

# Regional Economic Development and Confined Hog Feeding Operations in Cassia County, Idaho

By Dr. William J. Weida  
November 3, 1999

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## **Introduction**

My name is William J. Weida. I was born and raised in Idaho Falls, Idaho and I currently maintain a residence in McCall, Idaho. I am employed as a Professor in the Economics and Business Department of The Colorado College, Colorado Springs, CO, where I specialize in regional economics, statistics, and econometric modeling. I am appearing before the Cassia County Commissioners representing the Cassia County Coalition.

I received a BS in engineering from the US Air Force Academy, an MBA from UCLA, and a Doctorate in Econometrics and Operations Research from the University of Colorado. I was a member of the Economics Department at the US Air Force Academy for 11 years, the last two of which I was chair. I have been a faculty member at the Colorado College for 15 years and for 5 of those years I was chair of the Economics and Business Department. I was an economist in the Office of the Secretary of Defense for three years, and I retired from the Air Force as a Colonel in 1985. I have spent the last 15 years providing advise to communities on the impacts of various forms of economic development. I currently work as a project director with the GRACE Factory Farm Project.

## **Executive Summary**

The proposal of Big Sky Farming Group, L.L.C. for a hog confined animal feeding operation in Cassia County contains the following problems related to its use of economic concepts and its likely impact on regional development in the Mini-Cassia area:

1. The economic rationale and descriptions used in the application of Big Sky Farming Group, L.L.C., are confused and almost incoherent.
2. Big Sky Farming Group's horizontally coordinated operation appears to be a collusive organization whose objective is to fix prices. Such organizations are illegal under the Sherman Antitrust Act of 1890 and the Clayton Antitrust Act of 1914.
3. Big Sky's stipulation that it "will not be or create conditions that are unreasonably harmful or dangerous to the individual safety or welfare of persons on the premises or living or working in the vicinity of its operation." is at variance with the experience of workers at other large hog production facilities.
4. Regional economic development proceeds on the premise that the wages paid and purchases made by a company occur within the confines of the region and that they do not "leak" into other areas of the state or nation. Hog CAFOs are specifically structured so they cannot aid regional economic development for the following reasons:
  - a. As a capital intensive company, a hog has been designed to minimize the number of workers involved. This will also minimize the economic impact of Big Sky's proposed operation on the Mini-Cassia region. The total employment, both direct and indirect, from Big Sky's 50,000 sow farrow-to-finish operation in Cassia County, is likely to be 200-270 employees.
  - b. The numerous tax write-offs that are possible because hog CAFOs are treated as industries and not farms lower the amounts of taxes paid locally at the same time the operations of the hog CAFO create social, health and traffic costs that the local government must finance.
  - c. Vertically integrated companies like hog CAFOs stimulate regional economies only to the extent that the other elements of the company are located in the region. Historically, this factor has dramatically limited the economic impact of hog CAFOs on the regions in which they are situated.
  - d. Through cost shifting the CAFO will leave the costs of its odor, health risks, surface water pollution, ground water pollution and, in the long run, it abandoned lagoons and facilities for the region to deal with. This directly effects prospects for both long and short run economic development in the region.
5. Conclusion: Hog CAFOs do not diversify a regional economy already dependent on agriculture. Instead, they damage the ability of the region to attract diversifying economic growth and they cause property values around the hog sites to decrease. In the long run, the legacy of pollution and site abandonment that accompanies hog CAFOs hinders long-term economic development and makes the region a magnet for other dirty operations who are looking for contaminated, brown field sites that can be used for further contaminating operations.

## Specific Comments

### I. Comments on the nature of Big Sky's application for a conditional use permit.

The economic rationale and descriptions used in the application of Big Sky Farming Group, L.L.C., are confused and almost incoherent. The economic words and phrases that have been strung together in the Supporting Documentation & Concluding Remarks section show either a fundamental lack of understanding of economic principles or, in the case of the proposed organization of Big Sky Farms, a confused and contradictory description of the company that appears to disregard the legal prohibitions against cartels and price fixing. For example:

(1) Big Sky claims "the past few decades have produced relatively little change in agriculture--an industry in which demand is *truly* inelastic."<sup>1</sup> This is nonsense. For an industry to be truly inelastic, demand for its goods would have to remain constant irrespective of the price charged. Any farmer in Cassia County knows this is not true. Further, there would have to be no substitutes for the goods produced and beef is a substitute for pork. In fact, economists recognize agriculture as an area where demand is very *elastic* and where small changes in price are quickly reflected in demand for the product.<sup>2</sup>

(2) Big Sky claims that "common farming operations [are] deeply entrenched in inefficient farming practices."<sup>3</sup> This is not true. Both studies and modeling indicate that slightly less than half of traditional Midwest hog producers are competitive with the kind of large scale hog production proposed by Big Sky.<sup>4</sup> Further, an Iowa study showed that the top 33 percent of hog producers in Iowa have hog costs per hundred weight that match or beat those of large scale confined animal feeding operation (CAFO) producers.<sup>5</sup>

(3) Big Sky claims "it is the actual farming process" that is failing to meet consumer demand.<sup>6</sup> This is not true. In fact, the supply of pork exceeds demand and prices have fallen as any hog producer knows.<sup>7</sup>

(4) Big Sky claims that "as leading industrial nations become more prosperous" consumer demand [for pork products] is changing.<sup>8</sup> This mischaracterizes the demand situation in the hog market. Most economists recognize that increasing demand for protein sources such as pork is linked not to industrialized countries but to economies in the developing world. As developing economies grow, much of the growth in income goes to diversifying diets. This change to increased protein consumption is not reflected in demand for "specialty food products" as Big Sky implies. Instead, the growing demand for protein drives up the demand for grain: a kilogram of beef produced on a feedlot takes about 7 kg of grain, pork needs 4 kg, eggs need 3 kg, poultry a little more than 2 kg, and fish a little less than 2 kg.<sup>9</sup>

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<sup>1</sup> "Supporting Documentation and Concluding Remarks," Application for Conditional Use Permit, Before the Board of County Commissioners, Cassia County, Idaho, CU991002, October 12, 1999.

<sup>2</sup> Big Sky Farms is referred to any of the hundreds of basic economics text books for clarification on this point.

<sup>3</sup> "Supporting Documentation and Concluding Remarks," op. cit.

<sup>4</sup> "Iowa Livestock Enterprise Summaries," Iowa State University Extension, EJS 206, ASB, Ames, Iowa, 1992, 1993, 1994.

<sup>5</sup> Lasley, Paul; Duffy, Mike; Ikerd, John; Kliebenstein, Jim; Keeney, Dennis; and Lawrence, John, "Economic Development," Understanding the Impacts of large-scale Swine Production, Proceeding from an Interdisciplinary Scientific Workshop, Des Moines, Iowa, June 29-30, 1995, p. 123.

<sup>6</sup> "Supporting Documentation and Concluding Remarks," op. cit.

<sup>7</sup> Drabenstott, Mark, "This Little Piggy Went to Market: Will the New Pork Industry Call the Heartland Home?," Economic Review, Q3, Vol. 83, No. 3, Federal Reserve Bank of Kansas City, Third Quarter, 1998.

<sup>8</sup> "Supporting Documentation and Concluding Remarks," op. cit.

<sup>9</sup> Brown, Lester, The Agricultural Link: How Environmental Deterioration Could Disrupt Economic Progress, Worldwatch Paper 136, August, 1997, p. 10-12.

While there is no historical precedent for so many people in lesser developed countries moving up the food chain so rapidly<sup>10</sup> this move has specific implications for Cassia County. Big Sky's operation would link the county to the volatile developing economies of the world instead of those of the industrialized countries. In fact, it was precisely this linkage that caused major drops in hog prices when countries such as Korea, Thailand and Indonesia encountered financial difficulties two years ago.

(5) Big Sky claims it will "reduce the influence of commodity prices [sic] fluctuations...by implementing the "Horizontal Cooperative" organization structure..."<sup>11</sup> It then goes on to contradict the claim of horizontal organization by discussing Sun Valley Agribusiness Partner's "decision to coordinate a seemingly vertically integrated contiguous development..."<sup>12</sup>

If Big Sky Farming Group is truly a horizontally coordinated operation, it appears to be a collusive organization whose objective is to fix prices. Big Sky itself claims that "commodity price volatility [will become] moot" with a horizontally coordinated organization.<sup>13</sup> Such organizations are illegal under the Sherman Antitrust Act of 1890 and the Clayton Antitrust Act of 1914. If, instead, Big Sky is a vertically integrated company as it seems to imply in another section of its conditional use application, it will have a very limited impact on the economy of the Mini-Cassia area unless the entire vertically integrated organization is located in the Mini-Cassia region. This is not what Big Sky proposes in its conditional use permit.

(6) Big Sky stipulates that it "will not be or create conditions that are unreasonably harmful or dangerous to the individual safety or welfare of persons on the premises or living or working in the vicinity of its operation."<sup>14</sup> This assurance pertains to the social and health costs of hosting a hog CAFO and it appears to be at variance with the experience of workers at other large hog production facilities. For example, a University of Iowa study found a high rate of respiratory problems among people who lived near a 4000 hog operation. It also found that 25 to 30 percent of workers in hog operations develop respiratory symptoms including chronic bronchitis and chronic sinusitis.<sup>15</sup>

Occupational lung disease in swine confinement areas is very common--in fact it is more the rule than the exception. Asthma-like symptoms have been documented in 11 percent of Iowa swine confinement workers.<sup>16</sup> Bronchitis affects as many as 70 percent of exposed workers. While bronchitis may dissipate within a year with decreased exposure to the environment in swine sheds, continued exposure may lead to chronic bronchitis which occurs at least three weeks out of every month. About 25 percent of swine workers have chronic bronchitis. In addition, about 20 percent of all swine workers have nonallergic occupational asthma.<sup>17</sup>

One third (33 percent) of all swine workers have reported episodes of organic dust toxic syndrome (ODTS) which is a flu-like illness. As little as two hours of exposure per day may initiate acute symptoms of these diseases and six years or more of exposure makes the incidence of disease much higher.<sup>18</sup>

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<sup>10</sup> Ibid.

<sup>11</sup> "Supporting Documentation and Concluding Remarks," op. cit.

<sup>12</sup> Application for Conditional Use Permit, Before the Board of County Commissioners, Cassia County, Idaho, CU991002, October 12, 1999.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> "Easing rules on hog farms eyed in end-of-session bill", The Colorado Springs Gazette, Colorado Springs, Colorado, April 24, 1999, p. B8.

<sup>16</sup> Donham, K.J., Merchant, J.A., et al., "Preventing respiratory disease in swine confinement workers: interventions through applied epidemiology, education, and consultation," American Journal of Industrial Medicine, Vol. 18, 1990, pp. 241-262.

<sup>17</sup> Thorne, Peter S.; Donham, Kelley J.; Dosman, James; Jagielo, Paul; Merchant, Janes A.; and von Essen, Susanna, "Occupational Health," Understanding the Impacts of Large-scale Swine Production, Proceeding from an Interdisciplinary Scientific Workshop, Des Moines, Iowa, June 29-30, 1995, pp. 159-160.

<sup>18</sup> Donham, K.J. and Gustafson, K. E., op. cit., pp. 137-142.

There is also some evidence that odors from swine facilities can produce real illnesses in affected populations adjacent to these facilities. Schiffman et al. found that people living near swine operations and those who smelled odors were significantly more angry, depressed, tense, fatigued, confused, and less vigorous than a control group who did not live next to swine operations.<sup>19</sup> There is also anecdotal evidence of respiratory symptoms in the vicinity of hog CAFOs that are related to pollution from the CAFOs.<sup>20</sup>

(7) Big Sky claims it “may employ as many as 800 people.”<sup>21</sup> This figure is meaningless for economic impact analysis because it says the number of employees could be as few as zero or as many as 800. Further, the application contains no reference to the total cost of the facility or to the amount of that cost that would be spent in Cassia County. These omissions are curious for a report that provides an internal rate of return on investment that has been calculated to one tenth of one percent and county tax payments that are presented as accurate to within \$10.00.

## II. Comments on the impact of Big Sky’s proposal on economic development in Cassia County.

There is a significant difference between economic growth and economic development. Economic growth concentrates on short-term changes in jobs or price while economic development has the objective of creating a diversified economy that is capable of providing jobs, economic stability and economic growth for the citizens of a region over the long term. The town of Burley and Cassia County have both begun to focus on economic development. In early 1998, 80 members of the Mini-Cassia business community met after the shock caused by Simplot laying off 400 workers “made the community aware that the region was too dependent on food processing and those few crops grown in the area.”<sup>22</sup> In addition, the city of Burley has begun public hearings for ideas for a five-year revitalization plan for its downtown area.<sup>23</sup>

As opposed to these efforts, the confined animal feeding operation (CAFO) proposed for Cassia County neither diversifies the regional economy nor improves the long term economic health of the region. Instead, Big Sky cites its effect on short term gains to developers and investors. For example, Big Sky’s proposal speaks of providing “handsome incomes for the developers” and “an internal rate of return for invested capital of 73.9%.”<sup>24</sup> Whether or not these are admirable goals, they do not contribute to the long-term economic development of the region.

A number of scientific studies have shown that hog CAFOs are no more efficient than a significant percentage of conventional hog producers.<sup>25</sup> Indeed, studies have shown that “during relatively low input costs-output prices the pasture system provided the highest return above all costs per sow” and “the pasture system provided the highest income above variable costs per sow for the feeder pig production phase for all swine prices and feed cost levels studied.” Further “...total confinement...had...the highest risk [and]...the pasture system provided more stable returns, thus a lesser

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<sup>19</sup> Schiffman, S.S., et al., “the effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents,” *Brain Research Bulletin*, vol. 37, no. 4, 1995, pp. 369-375.

<sup>20</sup> National Pork Producers Council Report, 1991.

<sup>21</sup> “Supporting Documentation and Concluding Remarks,” op. cit.

<sup>22</sup> “Magic Valley,” *Idaho Employment*, vol. 11.1, February, 1999, p. 32.

<sup>23</sup> “Magic Valley,” *Idaho Employment*, vol. 11.10, October, 1999, p. 16.

<sup>24</sup> *Application for Conditional Use Permit*, op. cit.

<sup>25</sup> See: “Iowa Livestock Enterprise Summaries,” op. cit., 1992, 1993, 1994.

and

Lasley, et al., op. cit., p. 123.

amount of risk.”<sup>26</sup> In spite of this, hog CAFOs have captured a large and increasing share of the hog market over the last thirty years.<sup>27</sup> The success of hog CAFOs against other forms of production can be attributed to four characteristics of all hog CAFO operations:

(1) The use of capital intensive production methods. CAFOs use less labor and more machinery to achieve production output.

(2) Employment of a production methodology that maximizes the tax benefits of the corporation.

(3) The use of vertically integrated operations where separate divisions of the same company produce the different stages of a product and market their output to one another.

(4) The use of cost shifting to reduce the costs of production. Cost shifting occurs when the costs of health problems, traffic, social problems and pollution (odors, chemical and particulate air pollution; chemical, pathogen, and particulate water pollution) are transferred to the residents of a region and are neither paid by the company responsible for the costs nor included in the price of the products they market.

Regional economic development proceeds on the premise that the wages paid and purchases made by a company are transferred to other individuals or companies in the region. The multiplier effect of these payments further assumes that they are again spent within the confines of the region and that they do not “leak” into other areas of the state or nation. However CAFOs are specifically structured to limit these kinds of payments. For this reason, the four characteristics of CAFOs listed above are fundamentally incompatible with regional economic development. In fact, the issue is not that a CAFO is unlikely to aid regional economic development, the issue is that CAFOs are structured so that they cannot aid regional economic development for the following reasons:

#### (1) Constraints on Regional Economic Development Due To Employment

As a capital intensive company, a CAFO such as Big Sky’s proposed hog operation has been designed to minimize the number of workers involved and hence, minimize the economic impact of Big Sky’s proposed operation on the Mini-Cassia region. Big Sky’s conditional use permit application claims it could employ “as many as 800 people” [author’s emphasis].<sup>28</sup> This figure is at variance with actual employment figures at other hog CAFO operations. A 1998 Colorado State University study found that 3-4 direct jobs (jobs with the hog producer) are created for every 1000 sows in a CAFO sow farrowing operation.<sup>29</sup> This implies that 150-200 direct jobs would be created at the proposed Big Sky CAFO --if management and staff were located in the county. Big Sky also claims that the “collateral employment multiplier [is] estimated at 1.8x for every direct employee.”<sup>30</sup> This agrees with the Department of Commerce RIMS II model for Eastern Idaho--if one chooses to treat Big Sky’s operation as an agriculture operation. However, if one treats this CAFO as what it is, a factory operation, the multiplier should be similar to that for miscellaneous manufacturing, or about 1.35.<sup>31</sup> Thus, instead of the direct and indirect employment implied in Big Sky’s conditional use permit application of

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<sup>26</sup> Kliebenstein, James B. and Slepser, James R., “An Economic Evaluation of Total Confinement, Partial Confinement, and Pasture Swing Production Systems,” Research Bulletin 1034, University of Missouri-Columbia College of Agriculture, February, 1980.

<sup>27</sup> The number of hog farms in the US dropped from about 900,000 in 1970 to 139,000 in 1997 while pork production remained relatively constant. Drabenstott, Mark, “This Little Piggy Went to Market: Will the New Pork Industry Call the Heartland Home?”, Economic Review, Q3, Vol. 83, No. 3, Federal Reserve Bank of Kansas City, Third Quarter, 1998, p. 82.

<sup>28</sup> Application for Conditional Use Permit, op. cit.

<sup>29</sup> Park, Dooho, Lee, Kyu-Hee, and Seidl, Andrew, “Rural Communities and Animal Feeding Operations,” Department of Agricultural and Resource Economics, Colorado State University, Ft. Collins, CO, 1988.

<sup>30</sup> Application for Conditional Use Permit, op. cit.

<sup>31</sup> RIMS II, Department of Commerce, Bureau of Economic Analysis, Washington, DC, October, 1997.

$$800 \times 1.8 = 1440 \text{ employees}^{32}$$

the actual amount of employment in Cassia County, both direct and indirect is more likely to be

$$150\text{-}200 \times 1.35 = 200\text{-}270 \text{ employees.}$$

It is likely that even this figure overstates the economic impact on Cassia County. For the employment multiplier to operate at the levels specified in the RIMS II model, all employees must both live and work in Cassia County. Given the short commute from Twin Falls, and Big Sky's own observation about the "significant need for housing"<sup>33</sup> in Cassia County, it is likely that most workers will live well outside the region and that the actual employment multiplier will be further depressed.

Average wages for swine workers in 1998 were:

Manager	\$33,022
Asst. Manager	\$26,067
Farrowing Manager	\$25,800
Herdsmen	\$22,463

and managers are usually recruited from outside the community. Other jobs may be filled with local people.<sup>34</sup> To the extent that hog farm workers live in Cassia County, a portion of these wages would be spent in the local economy. However, the proximity of Twin Falls is again likely to lessen the impact of these expenditures.

The size of the employment multiplier will further depend on amount of purchases that Big Sky itself makes in the Mini-Cassia region. However, large scale hog production facilities are more likely to purchase their inputs from a great distance away, bypassing local providers in the process.<sup>35</sup> A 1994 study by the University of Minnesota Extension Service found that the percentage of local farm expenditures made by livestock farms fell sharply as size increased. Farms with a gross income of \$100,000 made nearly 95% of their expenditures locally while farms with gross incomes in excess of \$900,000 spent less than 20% locally.<sup>36</sup>

Cassia County also produces a large amount of grain. Hog production can occasionally benefit grain production, but only when it consumes all the grain produced in the county. If the county has to export even one bushel of grain, all the grain in the county will have to be priced at a lower level that will enable the grain to compete in the export market.<sup>37</sup>

## (2) Constraints on Regional Economic Development Due To Taxes

Federal, state and local taxes are levied on the taxable amounts calculated on federal returns. The numerous tax write-offs that are possible because hog CAFOs are treated as industries and not farms lower the amounts of taxes paid locally at the same time the operations of the hog CAFO create social, health and traffic costs that the local government must finance. The local government, in turn, must rely on increased taxes to pay these costs--and this decreases other economic activity in the region.

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<sup>32</sup> Note: Big Sky uses the words "as many as" 800 instead of the actual employment figure.

<sup>33</sup> "Supporting Documentation and Concluding Remarks," op. cit.

<sup>34</sup> Park, et al., op cit.

<sup>35</sup> Lawrence, John D., et al., "A Profile of the Iowa Pork Industry, Its Producers, and Implications for the Future," Staff Paper No. 253, Department Of Economics, Iowa State University, 1994.

<sup>36</sup> Chism, John, and Levins, Richard, "Farm Spending and Local Selling: How Do They Match Up?," Minnesota Agricultural Economist, no. 676, University of Minnesota Extension Service, Spring, 1994.

<sup>37</sup> Hayes, Dermot, Iowa's Pork Industry--Dollars and Scents, Iowa State University, January, 1998.

For example, additional costs associated with hosting a CAFO include increased health costs (see discussion above), traffic, accidents, and repairs. One Iowa community estimated that its gravel costs increased by about 40% (about \$20,000 per year) due to truck traffic to hog CAFOs with 45,000 finishing hogs. Annual estimated costs of a 20,000 head feedlot on local roadways were \$6447 per mile due to truck traffic.<sup>38</sup> Colorado counties that have experienced increases in livestock operations have also reported increases in the costs of roads, but specific dollar values are not available.<sup>39</sup> In addition, an Iowa study found that while some agricultural land values increased due to an increased demand for “spreadable acreage,” total assessed property value, including residential, fell in proximity to hog operations.<sup>40</sup>

### (3) Constraints on Regional Economic Development Due To Vertical Integration

Vertical integration requires purchases from and sales to other members company, not from local producers and suppliers. Thus, vertically integrated companies stimulate regional economies only to the extent that the other elements of the company are located in the region. Historically, this factor has dramatically limited the economic impact of CAFOs on the regions in which they are situated. For example, Lawrence found that in Iowa smaller hog operations (less than 700 head annually) purchased 69 percent of their feed within 10 miles of the operation. Large hog operations (2000 or more hogs per year) that are more likely to be vertically integrated only purchased 42 percent of their feed within 10 miles of the operation.<sup>41</sup>

### (4) Constraints on Regional Economic Development Due To Cost Shifting

The previous three sections have described the reasons inherent in the structure of hog CAFOs that most of the money from a hog CAFO will either be directly spent outside the region or it will quickly migrate there. However, through cost shifting the CAFO will leave the costs of its odor, health risks, surface water pollution, ground water pollution and in the long run, its abandoned lagoons and facilities, for the region to deal with. This directly effects both long and short run economic development.

Put bluntly, every company has many choices of location and active recruitment is practiced by most regions. Quality of life is a major factor in decisions to locate in a region, and most companies would never consider locating in an area where large hog farms are operating. In addition, large hog farms adversely impact the value of neighboring property in the region.

Palmquist et al., in a 1995 study in North Carolina, found that neighboring property values were affected by large hog operations based on two factors: the existing hog density in the area and the distance from the facility. The maximum predicted decrease in value of 7.1 percent occurred for houses within one-half mile of a new facility in a low hog farm density area. [Note: this would mirror the situation in Cassia County where hog farm density is currently low.] A 1997 update of this study found that home values decreased by \$.43 for every additional hog in a five mile radius of the house. For example, there was a decrease of 4.75% (about \$3000) of the value of residential property within 1/2 mile of a 2,400 head finishing operation where the mean housing price was \$60,800.<sup>42</sup>

From what evidence does exist, it also appears that large hog facilities also have a negative impact on rural residences. Negative impact decreases as distance from the facility increases and in

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<sup>38</sup> Duncan, M.R., Taylor, R.D., Saxowsky, D.M., and Koo, W.W., “Economic Feasibility of the Cattle Feeding Industry in the Northern Plains and Western Lakes States,” Agricultural Economic Report No. 370, Department of Agricultural Economics, North Dakota State University, 1997.

<sup>39</sup> Park et al., op. cit.

<sup>40</sup> Ibid.

<sup>41</sup> Lawrence et al., op. cit.

<sup>42</sup> Palmquist, R. B. et al., “The Effects of Environmental Impacts from Swine Operations on Surrounding Residential Property Values,” Department of Economics, North Carolina State University, Raleigh, North Carolina, 1995.

areas that already have a large number of hog operations.<sup>43</sup> A 1996 study by Padgett and Johnson found much larger decreases in home value than those forecast by Palmquist. In Iowa, hog CAFOs decreased the value of homes in a half-mile radius by 40%, within 1 mile by 30%, 1.5 miles by 20% and 2 miles by 10%.<sup>44</sup>

### **Conclusion**

Hog CAFOs do not diversify a regional economy already dependent on agriculture. Instead, they damage the ability of the region to attract diversifying economic growth and they cause property values around the hog sites to decrease. In the long run, the legacy of pollution and site abandonment that accompanies hog CAFOs hinders long-term economic development and makes the region a magnet for other dirty operations who are looking for contaminated, brown field sites that can be used for further contaminating operations.

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<sup>43</sup> Lasley et al., op. cit., p. 123.

<sup>44</sup> Park et al., op. cit.