Agriculture has experienced a dramatic change in recent years, resulting in a shift toward large-scale production. Much literature suggests that the future of agriculture will continue to place more emphasis on large-scale production, as small farmers become more obsolete and the production of our food is placed in the hands of fewer individuals.
and companies. The success of agricultural production in the future relies not only on the industry’s ability to continue to produce quality products and make profits, but also in each farmer’s ability to interact with surrounding communities and address the concerns of citizens. The current study demonstrated the results of an insufficient system at local, state, and national levels for handling the concerns of citizens regarding large-scale dairies. To ensure the quality of life for all citizens in Ohio, including operators and neighbors of large-scale farms, changes at all levels need to be addressed that allow large-scale animal production and citizens of the state to co-exist.
References


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Ohio Environmental Protection Agency. (1996). Guidelines for Livestock Producers [Brochure]. Columbus, OH.


APPENDIX A

Informant Letter
March 8, 2002

Mr. John Doe:
ABC Main Street
Bowling Green, OH 43402

Mr. Doe:

As a leader in the agriculture industry, you may be familiar with the siting of a large-scale dairy farm in Liberty Township. An interesting phenomenon in Ohio has been that while some communities have reacted to proposed large-scale farms with opposition, others have accepted them with little opposition. We are conducting a study to gain an understanding of this phenomenon and explore why communities accept or reject proposed large-scale dairy farms.

We are contacting you to ask for your assistance in a very important part of the study. We would like to interview you to hear your perspective of the history leading to the farm being sited and how citizens in your community reacted. We would also ask that you provide us with names of individuals affected by the farm or knowledgeable about the siting process. The information that you provide us will be used to identify participants for the study. Your individual comments will remain anonymous. The findings of the study will reflect the collective perspectives of those interviewed.

The interview will take approximately one hour. We would like to schedule an interview at your earliest convenience. A follow-up phone call will be made during the week of March 18 to discuss the interview and schedule a time to meet with you. If you have questions or concerns, please feel free to contact us at (614) 292-1354 or warner.195@osu.edu. Thank you in advance for being generous with your time to assist in our study!

Sincerely,

M. Susie Whittington
Associate Professor

Kellie Warner
Graduate Assistant
APPENDIX B

Informant Interview Guide
Informant Interview Guide

1. Identify the farm being studied

2. Explain the siting process

3. What documentation (letters, newspaper articles, meeting minutes) are available?

4. Identify neighbors of the farm

5. Identify citizens opposed to the farm

6. Identify citizens in favor of the farm

7. Identify other knowledgeable citizens in the community
APPENDIX C

Participant Letter
Dear_____,

The proposal of large-scale animal operations has generated many different community reactions in Ohio. While there is a great deal of research about the technical aspects of large-scale farms, little is known about why communities react differently to the farms. We are contacting you to ask for your assistance in a study that we are conducting to better understand why two Ohio communities were opposed or unopposed to the large-scale dairy farms that were built in their communities.

The farm that we are studying in your area is the dairy that was recently built in _______ Township. We would like to learn more about your opinion of the dairy farm by meeting with you for about an hour at your earliest convenience. The information that you provide will remain confidential and your identity will remain anonymous.

To truly understand why communities react differently to large-scale farms, we need to know what you think. Thank you in advance for taking the time to meet with us and telling us what you think. We will contact you during the week of April 15 to discuss your and concerns and schedule a time to meet. Please feel free to contact Kellie at (614) 261-1728 or warner.195@osu.edu if you have any questions. Thank you again for your willingness to participate!

Sincerely,

M. Susie Whittington  Kellie Warner
Associate Professor  Graduate Assistant
Ohio State University  Ohio State University
APPENDIX D

Participant Interview Questions
Participant Interview Questions

1. Suppose I was interested in moving my family to your area and I contacted you to ask about the community. What would you tell me you valued the most about the community?

2. What has it been like here since people heard about the dairy moving in?

3. Why do you think the dairy moved here?

4. Many people in Ohio are concerned about the negative impacts that large animal farms might have on their communities. Are there any negative impacts that this farm might bring/has brought to the community?

5. Are there any positive aspects of the farm?

6. Who do you think is responsible for controlling the potentially harmful impacts of this farm?

7. The next few questions will be focused on ________, whom you just identified as being responsible for controlling the negative impacts of this farm. First, on a scale of 1 to 10, with 1 being not confident and 10 being very confident, how confident are you that ________ will be able to control the negative impacts?

8. To what extent has ________ acted in the best interest of this community?

9. If someone wanted to build another large-scale animal operation here, what procedures would you want them to follow to be fair to your community?
   a. To what extent was this procedure followed when this dairy was built?

10. How have you learned about the dairy farm or other large-scale farms?
   a. What sources of information have you used to formulate your opinion about the farm?
   b. What did (the source) reveal to you about (manager of the risk)?
   c. Would you consider this source to be very trustworthy, somewhat trustworthy, or untrustworthy?
APPENDIX E

Member Check Letter
May 29, 2002

Mrs. Jane Doe  
ABC Main Street  
Bowling Green, OH 43402  

Dear Mrs. Doe:

I hope this letter finds you enjoying a relaxing summer! Thanks again for meeting with me earlier this month to discuss your views of the large-scale dairy in your community.

As I indicated in our conversation, you will have the opportunity to make additions or corrections to the interview prior to my using the information for the study. Enclosed you will find a copy of the interview report that was typed word-for-word from our tape-recorded conversation. At your convenience, please take a few minutes to read through the report and make any additions or corrections that you deem necessary. You can send the report back to me using the enclosed envelope. I would like to have the report back by Monday, June 17. I realize that this is a short timeline. If you are unable to send it back by that date and would like more time, please call me.

Also, I would like to verify how you will be identified in the appendix of the study. Please remember that your name will at no time be used in the study, but it is important for me to have a list of participants. Please make any necessary corrections to the following information:

Female, Caucasian, Farmer, Age 30-39

Please feel free to contact me at (513) 988-0747, or warner.195@osu.edu, if you have any questions or concerns. Again, thank you for your willingness to help in this study!

Sincerely,

Kellie Warner  
Graduate Research Associate  
The Ohio State University
APPENDIX F

List of Participants
Wood County

1. Male, Caucasian, Dairy Farmer, Age 20-29
2. Male, Caucasian, Dairy Farmer, Age 20-29
3. Female, Caucasian, Staff Development Coordinator, Age 40-49
4. Male, Caucasian, Farmer, Age 60-69
5. Female, Caucasian, Homemaker, Age 60-69
6. Male, Caucasian, Dairy Farmer, Age 40-49
7. Male, Caucasian, Farmer, Age 30-39
8. Male, Caucasian, Farmer/Cabinet Maker, Age 60-69
9. Male, Caucasian, Farmer, Age 50-59
10. Male, Caucasian, Farmer, Age 70-79
11. Male, Caucasian, Farmer, Age 40-49
12. Male, Caucasian, Farmer, Age 50-59
13. Male, Caucasian, Farmer, Age 50-59
14. Male, Caucasian, Construction Yard Foreman, Age 40-49
15. Female, Caucasian, Production Statistician, Age 40-49
16. Male, Caucasian, Laborer, Age 40-49
17. Male, Caucasian, Farmer/County Traffic and Safety Director, Age 50-59
18. Male, Caucasian, Farmer/Personnel VP, Age 40-49
19. Male, Caucasian, Farmer, Age 30-39
20. Female, Caucasian, Computer Programmer/Consultant, Age 30-39

Wyandot County

1. Female, Caucasian, Substitute Teacher, Age 70-79
2. Male, Caucasian, Retired Farmer, Age 70-79
3. Female, Caucasian, Farmer, Age 30-39
4. Male, Caucasian, Dairy Farmer, Age 40-49
5. Male, Caucasian, Retired, Age 60-69
6. Female, Caucasian, Retired Teacher, Age 60-69
7. Male, Caucasian, Farmer, Age 40-49
8. Male, Caucasian, Farmer/County Commissioner, Age 60-69
9. Male, Caucasian, Age 50-70
10. Male, Caucasian, Retired/Farmer, Age 60-69
11. Male, Caucasian, Retired, Age 60-69
12. Male, Caucasian, Self-Employed, Age 60-69
13. Male, Caucasian, Farmer, Age 40-49
14. Male, Caucasian, Teacher/Chemist/Farmer, Age 50-59
15. Male, Caucasian, Farmer, Age 50-59
APPENDIX G

Vreba-Hoff Dairies
<table>
<thead>
<tr>
<th>Ohio County</th>
<th>City</th>
<th># of Cows</th>
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<tbody>
<tr>
<td>Champaign</td>
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<td>Defiance</td>
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<td>Wood</td>
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<td>Wyandot</td>
<td>Forest, OH</td>
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<td>LaFontaine, IN</td>
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<td>Wells</td>
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