Public Attitudes Toward Agribusiness Development in Southern New Mexico

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More agriculture-related and food processing industries are locating or re-locating in New Mexico. Southern New Mexico, specifically the Mesilla Valley, has attracted many such businesses in the past, and will continue to attract others; however, public attitudes toward food and agricultural businesses may be a factor in these firms' long-term contributions to continued economic development in southern New Mexico. The hostility or receptivity of local residents toward a potential new business may be the critical factor in a location decision, as communities compete with each other in the contest for economic development. This report presents the results of a public opinion survey conducted in the southern Mesilla Valley in early 1994. The study was commissioned to analyze local attitudes toward a specific food processing business (employing specific technologies) relocating to the area. However, the survey of local residents included questions to address broader issues relevant to other types of agriculture-related and food processing industries.

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BACKGROUND

The public opinion survey was conducted in January and February of 1994. This survey was conducted in response to a request by Burns Philp Food, Inc. (DBA Integrated Ingredients). The company is relocating a crop drying facility employing biomass energy for heat generation to the southern Mesilla Valley. The facility will be used to dry spices and condiments. The spices will be dried using heat generated from crop residues. NEOS Corporation of Lafayette, California sub-contracted the research to New Mexico State University (NMSU), specifically to the Department of Agricultural Economics and Agricultural Business (AEAB) within the College of Agriculture and Home Economics. Development of the survey instrument, survey pretesting, survey administration, analysis of results, and report preparation were conducted by faculty members and staff within the AEAB Department.

The research included two components: 1) a random telephone survey of residents of the southern Mesilla Valley; and (2) interviews (in person and/or telephone) of public officials in the region. This report provides an accounting and interpretation of the results of these research efforts.

STUDY METHODOLOGY

Telephone Survey

The survey questionnaire used in the telephone interviews with southern Mesilla Valley residents was developed by AEAB faculty and staff with the assistance of the NMSU Department of Experimental Statistics (ESTAT). A copy of the survey instrument (English version) is presented in an appendix.

Survey participants were selected randomly from the greater Las Cruces telephone directory. The communities where the telephone surveying was conducted included Mesquite, Sunland Park, Santa Teresa, La Mesa, Vado, San Miguel, La Union, Berino, Chamberino, and Anthony in New Mexico. Calls within Texas were made to the communities of Canutillo and Anthony. The telephone survey was administered to approximately 1% of the households in the southern Mesilla Valley. Fig. 1 shows the configuration of communities in the southern Mesilla Valley.

The survey was administered in Spanish or English, whichever was preferred or required by the survey participant. Most of the calling was conducted between 6:00 and 9:00 p.m., or on weekends.

Telephone surveying began in January and ended on February 4, 1994. A total of 107 questionnaires were completed. The data were coded and entered into a spreadsheet format, and later analyzed for frequencies and means using SAS™.

Interviews with Public Officials

Selected public officials in the southern Mesilla Valley were also interviewed using the same survey instrument applied in the random selection telephone survey. In order to obtain additional opinions from rural communities, individuals thought of as leaders in their respective communities were also interviewed to provide a wider base of small community public opinions. Whenever possible, respondents were interviewed in person by an NMSU enumerator. Interviews with officials and community spokespersons were conducted either by telephone or in person. The results of this component of the research effort were not subjected to statistical analysis, because the survey instrument served only as a guide throughout the interviews, with many specific questions left unanswered. The sample of public officials and opinion leaders was also not selected randomly. A summary of these interviews is presented following discussion of the random selection telephone survey.

STUDY OBJECTIVES

The study sought to answer questions dealing with the following issues:

1. What knowledge or understanding of biomass as an alternative energy source is held by local residents?
2. What is the extent of local acceptability of a biomass-fueled facility for food drying?

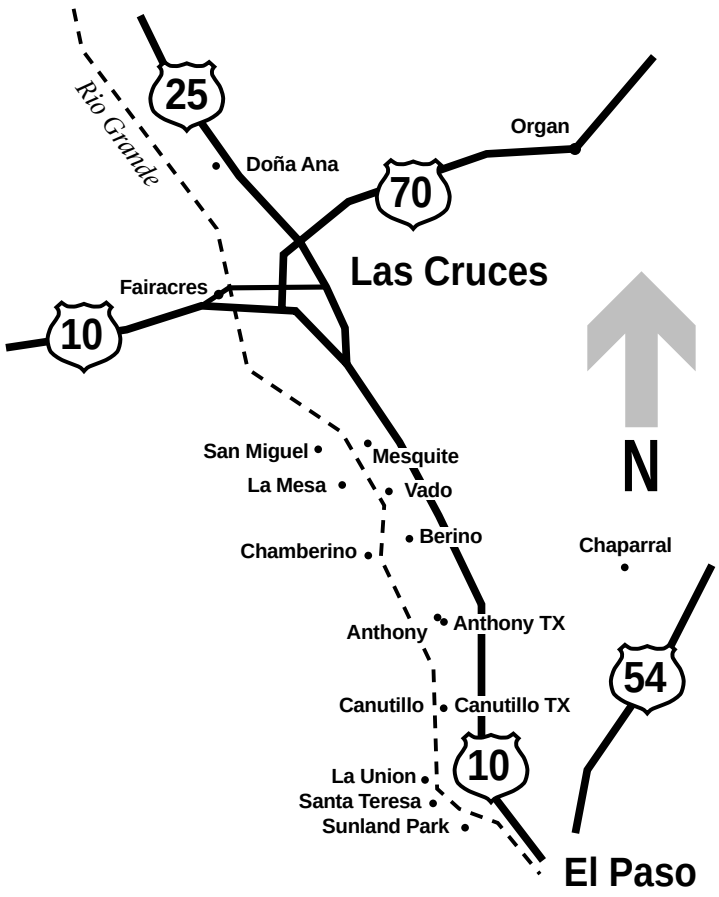

Fig. 1. Regional map showing surveyed communities and surrounding area.

3. What are local attitudes toward and perceived impacts of further expansion or introduction of a variety of economic development activities in the area?

4. What possible local impacts do residents perceive as a result of a crop drying biomass-fueled facility operating in the area?

5. What are local residents' attitudes toward alternative energy sources?

TELEPHONE SURVEY RESULTS

Results of the survey reported here are based on responses to 107 questionnaires. Because some participants declined or were unable to answer certain questions, the number of respondents to each question varies. Percentages should add to 100, although in cases of rounding, totals may be slightly lower or higher. The survey results reported here address the five objectives listed above and also provide a profile of the respondents (presented first).

Profile of Telephone Survey Respondents

Sixty-three percent of the calls were to households in the communities of Mesquite, La Mesa, Vado, San Miguel; 3% to the telephone prefix for Santa Teresa, La Union, and Sunland Park; 22% to Canutillo (Texas); 8% to Anthony (New Mexico) including Berino and Chamberino; and 4.5% to households in Anthony, Texas (table 1). The wide variety of telephone prefixes is represented in the survey because of the proximity of these communities to each other, the small number of households with Berino addresses specifically, and the need to have a randomly selected sample.

Respondents were divided almost equally between men and women; two-thirds of the respondents were married; and over 79% lived in households with three or more people. The surveyed group was equally divided between individuals under or over 45 years of age. Fifty percent of the respondents had attended or completed college, while almost 14% did not graduate from high school.

Table 1. Demographic characteristics of respondents to crop drying facility public opinion telephone survey.

Characteristics	#	%
Gender?		
Male	53	51.5
Female	50	48.5
	N = 103	
Marital status?		
Married	68	66.7
Single	26	25.5
Other	8	7.8
	N = 102	
Household size?		
One	5	5.0
Two	16	15.8
Three	33	32.7
Four	27	26.7
Five	13	12.9
Six or more	7	6.9
	N = 101	
Age of head of household (in years)?		
18-24	1	1.0
25-34	30	29.7
35-44	19	18.8
45-54	26	25.7
55-64	14	13.9
65 or over	11	10.9
	N = 101	
Highest level of education for head of household?		
Grade school or less	8	7.8
Some high school	6	5.9
Completed high school	37	36.3
Some college	5	24.5
Completed college	26	25.5
	N = 102	

Census data reveal 65.3% of the local population over age eighteen is between eighteen and forty-four years of age. Therefore, the surveyed group tended to be older than the overall population. The surveyed group also tended to be better educated than the overall population.

Over 42% of the households surveyed have two full-time workers; another 43.6% declared one full-time worker (table 2). Eight percent of the households indicated there were no full-time workers present at the time of the survey (due to retirement or disability). Households where the head of household is self employed made up 22.8% of the sample. The household income class with the largest number of respondents was $10,000–$20,000. Fifteen percent of the households reported annual incomes over $40,000, while 11.6% indicated a total annual income of less than $10,000.

Table 2. Income characteristics of respondents to crop drying facility public opinion telephone survey.

Characteristics	#	%
Full-time wage earners in household?		
One	44	43.6
Two	43	42.6
Three or more	6	5.9
None	8	7.9
	N = 101	
Head of household self-employed?		
Yes	23	22.8
No	78	77.2
	N = 101	
Total annual household income?		
<$10,000	10	11.6
$10,000-$20,000	31	36.0
$20,001-$30,000	14	16.3
$30,001-$40,000	18	20.9
$40,001-$50,000	8	9.3
$50,001-$60,000	2	2.3
>$60,000	3	3.5
	N = 86	

The median household income in 1989, according to the 1990 Census of Population for households in the area surveyed (a weighted average of the median for relevant census tracts), was $17,555. The survey questionnaire did not request an actual household income amount. Instead respondents reported incomes within a range, making a direct comparison with census data impossible. However, survey results do indicate that the median household income for the surveyed group is in the $20,001–$30,000 range. The mean household income was also in this range. Thus, it can be concluded the surveyed group is a higher income group than the overall population. This bias may have occurred because the use of a telephone survey automatically excludes households without telephones (which may be the lowest-income households).

Sixty-one percent of the survey respondents said they were living in a rural area (not farm) or on a farm (table 3). Over 30% reported living in a small town. Almost 8% indicated they were

Table 3. Residence characteristics of respondents to crop drying facility public opinion telephone survey.

Characteristic	#	%
Location of residence?		
Farm	17	16.7
Rural area, not farm	45	44.1
Town (under 10,000)	31	30.4
Small city (10,000-99,999)	4	3.9
Larger city (100,000)	4	3.9
	N = 101	
Household involved in farming activities?		
Yes	28	27.5
No	74	72.5
	N = 102	
If involved in farming, part-time or full-time?		
Part-time	18	64.3
Full-time	10	35.7
	N = 28	

living in a small city or larger city. These respondents live in areas adjacent to the El Paso metropolitan area. Over 27% reported their household was involved in some type of farming activity, and of those, 64.3% said it was a part-time undertaking.

Knowledge and Understanding of Biomass Energy

Pretesting of the survey questionnaire found a low level of recognition of the term “biomass.” The questionnaire was subsequently changed to offer a brief description of biomass energy and some potential sources. With this description, only 23.4% (n = 25) of the respondents indicated they were familiar with biomass energy. Of these 25 respondents, 28% (n = 7) were familiar with the different techniques available for converting biomass to energy (table 4).

After being presented with a description of these technologies, survey participants gave their opinion of each (table 4). The absolute number of responses to these questions was small; however, the results indicate a high degree of indifference regarding these three technologies. Fewer respondents were in favor of combustion as a conversion technology than either gasification or liquefaction.

Overall, the responses to structured questions (and anecdotal unsolicited responses discussed later in this report) indicated very limited understanding of biomass and biomass-to-energy conversion. The limits of doing a telephone survey prevented the enumerators from offering lengthy explanations of biomass to the participants. Furthermore, such coaching could have introduced bias into these results.

Local Acceptability of a Biomass-to-Energy Facility

Over 63% of the respondents indicated they favored the use of crop byproducts for drying other food products. Fewer than 10% were opposed, with approximately 27% indifferent (table 5).

When asked if they would be concerned about new industries in their area using alternative fuels for crop drying or food processing, 48% indicated they would be concerned, 17% were indifferent, and 35% expressed no concern. Respondent attitudes toward a bio-

queried respondents as to local employment opportunities (table 12).

More than half of the respondents (54.8%) said they were happy with their communities while approximately one-fifth indicated dissatisfaction. The respondent group was almost unanimous (96.2%) in their assertion that more jobs are needed in their communities, although this response was often qualified by lengthy comments.

Table 12. Community satisfaction and employment opportunities.

Question	#	%
How satisfied are you with life in your community?		
Satisfied	57	54.8
Neutral	27	26.0
Dissatisfied	20	19.2
	N = 104	
Are there enough jobs available in your community?		
Yes	4	3.8
No, more jobs needed	102	96.2
	N = 106	

Unsolicited Comments Made By Telephone Survey Respondents

All unsolicited comments made by survey respondents were recorded by the survey enumerators and are discussed here. The responses reported have no statistical validity, and the extent to which they represent the attitudes and opinions of other respondents or community residents is unknown. The unsolicited comments are reported in an anecdotal fashion, and are included to provide additional insight into respondent attitudes.

Few detailed comments dealing with biomass and biomass-to-energy conversion were recorded. There was some concern expressed about the construction of food processing or crop drying

plants in the area. The comments related to the quantity (i.e., too many) and the size (i.e., too large) of plants that might locate in the area. One respondent was worried about increased crop dusting that would occur with increased production of fruits and vegetables.

The survey questions relating to exporting food products and beef cattle to Mexico elicited numerous comments from respondents. The respondents who commented tended to have negative attitudes toward exporting food products and beef cattle into Mexico. The respondents said they didn't want "too much" exporting to Mexico, they didn't approve of U.S. companies doing business in Mexico, the U.S. should not import food from Mexico, the U.S. should export only "surplus" food and beef, and "we need to feed our own people first."

Respondents who were opposed to additional dairies in their community indicated it was because dairies "smell bad." Respondents who were against more malls or shopping centers gave their reasons as "too many people," and said they wanted shopping areas concentrated in one area and not spread everywhere. One respondent reported they wanted no "chemical plants" located in their area. More people in the community was also linked to more crime by one respondent.

With respect to job opportunities in their communities, a few respondents expressed concern about the types of jobs available now or in the future. They want more challenging, better jobs for local young people. When questioned as to whether or not enough jobs were available in their communities, the respondents indicated more and better jobs are needed, but that local people are poorly educated.

INTERVIEWS WITH PUBLIC OFFICIALS AND OPINION LEADERS

Of the elected officials interviewed, approximately one-half were unable to meet with survey personnel in person, and telephone interviews were completed. Most community leaders were interviewed in person. Officials included in the survey were Sunland Park Mayor Irene Gutierrez; three Doña Ana County Commissioners (Ray Luchini, Enrique Gonzales, and another commissioner who chose to remain anonymous); and David Martinez of La Mesa,

Vice President of the school board for the Gadsden Independent School District in southern Doña Ana County. Unelected community leaders who responded include Mike Milam (Policy Analyst for Las Cruces Mayor Ruben Smith), Irene Aranda of the Chamberino Post Office, and a businessperson in La Mesa.

Mayor of Sunland Park, NM

Irene Gutierrez, Mayor of Sunland Park, New Mexico, feels there is definite need for further research on alternative fuels and other environmental technologies. Air, water, and soil need to be protected more aggressively than the programs in use at this time, said Mayor Gutierrez, and she believes Sunland Park is spending enough resources on dealing with water quality issues. Because Sunland Park is near the U.S.-Mexican border along the Rio Grande, water quality is inspected often to insure safe drinking water.

The Mayor felt that before she could provide any definite opinions regarding the use of biomass as an alternative source of energy, she needed to know more about the materials used. One issue in particular concerned chemicals that might be used on agricultural byproducts, and if these residues could be harmful to humans if the byproducts were used as biofuel. Assuming biomass does not leave any harmful polluting residues, Mayor Gutierrez would favor all three technologies—combustion, gasification, and liquefaction—as methods to convert biomass to energy.

Like other Doña Ana County officials, she would definitely support increased economic development that might create more jobs in this county. Employment opportunities from new food processing and crop drying facilities would benefit southern Mesilla Valley residents as well as those in surrounding areas seeking employment. Mayor Gutierrez recognizes increased economic activity will most likely result in greater population growth and more people moving into this community. Increased crime, she says, is the result of increased population within an area of high unemployment.

Mayor Gutierrez also expressed concern for the people of New Mexico: before businesses export produce or cattle to Mexico or any other country, Americans should be assisted with employment, health care, and adequate food supplies. Levels of crime seem to

decrease somewhat with increased employment, according to the mayor, and she believes a facility utilizing alternative fuels might possibly bring a better employment climate and prosperity to the Doña Ana County area. The overall opinion of the Sunland Park mayor seems to favor increased economic activities that might result in more jobs and increase the tax base in Doña Ana County.

Doña Ana County Commissioner #1

County Commissioner Enrique Gonzalez favors biomass as an alternative fuel and would welcome industries to this area if there was strict control of all emissions. If facilities using biomass were to move to Doña Ana County, he would be concerned if the facility would actually help the environment. However, Commissioner Gonzalez favors increased economic activity, including constructing food processing plants and crop drying facilities, along with increased production of fruits and vegetables in the Mesilla Valley. He would like to see separate areas set aside for industries and dairies: these areas could isolate the emissions and odors of industries, keeping the overall air quality better in the areas with concentrated populations.

Like other survey respondents, the Commissioner feels he would need additional information on biomass and alternative fuels before he could make definitive comments on the subject. There is a need for fuels that will decrease U.S. dependence on foreign oil, and although research and development could be costly, he would use alternative sources in order to conserve our natural resources. Commissioner Gonzalez stated the Anthony area has some pollution thought to be from automobile emissions, but industrial pollution is not a major concern in his community. He believes there is a need for better technology to handle recycling, and he thinks the problems with water and air pollution should have been approached much earlier. The Commissioner would like to see increased economic activity in Doña Ana County that could reduce unemployment rates by utilizing local labor forces and provide an increased demand for vegetables and fruits grown in the Mesilla Valley.

Doña Ana County Commissioner #2

Commissioner Ray Luchini has first-hand experience seeing biomass energy in action. While in Hawaii, he witnessed sugar cane byproducts being used to create energy in a combustion process converting biomass to steam. He stated the operation was efficient and utilized all components of sugar cane to produce revenues and energy. This experience gave him a basic understanding of using crop byproducts as biomass and conversion of the biomass to fuel.

As a longtime resident of Las Cruces, he would favor any clean industry that would bring in jobs for the people of Doña Ana County. There is a definite need for a healthier economic climate in this area, but he would like to see industries isolated in areas away from town so any emissions would tend to dissipate before reaching residential areas. Regarding industries using biomass for fuel, he would agree to allow them to construct plants here as long as the technology is in place to monitor emission levels. Commissioner Luchini mentioned wood pellet stoves and their convenient and efficient use. He believes any technology that will aid in conserving natural resources should be supported, and research for alternative forms of energy should continue.

With respect to new residents in the area, he feels increases in population levels are inevitable as people look for cleaner environments in which to live and work. A crop drying facility using biomass energy would probably not affect the traffic on rural roads, but he says road use will increase as economic activity increases. To a certain extent he would expect to have increased industrial waste; that is why any new industry coming to this area should be environmentally clean.

Regarding environmental issues such as recycling, air and water pollution, and loss of scenery, the commissioner feels not enough resources are earmarked for research and development. He stated that in Florida there are a number of recycling plants and citizens have set up aggressive programs to support recycling activities. Alternative fuels must be found, and although he agrees initial costs will be somewhat high compared to traditional forms of fuel, costs will decrease if alternative fuels are developed properly and promoted aggressively.

Commissioner Luchini believes historical preservation in the Southwest is very important and is also concerned with the loss of

good farmland through housing and commercial development. When questioned about air and water pollution sources in the southern Mesilla Valley, he mentioned Juarez, Mexico as a source for much pollution in the valley.

Doña Ana County Commissioner #3

A third county commissioner was interviewed but chose to remain anonymous for this survey. Commissioner #3 shares the basic concern of his colleagues about the economic situation in the Mesilla Valley. He would favor new industry moving to the Las Cruces area as long as conditions were regulated and closely monitored for compliance with state and national EPA standards. Locating new industries in a central location away from town would isolate any odors coming from processing. The Commissioner stated he did have some knowledge of biomass and would favor the use of alternative fuels such as biomass for an energy source.

Regarding employment in the area, Commissioner #3 felt a crop drying facility would probably bring new jobs for local people, but he was concerned about positions for the young people in his community. Would the new positions require skilled or unskilled labor? Would the facility utilize local people for administrative positions? He feels that with current population growth rates in Doña Ana County, there should be a slow, gradual increase in business activity. Traffic on rural roads will probably remain about the same. He was very positive about a crop drying facility increasing farm incomes through increased demand by the factory for local crops.

For the most part, the Commissioner believes his constituents are satisfied with the quality of life in their communities. He did state pollution from industrial users and automobiles creates a definite pollution problem for this area. Commissioner #3 would favor any alternative fuels as long as the price to the consumer was reasonable.

School Board Member

David Martinez is a realtor and real estate appraiser living in La Mesa. He is a past president of the Gadsden School Board and

currently holds the position of Vice President on the board. The Gadsden Independent School District is located near Anthony.

Mr. Martinez was not familiar with biomass energy, and after being given a short definition of biomass and the different technologies available, declined to give an opinion on which technology he favored until he could get further information. Using the basic information given, he said if the crop byproducts were clean and not harmful and if these byproducts provided a less expensive source of energy, he would be in favor of using the products for energy. The area needs more jobs, but he would like to see an industrial area established 10–15 miles from communities where all new industries can locate and where emissions would be dissipated before they reached populated areas. There is an abandoned gas plant not far from the Mesilla Valley that already has utilities in place and a separate well to furnish water.

With respect to malls and shopping centers locating in the area, Mr. Martinez feels these businesses should locate in Anthony or in the Sunland Park area. He does see the need for more economic activity to increase the local tax base, but wants clean and safe industries that would not pollute the air or water. Concern about odor from biomass conversion was a concern for Mr. Martinez, who said he would favor industries using biomass if they were regulated and monitored. Regarding movement of new people into the area, he would favor more people but states retirees in an area often slow any progress to improve the community. Furthermore, if the new people spent their wages in Texas instead of New Mexico, the economic situation would not be much different than without these industries.

Mr. Martinez stated not enough resources are being spent on environmental issues such as recycling and air and water pollution. He believes if alternative sources of energy were found to be cleaner and more efficient, many people would still not use the alternative fuels. There is a definite need for progress in this area, but often elected officials are reluctant to move more quickly towards better technologies. He states he would favor any move toward a better environment but is cynical about people accepting just any technology. Location and the processes involved in crop drying and food processing would need to be examined with a better knowledge of the concept of biomass as an alternative energy source.

City of Las Cruces Mayor's Policy Analyst

Mike Milam is Policy Analyst for Ruben Smith, Mayor of Las Cruces. Mr. Milam was well informed on the use of biomass as an energy source. As an organic gardener, he has used natural materials as fertilizer in his own garden. Although Mr. Milam had an understanding of the concept of biomass, he was not familiar with different technologies available for biomass energy conversion. Of the three technologies listed, he favored liquefaction over gasification and combustion. The general public doesn't understand these processes and there is a perceived environmental impact of combustion, according to Mr. Milam. He would like to see continued research for alternative sources of fuel, yet he expressed concern about biomass as a fuel in drying crops and other food processing. Depending on further research to determine if residual pesticides are present on crops providing biomass, he would favor use of biomass as a fuel source (preferably liquefaction). If economic development increased in Doña Ana County, Mr. Milam would be concerned but would welcome safe, clean crop drying or food processing plants.

As with other county residents, the level of employment in Doña Ana County is a major concern to Mr. Milam. He would favor most aspects of economic development as long as industries complied with EPA standards, with the exception of dairies because of the odors. New malls and shopping centers in the area are a natural outcome of any city's population growth, said Mr. Milam. In addition, he favored the construction of food processing and crop drying plants as well as manufacturing plants as long as there is a cap of 250 total industries allowed in Las Cruces. He thinks a crop drying facility will have little impact on reducing the quality of life and doubts increases in population growth, business activity, and crime will result from any industry using biomass energy. A new facility would increase employment for area young people only if they were trained in agriculture.

Mr. Milam is satisfied with the quality of life in the community. He did feel enough resources were being spent on recycling, historic preservation, air pollution, and soil erosion. More should be invested in water pollution, land preservation, and economic development. Public policy and private policies address economic development in any area as two separate sectors. Regarding loss of

scenic beauty in this area, Mr. Milam thinks that at this time there is not enough public policy regarding the issue (i.e., building specifications and codes).

According to Mr. Milam, alternative fuel use is necessary to protect non-renewable resources but initially, in the first phase of research and development, costs will be high. Dependence on foreign oil will decrease with the move toward alternative fuels. But decreasing dependence on domestic oil involves a delicate policy balance due to the possible displacement of U.S. oil industry workers. Mr. Milam feels pollution in this area is not necessarily the result of automotive or industrial emissions, but that carbon monoxide emissions do contribute to the pollution in general. He believes the public realizes the need to conserve natural resources and would use alternative fuels when available at a reasonable cost.

In his opinion, a crop drying facility using biomass energy would have little effect on the quality of life within the community and on local crime rates. He predicts increases in population and business activity would be minimal. Mr. Milam doesn't foresee any problems with a crop drying facility using biomass energy locating in the area. If a company takes measures to utilize environmentally friendly sources of energy, the overall effect on the surrounding community would probably be positive.

Chamberino Postal Employee

In attempting to contact residents who have lived in their communities for many years and are considered leaders within the community, postal workers were asked to refer the survey enumerators to residents who could speak for the whole community. Irene Aranda, a worker at the Chamberino Post Office, agreed to give her opinions on the concept of biomass. Because most of the people in the Chamberino area are farm laborers who work long hours and do not read or speak English, there is very little technical knowledge of the economic activities occurring in Doña Ana County. This postal employee did not know of any crop drying facility in the area and was not familiar with the concept of biomass or alternative fuels. She said local people would favor any type of research that would extend the life of our natural resources and hoped the way of life in the little communities would be unaffected.

La Union Spokesperson

In another small community, somewhat larger than Chamberino, an employee of a food establishment agreed to talk with us, again on the condition of anonymity. The respondent had no knowledge of biomass energy but would favor using food byproducts as a fuel source. Research for cleaner, renewable, more available sources of fuel should be continued, and more attention should be focused on other environmental issues such as air and water pollution, and recycling. One of the main concerns of the people in the community is the development of farmland into housing and business locations.

The respondent felt citizens in this community would favor crop drying or food processing plants over other industries, especially if the plants were to use a cleaner fuel such as biomass, and if the demand for locally grown produce were to increase. The respondent feels these conditions would probably create more jobs for an area with a high unemployment rate; many of the local unemployed don't want to leave their families and relocate to an area where more jobs are available. Because of this, many of the people take lower-paying jobs and hope to make ends meet. According to this person, the area is strongly influenced by the predominant religion in the area (Catholicism), and keeping the family unit together even with low wages is more important than uprooting the family and moving to another area. For these reasons, a crop drying facility or food processing plant utilizing biomass or another alternate energy source would be welcomed in this community.

Local Clergy

Because of the Catholic church's strong influence in the survey area, an attempt was made to interview members of the clergy who reside or work there. Several priests were contacted for interviews but all declined to participate in the survey for various reasons. One priest had only recently moved to the area and felt he did not have the background in the community to answer the survey. Another priest declined to answer survey questions because he didn't "know much about spices and crop drying." The third priest suggested we contact members of the community instead of clergy. He believes his opinions are not as important as those of community residents. Additional efforts were made to contact clergy in the area but most

declined to participate in any discussion or give any personal opinions.

SUMMARY AND IMPLICATIONS

The results of the survey of southern Mesilla Valley residents found a high degree of unfamiliarity with biomass energy sources and technologies. Local residents generally have favorable or indifferent attitudes toward a biomass-to-energy facility for crop drying in their community. Local acceptability of food processing, crop drying, and fresh fruit and vegetable production was higher than any of the other economic development activities presented to the telephone survey participants. Survey respondents want more jobs in their communities; however, some did express concern over the quality of the jobs. Additional dairies in the southern Mesilla Valley were the economic development alternative perceived most negatively.

This study of southern Mesilla Valley residents found limited local opposition to a crop-drying facility in their area. Every effort was made to achieve a random sampling of telephone survey participants and a broad sample of local officials and opinion leaders, and to reduce all sources of potential bias. However, the usual caveats apply. The surveyed population is somewhat different than the overall population (e.g., age, income, education), and omitting households without telephones may have biased the results. Given that approximately 1% of the households in the southern Mesilla Valley were surveyed, extrapolation of these results to the other 99% of local households should be done with care.

The southern Mesilla Valley is a diverse area and several small communities are included within the survey area. There are at least three cultures represented in the southern Mesilla Valley—Anglo, Hispanic, and Native American. The smaller communities are usually agriculturally oriented and traditional without formally organized political structures. Many of the families in the rural areas have lived there for several generations. Often these areas have no elected mayors. The officials and opinion leaders surveyed for this study are recognized as representatives of their communities; however, the usual caveats regarding extrapolation apply.

Overall, attitudes revealed in both components of the study found positive opinions of agribusiness (although a crop drying facility was the primary focus of the research). Environmental concerns are tempered by positive support for job creation and increased economic activity. This combination of attitudes could be a positive factor in attracting additional agribusiness to the southern Mesilla Valley. The results of this study found most participants were concerned about environmental quality, but also held realistic attitudes toward the need for economic development. Most of the support for alternative energy sources was qualified by admissions of lack of knowledge and information. However, this study again found broad positive support for alternative technologies and industrial innovation.

APPENDIX:
TELEPHONE SURVEY QUESTIONNAIRE

CROP DRYING FACILITY PUBLIC OPINION TELEPHONE SURVEY

Part I

1. Are you familiar with using crop by-products such as, vegetable peelings, spoiled food products, sawdust and wood chips, manure etc. energy? This is called biomass energy.

   ____Yes ____No

   If **No**, go to question 4. If Yes, go to Question 2.

2. Are you familiar with different technologies available for converting biomass to energy?

   _____Yes _____No

   If **No**, read the following statement to the respondent. If Yes, go to Question 3.
   Technologies available for biomass energy conversion include combustion or burning, gasification (allowing crop by-products to spoil and ferment to produce a gas), and liquefaction (allowing crop by-products to spoil and ferment in order to produce a liquid form of fuel--oil).

3. What is your opinion on the following technologies? Favor (F), indifferent (I), oppose (O),.

	F	I	O
A. Combustion			
B. Gasification			
C. Liquefaction			

4. How do you feel about using crop drying byproducts, typically twigs, chile, garlic or onion peelings, etc., for use as a fuel in drying of foods?Favor (F), indifferent (I), oppose (O).

   F I O

5. Do you feel that research for cleaner, renewable, more available sources of fuel should continue?

   ____Yes ____No

6. If economic development increased in the southern Mesilla Valley and new industries chose to try alternative fuels such as biomass, which typically burns cleaner than conventional oil and coal, for crop drying or other food processing,would you be concerned (C), indifferent (I), or unconcerned (U)?

   C I U

7. Suppose a crop drying or food processing plant that uses biofuel as an energy source locates near your community. Would you be concerned (C), indifferent (I), or unconcerned (U)?

   C I U

PART II

1. Concerning the job market in your community, would you say there are enough jobs available or there is a need for more jobs?

____There are enough jobs available ____Need more jobs

2. Economic development in your community could potentially include growth of agricultural and other industries. I will read some types of economic development activities to find out your opinions. Would you Favor (F), indifferent (I), or oppose (O) these activities?

	F	I	O
A. Construction of food processing plants			
B Construction of crop drying plants			
C. Production of fresh fruits and vegetables			
D. Processing of food products			
E. Food product exporting to Mexico			
F. Exporting beef cattle to Mexico			
G. Development of tourism			
H. Retirees moving to your community			
I. Location of a border crossing			
J. More dairies in the area			
K. Malls or shopping centers in the area			
L. Manufacturing plants in the area			

3. Next we have some opinion questions. Please tell us if you agree, have no opinion, or disagree with these statements. A crop drying facility using biomass energy would ... (read the following list)

	A	N	D
A. Reduce the quality of life			
B. Increased air pollution			
C. Decreased water quality			
D. More jobs for local people			
E. Keep more of our young people			
F. Greater population growth			
G. Increased business activity			
H. Increased crime			
I. Better school quality			
J. More outsiders moving to my community			
K. Take family members away from family businesses			
L. Cause traffic congestion on rural roads			
M. Cause increased industrial waste			
N. Increased farm incomes			

PART III

1. Concerning the level of satisfaction with life in your community, would you say that you are satisfied (S), neither satisfied nor dissatisfied (N), or dissatisfied (SD)?

S I D

2. I will now read some issues for you. For each of these please tell me whether there are enough (E), not enough (NE), or too many (TM) resources being spent on it?

	E	NE	TM
A. Recycling			
B. Land preservation			
C. Economic development			
D. Historic preservation			
E. Air pollution			
F. Water pollution			
G. Soil erosion			
H. Loss of scenery			

3. Several alternative sources of energy have been developed, studied and used. These include solar power, wind and hydro power. For each of the following statements regarding these energy sources please tell me whether you agree significantly (SA), some (S) or not at all (N) with these statements?

	SA	S	N
A. Alternative fuels will decrease dependence on foreign oil.			
B. Alternative fuels will decrease dependence on domestic oil.			
C. Coal burning pollutes the air.			
D. Research to find alternative fuels is too costly.			
E. Consumer costs for alternative fuels will be costly.			
F. Alternative fuels will be less efficient.			
G. Solar power is not dependable.			
H. Hydroelectric power dams destroy river ecosystems.			
I. Carbon monoxide emissions increase air pollution.			
J. I would use alternative sources of fuel if they were available.			
K. It is important to conserve our natural resources through use of alternative fuels.			
L. Car emissions cause much of the air pollution in my community.			
M. Industrial fuel users cause much of the air pollution in my community.			
N. Nuclear power is dangerous.			

PART IV

The following questions are for statistical purposes.

1. What is your gender? ____Male ____Female

2. What is your marital status? ____Married ____Single ____Other

3. Including yourself, how many people are currently living in your household?

   ____one ____two ____three ____four ____five ____six or more

4. What general category best describes the age of the head of household (read list below)?

   ____under 18 year ____25-34 years ____45-54 years

   ____18-24 years ____35-44 years ____55-64 years ____65 years

5. What general category best describes the highest level of education completed by the head of household (read list below)?

   ____grade school or less ____completed high school ____some high school

   ____some college ____completed college

6. How many full time wage earners are in your household?

   ____one ____two ____three or more ____None (retired, disabled)

7. Is the head of household self employed?

   ____Yes ____No

8. What is the location of your residence (read list below)?

   ____A farm ____Rural area, not farm ____Town (under 10,000)

   ____Small city (10,000-99,999) ____Larger city (100,000+) ____Don't know

9. Is anyone in your household involved in any farming activities?

   ____ Yes ____No

10. If yes, are they involved part-time or full-time?

    ____Part-time ____Full-time

11. What general category best describes your total annual household income (read list below)?

    ____under $10,000 ____$10,000 - $20,000 ____$20,001 - $30,000

    ____$30,001 - $40,000 ____$40,001 - $50,000 ____$50,001-$60,000

    ____over $60,000