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Todd S. Ray, former Masters student, University of Georgia, Department of Agriculture and Applied Economics, 308 Conner Hall, Athens, GA 30602-7509.
Samuel J. Hancock, Research Coordinator II, University of Georgia, Department of Agriculture and Applied Economics, 312 Conner Hall, Athens, GA 30602-7509, Phone: (706) 542-0853, E-mail: shancock@agecon.uga.edu
Stanley M. Fletcher, Professor, University of Georgia, Department of Agriculture and Applied Economics, Director, The National Center for Peanut Competitiveness, Griffin, GA 30223-1797, Phone: (770) 228-7231 x127, E-mail: sfletch@gaes.griffin.peachnet.edu.
William A. Thomas, Cooperative Extension Specialist, University of Georgia, Department of Agriculture and Applied Economics, 201 Conner Hall, Athens, GA 30602-7509, Phone: (706) 542-9081, E-mail: bthomas@agecon.uga.edu.

Dept. of Agricultural & Applied Economics
College of Agricultural & Environmental Sciences
University of Georgia

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Department of Agricultural and Applied Economics

University of Georgia

Athens, GA 30602-7509

sfletch@gaes.griffin.peachnet.edu

ABSTRACT

Market conduct has become an important issue for peanut farmers. Consolidation in the first buyer market, increased imports, and political uncertainty have increased peanut producers' marketing risks. The purpose of this paper was to examine demographic differences in peanut producers' perceptions of the current marketing environment as well as their attitudes towards new marketing institutions. A standard t-test revealed that producers growing more than 250 acres of peanuts, irrigating at least 50 percent of their peanuts, and producers located in Southwest Georgia were statistically more dissatisfied with the current marketing environment and significantly more receptive to forming a new generation peanut cooperative.

Key words: new generation cooperative, peanuts, producer survey, value-added.

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PRODUCER ACCEPTANCE OF A NEW PEANUT MARKETING COOPERATIVE: A SURVEY OF GEORGIA PEANUT PRODUCERS

The recent search by producers and researchers for peanut marketing alternatives has been driven by three main factors. First, farm income for peanut producers has declined steadily over the last three years in certain peanut-growing regions. This has been due in part to a reduction in the quota price. Second, the future of the current peanut program is questionable. Historically peanuts were classified as a Section 22 crop, which provided domestic producers protection from imported peanuts. The removal of this classification due to the recent trade agreements has led to downward price pressure domestically. Third, the first buyer market (i.e., shellers) has become continually concentrated over the last decade, giving the individual producer little or no market power with his/her semi-perishable crop. Currently, two firms control at least 80% or more of the first buyer market in Georgia. The purpose of this research was to examine the feasibility of starting a producer-operated marketing cooperative for peanuts to allow producers to collect profits beyond the farm gate. This cooperative was assumed to add value to farmer stock peanuts by shelling and marketing the farmer-members' raw product.

The alternative marketing institution investigated in this research is a new generation cooperative (NGC). NGC is a term that has been applied to about fifty cooperatives that have emerged in Minnesota and North Dakota since the early 1990's and have since spread across the country (Hancock, Skees, and Zeuli, 2000)[1]. They are

[1]Sugarbeet processing co-ops in North Dakota and Minnesota are the earliest examples of NGCs.

called NGCs for three primary reasons. First, they represent the newest generation of cooperatives. Second, their major focus is on value added processing rather than the past objective of commodity marketing. Third, rather than acting as a clearinghouse, a NGC is restricted to only accepting a predetermined amount of commodity from its members (Stefanson, Fulton, and Harris, 1995).

Objectives

The primary objective of this research was to discover demographic characteristics of producers who should most likely be targeted for forming a new generation peanut cooperative. The secondary objective was to reveal any statistical differences in producers' demographics and those producers' perceptions of the current marketing environment.

Procedure

The target area for this study was the state of Georgia, and included farmers who had applied for a peanut marketing card in 1999. A marketing card is issued in the name of the farm operator for each farm on which peanuts are produced in the United States in the current year it is used for marketing that operator's peanut production (Agricultural Regulations 2000). The marketing list used consisted of all farmers in Georgia who grew peanuts for the 1999 marketing year in addition to quota holders who assumed partial risk of production in order to maintain quota ownership.

Of the 5,219 producers surveyed, 638 surveys were returned with 571 usable ones. One of the criteria for a usable response was that the respondent either supplied information on the number of peanut acres grown or the number of pounds of peanuts produced. Without this production information, whether or not there was enough interest

to supply a peanut NGC could not be determined. The remaining surveys were not usable for one of several reasons: not deliverable, unfilled, no longer farming, currently rent out land, etc.

Data Compilation Methodology

Data was compiled in preparation for two sets of statistical tests. The first set of data included a control group of "all producers." The "all producers" group consisted of observations from all "usable" surveys. This data was then broken down by location, size, and irrigation practice into six secondary demographic groups (Appendix A). The *"primary growers"* group consisted of observations of producers from the following counties: Baker, Calhoun, Clay, Colquitt, Crisp, Decatur, Dougherty, Early, Grady, Lee, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Terrell, Webster and Worth (Appendix B). All other counties' respondents are considered *"all others"* (Appendix B). This location breakdown of counties was drawn from the concentration of irrigated acres in the peanut producing region of the state. The primary growers tend to have more irrigated acres than all other farmers. The *"large producers"* group consisted of observations from producers who reported growing at least 250 acres of peanuts, while the *"small producers"* group grew less than 250 acres of peanuts. The *"irrigated"* group consisted of observations from producers reporting irrigation on at least half of their peanut production, while the *"dryland"* group irrigated less than half of their peanuts.

The second set of data included a control group of *"NGC inclined"* producers (Figure 4). This group was derived by segregating all surveys according to their responses to the questions discussing a peanut NGC under the two scenarios of the current program. The two program scenarios are: "Program" (under the current program

or if the current program should remain) and "No Program" (if the current program should be discontinued). Those respondents who are classified as "NGC inclined" must meet one of the following criteria: 1) Answer yes to a peanut NGC under both scenarios or 2) Answer no to a peanut NGC under the "program" scenario but answer yes to a peanut NGC under the "no program" scenario. Those respondents who answered no to a peanut NGC under both program scenarios were defined as "NGC averse." Finally, those respondents that answered yes to a peanut NGC under the "program" scenario but no to a peanut NGC under the "no program" scenario were defined as "illogical." The illogical answers could be attributed to a misunderstanding of the question, not much thought in answering the questions, or those farmers may not grow peanuts without the peanut program and feel that a NGC would not help in its absence. After the "NGC inclined" group was segregated out of the "all producers" group, the new data set was broken down by location, size, and irrigation practice by the same methods used in the first data set.

Statistical Methodology

A two-sample *t*-test for comparing two means was conducted on each of the groups discussed in the previous section to find if there were any significant differences in the demographic groups' responses. The means were determined by assigning a 1 for those farmers in favor of an idea and all other farmers were assigned a 0.

The *t*-value was determined from the formula

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{{s_1}^2}{n_1} + \frac{{s_2}^2}{n_2}}}$$

where x_1 and x_2 are the means of the two samples, s_1 and s_2 are the standard deviations of the two samples, and n_1 and n_2 are the sizes of the two samples. The number of degrees of freedom for the problem is the smaller of n_1-1 and n_2-1 (Voelker and Orton, 1993).

The *t*-test was first performed on the "all producers" data set to discover if location, size and farming practice had a significant impact on how certain groups responded compared to other groups. Next, the *t*-test was performed on the "NGC inclined" group to discover if location, size and farming practice had a significant impact on how certain groups of "NGC inclined" farmers responded relative to other "NGC inclined" groups.

RESULTS

The results of this research were divided into two categories. The first consists of results from the tests conducted on data from the "all producers" group. The second is limited to the results from the test conducted on data from the "NGC inclined" group.

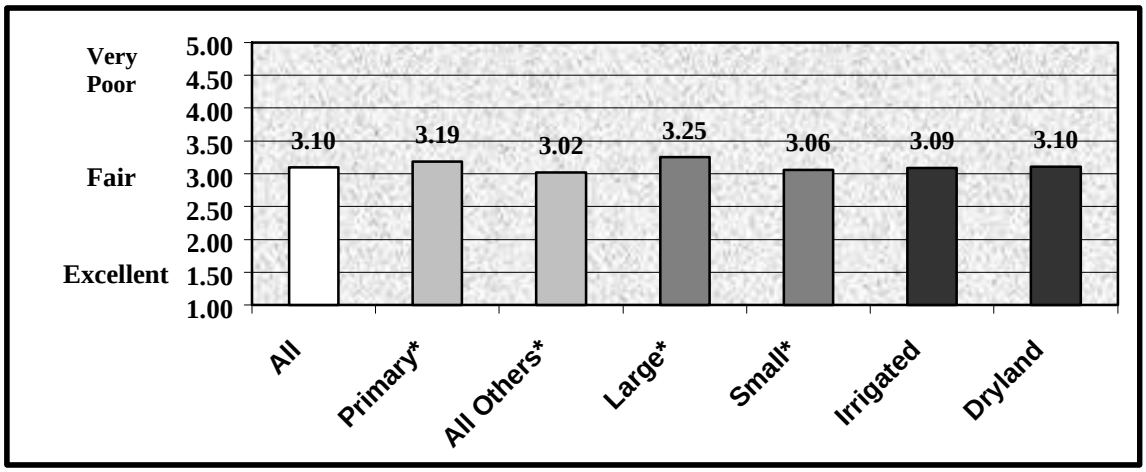
"All Producers" Group Results

The following information shows how location, size and irrigation practice affect all responding farmers' responses.

Two-Year Income Potential

On average, producers expected their two-year income potential to be relatively fair (Figure 1). Location had a significant effect, with "primary growers" statistically less optimistic than "all others" "Large peanut farmers" have a significantly worse outlook on two-year income potential than "small peanut farmers." Irrigation practices had no significant effect on farmers' expected two-year income potential.

Figure 1: Producer Perception of Two-Year Income Potential

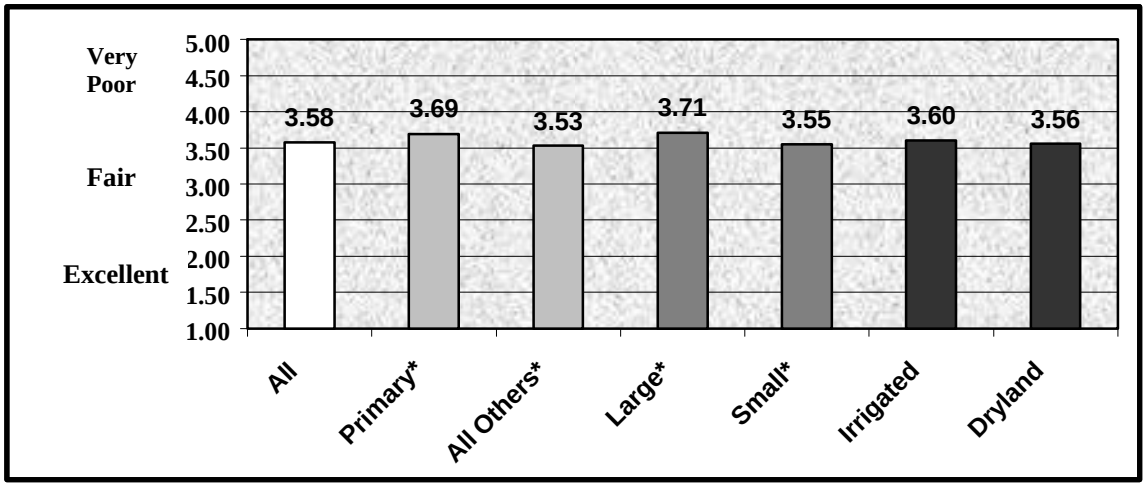


*Statistically different at the .01 level

Five-Year Income Potential

On average, producers expected their five-year income potential to be below average (Figure 2). Farmers felt that their five-year income potential is significantly worse than their two-year income potential. This could be caused by the uncertainty of the effects that the 2002 Farm Bill will have on peanuts. Location has a significant affect on five-year income potential. Farmers in the "primary grower" location felt their five-year income potential was significantly worse than those in the "all other" location. Also, "larger peanut farmers" felt their five-year income potential is significantly worse than "smaller peanut farmers". Irrigation did not have a significant effect on how farmers felt about their five-year income potential.

Figure 2: Producer Perception of Five-Year Income Potential

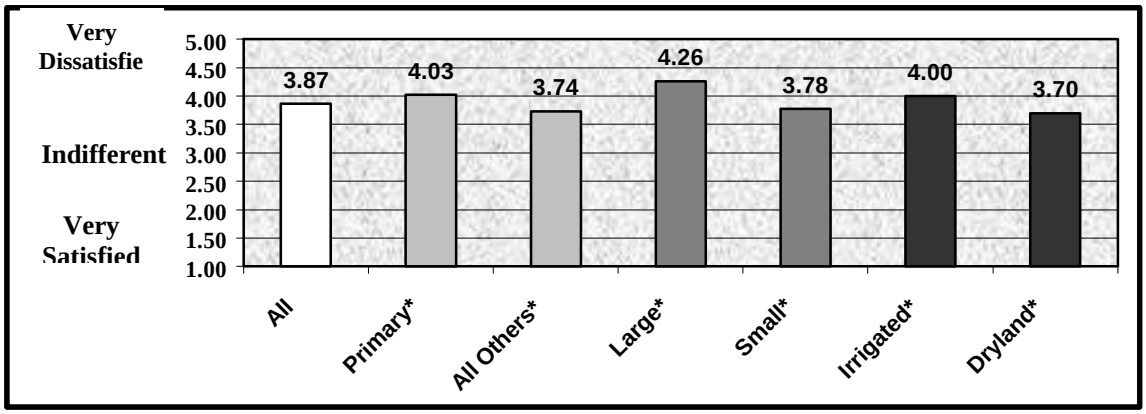


*Statistically different at the .01 level

Number of Buyers

On average, producers were dissatisfied with the current number of buyers (Figure 3). Location, size and irrigation all had a significant affect on farmers' satisfaction with the number of buyers. "Primary growers" were significantly more dissatisfied with the number of buyers than "all other growers." "Larger farmers" were significantly more dissatisfied with the number of buyers than "smaller farmers," and "irrigated" farmers were significantly more dissatisfied than "dryland" farmers.

Figure 3: Producer Attitude Toward the Current Number of Buyers

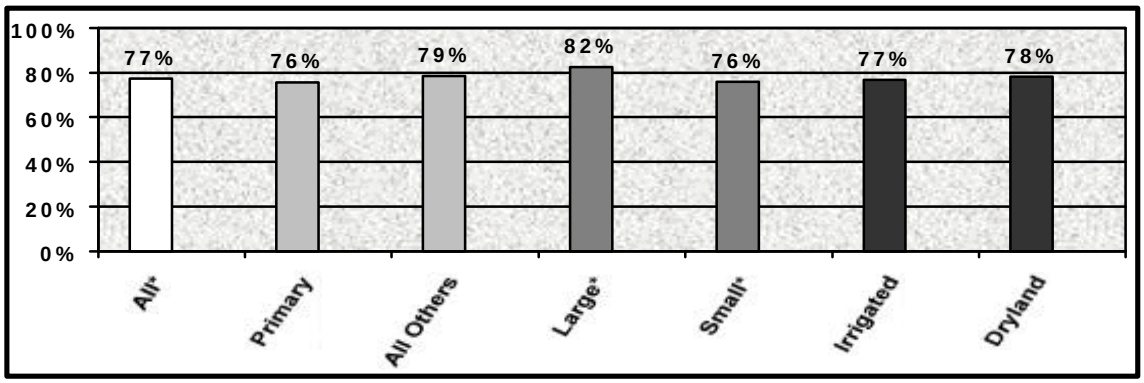


*Statistically different at the .01 level

“NGC Inclined” Group Results

The following information shows the effect location, size and irrigation had on “NGC inclined” farmers’ decisions to join a peanut NGC. Size was the only demographic showing a statistical difference in producer receptiveness to a NGC (Figure 4). A significantly higher percentage of “large producers” want a peanut NGC compared to “small producers.” This result may seem surprising initially since “smaller producers” would have more to gain from pooling their production in a cooperative than larger producers, but previous research has shown that operators of larger farms tend to be more willing to take on new ventures than operators from smaller ones. This seems to be due to risk thresholds and social characteristics.

Figure 4: Producer Receptiveness Toward a Peanut NGC



*Statistically different at the .01 level

Peanut NGC Services

The data used for ranking requested NGC services was limited to the “NGC inclined” group, because if a producer has responded that they would not join a cooperative, there is no need in including their input on the services it would provide. The results of the ranking were indexed in order to discover the most desired services. The number of observations that ranked a service as one (most desired) was multiplied by nine, two by eight, and so on. The total value was then summed for the service and

divided into the total of all the services to create the index. The most requested service for the cooperative was the marketing of cooperative shelled and/or processed peanuts, followed by the marketing of member stock peanuts (Table 1). Operating buying points, cooperative shelling of peanuts, and transportation and marketing of peanuts to private shellers were commonly requested services. The co-op providing crop insurance and production and harvesting supplies also sparked some interest, while equipment rental and custom harvesting received little priority.

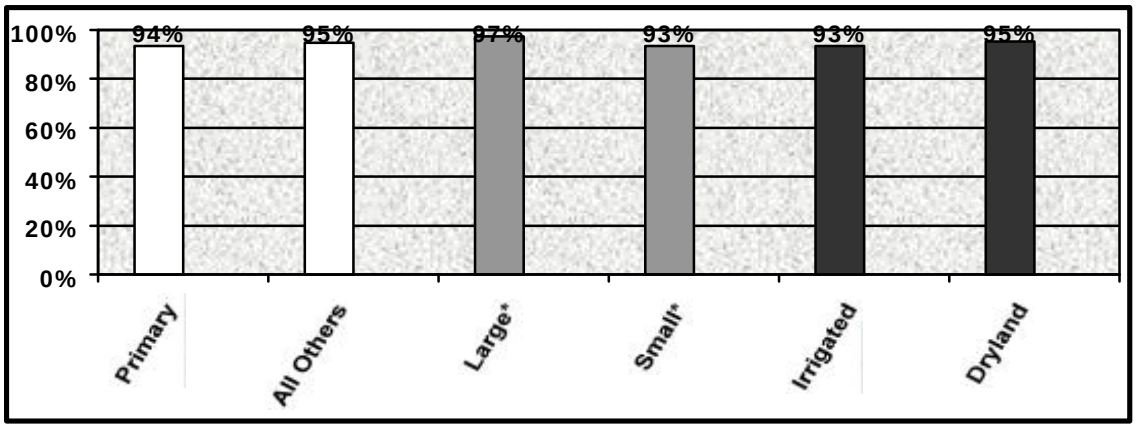
Table 1: Ranking of Requested Cooperative Services (NGC Inclined)

Rank	Cooperative Service	Index
1	Marketing of Cooperative Shelled and/or Processed Peanuts	0.154
2	Marketing of Member Stock Peanuts	0.152
3	Operating Buying Points	0.151
4	Cooperative Shelling of Peanuts	0.148
5	Transportation and Marketing of Peanuts to Private Shellers	0.127
6	Production and Harvesting Supplies	0.091
7	Crop Insurance	0.086
8	Equipment Rental	0.049
9	Custom Harvesting	0.041

Peanut NGC Financing

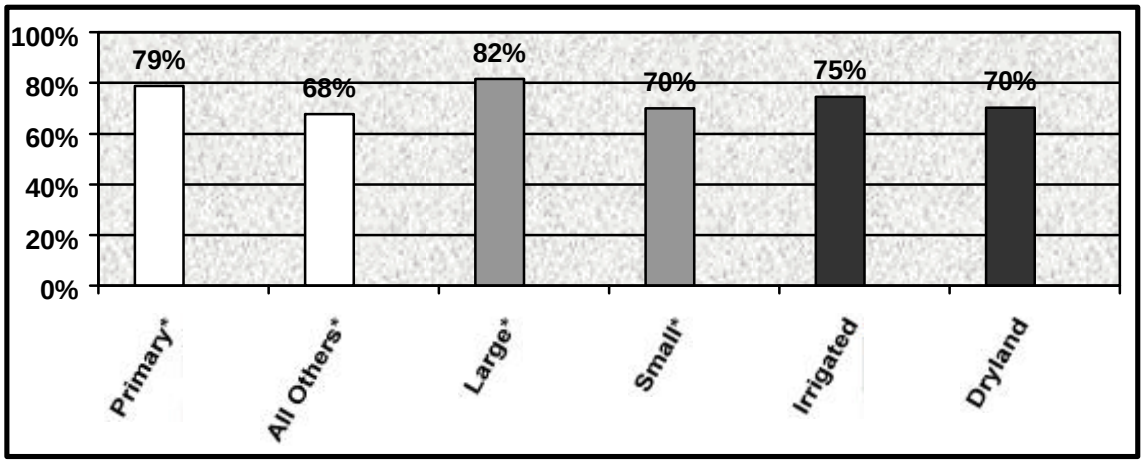
Statistical tests revealed that a significantly higher percentage of “large”, “NGC inclined” farmers would be willing to sign a contract with a NGC compared to “small”, “NGC inclined” farmers (Figure 5). From the “NGC inclined” group, “primary growers” and “large farmers” were significantly more willing to make an initial investment than “all other” growers and “small farmers,” respectively (Figure 6).

Figure 5: "NGC Inclined" Producer Willingness to Sign a Contract



*Statistically different at the .01 level

Figure 6: "NGC Inclined" Producer Willingness to Invest



*Statistically different at the .01 level

IMPLICATIONS

Because banks require an initial investment of 25 to 50 percent of the capital needed to fund a NGC, producers responding they would be willing to make an initial investment (in terms of their percentage of pounds by county) was used to estimate the

target area for reaching the optimal 138,000,000 pounds[2] required for an efficient, peanut shelling NGC. Willingness to invest was used because it was one of the limiting factors in financing a NGC (Figure 6). It was also the most important limiting factor considering that no peanut NGC could be started without producer investment. The pounds of production reported by "NGC inclined" producers were summed and categorized by county. The total for each county was then divided by the total pounds reported by "all producers" to get the potential percentage of pounds that would be available for a peanut NGC for that county. This percentage was then multiplied by that county's total 1998 production (Georgia Agricultural Statistics Service, 1999). Since the large peanut farmers were statistically more willing to invest than small peanut farmers, this approach accounts for the size of the farmers' operation. Therefore, rather than apply the percentage of farmers who would be willing to invest to the 1998 total pounds, the percentage of pounds willing to invest was applied to the 1998 total pounds for each county. This procedure resulted in an estimate of the potential pounds of throughput available to a peanut NGC from each county, using the producer reactions from the questionnaire and applying them to the latest actual peanut data. Assuming the survey represents the entire population, Early and Miller counties could provide the optimal 138 million pounds that would be needed to run a peanut shelling NGC (Appendix C).

If the survey was not representative, further analysis indicated the target areas if only a portion of the willing respondents actually invest. If only 75 percent of the "NGC inclined" farmers responding they would be willing to make an initial investment actually

[2] Most efficient shelling plants shell 18-20 tons per hour (Williams 2000). A sheller that operated two, eight hour shifts, five days per week, and 48 weeks per year would need approximately 138,000,000 pounds to operate.

invested, only one contiguous county (Baker) would need to be added to the target area estimated by the 100% investment rate (Appendix D). If only 50 percent of the "NGC inclined" farmers responding they would be willing to make an initial investment actually invested, only two contiguous counties (Mitchell and Decatur) would need to be added to the target area estimated by the 75% investment rate (Appendix E). This relatively small increase in the target area (with each reduction of the investment rate) is attributed to the concentration of peanuts in the Southwest counties.

In Conclusion, Southwest Georgia has the greatest concentration of irrigated peanuts as well as large peanut farms. Targeting the Southwest counties gives a peanut shelling NGC the best opportunity to maintain an optimal level of throughput while minimizing transportation costs. Locating in this area would also decreases the need for as many buying points due to the high production concentration. The target area must be increased, as a smaller percentage of farmers are willing to make an initial investment (Appendices C-E). The larger increase in the target area from the 75 to the 50 percent investment rate is due to the decrease in the concentration of peanut production realized by moving away from the Southwest counties (Appendices D-E).

CONCLUSIONS

The peanut industry is a mainstay in Georgia's economy, especially in South Georgia. The presence of a federally supported price coupled with a supply management program has helped individual peanut farmers in times of crisis, but may have hurt the industry as a whole. World trade agreements such as GATT, WTO and NAFTA have had a negative impact on peanut farmers in the past five years by allowing foreign

peanuts into the U.S. through the elimination of Section 22 trade barriers. The issues of free trade, along with the consolidation occurring in all sectors of the peanut industry, especially among shellers, have producers searching for relief from decreasing profits. The consolidation has caused many problems in the peanut industry such as asymmetric price information and lack of market power for producers. The most pressing problems for farmers are the small number of buyers and the threat of price support reductions for peanuts. In addition, the increased number of droughts in the 1990s, along with the severe drought during the 2000 growing season, has increased production risk for Georgia peanut growers. The potential loss of the peanut program on top of all these other adverse conditions give peanut growers an added incentive to seek innovations that will increase profitability. Marketing alternatives are considered as a possible relief to price volatility.

This study was initiated to discover demographic characteristics of producers who should most likely be targeted for forming a new generation peanut cooperative. The secondary objective was to reveal any statistical differences in producers' demographics and those producers' perceptions of the current marketing environment. This alternative marketing institution would give farmers a means of adding value to their peanuts by shelling and possibly further processing, as well as increasing their marketing power through pooling and purchasing of inputs.

Seventy-four percent of farmers that would be willing to make an initial investment to help finance a peanut NGC and 95 percent would be willing to sign a contract to market their peanuts through a peanut NGC. These are very important findings when starting a NGC, since most of the success of this type of cooperative

results from member participation. From the statistical analyses, it was found that larger peanut farmers are significantly more likely to want a peanut NGC than smaller peanut farmers. "All other" peanut growers were more likely to want a FMO than primary growers located in Southwest Georgia.

Further research should be performed on the feasibility of starting a peanut NGC in the Southwest corner of Georgia including a cost-benefit analysis of building a new shelling plant or buying an existing shelling operation. This type of information could be used as a tool for educating farmers on the type of returns they could expect from their investment in such an operation. This type of education could also serve as a means to a more responsive and representative survey since the idea of a basic cooperative was only briefly introduced to the farmer on the questionnaire.

APPENDIX A: Operational Glossary

All others- Observations from producers from peanut-producing counties other than those listed under "primary growers" (Appendix B).

All producers- Observations from all "usable" responses.

Dryland producers- Observations from producers who reported that less than 50 percent of their peanuts were irrigated.

Illogical response- Observations from producers who answered yes to a peanut NGC under the "program" scenario but no to a peanut NGC under the "no program" scenario.

Irrigated producers- Observations from producers who reported that at least 50 percent of their peanuts were irrigated.

Large producers- Observations from producers who reported growing at least 250 acres of peanuts.

NGC averse- Observations from producers who answered no to a peanut NGC under both program scenarios.

NGC inclined- Observations from producers who met one of the following criteria: 1) Answer yes to a peanut NGC under both scenarios or 2) Answer no to a peanut NGC under the "program" scenario but answer yes to a peanut NGC under the "no program" scenario.

No program scenario- Scenario in which the current peanut program does not exists.

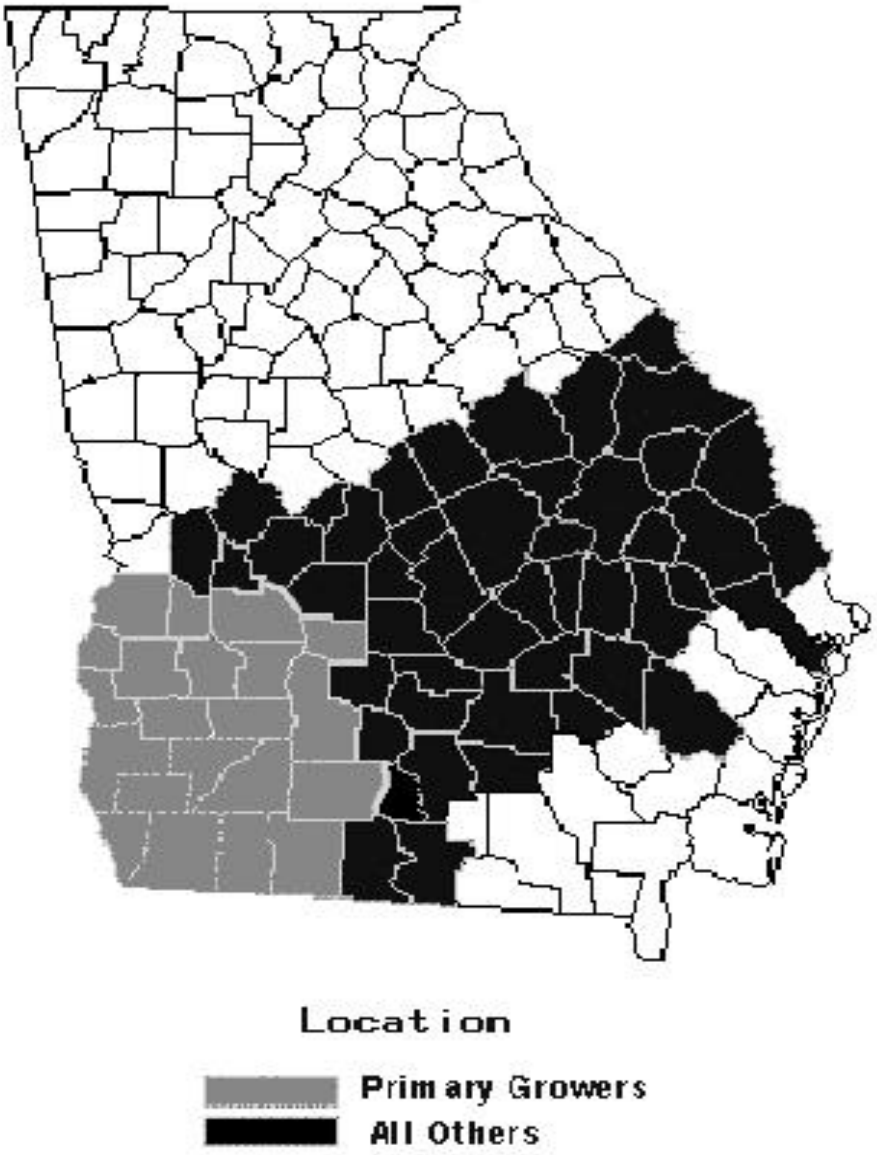
Primary growers- Observations from producers from the following counties: Baker, Calhoun, Clay, Colquitt, Crisp, Decatur, Dougherty, Early, Grady, Lee, Miller, Mitchell, Quitman, Randolph, Seminole, Stewart, Sumter, Terrell, Webster and Worth (Appendix B).

Program scenario- Scenario in which the current peanut program exists.

Small producers- Observations from producers who reported growing less than 250 acres of peanuts.

Usable response- Observations from returned surveys that had either supplied information on the number of peanut acres grown or the number of pounds of peanuts produced.

APPENDIX B: Location Demographic Break Down



APPENDIX C: Counties required to form a peanut NGC if all farmers willing to make an initial investment participate

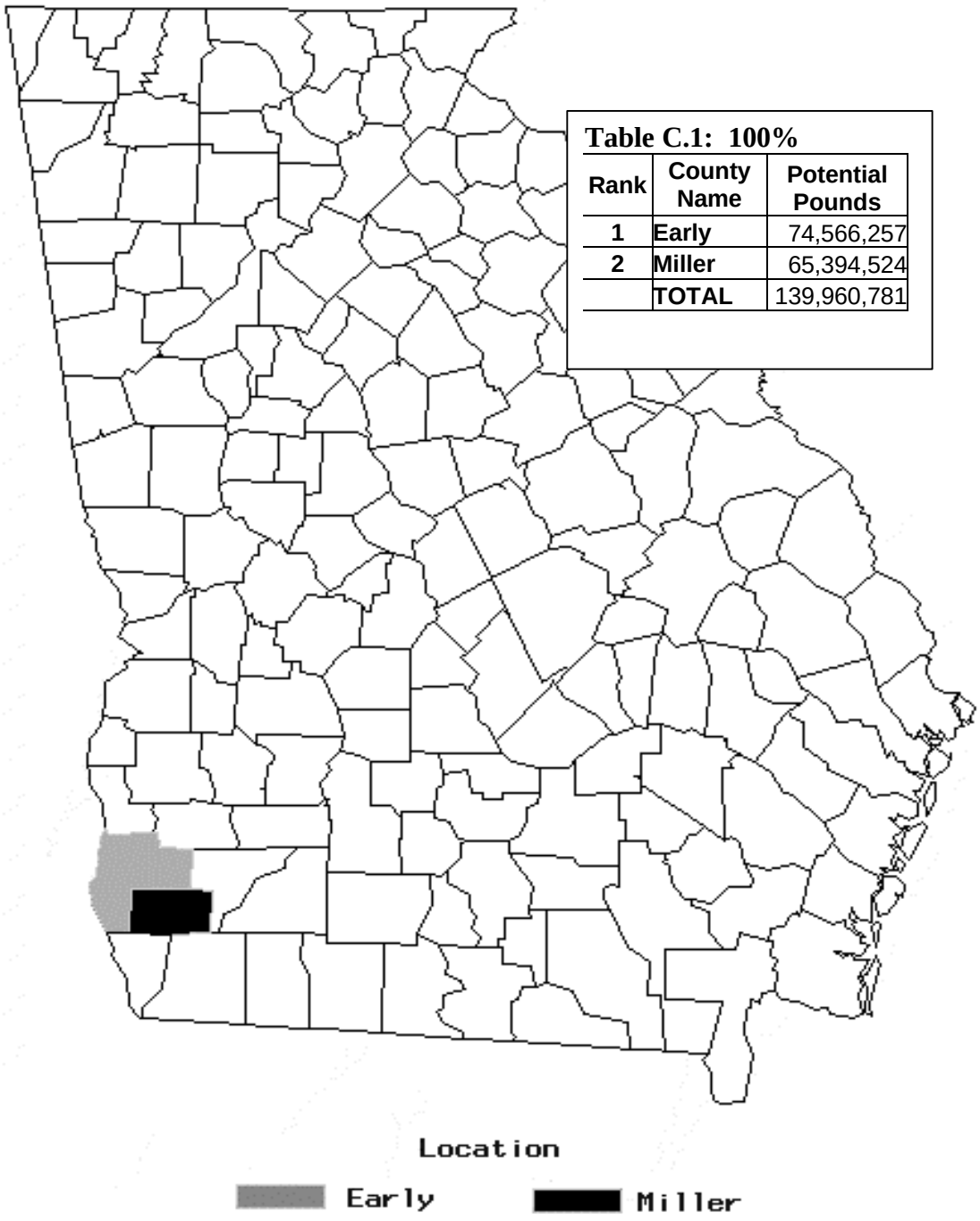


Table C.1: 100%

Rank	County Name	Potential Pounds
1	Early	74,566,257
2	Miller	65,394,524
	TOTAL	139,960,781

APPENDIX D: Counties required to form a peanut NGC if 75 percent of farmers willing to make an initial investment participate

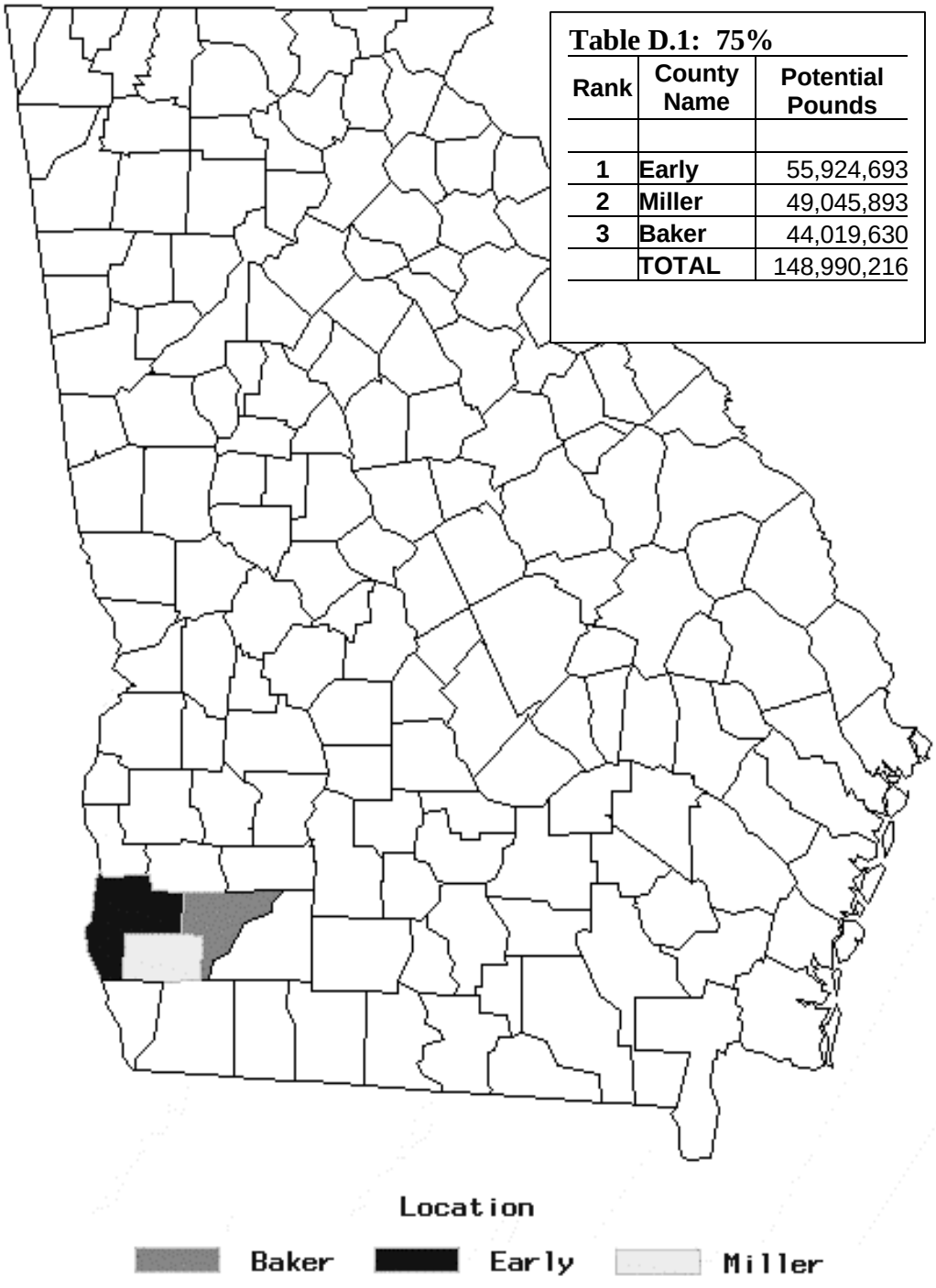


Table D.1: 75%

Rank	County Name	Potential Pounds
1	Early	55,924,693
2	Miller	49,045,893
3	Baker	44,019,630
	TOTAL	148,990,216

APPENDIX E: Counties required to form a peanut NGC if 50 percent of farmers willing to make an initial investment participate

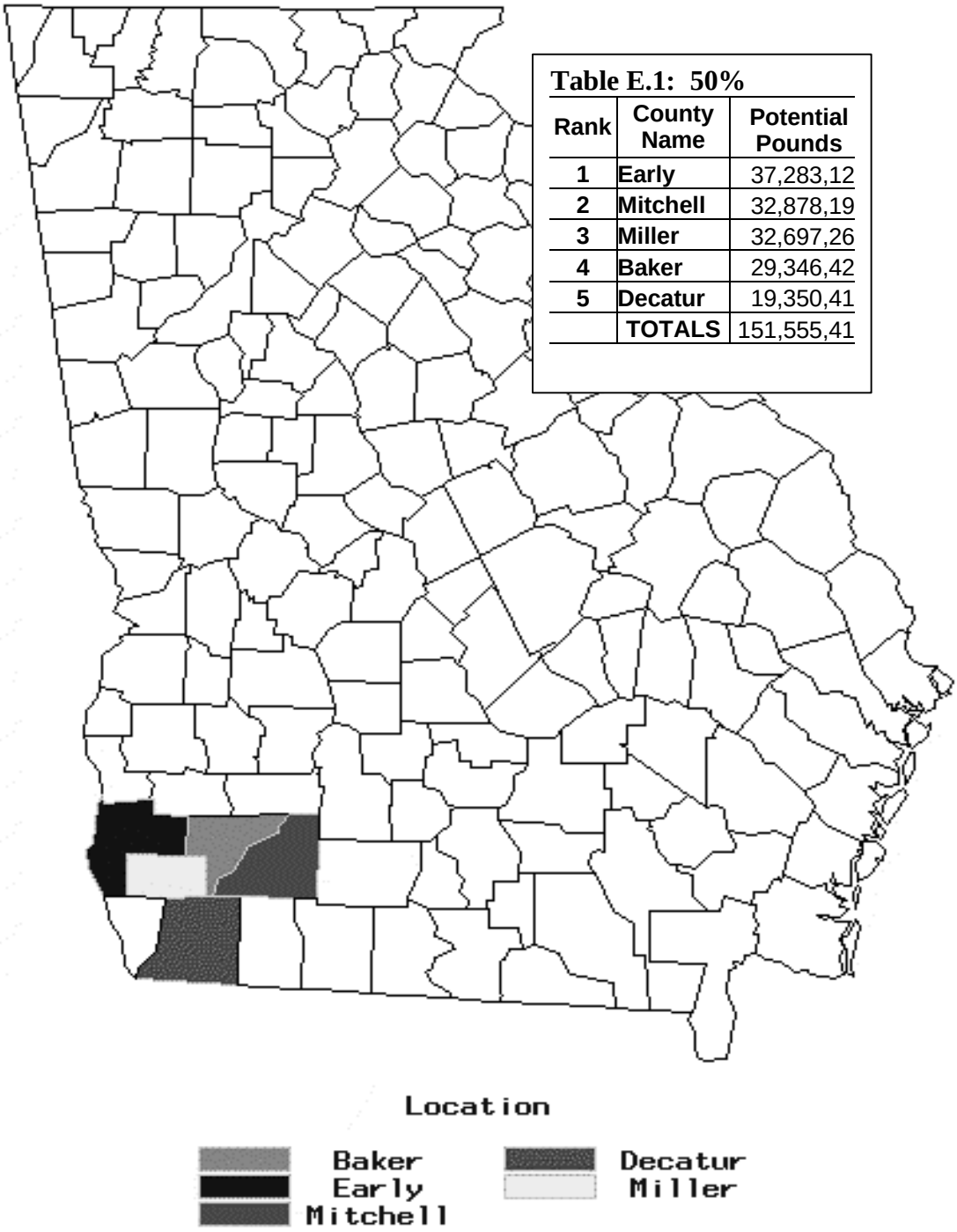


Table E.1: 50%

Rank	County Name	Potential Pounds
1	Early	37,283,12
2	Mitchell	32,878,19
3	Miller	32,697,26
4	Baker	29,346,42
5	Decatur	19,350,41
	TOTALS	151,555,41

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