Meat Goat Production Budget

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Introduction

Production budgets are helpful in estimating the economic costs and returns for agricultural enterprises. Budgets are used by producers as the basis for numerous decisions including enterprise expansion, comparisons among various enterprises and new enterprise development. While enterprise budgets are extremely helpful farm business planning and management tools, some farm expenses may not be charged to a specific enterprise and should be accounted for in a whole-farm analysis.

The meat goat production budget presented here is intended only as a guide. Producers should use their own information when available and personalized adjustments should be made as needed. This budget contains a column labeled "your farm" which should be used to show production costs and price data for specific situations. The budget format presented here includes interest expenses for resources used in the goat enterprise. The underlying assumption of this budget is that existing land resources are used in the enterprise.

Meat Goat Production Budget

The enterprise budget for a 50-doe goat herd is shown in Table 1 followed with explanations for each section of the budget. The budget assumes 1½ weaned kids per doe per year (75 kids for the total herd). With a doe replacement rate of 20 percent, 10 female kids are retained in the herd as replacements. Therefore, the budget reflects sixty-five kids available for market in the fall. The budget assumes that kids are born during the late winter and sold at approximately 5 months of age.

Table 1 **GOAT PRODUCTION (50 DOES AND 1 BUCK)**

ESTIMATED COSTS AND RETURNS TO LAND, MANAGEMENT AND RISK

The basis for many decisions depends on an estimate of annual enterprise costs and returns. This budget is intended only for a guide. Producers should use their own information when available. Personalized adjustments to this budget should be made as needed. The "your farm" column should be used to calculate your own production costs and breakeven prices.

ITEM	DESCRIPTION	UNIT	QUANTITY	PRICE	TOTAL	PER DOE	YOUR FARM
REVENUE							
Kids (1)	65 Head	cwt	0.65	115.00	4858.75	97.18	
Cull Doe (2)	9 Head	cwt	0.70	70.00	441.00	8.82	
		TOTAL REVENUE			5299.75	106.00	
VARIABLE EXPENSES							
Hay (3)		ton	10.71	80.00	856.80	17.14	
Corn (4)	50 Does	bushels/doe	0.80	6.00	240.00	4.80	
	75 Kids	bushels/kid	1.75	6.00	787.50	15.75	
Pasture (5)		acre	15.00	30.00	450.00	9.00	
Mineral Mix		head	50.00	1.20	60.00	1.20	
Vet & Med		head	50.00	15.00	750.00	15.00	
Marketing		head	74.00	5.50	407.00	8.14	
Hauling		head	74.00	1.00	74.00	1.48	
Machinery (6)		hour	14.00	14.00	196.00	3.92	
Operating Interest - 6 months			3821.30	7.00%	133.75	2.67	
		TOTAL VARIABLE EXPENSES			3955.05	79.10	
	RETURN ABOVE VARIABLE EXPENSES				1344.70	26.89	
DEPRECIATION AND REPAIRS (FIXED COST)							
Depreciation (7)	Buildings, equipment				88.75	1.78	
Repairs	Buildings, equipment				47.25	0.95	
Depreciation	Buck				87.50	1.75	
Depreciation	Fences				248.94	4.98	
Repairs	Fences				204.60	4.09	
Machinery		hour	14.00	2.50	35.00	0.70	
		TOTAL FIXED EXPENSES			712.04	14.24	
	TOTAL VARIABLE & FIXED EXPENSES				4667.09	93.34	
RETURN TO LAND, LABOR, CAPITAL, MANAGEMENT, RISK					632.66	12.65	
INTEREST (FIXED COST)							
Doe & Buck (8)	7.00%				362.25	7.25	
Bldgs. & Equip	7.00%				55.13	1.10	
Fences	7.00%				143.22	2.86	
Machinery		hour	14.00	1.52	21.28	0.43	
	TOTAL INTEREST EXPENSE				581.88	11.64	
	TOTAL VARIABLE, FIXED, INTEREST EXPENSE				5248.96	104.98	
NET RETURN TO LAND, LABOR, MANAGEMENT, RISK					50.79	1.02	
LABOR EXPENSES							
LABOR		hour	150	10.00	1500.00	30.00	
	TOTAL ALL EXPENSES				6748.96	134.98	
	RETURN TO LAND, MANAGEMENT, RISK				-1449.21	-28.98	

FOOTNOTES TO TABLE 1

(1) Revenue assumes a 150% weaned kid crop with 10 females kept for replacements.

(2) 20% of does replaced each year; sell 9 cull does, assume 1 died.

(3) Does and buck consume 3.5 pounds of hay per day for 120 days.

(4) Kids consume 1 pound of corn per day for 100 days which equates to 1.75 bushels per kid there being 56 pounds of corn in a bushel. Does consume 1/2 pound per day for 90 days which equates to 0.8 bushels per doe.

(5) Pasture stocking rate is 3.3 does per acre.

(6) Machinery cost is for 50 hp tractor to feed hay.

(7) Assume 1/2 use of buildings for goats.

(8) One buck is purchased for $175 and used for 2 years. Does are valued at $100.00.

Revenue

The first section of the budget shows the estimated revenue for the meat goat enterprise. Kids are assumed to sell at an average weight of 65 pounds and at a price of $115 per hundredweight. Nine cull does are sold (assuming 1 cull doe is not available for sale due to death loss). Total revenue for the herd is $5,300 or $106 per doe.

Since the price of kids sold is a major variable in determining total revenue, some discussion of selecting a market price is relevant here. When compared to other agricultural commodities, there is limited market price data for meat goat sales in Tennessee. Market price data is available for a limited number of Tennessee meat goat markets. Table 2 summarizes prices from the Tennessee Livestock Producers graded goat sale for the years 2003 through 2007.

Table 2

Average Price Per Hundredweight of Meat Goats Weighing 51-65 Pounds
Tennessee Livestock Producers Bi-monthly Meat Goat Graded Auction
Thompson Station, Tennessee

	Selection 1			Selection 2			Selection 3		
Year	**Average**	**Low**	**High**	**Average**	**Low**	**High**	**Average**	**Low**	**High**
2003	107.32	96.50	121.38	102.51	91.88	121.25	92.73	83.00	115.63
2004	131.80	102.75	159.75	125.16	110.50	146.50	111.64	90.00	137.00
2005	130.88	116.00	151.00	127.17	112.00	151.00	117.10	86.50	146.00
2006	127.06	110.50	160.50	121.08	103.00	149.00	111.08	90.50	141.50
2007	116.12	90.00	146.25	109.40	85.00	135.00	100.09	73.00	131.50
Avg.	122.64	103.15	147.78	117.06	100.48	140.55	106.53	84.60	134.26

Market prices vary throughout the year as is evident by the wide range between the low and high prices in each selection designation. While there are no USDA official goat grade standards, specifications are used to describe goats for market news purposes. These designations are Selection 1, Selection 2, and Selection 3. The selection designations deal primarily with the expected meat yield of the carcass. Selection 1 goats would have a greater yield than Selection

2 and Selection 2 greater than Selection 3. One factor in this range of market prices is the seasonality of demand for meat goats. Many of the ethnic groups that purchase goat meat do so at various religious and holiday celebrations. This increases the demand for meat goats during these times and raises the market price. Producers who target sales to these markets can often achieve prices higher than the auction average.

The average sales price selected to use for this budget example is $115.00 per hundredweight, which is near the average price for Selection 2 goats. Producers marketing higher quality Selection 1 goats could expect to receive an average price higher than Selection 2. However, producers of Selection 1 goats could have higher production expenses as well. Producers of Selection 3 goats would expect a lower average price than Selection 2.

Variable Expenses

Variable expenses are those expenses that occur during a year of goat production and are tied directly to the goat enterprise. These expenses do not occur if goat production is ceased. Feeding the animals, which includes hay, grain and pasture, is the largest variable expense for a goat enterprise. Hay requirements are based on the does and buck consuming 3.5 pounds of hay per day for 120 days during winter feeding. Corn requirements (as a supplement to hay during the winter) are one pound per day for 100 days for each kid and one-half pound per day for each doe for 90 days. Pasture expenses in this goat budget assume a lower-than-average level of management and inputs than for traditional beef cattle pasture management. The pasture stocking rate is 3.33 does per acre. The stocking rate assumes the pro-rated share of the buck and kids.

Variable expenses also include a free choice mineral mix, veterinary and medicine costs, marketing, machinery (for hay feeding) and interest on operating capital for six months. Variable expenses total $3,955 for the herd or $79.10 per doe. Return above variable expenses is $1,344 or $26.89 per doe.

Depreciation, Repairs and Interest (Fixed Expenses)

Fixed expenses are those expenses the goat enterprise is committed to pay regardless of whether livestock is raised during the current planning period. Producers who have already invested in machinery and buildings are committed to owning these resources for the upcoming production period. Fixed expenses include depreciation and repairs for buildings, livestock equipment, and fences. Machinery depreciation is also a fixed cost. (Machinery fuel and repairs are considered a variable cost for this budget.)

Interest expenses reflect the fact that capital invested in goat production is costly, regardless of its source. Borrowed capital entails a cash interest charge for repayment to lenders. Capital provided by the owner results in a non-cash opportunity cost, due to the fact that the capital could have been invested elsewhere and earned interest when the capital was invested in goat production. The foregone interest is a cost to the owner, but it is not a cash expense. Interest expenses are included for buildings and equipment, fences, and machinery. Interest expenses are also included for the value of the breeding livestock used in the enterprise.

Table 3 provides a detailed list of the depreciation, repairs, and interest expenses assumed for this goat production budget. Barn costs are based on its use by the goat enterprise one-half time with the remaining time assumed for other uses. Depreciation and repairs total $712 or $14.24 per doe while interest expenses total $582 or $11.64 per doe. Total annual variable expenses plus depreciation and repairs plus interest expense total $5,249 or $104.98 per doe.

Table 3 Building, Equipment, and Livestock Fixed Expenses

ITEM	COST ($)	LIFE (YEARS)	DEPREC. ($/YEAR)	INTEREST ($/YEAR)	REPAIRS ($/YEAR)	TOTAL ($/YEAR)
Buildings and Equipment						
Pole Barn, 500 sq. ft., 6 months	2750	20	68.75	48.13	41.25	158.13
Feeders and Waterers	200	10	20.00	7.00	6.00	33.00
High Tensile Permanent Fence, 3233 ft. @ $1.14 per foot	3686	25	147.44	129.01	184.30	460.75
Energizer	150	4	37.50	5.25	7.50	50.25
Temporary Cross Fence, 1600 ft. @ $0.16 per foot	256	4	64.00	8.96	12.80	85.76
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TOTAL BUILDLINGS AND EQUIPMENT			337.69	198.35	251.85	787.89
Livestock						
Buck	175	2	87.50	12.25	n. a.	99.75
Does	5000		n. a.	350.00	n. a.	350.00
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TOTAL LIVESTOCK			87.50	362.25		449.75

Labor

Labor expenses are also included in the budget to reflect the cost of hired and/or owner labor. Again, labor provided by the owner results in a non-cash opportunity cost, due to the earnings foregone by the owner for employment in other agricultural enterprises or off-farm jobs. Hired labor should be included in the budget as a cash expense. In the case of hired labor and owner labor, the cost of labor in a goat enterprise is considerably high and should be accounted for properly.

One hundred fifty hours of labor are assumed for this enterprise and charged at $10.00 per hour for a total of $1,500 per year. Adding this to variable and fixed expenses, results in total budgeted expenses of $6,749 or $134.98 per doe.

Return to Land, Management, and Risk

Subtracting total expenses from total revenue leaves a return to land, management and risk of negative $1,449 for the herd or negative $28.98 per doe. When looking at this figure, remember that the owner has received a 7 percent return on all capital invested, excluding land, and $1,500 in wages. If there is no outstanding debt and the owner provides all of the required labor (at zero cash cost), then the return to owner labor and capital is a positive $633 per year.

Sensitivity Analysis

The budget in Table 1 estimates returns when production levels, resource use levels and prices are held at ***constant assumed values***. However, the potential variability in returns has been analyzed by modifying key assumptions and estimating the sensitivity of net returns to changes in these variables.

In Table 4, the effects of kids weaned per doe and market price are shown. Market price varied from $100 to $130 per hundredweight, while kids weaned per doe varied from 1.2 to 1.8. Returns to land, management and risk for the whole herd are estimated for each combination of kid production and market price considered. The intersection of $115 per hundredweight selling price and 1.5 kids weaned per doe (-$1,449.21) matches the return to land, management and risk that was seen in Table 1. Each intersection of market price and kids weaned per doe in Table 4 reveals the return to land, management and risk for that combination of market price and kids weaned per doe. The variations shown in Table 4 reveal the importance and the overall value of selling more kids per doe as production costs are held constant. It also shows how variations in market price can significantly affect returns.

Table 4 The Effects of Varying Kids Weaned per Doe and Market Price on Returns to Land, Management and Risk.

Price	Kids Weaned Per Doe						
Per Cwt.	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**
100.00	-2802.96	-2562.96	-2322.96	-2082.96	-1842.96	-1602.96	-1362.96
105.00	-2640.46	-2384.21	-2127.96	-1871.71	-1615.46	-1359.21	-1102.96
110.00	-2477.96	-2205.46	-1932.96	-1660.46	-1387.96	-1115.46	-842.96
115.00	-2315.46	-2026.71	-1737.96	**-1449.21**	-1160.46	-871.71	-582.96
120.00	-2152.96	-1847.96	-1542.96	-1237.96	-932.96	-627.96	-322.96
125.00	-1990.46	-1669.21	-1347.96	-1026.71	-705.46	-384.21	-62.96
130.00	-1827.96	-1490.46	-1152.96	-815.46	-477.96	-140.46	197.04

In Table 5, the effect of kids weaned per doe and market weight are examined. Market weight varies from 56 to 74 pounds, while kids weaned per doe varies from 1.2 to 1.8. Returns to land, management and risk for the whole herd are estimated for each combination of kid production and market weight. The intersection of 65 pound market weight and 1.5 kids weaned per doe (-$1,449.21) matches the return to land, management and risk from the revenue and expense budget in Table 1. Each intersection of market weight and kids weaned per doe in the table reveals the return to land, management and risk to that combination of market weight and kids weaned per doe. Table 5 shows the importance of pounds of goat sold on returns.

Table 5 **The Effects of Varying Kids Weaned per Doe and Market Weight on Returns to Land, Management and Risk.**

Market	Kids Weaned Per Doe						
Weight	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**
56.00	-2832.96	-2595.96	-2358.96	-2121.96	-1884.96	-1647.96	-1410.96
59.00	-2660.46	-2406.21	-2151.96	-1897.71	-1643.46	-1389.21	-1134.96
62.00	-2487.96	-2216.46	-1944.96	-1673.46	-1401.96	-1130.46	-858.96
65.00	-2315.46	-2026.71	-1737.96	**-1449.21**	-1160.46	-871.71	-582.96
68.00	-2142.96	-1836.96	-1530.96	-1224.96	-918.96	-612.96	-306.96
71.00	-1970.46	-1647.21	-1323.96	-1000.71	-677.46	-354.21	-30.96
74.00	-1797.96	-1457.46	-1116.96	-776.46	-435.96	-95.46	245.04

Overall herd and business management is often a determining factor concerning the variables of a goat production enterprise. High levels of management will result in more kids weaned per doe, larger selling weights and higher prices (relative to current market conditions).

Remember that the information presented in this budget should be used only as a guide. Producers should use their own information in developing budgets for their farm.

MANAGE Program

MANAGE was designed specifically to help Tennessee farm families carefully evaluate their individual situation and assist them in improving their quality of life. The MANAGE program is conducted by the University of Tennessee Extension. The MANAGE program helps families analyze their total farming business so they can make informed decisions regarding their future.

Area Farm Management Specialists located across Tennessee assist farm families in developing individualized farm financial plans. These plans provide information to assist families in making decisions regarding expansion, adding new enterprises, improving efficiency, revising debt structure, and much more.

All farm families interested in assessing their management strategies and alternatives can benefit. The program has proven useful in motivating some farm families to seriously explore alternatives for increased profits. The planning process has also reassured others that they are on track.

Intensive farm planning is offered as an educational program at no cost and no obligation to participating farm families. All financial information will remain confidential. The planning can be done at your farm. To become involved or to obtain additional information, contact your county University of Tennessee Extension office.

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