

# Meat Goat Production & Marketing

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Review

## Meat Goat Production & Marketing

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## **Ohio Moslem Consumers Meat Purchase and Consumption Patterns Study**

Dr. Richard Stock of the Business Research Group at the University of Dayton conducted six focus groups with people who attend Islamic Centers in Ohio.

The objective of the focus groups was to understand in general, halal meat purchase and consumption patterns of the Moslem population in Ohio with special attention to goat.

### **Participant Views of what Constitutes Halal Meat**

There were essentially two camps among the participants with respect to what constituted Halal meat. At one level, participants noted that Halal meat simply referred to all meats and it was acceptable for a Moslem to eat. This included any meat (excluding pork) as long as the blood had drained from the animal before it died.

Participants then used the term “zabiha” to refer to Halal meat that had been slaughtered in the appropriate fashion. The elements of an appropriate slaughter included:

1. A quick and merciful slaughter that allowed the blood to drain from the animal.
2. A prayer to God “When you slaughter an animal it should be slaughtered in the Name of God (Allah).”

Participants noted that in general “Halal” often gets used for “Zabiha.” In several of the groups there was active discussion as to whether only the prayer is important or the appropriate slaughter technique is also important. Participants noted that “Some people take the position that any meat you buy at Krogers, for example, is Halal because it was Christians or Jews doing the slaughtering so we don’t have to worry in this country” [in contrast to India where Hinduism dominates]. Despite the discussions about whether regular supermarket “Halal” meat was alright to eat, a vocal majority felt that it was very important to eat Halal zabiha meat where it could be verified that the slaughtering was done so that the gushing blood was drained and the appropriate prayer was said.

Participants also discussed in this context that the zabiha approach to slaughtering was the most merciful and caused the animal the least pain.

Finally, participants often brought up at this time their initial concerns that animals were being “fed animals or pig by products.” They were as much concerned about this for the zabiha Halal meat they eat as for meat from a supermarket. As many participants noted, they had no way of knowing where the animal slaughtered came from and this was of tremendous concern.

This may be the most important point learned in the discussion from the viewpoint of Ohio meat producers. The Moslem population would like to know that the animal had not been fed any animal by-products and that none of the meat was adulterated with pork.

## **Meat Shopping Patterns and Attitudes**

### *Where do you shop for meat?*

In each of the six groups, most participants indicated they shopped at a Halal market/grocery that typically would have other ethnic spices and foods as well. In the Cincinnati area, participants were aware of three or four halal meat markets. In Cleveland there were far more noted.

While most participants volunteered they did all their meat shopping at the halal markets, there were other outlets mentioned. In Cincinnati, some noted they would periodically go to Detroit because there was a slaughter house in Detroit. Others acknowledged buying meat from large grocery chains although this would typically only occur when the group was asked directly if they ever purchased meat at one of the large grocery chains. There seemed to be something of a cultural split with those from India and Pakistani far more likely to stay firm that they did all their meat shopping at a halal market.

In both Cleveland and Cincinnati, participants had some experience in purchasing direct from a farmer. In both cases, participants said that practice had been more frequent several years ago when there were not as many halal meat outlets as there are now. In many cases, the trips to the farmers are associated with the practice of Hajj (sacrificing an animal.) Typically, the participants noted they would conduct the slaughter and ask the farmer to do the rest of the butchering. Farmers were mostly found through word of mouth.

None of the participants appeared to go to specialty retail butchers who were not halal because of concerns about contamination with pork. Almost no participants had ordered halal meat on the internet. They noted they had concerns about freshness and not being about to see the meat.

### *Of all these establishments we've discussed, where would you prefer to shop for your meat?*

The immediate response in every group to this question was "the regular grocery store" whether that regular grocery store was Kroger or Meijer or Giant Eagle or some other.

Almost all participants experienced their current meat buying process of going to the halal store as extremely inconvenient. In part, this almost universal first response was tied to participant descriptions of going once or twice a month to the halal market (in some cases a lengthy trip,) buying many pounds of meat and cutting and freezing it when they got home. Several participants in each group have a large freezer at home in order to accommodate this practice. Several expressed an active dislike of going to the Halal store.

Beyond the inconvenience of the Halal market, participants often felt that a regular supermarket would tend to be more hygienic, have better packaging and provide a broader array of cuts.

In each focus group there were one or two participants who indicated they preferred the halal meat market because they liked getting the other spices or liked purchasing from other Moslem. Others noted that knowledge of their preferences was important "Plus the way the meat is cut is very important. We like the meat cut in a particular way."

*What are the characteristics of the place you prefer to shop for meat that are important to you?*

There was a remarkable uniformity across the groups in the initial responses to this questions. Almost the first word out of everyone's mouth was "cleanliness" or "trust."

The trust issue often involved trusting that the Halal meat being purchased really was slaughtered in the appropriate manner with the proper prayers said at the time of slaughter. Others noted that how they were treated was very important. Others noted that trust also involved knowing that the Halal market would not be selling pork and would know how they wanted their cuts made for particular dishes.

There were some concerns about health issues at Halal markets with some participants noting they felt it was important to know "Health-wise it's inspected."

### **Other Meat Goat Research**

#### **Using Meat Goats within an Integrated Resource Management System**

One of the research objectives was to manage weeds, browse, (invasive and brushy species) and pasture in an ecologically sound, economically viable and socially responsible manner.

Throughout Ohio introduced invasive species such as multiflora rose, honeysuckle, and autumn olive present landowners with a management challenge. Traditional control methods involve use of chemical herbicides, mechanical mowing, hand removal or a combination of these methods. All of these methods are labor intensive and carry significant economic costs. The use of chemicals in some areas carries an environmental risk of surface or groundwater contamination. In other areas, slopes greater than 20% limit mechanical mowing and chemical application.

Goats may provide an alternative control option that is ecologically sound and economically viable.

The Cooper farm where the study was conducted includes a mixture of open pasture and brushy areas, as well as varying degrees of slopes. In keeping with a study objective to utilize an integrated resource management approach, it was decided to pasture goats in all types of slopes and browse cover. Plots were set up and assigned a level of browse indicated as low, medium and high. Low: very little or no browse. Medium: brushy species scattered throughout plot. Heavy: majority of plot covered with brushy species.

Identifying and evaluating browse species acceptable to goats was measured through observing animal behavior, observing animal performance through use of body condition scores, and by laboratory analysis of browse species (in progress).

Groups of either 4 or 8 goats were rotated through 75 feet x 75 feet plots on a weekly basis. As goats were rotated through plots, their individual ear tag numbers were recorded and a body condition score (1-5) assigned to them. The percentage of browse consumed was also noted, typically greater than 90%. Upon entering new plots, if any browse was available, that was the first plant species grazed by the goats. In heavy browse plots it was common to see goats feeding by standing upon two legs.

“Cooperative” browsing where one or more goats would hold a branch down to allow other goats to eat higher up on a branch was also frequently observed.

Throughout the grazing season goats were rotated through each of 24 plots twice. The reasoning behind this management strategy was that this would provide each plot with sufficient rest to insure that brushy species would persist in the rotation. While this rotation system did improve pasture grass quality as compared to areas under continuous grazing, the brushy species did not recover as well, probably due to goats preference for brushy species, and also because they often stripped the bark from brushy species.

Based upon this study it appears that goats are an economically viable option to clear land of brushy species and to keep those species under control. In fact, if a landowner desires brushy species to persist, it will take a conscious management effort or goats will remove all browse species within a couple of years. One of the production challenges with goats is parasite control. We observed in this study that goats browsing on brushy species had to be de-wormed less than the portion of the herd grazing upon pasture grasses. This is consistent with other research that indicates that by feeding up higher from the soil surface, parasite load is reduced. Thus, maintaining some browse might become a part of a parasite management strategy.

### **Meat Goat Harvest and Carcass Research**

This is a meat goat standards research project looking at the carcass quality of 200 head of meat goats of various size and condition. This work is coordinated by the Southern Ohio Meat Goat Task Force, The Ohio State University Extension and The Ohio State University Animal Science Meat Lab.

The focus of this study is to develop carcass standards, yield and quality grades and a live grade standard. Results will be released in 2006.

### **Herd Health Management**

Do you know your Parasite Control Program is working?

Parasitologists and Extension veterinarians have been stressing monitoring the success of your parasite control program and the effectiveness of the dewormers you use for a long time. The only practical way of doing this is collecting samples of manure (fecal material) from sufficient numbers of animals and then performing QUANTITATIVE fecal egg counts on them in order to estimate the parasite burden being applied to your pastures or to assess dewormer effectiveness

A herd owner should be collecting data on body condition scores, FAMACHA score, and fecal egg counts (FECs) on all animals in an effort to document sustainable parasite control strategies that do not rely on regular deworming of the entire herd.

### **Body Condition Scoring**

Body condition scoring (BCS) is a visual estimation of body condition utilizing a 1-9 system

with 5 being average. BCS scores of 4-6 are necessary for efficient reproduction performance and economical production. BCS scores of 1-3 are considered thin while scores of 7-9 are fat.

### **FAMACHA Scoring**

The FAMACHA system uses a patented eye color chart to assist a producer in detecting anemia in the sheep and goats. It is only useful for evaluating anemia produced by the voracious blood feeder, *Haemonchus contortus*. The color of the tissues surrounding the eye and inside of the eye-lid is compared on a 1-5 scale with 1 being desirable and 5 indicating anemia. It allows one to deworm only the most heavily parasitized animals thus leaving the worms in the remaining sheep or goats unexposed to the dewormer. It is believed that selective deworming practices, such as this system, may prolong the useful life of dewormers.

### **Fecal Egg Counts**

The most common method of determining FECs for sheep and goats is the McMaster technique. Although there are several variations of how this is done, the basic method uses a weighed fecal sample, a known dilution in the flotation solution, and a specialized counting slide to count the eggs. Many veterinarians in Ohio are trained to do them, and some currently offer this service. Most methods require at least two grams of manure, and usually four grams are used as this amount provides a more accurate estimate. Generally speaking, you need samples from about 15 animals to get a reliable estimate of the group average.

The two best uses for FECs are to monitor the rate of pasture contamination and to determine whether drug resistance is present in the worms on the farm.

### **Pasture Contamination**

Monitoring the rate of pasture contamination is a tool the producer can use in making decisions such as when to move animals from a pasture to avoid a buildup that may lead to a dangerous situation, or it might be used to assess how much contamination is occurring in order to make decisions about future use of the pasture during that grazing season.

### **Drug Resistance**

If we just had the overall appearance of individual animal to judge our management plan by, we might think the deworming treatment was a success when, in fact, fecal egg counts can actually continue to rise. The gradual improvement in body condition and FAMACHA scores might be interpreted as successful results of the deworming(s). However, reductions in body condition of the does are pretty much expected as a result of good milk production; and improvement in body condition would be expected as milk production decreases, if enough energy were available. We want to see at least a 95% reduction in egg count, in the post treatment fecal samples as compared with egg counts determined from samples collected at the time of treatment, in order to conclude that a drug is effective and that significant resistance is not present. Pre and post treatment egg counts should be performed on samples collected 10-14 days apart. The lack of obvious reductions in fecal egg shedding after deworming certainly suggests to us the possibility that drug resistance worms may be present in the herd.

At the present time *Haemonchus contortus* is the most important worm we have to deal with here in Ohio. Although there are several common species of worms that produce similar-looking eggs as *Haemonchus* under the microscope, it is usually safe to assume that by July, at least 90-95% of the eggs of this type will be *Haemonchus*.

An alternate approach to the pre/post treatment egg counts to detect drug resistance to dewormers uses an untreated control group of animals. This method accounts for variation in the groups that might not be attributable to the dewormer. It also has the additional advantage of requiring considerably fewer total samples if several drugs are being tested at the same time because both pre- and post-treatment egg counts are not required and several test groups can be compared to the control group.

Most parasitologists today recommend conducting resistance testing at least every two years. Testing for resistance does require significant work and expense. However, not knowing whether the dewormer you are using is effective can be more expensive. It can be disastrous. The goal is to continue to use selective deworming practices and pasture management strategies to control parasitism and prolong the useful life expectancy of the dewormers we have available.

### **Wilmington College Feed and Performance Trial**

Wilmington College wanted to know if it was cost effective in a commercial setting to feed market goat kids a commercially available grain-based diet. Items of concern included: consumption, gain, feed efficiency, and cost per pound of gain.

To evaluate these questions, 20 market goat kids were split into two equal numbered groups (10 head each) that included both doe and wether kids.

Group 1 was fed a commercial meat goat pelleted grain-based diet (Table 1.) Group 2 was fed a locally manufactured grind and mix grain-based diet (Table 2.)

**Table 1** Pelleted Diet

Crude Protein		15.0%
Equivalent crude protein source from non protein (urea)		1.2%
Crude Fat		3.4%
Crude Fiber		15.0%
Calcium	Min 0.60%	Max 1.25%
Phosphorus		Min 0.50%
Salt	Min 0.75%	Max 1.25%
Copper		15.0 ppm
Selenium		0.6 ppm

**Table 2      Grind and Mix Diet**

Crude Protein	15.9 %
No crude protein equivalent added	
Crude Fat	3.38%
Crude Fiber	3.04%
Calcium	0.51%
Phosphorus	0.64%
Salt	0.41%
Copper – None added (diet also fed to sheep)	
Selenium	0.55 ppm

Cost of feed was \$210/ton for the corn based grind and mix diet (\$0.105/ #) and \$268/ton for the pelleted grain-based diet (0.134/ #.) Market kids were fed for 32 days in this trial. All kids had access to free choice hay at all times.

**Results**

**Group 1**

Kids fed the pelleted grain-based diet ate a total of 735 pounds of feed and gained 158 pounds during the 32 day trial. As a group, the Average Daily Gain (A.D.G.) was 0.493 pounds per day per kid. Feed efficiency (# of feed/ # of gain) was 4.65# feed/ #gain. Cost per pound of gain was \$0.624.

**Group 2**

Kids fed the grain-based grind and mix diet ate a total of 886 pounds of feed and gained 121 pounds during the 32 day trial. As a group, the Average Daily Gain (A.D.G.) was 0.379 pounds per day per kid. Feed Efficiency (# of feed/ # of gain) was 7.33 # feed/ # gain. Cost per pound of gain was \$0.769.

Table 3	<u>Total Gain</u>	<u>A.D.G.</u>	<u>Total Feed</u>	<u>Feed Efficiency</u>	<u>Cost/lb. Gain</u>
Group 1 Pelleted Diet	158 lb.	0.493	735 lb.	4.65	\$0.624
Group 2 Grind and Mix Diet	121 lb.	0.379	886 lb.	7.33	\$0.769