NOVEMBER 27, 2019

# U.S. BASELINE LAMB COST OF PRODUCTION ANALYSIS

## 2018 UPDATE

# Contents

## LIVESTOCK MARKETING INFORMATION CENTER (LMIC) WORKING GROUP

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## BACKGROUND

Lamb production occurs across the U.S. and in a variety of ecological zones. Each sheep operation is different, and this diversity is what provides U.S. consumers with the greatest amount of choice in the market place. Operational diversity is also reflected through differences in economic costs of production. Farm level production costs and risks have increased in the last decade for the livestock industry. The sheep industry spans several sectors, but the producer sector is the foundation and production economic aspects require careful documentation and estimation. The changes need to be described and evaluated and needs to include feedstuff costs, management practices, labor costs, predator losses, etc. A baseline analysis of the changing costs and risks associated with lamb production in the U.S. will help inform the industry from an educational, policy analysis, and applied research standpoint.

Many universities have budgets to assist producers, but they are not standardized, and most are updated irregularly. In this update (the second conducted), existing budgets and expertise were evaluated and adapted. As part of the lamb producer educational programs, all of the participants in this Livestock Marketing Information Center (LMIC) project have assisted with and reviewed development of the farm/ranch level budgets, in their respective regions.

The results of this project are useful in educational programs, policy analysis, and applied research for the U.S. lamb industry. Input and output data from this analysis will be easy to depict graphically and help with summarizing trends and provide supporting insight for future research in the sheep industry.

## OBJECTIVE

Provide the American Sheep Industry Association (ASI) with periodically updated baseline estimates regarding the on-farm/ranch costs of lamb production. Best-estimate industry parameters will be used to generate regionally representative budgets. Budgets will be constructed to facilitate a national aggregation and future updates.

Outputs of the analysis includes:

1) A brief summary of available university-based cost of production budgets for sheep
2) Final spreadsheets showing analysis input assumptions, regional budgets, and the national budget
3) A brief summary report describing the spreadsheets and the cost considerations included, and comments on how to annual update (data sources, etc.)

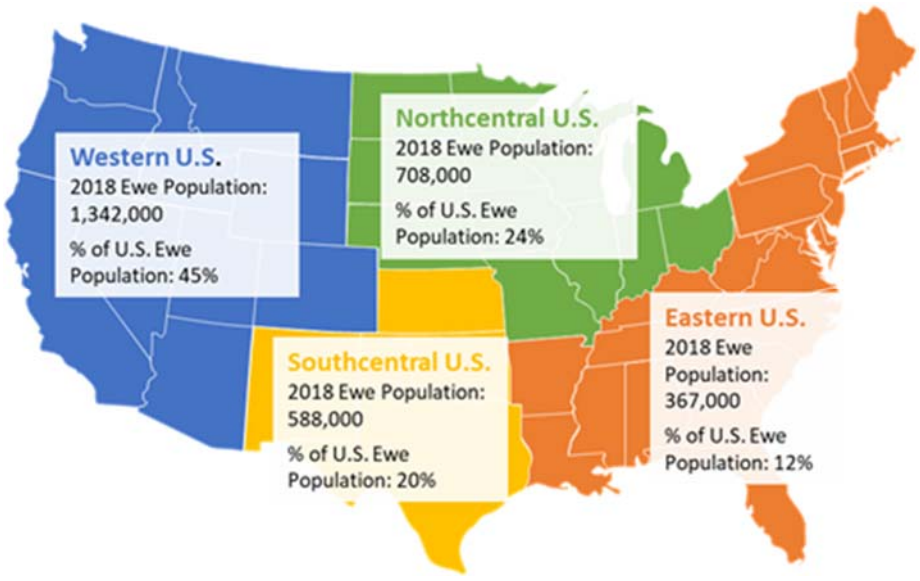
## SCOPE

The analysis focuses on the U.S. commercial meat and wool sheep industry, with a national analysis and a regional analysis of cost of production at the farm/ranch level. The U.S. regional breakout, for cost of production budgets, is defined in Table 1 and Figure 1 below.

*Table 1. Definition of U.S. regional break-out*

| Region | Representative State | Region's % of Total U.S. Ewe Population |
|---|---|---|
| Western U.S. | Wyoming | 45% |
| Northcentral U.S. | North Dakota | 24% |
| Southcentral U.S. | Texas | 20% |
| Eastern U.S. | Kentucky | 12% |

*Figure 1. Definition of U.S. regional break-out*




## METHODOLOGY

Using the representative state for each region, regional cost of production budgets for typical commercial flock sizes were developed in Microsoft Excel. Major economic parameters required to produce a lamb were incorporated along with performance assumptions (e.g. live lamb weight at time

of sale). Regional budgets were then aggregated, and weighted by the region's ewe flock, to construct a national baseline cost of production budget for commercial meat/wool sheep production. This has been completed in an annual view from 2010 through 2018.

The analysis included four major phases:

1) Review of existing budgets by region
2) Construction of master budget format
3) Development, review, and standardization of regional budgets
4) Aggregation and weighting of regional budgets to national baseline

***Cost of Production Budget Line Items:***

Each regional budget, and the national budget, include consistent line items annually from 2010 to 2018, denoted in $/ewe. The line items are listed in Table 2.

*Table 2. Budget line items for each region and the national budget*

| GROSS RECEIPTS | VARIABLE COSTS | FIXED COSTS |
|---|---|---|
| Lambs | Pasture | Housing & Improvement |
| Cull ewes | Federal Range | Machinery, Equipment, Vehicles |
| Cull rams | Hay | Interest on retained livestock |
| Wool | PRF Rainfall Insurance | Taxes & Insurance |
| | Feed Grain | Overhead |
| **TOTAL RECIEPTS** | Salt & Mineral | |
| | Vet & Medicine | **TOTAL FIXED COSTS** |
| | Breeding (ram cost per ewe) | |
| | Marketing & Hauling | |
| | Fuel, lube, repairs, utilities | |
| | Shearing ewes | |
| | Shearing rams | |
| | Predator Control | |
| | Dog Food | |
| | ALB Checkoff | |
| | Operator/Family Labor | |
| | Hired Labor | |
| | Camp Supplies | |
| | Housing Improvement & Repair | |
| | Interest on Operating Capital | |
| | | |
| | **TOTAL VARIABLE COSTS** | |
| | | |
| **TOTAL COSTS** | | |
| | | |
| **RETURNS** | | |

***Commercial Flock Size Assumptions by Region:***

For each region, a typical commercial flock size was assumed and are listed in Table 3, below.

*Table 3. Commercial flock assumptions by region / representative state*

| REGION / STATE | ASSUMED COMMERCIAL EWE FLOCK |
|---|---|
| Western U.S. / Wyoming | 1000 head |
| Northcentral U.S. / North Dakota | 250 head |
| Southcentral U.S. / Texas | 500 head |
| Eastern U.S. / Kentucky | 50 head |

The ewe flock size is an average representation of each region. Ram flock size was based on an average breeding rate of 31 ewes per ram, for all regions (Kentucky region has a slightly lower breeding rate).

***Regional Budget Data Sources and Assumptions:***

The regional budget variable and fixed costs were developed by the member cooperators and non-member cooperators of the working group. Variable and fixed costs are unique by region and can be found in their corresponding tabs of the excel spreadsheet (tabs labeled WY, ND, TX, KY). Each region's budget is formatted consistently, with receipts, costs, and returns calculated in $/mature ewe based on assumed commercial flock sizes by region.

Regional budget gross receipts include revenue generation from sale of lambs, cull ewes, cull rams, and wool. Given the lack of availability of regional pricing information for feeder lambs and wool, that the project team was confident in using, national annual price averages were used for those two revenue line items and their data sources. Price data sources used to calculate lamb and wool revenue are shown in Table 4 below.

*Table 4. Price data sources for lamb and wool revenue calculations*

| REVENUE ITEM | PRICE DATA SOURCE |
|---|---|
| Lambs | USDA-AMS reported 3-Market Feeder Lamb Price; simple annual average (calculated by LMIC) |
| Wool | USDA-NASS Annual Sheep and Goats Report; annual average U.S. wool price |

Average regional cull ewe prices were used to calculate revenue generation by region. Cull ram prices are more limited in availability; therefore, the same data source was used to calculate revenue generation from cull ram sales in Wyoming, North Dakota, and Texas regional budgets however, data was available to calculate a unique regional cull ram revenue for Kentucky. Data sources used for cull ewe and cull ram revenue calculations are in Table 5.

*Table 5. Price data sources, by region, for cull ewe and cull ram revenue calculations*

| REGION | CULL EWE PRICE DATA SOURCE | CULL RAM PRICE DATA SOURCE |
|---|---|---|
| Wyoming | A simple average of annual prices (calculated by LMIC) of slaughter ewes Good 2-4 from Fort Collins, CO Auction (weekly USDA-AMS report from Greeley, CO, LS 214 mailed in) and from Billings, MT Auction (weekly USDA-AMS report from Torrington, WY, LS 214 mailed in) | A simple average of annual prices (calculated by LMIC) from the weekly Sioux Falls Regional Sheep and Goat Auction report (USDA-AMS report SF_LS 333) of slaughter bucks, Medium Flesh, average weight of 245 pounds |
| North Dakota | A simple average of annual prices (calculated by LMIC) of slaughter ewes Good 2-3, 160-199 pounds, from Sioux Falls Regional Sheep and Goat Auction (weekly USDA-AMS report SF_LS 333) | |
| Texas | A simple average of annual prices (calculated by LMIC) of slaughter ewes Good 2- 4 from San Angelo Regional Sheep and Goat Auction (weekly USDA-AMS report SA_LS 350) | |
| Kentucky | A simple average of annual prices (calculated by LMIC) of slaughter ewes Good 1-3, 160-200 pounds, from New Holland, PA Sales Stables (weekly USDA-AMS report LN_LS 322) | A simple annual average of New Holland, PA weekly auction prices for slaughter bucks (calculated by LMIC), 160-200 pounds (USDA-AMS report LN_LS 322 |

Cull ram rate and cull ewe rate were set regionally, based on flock size/type and production practices. Mature ewe death loss rate was calculated as a simple average of the individual states in the defined region, from the USDA-NASS sheep death loss report (series maintained by LMIC). The regional total mature ewe flock is a summed total by state (for the states in each respective region) mature ewe flock inventory from the January Sheep and Goats report published by USDA-NASS. Regional average lambing percent is a simple average of each states' (in each respective region) lambing percent. By state lambing percent is calculated by the state's lamb crop divided by the state's mature ewe flock (lamb crop and mature ewe flock numbers from the UDSA-NASS Sheep and Goat January report).

Several input assumptions used in the regional calculations, were consistent across all regions. These input assumptions included: feeder lamb weight, cull ewe weight, cull ram weight, wool weight per ewe, feeder lamb price, and wool price. For the project, it was decided to use the same value across regions for these key input prices due to data availability, quality, and consistency. The inputs are listed in Table 6 below.

*Table 6. Input assumptions for regional budget revenue calculations*

| INPUT | ASSUMPTION |
|---|---|
| Feeder lamb weight | 75 pounds per lamb |
| Cull ewe weight | 170 pounds per ewe |
| Cull ram weight | 225 pounds per ram |
| Wool weight per ewe | 8 pounds per ewe (annually) |
| Feeder lamb price | 3-Market Average Annual Price |
| Wool Price | USDA-NASS Annual Sheep and Goats Report Average U.S. Wool Price |

All inputs used in the regional budget calculations are listed in the "Input" tab of the excel spreadsheet.

***Regional and National Budget Calculations:***

In each individual regional tab, the budget line item is calculated, except for variable and fixed costs that were estimated for 2015 and 2018. The national budget is then calculated as a weighted average, by mature ewe flock inventory of the defined regions, for each line item.

In the regional budgets, under gross receipts, revenue generated from sales of lambs is calculated using: the region's representative ewe flock (i.e. WY=1000 head, ND=250 head, etc.), average regional lambing percent, mature ewe cull rate and death loss (i.e. female lambs held back for flock replacement), feeder lamb weight, and feeder lamb price. It is assumed the majority of lamb death loss is captured in the average lambing percentage (although it is realized that states report this percentage differently). The calculated revenue is then divided by the region's representative ewe flock size (i.e. Wyoming region has a 1000 head ewe flock), to put the revenue on a $ per ewe basis.

Cull ewe revenue is calculated using each region's cull ewe rate, cull ewe price, and the cull ewe weight. Cull ram revenue is calculated similarly. Revenue from wool is calculated using the wool weight per ewe and the representative ewe flock and ram flock for the region. It is recognized that wool volume produced from ewes and rams will be different, however the difference is not enough to significantly affect the bottom-line revenue for the budget, so the same wool weight is used for both ewes and rams.

Variable and fixed costs were determined by each cooperating LMIC member and non-member, for their respective region, for 2015 and 2018. One note, in the Wyoming region starting in 2015, the hired labor variable cost includes the new wage rate of $1500 per month as determined by the Department of Labor. There are additional employee expenses (i.e. recruiting, transporting, etc.) associated with H2A employees that raise the annual salary expense to $22,000 per year. It is assumed, due to lack of federal land grazing and smaller average flock sizes in the rest of the U.S., this increased hired labor rate only applies to the Wyoming region. However, if a budget based on a larger flock size was analyzed for Texas or North Dakota, these increased labor rates would need to be factored in as well.

The national budget is then calculated using a weighted average of each region's budget items. Budget items are weighted by the region's total reported mature ewe flock inventory. That was done in attempt to give appropriate revenue and cost weights to areas in the U.S. where the majority of sheep are raised.

Each regional budget, and the national budget, have been calculated to show historical values from 2010 through 2018. On the revenue side, historical values are calculated using the data sources described above, for each respective year. For the variable and fixed costs, budgets were developed for 2015 and 2018 costs. Then, the reported Prices Paid by Farmers Index (reported by USDA-NASS in Monthly Agricultural Prices) was applied to the 2015 base cost numbers to calculate all other years (not including 2015 and 2018). The percent change year-to-year, in the prices paid index was used for this calculation, and can be found in the "Input" tab in row 5, column D through L.

***Sensitivity Analysis Results -- Lambing Percentage and Feeder Lamb Price:***

All simulations and sensitivity analysis were done using Simetar©.

Due to the importance of the regional lambing percentage, on the overall budget outcomes, a sensitivity analysis was performed on this variable and a stochastic value incorporated into a simulated 2018 budget. The historical series of annual average lambing percent by region, from 1990 to 2018, was used to calculate a stochastic lambing percentage variable. These variables were estimated using a normal[1] distribution for Kentucky, Wyoming and Texas and an empirical[2] distribution for North Dakota. The different types of distributions were chosen based on tests for normality. Then the variables were simulated 500 times to provide a probability curve and validate that the simulated variable did not have a statistically different mean and standard deviation compared to the original historical data series (for the normally distributed variables).

Kentucky, Wyoming and Texas were simulated using a normal distribution on a forecasted value based on the intercept and slope calculated from the historical series, and on the standard deviation calculated from the historical data series. North Dakota was simulated using an empirical distribution on the mean of the historical data, and percent deviations from the mean with corresponding probabilities.

*Table 7. Simulation Results for 2018 Lambing Percentage*

| | Wyoming | North Dakota | Texas | Kentucky |
|---|---|---|---|---|
| **Mean** | 116.16 | 131.61 | 95.22 | 117.35 |
| **StDev** | 5.38 | 6.79 | 5.26 | 6.98 |
| **CV** | 4.63 | 5.16 | 5.53 | 5.95 |
| **Min** | 99.39 | 119.95 | 78.27 | 96.50 |
| **Max** | 133.05 | 141.56 | 110.60 | 138.24 |

The results in table 7 above are based on the sensitivity analysis. For each region, the results show the mean (average) lambing percentage, the standard deviation (StDev), the coefficient of variation (CV), and the minimum and maximum simulated number. What this can immediately tell us, is that the model fits the variables fairly well (there is a low CV). Additionally, there is not a relatively large amount of deviation from the average percentage (small standard deviation) as one would expect for a regional

[1] Normal Distribution is a function that represents the distribution of many random variables as a symmetrical bell-shaped graph.

[2] Empirical Distribution is the distribution associated with the empirical measure of a sample and used to describe the observations of a given variable.

production variable. Additionally the Texas region, historically and simulated, shows the lowest lambing percentage by far.

Next, the 3 Market feeder lamb annual average price was simulated. The historical data of annual average prices from 1990 to 2018 was used. The stochastic variable was calculated using an empirical distribution on a forecasted value (forecasted using the calculated intercept and slope from the historical data), and percent deviations from trend with corresponding probabilities.

The results of this analysis are in the table 8 below. Compared to lambing percent, feeder lamb price shows relatively more variation and a less desirable model fit, but it does allow risk to be built into budget calculations for 2018.

*Table 8. Simulation Results for 2018 Feeder Lamb Price*

| Simulation Results, 2018 Average Feeder Lamb Price ($/cwt) | | |
|---|---|---|
| **Mean** | $ | 191.78 |
| **StDev** | $ | 75.93 |
| **CV** | $ | 39.59 |
| **Min** | $ | 86.71 |
| **Max** | $ | 349.64 |

The stochastic variables for lambing percentage and annual average feeder lamb price were both included in the 2018 regional budget calculations and national budget aggregation. The results of the 2018 average return simulation, in $ per mature ewe, are in table 9 below.

*Table 9. Simulation Results for 2018 Feeder Lamb Price*

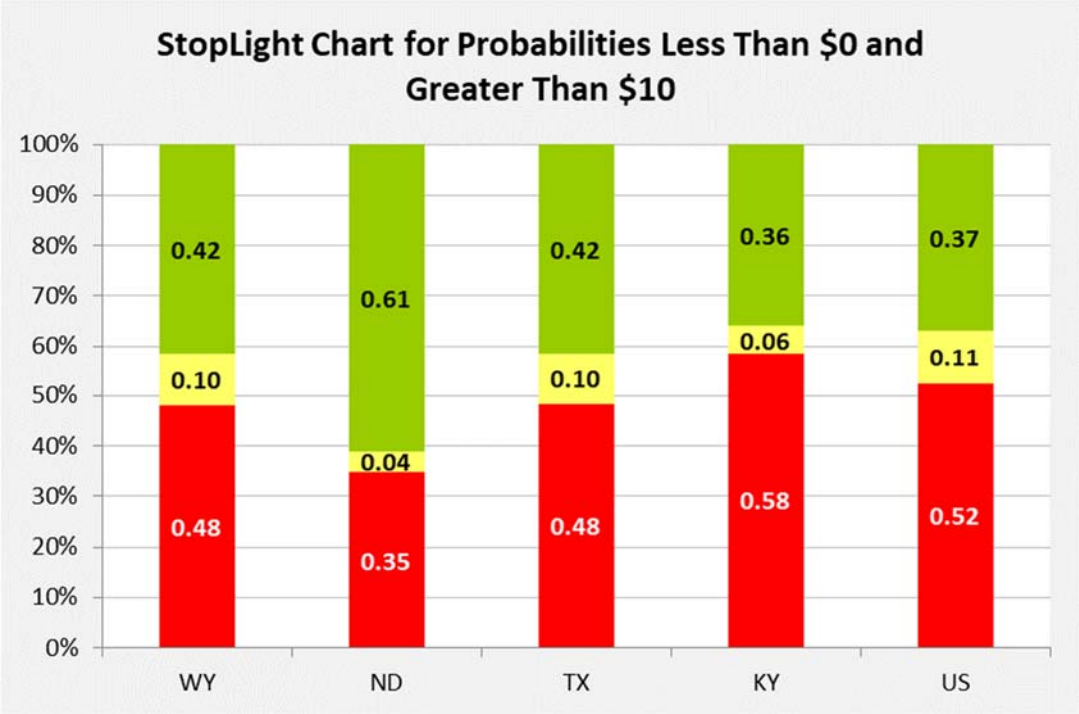
| Simulation Results, 2018 Average Returns | | | | | |
|---|---|---|---|---|---|
| **Return** | **WY** | **ND** | **TX** | **KY** | **National** |
| **($/ewe)** | $ 16.18 | $ 42.33 | $ 14.67 | $ 6.41 | $ 12.66 |

The values in Figure 2 are the estimated returns by region for 2018, and incorporates the probability and risk assessment. The Stoplight chart shows the probability, by region, of sheep producers showing negative returns per ewe in 2018 (red), the probability of returns between $0 and $10 per ewe (yellow), and the probability of returns over $10 per ewe (green). This includes the stochastic values for lambing percentage and annual average feeder lamb price, and shows the simulated risk involved in 2018 lamb production returns.

In the Stoplight chart, the probability that sheep producers, nationally, make more than $10 per mature ewe in 2018 is 37%, the probability that sheep producers make between $0 and $10 per mature ewe is 11%, and the probability that they lose money is 52%. This is an aggregated average and it is key to remember that all values in this budget are estimates. Moving on to the different regions, the North Dakota region has a high (61%) chance net returns will be more than $10 per mature ewe, 4% chance of making between $0 and $10, and a 35% chance net returns will be negative in 2018. The Wyoming and Texas regions show a 42% chance of making more than $10 per mature ewe, a 10% chance of returns

between $0 and $10, and a 48% chance that producers record a net loss in 2018. The Kentucky region shows estimated returns have a 36% probability of being greater than $10 per mature ewe, a 6% chance of recording between $10 and $0 per ewe, and a 58% chance of falling below $0 per ewe. The differences between regions largely result from differences in assumed average mature ewe flock size, cost structure, and lambing percent.

*Figure 2. National average returns analysis, $/ewe*



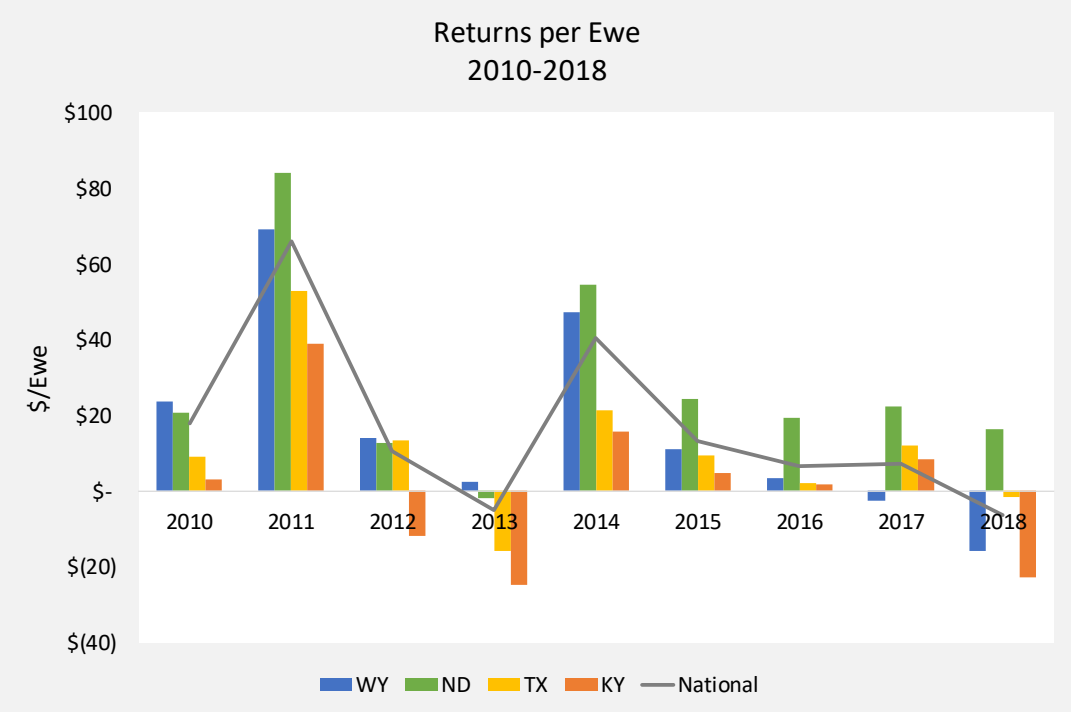

## RESULTS

It needs to be recognized that each sheep producer's operation is different, based on environment, production goals, breeding goals, and year-to-year market conditions. While these budgets are meant to be representative, it is not appropriate to assume they have fully captured the risk that sheep producers face on a day-to-day basis. Instead, the majority of value these baseline budgets provide, is the comparison year-to-year and over time, from a percent change standpoint instead of a point value perspective.

Starting at the national level, Figure 3 depicts the analysis results of returns per ewe (gross receipts less total costs) for eight years of budget calculations that this project provides. Returns were positive all years except 2013 and 2018. The 3-Market Average feeder lamb price posted its lowest point in 2013 for the analyzed time period. A point to note is the national returns downward trend, starting in 2015. This corresponds with increased labor costs based on new H-2A regulations, specifically for the Wyoming region.

At the regional level, typically the Western (Wyoming) and Northcentral (North Dakota) regions showed the highest return per ewe. North Dakota's returns per ewe were noticeably higher than Wyoming's from 2015 and on. This is due to the assumed average flock size in North Dakota being smaller than that of Wyoming, and therefore a herder is not needed, and the higher labor costs are not incurred. Kentucky experienced negative returns three of the nine years, and Texas experienced negative returns two of the nine years.

*Figure 3. National average returns analysis, $/ewe*

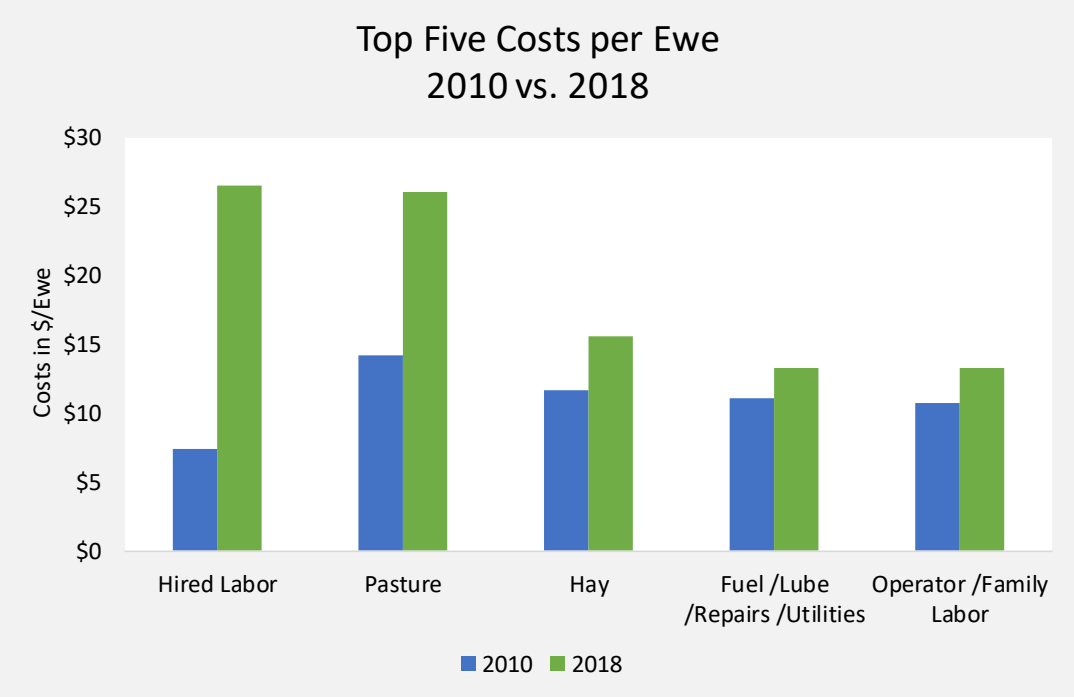



By analyzing the variable costs of the national budget, the top five 2018 costs that accounted for the largest portions of total variable costs were; and percent of total variable costs were:

1. Hired labor; 19%
2. Pasture; 19%
3. Hay; 11%
4. Fuel, lube, repairs, utilities; 9%
5. Operator/Family Labor; 9%

When analyzing these costs over time, at a national level, producers have experienced significant increases in these five costs from 2010 to 2018 (shown in Figure 4). Over the span of eight years, hired labor costs have increased 258%, pasture costs increased 84%, hay costs increased 33%, fuel/lube/repairs/utilities costs increased 20%, and operator/family labor costs increased 24%.

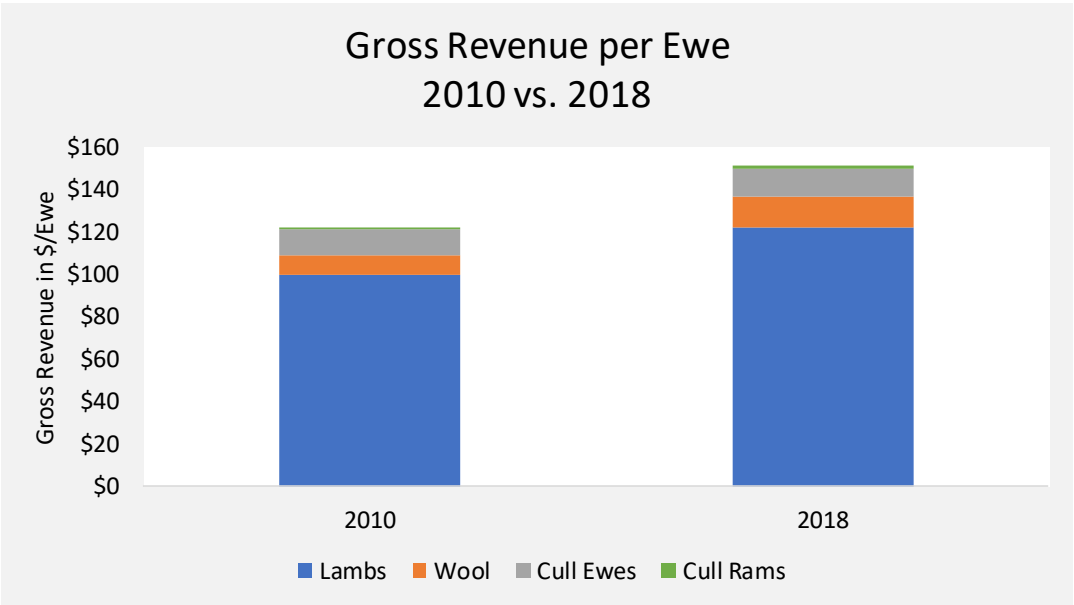
*Figure 4. Change in variable costs, 2010 compared 2018*




Contrasting cost increases with revenue stream increases, from 2010 to 2018, the 3-Market Average Annual Feeder Lamb price increased 23%, the annual wool price increased 52%, annual average cull ewe price increased 12%, and annual average cull ram price increased 16% (Figure 5).

Please see the appendix for full budget results, by region and nationally.

*Figure 5. Change in gross revenue, 2010 compared 2018*



## RECOMMENDATION FOR UPDATING THE BUDGET AND FOR FUTURE WORK

This budget was developed with the goal to allow regular updating. Keeping this budget up to date will provide a barometer for the industry and allow analysts and industry to gauge change over time. The LMIC would propose that appropriate input values be updated annually, when all data becomes available. Due to the nature of the livestock industry, LMIC proposes the budget be reviewed at least every five years, and altered if necessary, to account for any industry shifts. Alterations and changes should be well documented in a corresponding file. LMIC offers to keep the background data updated on an annual basis.

Any key industry shifts will impact this budget and may require a structural or significant change to the way this budget is organized and analyzed. Current key industry topics that should be explored further and can use this project as supporting detail are:

- Increase in the use of hair sheep in Texas (a top market in the sheep industry)
  - For an example of some work done in this area please refer to the Texas A&M University, in conjunction with ASI, study "Small Ruminant Price Analysis Project"
- Growth in non-traditional markets
  - For an example of some work done in this area please refer to the ASI "Nontraditional Market Study"
- Labor issues in all regions
- Concerns regarding feeder lamb data and how representative it is of industry reality

## HOW TO USE THE BUDGET EXCEL FILE

This budget can be manipulated to show the effect of different revenue and cost inputs. Detailed instructions can be found on the "How to Use" tab. Due to how the budgets and calculations are organized, for the revenue calculations, changes can only be made in the "Inputs" tab. All calculations in regional tabs are referencing cells of the "Inputs" tab. For the variable and fixed costs, changes can only be made to line items in each regional budget tab. Of course, this recommended method of making changes is only required to avoid changing any formulas.

The spreadsheet file, "2018_ASI Budget.xls" contains all calculations, inputs, and assumptions. The tabs in the spreadsheet, in order, are: WY, ND, TX, KY, National, Inputs. The WY, ND, TX, KY tabs are the regional budgets. The "National" tab is a weighted average of the regional budgets. The "Input" tab has all data used in the regional budget calculations. All budgets have calculation results from 2010 through 2018 and have been developed to be updated annually as resources allow.

## PROJECT HISTORY

- Original submission to ASI for initial review on May 31, 2016.
- This report was updated, correcting ASI Checkoff to ALB Checkoff and correcting 2010-2015 hired labor costs for Wyoming. It was resubmitted to ASI on June 15, 2016.
- An update of that report was submitted to LMIC for initial review on April 1, 2019.
  - Updates include:
    - Analysis update through 2018
    - Correction to calculation of live lambs sold
    - Correction in some Texas line item costs/ewe

- This report includes updated with simulation and sensitivity analysis results from 2010 to 2018. The updated report was submitted to ASI on October 23, 2019.

## APPENDIX

## Western U.S. / Wyoming Regional Budget Results

| | $/Ewe | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| | WY | WY | WY | WY | WY | WY | WY | WY | WY |
| **GROSS RECEIPTS** | | | | | | | | | |
| Lambs | 94.21 | 142.52 | 96.11 | 90.68 | 136.39 | 119.76 | 114.73 | 115.64 | 113.40 |
| Cull ewes | 13.65 | 16.77 | 13.72 | 10.25 | 15.10 | 17.90 | 18.19 | 17.75 | 16.28 |
| Cull rams | 0.68 | 0.70 | 0.67 | 0.51 | 0.59 | 0.77 | 0.72 | 0.71 | 0.69 |
| Wool | 9.50 | 13.80 | 12.56 | 11.98 | 12.07 | 11.98 | 11.98 | 12.23 | 14.46 |
| | | | | | | | | | |
| **TOTAL RECIEPTS** | 118.05 | 173.80 | 123.06 | 113.43 | 164.16 | 150.41 | 145.62 | 146.33 | 144.83 |
| | | | | | | | | | |
| **VARIABLE COSTS** | | | | | | | | | |
| Pasture | 10.98 | 12.20 | 12.73 | 12.96 | 13.66 | 13.50 | 14.74 | 15.98 | 17.22 |
| Federal Range | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.12 |
| Hay | 5.87 | 6.52 | 6.81 | 6.93 | 7.30 | 7.22 | 6.91 | 6.95 | 7.60 |
| PRF Rainfall Insurance | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Feed Grain | 1.23 | 1.36 | 1.42 | 1.45 | 1.53 | 1.51 | 1.44 | 1.45 | 1.51 |
| Salt & Mineral | 0.49 | 0.54 | 0.57 | 0.58 | 0.61 | 0.60 | 0.57 | 0.58 | 0.60 |
| Vet & Medicine | 0.51 | 0.57 | 0.59 | 0.60 | 0.64 | 0.63 | 0.60 | 0.61 | 0.81 |
| Breeding (ram cost per ewe) | 4.47 | 4.97 | 5.19 | 5.28 | 5.56 | 5.50 | 5.26 | 5.30 | 5.41 |
| Marketing & Hauling | 3.41 | 3.79 | 3.96 | 4.03 | 4.25 | 4.20 | 4.02 | 4.04 | 4.20 |
| Fuel, lube, repairs, utilities | 8.39 | 9.32 | 9.73 | 9.91 | 10.44 | 10.32 | 9.87 | 9.94 | 10.85 |
| Shearing ewes | 3.09 | 3.43 | 3.58 | 3.65 | 3.84 | 3.80 | 3.64 | 3.66 | 5.00 |
| Shearing rams | 0.19 | 0.21 | 0.22 | 0.22 | 0.23 | 0.23 | 0.22 | 0.22 | 0.23 |
| Predator Control | 0.81 | 0.90 | 0.94 | 0.96 | 1.01 | 1.00 | 0.96 | 0.96 | 0.98 |
| Dog Food | 1.63 | 1.81 | 1.89 | 1.92 | 2.02 | 2.00 | 1.91 | 1.93 | 2.20 |
| ALB Checkoff | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| Operator/Family Labor | 10.98 | 12.20 | 12.73 | 12.96 | 13.66 | 13.50 | 12.91 | 13.00 | 13.50 |
| Hired Labor | 16.26 | 18.07 | 18.86 | 19.21 | 20.23 | 44.00 | 48.91 | 53.83 | 58.74 |
| Camp Supplies | 4.07 | 4.52 | 4.72 | 4.80 | 5.06 | 5.00 | 4.78 | 4.81 | 5.55 |
| Housing Improvement & Repair | 0.59 | 0.65 | 0.68 | 0.69 | 0.73 | 0.72 | 0.69 | 0.69 | 0.71 |
| Interest on Operating Capital | 0.85 | 0.95 | 0.99 | 1.01 | 1.06 | 1.05 | 1.00 | 1.01 | 1.03 |
| | | | | | | | | | |
| **TOTAL VARIABLE COSTS** | 76.38 | 84.59 | 88.19 | 89.75 | 94.43 | 117.36 | 121.03 | 127.55 | 138.81 |
| | | | | | | | | | |
| **FIXED COSTS** | | | | | | | | | |
| *Capital Recovery* | | | | | | | | | |
| Housing & Improvement | 0.81 | 0.90 | 0.94 | 0.96 | 1.01 | 1.00 | 0.96 | 0.96 | 0.98 |
| Machinery, Equipment, Vehicles | 4.72 | 5.24 | 5.47 | 5.57 | 5.87 | 5.80 | 5.55 | 5.59 | 5.71 |
| Interest on retained livestock | 5.08 | 5.65 | 5.89 | 6.00 | 6.32 | 6.25 | 5.98 | 6.02 | 6.15 |
| Taxes & Insurance | 0.65 | 0.72 | 0.75 | 0.77 | 0.81 | 0.80 | 0.77 | 0.77 | 0.79 |
| Overhead | 6.67 | 7.41 | 7.73 | 7.87 | 8.30 | 8.20 | 7.84 | 7.90 | 8.07 |
| | | | | | | | | | |
| **TOTAL FIXED COSTS** | 17.93 | 19.92 | 20.80 | 21.17 | 22.31 | 22.05 | 21.09 | 21.23 | 21.69 |
| | | | | | | | | | |
| **TOTAL COSTS** | 94.31 | 104.50 | 108.99 | 110.93 | 116.74 | 139.41 | 142.12 | 148.78 | 160.50 |
| | | | | | | | | | |
| **RETURNS** | 23.74 | 69.29 | 14.07 | 2.50 | 47.42 | 11.00 | 3.50 | -2.45 | -15.67 |

## Northcentral U.S. / North Dakota Regional Budget Results

| | $/Ewe | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **GROSS RECEIPTS** | | | | | | | | | |
| Lambs | 122.55 | 193.45 | 130.83 | 123.18 | 184.53 | 149.81 | 144.64 | 150.46 | 149.06 |
| Cull ewes | 9.65 | 11.27 | 9.54 | 6.04 | 8.48 | 11.14 | 10.32 | 11.03 | 9.73 |
| Cull rams | 0.66 | 0.68 | 0.65 | 0.49 | 0.58 | 0.75 | 0.70 | 0.69 | 0.67 |
| Wool | 9.49 | 13.79 | 12.55 | 11.97 | 12.05 | 11.97 | 11.97 | 12.22 | 14.45 |
| | | | | | | | | | |
| **TOTAL RECIEPTS** | 142.35 | 219.19 | 153.57 | 141.68 | 205.65 | 173.66 | 167.63 | 174.39 | 173.91 |
| | | | | | | | | | |
| **VARIABLE COSTS** | | | | | | | | | |
| Pasture | 15.93 | 17.71 | 18.48 | 18.82 | 19.83 | 19.60 | 21.40 | 23.20 | 25.00 |
| Federal Range | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hay | 24.39 | 27.10 | 28.29 | 28.81 | 30.35 | 30.00 | 31.33 | 32.67 | 34.00 |
| PRF Rainfall Insurance | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Feed Grain | 14.63 | 16.26 | 16.98 | 17.28 | 18.21 | 18.00 | 17.22 | 17.33 | 17.71 |
| Salt & Mineral | 5.53 | 6.14 | 6.41 | 6.53 | 6.88 | 6.80 | 6.51 | 6.55 | 6.69 |
| Vet & Medicine | 5.69 | 6.32 | 6.60 | 6.72 | 7.08 | 7.00 | 6.70 | 6.74 | 6.89 |
| Breeding (ram cost per ewe) | 4.88 | 5.42 | 5.66 | 5.76 | 6.07 | 6.00 | 5.74 | 5.78 | 5.90 |
| Marketing & Hauling | 4.47 | 4.97 | 5.19 | 5.28 | 5.56 | 5.50 | 5.26 | 5.30 | 5.41 |
| Fuel, lube, repairs, utilities | 7.32 | 8.13 | 8.49 | 8.64 | 9.11 | 9.00 | 8.61 | 8.67 | 8.85 |
| Shearing ewes | 4.07 | 4.52 | 4.72 | 4.80 | 5.06 | 5.00 | 4.78 | 4.81 | 4.92 |
| Shearing rams | 0.33 | 0.36 | 0.38 | 0.38 | 0.40 | 0.40 | 0.38 | 0.39 | 0.39 |
| Predator Control | 1.63 | 1.81 | 1.89 | 1.92 | 2.02 | 2.00 | 1.91 | 1.93 | 1.97 |
| Dog Food | 0.81 | 0.90 | 0.94 | 0.96 | 1.01 | 1.00 | 0.96 | 0.96 | 0.98 |
| ALB Checkoff | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| Operator/Family Labor | 14.63 | 16.26 | 16.98 | 17.28 | 18.21 | 18.00 | 17.22 | 17.33 | 17.71 |
| Hired Labor | 0.61 | 0.68 | 0.71 | 0.72 | 0.76 | 0.75 | 0.83 | 0.92 | 1.00 |
| Camp Supplies | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Housing Improvement & Repair | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Interest on Operating Capital | 4.41 | 4.90 | 5.11 | 5.20 | 5.48 | 5.42 | 5.18 | 5.22 | 5.42 |
| | | | | | | | | | |
| **TOTAL VARIABLE COSTS** | 109.88 | 122.02 | 127.37 | 129.68 | 136.60 | 135.02 | 134.59 | 138.34 | 143.39 |
| | | | | | | | | | |
| **FIXED COSTS** | | | | | | | | | |
| *Capital Recovery* | | | | | | | | | |
| Housing & Improvement | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Machinery, Equipment, Vehicles | 4.07 | 4.52 | 4.72 | 4.80 | 5.06 | 5.00 | 4.78 | 4.81 | 4.92 |
| Interest on retained livestock | 2.44 | 2.71 | 2.83 | 2.88 | 3.04 | 3.00 | 2.87 | 2.89 | 2.95 |
| Taxes & Insurance | 1.85 | 2.06 | 2.15 | 2.19 | 2.31 | 2.28 | 2.18 | 2.20 | 2.24 |
| Overhead | 3.25 | 3.61 | 3.77 | 3.84 | 4.05 | 4.00 | 3.83 | 3.85 | 3.93 |
| | | | | | | | | | |
| **TOTAL FIXED COSTS** | 11.61 | 12.90 | 13.47 | 13.71 | 14.45 | 14.28 | 13.66 | 13.75 | 14.05 |
| | | | | | | | | | |
| **TOTAL COSTS** | 121.48 | 134.92 | 140.83 | 143.39 | 151.05 | 149.30 | 148.25 | 152.09 | 157.44 |
| | | | | | | | | | |
| **RETURNS** | 20.86 | 84.27 | 12.74 | -1.70 | 54.60 | 24.36 | 19.38 | 22.30 | 16.47 |

## Southcentral U.S. / Texas Regional Budget Results

| | $/Ewe | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| | TX | TX | TX | TX | TX | TX | TX | TX | TX |
| **GROSS RECEIPTS** | | | | | | | | | |
| Lambs | 79.84 | 126.34 | 91.87 | 83.62 | 115.59 | 108.85 | 110.61 | 114.63 | 106.52 |
| Cull ewes | 10.12 | 11.26 | 10.93 | 8.11 | 11.16 | 13.45 | 12.26 | 13.06 | 11.16 |
| Cull rams | 0.44 | 0.46 | 0.43 | 0.33 | 0.38 | 0.50 | 0.46 | 0.46 | 0.44 |
| Wool | 9.49 | 13.79 | 12.55 | 11.97 | 12.05 | 11.97 | 11.97 | 12.22 | 14.45 |
| | | | | | | | | | |
| **TOTAL RECIEPTS** | 99.90 | 151.84 | 115.78 | 104.03 | 139.19 | 134.77 | 135.31 | 140.37 | 132.58 |
| | | | | | | | | | |
| **VARIABLE COSTS** | | | | | | | | | |
| Pasture | 18.00 | 18.00 | 18.00 | 18.00 | 24.00 | 36.00 | 48.00 | 48.00 | 48.00 |
| Federal Range | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hay | 6.83 | 7.59 | 7.92 | 13.80 | 9.00 | 8.40 | 7.95 | 7.25 | 7.25 |
| PRF Rainfall Insurance | 4.15 | 4.61 | 4.81 | 5.10 | 5.10 | 5.10 | 5.10 | 5.10 | 6.66 |
| Feed Grain | 1.92 | 2.13 | 2.23 | 5.94 | 3.25 | 2.36 | 1.93 | 1.57 | 1.57 |
| Salt & Mineral | 5.54 | 6.15 | 6.42 | 6.48 | 6.79 | 6.81 | 6.81 | 1.04 | 1.04 |
| Vet & Medicine | 1.24 | 1.37 | 1.43 | 1.75 | 1.53 | 1.52 | 1.52 | 2.43 | 3.93 |
| Breeding (ram cost per ewe) | 6.34 | 7.05 | 7.36 | 7.49 | 7.89 | 7.80 | 7.80 | 7.80 | 7.80 |
| Marketing & Hauling | 3.38 | 3.76 | 3.92 | 3.20 | 3.72 | 4.16 | 4.16 | 4.16 | 4.16 |
| Fuel, lube, repairs, utilities | 22.47 | 24.97 | 26.07 | 32.49 | 30.18 | 27.64 | 22.52 | 24.50 | 26.35 |
| Shearing ewes | 2.64 | 2.94 | 3.07 | 4.00 | 4.00 | 3.25 | 3.25 | 3.25 | 3.25 |
| Shearing rams | 0.37 | 0.41 | 0.42 | 0.43 | 0.46 | 0.45 | 0.45 | 0.45 | 0.45 |
| Predator Control | 1.71 | 1.90 | 1.98 | 2.10 | 2.10 | 2.10 | 2.10 | 2.10 | 2.10 |
| Dog Food | 0.81 | 0.90 | 0.94 | 0.96 | 1.01 | 1.00 | 1.00 | 1.25 | 1.50 |
| ALB Checkoff | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| Operator/Family Labor | 1.46 | 1.63 | 1.70 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| Hired Labor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Camp Supplies | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Housing Improvement & Repair | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Interest on Operating Capital | 2.45 | 2.72 | 2.84 | 2.74 | 2.74 | 3.01 | 5.26 | 4.06 | 4.44 |
| | | | | | | | | | |
| **TOTAL VARIABLE COSTS** | 79.85 | 86.66 | 89.66 | 106.83 | 104.12 | 111.95 | 120.20 | 115.31 | 120.85 |
| | | | | | | | | | |
| **FIXED COSTS** | | | | | | | | | |
| *Capital Recovery* | | | | | | | | | |
| Housing & Improvement | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Machinery, Equipment, Vehicles | 5.12 | 5.69 | 5.94 | 6.05 | 6.37 | 6.30 | 6.03 | 6.07 | 6.20 |
| Interest on retained livestock | 2.44 | 2.71 | 2.83 | 2.88 | 3.04 | 3.00 | 2.87 | 2.89 | 2.95 |
| Taxes & Insurance | 0.98 | 1.08 | 1.13 | 1.15 | 1.21 | 1.20 | 1.15 | 1.16 | 1.18 |
| Overhead | 2.44 | 2.71 | 2.83 | 2.88 | 3.04 | 3.00 | 2.87 | 2.89 | 2.95 |
| | | | | | | | | | |
| **TOTAL FIXED COSTS** | 10.98 | 12.20 | 12.73 | 12.96 | 13.66 | 13.50 | 12.91 | 13.00 | 13.28 |
| | | | | | | | | | |
| **TOTAL COSTS** | 90.83 | 98.86 | 102.39 | 119.80 | 117.78 | 125.45 | 133.11 | 128.31 | 134.13 |
| | | | | | | | | | |
| **RETURNS** | 9.07 | 52.99 | 13.39 | -15.77 | 21.42 | 9.32 | 2.19 | 12.06 | -1.55 |

## Eastern U.S. / Kentucky Regional Budget Results

| | $/Ewe | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| | KY | KY | KY | KY | KY | KY | KY | KY | KY |
| **GROSS RECEIPTS** | | | | | | | | | |
| Lambs | 107.56 | 150.92 | 110.47 | 102.65 | 147.96 | 134.10 | 128.21 | 136.73 | 128.04 |
| Cull ewes | 11.59 | 13.47 | 11.45 | 9.74 | 12.22 | 12.84 | 11.72 | 12.30 | 11.10 |
| Cull rams | 3.37 | 3.74 | 2.95 | 2.76 | 3.68 | 4.14 | 3.85 | 4.10 | 4.12 |
| Wool | 9.57 | 13.89 | 12.65 | 12.06 | 12.15 | 12.06 | 12.06 | 12.31 | 14.56 |
| | | | | | | | | | |
| **TOTAL RECIEPTS** | 132.09 | 182.03 | 137.51 | 127.22 | 176.02 | 163.15 | 155.84 | 165.45 | 157.82 |
| | | | | | | | | | |
| **VARIABLE COSTS** | | | | | | | | | |
| Pasture | 16.26 | 18.07 | 18.86 | 19.21 | 20.23 | 20.00 | 21.84 | 23.67 | 25.51 |
| Federal Range | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hay | 15.93 | 17.71 | 18.48 | 18.82 | 19.83 | 19.60 | 18.75 | 18.87 | 22.21 |
| PRF Rainfall Insurance | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Feed Grain | 29.67 | 32.97 | 34.42 | 35.05 | 36.93 | 36.50 | 34.92 | 35.15 | 42.80 |
| Salt & Mineral | 2.93 | 3.25 | 3.40 | 3.46 | 3.64 | 3.60 | 3.44 | 3.47 | 4.40 |
| Vet & Medicine | 4.88 | 5.42 | 5.66 | 5.76 | 6.07 | 6.00 | 5.74 | 5.78 | 6.60 |
| Breeding (ram cost per ewe) | 5.69 | 6.32 | 6.60 | 6.72 | 7.08 | 7.00 | 6.70 | 6.74 | 9.00 |
| Marketing & Hauling | 5.02 | 5.58 | 5.83 | 5.93 | 6.25 | 6.18 | 5.91 | 5.95 | 8.11 |
| Fuel, lube, repairs, utilities | 9.76 | 10.84 | 11.32 | 11.52 | 12.14 | 12.00 | 11.48 | 11.56 | 10.00 |
| Shearing ewes | 4.07 | 4.52 | 4.72 | 4.80 | 5.06 | 5.00 | 4.78 | 4.81 | 7.28 |
| Shearing rams | 0.37 | 0.41 | 0.42 | 0.43 | 0.46 | 0.45 | 0.43 | 0.43 | 0.72 |
| Predator Control | 1.63 | 1.81 | 1.89 | 1.92 | 2.02 | 2.00 | 1.91 | 1.93 | 4.00 |
| Dog Food | 0.81 | 0.90 | 0.94 | 0.96 | 1.01 | 1.00 | 0.96 | 0.96 | 1.50 |
| ALB Checkoff | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 | 0.55 |
| Operator/Family Labor | 18.29 | 20.33 | 21.22 | 21.61 | 22.76 | 22.50 | 21.52 | 21.67 | 22.13 |
| Hired Labor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Camp Supplies | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Housing Improvement & Repair | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Interest on Operating Capital | 4.83 | 5.37 | 5.60 | 5.70 | 6.01 | 5.94 | 5.68 | 5.72 | 5.94 |
| | | | | | | | | | |
| **TOTAL VARIABLE COSTS** | 120.69 | 134.04 | 139.91 | 142.45 | 150.06 | 148.32 | 144.62 | 147.26 | 170.75 |
| | | | | | | | | | |
| **FIXED COSTS** | | | | | | | | | |
| *Capital Recovery* | | | | | | | | | |
| Housing & Improvement | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Machinery, Equipment, Vehicles | 1.95 | 2.17 | 2.26 | 2.30 | 2.43 | 2.40 | 2.30 | 2.31 | 2.36 |
| Interest on retained livestock | 2.11 | 2.35 | 2.45 | 2.50 | 2.63 | 2.60 | 2.49 | 2.50 | 2.56 |
| Taxes & Insurance | 1.63 | 1.81 | 1.89 | 1.92 | 2.02 | 2.00 | 1.91 | 1.93 | 1.97 |
| Overhead | 2.44 | 2.71 | 2.83 | 2.88 | 3.04 | 3.00 | 2.87 | 2.89 | 2.95 |
| | | | | | | | | | |
| **TOTAL FIXED COSTS** | 8.13 | 9.03 | 9.43 | 9.60 | 10.12 | 10.00 | 9.57 | 9.63 | 9.84 |
| | | | | | | | | | |
| **TOTAL COSTS** | 128.82 | 143.07 | 149.34 | 152.05 | 160.17 | 158.32 | 154.18 | 156.89 | 180.59 |
| | | | | | | | | | |
| **RETURNS** | 3.27 | 38.96 | -11.83 | -24.83 | 15.85 | 4.83 | 1.66 | 8.56 | -22.77 |

## National / U.S. Budget Results

| | $/Ewe | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| | Nat'l | Nat'l | Nat'l | Nat'l | Nat'l | Nat'l | Nat'l | Nat'l | Nat'l |
| **GROSS RECEIPTS** | | | | | | | | | |
| Lambs | 99.68 | 152.20 | 105.60 | 98.75 | 145.32 | 126.50 | 122.64 | 126.13 | 122.24 |
| Cull ewes | 11.73 | 13.98 | 11.94 | 8.80 | 12.47 | 14.92 | 14.46 | 14.65 | 13.10 |
| Cull rams | 0.91 | 0.98 | 0.87 | 0.74 | 0.92 | 1.12 | 1.05 | 1.07 | 1.05 |
| Wool | 9.51 | 13.81 | 12.57 | 11.99 | 12.07 | 11.99 | 11.99 | 12.24 | 14.47 |
| | | | | | | | | | |
| **TOTAL RECIEPTS** | 121.82 | 180.97 | 130.98 | 120.29 | 170.79 | 154.52 | 150.14 | 154.09 | 150.87 |
| | | | | | | | | | |
| **VARIABLE COSTS** | | | | | | | | | |
| Pasture | 14.18 | 15.33 | 15.77 | 16.00 | 17.80 | 19.74 | 23.26 | 24.53 | 26.09 |
| Federal Range | 0.90 | 0.91 | 0.94 | 0.94 | 0.93 | 0.95 | 0.93 | 0.93 | 0.95 |
| Hay | 11.69 | 12.85 | 13.65 | 14.83 | 14.56 | 14.21 | 14.27 | 14.45 | 15.54 |
| PRF Rainfall Insurance | 0.84 | 0.94 | 0.84 | 0.88 | 0.94 | 0.92 | 0.93 | 0.94 | 1.30 |
| Feed Grain | 7.64 | 8.54 | 9.11 | 10.08 | 10.01 | 9.65 | 9.36 | 9.26 | 10.38 |
| Salt & Mineral | 3.01 | 3.31 | 3.36 | 3.38 | 3.59 | 3.52 | 3.46 | 2.41 | 2.58 |
| Vet & Medicine | 2.39 | 2.63 | 2.80 | 2.90 | 2.97 | 2.91 | 2.83 | 3.00 | 3.56 |
| Breeding (ram cost per ewe) | 5.08 | 5.65 | 5.84 | 5.95 | 6.29 | 6.21 | 6.02 | 6.05 | 6.43 |
| Marketing & Hauling | 3.84 | 4.26 | 4.47 | 4.42 | 4.70 | 4.73 | 4.57 | 4.59 | 4.95 |
| Fuel, lube, repairs, utilities | 11.13 | 12.41 | 12.47 | 13.70 | 13.96 | 13.33 | 12.09 | 12.53 | 13.31 |
| Shearing ewes | 3.34 | 3.71 | 3.90 | 4.13 | 4.30 | 4.12 | 3.98 | 3.99 | 4.92 |
| Shearing rams | 0.28 | 0.31 | 0.32 | 0.32 | 0.34 | 0.34 | 0.33 | 0.33 | 0.37 |
| Predator Control | 1.28 | 1.42 | 1.47 | 1.50 | 1.57 | 1.55 | 1.51 | 1.51 | 1.80 |
| Dog Food | 1.18 | 1.31 | 1.38 | 1.41 | 1.48 | 1.47 | 1.40 | 1.46 | 1.69 |
| ALB Checkoff | 0.55 | 1.55 | 2.55 | 3.55 | 4.55 | 5.55 | 6.55 | 7.55 | 8.55 |
| Operator/Family Labor | 10.71 | 11.90 | 12.80 | 13.11 | 13.64 | 13.51 | 12.95 | 12.99 | 13.26 |
| Hired Labor | 7.40 | 8.26 | 8.93 | 9.11 | 9.50 | 20.79 | 22.67 | 25.00 | 26.47 |
| Camp Supplies | 1.81 | 2.03 | 2.19 | 2.23 | 2.33 | 2.34 | 2.20 | 2.22 | 2.48 |
| Housing Improvement & Repair | 0.26 | 0.29 | 0.32 | 0.32 | 0.34 | 0.34 | 0.32 | 0.32 | 0.32 |
| Interest on Operating Capital | 2.47 | 2.73 | 2.85 | 2.89 | 3.01 | 3.00 | 3.34 | 3.13 | 3.33 |
| | | | | | | | | | |
| **TOTAL VARIABLE COSTS** | 89.97 | 99.33 | 103.96 | 108.68 | 112.81 | 124.17 | 126.97 | 130.18 | 140.28 |
| | | | | | | | | | |
| **FIXED COSTS** | | | | | | | | | |
| *Capital Recovery* | | | | | | | | | |
| Housing & Improvement | 0.36 | 0.41 | 0.44 | 0.45 | 0.47 | 0.47 | 0.44 | 0.44 | 0.44 |
| Machinery, Equipment, Vehicles | 4.35 | 4.82 | 5.01 | 5.08 | 5.36 | 5.30 | 5.05 | 5.10 | 5.21 |
| Interest on retained livestock | 3.58 | 3.99 | 4.21 | 4.29 | 4.50 | 4.48 | 4.25 | 4.28 | 4.33 |
| Taxes & Insurance | 1.12 | 1.23 | 1.29 | 1.32 | 1.38 | 1.36 | 1.31 | 1.31 | 1.35 |
| Overhead | 4.52 | 5.03 | 5.34 | 5.44 | 5.70 | 5.67 | 5.38 | 5.42 | 5.47 |
| | | | | | | | | | |
| **TOTAL FIXED COSTS** | 13.93 | 15.48 | 16.29 | 16.56 | 17.41 | 17.27 | 16.43 | 16.56 | 16.80 |
| | | | | | | | | | |
| **TOTAL COSTS** | 103.91 | 114.81 | 120.25 | 125.24 | 130.22 | 141.44 | 143.40 | 146.74 | 157.07 |
| | | | | | | | | | |
| **RETURNS** | 17.92 | 66.16 | 10.73 | -4.95 | 40.57 | 13.08 | 6.74 | 7.34 | -6.20 |

## Budget Inputs

| NATIONAL | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| | Feeder Lamb - 3 mkt ave ($/lb) | 1.43 | 2.13 | 1.49 | 1.41 | 2.05 | 1.92 | 1.85 | 1.93 | 1.81 |
| | Wool Price ($/lb) | 1.15 | 1.67 | 1.52 | 1.45 | 1.46 | 1.45 | 1.45 | 1.48 | 1.75 |
| | Prices Paid Index % of 2015 | 0.81 | 0.90 | 0.94 | 0.96 | 1.01 | 1.00 | 0.96 | 0.96 | 0.98 |
| | US Mature Ewe Inventory (1000 hd) | 3335 | 3215 | 3165 | 3135 | 3090 | 3110 | 3105 | 3045 | 3005 |
| | | | | | | | | | | |
| REGION | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| WY | Ave. Flock Size (hd) | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| | Ram flock (hd) | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| | Cull Ram Rate (%) | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% |
| | Cull Ewe Rate (%) | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% |
| | Mature ewe death loss rate (%) | 6% | 7% | 7% | 6% | 6% | 6% | 6% | 6% | 6% |
| | Region total mature ewe flock (1000 hd) | 1486 | 1442 | 1469 | 1459 | 1423 | 1457 | 1427 | 1402 | 1342 |
| | Region avg. lambing percent (%) | 109% | 111% | 108% | 107% | 110% | 104% | 104% | 101% | 105% |
| | Cull Ewe Price ($/lb) | 0.54 | 0.66 | 0.54 | 0.40 | 0.59 | 0.70 | 0.71 | 0.70 | 0.64 |
| | Cull Ram Price ($/lb) | 0.61 | 0.63 | 0.60 | 0.46 | 0.53 | 0.69 | 0.65 | 0.64 | 0.62 |
| | | | | | | | | | | |
| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| ND | Ave. Flock Size (hd) | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| | Ram flock (hd) | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | Cull Ram Rate (%) | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% | 15% |
| | Cull Ewe Rate (%) | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| | Mature ewe death loss rate (%) | 7% | 8% | 7% | 8% | 8% | 7% | 7% | 7% | 7% |
| | Region total mature ewe flock (1000 hd) | 824.5 | 761 | 787 | 758 | 730 | 725 | 726 | 710 | 708 |
| | Region avg. lambing percent (%) | 131% | 139% | 134% | 134% | 138% | 121% | 121% | 121% | 127% |
| | Cull Ewe Price ($/lb) | 0.57 | 0.66 | 0.56 | 0.36 | 0.50 | 0.66 | 0.61 | 0.65 | 0.57 |
| | Cull Ram Price ($/lb) | 0.61 | 0.63 | 0.60 | 0.46 | 0.53 | 0.69 | 0.65 | 0.64 | 0.62 |
| | | | | | | | | | | |
| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| TX | Ave. Flock Size (hd) | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| | Ram flock (hd) | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| | Cull Ram Rate (%) | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| | Cull Ewe Rate (%) | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| | Mature ewe death loss rate (%) | 8% | 8% | 9% | 10% | 9% | 9% | 8% | 9% | 8% |
| | Region total mature ewe flock (1000 hd) | 678 | 657 | 556 | 542 | 568 | 560 | 568 | 564 | 588 |
| | Region avg. lambing percent (%) | 92% | 97% | 101% | 99% | 94% | 94% | 98% | 98% | 97% |
| | Cull Ewe Price ($/lb) | 0.60 | 0.66 | 0.64 | 0.48 | 0.66 | 0.79 | 0.72 | 0.77 | 0.66 |
| | Cull Ram Price ($/lb) | 0.61 | 0.63 | 0.60 | 0.46 | 0.53 | 0.69 | 0.65 | 0.64 | 0.62 |
| | | | | | | | | | | |
| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| KY | Ave. Flock Size (hd) | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| | Ram flock (hd) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | Cull Ram Rate (%) | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% | 50% |
| | Cull Ewe Rate (%) | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 8% | 8% |
| | Mature ewe death loss rate (%) | 9% | 9% | 8% | 8% | 9% | 10% | 9% | 8% | 8% |
| | Region total mature ewe flock (1000 hd) | 346.5 | 355 | 353 | 376 | 369 | 368 | 384 | 369 | 367 |
| | Region avg. lambing percent (%) | 117% | 111% | 115% | 113% | 113% | 111% | 109% | 111% | 111% |
| | Cull Ewe Price ($/lb) | 0.85 | 0.99 | 0.84 | 0.72 | 0.90 | 0.94 | 0.86 | 0.90 | 0.82 |
| | Cull Ram Price ($/lb) | 0.75 | 0.83 | 0.65 | 0.61 | 0.82 | 0.92 | 0.86 | 0.91 | 0.92 |

| Sheep death loss by region, Sheep and Lamb PDI | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Death loss (1000 hd) | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| WY | 86.5 | 95 | 95.5 | 85 | 83 | 92 | 90 | 84 | 84 |
| ND | 57.7 | 59.4 | 55 | 57 | 56.3 | 52 | 49 | 49 | 49 |
| TX | 55 | 55 | 50 | 53 | 48.5 | 50 | 47 | 49 | 49 |
| KY | 30.8 | 30.6 | 28.5 | 30 | 32.2 | 37 | 33 | 31 | 31 |
| | | | | | | | | | |
| Region mature ewe inventory (1000 hd) | | | | | | | | | |
| WY | 1486 | 1442 | 1469 | 1459 | 1423 | 1457 | 1427 | 1402 | 1342 |
| ND | 824.5 | 761 | 787 | 758 | 730 | 725 | 726 | 710 | 708 |
| TX | 678 | 657 | 556 | 542 | 568 | 560 | 568 | 564 | 588 |
| KY | 346.5 | 355 | 353 | 376 | 369 | 368 | 384 | 369 | 367 |
| | | | | | | | | | |
| % Death Loss | | | | | | | | | |
| WY | 6% | 7% | 7% | 6% | 6% | 6% | 6% | 6% | 6% |
| ND | 7% | 8% | 7% | 8% | 8% | 7% | 7% | 7% | 7% |
| TX | 8% | 8% | 9% | 10% | 9% | 9% | 8% | 9% | 8% |
| KY | 9% | 9% | 8% | 8% | 9% | 10% | 9% | 8% | 8% |

| General | |
|---|---|
| **Feeder lamb wt (lbs)** | 75 |
| **Cull ewe wt (lbs)** | 170 |
| **Cull ram wt (lbs)** | 225 |
| **Wool weight (lbs)** | 8 |