

# Eastern Kentucky Meat Goat Budget Analysis

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By:

ALIOUNE DIAW AND A. LEE MEYER

University of Kentucky  
Department of Agricultural Economics  
400 Charles E. Barnhart Bldg.  
Lexington, KY 40546-0276

Phone: 859-257-5762

Fax: 859-323-1913

<http://www.uky.edu/Ag/AgEcon/>

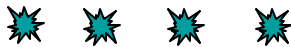
# Eastern Kentucky Meat Goat Budget Analysis

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Alioune DIAW<sup>1</sup>, Lee MEYER<sup>2</sup>

## Introduction

This publication provides an economic budget analysis of a meat goat production system in Eastern Kentucky. The budget is based on actual farm data to the extent available, and use of secondary data to complete the analysis. This publication is intended to help current goat producers evaluate their enterprises, to give background for those considering starting a meat goat enterprise and to provide benchmark data for policy makers who are exploring the role of the meat goat enterprise in Kentucky agriculture. The budget can be used as a decision making tool for farmers who want to explore the impacts of various costs, input levels, technologies and production levels.



## Assumptions

22	Nannies
15 %	Culling rate
210 %	Kid crop
10 %	Death loss
1.89	Kids raised/nanny
18 %	of the kids finish on grass at 100 lbs./head
82 %	of the kids sold as feeders at 70 lbs./head
40 lbs.	body weight gained/ Replacement from supplemental ration

6.0 to 1.0 feed conversion for replacement

## Production System

This economic analysis is based on a meat goat flock consisting of 22 nannies and one billy (one-billy unit) in Eastern Kentucky. The flock is raised on a twenty seven-acre pasture with an old tobacco barn that serves as housing. No other housing is assumed. Fencing is accomplished using three electric high-tensile lines. Nannies are bred in the fall and kid in the spring. Kidding rates of 210% or 2.1 kids per nanny are observed, with 1.89 kids per nanny weaned. 18% of the kids are finished on grass at 100 lbs. per head and 82% of the kids are sold as feeders at 70 lbs. per head. Six to seven nannies from the progeny are kept as replacements in the breeding flock to offset losses from nanny mortality (3%), and culling (15%). The goat flock grazes on a 9-acre hay and bluegrass pasture throughout the year except in the winter months when mixed grass and alfalfa hay is fed for a period of 126 days.

Nannies are fed about 1.8 lbs. of concentrate (shelled corn, alfalfa, pelleted protein supplement) per head per day for a period of 90 days. Salt and mineral blocks are provided throughout the year. Health maintenance consisting of regular deworming during the grazing months and miscellaneous veterinary services is applied throughout the year. When replaced every three to four years, the cull billy is sold for meat at a projected value of \$ 35/cwt. Market goats are transported to New Holland-Pennsylvania livestockyard which assess a yard fee of \$1.50 per head and a commission and hauling fee of \$ 6.85 per head.

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<sup>1</sup>Alioune Diaw is a post doc in the Agricultural Economics Department, funded by the Department to conduct research and extension programs focused on small ruminants. His doctorates are in veterinary science from the Ecole Inter-Etats des Sciences et Medecine Veterinaires (EISMV) in Senegal and agricultural economics from ENESAD/University of Burgandy (France).

<sup>2</sup>Lee Meyer is an Extension Professor in livestock and meat marketing in the Agricultural Economics Department.

**Flock Budget**

A meat goat flock budget summarizing the costs and returns for a one-billy unit enterprise for an Eastern Kentucky goat producer is provided in Table 1. This production system generates an annual cash income of

\$2,590 (or \$118 per nanny unit) from goat sales with total cash expenses of \$1,582 (or \$72 per nanny unit). The resulting total returns to equity, unpaid operator labor and management are estimated at \$347 per production unit or \$15 per nanny unit.

**Table 1:** Estimated Cost and Returns for Meat Goat Enterprise in Eastern Kentucky – Feeder kid production, raise replacements.

ITEM		UNIT	PRICE	QUANTITY	TOTAL	YOUR FLOCK
<b>CASH INCOME</b>						
MKT KIDS	4 @	0.90 CWT	\$80.00	3.77	\$564.89	_____
FEEDERS	34 @	0.65 CWT	\$90.00	22.16	\$1,772.97	_____
CULL NANNIES	2.6 @	1.10 CWT	\$35.00	2.90	\$101.64	_____
CULL BILLY	0.1 @	1.20 CWT	\$35.00	0.16	\$5.54	_____
WOOL	0.0 #	/HD. LBS	\$0.35	0.00	\$0.00	_____
<b>TOTAL CASH INCOME</b>					<b>\$2,589.96</b>	_____
<b>CASH EXPENSES</b>						
MIXED HAY		TON	\$80.00	6.13	\$490.41	_____
ALFALFA HAY		TON	\$160.00	0.09	\$14.29	_____
SHELLED CORN		BU	\$2.00	43.04	\$86.09	_____
SOYBEAN MEAL		TON	\$300.00	0.01	\$1.92	_____
PELLETED PROT SUPP		TON	\$380.00	0.42	\$158.84	_____
CORN SILAGE		TON	\$30.00	0.00	\$0.00	_____
LIMESTONE		TON	\$60.00	0.00	\$0.00	_____
DI CAL		TON	\$320.00	0.00	\$0.00	_____
FEED PROCESSING		CWT	\$0.55	32.59	\$17.93	_____
SALT & MINERAL		CWT	\$20.50	4.42	\$90.69	_____
VET & MED		NANNY	\$3.00	22.00	\$66.00	_____
SUPPLIES - GOAT		NANNY	\$2.00	22.00	\$44.00	_____
PASTURE	3.0 NAN/AC	ACRE	\$18.00	7.33	\$132.00	_____
REPLACEMENT BILLY		HEAD	\$200.00	0.13	\$26.40	_____
SHEARING		HEAD	\$0.00	22.66	\$0.00	_____
TAXES		\$	\$0.00	0.00	\$0.00	_____
HAUL.COMM. GOAT		HEAD	\$5.00	41.05	\$205.26	_____
YARELAGE FEE		HEAD	\$1.85	41.05	\$75.95	_____
CHECKOFF		HEAD	\$0.00	38.28	\$0.00	_____
BEDDING	50 LB/NAN	TON	\$80.00	0.55	\$44.00	_____
BLDG. & FENCE REPAIR		----	-----	-----	\$40.00	_____
UTILITIES		----	\$3.00	22.00	\$66.00	_____
MACHINERY, NON-CROP		----	\$1.00	22.00	\$22.00	_____
<b>TOTAL CASH EXPENSES</b>					<b>\$1,582.11</b>	_____
Unpaid family labor		\$6/h*5h/yr/nannie *22 nannies =			\$660.00	_____
<b>RETURN TO EQUITY, MANAGEMENT, &amp; OPER. LABOR</b>					<b>\$347.85</b>	_____

## **Cash Income and Prices**

Income is dependent on production levels and prices. Production levels are estimated based on farm records and producer experience. Total cash income of \$2,590 is generated from the sale of live animals, cull animals and kids sold as breeding stock. Market kids are sold for meat at an average price of \$80 per hundredweight (\$0.80/lbs.). Cull nannies are sold at an average price of \$ 35 per hundredweight (\$0.35/lbs.). Feeders sell for \$80 per hundredweight (\$0.80/lbs.) while cull billies are sold for an average price of \$35/cwt which represents their value after three to four years of acquisition and use. The prices used in this analysis are based on average sale prices reported for goats from New Holland and direct marketing during the past twelve months. Depreciation and taxes are not assumed, because as housing the barns are fully depreciated.

The long run price situation is vague. There do not seem to be production and price cycles, as there are for beef and pork. The production of goat meat hasn't varied dramatically. However, the industry is growing - on both the production side and consumption side. Therefore, the market price management should be a focus of the enterprise.

Actual price is a key factor affecting the profitability of the goat enterprise. There are three bases for comparing prices. The national market is determined in San Angelo, Texas, which has weekly sales of 2,000 to 4,000 head. The most important eastern market is New Holland, Pennsylvania, which sells 1,000 to 1,500 per week. (Kentucky goat producers have sold trailer loads of goats through the New Holland market during 1999 and early 2000 through a cooperative project between Morehead State University and the Kentucky Department. of Agriculture). A few Kentucky markets sell goats. The Kentucky Department of Agriculture reports the London and Mayfield markets. Sales at these two locations range from 100 to 300 per week. No careful price comparison study has been conducted. But observations comparing occasional prices suggest that Kentucky prices for nannies and billies are near levels of the major markets; however prices for kids are somewhat lower.

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## **Cash expenses**

The total cash expense for one production cycle (one year) is estimated at \$1,582. This consists of 90% for purchased feed, salt and minerals, pasture maintenance, veterinary services and medication, marketing costs and interest charges on operating capital. Purchased feeds and pasture maintenance costs are the most significant components of the total. Only a 10% consists of assets that have a useful life of more than one year, and repairs on equipment and housing. These assets include purchased breeding livestock, and high-tensile electric fencing,

## **Analysis of expenses and returns**

A review of the 22 nannies, one-billy meat goat enterprise (Table 1) suggests that a farmer operating at the underlying assumptions implied by the budget can earn an estimated \$336 (\$15 per nanny) returns above cash expenses and unpaid family labor. This represents the money available to cover equity, management and profit. The positive returns above cash expenses suggest that a meat goat enterprise is economically feasible in the short run, under the assumed production and market conditions. Also, if prices received by the operator remain the same, cash expenses can increase by as much as 15% over budget before the returns above costs turn negative.

The positive financial return may indicate long-run economic feasibility of enterprise returns earned above total costs. Generally, a positive return above total costs is desired for an enterprise to be profitable or economically sustainable in the long run. The returns to equity, labor, and management for the meat goat operation under investigation are \$347 (or \$15 per nanny unit). But, returns to equity, labor and management for a meat goat operation is influenced by many factors, including prices received by the farmer, costs of inputs, kidding rate of nannies, and other management practices used by the producer.

In this budget, the 210% kidding rate assumed a fairly high level of productive efficiency. To determine the

impacts of lower production efficiency, a sensitivity analysis of the impact of different kidding rates on net returns was conducted. Results of the analysis, shown in Table 2, indicate that the operation can still cover its costs with a kidding rate as low as 180% (or 1.8 kids sold per nanny). It is important to recognize that production cost per unit is affected by costs of production inputs, but also by the level of production. So, changes in output such as kidding rates, but also rates of gain will be important factors in determining production cost per pound of goat produced.

**Table 2:** Sensitivity of returns to kidding rate

Kidding Rate	Returns to equity, labor & management
160 %	-\$235
170 %	-\$119
<b>180 %</b>	<b>-\$2</b>
200 %	\$231
210 %	\$347

The returns to equity, labor and management are also sensitive to prices received by producers and total costs of production. Table 3 illustrates that a 20% decline in the level of prices received for meat goats, other things being equal, would result in negative returns, which might threaten long term economic viability. The break-even price level is approximately 90 to 95% of the twelve-month average prices used in the analysis. However, if current price levels prevail or improve, farmers may realize reasonable positive returns to equity, labor and management invested in a meat goat flock in Eastern Kentucky.

Table 3 shows the impacts of changes in cost of production. It suggests that a 20% increase in total costs of production might cause the returns to become negative, under current prices and production practices in Eastern Kentucky. As with most forage-based enterprises, the

proportion of inputs produced on the farm is quite high compared with the proportion of cash or “out of pocket” expenses. On most farms, more than half of the inputs would be produced on the farm. While it is necessary to include these items in the budget on an opportunity cost basis, the fact that they are “home produced” reduces price variability and risk exposure. As a result, a 10% change in total production expenditures would typically only come about with a much larger change in prices of purchased inputs. The sensitivity analysis shows that the 10% change would impact returns +/- about \$123 for the flock.

### Conclusion and Implications

Under current conditions, the goat enterprise described here is profitable. In fact, net returns compare favorably with traditional grazing-based enterprises. For example, average returns for grazing calves is forecast at \$30 per acre for the summer of 2000. Returns to cow-calf operations averages about \$10 per acre, however with the current high prices net returns to equity and management is about \$30 per acre. These return figures should be used as indicators rather than actual figures because of the tremendous diversity of production systems. Grazing land can be managed intensively (with rotational grazing systems and fertilization regimes) or extensively. The use of these types of practices and other management decisions will have significant impacts on net returns, as well as investment requirements and exposure to risk.

The analysis of costs and returns shows that a one-billy unit meat goat flock in Eastern Kentucky has the potential to cover all costs and generate a positive return to the fixed resources of equity, management and operator labor. Key factors in profitability are prices and access to markets, level of productive efficiency and control of production costs. To achieve the potential profitability indicated by the

**Table 3:** Sensitivity of Returns to price received level and total cost of production

Prices Received (% of Prices in assumption)	70%	80%	90%	100%	110%	120%
Sensitivity of Returns to Received Prices by Producers	-\$429.14	-\$170.14	\$88.85	\$347.85	\$606.85	\$865.84
Sensitivity of Returns to Total Costs of Production	\$1,020.48	\$796.27	\$572.06	\$347.85	\$123.64	-\$100.57

budget developed here, the farm operator must implement a conscientious management program in both production and marketing. The results suggest that for small farms with forage land, goat production has economic potential.

It is not yet clear if significant expansion of the goat enterprise will produce positive or negative market impacts.

In a mature industry with relatively constant demand, expansion of production results in lower prices. However, in an immature industry such as goat production in Kentucky, markets may be operating with inadequate supplies for efficient technical and operational efficiency. In this situation, substantial increases in supply may result in more buyers and improved marketing institutions.

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