

INTRODUCTION AND USE GUIDELINES

2015 GEORGIA COTTON COSTS AND RETURN BUDGET ESTIMATES

Don Shurley and Amanda Smith
Department of Agricultural and Applied Economics
University of Georgia

Annual enterprise budget estimates are intended as a general guide for planning and decision making. Estimates are prepared in cooperation with, and input from, the UGA Extension Cotton Team, County Extension Agents, and seed and chemical industry representatives. While great care is taken to prepare these estimates as close to “typical Georgia farm” situations as possible, there can be great variability in yield and costs among individual farms.

Price and Yield

A yield of 750 pounds per acre is assumed for non-irrigated production and 1,200 pounds per acre for irrigated production. While some farms and some locations may achieve higher or lower than this, these yields (750 and 1,200) are thought to be realistic and achievable yield goals for most producers.

A budgeted “planning price” of 70 cents per pound is assumed. This price is the expected season average price for cotton including Loan Deficiency Payment (LDP), if available. This price also assumes a strong basis and quality premiums as for the 2014 crop. During the marketing and growing season, pricing opportunities may be higher or lower than this but this is the expected average.

Land Rent

We do not include land rent directly in the budgets. Rent can vary widely based on many factors including location, soil productivity, expected income, and competition in the area. We do, however, include land rent as a factor in the “sensitivity analysis” discussed later.

Crop Insurance

Over 90% of Georgia’s cotton acreage planted is insured. The estimated premium shown in the budget is an average of Yield Coverage and Revenue Coverage at the 65% coverage level for 5 to 6 representative cotton counties. We then, for the same counties, add an average premium for STAX based on the 70-90% coverage band and 1.0 Protection Factor. Some counties and farms may be higher or lower than the estimate shown based on individual history.

Seed and Seed Treatments

Seed use and cost is determined based on row spacing and seed “drop rate” or the number of seed per foot of row. We assume 36-inch row spacing and 2 to 3 seed per foot for conventional tillage cotton and 2 ½ to 3 seed per foot for conservation tillage (strip-till) production. Row spacing and the number of seed per foot determine the number of seed planted per acre—36,300 seed per acre for conventional tillage and 39,930 seed per acre for strip-till.

Cost per acre is calculated based on the cost per 1,000 seed. We use a cost of \$2.39 per 1,000 seed. This is the estimated average cost, including technology fees, for the most popular varieties used by Georgia producers.

Seed treatment(s) are commonly used now by most Georgia producers. Essentially every acre planted has seed treated for thrips control. Seed treatments can range from the basic “thrips only” treatment to

a “3-way” insecticide-fungicide-nematicide treatment. These seed treatments can cost from \$0.22 to \$0.52 per 1,000 seed. We used \$0.35 per 1,000 seed as an average cost.

Fertilizers

Soil pH and fertility varies from farm to farm or even field to field. We assume a medium to medium-high soil test and fertilizer (P and K) use based on UGA Extension recommendations. Nitrogen use is based on the yield goal in the budget and also based on UGA recommendations. Nitrogen application and use will be higher than shown on sandier soils. Boron and sulfur costs are based on UGA recommended rates. Fertilizer prices shown are based on a survey of dealers as of November-December 2014 and February 2015.

Weed Control

We assume a herbicide program that is managing for control of glyphosate-resistant Palmer Amaranth (pig weed). This is an expensive regime. In the budget, cost estimates are shown by time of application (Preplant, PRE, POST, and Layby). While materials used and time of application may vary from situation to situation, when summing up for the entire year, the total cost for the season may not vary more than 10% from the estimate shown. Where applicable, we estimate costs assuming available rebate programs on the use of residual herbicides.

Insect Control

We assume a seed treatment for thrips control and this is shown as discussed earlier. Therefore, we show no in-furrow or foliar application made for thrips. We are assuming B2 or W seed technology so we also assume no spray treatments will be needed for caterpillar pests. We do, however, budget 2 sprays for control of stinkbugs. While this will be adequate in most situations, it may not be for all.

Nematicide and Fungicide, PGR, and Defoliation

We assume no applications needed for nematodes and diseases if not already included in seed treatments. Individual farm and field situations will vary, however.

Plant Growth Regulator (PGR) is inexpensive but use will vary depending on weather and growing conditions during the season, growth characteristics of the variety, and management. We budget for 2 applications totaling 26 ounces per acre on non-irrigated cotton and 3 applications totaling 36 ounces on irrigated cotton.

Defoliation is typically the last input cost and job before harvest. Late in the season, most growers will try not to over-spend but likewise want to insure a good job is done. The materials we budget, the rates, and cost are considered typical of most situations. We assume a little higher rates on irrigated cotton than non-irrigated. The rates and cost may also vary depending on the time of application.

Irrigation

On budgets for irrigated production, the number of applications shown is considered to be typical for a normal year without prolonged periods of drought. The cost per application assumes 1” applications and is the average of electric and diesel systems. The cost per application is variable costs only—fuel and/or electricity for pumping water and moving the pivot, labor, and repairs and maintenance on the motor, pump, and pivot.

Machinery and Equipment and Labor

Fuel, repairs, and labor depend on the type and size of machinery and equipment used and the production practices followed. We assume the farmer owns all of his/her equipment and utilizes no custom hire. Space is provided, however, to enter the cost of custom spray applications and custom

harvest, if applicable. A list of machinery and equipment used and field operations performed is shown on the second page of the budget. This can be modified using the spreadsheet version of the budget. Based on the production practices followed and acres/hour for each job (on page 2 of each budget), fuel and lube, repairs, and labor cost per acre are calculated.

Page 2 of each budget shows the estimated annual repair and maintenance cost for each item of machinery and equipment. Annual repairs and maintenance typically average about 2 ½ to 3% of new cost but can be lower earlier in the life of the item and higher as the item ages. A share of the annual repair cost is prorated to the cotton crop based on use of the item in cotton.

Page 2 of each budget estimates the per-job and total machinery field time (time of operation per acre). Labor time required is always more than machine time due to travel, setup, take down, and materials (seed, chemicals, etc.) handling. This additional labor requirement is accounted for by the LT/MT factor (the ratio of total labor time to actual in-field machine operation time) shown on page 1 of the budget.

An LT/MT of 1.5, for example, would mean that for every hour in the field another ½ hour is spent on other tasks related to machine time including travel, inputs handling, equipment adjustment, down time, etc. We assume an LT/MT factor of 1.5 for non-irrigated production and 1.65 for irrigated.

Interest

Inputs (variable costs) are purchased with cash, on account with the input supply dealer, or with funds provided by a bank operating loan. We assume an operating loan is used to purchase inputs at an annual rate of 6.5% for 6 months. The interest rate is shown in the budget and the number of months as a % of the year is shown ($6/12 = .50$).

Ginning and Warehousing

The costs assumed for ginning and warehousing are shown. Ginning is budgeted at 8 cents per pound but this is variable. Warehouse charges typically include 30 days storage, receiving, and load-out for a total of around \$10.50 per bale. An average bale weight of 500 lbs is assumed. Other costs include classing and state and national cotton organization/promotion fees.

We assume no charges by the gin for hauling or use of a module builder. We assume the producer owns the module builder. Some gins pay (reimburse) the producer for hauling of round modules. In our budgets, we do not include this payment but also do not include the cost of such hauling, if applicable.

These costs including ginning total 11.25 cents per pound (\$56.25 per bale)-- \$84.38 per acre for 750-lb non-irrigated production and \$135.00 per acre for 1,200-lb irrigated production. This cost is then reduced by the value of cottonseed. The amount of cottonseed is determined by the "gin turn-out" or T/O. A T/O of 40% is assumed. Adjusting for trash and moisture, this equates to approximately 1.25 lbs of seed per pound of lint yield.

Cottonseed is valued at an expected average price of \$175 per ton. This value of cottonseed is deducted from the costs of ginning, warehousing, etc. to arrive at a net cost per acre. At \$175 per ton for cottonseed, the net cost of ginning, warehousing, etc. is only \$1.55 per bale or \$2.33 per acre for non-irrigated production and \$3.72 per acre for irrigated production. In recent years, the price of cottonseed has been higher and the farmer actually received a rebate back on cottonseed but the price of cottonseed has declined.

Boll Weevil Eradication Program (BWEP)

The BWEP fee for 2015 is \$0.75 per bale. This is deducted and collected by the gin.

Net Return Above Variable Cost

The Net Return Above Variable Cost is an estimate of income per acre remaining to pay all other expenses including all fixed costs, overhead, and debt servicing. It is the income to reward machinery and equipment, irrigation (if applicable), overhead and miscellaneous expenses, land, and the farm owner/operators labor and management.

Fixed Costs

Annual fixed costs include depreciation, interest, and insurance on machinery and equipment and irrigation if applicable. Annual fixed costs are a function of (1) the number of years the item is used and (2) its dollar value at the end of that use. These costs are expressed (estimated) as a percentage of the new price for the item. These costs are then prorated to the cotton enterprise based on the percentage of its total annual use in cotton.

For example, if an item will be used 10 years and worth 25% of its original value at the end of 10 years, and if the rate of interest is 6.5% and insurance is .6% (\$6 per \$1,000 of new value), the annual fixed costs are estimated as:

$$\text{Depreciation} = (1 - .25) / 10 = .075 = 7.5\%$$

$$\text{Interest and Insurance} = (1 + .25) / 2 \times .071 = .0444 = 4.44\%$$

$$\text{Total} = 11.94\%$$

If the new purchase price of the item were \$90,000, the annual fixed cost would be estimated at \$10,746 (\$90,000 x 11.94%). If the item were used 60% of the time in cotton, the fixed cost to cotton would be \$6,448. If there are 900 acres of cotton, this would be \$7.16 per acre.

Sensitivity Analysis

Page 2 of the budget shows the Net Return Above Variable Cost at varying prices and yields. Price and yield shown are varied higher and lower than the budgeted price and yield. The Net Return is shown at varying amounts of land rent. This allows the user to see the ability to pay varying amounts of land rent and all other variable costs depending on changes and risk in price and yield.

Spreadsheet Budgets and Crop Comparison Tool (CCT)

In addition to the print version in PDF format, the budgets are also available in Microsoft Excel spreadsheet format. This allows users to change data and customize income, costs, and returns more closely to their specific farm situation. In Excel format, only the white cells can be changed. All other cells are protected.

A separate “Weed Control Cost Calculator” is also available in Excel format. This allows the user to build, calculate the cost per acre, and compare up to 3 weed control regimes side-by-side. Any of the programs can then “copy and paste” into the desired cotton budget.

Another valuable decision-aid is the Crop Comparison Tool (CCT). This is available in both PDF and Excel format. The CCT allows users to compare income, costs, and net returns of competing crops side-by-side. The CCT also contains detailed price and yield sensitivity analysis.

On the Web

The cotton budgets, other budgets, and the Crop Comparison Tool can be found on the web at:

<http://www.caes.uga.edu/departments/agecon/extension/>

The cotton budgets can also be found on the UGA Cotton web page at:

<http://www.ugacotton.com>