

ANALYZING THE COSTS AND THE BENEFITS

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state. It is critical that the people of Iowa are informed on the tradeoffs involved as they help shape that future direction.

All decisions to produce and consume goods and services involve benefits and costs. Decisions with respect to the future of the Iowa economy are no exception. Increased hog production enhances crop prices, value added opportunities, farm incomes and local jobs. At the same time, increased production increases animal waste and odor, water quality, property value, health risk, structure and quality of life concerns.

Such tradeoffs have long existed in rural Iowa. However, the scale of modern agriculture, coupled with rural living patterns, community development and occasional failure of large scale waste handling facilities, has increased public awareness, concern and debate.

As decisions are made on the future of the hog industry, it is important to analyze the key costs and benefits associated with future hog production in the state. These costs and benefits can be viewed as tradeoffs associated with expanding the industry versus preventing expansion.

Measuring the Changes

Expansion of the industry is typically measured by numbers of hogs. But it can also be characterized by concentration and size of operation, type and location of facilities, waste management practices, and ownership of production activities. It is probably safe to say that any expansion of hog production in Iowa will raise questions and concerns over these characteristics of production. Because

of the changing structure of the industry, most new and expanding operations will attempt to minimize the cost of production to compete with pork producers in other states and countries, and with competing meats and food products.

Another important characteristic is the method of production: farrowing versus finishing versus farrow-to-finish operations. Farrowing is typically more labor-intensive and requires higher skilled, higher paid labor. These different labor demands for each type of production have important implications for local job markets and rural communities.

The list of potential negative impacts associated with expansion includes increased animal wastes and odors as well as concerns for property values, potential surface and groundwater quality damage from leaks, spills, and abandonment, reduced quality of life, and increased safety and health risks.

Potential positive impacts include increased organic plant nutrients for crop production, more value added products, more local and state products, greater tax revenues, maintaining the state packing plants, more jobs, and more people in agriculture and rural areas.

Both the costs and benefits are critical in a local and state context. The costs become even more important when they are localized and impact individuals and families. Likewise, the benefits are important, especially when you are a primary beneficiary.

Other impacts of expanding hog production have less definitive impacts. For example, livestock waste can significantly enhance soil productivity when handled optimally. Likewise, industry expansion can create new job opportunities in rural communities, such as new feed mills, waste management and equipment firms. But industry expansion may reduce retail trade in some small communities.

Tax revenues are increased but social service demands for health and education may also

increase. New economic development opportunities are created but some firms may be discouraged from locating too near waste and odor problems. Rural road maintenance demands may increase but from these road improvements other rural residents also may benefit.

Studying the Trends

Another way to view the economics of the hog industry in Iowa is to ask, and benefits of preventing expansion, larger-size operations, and outside investment and ownership? other words, what are the costs and benefits of maintaining the status quo?

We live in a very dynamic environment and economy. Iowa agriculture has continued to evolve since the settlement days of the 19th Century. The trend to fewer and larger farms has continued unabated since the Great Depression. Even the farm financial crisis of the 1980s had relatively minor impacts on this trend.

Agriculture has become more specialized in both livestock and crop production. There have been government programs designed to diversify agricultural activities, including efforts to encourage sustainable systems that use fewer purchased inputs. But economic incentives and forces have overwhelmingly maintained the trend to larger-size and fewer operations. Even though federal farm programs may have slowed the transition, these have been unsuccessful at reversing this trend.

Given the dynamic nature of the economy, the clock cannot be turned back, nor can it be stopped to maintain the present situation. Policies can be adopted to halt growth of the industry, but they will lead to disinvestment and the industry will continue the current decline that is occurring in Iowa. Competition from surrounding states and other countries will make it less profitable to invest in traditional production activities. Declining production will encourage the packing industry to move outside Iowa and further reduce returns to Iowa producers.

The choices we face are growth, possibly modified by policies to protect environmental quality, or continual decline of the pork industry. We need to consider the explicit costs and benefits of both options and articulate the tradeoff that Iowa people face.

Measuring the Costs

What are the costs of an expanded pork industry in Iowa?

- If not managed as a resource, livestock waste can cause air quality (odor) problems and concerns. The larger scale production facilities have increased quantities of manure to store and thus created greater potential for problems if appropriate technologies are not employed. A second odor problem can occur at the time of application.

To deal with these costs, attention can be given to the type of storage facility being used, as odors generated by these facilities vary significantly. New technologies also have the potential to reduce odor from storage facilities. In addition, odor at the time of land application can be reduced by incorporating the manure into the soil.

- Water quality problems are primarily tied to leaks and spills during storage and application to frozen and non-tilled ground. Improperly constructed waste management facilities can potentially leak or spill directly into waterways, drainage wells, and underground tiles, contaminating both surface and groundwater. Surface waters have been impacted by spills and leaks in Iowa, fish kills have occurred and water use has been restricted. One case of prohibited discharge has been pursued where livestock wastes entered an agricultural drainage well following land application.

Documented cases of groundwater contamination, which is a more persistent problem and more costly to rectify, have not been directly connected to large size hog operations in Iowa. A significant concern does exist because the increased risk of pathogen contamination of water supplies from a large

size operation could be costly with respect to safe drinking water supplies.

But if properly constructed, leaks and spills should not occur from storage facilities unless there is an episodic storm event. And if properly managed as a valuable nutrient, land application of manure can be done without the danger of water contamination.

- Concerns exist about the community impacts of large scale hog operations, with the possibility that fewer operations will lead to fewer people doing business on Main Street.

But opinions surfaced in 10 focus groups convened by ISU researchers in the summer of 1997 showed the fiscal and employment impacts of large operations are positive. Participants said the loss of ag suppliers can be attributed to reductions in farm numbers, rather than changes in the pork industry. Both producers and agribusinesses said that without the adoption of new technology and production systems, there would be even fewer farmers to trade locally.

Measuring the Benefits

What are the benefits of an expanded pork industry in Iowa?

- Iowa markets about 24 million hogs a year, generating sales revenue of approximately \$2.6 billion. Pork production and processing adds more than \$3 billion to state product (value added), \$2.9 billion to personal income, and 89,000 jobs. Hogs account for more than half of livestock sales and 30 percent of agricultural sales. An expanded pork industry would increase these numbers.

- The magnitude of the hog industry in Iowa increases local corn and soybean prices (lowers the basis). Further, hog numbers support a large processing industry (11 packing plants and numerous smaller plants that further process pork) in the state which leads to more favorable prices for local pork producers because of reduced transportation costs. An expanded pork industry would maintain or improve the current situation.

- If managed as a resource, the value of the nutrient components of hog manure is estimated at \$2.00 to \$3.00 per hog produced. In addition, hog manure improves soil properties in ways that commercial N and P cannot.
- Fiscal impacts of new hog facilities provide a significant net benefit to local communities, counties and the state. For a 1,200 sow operation, local revenues exceed local expenditures by more than \$10,000 and net revenues to state government exceed \$17,000.
- Counties that attract or retain pork processing facilities have greater employment and earnings growth than the state average.
- A national survey finds that large scale pork operations use new technologies more intensively, thus they employ more skilled and specialized labor and offer higher salaries and benefits than small scale competitors.

Deciding the Future

What will happen to Iowa's agriculture industry if future growth of large size operations is constrained?

- Over the last five years, the number of farms producing hogs declined by 40 percent, or 14,000 farms. Farms with less than 500 hogs accounted for 84 percent of this decline. Farms with more than 1,000 hogs market more than 50% of the state's hogs but account for less than 15 percent of the producers. There is no economic reason to expect a reversal, or even slowing, in the rapidly declining number of small producers. Constraints on investment in larger operations would probably eliminate new investment, and Iowa hog production would continue the current decline.
- Every hog produced uses about 13 bushels of corn and almost four bushels of soybeans. The pork industry creates employment, value added products, and incomes that are typically spent in

Iowa's communities. Iowa has lost roughly 20 percent of the state's hog inventory in the last four years. Declining hog production will mean reduced prices and incomes to corn and soybean producers, packing plant closings that reduce the prices paid to local hog producers (e.g., on average Iowa pork producers receive \$2 per hundredweight more than producers in Kansas and Missouri), and reduced tax revenue and expenditure impacts on rural Iowa.

- With fewer hogs, the continued trend to larger size grain farms will likely be hastened to more efficiently utilize available operator labor and management skills as competing labor demands are reduced. This means more unprocessed corn and soybeans will be exported out of Iowa to other states and countries. Larger grain trucks will be hauling more grain further distances to railroad and barge loading terminals.

There is little doubt the questions surrounding Iowa's pork industry are difficult and the answers are complicated. But a careful comparison of the costs and benefits of the current industry, and the potential costs and benefits of either expanding or constricting the industry, must be an important part of the search for answers to the questions that exist.

What choices do Iowans face?

- Reduce the numbers and limit the size of pork production facilities to protect the environment and quality of life.
- Increase hog production facilities in Iowa with little concern about environmental and quality of life concerns.
- Develop policies that encourage growth of profitable pork production in Iowa and, at the same time, protect the environment and quality of life in rural Iowa.

According to our survey of rural Iowa residents, most believe the third option is possible. Now

is a good time to shift the debate away from the first two options and focus on solutions beneficial to Iowa.