

What Extension Personnel Should Know About Midwestern Goat Producers

Abstract

The growth of the goat industry has created opportunities for producers looking for a profitable alternative enterprise. Little is known about goat production or educational needs of producers in Missouri and Arkansas. A survey of goat producers in Missouri and Arkansas addressed farm characteristics, product marketing characteristics, preferred information sources, and educational topics of interest for goat producers. A better understanding of goat production and producer needs can support Extension's development of education programs to further develop the emerging goat industry.

Keywords: [goat producers](#), [information sources](#), [marketing](#), [education](#)

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Introduction

The demand for goat meat has increased over the past 30 years, with a subsequent increase in meat goat production in the United States (Gillespie, Nyaupane, & McMillin, 2013; Gipson, 2000). From 1990 to 2010, the number of goats slaughtered in U.S. Department of Agriculture (USDA)–inspected plants tripled from approximately 200,000 to over 600,000 head per year (USDA National Agricultural Statistics Service [NASS], 2011). This growth has created opportunities for both small- and large-scale producers looking for a profitable enterprise. As of 2012, meat goat sales totaled \$152 million, and milk from sheep and goats resulted in approximately \$92 million in sales. The U.S. meat goat industry is new, compared to other livestock industries, becoming a source of income only in the 1990s (Glimp, 1995). Unlike other livestock enterprises, the meat goat industry does not have a functioning production structure or marketing support (Fisher, Nye, & Mangione, 2004;

Glimp, 1995).

The expanding market for goat meat has increased opportunities for meat goat production (Gillespie et al., 2013). The primary goat meat consumers in the United States are immigrants from the Middle East, Southeast Asia, the Caribbean, and Latin America, who are accustomed to eating goat meat in accordance with their religious beliefs (Spencer, 2008). Goat meat is also served in upscale restaurants and is offered to a diverse customer base. Producers are taking advantage of this newly emerging gourmet market (Luginbuhl, 2015). However, goat meat imports and domestic production have failed to supply the increased demand (Gipson, 2000; Pinkerton & McMillin, 2013). This differential indicates a need to further Extension professionals' understanding of goat production so that they can help producers better meet the demand.

Fewer people in the United States raise dairy goats than meat goats (USDA Animal and Plant Health Inspection Service [APHIS], 2010). However, the number of dairy farmstead artisans has increased, which is a favorable index for opportunities in the dairy goat market (Pinkerton & McMillin, 2013). Responding to the increase in demand, dairy goat numbers rose 19% between 2007 and 2012 to 314,500 (USDA NASS, 2012).

About one third (35%) of meat goat producers in the United States have less than 5 years of experience, compared to about one quarter (23%) of dairy goat producers (USDA APHIS, 2012a). State data, however, can differ from national data with regard to producers' experience levels. For example, in New York, a majority of dairy goat producers have owned goats for up to 13 years (New York State Department of Agriculture and Markets Division of Milk Control and Dairy Services [NYS DAM], 2005).

Goat producers raise goats for a variety of reasons, often influenced by the number of goats owned (USDA APHIS, 2010, 2012a, 2012b). Smaller scale producers with fewer than 100 goats reported fun or hobby as an important reason for raising goats. Those with 100 or more goats identified income as an important reason. For dairy goat producers, home consumption is very important, whereas brush control is very important for meat goat producers (USDA APHIS, 2012a, 2012b).

Madden (2010) proposed several questions to address when developing educational material to support the emerging goat industry and help producers prepare products for market and learn sustainable production methods. These questions cover topics such as why and when producers should purchase animals and whether they have knowledge to care for sick or injured animals. Extension personnel should attempt to answer such questions before assisting those interested in raising goats. Trained Extension personnel can help producers make sound decisions related to purchasing healthy animals, benefiting their long-term enterprises.

Prior research has provided insight into the challenges of goat production and producers' understanding of management practices and information resources (Gillespie et al., 2013; Jackson, 2007; NYS DAM, 2005). The USDA reported that producers considered the three most important sources of goat health information to be other goat producers (33.3%), veterinarians (29.7%), and the Internet (26.8%) (USDA APHIS, 2010). Additionally, a nationwide survey of people involved in all aspects of production agriculture revealed that Internet access among producers increased from less than 50% in 2003 to 67% in 2013, and 40% of those producers used computers for farm business (USDA NASS, 2013). A poll of Iowa farmers indicated that 60% had high-speed Internet access and over 70% used the Internet to obtain information on general agricultural and farming-related information (Arbuckle, Lasley, & Ferrell, 2012). Diem, Hino, Martin, and Meisenbach (2011) studied rural areas and found an increasing need for the Cooperative Extension System to deliver information using technology.

Across the country, university and Extension personnel have begun developing training materials for goat producers (Fisher et al., 2004; Solaiman, 2010). Sahlu et al. (2009) suggested that further research in goat nutrition, health, parasite management, and reproduction is needed, as well as efficient methods for disseminating knowledge. Overall, Extension educators need to gain greater knowledge of the goat industry and become more familiar with producers of small ruminants.

Missouri and Arkansas have 6,405 goat farms with over 145,000 goats, and both rank in the top 20 of meat goat-producing states (USDA NASS, 2012). Research about the goat industry in these states was lacking. To fill the gap, we conducted a study focused on providing a profile of Missouri and Arkansas goat producers and farms. We explored two particular areas of interest: information sources and topics for additional training. These areas of study could facilitate the work of Extension educators as they develop programs for goat producers. Knowing producer preferences for information sources is important for agricultural educators, and understanding areas of interest for additional training may increase producer participation in educational programs (Franz, Piercy, Donaldson, Richard, & Westbrook, 2010).

Methodology

Existing survey instruments did not adequately address our research questions. Therefore, our team, which comprised principal investigators at Missouri State University and collaborating researchers at Lincoln University, created a new survey after reviewing survey instruments from previous studies (Arbuckle et al., 2012; Gillespie et al., 2013; Jackson, 2007; NYS DAM, 2005). Questions on our instrument addressed personal demographics, farm characteristics, information sources, and training topics of interest. A panel of 23 goat industry experts outside the Missouri and Arkansas sample region previewed the survey for validity. This group included Extension personnel, veterinarians, experienced goat producers, and university faculty (Missouri State University, 2014).

We obtained postal and email addresses from goat producer registry and association websites and from university Extension mailing lists. From the resulting list of 1,087 producers, 98 had undeliverable email addresses and 15 indicated they no longer had goats. The final list included 974 producers. We sent producers an email introducing the study, followed 2 weeks later by an email inviting them to participate in the web-based survey through a link to Survey Monkey. We sent a reminder email 2 weeks later. Printed copies of the survey were sent, upon request, to 37 producers. We received 206 viable surveys, those for which respondents had answered most of the questions, resulting in a final response rate of 21% (Missouri State University, 2014). Responses represented 99 counties (65 counties in Missouri, 33 in Arkansas), suggesting that the sample was reasonably representative.

We analyzed descriptive statistics using SPSS Version 21.0. We conducted all research in accordance with the rules established by the Missouri State University Institutional Review Board.

Results

Not all respondents answered all questions. The tables indicate the number of responses to each question.

Personal Demographics

Table 1 presents the responding goat owners' demographic characteristics. A majority were women. The most common age groups were 41–50 and 51–60. Fewer than half had a bachelor's degree. A majority had owned goats for 10 years or less. The most frequently reported incentives for raising goats were source of income

(58.9%) and personal consumption of products (54.3%).

Table 1.

Personal Demographics for Goat Producers in Missouri
and Arkansas

Personal characteristic (no. of participants providing a response)	No.	%
Gender (203)		
Female	125	61.6
Male	78	38.4
Age (204)		
18–30	17	8.3
31–40	29	14.2
41–50	55	27.0
51–60	61	29.9
61–70	31	15.2
71–80	10	4.9
80 or older	1	0.5
Education (203)		
Less than high school	13	6.4
High school or GED	39	19.2
Vocational/technical certificate	31	15.3
Associate's degree	19	9.4
Some college, no bachelor's degree	27	13.3
Bachelor's degree	45	22.2
Graduate degree	29	14.3
Years involved in raising goats (188)		
Less than 1	8	4.3
1–5	67	35.6
6–10	56	29.8
11–20	34	18.1
More than 20	23	12.2
Reasons for raising goatsa (197)		

Source of income	116	58.9
Personal consumption	107	54.3
Showing, competition, 4-H	96	48.7
Fun/hobby	91	46.2
Brush control	63	32.0
Pet/companion	41	20.8
Tax deduction purposes	38	19.3
Family tradition	11	5.6
Other	1	0.5

aRespondents could chose more than one response.
Total does not equal 100%.

Farm Characteristics

Table 2 shows that of the 206 responding producers, about 70% were from Missouri and 30% were from Arkansas. Most producers (70%) had a farm gross income of less than \$15,000. About 40% raised only dairy goats, one third raised only meat goats, and one quarter raised both. Almost half reported owning fewer than 20 goats, and two thirds owned fewer than 50 ac.

Table 2.

Farm Characteristics of Goat Producers in Missouri and Arkansas

Farm characteristic (no. of participants providing a response)	No.	%
State (206)		
Missouri	143	69.4
Arkansas	63	30.6
Farm gross income (200)		
Less than \$15,000	140	70.0
\$15,000–\$32,499	31	15.5
\$32,500–\$59,999	17	8.5
\$60,000–\$99,999	9	4.5
\$100,000 or more	3	1.5
Farm type (194)		

Both dairy and meat	48	24.7
Dairy only	81	41.8
Meat only	65	33.5
Size of farm (ac) (200)		
Less than 10	42	20.9
10–49	90	44.8
50–179	46	22.9
180 or more	23	11.4
Number of goats owned (188)		
1–9	38	20.2
10–19	54	28.7
20–99	76	40.4
100 or more	20	10.6

Product Marketing

Table 3 indicates that a majority of producers sold goats that were 8 months of age or less and weighed 75 lb or less.

Table 3.

Age and Weight of Goats Sold in Missouri and Arkansas

Goat characteristic (no. of participants providing a response = 102^a)	No.	%
Average age (months) sold for meat		
Under 3	5	4.9
3–5	40	39.2
6–8	34	33.3
9–11	20	19.6
12 or older	3	2.9
Average weight (lb) sold for meat production		
0–45	6	5.9
46–60	29	28.4
61–75	37	36.3

76–90	22	21.6
91–105	7	6.7
106 or greater	1	1.0

a113 respondents reported owning meat goats.

Information Sources

Responding via a Likert-type scale, producers indicated how often they used different informational resources. Our goal was to determine how producers gained usable and trusted information for their farms. Table 4 displays the results. The most frequently used sources of general information were the Internet and other producers, with both being used sometimes or often by approximately 90% of respondents. Approximately two thirds of respondents cited using family and friends and magazines/newsletters for information sometimes or often. Less than half of respondents sometimes or often used information from university and Extension personnel, veterinarians or paid consultants, and industry and association meetings. The Internet was also a popular source of information on new practices in the goat industry. In contrast, over 60% of respondents rarely or never used university or Extension staff, farm visits, computer programs, or on-farm demonstrations for information regarding new practices.

Table 4.

Sources of Information Used by Goat Producers from Missouri and Arkansas

Sources	No.	%			
		Never	Rarely	Sometimes	Often
General information					
Internet	178	5.1	5.1	43.3	46.6
Other producers	177	1.1	9.6	49.2	40.1
Family and friends	168	19.6	16.7	43.5	20.2
Magazine/newsletter	174	5.7	25.3	51.7	17.2
University/Extension service	174	29.3	28.2	31.0	11.5
Veterinarian, nutritionist, or paid consultant	173	23.1	28.3	37.6	11.0
Industry/association meetings	170	31.2	21.2	39.4	8.2
New practices information					
Internet	175	6.3	5.1	44.6	44.0
Farm magazines	175	14.3	21.1	49.7	14.9
Printed fact sheets	173	26.0	20.2	45.7	8.1
Group meetings	176	30.1	25.0	38.6	6.3

Extension/university staff	171	38.0	27.5	29.2	5.3
Farm visits	169	31.4	31.4	32.5	4.7
Computer programs	169	49.1	23.7	23.1	4.1
On-farm demonstrations	171	42.1	29.8	24.6	3.5
Farm field days	169	47.3	29.6	21.3	1.8
Videos/DVDs	167	53.9	31.7	13.2	1.2

Topics for More Training

The most frequently mentioned topics for which more training was desired (shown in Table 5) were vaccination and herd health (64.4%), reproduction management (57.7%), and basic nutrition (54.0%).

Table 5.

Topics of Interest to Goat Producers from Missouri and Arkansas

Topic^a (no. of participants providing a response = 163)	No.	%
Vaccination, herd health	105	64.4
Reproduction management	94	57.7
Basic nutrition	88	54.0
Herd record keeping	79	48.5
Udder health	74	45.4
Financial record keeping and analysis	73	44.8
Kid management	68	41.7
Hoof care	65	39.9
Housing	44	27.0
Other	28	17.2

^aRespondents could choose more than one response.

Total does not equal 100%.

Discussion and Conclusion

Comparisons to National Studies

Our results show that in Missouri and Arkansas, the number of dairy goat producers, as compared to meat goat producers, is higher than that for the nation as a whole (USDA APHIS, 2012a). Our sampling frame may have

overrepresented dairy goat producers, or perhaps more producers in Missouri and Arkansas raise both types of goats. Goat producers in our study had less than 10 years of experience with goats, a finding similar to results of previous studies (NYS DAM, 2005; USDA APHIS, 2012b). By contrast, over two thirds of producers of beef cattle, hog, and poultry have more than 11 years of experience (USDA NASS, 2012).

In national surveys, researchers have identified brush control as a primary reason for raising meat goats and personal consumption as the major reason for raising dairy goats. In our study, source of income was the most commonly reported motivation, followed by personal consumption. About 45% of the producers in our study cited showing (competition) or fun/hobby as a reason for raising goats, a higher proportion than what has been found in the national surveys (USDA APHIS, 2012a, 2012b).

According to a national survey, the three most important categories of information sources for goat producers are other producers; veterinarians, nutritionists, and other paid consultants; and the Internet (USDA APHIS, 2010). Perhaps goat producers in Missouri and Arkansas have less access to small-ruminant veterinarians and more access to the Internet.

Recommendations for Extension Personnel

Knowing an audience is crucial for successfully presenting information to that audience. Goat producers lack experience in goat production and perhaps need more information than typical livestock producers. In addition, women may have a stronger role in goat production than in other livestock enterprises. Our results confirm that goat producers find the Internet to be a viable source of information and that Extension can be confident about using current technology to reach out to the underserved community of goat producers. Information sources such as computer programs, farm field days, and videos/DVDs may not be as helpful due to the low number of producers who use these sources of information.

Awareness of topics of interest, such as herd health, reproduction, nutrition, record keeping, and financial analysis, coupled with up-to-date research could assist educators, Extension, and industry collaborators in conducting appropriate educational programming.

Because other producers and the Internet are major sources of information for goat producers, educators should develop and maintain websites and Facebook pages to provide training opportunities and facilitate the exchange of information between goat producers and Extension and research communities. Using social media tools in this way will enhance communication between beginning and experienced producers. This approach would be effective for reaching audiences in Missouri and Arkansas as well as in other states.

We generated a profile of goat producers, determined how they prefer to receive information, and identified topics they want more information on. This information provides support to educators and other Extension personnel for planning relevant short-term and long-term educational programs.

References

- Arbuckle, J. G., Lasley, P., & Ferrell, J. (2012). *Iowa dairy farm survey*. Retrieved from <https://store.extension.iastate.edu/Product/Iowa-Farm-and-Rural-Life-Poll-2011-Summary-Report>
- Diem, K. G., Hino, J., Martin, D., & Meisenbach, T. (2011). Is Extension ready to adopt technology for delivering programs and reaching new audiences? *Journal of Extension*, 46(6), Article 6FEA1. Available at:

<http://www.joe.org/joe/2011december/a1.php>

Fisher, J., Nye, L. T., & Mangione, D. (2004). Development of a task force to provide education and leadership to an emerging industry. *Journal of Extension*, 42(6), Article 6IAW7. Available at:

<http://www.joe.org/joe/2004december/iw7.php>

Franz, N., Piercy, F., Donaldson, J., Richard, R., & Westbrook, J. (2010). How farmers learn: Implications for agricultural educators. *Journal of Rural Social Sciences*, 25(1), 37–59.

Gillespie, J., Nyaupane, N., & McMillin, K. (2013). Producer perceptions of important challenges currently facing the U.S. meat-goat industry. *The Professional Animal Scientist*, 29(4), 333–344. doi:10.15232/S1080-7446(15)30246-1

Gipson, T. A. (2000). Demand for goat meat: Implications for the future of the industry. Retrieved from

http://www2.luresext.edu/goats/library/field/goat_meat_demand99.htm

Glimp, H. A. (1995). Meat goat production and marketing. *Journal of Animal Science*, 73, 291–295.

Jackson, G. (2007). *A survey of meat goat producers in Tennessee and surrounding areas* (Master's thesis).

Retrieved from http://www.utm.edu/departments/msanr/_pdfs/ShawnJacksonThesisFinal.pdf

Luginbuhl, J. (2015). *Is there a market for goat meat in the US? Yes, there is!* Retrieved from

<https://meatgoats.ces.ncsu.edu/2015/08/is-there-a-market-for-goat-meat-in-the-us-yes-there-is/>

Madden, U. A. (2010). Keys for small ruminant producers purchasing and raising goats and sheep. *Journal of Extension*, 48(3), Article 3TOT10. Available at: <http://www.joe.org/joe/2010june/tt10.php>

Missouri State University. (2014). Goats of Arkansas and Missouri: A production survey. Missouri State University Graduate Thesis 2528. Retrieved from [http://bearworks.\[stateuniversity\].edu/theses/](http://bearworks.[stateuniversity].edu/theses/)

New York State Department of Agriculture & Markets Division of Milk Control and Dairy Services. (2005). *2005 Dairy goat and sheep survey*. Retrieved from <https://www.agriculture.ny.gov/SheepGoatsSurvey.pdf>

Pinkerton, F., & McMillin, K. (2013). *U.S. meat goat situation report*. Proceedings of the 28th annual goat field day Langston University. Retrieved from <http://www.luresext.edu/sites/default/files/2013%20Field%20Day.pdf>

Sahlu, T., Dawson, L. J., Gipson, T. A., Hart, S. P., Merkel, R. C., Puchala, R., Goetsch, A. L. (2009). ASAS centennial paper: Impact of animal science research on United States goat production and predictions for the future. *Journal of Animal Science*, 87, 400–418. doi:10.2527/jas.2008-1291

Solaiman, S. G. (2010). *Goat science and production*. Ames, IA: Wiley-Blackwell. Retrieved from

<http://agrifs.ir/sites/default/files/Goat%20Science%20and%20Production.pdf>

Spencer, R. (2008). *Overview of the United States meat goat industry* (UNP-104). Retrieved from

<http://www.aces.edu/pubs/docs/U/UNP-0104/>

U. S. Department of Agriculture, Animal and Plant Health Inspection Service. (2010). *Goat 2009. Part 1: Reference of goat management practices in the United States, 2009*. Retrieved from

https://www.aphis.usda.gov/animal_health/nahms/goats/downloads/goat09/Goat09_dr_Part1_rev.pdf

U. S. Department of Agriculture, Animal and Plant Health Inspection Service. (2012a). *U.S. dairy goat operations*.

Retrieved from

https://www.aphis.usda.gov/animal_health/nahms/goats/downloads/goat09/Goat09_is_DairyGoatOps.pdf

U. S. Department of Agriculture, Animal and Plant Health Inspection Service (2012b). *U.S. meat goat operations*.

Retrieved from

https://www.aphis.usda.gov/animal_health/nahms/goats/downloads/goat09/Goat09_is_MeatGoatOps.pdf

U. S. Department of Agriculture, National Agricultural Statistics Service. (2011). Overview of the United States sheep and goat industry. Retrieved from <http://usda.mannlib.cornell.edu/usda/current/ShpGtInd/ShpGtInd-08-09-2011.pdf>

U. S. Department of Agriculture, National Agricultural Statistics Service (2012). 2012 census of agriculture United States summary and state data (AC-12-A-51). Retrieved from

https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf

U. S. Department of Agriculture, National Agricultural Statistics Service (2013). *Farm computer usage and ownership* (ISSN: 1949-0887). Retrieved from

http://www.nass.usda.gov/Publications/Methodology_and_Data_Quality/Computer_Usage/08_2013/fmpc0813.pdf

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