



# Statement by the Animal Agriculture Alliance Coalition on Economic and Social Impacts of Animal Agriculture

## Overview

Research that has emerged over the past 25 years shows minimal negative affects to local communities from the changing structure of animal agriculture. For example, recent studies addressing the quality of life, community economic well-being, and the quality of the social fabric in Iowa's pork producing regions suggest that communities are not negatively affected by the expansion of swine production. In fact, in some settings, these communities have benefited from pork production. Also, several studies indicate that livestock production benefits land values and residential growth.

Like numerous sectors of the United States economy, livestock farmers have changed with the times. Because the market price for farm animals has not kept up with inflation, farmers have found it necessary to increase the size of their operations to make a living. Contract production is an attractive option for some because it adds cash flow to a farming operation with little or no market risk.

Livestock producers live in the communities in which they farm and have a deep-rooted interest in protecting natural resources. Using manure as fertilizer is a practice as old as agriculture itself. Today's farmers develop nutrient management plans to responsibly utilize manure generated by farm animals while protecting water sources. These plans ensure that the amount of nutrients applied to the land is balanced with the amount required to support crop growth while enhancing the soil's ability to support plant growth.

Livestock farmers hold themselves responsible for protecting animal caretakers. Farm worker training is important in order to ensure good care for the animal and to protect the caretaker, which is why farming operations participate in certification programs, distance-learning courses and other means for continuing education on animal care.

## Impacts of Livestock Production

Recent studies conducted in the Midwest, focusing specifically on pork production, find modest favorable socioeconomic effects on nearby rural communities that have an increasing scale of swine operations. Given the mixed results of social science research, the overall positive or negative effect of expanding swine production on rural communities seems to vary by region of the country.

The relationship between the scale of swine production and community well-being might reflect to some extent the social and historical context of this production. The availability of alternative economic development opportunities, for example, might moderate the effects of production scale on community well-being. For example, when few viable alternatives to development are available, large-scale pork production might have positive socioeconomic effects on the

## Key Points:

- *Farmers enhance their communities with local sales and property tax payments, charitable donations, and volunteer work*
- *It is a farmer's highest priority to raise animals for food in a manner that is responsible to the animals, environment, and society*
- *Farmers have increased the size of their operations in response to the new marketplace*
- *Livestock farmers protect their workers with educational programs*
- *Recent studies show that communities near large livestock operations are not necessarily negatively affected and sometimes benefit*

community and be viewed by residents in a more favorable manner. Communities with alternative economic opportunities might experience more favorable socioeconomic development by taking advantage of other options and understandably exhibit more resistance to the growth of large-scale pork production.

## **AGRICULTURAL INDUSTRIALIZATION AND COMMUNITY WELL-BEING**

Lobao (1990) examined relationships between industrialized farming and community well-being across more than 3,000 U.S. counties and found that a structure of moderate-sized, family owned and operated farms were associated with favorable socioeconomic conditions in rural communities. Counties typified by these types of farms experienced lower poverty, higher median family income, lower unemployment, and lower infant mortality compared with more industrialized counties. Counties typified by a more industrial farming structure, on the other hand, experienced either detrimental or did not record any statistically significant favorable socioeconomic effects.

Between 1944 and 2003, Stofferahn (2006) reviewed 56 studies that examined the relationship between agricultural industrialization and community well-being. Thirty-two of the studies reported detrimental impacts, 14 revealed some detrimental impacts, and 10 did not report evidence of detrimental impacts. While the majority of studies during the past 50 years have found negative outcomes, those revealing mixed or no relationship between the industrialization of agriculture and community well-being have emerged in the past 25 years.

Midwestern states are consistently found to be more insulated from negative outcomes. This finding might be attributed to the specific history of agricultural development in the Midwest compared with that of the West and South (Green 1985), the types of laws and regulations that govern relationships between corporations and farmers (often termed as anti-corporate farming laws) (Welsh and Lyson 2005; Welsh 1998), and the form and organization of agricultural production that occurs in these regions (Lobao, 1990).

Overall, the agricultural sector in Iowa has grown in scale by approximately 27 percent between 1992 and 2002 and the most dramatic increases exist within pork production. The number of hogs per hog farm in Iowa has increased by 238 percent between 1992 and 2002. However, the total number of hogs in Iowa at any given time has increased only slightly; in 1980, there were approximately 64,000 farms with hogs compared with about 10,500 in the year 2000. This change represents an 84 percent decrease in the number farms with hogs during a twenty-year span (Otto and Lawrence, 2000). As a result, the number of pigs raised per farm has increased significantly with the use of concentrated animal feeding operations (CAFOs).

Durrenberger and Thu (1996) found that the emergence of large-scale hog operations in Iowa displaced small- and medium-sized operations. Relying upon the usage of food stamps per county as the indicator of socioeconomic well-being, they discovered counties characterized with larger hog farms had greater numbers of residents requesting food stamps, as opposed to those with small or medium farms. They concluded that changes towards consolidation of pork production lead to decreased levels of social well-being within local rural communities. Grey (2000) described the struggles that a group of small pork producing farm owners encountered in Northeast Iowa when confronted by larger producers to conform to newer large-scale production methods. He found increased division and conflicts arose between pork producers of varying sized operations.

A recent report addressing concerns about the effects of changes in pork production on the quality of neighboring indicates a high degree of neighboring in rural Iowa communities (Sapp et al., 2006). The study indicates that residents of rural communities view the quality of neighboring of local pork producers as virtually equal to that of local non-pork producing residents. Sapp et al. (2006:38) note that "...Iowans recognize that differences in agreement about the structure of agriculture generally do not mean differences in agreement with the quality of neighboring shown by people involved in pork production. Iowans seem to be able to see pork producers as their neighbors, even if they disagree strongly about the nature of hog production." While this study demonstrates the robustness of rural Iowa communities as it relates to concerns surrounding changes in pork production, it is unable to predict or assess the point at which the social fabric in these communities is potentially put at risk.

## Key Studies:

Lobao (1990): *Found that mid-sized farms are best for communities*

Stofferahn (2006): *Reviewed studies; 32 of 56 recorded negative socioeconomic impacts from facilities*

Otto and Lawrence (2000): *Recorded 84 percent decrease in number of hog farms in IA, size of farms increased*

Grey (2000): *Found that IA producers struggled to adapt to new production strategies*

Sapp et. al. (2006): *Recorded high levels of neighboring in rural IA*

Sundblad and Sapp (2007): *Found that greater numbers of hogs correlated with greater satisfaction, local participation*

Recent studies show change. Large-scale pork production does not necessarily have a negative effect on the social fabric and sometimes holds for the community.

Related research (Sundblad and Sapp, 2007) examined relationships between the average number of hogs in a county and residents' expressed satisfaction with their communities. Ninety-nine communities were evaluated in 1994, showing that greater numbers of hogs in a county correlated with greater expressed satisfaction by residents with government services and neighboring and greater participation in local organizations. The relationship with government services was statistically significant. Satisfaction with attachment to community had a slight (and statistically insignificant) negative relationship with the average number of hogs per county in 1994. In the 2004 study, greater average numbers of hogs, was associated with greater expressed satisfaction with government services, neighboring, and attachment to community, with the relationship with attachment being statistically significant. Participation in local organizations had a slight (and statistically non-significant) negative relationship with average hogs per county in 2004. During the 1994 to 2004 period, growth in the average number of hogs in the county had a positive and statistically significant relationship with a composite index of community satisfaction.

Overall, residents living in the 99 selected small towns in Iowa expressed slightly less satisfaction with their communities in 2004 than they did in 1994. It is difficult to identify the key determinants of this decline in satisfaction. It might have resulted from long-term trends of losses of population and jobs. The authors note that it does not seem to be related to growth in large-scale hog feeding operations. That is, the growth in large-scale hog feeding operations seems to have had a modest, but positive effect on some indicators of socio-economic well-being from 1994 to 2004. Overall, the greater the number of hogs in the surrounding county, the greater the satisfaction with the town expressed by its residents. These findings probably reflect the cultural heritage of pork production in Iowa. Market arrangements and organization of agricultural production (Lobao, 1990), anti-corporate farming laws (Welsh and Lyson, 2005), and varying regional histories of agricultural development (Green, 1985) also might offer some insight to the insulation, resilience, and stability found in rural Iowa communities.

In summary, the most recent studies addressing the quality of life, community economic well-being, and the quality of the social fabric in Iowa's pork producing regions suggest that communities are not necessarily negatively affected by the presence of large-scale pork production and in some settings benefit from the expansion of swine production.

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## Sources

- Crowley, M.L. 1999. *The Impact of Farm Sector Concentration on Poverty and Inequality: An Analysis of North Central U.S. Counties*. Master's Thesis, Department of Sociology, The Ohio State University, Columbus, OH.
- Crowley, M.L., and V.J. Roscigno. 2004. "Farm Concentration and Political Economic Process and Stratification: The Case of the North Central U.S." *Journal of Political and Military Sociology* 31: 133-155.
- Durrenberger, P., and K. Thu. 1996. "The Expansion of Large Scale Hog Farming in Iowa: The Applicability of Goldschmidt's Findings Fifty Years Later." *Human Organization* 55:409-415.
- Gilles, J.L., and M. Dalecki. 1988. "Rural Well-Being and Agricultural Change in Two Farming Regions." *Rural Sociology* 53: 40-55.
- Green, G. 1985. "Large-Scale Farming and the Quality of Life in Rural Communities: Further Specification of the Goldschmidt hypothesis." *Rural Sociology* 50: 262-273.
- Grey, M. 2000. "'Those Bastards Can Go to Hell!' Small-Farmer Resistance to Vertical Integration and Concentration in the Pork Industry." *Human Organization* 59:169-176.
- Lobao, L. 1990. *Locality and Inequality: Farm and Industry Structure and Socio-economic Condition*. Albany, N.Y.: State University of New York Press.
- Lobao, L. 2000. *Industrialized Farming and Its Relationship to Community Well-Being: An Update of a 2000 Report Prepared for the State of South Dakota*. Office of the Attorney General, Pierre, SD.
- Otto, D., P. Orazem, and W. Huffman. 1998. "Community and Economic Impacts of the Iowa Hog Industry." In *Iowa's Pork Industry- Dollars and Cents*. Ames, IA.: Iowa State University, Department of Economics.
- Sapp, S., K. Larson, D. Sundblad, and C. Edwards. 2006. *Pork Production and the Quality of Neighboring in Rural Iowa*. Report to Iowa Pork Producers Association, Department of Sociology, Iowa State University, Ames, IA.
- Stofferahn, C. 2006. *Industrialized Farming and Its Relationship to Community Well-Being: An Update of a 2000 Report by Linda Lobao*. Office of the Attorney General, ND.
- Sundblad, D. and S. Sapp. 2007. *Large-Scale Pork Production and Community Well-Being in Iowa*. Department of Sociology, Iowa State University, Ames, IA.
- Welsh, R. 1998. "The Importance of Ownership Arrangements in U.S. Agriculture." *Rural Sociology* 63: 199-213.
- Welsh, R. and T. Lyson. 2005. "Agricultural Industrialization, Anticorporate Farming Laws, and Rural Community Welfare." *Environment and Planning A* 37:1479-1491.



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## Overview

Animal agriculture is an important economic driver in America's rural areas. Nearly 19 billion pounds of pork are processed from over 100 million hogs each year. The economic impact of the industry on rural America is immense. Annual farm sales typically exceed \$11 billion, translating into more than \$70 billion dollars that enter the national economy and communities surrounding pork production.<sup>i</sup> Pork producers also create more than 800,000 jobs, most of them outside the industry.

**Following are some of the common arguments used against large swine producers and counterpoints obtained from scientific research and respected business and economic sources.**

### Argument:

CAFOs reduce land and residential property value in rural communities. This results in a reduction in tax receipts and higher costs on the economy of rural American communities.

- A 1996 study commissioned by the Minnesota legislature and performed by the University of Minnesota<sup>ii</sup> showed that nearby feedlots (predominantly swine operations) positively influence property values in Minnesota. The study was based on actual sale prices of residential properties and included factors such as distance, relative location of the operation, size of operation and number of operations in proximity (three miles or less) of a property. All operations considered had more than 500 animal units on site. This translates into 1,250 breeding animals or up to 10,000 growing pigs (those under 55 pounds).
- A 1990 study by the Michigan State University Extension Service<sup>iii</sup> showed that farm size (number of pigs per farm) had no statistically significant effect in the value of residences within five miles. The study suggests that any effect was "very localized" and appeared to affect only residences closely neighboring a farm. The study concluded that benefits (economic benefit from inputs purchased and maintaining operations) exceeded the cost (in property and tax revenue) of having a farm in the community by at least two and up to five times. The net positive effect of a farm on the economy of its community increased significantly in farms with 5,000 animals compared to farms with 500.
- A 2003 study performed by Iowa State University found that, although properties upwind and very close to hog operations did see a reduction in property value, the effect is localized. Significantly, a positive effect on property value was observed when a higher number of facilities were nearby which suggest a positive impact on economic activity of the region on property values<sup>iv</sup>.

- A 2003 study in southeastern Pennsylvania found an impact on house values only within 1,600 meters of a livestock facility. The researchers were not able to draw conclusions about whether the impact varies by species of animal or size of the operation<sup>v</sup>.
- A study in Colorado showed that any negative impact on residential property values from hog production decreases as the size of the operation grows. The researchers concluded that the “mixed signals” received from the study “provide little in the way of solid conclusions regarding the strength of the negative versus the positive influence of livestock operations on nearby residential sale prices”. The same study found that there were positive impacts on the value of low priced homes (up to \$150,000) and negative effects on higher priced homes (more than \$200,000)<sup>vi</sup>.
- A study in North Carolina showed that the impact on value of a home valued at \$114,000 (the median value of homes in the area) within one mile of a 5,000-hog facility would translate into a one-time loss of value of \$3,550 to the property. The study did not consider the year-round benefits and increase in economic activity and tax receipts from the operation.<sup>vii</sup>
- Another study of the benefits and costs to North Carolina communities from pork production found that the impact of hog operations should be measured on a case-by-case basis. While larger operations situated closer to urban fringe would have a larger impact on overall residential value than smaller farms farther away from other urban development, the larger farm would outdo its one-time “cost” by increasing economic activity in the area. When comparing the economic impact/cost ratios of these two scenarios, they found that both were greater than one. In fact, the authors concluded that the benefits of any farm on a community are larger than its costs overall by a magnitude of five to one.<sup>viii</sup>
- A study in Manitoba, Canada analyzed data from over five years of activity of home sale transactions. The data suggests that relatively higher prices are commonly found within close proximity of hog operations in many municipalities. They also found that homes within one to two miles did not differ in price from homes four to five miles away. While the authors conclude there may be isolated cases of properties with negative impact examined on a market-wide perspective, real estate activity suggests otherwise.<sup>ix</sup>

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- The Michigan study cited above found a benefit of \$5.64 in community benefits for every dollar lost in property tax receipts by the presence of livestock in the vicinity of a home. While hypothesized that small farms benefit the local economy more than larger farms (because large farms are more apt to dilute their input by bringing goods and services from outside the area) the positive economic impact of all hog farms to a community outdid the costs in taxes by at least 2.4 times. These conclusions were found even though the universe of farms in this study included only farms that had received odor complaints in the past and were considered more costly to a community.
  - Socioeconomic studies of communities surrounding large farmers suggest that:<sup>x</sup>
    - The disappearance of small farmers preceded larger farmers/contractors entering the community.
    - Population decline precedes larger farmers/contractors entering the community.
    - Employment and businesses have increased/expanded with contractors entering the community.
  - An example: Princeton, Mo. experienced steady population decline for a decade (1980-1990), losing more than 20 percent of the population. Some 1,100 jobs were created by Premium Standard Farms. Family income averaged \$10,000 before Premium Standard and now the median income is over \$28,000.

*Argument:*

CAFOs lead to declines in other businesses and in the local property tax base

*Argument:*

For every job created by large farms, three are lost in the agricultural sector

- Citing the study, “Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations” by Donham, et.al.xi, formerly independent operators are increasingly raising livestock on contract for larger corporations.

undergoing changes to some of its business schemes. Contracting reduces capital risk to the farmer while providing him/her with the opportunity to continue in agriculture, according to the USDA’s Economic Research Service.<sup>xii</sup>

- Many factors are involved in the socioeconomic well-being of a state.
- There are nine states with anti-corporate farming laws: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota and Wisconsin.
- Six of the nine states rank in the top 10 states with hog/pig inventory in the United States, indicating that anti-corporate farming does not equal the disappearance of the industry – or the size of the industry- in those states.
- None of these states rank in the top 10 of the New Economy Index described by the Kauffman Foundation. The New Economy refers to a set of qualitative and quantitative changes that in the last 15 years have transformed the structure, functioning and rules of the economy. The implication is that new economies are faster to adapt to change and succeed in the future economy. Only one, Minnesota, ranks within the top 25. The rest of these states rank 28 or higher, with one state ranked in the bottom 10.<sup>xiii</sup>

*Argument:*

States with anti-corporate farming laws are better on economic measures; i.e. fewer families in poverty, lower unemployment, and higher percentages of farms realizing cash gains

- The Political Economy Research Institute’s Work Environment Index is an indicator of the quality of work life in the United States. The index has only two of the nine states with anti-corporate laws in its top 5 (Iowa and Minnesota). These also are two of the three states most populated with pigs in the United States.
- Of the top ten states with highest pig/hog population:<sup>xiv</sup>
  - Five of the 10 are ranked in the top 10 states with more equitable distribution
  - Three of the 10 are in the top 10 states with higher average annual pay growth
  - Three of the 10 were ranked in the top 10 states with lowest poverty rate
  - Six of the 10 were in the top 10 states with fewer business closings
- While the rate of non-metropolitan poverty is higher than the rate of poverty in metropolitan areas (by about 2.4 percent in 2004), significant changes in poverty rates are due in a great part to the reclassification of areas as they are absorbed by urban development. The ERS<sup>xv</sup> suggests this reclassification significantly altered the geography and

*Argument:*

Large farms destroy  
American  
communities

socioeconomic profile of “non-metro” America because the populations that remained non-metro were, on average, more disadvantaged than those that become metropolitan.

- Both non-metro and metro unemployment rates have fallen steadily and are very similar between them. The non-metro unemployment rate was calculated at 4.9 percent in 2006, while metro unemployment rate averaged 4.6 percent in 2006.
- According to a national survey, people working in pork production are well-educated. with more than 63 percent of producers having vocational education or two to four years of college education and 95 percent having completed high school. Among their employees, 39 percent have obtained a college degree and more than 14 percent have furthered their education to obtain a degree in veterinary medicine, a Master’s degree or a doctorate.<sup>xvi</sup>

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- A study in Iowa<sup>xvii</sup> revealed that personal reasons, including age of the producer, prompted farmers to leave the industry. Economics, in general, was also cited as a reason for quitting production. The risk of low hog prices and high corn prices was an incentive for farmers to leave the industry. This study concluded that many farmers left hog production because the “next generation” was not coming back to farm. Significant investments required to update farms and comply with regulations also are cited as reasons for leaving the industry. The research also shows that most producers exited the state’s industry in the 1990s, during the hardest economic conditions.

- The USDA’s Economic Research Service’s report on Farm Exits<sup>xviii</sup> states that the age of the farm operator contributes to farm exits, as do sales. Exits are parallel to the increase in age farmers once these turn 45. The ERS report reads, “The life cycle of farm operators is important in understanding farm exits because most U.S. farms are fairly small family businesses and the life of the farm is correlated with the life of the farmer.”

*Argument:*

Large farms displace  
family farms

- A study by Iowa State University says that fewer than 20 percent of farmers are 40 or younger<sup>xix</sup>.
- The report also states that, as farmers grow older, they are more likely to rent or sell their land. Older farmers also tend to disinvest in their operations, while land that is rented or sold typically employs better technology and a more efficient mix of assets and labor.
- According to the ERS<sup>xx</sup>, large-scale farms are more viable businesses than small family farms, which explains why family farms are exiting the business faster than larger farms. As in any business, the average operating profit margin and rates of return on assets and equity are indicators of business viability. Small farms were less viable as businesses; the average operating profit margin and rates of return on assets and equity were negative.
- The report also indicates that small farm households rely on off-farm income and do not rely primarily on their farms for their livelihood. Because of their off-farm work, small farm households are more affected by the non-farm economy.

### Argument:

CAFOs contribute to the poverty of rural communities

- A recent study<sup>xxi</sup> notes that the expansion of confined animal feeding operations (CAFOs) for hogs significantly improved private-sector employment opportunities and was associated with reduced core poverty. Also, CAFO growth had a slightly favorable effect on growth in retail sales from 1994 to 2004. Hog CAFO growth appeared to be unrelated to migration, retention of population, civic engagement, number of employed residents, school enrollments, changes in median county income levels, housing values, or changes in the share of near-poor households. Hog CAFO growth also

seemed to be unrelated to changes in wages and salaries paid by county firms or to changes in the number of retail firms. In summary, although the growth of hog confinement operations in the 1990s in Iowa has not necessarily generated strong economic and social development, it does not seem to have been a deterrent, either. For communities with few opportunities for growth in other industries such as rural tourism, recreation, or destination retirement facilities, hog CAFOs might be a viable alternative for modest economic growth.

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### Sources

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- <sup>i</sup> USDA, ERS, “wolesaleprices.xls”, <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1354>
- <sup>ii</sup> Taff, S.J., Tiffany, D.G., Weisberg, S. 1996. Measured Effects of Feedlots on Residential Property Values in Minnesota: A Report to the Legislature. Dept. of Applied Economics, College of Agricultural, Food and Environmental Sciences, University of Minnesota. Staff Paper P96-12.
- <sup>iii</sup> Abeles-Allison, M. and Connor, L.J. 1997. An Analysis of Local Benefits and Costs of Michigan Hog Operations Experiencing Environmental Conflicts. Department of Agricultural Economics. Report 356.
- <sup>iv</sup> Herriges, J.A., Secchi, S. and Babcock, B. 2003. Living with hogs in Iowa: The Impact of Livestock Facilities on Rural Residential Property Values. Center for Agricultural and Rural Development. Working paper 03-WP 342.
- <sup>v</sup> Ready, R., Abdalla, C. 2003. The Amenity and Disamenity Impacts of Agriculture: Estimates from a Hedonic Pricing Model in Southeastern Pennsylvania. Department of Agricultural Economics and Rural Sociology. Staff Paper 365-2003.
- <sup>vi</sup> Park, D. Seidel, A. and Davies, S.P. 2004. The Effect of Livestock Industry Locations on Rural Residential Property Values. Department of Agricultural and Resource Economics. Colorado State University.
- <sup>vii</sup> Milla, K. Thomas, M. and Ansine, W. 2005. Evaluating the Effect of Proximity to Hog Farms on Residential Property Values: A GIS-Based Hedonic Price Model Approach. URISA Journal.
- <sup>viii</sup> Goldsmith, P. Kim, J. and Thomas, M.H. Measuring the Impacts of Confined Animal Feeding Operations: Technical Issues and Policy Implications.
- <sup>ix</sup> Royal LePage Stevenson Advisors. 2004. Impact Analysis of Intensive Livestock Operations on Manitoba Rural Residential Property Values, Five Case Study Locations. Commissioned by the Manitoba Pork Council.
- <sup>x</sup> Dennis DiPietre quoted in article about Princeton, Mo.
- <sup>xi</sup> Donham, K.J., Wing, S., Osterberg, D., Flora, J.L., Hodne, C., Thu, K.M and Thorne, P. 2007. Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations. Environmental Health Perspectives. 2007 February; 115(2): 317-320.
- <sup>xii</sup> ERS Farm structure report. <http://www.ers.usda.gov/Briefing/FarmStructure/> . Accessed Mar. 5.
- <sup>xiii</sup> Kauffman Foundation. 2007. 2007 State New Economy Index. [http://www.kauffman.org/pdf/2007\\_State\\_Index.pdf](http://www.kauffman.org/pdf/2007_State_Index.pdf). Accessed Mar. 5.
- <sup>xiv</sup> Corporation for Enterprise Development. 2006. Report Card for the States <http://www.cfed.org/focus.m?parentid=5&siteid=1581&id=1581>. Accessed 3/ 5.
- <sup>xv</sup> ERS Rural America at a Glance, 2007. 2007. <http://www.ers.usda.gov/Publications/EIB31/EIB31.pdf>, Accessed Mar. 5.
- <sup>xvi</sup> A Look at the Employment in the United States Swine Production Industry, Iowa State University, <http://www.ans.iastate.edu/report/air/2006pdf/R2168.pdf>. Accessed Oct. 10, 2007
- <sup>xvii</sup> Lawrence, J. The State of Iowa’s Pork Industry. [http://www.econ.iastate.edu/outreach/agriculture/livestock/pork/dollars\\_and\\_scents/chapter1/introduction.html](http://www.econ.iastate.edu/outreach/agriculture/livestock/pork/dollars_and_scents/chapter1/introduction.html)., Accessed Mar. 5.
- <sup>xviii</sup> ERS Farm Exit. <http://www.ers.usda.gov/publications/ERR21/> Accessed Mar. 5.
- <sup>xix</sup> Kliebenstein, J. Hurley, T. Orazem, P., Miller, D. and May, S. 2006. A Look at Employment in the U.S. Swine Production Industry. Iowa State University Animal Industry Report 2006.
- <sup>xx</sup> ERS Structure and Finances of Family Farms [http://www.ers.usda.gov/publications/eib24/eib24\\_reportssummary.pdf](http://www.ers.usda.gov/publications/eib24/eib24_reportssummary.pdf) . Accessed Mar. 5.
- <sup>xxi</sup> Flora, J., Q. Chen, S. Bastian, and R. Hartmann. 2007. Hog CAFOs and Sustainability: Local Development and Water Quality in Iowa. Department of Sociology, Iowa State University, Ames, IA.