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October 1998

### Nebraska's Changing Agriculture: Perceptions about the Swine Industry

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# THE CENTER FOR RURAL COMMUNITY REVITALIZATION AND DEVELOPMENT

A Working Paper\*

**Nebraska's Changing Agriculture:  
Perceptions about the Swine Industry**

*1998 Nebraska Rural Poll Results*

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Center Working Paper 98-5, October 1998.

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## *Executive Summary*

The livestock industry has been restructuring during the past several decades, resulting in fewer and larger farms as well as some vertical integration. One particular livestock sector, hogs, has received much attention in Nebraska during the past year. An increase in the applications for new hog confinement facilities has caused concern for some rural residents. Some are worried about environmental damage, while others are concerned about economic implications for smaller farms. However, supporters of these facilities point to additional jobs and other economic benefits they can bring to a community. Given these issues, how do rural Nebraskans feel about large-scale pork production facilities? What do they feel are the economic, environmental and social impacts of these operations? Have they directly experienced any negative effects of livestock production?

This report details results of 4,196 responses to the 1998 Nebraska Rural Poll, the third annual effort to take the pulse of rural Nebraskans. Respondents were asked a series of questions about pork production including: their concerns regarding various locations of large-scale facilities, their perceptions about the impacts these facilities have, and if they have experienced any negative effects of livestock production. Comparisons have been made among different subgroups of respondents, e.g., comparisons by community size, region, age, occupation, etc. Based on these analyses, some key findings emerged:

- ***Rural Nebraskans become increasingly concerned about the development of large-scale pork production facilities as these proposed developments approach their residences.*** While 38% of the respondents were very concerned about the development of these facilities in Nebraska, this increased to 49% when the facilities would be within their local community and 69% when they would be within a mile of their residence.
- ***Over one-half of rural Nebraskans agree that smaller pork production facilities are better than large-scale facilities for both the state and local economy.*** Approximately fifty-seven percent of the respondents agreed with these two statements. Conversely, only 12% thought larger facilities were better for the state's economy, and 16% thought the larger facilities were better for the local economy.
- ***The majority of rural Nebraskans are concerned about the environmental impacts of pork production facilities.*** Fifty-four percent agreed that even if properly managed, large-scale pork production facilities damage the environment. And almost three-quarters of the respondents (73%) agreed that all hog operations should be monitored for proper treatment and disposal of wastes. Seventeen percent agreed that only large operations should be monitored.
- ***Rural Nebraskans have mixed opinions on the desirability of pork production.*** Thirty-six percent of the respondents agreed that it is better to have some pork production and

some odor problems in their community. However, almost an identical proportion (35%) agreed that it is better to have no pork production and no odor problems in their community. Thirty percent were undecided.

- ***A majority of rural Nebraskans feel that large-scale facilities owned by local farmers are better for their community than large facilities owned by outside investors.*** Seventy-nine percent of the respondents agreed that large-scale facilities owned by local farmers are better for the community than large-scale facilities owned by outside investors. Only four percent agreed with the opposing view, that large-scale facilities owned by outside investors are better than those owned by local farmers.
- ***Over one-half of rural Nebraskans were undecided about the effects of the location of large-scale pork production facilities in a community on its social relations.*** Fifty-two percent were undecided regarding the effect these large facilities have on a community's social relations. Thirty-nine percent thought these facilities would diminish social relations in the community.
- ***Over one-half of rural Nebraskans agreed that if large-scale pork production facilities locate in a community, market access for smaller farms will decline.*** Fifty-four percent of the respondents agreed with this statement, while thirty-four percent were undecided. Only thirteen percent agreed that market access for smaller farms would increase if these facilities locate in a community.
- ***Some rural Nebraskans are more concerned than others about large-scale pork production facilities.*** In general, there was considerable concern expressed about large-scale pork production facilities across all types of respondents to the 1998 Nebraska Rural Poll. However, the level of concern tended to increase with the age of the respondent; and tended to be higher (a) among those living in smaller communities and in Northeast Nebraska, and (b) among males, those with lower incomes and lower educational levels, and farmers/ranchers.
- ***The majority of rural Nebraskans either didn't know or said they had not directly experienced the following as a result of livestock production: high nitrates in drinking water supply, contamination of local surface water, unacceptable dust levels, and unacceptable noise levels. However, the majority of respondents stated they had experienced at least a minor level of unacceptable odor.*** Sixty-nine percent of the respondents didn't know or hadn't experienced high nitrates and sixty-eight percent didn't know or hadn't experienced surface water contamination. The proportions responding either "don't know" or "none" for unacceptable dust and unacceptable noise were 55% and 71%, respectively. However, sixty-four percent had experienced at least a minor level of unacceptable odor as a result of livestock production.

## *Introduction*

The livestock sector has experienced restructuring during the past several decades. The number of farms have declined, the size of farms have increased, and some vertical integration has occurred. The changes occurring in one particular livestock sector, hogs, have become quite controversial.

Large pork production facilities have been in the news throughout Nebraska during the past year. An increase in the number of applications for new hog confinement facilities received by the Department of Environmental Quality has generated concerns by some rural residents. Many are worried about possible environmental damage they have heard about in other states as well as economic implications. Some are worried that these larger operations will force smaller farmers out of business. Others worry that the larger operations do not do business in the local community. However, supporters of these larger pork production facilities point to added jobs and other economic benefits they can bring to a community.

Given these issues, how do rural Nebraskans feel about large-scale pork production facilities? What do they feel are the economic, environmental and social impacts of these operations? Have rural Nebraskans already directly experienced any negative effects of livestock production?

This paper provides a detailed analysis of responses to these questions. Respondents were asked a series of questions about large-scale pork production facilities including:

their concerns about various locations of these facilities; their perceptions about various economic, environmental and social impacts these larger facilities have; and if they had experienced any negative effects of livestock production. Comparisons are made among different subgroups of the respondents, e.g., comparisons by community size, region, age, income, occupation, etc.

## *Methodology and Respondent Profile*

This scientific study is based on 4,196 responses from Nebraskans living in non-metropolitan counties in the state. A self-administered questionnaire was mailed to approximately 6,500 randomly selected households during February and March. Metropolitan counties not included in the sample were Cass, Dakota, Douglas, Lancaster, Sarpy and Washington. All of the other 87 counties in the state were sampled. The 14 page questionnaire included questions pertaining to well-being, community, work, taxes and school financing, and pork production. This paper reports only results from the pork production portion of the survey. The poll's margin of error is plus or minus 3 percent.

A 65% response rate was achieved using the total design method (Dillman, 1978). The sequence of steps used were:

1. A pre-notification letter was sent requesting participation in the study.
2. The questionnaire was mailed with an informal letter (signed by the project director) seven days later.
3. A reminder postcard was sent to the entire sample approximately seven days after the questionnaire had been



- sent.
4. Those who had not yet responded within approximately 14 days of the original mailing were sent a replacement questionnaire.

The average respondent was 51 years of age. Ninety-five percent were married (Appendix Table 1<sup>1</sup>) and fifty percent lived in a town or village. On average, respondents had lived in their current town or village 29 years and had lived in Nebraska 44 years. Seventy-two percent were living in or near towns or villages with populations less than 5,000.

Fifty percent of the respondents reported their approximate household income from all sources, before taxes, for 1997 was below \$40,000. Thirty-two percent reported incomes of at least \$50,000. Ninety-five percent had attained at least a high school diploma.

Twenty-nine percent of the respondents report working in a professional/technical or administrative occupation. Sixteen percent indicated they were farmers or ranchers. Twenty-five percent reported their spouses or partners had professional/technical or administrative occupations, while nineteen percent of the spouses/partners were in farming or ranching.

### ***Concerns Regarding Various Locations of Large-Scale Pork Production Facilities***

To determine respondents' level of concern

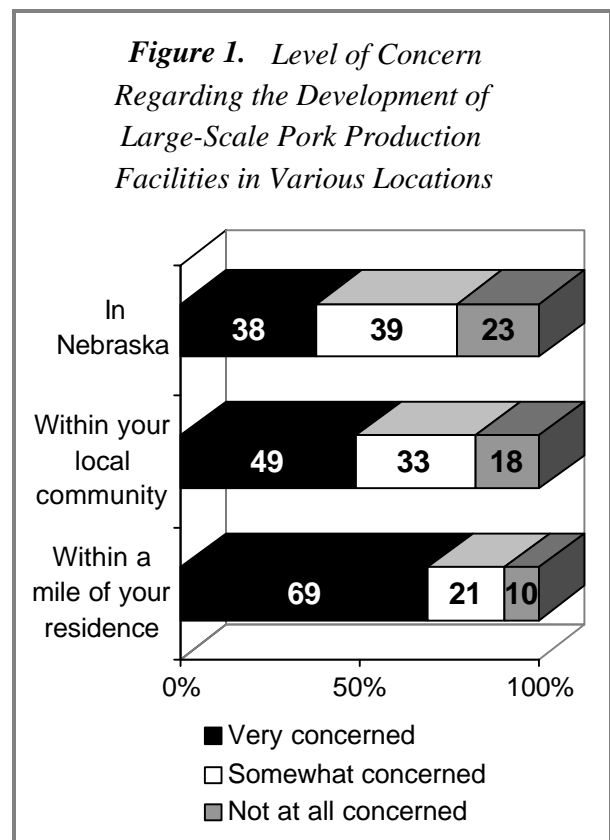
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<sup>1</sup> Appendix Table 1 also includes demographic data from previous rural polls, as well as similar data based on the entire non-metropolitan population of Nebraska (using 1990 U.S. Census data).

regarding various locations of large-scale pork production facilities, they were asked: "How concerned are you about the following?"

- a. The development of large-scale pork production facilities in Nebraska? (By large, we mean 2,000 or more head at one site at one time.)
- b. The development of large-scale pork production facilities within your local community?
- c. The development of large-scale pork production facilities within a mile of your residence?

As expected, the concern levels increase the closer the facility is to the respondents' residence (Figure 1). The proportion "very concerned" with the development of these



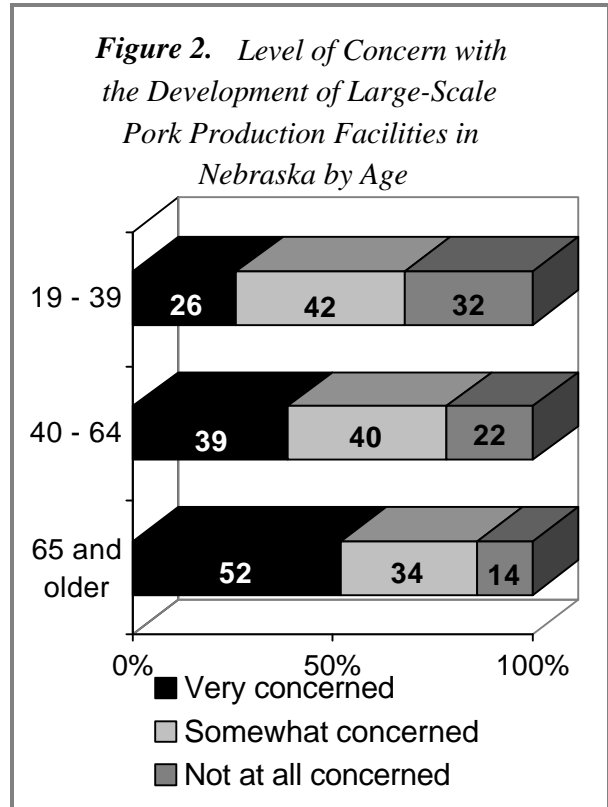
larger facilities in the state was 38%; this increased to 49% when located within their community; and 69% when the development would be within a mile of their residence. Similarly, the proportion “not at all” concerned decreased from 23% when the facility would be within the state to 10% when it would be within a mile of their residence.

Responses to these three questions were analyzed by community size, region, income, age, gender, education and occupation (Appendix Table 2). Concerns about the development of large-scale pork production facilities within Nebraska differed by all of these characteristics.

Respondents living in the Northeast region of the state were more likely than those living in other parts of the state to be very concerned about the development of these facilities in Nebraska (see Appendix Figure 1 for the counties included in each region). Forty-six percent of the respondents living in this region were very concerned about the development of large-scale pork production facilities in the state, compared to only twenty-five percent of the respondents living in the Panhandle.

Older respondents were much more likely than younger respondents to be very concerned about the development of these facilities in Nebraska. Fifty-two percent of the respondents age 65 or older were very concerned with this development, while only twenty-six percent of the respondents between the ages of 19 and 39 expressed this same level of concern (Figure 2).

When comparing responses by occupation,



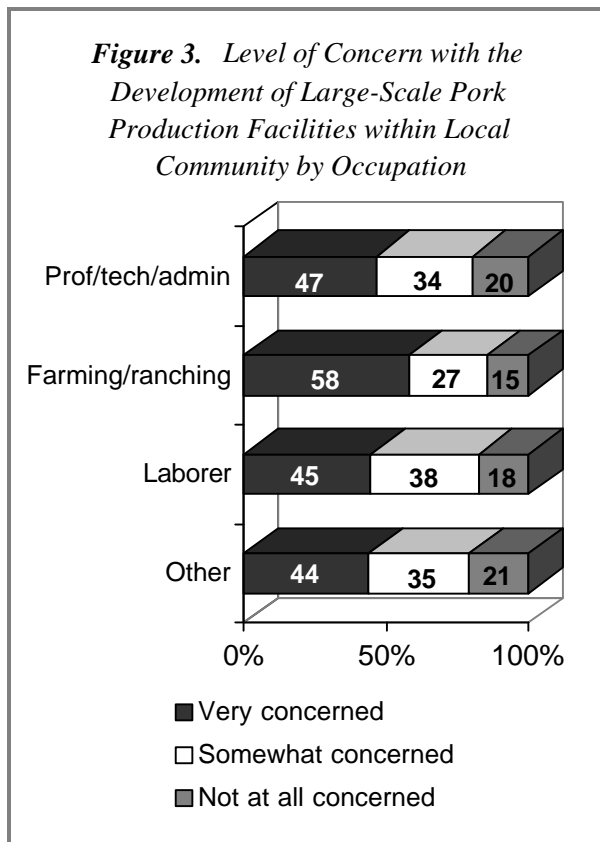
farmers/ranchers were more likely than respondents with other occupations to be very concerned with the development of these facilities in the state. Fifty-three percent of this group were very concerned, compared to thirty-three percent of the respondents with occupations classified as other.

Other groups more likely to be very concerned with the development of these facilities in the state include respondents living in smaller communities, those with lower income levels, males, and those with lower educational levels.

When asked their level of concern with the development of these larger facilities within their local community, responses differed by community size, region, income, age,

gender, education and occupation. Older respondents were more likely than younger respondents to be very concerned with the development of these facilities within their community. Sixty-three percent of the respondents age 65 and older were very concerned with this prospect, compared to only thirty-seven percent of the respondents between the ages of 19 and 39.

Farmers and ranchers were more likely than other occupation groups to be very concerned with the development of large-scale pork production facilities within their community. Fifty-eight percent of the farmers or ranchers were very concerned with this possibility, while only forty-four percent of the respondents with occupations classified as other felt the same (Figure 3).



Respondents in the Northeast region of the state were more likely than those living in other parts of the state to be very concerned with the development of large-scale pork production facilities in their community. Fifty-five percent of the respondents in that region were very concerned with this prospect, compared to thirty-eight percent of the respondents living in the Panhandle.

Other groups more likely to be very concerned with this possibility include respondents living in smaller communities, respondents with lower incomes, males and those with lower educational levels.

When the proposed development would be within a mile of their residence, respondents' levels of concern differed by income, age, education and occupation. Older respondents were more likely than younger respondents to be very concerned about the development of large-scale pork production facilities within a mile of their residence. Seventy-eight percent of the respondents age 65 and older were very concerned about this possibility, however only sixty-two percent of the respondents under the age of 40 were very concerned.

Farmers and ranchers were the occupation group most likely to be very concerned with the development of the large pork facilities within a mile of their residence. Seventy-three percent of this occupation group were very concerned, compared to sixty-six percent of the respondents with professional occupations. When comparing the education groups, the respondents with less education were more likely to be very concerned.

***Opinions Concerning Pork Production***

Next, respondents were given several pairs of contrasting views about pork production in Nebraska. Using a bi-polar question format, respondents were given pairs of opposing views to determine the underlying reasons for the current sentiment regarding large-scale pork production facilities. Respondents were asked their perceptions regarding economic, environmental and social impacts resulting from these large-scale facilities.

The exact question wording was as follows. “Listed below are several pairs of contrasting views regarding pork production in Nebraska. Many of the statements mention large-scale pork production facilities. By large, we mean 2,000 or more

head at one site at one time. For each pair please indicate which one of the two views you *most agree with*— the one in the left-hand column or the one in the right-hand column — by circling the appropriate number on the line between them.”

The answer categories were described as:  
 1 = strongly agree with view in left-hand column  
 2 = mildly agree with view in left-hand column  
 3 = undecided  
 4 = mildly agree with view in right-hand column  
 5 = strongly agree with view in right-hand column

The eight pairs of statements are shown below in the format used in the survey.

- |    |   |   |   |   |   |           |   |
|----|---|---|---|---|---|-----------|---|
| A. | Smaller pork production facilities are better than large-scale pork production facilities for the <u>state's</u> economy. . . . . | 1 | 2 | 3 | 4 | 5 . . . . | Large-scale pork production facilities are better than smaller pork production facilities for the <u>state's</u> economy. |
| B. | Large-scale pork production facilities are better than smaller pork production facilities for the <u>local</u> economy. . . . .   | 1 | 2 | 3 | 4 | 5 . . . . | Smaller pork production facilities are better than large-scale pork production facilities for the <u>local</u> economy.   |
| C. | Even if properly managed, large-scale pork production facilities damage the environment . . . . .                                 | 1 | 2 | 3 | 4 | 5 . . . . | If properly managed, large-scale pork production facilities protect the environment.                                      |
| D. | All hog operations should be monitored for proper treatment and disposal of wastes. . . . .                                       | 1 | 2 | 3 | 4 | 5 . . .   | Only large hog operations should be monitored for proper treatment and disposal of wastes.                                |
| E. | It is better to have some pork production and some odor problems in my community. . . . .   | 1 | 2 | 3 | 4 | 5 . . . . | It is better to have no pork production and no odor problems in my community.   |

<p>F. Large-scale pork production facilities owned by outside investors are better for my community than large-scale facilities owned by local farmers. . . . . 1 2 3 4 5 . . . .</p>	<p>Large-scale pork production facilities owned by local farmers are better for my community than large-scale facilities owned by outside investors.</p>
<p>G. If large-scale pork production facilities locate in a community, social relations there are diminished . . . . . 1 2 3 4 5 . . . .</p>	<p>If large-scale pork production facilities locate in a community, social relations there are enhanced.</p>
<p>H. If large-scale pork production facilities locate in a community, market access for smaller farms will increase. . . . . 1 2 3 4 5 . . . .</p>	<p>If large-scale pork production facilities locate in a community, market access for smaller farms will decline.</p>

Over one-half of the respondents (57%) agreed with the statement that smaller pork production facilities are better than larger facilities for the state’s economy (Figure 4). Almost the same proportion (58%) also agreed that smaller facilities are better than larger ones for the local economy. The respondents were more likely to agree that larger facilities are better for the local economy than they are for the state’s economy (16% and 12%, respectively).

When asked about environmental concerns, over one-half (54%) of the respondents agreed that even if properly managed, large-scale facilities damage the environment. Only 18% felt that if properly managed, these facilities protect the environment. Also, almost three-quarters (73%) of the respondents agreed that all hog operations should be monitored for proper treatment and disposal of wastes. Seventeen percent felt that only the large operations should be regulated.

Opinions were mixed on the desirability of pork production. Thirty-six percent agreed that it is better to have some pork production

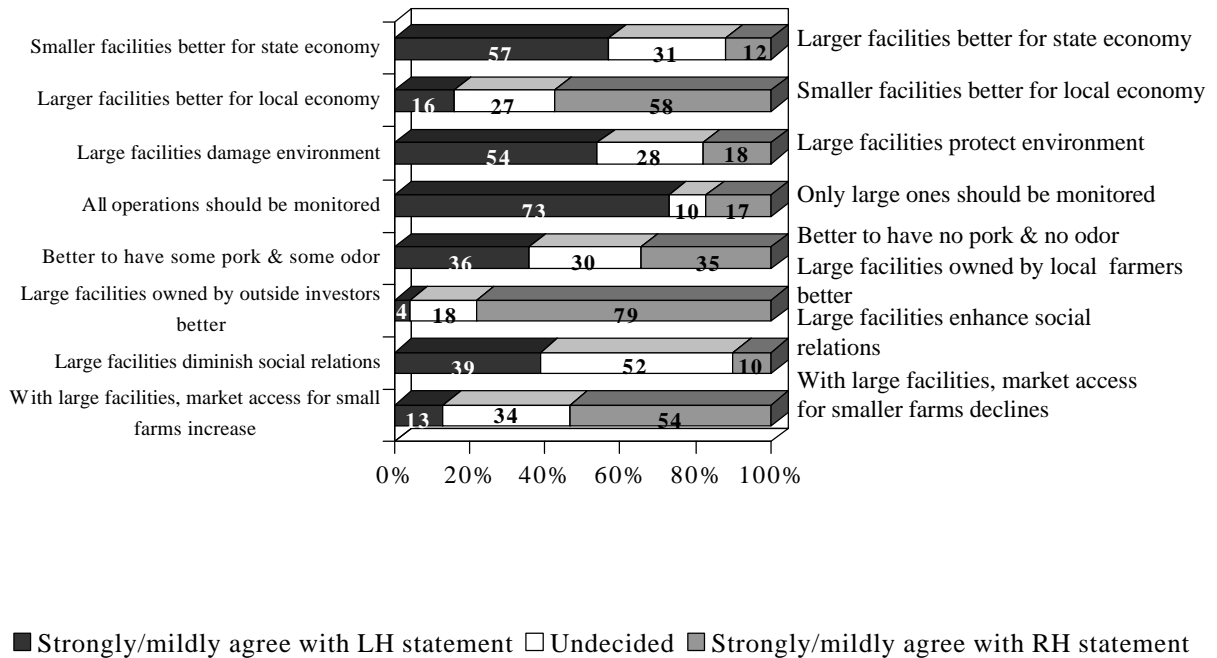
and some odor problems in their community, while thirty-five percent agreed that it was better to have no pork production and no odor problems in their community. Thirty percent were undecided.

Ownership of these operations is important to respondents. Almost eighty percent (79%) of the respondents agreed that larger facilities owned by local farmers are better for their community than are larger facilities owned by outside investors. Only four percent agreed with the opposing view - that facilities owned by outside investors are better than those owned by local farmers.

Over one-half of the respondents (52%) were undecided about the effect these larger pork production facilities have on social relations in a community. Thirty-nine percent agreed that if these larger facilities located in a community, social relations would be diminished. Ten percent felt that they would be enhanced.

Over one-half (54%) of the respondents agreed that if large-scale pork production facilities locate in a community, market

**Figure 4. Opinions Concerning Pork Production**



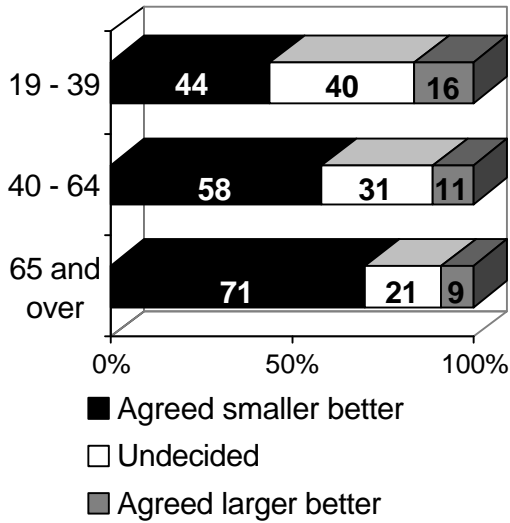
access for smaller farms will decline. Thirteen percent felt it would increase market access for the smaller operations, while thirty-four percent were undecided.

Many of these opinions differed by community size, region, income, age, gender, education and occupation (Appendix Table 3). Respondents living in the Northeast region were more likely than those living in other parts of the state to agree that smaller pork production facilities are better than larger facilities for both the state and local economy. For example, sixty-five percent of the respondents living in this region agreed that smaller pork

production facilities are better for the state's economy; however, only forty-two percent of the Panhandle respondents shared this opinion.

Older respondents were more likely than younger respondents to agree that smaller facilities are better for the state and local economy. Seventy-one percent of the respondents age 65 and older agreed that smaller facilities are better than large facilities for the state's economy; in contrast, only forty-four percent of the respondents age 19 to 39 agreed with this statement (Figure 5).

**Figure 5. Perceived Effect of Small vs. Large Pork Production Facilities on the State's Economy by Age**



When comparing occupation groups, farmers and ranchers were more likely than respondents with different occupations to agree that smaller pork production facilities are better than large ones for both the state and local economy. Seventy-one percent of the farmers/ranchers agreed that smaller facilities are better for the state's economy, compared to only fifty-one percent of the respondents with professional occupations.

Other groups more likely to agree that smaller pork production facilities are better for both the state and local economy include respondents living in smaller communities, respondents with lower income levels and males.

The perceived impact these large-scale pork production facilities have on the environment differed by the various

characteristics of the respondents. Respondents living in the Northeast and North Central regions of the state were more likely than those living elsewhere to agree that large-scale facilities damage the environment even if properly managed. Fifty-eight percent of the respondents living in these two regions agreed with the statement, while only forty-three percent of the respondents living in the Panhandle agreed.

Respondents with lower incomes were more likely than those with higher incomes to believe that large-scale facilities damage the environment, even if properly managed. Sixty percent of the respondents with incomes under \$10,000 agreed that these facilities damage the environment, compared to forty-eight percent of the respondents with incomes of \$75,000 or more.

Older respondents were also more likely than younger respondents to agree with this statement. Sixty-three percent of the respondents age 65 and older agreed, while only forty-six percent of the respondents under the age of 40 shared this belief.

Other groups more likely to agree that large-scale facilities damage the environment even if properly managed were respondents living in smaller communities, those with less education and farmers/ranchers.

Differences of opinion were also detected among these groups when asked which hog operations should be monitored for proper treatment and disposal of wastes. Respondents living in the Panhandle were more likely than those living in other parts of the state to agree that all hog operations

should be monitored. Seventy-eight percent of the respondents in this region agreed with that statement, compared to sixty-five percent of the respondents living in the North Central part of the state.

Respondents with higher incomes were also more likely than those with lower incomes to agree that all hog operations should be monitored. Seventy-six percent of the respondents with incomes of at least \$75,000 agreed with that statement, while only fifty-eight percent of the respondents with incomes less than \$10,000 felt the same.

When looking at the occupation groups, respondents with professional or other occupations were more likely to agree that all hog operations should be monitored. Seventy-six percent of the respondents in these two groups agreed with the statement,

compared to fifty-seven percent of the farmers and ranchers (Figure 6).

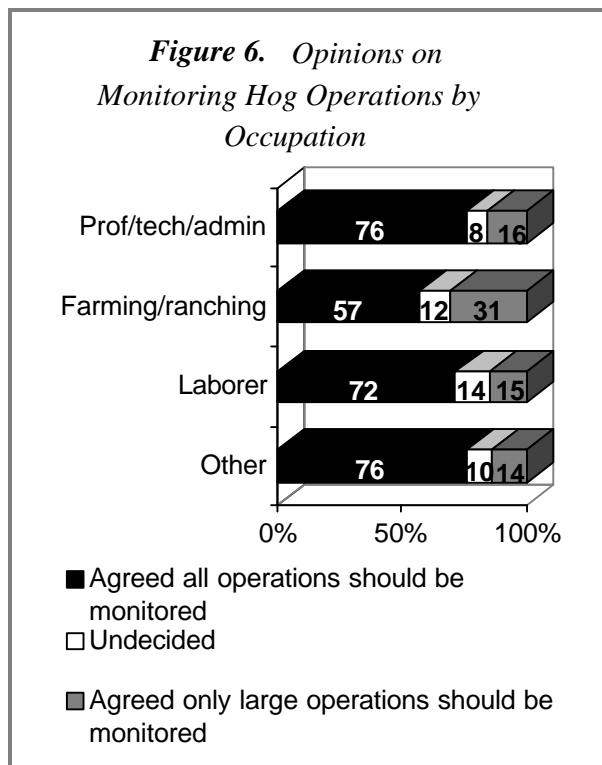
Other groups more likely to agree that all hog operations should be monitored include respondents living in larger communities, younger respondents, females, and those with more education.

Certain groups were also more likely to agree that it is better to have no pork production and no odor problems in their community, rather than some pork production and some odor problems. Respondents with higher incomes were more likely than those with less income to agree that it is better to have no pork production and no odor problems. Thirty-eight percent of the respondents with incomes of \$75,000 or more agreed with that statement, compared to twenty-six percent of the respondents with incomes less than \$10,000.

Respondents with professional occupations were also more likely to agree that it would be better to have no pork production and no odor problems in their community. Forty percent of the respondents with professional occupations agreed with this statement, while only thirty percent of the farmers and ranchers agreed.

Other groups more likely to agree that it is better to have no pork production and no odor problems in their community include respondents living in larger communities, older respondents, males, and those with higher educational levels.

When asked whether it would be better for their community to have large-scale pork production facilities owned by outside





investors or by local farmers, certain groups were more likely to agree that large facilities owned by local farmers would be better. These groups include respondents with more education and farmers/ranchers.

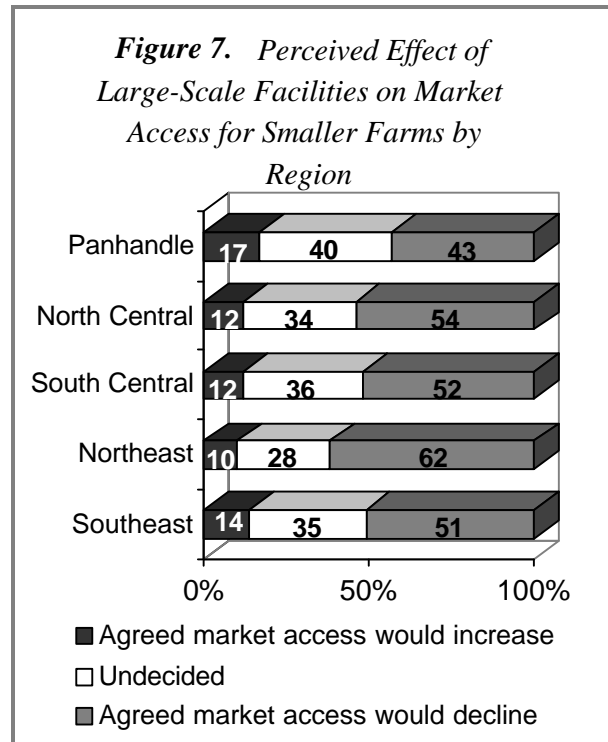
Although over one-half of the respondents were undecided on the impact large-scale pork production facilities have on social relations in a community, some groups were more likely than others to feel that social relations would be diminished. Respondents living in the North Central region of the state were more likely than those living elsewhere to agree that social relations in a community are diminished if these large-scale facilities locate there. Forty-four percent of these respondents agreed that social relations would be diminished, compared to twenty-nine percent of the respondents in the Panhandle.

Older respondents were also more likely to agree that social relations would be diminished. Fifty percent of the respondents age 65 and older agreed with the statement, while only thirty-one percent of the respondents under the age of 40 shared this opinion.

Farmers and ranchers were more likely than other occupation groups to agree with the statement. Fifty percent of farmers and ranchers agreed that social relations would be diminished, compared to thirty-three percent of the respondents who classified their occupation as other. Other groups more likely to agree that social relations in a community would be diminished if a large-scale facility located there include respondents with higher incomes and males.

Differences of opinion were also detected when asked how market access for smaller farms would be affected if large-scale pork production facilities locate in a community. Respondents living in the Northeast part of the state were more likely than those living in other regions to agree that market access for smaller farms would decline if these large facilities locate in their community. Sixty-two percent of the respondents in this region agreed that market access for smaller farms would decline, compared to forty-three percent of the respondents living in the Panhandle (Figure 7).

Older respondents were also more likely than younger respondents to agree that market access for smaller farms would decline if large-scale facilities locate in a community. Sixty-one percent of the respondents age 65 and older agreed that market access would decline, while only



forty-eight percent of the respondents under the age of 40 shared this belief.

Farmers and ranchers were the occupation group most likely to agree with the same statement. Sixty percent of the farmers/ranchers agreed that market access for smaller farms would decline, compared to fifty-one percent of the respondents with professional or other occupations.

Other groups more likely to agree that market access for smaller farms would decline were respondents with lower incomes and males.

### *Experience with Effects of Livestock Production*

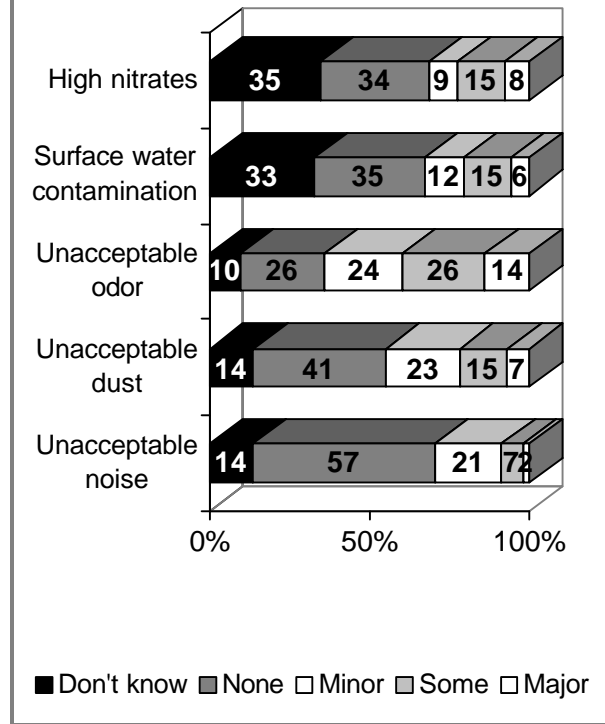
Finally, respondents were asked about their direct experience with various situations that can result from livestock production. The question was worded as follows, “At what level (if any) have you directly experienced the following as a result of livestock production?” The specific items asked about included:

- a. High nitrates in drinking water supply
- b. Contamination of local surface waters
- c. Unacceptable odor levels
- d. Unacceptable dust levels
- e. Unacceptable noise levels

Respondents were given the following responses to choose from: don’t know, none, minor, some and major.

Just over two-thirds (69%) of the respondents either didn’t know if they had experienced high nitrates in their drinking water supply as a result of livestock production or said they had not experienced it (Figure 8). Nine percent had experienced

**Figure 8. Experience with Livestock Production**



minor levels, fifteen percent said they had experienced some and eight percent had experienced nitrates at a major level.

The findings were similar when asked at what level they had experienced contamination of local surface waters as a result of livestock production. Thirty-three percent didn’t know, thirty-five percent stated they had not experienced any, twelve percent had some minor experience with it, fifteen percent said they had experienced some and six percent said they had experienced it at a major level.

Experience with unacceptable odor levels were more common for the respondents.

Ten percent said they didn't know and twenty-six percent said they had not experienced any unacceptable odor levels. Twenty-four percent said they had experienced minor levels, twenty-six percent said they had experienced some and fourteen percent stated they had experienced unacceptable odor at a major level.

Fourteen percent of the respondents didn't know if they had experienced unacceptable dust levels as a result of livestock production and forty-one percent said they had not experienced any. Twenty-three percent had experienced dust at minor levels, fifteen percent said they had experienced some and seven percent had experienced dust at a major level.

Experience with unacceptable noise levels was not as common as with some of the previous items. Fourteen percent of the respondents said they didn't know and fifty-seven percent said they had not experienced any unacceptable noise as a result of livestock production. Twenty-one percent of the respondents had experienced noise at a minor level, seven percent had experienced some and two percent had experienced it at a major level.

These experiences differed according to community size, region, income, age, gender, education and occupation (Appendix Table 4). Respondents living in the South Central region of the state were more likely to have experienced some or major levels of high nitrates in the drinking water supply as a result of livestock production. Twenty-seven percent of the respondents in this region had experienced some or major levels of high nitrates in their drinking water,

compared to eighteen percent of the respondents in the North Central region.

Respondents with professional occupations were also more likely than other occupation groups to have experienced high nitrates some or at a major level. Twenty-seven percent of these respondents had experienced high nitrates at these levels, compared to only fourteen percent of the respondents who were farmers and ranchers.

Experience with contamination of local surface waters as a result of livestock production differed by community size, region, income, age, gender and occupation. Older respondents were more likely than younger respondents to say they have experienced some or a major level of surface water contamination. Twenty-three percent of the respondents age 65 and older had experienced it at these levels, compared to fifteen percent of the respondents under the age of 40.

Respondents with labor occupations were more likely than those with different occupations to have experienced surface water contamination at these levels. Twenty-three percent of these respondents had experienced some or a major level of surface water contamination, while only fifteen percent of the farmers/ranchers had experienced it at these levels.

Other groups more likely to have experienced some or major levels of surface water contamination include respondents living in larger communities, respondents living in the South Central region and males.

Some groups were also more likely than

others to have experienced unacceptable odor levels as a result of livestock production. Respondents with incomes ranging from \$40,000 to \$74,999 were more likely to have experienced some or a major level of unacceptable odor. Forty-two percent of the respondents in this income range experienced some or a major level of unacceptable odor, compared to thirty-four percent of the respondents with incomes under \$10,000.

Laborers were the occupation group most likely to have experienced unacceptable odor at these levels. Forty-six percent of these respondents had experienced some or a major level of unacceptable odor as a result of livestock production; however, only twenty-nine percent of the farmers and ranchers had experienced odor at these levels (Figure 9).

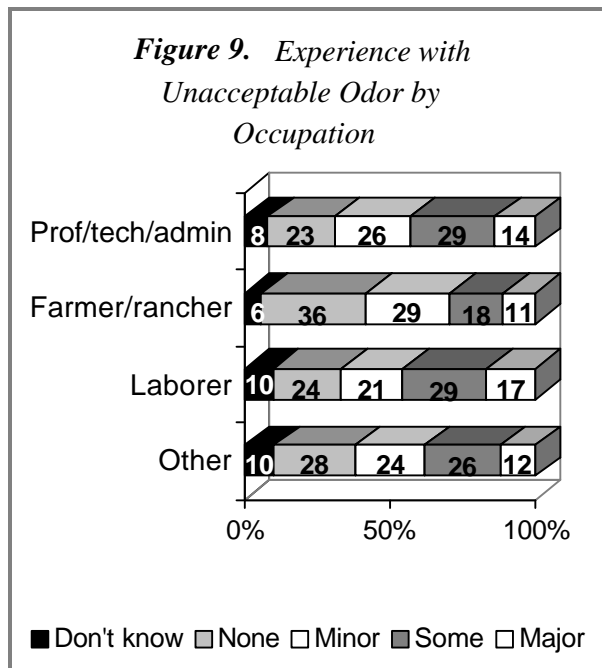
Other groups more likely to have experienced some or a major level of

unacceptable odor include those living in larger communities, respondents living in the South Central and Northeast regions, older respondents and males.

Experience with unacceptable dust as a result of livestock production differed by all the characteristics. Respondents living in the Panhandle were more likely than those living in other regions to have experienced some or a major level of dust. Twenty-five percent of these respondents had experienced unacceptable dust at these levels, compared to eighteen percent of the respondents living in the Northeast region.

The laborers were the occupation group most likely to have experienced unacceptable dust some or at a major level. Twenty-six percent of these respondents had experienced unacceptable dust at these levels, while only sixteen percent of the farmers/ranchers had shared this experience.

Groups more likely to have experienced some or a major level of unacceptable noise as a result of livestock production include those with lower incomes, older respondents, respondents with lower educational levels and laborers.



**Conclusion**

Rural Nebraskans are concerned about the development of large-scale pork production facilities in the state. Their concern increases as the potential developments approach their residence.

The underlying reasons for this sentiment appear to be concerns regarding economics, the environment and market access. The

majority of rural Nebraskans feel that smaller facilities are better than the larger ones for both the state and local economy. In addition, many feel that these large facilities cause market access for smaller farms to decline.

Environmental concerns surfaced when the majority of respondents agreed that even if the large-scale facilities are properly managed, they damage the environment. The concern regarding environmental damage extends to all hog operations, however. The majority of respondents also agreed that all hog operations should be monitored for proper treatment and disposal of wastes.

The respondents were not supportive of large-scale facilities owned by outside investors. A vast majority of respondents feel that large facilities owned by local farmers are better for their community than large-scale facilities owned by outside investors.

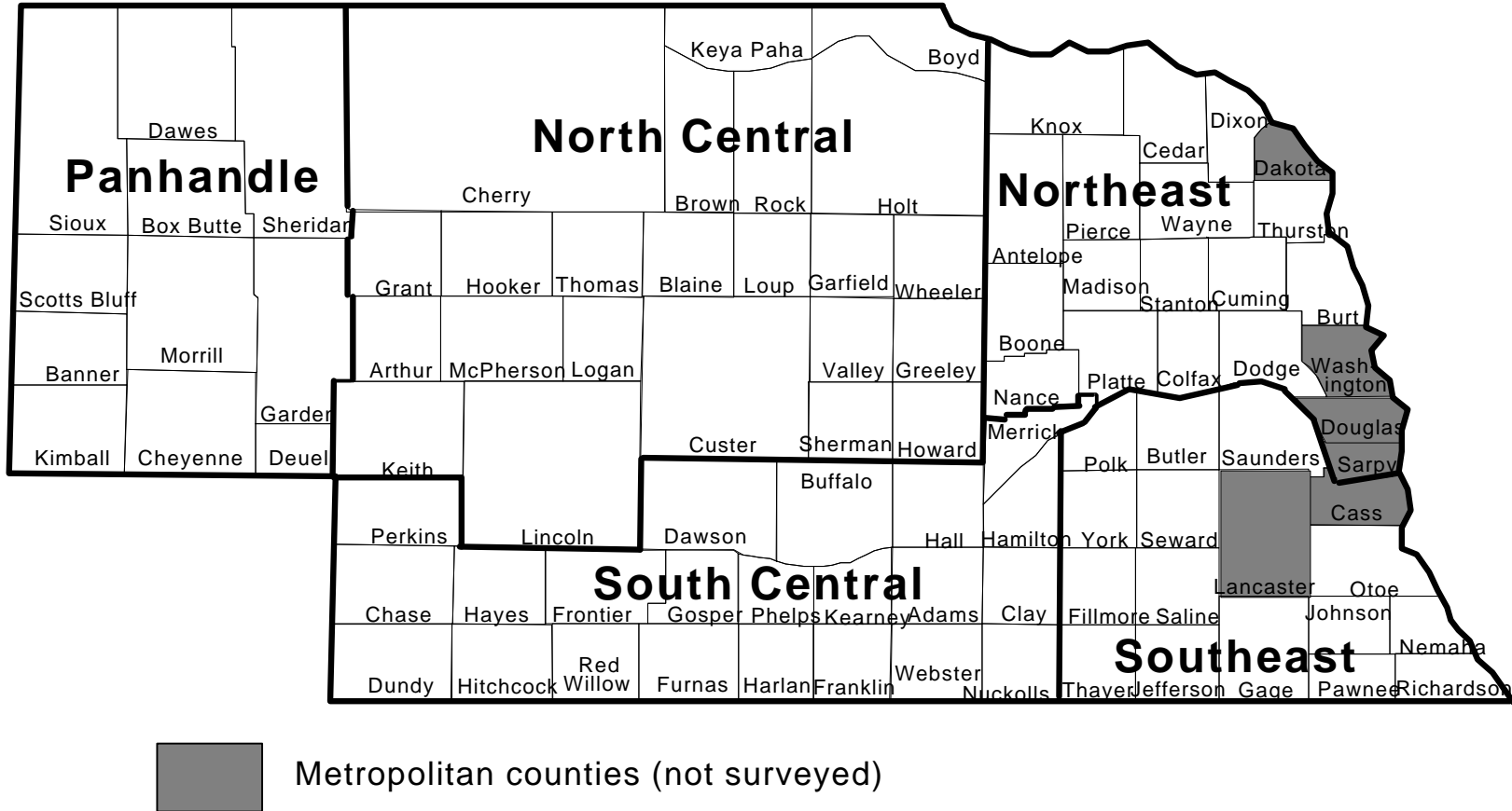
A surprising finding is the lack of a dominant opinion by respondents on whether or not odor problems can be tolerated for the sake of pork production. Just over one-third of the respondents agreed that it is better to have some pork production and some odor problems in their community; this is compared to almost the same proportion of respondents who agreed that it is better to have no pork production and no odor problems in their community.

This uncertainty is also evident when noting the relatively large proportions of respondents who were undecided on many questions. Over one-half of the respondents

were undecided on the effect these larger facilities have on social relations in a community. In addition, at least one out of every four respondents were “undecided” on how these facilities will affect market access for smaller farms; and on whether or not smaller or large-scale facilities are better for the state and local economy, on whether or not large facilities damage or protect the environment, and whether or not it is better to have some pork production and some odor problems or no pork production and no odor problems.

Therefore, although there does appear to be considerable concern regarding the development of large-scale pork production facilities in the state, some of this concern may stem from uncertainty about the effects these large facilities can have. As more information becomes available on these potential impacts, those rural Nebraskans who are undecided will likely form their opinions, and others may change their views.

# Appendix Figure 1. Regions of Nebraska



*Appendix Table 1. Demographic Profile of Rural Poll Respondents Compared to 1990 Census*

	<i>1998 Poll</i>	<i>1997 Poll</i>	<i>1996 Poll</i>	<i>1990 Census</i>
<b>Age : <sup>1</sup></b>				
20 - 39	25%	24%	22%	38%
40 - 64	55%	48%	49%	36%
65 and over	20%	28%	29%	26%
<b>Gender: <sup>2</sup></b>				
Female	58%	28%	27%	49%
Male	42%	72%	73%	51%
<b>Education: <sup>3</sup></b>				
Less than 9 <sup>th</sup> grade	2%	5%	3%	10%
9 <sup>th</sup> to 12 <sup>th</sup> grade (no diploma)	3%	5%	5%	12%
High school diploma (or equivalent)	33%	34%	34%	38%
Some college, no degree	27%	25%	26%	21%
Associate degree	10%	8%	7%	7%
Bachelors degree	16%	14%	14%	9%
Graduate or professional degree	9%	9%	10%	3%
<b>Household income: <sup>4</sup></b>				
Less than \$10,000	3%	7%	8%	19%
\$10,000 - \$19,999	10%	16%	17%	25%
\$20,000 - \$29,999	17%	19%	19%	21%
\$30,000 - \$39,999	20%	18%	18%	15%
\$40,000 - \$49,999	18%	14%	15%	9%
\$50,000 - \$59,999	12%	10%	9%	5%
\$60,000 - \$74,999	10%	7%	7%	3%
\$75,000 or more	10%	8%	7%	3%
<b>Marital Status: <sup>5</sup></b>				
Married	95%	73%	75%	64%
Never married	0.4%	8%	7%	20%
Divorced/separated	1%	9%	8%	7%
Widowed/widower	3%	10%	10%	10%

<sup>1</sup> 1990 Census universe is non-metro population 20 years of age and over.

<sup>2</sup> 1990 Census universe is total non-metro population.

<sup>3</sup> 1990 Census universe is non-metro population 18 years of age and over.

<sup>4</sup> 1990 Census universe is all non-metro households.

<sup>5</sup> 1990 Census universe is non-metro population 15 years of age and over.

**Appendix Table 2. Level of Concern About Various Locations of Large-Scale Pork Production Facilities\* by Community Size, Region, and Individual Attributes**

<i>How concerned are you about the development of large-scale pork production facilities...</i>													
<i>In Nebraska?</i>				<i>Within your local community?</i>				<i>Within a mile of your residence?</i>					
	<i>Very</i>	<i>Somewhat</i>	<i>Not at all</i>	<i>Chi-square</i>	<i>Very</i>	<i>Somewhat</i>	<i>Not at all</i>	<i>Chi-square</i>	<i>Very</i>	<i>Somewhat</i>	<i>Not at all</i>	<i>Chi-square</i>	
<i>Percentages</i>													
<b>Community Size</b>	(n = 3987)				(n = 3982)				(n = 3987)				
Less than 500	43	37	20		52	31	17		70	20	11		
500 - 4,999	39	39	23	$\chi^2 = 28.06$	49	33	18	$\chi^2 = 12.61$	67	22	11	$\chi^2 = 3.85$	
5,000 and up	33	41	27	(.000)	45	35	20	(.013)	70	20	10	(.427)	
<b>Region</b>	(n = 4035)				(n = 4029)				(n = 4035)				
Panhandle	25	45	30		38	35	27		63	25	13		
North Central	44	36	20		53	30	17		70	19	11		
South Central	35	41	25		47	35	19		70	21	9		
Northeast	46	35	18	$\chi^2 = 76.10$	55	30	15	$\chi^2 = 52.28$	70	21	10	$\chi^2 = 11.99$	
Southeast	36	40	24	(.000)	46	35	19	(.000)	68	21	12	(.152)	
<b>Income Level</b>	(n = 3755)				(n = 3752)				(n = 3755)				
Under \$10,000	45	33	22		51	30	19		62	19	19		
\$10,000 - \$39,999	43	37	20		51	33	16		70	21	9		
\$40,000 - \$74,999	33	41	25	$\chi^2 = 36.32$	46	34	20	$\chi^2 = 13.39$	66	22	12	$\chi^2 = 19.04$	
\$75,000 and over	34	39	27	(.000)	45	34	21	(.037)	70	19	11	(.004)	
<b>Age</b>	(n = 4041)				(n = 4035)				(n = 4041)				
19 - 39	26	42	32		37	38	25		62	25	13		
40 - 64	39	40	22	$\chi^2 = 158.58$	49	33	18	$\chi^2 = 125.28$	69	21	10	$\chi^2 = 50.14$	
65 and older	52	34	14	(.000)	63	26	11	(.000)	78	15	8	(.000)	
<b>Gender</b>	(n = 4045)				(n = 4039)				(n = 4045)				
Male	41	39	21	$\chi^2 = 10.75$	52	32	17	$\chi^2 = 10.30$	71	19	10	$\chi^2 = 4.25$	
Female	36	39	25	(.005)	47	34	19	(.006)	68	22	11	(.119)	
<b>Education</b>	(n = 3937)				(n = 3932)				(n = 3936)				
High school or less	42	38	20		53	31	17		73	18	9		
Some college	37	38	25	$\chi^2 = 24.47$	47	35	19	$\chi^2 = 17.46$	66	22	12	$\chi^2 = 19.73$	
College grad	34	43	24	(.000)	46	35	20	(.002)	66	23	11	(.001)	
<b>Occupation</b>	(n = 3342)				(n = 3338)				(n = 3342)				
Prof/tech/admin.	34	41	25		47	34	20		66	24	11		
Farming/ranching	53	31	16		58	27	15		73	18	10		
Laborer	35	42	23	$\chi^2 = 71.05$	45	38	18	$\chi^2 = 33.17$	70	21	9	$\chi^2 = 12.65$	
Other	33	42	25	(.000)	44	35	21	(.000)	67	22	12	(.049)	

\* Large-scale pork production facilities were defined as 2,000 or more head at one time.



**Appendix Table 3. Opinions Concerning Pork Production by Community Size, Region, and Individual Attributes**

*Please indicate which one of the two views you most agree with - the one in the left-hand column or the one in the right-hand column.\**

	Smaller pork production facilities are better than large-scale pork production facilities for the state's economy.**					Chi-square	Large-scale pork production facilities are better than smaller pork production facilities for the local economy.					Chi-square
	1	2	3	4	5		1	2	3	4	5	
	<i>Percentages</i>						<i>Percentages</i>					
<b>Community Size</b>	(n = 3808)						(n = 3801)					
Less than 500	35	26	30	6	2	$\chi^2 =$	4	9	26	24	38	$\chi^2 =$
500 - 4,999	34	25	29	9	3	51.59	5	12	24	25	35	58.47
5,000 and over	26	24	36	11	4	(.000)	4	12	31	28	25	(.000)
<b>Region</b>	(n = 3848)						(n = 3839)					
Panhandle	21	21	43	11	4		5	14	34	28	21	
North Central	39	24	30	6	2		4	11	23	22	39	
South Central	27	26	34	10	4	$\chi^2 =$	5	11	28	27	29	$\chi^2 =$
Northeast	38	27	24	8	4	101.48	4	11	22	24	39	72.26
Southeast	31	26	31	10	2	(.000)	4	10	28	26	32	(.000)
<b>Income Level</b>	(n = 3596)						(n = 3590)					
Under \$10,000	47	19	25	5	3		2	8	29	17	44	
\$10,000 - \$39,999	36	25	29	7	3	$\chi^2 =$	5	9	25	25	37	$\chi^2 =$
\$40,000 - \$74,999	26	27	34	11	4	62.45	5	13	28	27	27	48.75
\$75,000 and over	29	23	31	12	4	(.000)	4	14	28	26	29	(.000)
<b>Age</b>	(n = 3855)						(n = 3846)					
19 - 39	19	25	40	13	3	$\chi^2 =$	3	14	32	29	22	$\chi^2 =$
40 - 64	32	26	31	8	3	184.27	5	10	26	25	34	104.33
65 and over	48	23	21	6	3	(.000)	6	9	21	21	44	(.000)
<b>Gender</b>	(n = 3859)						(n = 3849)					
Male	35	28	25	9	4	$\chi^2 =$	5	11	21	28	36	$\chi^2 =$
Female	29	23	36	9	3	49.95	4	11	31	24	30	50.64
						(.000)						(.000)
<b>Education</b>	(n = 3759)						(n = 3752)					
High school or less	38	23	30	7	2	$\chi^2 =$	5	10	27	21	37	$\chi^2 =$
Some college	28	25	33	9	4	68.74	5	11	27	27	31	45.80
College grad	26	29	30	12	3	(.000)	3	13	25	30	28	(.000)
<b>Occupation</b>	(n = 3214)						(n = 3215)					
Prof/tech/admin.	24	27	33	13	3		4	13	27	30	27	
Farming/ranching	50	21	21	7	2	$\chi^2 =$	4	9	17	21	49	$\chi^2 =$
Laborer	28	28	35	6	2	139.98	4	10	29	27	31	96.82
Other	27	25	35	10	3	(.000)	4	11	27	26	29	(.000)

\* 1 = strongly agree with view in LH column, 2 = mildly agree with view in LH column, 3 = undecided, 4 = mildly agree with view in RH column, 5 = strongly agree with view in RH column.

\*\* Large pork production facilities are defined as 2,000 or more head at one site at one time.

Please indicate which one of the two views you most agree with - the one in the left-hand column or the one in the right-hand column.\*

	Even if properly managed, large-scale pork production facilities damage the environment.						If properly managed, large-scale pork production facilities protect the environment.						All hog operations should be monitored for proper treatment and disposal of wastes.						Only large hog operations should be monitored for proper treatment and disposal of wastes.					
	1	2	3	4	5	Chi-square	1	2	3	4	5	Chi-square	1	2	3	4	5	Chi-square	1	2	3	4	5	Chi-square
<b>Community Size</b>			(n = 3806)						(n = 3805)															
Less than 500	37	20	28	11	4	$\chi^2 =$	50	18	12	9	12	$\chi^2 =$	50	18	12	9	12	$\chi^2 =$	50	18	12	9	12	$\chi^2 =$
500 - 4,999	31	23	28	12	6	24.85	53	18	11	8	11	43.74	53	18	11	8	11	43.74	53	18	11	8	11	43.74
5,000 and over	28	24	29	13	6	(.002)	61	18	8	6	7	(.000)	61	18	8	6	7	(.000)	61	18	8	6	7	(.000)
<b>Region</b>			(n = 3843)						(n = 3846)															
Panhandle	21	22	36	16	5		58	20	11	7	6		58	20	11	7	6		58	20	11	7	6	
North Central	38	20	28	10	5		47	18	12	9	13		47	18	12	9	13		47	18	12	9	13	
South Central	30	25	27	12	7	$\chi^2 =$	53	19	10	9	10	$\chi^2 =$	53	19	10	9	10	$\chi^2 =$	53	19	10	9	10	$\chi^2 =$
Northeast	37	21	23	12	7	69.73	60	15	9	6	10	41.78	60	15	9	6	10	41.78	60	15	9	6	10	41.78
Southeast	30	22	32	12	5	(.000)	56	18	10	7	9	(.000)	56	18	10	7	9	(.000)	56	18	10	7	9	(.000)
<b>Income Level</b>			(n = 3593)						(n = 3596)															
Under \$10,000	44	16	23	6	11		48	10	17	11	15		48	10	17	11	15		48	10	17	11	15	
\$10,000 - \$39,999	35	21	29	11	5	$\chi^2 =$	53	17	11	8	12	$\chi^2 =$	53	17	11	8	12	$\chi^2 =$	53	17	11	8	12	$\chi^2 =$
\$40,000 - \$74,999	28	24	28	14	6	57.13	57	18	9	7	8	37.93	57	18	9	7	8	37.93	57	18	9	7	8	37.93
\$75,000 and over	27	21	28	15	10	(.000)	54	22	7	8	10	(.000)	54	22	7	8	10	(.000)	54	22	7	8	10	(.000)
<b>Age</b>			(n = 3852)						(n = 3855)															
19 - 39	21	25	34	14	5	$\chi^2 =$	54	21	12	8	5	$\chi^2 =$	54	21	12	8	5	$\chi^2 =$	54	21	12	8	5	$\chi^2 =$
40 - 64	32	22	27	13	6	120.02	55	17	10	8	10	67.30	55	17	10	8	10	67.30	55	17	10	8	10	67.30
65 and over	45	18	23	8	6	(.000)	54	15	9	6	17	(.000)	54	15	9	6	17	(.000)	54	15	9	6	17	(.000)
<b>Gender</b>			(n = 3855)						(n = 3859)															
Male	32	22	25	13	7	16.42	50	19	10	9	12	40.85	50	19	10	9	12	40.85	50	19	10	9	12	40.85
Female	32	22	30	11	5	(.003)	58	16	11	6	9	(.000)	58	16	11	6	9	(.000)	58	16	11	6	9	(.000)
<b>Education</b>			(n = 3756)						(n = 3761)															
High school or less	38	19	28	10	5	$\chi^2 =$	55	15	11	7	13	$\chi^2 =$	55	15	11	7	13	$\chi^2 =$	55	15	11	7	13	$\chi^2 =$
Some college	30	23	29	11	7	51.52	55	17	11	7	10	62.67	55	17	11	7	10	62.67	55	17	11	7	10	62.67
College grad	26	25	27	16	6	(.000)	53	23	8	9	6	(.000)	53	23	8	9	6	(.000)	53	23	8	9	6	(.000)
<b>Occupation</b>			(n = 3217)						(n = 3218)															
Prof/tech/admin.	27	25	28	14	6		56	20	8	8	8		56	20	8	8	8		56	20	8	8	8	
Farming/ranching	39	19	24	11	7	$\chi^2 =$	41	16	12	11	20	$\chi^2 =$	41	16	12	11	20	$\chi^2 =$	41	16	12	11	20	$\chi^2 =$
Laborer	32	24	28	12	4	38.56	55	17	14	5	10	115.41	55	17	14	5	10	115.41	55	17	14	5	10	115.41
Other	29	22	31	12	6	(.000)	57	19	10	7	7	(.000)	57	19	10	7	7	(.000)	57	19	10	7	7	(.000)

\* 1 = strongly agree with view in LH column, 2 = mildly agree with view in LH column, 3 = undecided, 4 = mildly agree with view in RH column, 5 = strongly agree with view in RH column.

\*\* Large pork production facilities are defined as 2,000 or more head at one site at one time.

*Please indicate which one of the two views you most agree with - the one in the left-hand column or the one in the right-hand column.\**

	It is better to have some pork production and some odor problems in my community.					Chi-square	Large-scale pork production facilities owned by outside investors are better for my community than large-scale facilities owned by local farmers.					Chi-square
	1	2	3	4	5		1	2	3	4	5	
<b>Community Size</b>	(n = 3780)						(n = 3768)					
Less than 500	7	27	31	14	20	$\chi^2 =$	1	2	19	27	52	$\chi^2 =$
500 - 4,999	10	30	29	13	18	33.89	2	2	17	27	52	8.18
5,000 and over	7	23	31	18	21	(.000)	2	2	17	29	50	(.416)
<b>Region</b>	(n = 3822)						(n = 3808)					
Panhandle	4	31	28	19	18		1	4	20	34	41	
North Central	8	25	29	14	24		2	2	19	27	51	
South Central	8	26	30	15	22	$\chi^2 =$	2	2	16	29	51	$\chi^2 =$
Northeast	12	28	28	14	19	51.94	2	1	16	25	56	35.74
Southeast	9	29	33	13	16	(.000)	2	3	18	26	52	(.003)
<b>Income Level</b>	(n = 3577)						(n = 3569)					
Under \$10,000	19	19	38	7	19		3	2	23	22	50	
\$10,000 - \$39,999	9	29	30	13	19	$\chi^2 =$	2	3	18	26	52	$\chi^2 =$
\$40,000 - \$74,999	7	26	30	17	20	38.53	1	2	16	30	51	16.78
\$75,000 and over	10	26	26	18	20	(.000)	1	2	16	30	51	(.158)
<b>Age</b>	(n = 3832)						(n = 3816)					
19 - 39	7	29	33	16	15	$\chi^2 =$	1	2	19	33	46	$\chi^2 =$
40 - 64	9	26	30	16	20	49.44	1	2	17	27	53	54.72
65 and over	11	28	25	11	26	(.000)	4	3	17	23	53	(.000)
<b>Gender</b>	(n = 3832)					$\chi^2 =$	(n = 3817)					$\chi^2 =$
Male	9	28	27	16	20	16.25	2	2	16	29	51	9.81
Female	8	27	32	14	19	(.003)	2	3	19	27	51	(.044)
<b>Education</b>	(n = 3734)						(n = 3722)					
High school or less	10	26	31	12	22	$\chi^2 =$	3	3	19	26	50	$\chi^2 =$
Some college	8	28	31	14	19	39.09	2	2	16	28	52	24.15
College grad	8	29	26	20	18	(.000)	1	2	15	30	53	(.002)
<b>Occupation</b>	(n = 3203)						(n = 3195)					
Prof/tech/admin.	7	26	27	18	22		1	2	17	28	52	
Farming/ranching	13	31	26	11	19	$\chi^2 =$	2	2	12	27	57	$\chi^2 =$
Laborer	7	27	33	14	19	46.22	2	2	19	27	50	22.20
Other	7	27	33	15	17	(.000)	1	2	19	28	50	(.035)

Page 20 \* 1 = strongly agree with view in LH column, 2 = mildly agree with view in LH column, 3 = undecided, 4 = mildly agree with view in RH column, 5 = strongly agree with view in RH column.  
 \*\* Large pork production facilities are defined as 2,000 or more head at one site at one time.

*Please indicate which one of the two views you most agree with - the one in the left-hand column or the one in the right-hand column.\**

	If large-scale pork production facilities locate in a community, social relations there are diminished.					Chi-square	If large-scale pork production facilities locate in a community, market access for smaller farms will increase.					Chi-square
	1	2	3	4	5		1	2	3	4	5	
<b>Community Size</b>			(n = 3772)						(n = 3771)			
Less than 500	22	18	51	6	3	$\chi^2 =$	3	9	35	18	36	$\chi^2 =$
500 - 4,999	20	19	50	8	4	14.35	3	10	33	21	33	25.99
5,000 and over	17	18	55	7	3	(.073)	3	11	35	24	28	(.001)
<b>Region</b>			(n = 3810)						(n = 3811)			
Panhandle	12	17	62	6	3		3	14	40	22	21	
North Central	24	20	47	7	3		3	9	34	18	36	
South Central	19	18	52	9	2	$\chi^2 =$	2	10	36	23	29	$\chi^2 =$
Northeast	21	19	50	7	3	41.52	3	7	28	21	41	74.08
Southeast	19	18	53	7	4	(.000)	3	11	35	20	31	(.000)
<b>Income Level</b>			(n = 3573)						(n = 3572)			
Under \$10,000	23	10	53	7	8		3	6	36	20	35	
\$10,000 - \$39,999	21	18	50	7	3	$\chi^2 =$	3	8	34	19	37	$\chi^2 =$
\$40,000 - \$74,999	17	20	53	8	3	28.96	3	12	34	24	28	54.88
\$75,000 and over	20	16	57	6	2	(.004)	4	13	35	21	27	(.000)
<b>Age</b>			(n = 3822)						(n = 3822)			
19 - 39	12	19	57	10	3	$\chi^2 =$	3	11	38	23	25	$\chi^2 =$
40 - 64	19	18	53	7	2	137.29	3	10	34	21	32	68.01
65 and over	32	18	39	6	5	(.000)	3	8	28	17	44	(.000)
<b>Gender</b>			(n = 3823)						(n = 3824)			
Male	21	22	47	6	3	$\chi^2 =$	4	11	29	23	34	$\chi^2 =$
Female	18	16	55	8	3	47.73	3	9	38	19	32	32.18
						(.000)						(.000)
<b>Education</b>			(n = 3726)						(n = 3728)			
High school or less	21	18	50	7	4	$\chi^2 =$	3	9	35	18	36	$\chi^2 =$
Some college	19	18	52	8	3	15.35	3	10	35	21	31	27.45
College grad	17	21	53	7	2	(.053)	3	12	31	25	30	(.001)
<b>Occupation</b>			(n = 3195)						(n = 3193)			
Prof/tech/admin.	17	20	53	7	2		3	10	36	22	29	
Farming/ranching	27	23	38	6	5	$\chi^2 =$	5	11	25	18	42	$\chi^2 =$
Laborer	16	19	56	6	3	70.88	3	9	35	21	31	58.63
Other	17	16	56	8	3	(.000)	2	11	36	23	28	(.000)

*Appendix Table 4. Experience with Livestock Production by Community Size, Region, and Individual Attributes*

<i>At what level (if any) have you <u>directly experienced</u> the following as a result of livestock production?</i>													
	<i>High nitrates in drinking water supply</i>					<i>Contamination of local surface waters</i>							
	<i>Don't know</i>	<i>None</i>	<i>Minor</i>	<i>Some</i>	<i>Major</i>	<i>Chi-square</i>	<i>Don't know</i>	<i>None</i>	<i>Minor</i>	<i>Some</i>	<i>Major</i>	<i>Chi-square</i>	
	<i>Percentages</i>												
<b>Community Size</b>	(n = 3902)						(n = 3881)						
Less than 500	32	38	10	13	7	$\chi^2 =$	32	37	13	12	6	$\chi^2 =$	
500 - 4,999	34	35	10	14	7	25.78	32	36	13	14	6	16.77	
5,000 and over	38	31	7	16	8	(.001)	35	32	11	17	5	(.033)	
<b>Region</b>	(n = 3952)						(n = 3932)						
Panhandle	38	35	8	14	5		32	41	10	12	5		
North Central	29	43	10	12	6		26	42	15	12	5		
South Central	33	32	9	18	9	$\chi^2 =$	33	32	13	17	6	$\chi^2 =$	
Northeast	39	31	9	13	9	55.54	37	33	10	14	6	54.94	
Southeast	37	32	9	14	8	(.000)	35	32	12	15	6	(.000)	
<b>Income Level</b>	(n = 3690)						(n = 3674)						
Under \$10,000	38	34	8	13	8		33	38	10	10	9		
\$10,000 - \$39,999	36	32	10	14	8	$\chi^2 =$	35	32	11	15	7	$\chi^2 =$	
\$40,000 - \$74,999	34	34	9	15	8	18.63	32	36	13	15	5	21.94	
\$75,000 and over	28	40	9	17	6	(.098)	27	40	14	14	5	(.038)	
<b>Age</b>	(n = 3960)						(n = 3939)						
19 - 39	38	35	8	13	6	$\chi^2 =$	37	38	10	11	4	$\chi^2 =$	
40 - 64	33	35	10	16	7	22.77	30	35	13	16	6	60.94	
65 and over	38	31	9	12	9	(.004)	36	30	12	14	9	(.000)	
<b>Gender</b>	(n = 3965)						(n = 3943)						
Male	30	35	12	16	7	$\chi^2 =$	26	35	15	18	6	$\chi^2 =$	
Female	39	33	7	13	8	(.000)	38	34	10	12	6	(.000)	
<b>Education</b>	(n = 3860)						(n = 3840)						
High school or less	37	32	9	15	8	$\chi^2 =$	34	33	11	15	6	$\chi^2 =$	
Some college	34	35	9	14	7	5.80	33	36	12	14	5	7.37	
College grad	33	35	10	15	8	(.669)	32	35	13	14	6	(.498)	
<b>Occupation</b>	(n = 3292)						(n = 3274)						
Prof/tech/admin.	35	30	9	18	9		34	32	13	16	6		
Farming/ranching	24	51	11	10	4	$\chi^2 =$	19	50	17	10	5	$\chi^2 =$	
Laborer	40	28	11	15	7	100.95	37	29	11	17	6	99.67	
Other	37	34	8	14	7	(.000)	35	36	11	14	5	(.000)	

At what level (if any) have you directly experienced the following as a result of livestock production?

## Unacceptable odor levels

## Unacceptable dust levels

	<i>Don't know</i>	<i>None</i>	<i>Minor</i>	<i>Some</i>	<i>Major</i>	<i>Chi-square</i>	<i>Don't know</i>	<i>None</i>	<i>Minor</i>	<i>Some</i>	<i>Major</i>	<i>Chi-square</i>
<b>Community Size</b>			(n = 3917)						(n = 3898)			
Less than 500	10	29	26	24	12	$\chi^2 =$	12	44	23	15	7	$\chi^2 =$
500 - 4,999	9	27	25	25	15	20.00	13	41	25	14	7	22.06
5,000 and over	11	24	22	28	15	(.010)	16	40	20	18	6	(.005)
<b>Region</b>			(n = 3964)						(n = 3945)			
Panhandle	10	27	25	25	13		12	39	25	17	8	
North Central	7	33	22	22	15		11	42	23	15	9	
South Central	9	25	26	26	15	$\chi^2 =$	12	39	25	17	7	$\chi^2 =$
Northeast	11	26	22	27	14	34.62	16	42	25	13	5	40.18
Southeast	11	24	26	26	12	(.004)	16	44	21	14	5	(.001)
<b>Income Level</b>			(n = 3694)						(n = 3680)			
Under \$10,000	16	34	16	19	15		18	44	18	14	6	
\$10,000 - \$39,999	12	26	24	25	14	$\chi^2 =$	16	39	23	15	7	$\chi^2 =$
\$40,000 - \$74,999	8	26	25	28	14	46.94	11	42	24	16	6	29.77
\$75,000 and over	4	30	29	25	13	(.000)	8	45	25	16	6	(.003)
<b>Age</b>			(n = 3971)						(n = 3952)			
19 - 39	10	30	26	24	11	$\chi^2 =$	14	43	22	15	6	$\chi^2 =$
40 - 64	8	25	25	27	14	58.22	11	42	24	16	7	39.25
65 and over	14	26	19	24	18	(.000)	19	38	22	13	7	(.000)
<b>Gender</b>			(n = 3977)			$\chi^2 =$			(n = 3958)			$\chi^2 =$
Male	8	25	24	27	16	14.03	11	41	26	15	7	27.40
Female	10	28	24	25	13	(.007)	16	41	22	15	6	(.000)
<b>Education</b>			(n = 3870)						(n = 3851)			
High school or less	13	27	21	24	15	$\chi^2 =$	17	40	22	15	7	$\chi^2 =$
Some college	8	27	26	27	13	43.76	12	42	26	16	6	30.49
College grad	7	25	27	26	15	(.000)	11	44	23	15	8	(.000)
<b>Occupation</b>			(n = 3294)						(n = 3284)			
Prof/tech/admin.	8	23	26	29	14		12	41	24	17	7	
Farming/ranching	6	36	29	18	11	$\chi^2 =$	8	47	29	11	5	$\chi^2 =$
Laborer	10	24	21	29	17	66.26	14	38	22	18	8	40.89
Other	10	28	24	26	12	(.000)	13	43	23	15	5	(.000)

*At what level (if any) have you directly experienced the following as a result of livestock production?*

	<i>Unacceptable noise levels</i>					
	<i>Don't know</i>	<i>None</i>	<i>Minor</i>	<i>Some</i>	<i>Major</i>	<i>Chi-square</i>
<b>Community Size</b>			(n = 3900)			
Less than 500	13	57	20	8	3	$\chi^2 =$
500 - 4,999	13	58	21	7	2	11.93
5,000 and over	15	55	20	7	2	(.154)
<b>Region</b>			(n = 3949)			
Panhandle	13	55	24	6	1	
North Central	11	59	20	8	2	
South Central	12	57	22	7	2	
Northeast	15	56	19	7	2	$\chi^2 = 17.74$
Southeast	15	56	20	7	2	(.340)
<b>Income Level</b>			(n = 3687)			
Under \$10,000	19	51	14	13	3	
\$10,000 - \$39,999	16	55	20	7	3	$\chi^2 =$
\$40,000 - \$74,999	11	59	22	7	2	56.88
\$75,000 and over	7	65	21	6	1	(.000)
<b>Age</b>			(n = 3956)			
19 - 39	14	64	16	6	1	$\chi^2 =$
40 - 64	11	57	22	7	2	79.38
65 and over	20	47	21	9	3	(.000)
<b>Gender</b>			(n = 3961)			
Male	11	56	24	7	3	$\chi^2 =$
Female	15	57	18	7	2	29.79
						(.000)
<b>Education</b>			(n = 3854)			
High school or less	17	54	19	8	3	$\chi^2 =$
Some college	11	58	21	7	2	43.28
College grad	10	60	23	5	1	(.000)
<b>Occupation</b>			(n = 3287)			
Prof/tech/admin.	11	58	23	7	2	
Farming/ranching	9	65	20	5	2	$\chi^2 =$
Laborer	14	52	22	8	4	35.78
Other	13	59	20	6	2	(.000)

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