GOAL STRUCTURE OF U.S. MEAT GOAT PRODUCERS: IS FARM PERFORMANCE CONSISTENT WITH THE GOALS?

Narayan Nyaupane, Jeffrey Gillespie, and Kenneth McMillin

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This study uses data from a national survey to determine the goal hierarchies of U.S. meat goat producers and the factors impacting goal structure. Profit maximization and leisure-related goals were the highest-ranked goals. Producer demographics, farm descriptors, region of production, and other factors impacted goal structure.

Key words: Goal structure, fuzzy pair-wise, meat goat, farm performance

INTRODUCTION

The U.S. meat goat industry has been receiving increased research and development attention over the last few decades. Part of the reason for this is the increased demand for goat meat by the immigrant population. From 1987 to 2007, there were increases in total meat goat farms and total meat goat production of more than 300% and 500%, respectively (USDA-APHIS 2005, USDA-NASS 2007). Despite these increases, domestic production has not been able to keep up with increasing demand. Favorable policies and support strategies for producers are a prerequisite for sustainable growth of an industry and identifying production growth strategies starts with understanding producer goals. Producer motivations and their risk perceptions are significantly correlated with the adoption of technologies (Greiner et al. 2008). The U.S. meat goat industry, although one of the fastest growing agricultural industries in the U.S., still lacks significant research efforts in identifying producer motivations and their levels of success in achieving their goals. This study aims to determine the goal structure of U.S. meat goat producers and the factors influencing their goal structure. Furthermore, we investigate whether farm financial performance is consistent with farmer goals.

Goals can be defined as ends or states in which a person wishes to be; sometimes they are ultimate ends, sometimes they are building-blocks in the process of achieving other goals (Gasson 1973). Producers allocate their limited resources to meet their competing ends and an understanding of the goal hierarchies suggests producer priorities for allocating their limited resources. Agricultural economists often assume profit maximizing or cost minimizing behavior to be the major economic goals of producers. This, however, is only partially true, as they are generally important considerations when establishing a farm, but not the only considerations (Kliebenstein et al. 1980). Motives cannot be entirely economic or non-economic in nature, but they can be more or less supportive of economic behavior (Gasson 1973). Social impacts made by the production practices used by one producer could be negligible, but if we look at an aggregate level, they have significant roles. Goal structure generally impacts the direction in which an industry moves.

Thompson (1986) argued that agricultural producers in industrialized nations consider food production as a significant social responsibility. Since most people in developed societies are associated with non-agricultural professions, unlike those in the developing world, agricultural producers face challenges in supplying enough food and nutrients to their fellow citizens so that the country does not suffer food security problems (Thompson 1986). Economic theory considers a producer as an individual who makes rational decisions directed only towards maximizing profit. In fact, an individual is encountered with several alternatives with his available resources to make decisions based on his or her subjective view of the situation and his or her values (Gasson 1973). Within a given preference system, an individual desires to maximize utility. This could happen in several ways: by maximizing profit, achieving social aspects of satisfaction, being close to the natural working environment, and many more. They could also have multiple goals at one time and could maximize utility by optimally allocating their resources to achieve different benefits.

Fairweather and Keating (1994) discussed the complex and integrated nature of different goals and studied how producer management styles differ according to their goals. Producers dedicated to maximizing outputs were intensively focused on certain output-oriented practices; flexible producers

maintained the balance between on and off-farm work; and environmentalists enjoyed being close to nature without emphasizing production enhancing technology. They argued that business and way-of-life goals are interrelated. Patrick et al. (1983) considered the multidimensional nature of goals. They emphasized that the same goal could be highly desirable in one circumstance and least desirable in another. After thoroughly reviewing the literature and discussing with farmers and industry experts, this study considers seven major goals that a typical meat goat producer is most likely to have. Those goals are: (1) *maximize Profit,* (2) *increase farm size,* (3) *avoid years of loss/low profit,* (4) *increase net worth,* (5) *have Time for Other Activities,* (6) *control weeds/vegetation,* and (7) *have family involved in agriculture.*

Eliciting Goal Hierarchies: Fuzzy Pair-wise Method

There are four major methods used for goal hierarchy elicitation: basic pair-wise comparisons, magnitude estimation, the analytical hierarchy process (AHP) and fuzzy pair-wise comparisons (Basarir 2002). Using the basic pair-wise comparison, $n(n\text{-}1)/2$ possible pairs of goals are made (n = total number of goals), and respondents are asked to select one goal over the other in each pair. The major disadvantage of this method is that the respondents cannot be indifferent between their choices; they must select one. Using the magnitude estimation method, developed by Stevens (1957), an arbitrary value is given to a goal and with respect to this value, other goals are rated accordingly (Van Kooten et al. 1986). The analytic hierarchy process (AHP) involves an eigenvalue approach to the pair-wise comparison (Vaidya and Kumar 2006). Using this method, a pair of goals is provided to the subject to make quantitative judgments based on their relative importance. The fuzzy pair-wise method is similar to the previously discussed pair-wise comparison method in that the subject is asked to compare a series of goals, each time as pairs. The major difference is that this method does not require respondents to strictly select one goal over the other; rather they can be indifferent in choosing goals. Thus, this method captures the respondent's degree of preference between two alternatives. The scale value is estimated by comparing entire sets of compared pairs (Van Kooten et al. 1986). The fuzzy pair-wise comparison method was selected for this study because of its advantages over the others (Van Kooten et al. 1986).

DATA AND METHODS

The Survey

The data for this study were collected by conducting a mail survey during Summer and early Fall, 2012, following Dillman's tailored design method (2007). A total of 1,600 producer names were collected from nationwide online farm listings; either they were listed as members of a meat goat association or they were listed in www.eatwild.com. A cover letter, ten page questionnaire, complementary pen, and postage-paid return envelope were included in the first mailing followed by a postcard reminder two weeks later. A new cover letter, survey, and return envelope were sent two weeks hence and, finally, a second postcard reminder was sent to non-respondents a week later. The adjusted response rate was 43%, considering the 584 completed responses, 190 additional responses from those who did not produce meat goats during 2011, and 52 additional surveys that were undeliverable.

A survey question was asked with a brief description as follows: "Goat producers may have multiple goals with respect to their farms. Below are some potential goals you may have for your entire farm operation. Some goals are likely to be more important to you than others. In this section, you will be asked to compare each of seven goals with each of the other goals. We are interested in how important each goal is when compared to the other goals. Questions will be worded similar to the one in the following example." This instruction was followed by three examples of possible answers. Producers were asked to indicate their preferences for a series of 21 goal pairs based on the examples shown.

Figure 1: Fuzzy pair-wise comparison

Figure 1.1: Goal A ----------I---X---------- Goal B

Figure 1.2: Goal A ----------X---------- Goal B

Figure 1.3: Goal A ---X----------I---------- Goal B

Figure 1.4: Goal A X----------I---------- Goal B

Estimating Goal Scores and Econometric Methods

Using the fuzzy pair-wise method, two goals are put on a unit-distance line as in Figure 1 where respondents can mark an "X" anywhere across the line based on their preferences. The midpoint is shown

so that respondents can locate their preference clearly. If respondents weigh both goals equally, then they can mark an "X" on the midpoint. Marking closer to one goal shows its degree of preference. Considering the total distance between Goal A and Goal B is a unit value, the degree of preference of Goal A over Goal B (R_{AB}) is denoted by the distance of mark "X" from Goal B. If $R_{AB} < 0.5$, then B is preferred to A (Figure 1.1). If $R_{AB} = 0.5$, then A and B are equally preferred (Figure 1.2). If $R_{AB} > 0.5$, then A is preferred to B (Figure 1.3). If $R_{AB} = 1$, then A is absolutely preferred to B (Figure 1.4). If we have a total number of goals *n*, there would be n*(n-1)/2 total pair-wise comparisons (Van Kooten et al. 1986).

The degree of preference, (R_{ij}, $i \neq j$), of one goal *i* over the other *j* is obtained for each pair and the degree of preference of goal *j* over *i* can be estimated as $R_{ji} = 1- R_{ij}$. As described in Basarir (2002), the individual's fuzzy preference matrix (*R*) is now constructed as follows:

$$R = \begin{bmatrix} 0 & r_{12} & r_{13} & . & . & . & r_{1j} \\ r_{21} & 0 & . & . & . & . & r_{2j} \\ r_{31} & . & 0 & . & . & . & r_{3j} \\ . & . & . & 0 & . & . & . \\ . & . & . & . & 0 & . & . \\ . & . & . & . & . & 0 & r_{(i-1)j} \\ r_{i1} & r_{i2} & . & . & . & r_{i(j-1)} & 0 \end{bmatrix}$$

From this matrix, intensity of preference of goal *i* can be achieved using the following formula:

$$(1.1) \quad I_j = 1 - \left(\sum_{i=1}^{n} R_{ij}^2/(n-1)\right)^{1/2},$$

The intensity of preference ranges from 0 to 1. The greater the value, the more preferred is the goal, so after estimating I_j for all of the goals, we can rank them according to the degree of preference. Intensities of preference are the weights producers give to each of the goals, which ultimately resemble their degree of utility received. In this study, we will use Equation 1.1 to estimate U.S. meat goat producer preferences for each of the seven goals and rank those from most to least preferred.

Effect of farm descriptors and other socioeconomic variables on farmers' goal structure will be determined by using a logistic regression model. Independent variables are nonlinearly related to the

dependent variable in a logistic regression; therefore, normalization of the goal weights is required in order to determine their linear relationships. The linearized logistic model as suggested by Gujarati (1995) is estimated as follows:

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_i x_i + e_i$$

where P_i is the weight of a goal and 1-P_i is the total weight of the other goals. There will be a system of goal structure equations which are assumed to be correlated by their error terms. Although use of OLS for each equation provides a consistent estimator of β, given that the errors are correlated, GLS gives the optimal estimator. The seemingly unrelated regression (SUR) model would be appropriate if the errors were correlated across equations, whereas the use of the SUR model would not necessarily guarantee more efficiency than that of ordinary least squares (OLS) if the goal structure equations were not correlated (Greene 2008). Assuming normally distributed errors, the LM statistic developed by Breusch and Pagan (1980) will be used to test for specification of the SUR model.

Independent Variables

Num_meatgoat is the total number of meat goats on the farm. Larger-scale producers are expected to invest considerably higher portions of their resources on the farm and are expected to more heavily weight profit maximization. Larger investment is also associated with greater income risk; therefore larger-scale producers are also expected to more heavily weight risk minimizing goals such as avoiding years of loss/low profit (Basarir and Gillespie 2006). *Sale_Slaugh%* is the percentage of goats sold for slaughter or as meat. Producers selling their goats for slaughter or as meat are commercially motivated and are expected to more heavily weight profit maximizing goals.

Age of a producer is considered as an important determinant of goal structure as it describes the producer's biophysical and psychological stage of life. Relatively younger producers are expected to be inclined towards profit maximizing goals whereas older producers might emphasize leisure-related goals. *Bachelor* is a dummy variable for producers holding at least a college bachelor's degree. *Offfarmjob* is also a dummy variable indicating the producer holds an off-farm job. Producers working outside their

farms will have less time to spend on farm business. Holding an off-farm job could suggest that the farmer considers agriculture as an alternative source of income, as a hobby, or as a leisure activity. *Farminc_goat* is the percentage of annual net farm income derived from the goat operation. The extent of net farm income derived from an enterprise shows the extent of diversification on the farm.

The percentages of total animals raised in different types of production systems are represented by *PAS_NotRot%* (pastured but not rotated), *PAS_Rot%* (pastured and rotated), and *Drylot%* (dry lot). Production systems require various extents of investment, time and managerial skills. Although producers can adopt more than one system of production, their leading system of production should be consistent with their motivations and suitability of production. For example, using a pastured, rotational system (*PAS_Rot%*) of production generally suggests greater efficiency in using the available grazing land. Producers investing significant resources (*PAS_Rot%*) in their farming businesses are expected to more heavily weight profit maximizing goals.

Regional variables (*Southeast*, *Northeast*, *Midwest*, and *West*) capture the variation of land quality, climate, and market prices around the U.S. Producer goals may be influenced by their environment, thus regional variables are included.

RESULTS

Table 1 shows the summary statistics of independent variables used in the analysis. On average, there were 61 meat goats per farm. In 2011, on average, producers sold 45% of their goats as slaughter goats, 30% as breeding stock, 16% as show goats, and 2% in other categories. The average age of producers responding this survey was 52 years, 45% held Bachelor's degrees, and 61% held off-farm jobs. On average, annual net farm income derived from the goat operation was 40%. Approximately 11% of the breeding-aged goats were raised under an extensive-range system, 29% were pastured but not rotated, 48% were pastured and rotated, and 13% were produced under a drylot system. Forty-five percent of respondents considered themselves as risk averse. Thirty-six percent lived in the Southeast, 37% in the Midwest, 9% in the West, and 7% in the Northeast.

Table 1: Means of Independent Variables used in SUR

Variables	Description	Mean
Num_meatgoat	Total number of meat goats on the farm	60.84
Sale_Slaugh%	Percentage of goats sold for slaughter or as meat	44.61
Sale_breed%	Percentage of goats sold for breeding stock	30.38
Sale_show%	Percentage of goats sold for show	16.18
Sale_others%	Percentage of goats sold for other than slaughter, breeding stock, or show purposes	2.32
Age	Producer age (years): (1) ≤30, (2) 31-45, (3) 46-60, (4) 61-75, (5) ≥76	2.95
Bachelor	*Dummy* = Whether producer holds at least a bachelor's degree	0.45
Offfarmjob	*Dummy* = Whether producer holds an off farm job	0.61
Farminc_goat	Percentage annual net farm income derived from goat operation: (1) 0-19% (2) 20-39% (3) 40-59% (4) 60-79% (5) 80-100%	2.52
Extensive%	Number of breeding-aged goats produced under this system	10.80
PAS_NotRot%	Number of breeding-aged goats produced under this system	28.56
PAS_Rot%	Number of breeding-aged goats produced under this system	47.81
Drylot%	Number of breeding-aged goats produced under this system	12.82
Riskaverse	*Dummy* = Producer self-characterization relative to other investors: (I tend to avoid risk when possible in my investment decision.)	0.45
Southeast	Producers reside in: AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, or WV	0.36
Northeast	Producers reside in: CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, or VT	0.07
Midwest	Producers reside in: KS, IA, IL, IN, MI, MN, MO, ND, NE, OH, SD, or WI	0.37
West	Producers reside in: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, or WY	0.09
Texas/Oklahoma	Producers reside in: TX, or OK	0.11

Table 2 shows the ranking of goals according to the scores received. *Maximize Profit* was ranked as the most important goal for the meat goat producers with a goal score of 0.51, while the second most important goal was *Have Family Involved in Agriculture*, with a goal score of 0.50. *Avoid Years of Loss/Low Profit, Have Time for Other Activities, Increase Net Worth,* and *Control Weeds/Vegetation* were ranked third, fourth, fifth and sixth goals with the goal scores of 0.49, 0.48, 0.46, and 0.40, respectively, whereas *Increase Farm Size* was found to be the least important among the seven goals with the goal score of 0.33.

Table 2: Ranking of Producer Goals According to Scores Received, 488 Observations

Goals	Mean Score

Maximize Profit	0.51
Have Family Involve in Agriculture	0.50
Avoid Years of Loss/Low Profit	0.49
Have Time for Other Activities	0.48
Increase Net Worth	0.46
Control Weeds/Vegetation	0.40
Increase Farm Size	0.33

SUR Run for Factors Affecting Producer Goal Structure

A multicollinearity test was conducted by estimating variation inflation factors; no problem of multicollinearity was found. Since the same sets of independent variables were used for all seven equations, the omitted variable test (RESET) and model specification test (linktest) were conducted for all equations individually and no significant problem was found. A test was conducted to identify whether the error terms of the equations were correlated (Appendix 2.1) and, as expected, they were correlated. One major assumption of the SUR model is the assumption of homoscedasticity. To estimate the heteroskedasticity-consistent robust standard errors, bootstrap standard errors were estimated (Cameron and Trivedi, 2010, pp 166). Appendix 2.2 shows the significance details for each of the goal equations in the SUR model. The p-value shows that five of the seven goal structure models were significant at the 10% level of significance, with only two insignificant models, those for the goals *Avoid Years of Loss/Low Profit* and *Increase Net Worth*. Since all the variables used in the model were economically and theoretically important, we decided to also use the same set of independent variables in those two models.

Table 3 shows the SUR results for the producer goals. Larger-scale producers were found more likely to have goals related to profit maximization, such as *Maximize Profit* and *Increase Farm Size* whereas they were less likely to emphasize the goal, *Have Time for Other Activities*. Larger-scale producers would generally invest greater resources in the business, so it is not surprising to see them driven more by profit maximizing goals. The positive relationship between producer *Age* and *Maximize Profit* was unexpected, as older people are generally assumed to be less motivated by profit maximizing goals and more likely to be motivated by leisure related goals (Van Kooten et al. 1986). As expected,

however, *Age* was positively associated with *Have Time for Other Activities* and *Control Weeds/Vegetation* and negatively associated with *Increase Farm Size* and *Have Family Involved in Agriculture*. Producers holding *Bachelor's* degrees placed greater emphasis on *Have Time for Other Activities*. A possible explanation for this result could be that producers holding *Bachelor's* degrees might have greater opportunity costs associated with working elsewhere. Producers holding an *off-farm job* weighted the goal, *Avoid Years of Loss/Low Profit* lower and more heavily weighted the goal, *Have Time for Other Activities*. *Farminc_goat* was positively associated with *Maximize Profit* and negatively associated with *Control Weeds/Vegetation*. Producers receiving a greater share of their farm income from the goat enterprise were less diversified, concentrating their resources on the meat goat production, thereby having a goal of maximizing profit. On the other hand, as expected, these producers were less likely to use their animals primarily for controlling weeds/vegetation.

As compared to an *Extensive-range* production system, producers raising their goats in pastured but not rotated systems (*PAS_NotRot%*) were more oriented to *Maximize Profit* and *Have Time for Other Activities*. Producers raising their goats in a pastured and rotated system (*PAS_Rot%*) were found to more heavily weight the goals, *Maximize Profit* and *Avoid Years of Loss/Low Profit* and less likely to weight goal of *Controlling Weeds/Vegetation*. As compared to the extensive system, producers under a dry lot (*Drylot%*) were found to more heavily weight the goal, *Maximize Profit* and less likely to weight the goal, C*ontrol Weeds/Vegetation*. Compared to Texas and Oklahoma producers, producers in the *Southeast* and *Northeast* regions were likely to more heavily weight the goal, *Maximize Profit*, and less likely to weight the goal, *Control Weeds/Vegetation*.

Consistency-Check of Producer Goals and Farm Performance

A consistency check of farm performance with respect to producer goals was conducted by studying the relationship between profit maximizing goals (Maximize Profit) and farm profit. Farm profit was estimated by using 127 responses received from a follow-up survey which was sent to 433 of the respondents of the first survey who had agreed to participate. Cost and return estimates in various

Table 3: The Regression of Goal Scores of Meat Goat Producers (Heteroskedasticity Robust - Bootstrap Standard Errors in Parenthesis)

Variables	Maximize Profit	Increase Farm Size	Avoid Years of Loss/Low Profit	Increase Net Worth	Time for Other Activities	Control Weeds/Veg.	Family Involved in Ag.
Num_meatgoats	0.0006*	0.0010*	0.0005	0.0004	-0.0008**	-0.0006	-0.0005
	(0.0003)	(0.0005)	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0004)
Sale_Slaugh%	-0.0001	-0.0012	0.0007	-0.0002	-0.0003	0.0012	-0.0001
	(0.0005)	(0.0012)	(0.0005)	(0.0005)	(0.0007)	(0.0008)	(0.0010)
Age	0.0927***	-0.1728***	-0.0041	-0.0260	0.1141***	0.2072***	-0.1550***
	(0.0235)	(0.0425)	(0.0197)	(0.0248)	(0.0330)	(0.0353)	(0.0345)
Bachelor	-0.0283	-0.0834	-0.0097	-0.0062	0.1131**	0.0815	-0.0230
	(0.0351)	(0.0762)	(0.0371)	(0.0357)	(0.0463)	(0.0519)	(0.0615)
Offfarmjob	-0.0074	0.1063	-0.0709*	-0.0432	0.1016*	0.0049	0.0893
	(0.0428)	(0.0866)	(0.0407)	(0.0392)	(0.0578)	(0.0591)	(0.0698)
Farmincome_goat	0.0302***	-0.0212	0.0027	-0.0134	0.0131	-0.0308**	-0.0067
	(0.0102)	(0.0228)	(0.0119)	(0.0108)	(0.0126)	(0.0149)	(0.0187)
PAS_NotRot%	0.0016**	-0.0007	0.0007	0.0002	0.0025**	-0.0015	-0.0013
	(0.0008)	(0.0015)	(0.0008)	(0.0008)	(0.0012)	(0.0010)	(0.0012)
PAS_Rot%	0.0012*	-0.0001	0.0013*	-0.0002	0.0016	-0.0018*	-0.0012
	(0.0007)	(0.0015)	(0.0007)	(0.0007)	(0.0012)	(0.0009)	(0.0012)
Drylot%	0.0021**	0.0010	0.0011	-0.0001	0.0008	-0.0028*	-0.0007
	(0.0009)	(0.0020)	(0.0011)	(0.0011)	(0.0016)	(0.0015)	(0.0016)
Riskaverse	-0.0216	-0.0109	0.0475	-0.0380	0.0578	-0.0054	-0.0531
	(0.0378)	(0.0729)	(0.0361)	(0.0363)	(0.0449)	(0.0530)	(0.0612)
Southeast	0.1745***	-0.0323	0.0103	-0.0380	-0.0145	-0.1445*	0.0025
	(0.0657)	(0.1462)	(0.0596)	(0.0767)	(0.0866)	(0.0877)	(0.1036)
Northeast	0.1970**	0.0240	-0.1441	-0.1024	0.0626	-0.1148	0.0571
	(0.0826)	(0.2148)	(0.0977)	(0.0859)	(0.1020)	(0.1071)	(0.1599)
Midwest	0.0696	-0.0221	-0.0376	-0.0707	0.0197	-0.1052	0.1071
	(0.0660)	(0.1452)	(0.0569)	(0.0780)	(0.0841)	(0.0876)	(0.0991)
West	0.1086	-0.0154	-0.0242	-0.0479	0.0255	-0.0483	0.0889
	(0.0828)	(0.1628)	(0.0848)	(0.0938)	(0.1127)	(0.1136)	(0.1103)
Constant	-2.2907***	-1.7739***	-1.8301***	-1.6121***	-2.4072***	-2.3761***	-1.2730***
	(0.1329)	(0.2545)	(0.1175)	(0.1414)	(0.2308)	(0.1909)	(0.2243)
Observations	433	433	433	433	433	433	433
R^2	0.11	0.06	0.04	0.02	0.10	0.13	0.07

Note: ***, **, and * indicate variables significant at $P < 0.01$, $P < 0.05$, and $P < 0.10$ levels respectively.

categories were collected. Using an enterprise approach, farm profit per breeding doe was estimated. Ordinary Least Squares regression showed no significant relationship between enterprise profit and producer goals. Pearson correlation coefficients between enterprise profit and *Maximize Profit* also did not provide evidence to support the relationship between producer goals and farm financial performance.

DISCUSSIONS AND CONCLUSIONS

This study assesses the U.S. meat goat producers' goal structures and the factors affecting those goals. Seven goals were selected for the study and a fuzzy pair-wise method was used in the survey to determine producer preferences. Comparing the average scores for all goals, the producer ranking of the seven goals with respect to their preferences were as follows: (1) *Maximize Profit*, (2) *Have Family Involved in Agriculture*, (3) *Avoid Years of Loss/Low Profit*, (4) *Have Time for Other Activities*, (5) *Increase Net Worth*, (6) *Control Weeds/Vegetation*, and (7) *Increase Farm Size*. Although *Maximize Profit* was ranked as the primary goal of meat goat producers, it is difficult to specify strict superiority of one goal over another by comparing the mean scores of the top four goals. Two of the top four goals were related to profit maximization, and the other two were leisure-related. Though Gillespie et al. (2013) found profit-related reasons to be considerably less important than other reasons for selecting to enter the meat goat business, these results suggest that once they are producing goats, profit is a very important goal. Other goals (*Have Family Involved in Agriculture*, and *Have Time for Other Activities*) received almost equal importance, so it can be argued that U.S. meat goat producers do not consider profit maximization as their only major goal. Finding no significant relationship between producer goal (*Maximize Profit*) and farm performance (*goat-enterprise profit*) suggests that having the goal of profit maximization does not necessarily lead to greater profit.

Several factors were found to impact goal structure of the meat goat producers. Producers having profit maximizing goals (*Maximize Profit*, *Avoid Years of Loss/Low Profit*, *Increase Farm Size*) were more likely to be larger-scale, have greater shares of farm income derived from the goat operation, raise goats in more management-intensive production systems (*pastured rotated/not-rotated*, *drylot*) and live in

the *Southeast* or *Northeast* relative to Texas and Oklahoma. On the other hand, producers who were raising meat goats either for *Controlling Weeds/Vegetation* or to *Have Time for Other Activities* were relatively smaller-scale, were older, ran less management-intensive production systems, and were more likely to operate in Texas or Oklahoma relative to the *Southeast*.

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Appendices

Appendix 2.1: Correlation Matrix of Residuals

	Maxprofit	*Infarmsize*	*Avoidyrl*	*Innetwr*	*Timeoact*	*Contwdveg*	*Invlagr*
Maxprofit	1						
Infarmsize	-0.1177	1					
Avoidyrl	-0.0839	-0.1776	1				
Innetwr	-0.0067	0.1344	-0.0251	1			
Timeoact	-0.1146	-0.2669	-0.1829	-0.1947	1		
Contwdveg	-0.1937	-0.0058	-0.1849	-0.0871	0.0116	1	
Invlagr	-0.3380	-0.1858	-0.2281	-0.2684	-0.0755	0.0195	1

Breusch-Pagan test of independence: Chi-square (21) = 251.112, Pr = 0.0000

Appendix 2.2: Model Details, SUR Run, (433 Observations)

Equation	RMSE	R-square	P-value
Maxprofit	0.3693	0.11	0.0000
Infarmsize	0.7414	0.06	0.0165
Avoidyrl	0.3678	0.04	0.1698
Innetwr	0.3671	0.02	0.7832
Timeoact	0.4472	0.10	0.0000
Contwdveg	0.5366	0.13	0.0000
Invlagr	0.6269	0.07	0.0025