

USING THE SPREADSHEET VERSION OF THE NCSU MEAT GOAT (or SHEEP) BUDGET TEMPLATE

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Introduction

An enterprise budget, as the name suggests, focuses only on the costs and revenue from a single farm enterprise. It includes revenue and full economic costs of production. Farm overhead costs are not included. A budget can be used by someone planning a new enterprise to estimate the likely costs and returns once the enterprise is well established, in order to determine if the returns are likely to be acceptable and meet the family's financial goals. If the initial estimates are not attractive, alternative production and marketing scenarios can be evaluated. Operators of established enterprises can use enterprise budgets to evaluate the effects of making significant changes in production or marketing practices. As with any plans, the quality of these estimates will depend on including all the relevant information and on the quality of this information.

The Enterprise Budget Template consists of two worksheets. One worksheet is the main enterprise budget and the second worksheet contains tables for generating the fixed costs and some of the operating costs included in the main budget.

The user enters cost and revenue information in this budget spreadsheet to develop one or more budgets for a specific farm situation. Different production practices may be used or input costs may be different, for example, when livestock manures are used instead of purchased commercial fertilizers. On a specific farm soil quality may be above or below average, which affects forage yields and animal performance. Similarly, the price received for sale goats is affected by many factors, including the time of year and the specific characteristics of the animal.

Each spreadsheet has certain cells that are protected and others that the user can modify with his or her information. These cells are colored yellow or green. The yellow highlighted cells contain descriptions or data only, the green cells contain formulas that can be modified or overwritten with the user's data. More information and suggestions for modifying these budgets is provided below.

CAUTION: Every effort has been made to produce spreadsheets that work as intended but they are offered "as is" and the user must accept responsibility for any information

generated and any decisions made based on that information.

Costs and Returns

Each enterprise budget contains three categories of cost; operating, fixed and labor. Operating costs are also known as variable or out-of-pocket costs and include such items as feed and animal health costs. Note that forage production and harvesting stored forages are treated as separate farm enterprises and NCSU (and other) enterprise budgets are available on many forage crops.

Fixed costs are the costs associated with the investments in equipment and specialized facilities used in the animal enterprise. These costs are sometimes called ownership costs or overhead costs. Because these investments last for several years, we calculate annual charges that consist of a depreciation allowance, interest on the investment, property taxes and insurance. Interest charges are included regardless of the source of the investment, i.e., debt financed or owner financed. Equipment that is purchased used has a shorter useful life and has higher annual repair and maintenance costs. Users should use the actual prices of their own equipment.

Labor expense requires additional explanation because farm work may be performed by employees, by the owner or by some combination of the two. In the situation where some or all labor is provided by the owner, we recommend including a labor charge to reflect one of the following; the cost of hiring someone to perform the work, the minimum return the owner wants for his or her time, or the value of his or her time in some other activity, including leisure. In economic terminology this is an attempt to measure the opportunity cost of the owner's labor.

Revenue depends on prices and the specific characteristics of the animal. Animal prices fluctuate for a number of reasons including the time of year they are sold, weight, size and fleshiness, and whether animal are raised with special attributes such pasture finished. Prices and marketing costs are affected by the way animal are marketed, e.g., weekly auction, special sales, on-farm sales.

As can be seen from this discussion, these budgets estimate the full economic cost of production. Profit measures include returns above operating expenses and returns above all specified costs (operating, fixed and labor). These are only partial profit measures because the budgets do not include farm overhead costs or land charges. This is because, by definition, an enterprise budget refers to a particular farm enterprise, not the whole farm operation. Note that in some situations, particularly for large new enterprises, one or more annual budgets may be needed through the start-up period together with cash flow projections that include new borrowing and debt repayments.

Creating or modifying the budget template

Each spreadsheet has certain cells that are protected and others that the user can modify with his or her information. These cells are colored yellow or green. The yellow highlighted cells contain data or descriptions only, the green cells contain formulas or links to other worksheets that can be modified or overwritten with data. The following discussion indicates some of the structure and workings of the budgets. Specific budgets may include footnotes that help explain individual items in that budget.

For the main budget worksheet:

- The header describes the enterprise relating to that budget. It may be useful to modify this to describe the specific farm situation to which the budget refers.
- All of the operating expense items may be changed with the exception of:
 - Equipment Operating expenses, which are calculated from information contained in Tables 1 and 2 in the second worksheet of each budget and transferred to the main budget worksheet automatically, and
 - Interest charge on Annual Working Capital.
- Fixed costs are calculated from information contained in Tables 1 and 2 in the second budget worksheet and transfer automatically. There are one or two exceptions where the user enters the acres and cost per acre directly in the budget. This is done to provide flexibility and cover more farm situations.

The second worksheet for each budget contains three items:

- Table 1 with a list of the facilities and equipment used in the enterprise, calculations of the fixed or ownership costs and estimates of the share to be allocated to this particular enterprise.
- Table 2, which is linked to Table 1 and contains calculations of the estimated operating expenses for each item of equipment and the machinery labor requirement,
- A sensitivity analysis that shows the effect of changes in the assumptions about revenue and costs.

The following entries should be made in Table 1.

- Interest rate. This is used to calculate the annual interest charge on the average value of the investment in equipment. The rate used should reflect the cost of capital for the farm.
- Tax and insurance rate. This combined rate is used to calculate these cost items based on the average value of the equipment used in the enterprise. It is expressed as a percentage of the average investment.
- Individual facilities, pieces of equipment items and perennial pasture establishment costs, are listed. Tractor drawn or powered equipment is shown linked to the tractor providing the power. The following items, identified in the

column headings, should be evaluated for each piece of equipment and changed if warranted:

- The expected life of the facility or piece of equipment (or the planning horizon or economic life if less than the physical life),
- The initial cost (investment cost or purchase price including the value of any trade-in) and the estimated salvage value, if any. These values are used to calculate the annual depreciation charges. The example initial cost figures are Spring 2008 estimated prices. Example salvage values are calculated by formula as a percentage of the initial cost using “book values” developed from agricultural engineering data.
- Total fixed costs – depreciation, interest, tax and insurance
- Share to this enterprise. Facilities and equipment may be shared between two or more enterprises or farming activities. This figure is used to allocate the total fixed costs for a particular item to this particular goat enterprise.

The pro-rated share of total fixed cost calculated in Table 1 is transferred over to the main budget worksheet.

The following entries should be made in Table 2. The list of equipment transfers automatically from Table 1.

- Fuel price per gallon. This figure is used to calculate the fuel cost per hour for all self-propelled equipment listed.
- Labor cost per hour. This figure is used to calculate the machinery labor cost per hour for all equipment listed.
- Tractor horse power. This is used to estimate fuel consumption and cost.
- Repairs and maintenance. The annual cost figure is calculated as a percentage of the initial cost (purchase price). The percentages shown are “book values” based on new equipment prices and reflect the average annual cost over the life of the piece of equipment. These percentages are applied to the initial cost figures shown in table 1. If used equipment is purchased and priced in Table 1, the repairs and maintenance percentages will be higher than those shown in the example. A pro-rated share of the annual total cost is allocated to this enterprise based on the share reported in Table 1.
- Fuel use. For tractors and self-propelled equipment this is calculated from the horsepower figure provided. For farm vehicles, the fuel use per hour can be entered in the appropriate cell.
- Fuel and lube. This is based on the calculated fuel cost plus a percentage.
- Hours of use. This is the estimated use for the whole year for this enterprise and is used to calculate total operating expense. It is also used to calculate the labor cost of charge for the time spent operating each item of equipment.
- Labor cost. The equipment labor cost calculation includes a percentage to cover additional time spent, for example, adjusting and cleaning up equipment. Note that for some activities, the equipment might be running for less time than it takes to complete the activity. In this case, the additional labor should be

entered as “Livestock labor” on the main budget worksheet. One example might be pasture management, where some time is spent driving to pastures but then additional time may be spent on foot checking the animals, moving fences, cleaning or repairing waterers, etc. Similarly, when hay is being put out there may be additional tasks performed that do not require the tractor to be kept running.

Total operating expense per acre includes repairs and maintenance, fuel and lube, and the cost or charge for the time spent operating the equipment. These figures transfer automatically to the main enterprise budget.

Table 3 is a sensitivity analysis. The effects of the specified percentage increases or reductions in revenue and cost are shown, singly and in combination. The percentage change can be modified by the user. This provides a quick and simple way of evaluating alternative scenarios without re-running the entire budget. However, if the results are very sensitive to these percentage changes, it is important to review the entire budget carefully and verify these results by making more detailed changes to the original assumptions in the base budget.

Other Resources

North Carolina agriculture is very diverse and it is not possible to cover all the variations in animal production practices. There are enterprise budgets from many other states and agencies.

NCSU, on line at http://www.ag-econ.ncsu.edu/extension/Ag_budgets.html

Clemson University, on line at <http://cherokee.agecon.clemson.edu/budgets.htm>

Virginia Cooperative Extension, on line at <http://www.extension.agecon.vt.edu/enterprisebudgetsdetail.html>

Many others can be located through a searchable budget database located on a USDA Risk Management Agency web site at <http://www.agrisk.umn.edu/Budgets/>

The following items provide more information on the machinery and equipment costs and calculations:

"Estimating Farm Machinery Costs," Ag Decision Maker A3-29, Iowa State University, University Extension, April 2002 is a useful publication explaining machinery costs that can be found on-line at <http://www.extension.iastate.edu/agdm/crops/html/a3-29.html>

"Farm Machinery Cost Estimates," William F. Lazarus, Department of Applied Economics, University of Minnesota, March 2008, can be found on line at <http://www.extension.umn.edu/distribution/businessmanagement/DF6696.pdf>

"Agricultural Machinery Management Data," ASAE Standards, ASAE D497.4 FEB03, American Society of Agricultural Engineers.

“Meat Goats: Sustainable Production”, ATTRA - National Sustainable Agriculture Information Service, available on line at <http://attra.ncat.org/attra-pub/meatgoat.html>

The **Maryland Small Ruminant Web Page** has many links to all kinds of resources on small ruminant production and marketing, on line at <http://www.sheepandgoat.com/market.html>

SheepGoatMarketing.info is a web site serving as a national information resource for sheep and goat marketing, with special focus on the marketing of lamb and goat to the ethnic and religious markets, on line at <http://www.sheepgoatmarketing.info/>