

## Grazing Resources & Stock Policy calculator example

In this next calculator we put to work the AUD/acre estimates we developed in the previous section. As you move through the first worksheet in the next Excel calculator (XXR Grazing resources & stock policy), there is a block for entering each of the grazing resources you have available and the number of acres for each unit. You next enter the expected AUD/acre yield for each resource individually. I have done this in Table 8 for properties discussed when I visited the ranch. All AUD/A are based on the estimates we came up with in the previous section. It is up to you to decide whether some are more or less productive than the average for the main ranch. If you have actual grazing records for the different units, you can use those values. The four public land leases are set at the specific AUD allowed on the permit.

**Table 8. All grazing resources available to XX Ranch with consolidated carrying capacity estimate at designated use level for drought buffering.**

| Grazing Resource                                              | Acres  | Use this resource ?                           | Expected AUD/A | Total AUD | % contribution |
|---------------------------------------------------------------|--------|-----------------------------------------------|----------------|-----------|----------------|
| Pivot - pastures                                              | 300    | 100%                                          | 220            | 66000     | 29%            |
| Pivot - hay ground                                            | 75     | 100%                                          | 220            | 16500     | 7%             |
| Pivot - annual crop                                           | 120    | 100%                                          | 280            | 33600     | 15%            |
| Flood pasture                                                 | 135    | 80%                                           | 160            | 17280     | 8%             |
| Home dryland                                                  | 900    | 60%                                           | 10             | 5400      | 2%             |
| Mountain lease                                                |        |                                               |                | 19860     | 9%             |
| Red Rock lease                                                |        |                                               |                | 20400     | 9%             |
| North Shelf lease                                             |        |                                               |                | 5580      | 2%             |
| Moose Ck lease                                                |        |                                               |                | 3210      | 1%             |
| Belton lease                                                  | 300    | 80%                                           | 150            | 36000     | 16%            |
|                                                               | 1830   |                                               |                |           |                |
| Sum of all available AUDs from deeded & leased land resources |        |                                               |                | 223830    |                |
| AUD available all resources                                   | 223830 | Available from deeded and leased private land |                |           |                |
| Expected days of use                                          | 365    | Days of the year for grazing only             |                |           |                |
| AU carrying capacity for time                                 | 613    | Available AUD ÷ Expected days of use          |                |           |                |
| Average cow weight                                            | 1350   | Average cow weight including 1st calf heifers |                |           |                |
| AU equivalency                                                | 1.35   | Average wt ÷ 1000 lbs                         |                |           |                |
| Number of head carried                                        | 454    | Number of head carried if cows only           |                |           |                |

In the column with the header ‘% use this resource?’, enter the % of the grazable forage you plan to utilize in that column, if you want to use that resource in the current scenario. This is another place you can set your drought reserve buffer. For example, if you want to set aside 20% for drought reserve, enter 80% to use. Enter a ‘0’ if you do not want to use a particular resource at all. I generally plan to use irrigated land at 100% while taking a more conservative approach on dry land.

The estimate of 450-cow carrying capacity is based on 20% drought reserve on flood ground and 40% on deeded dryland.

You can add lines into the live version of this file to include additional grazing resources that may become available. You would change the name and acres on the first page and everything else will auto adjust.

This is a useful planning tool so I strongly encourage you to make this first page as accurate as possible.

There are two other worksheets in the ‘XXR Grazing Resources & Stock Policy v2017 base line.xlsx’ calculator for taking analysis and planning to more advanced level. The second worksheet is a series of gross margin calculators for six different possible beef enterprises on the ranch. We will look at examples of each of those. The third worksheet is the actual stock policy calculator that allows you to assign proportional use of each grazing resource by different livestock classes for different periods of time. This latter exercise is designed to help producers evaluate different enterprise mixes based on current market conditions. I recall we did look at these gross margin calculators briefly when I was at the ranch and we entered data for those options where you had data or information available. I can continue to work with you remotely to get more of this calculator filled in as you need.

This is a useful tool for helping you decide what type of stock and how many of each type you should have on the ranch. It is based on the premise that it costs you ‘\$x’ to produce a ton of feed or, in the way I look at things, to produce one AUD. The value of that AUD to the ranch depends on what class of livestock harvests it. I like to bring everything down to a gross margin value per AUD (GMV/AUD). As you will recall from RFP, gross margin is the difference between the value of your product and the operating costs to produce it.

GMV/AUD is a measure of your return to overheads. Those overheads would include your salary & other unassigned labor costs, facility & equipment depreciation, taxes, utilities, insurance, etc. It is what some people would call ‘operating profit’. Hobby ranches with outside income to subsidize lifestyle can afford to live with just operating profit. Real ranches cannot. The GMV/AUD is what is left to pay for all other overhead costs and, hopefully, give us a profit at the end of the day.

Your specific ranch information needs to be entered into all of the cells with blue font in the live version of the program.

The production values shown in blue in Table 9 is the information you provided when I was at the ranch. My notes say your cows were in the 1300-1400 weight range and that you were weaning 525 lbs calves at approximately 7-1/2 months of age. We commonly use the ratio of weaned calf to dam weight as a measure of resource use efficiency. The ratio is typically adjusted to 205 days of age for the calf. A 205-day weaning weight ratio of 36% is below average for that size cow. The 76% weaned calf crop is below national average but and well below the average for the Northern Plains and Intermountain regions. I do recall that you had a large number of 1<sup>st</sup>-calf heifers in the herd. As you did not have a good figure for XXR cost to carry a cow, the \$1.70 /day is national average. The expected calf price and cull cow prices shown are current market.

**Table 9. Gross margin calculation for Cow-Calf enterprise**

|                                 |                             |                                 |                 |                    |
|---------------------------------|-----------------------------|---------------------------------|-----------------|--------------------|
| Average cow weight              | 1350 lbs                    | Daily intake target for cow     | 2.8%            | as % of liveweight |
| Expected calf weaning weight    | 525 lbs/calf                | Daily cost to keep a cow        | \$ 1.70         | \$/hd/day          |
| DOA at weaning                  | 225 days                    | # of days cow is on ranch       | 365             | calendar days      |
| Gain / day                      | 1.99 lbs/hd/day             | Annual cost to keep a cow       | \$ 621          | \$/ cow exposed    |
| 205 day target                  | 482 lbs/hd                  | Annualized Cow replacement cost | \$ 452          | \$/ cow exposed    |
| 205 day Weaning weight %        | 36% calf:dam                |                                 |                 |                    |
| Expected calf price / lb        | \$ 1.60 \$/lb               | Cow cull rate                   | 29%             |                    |
| Value per calf                  | \$ 840 \$/calf sold         | Cull cow price / lb             | \$ 0.62         | \$/ lbs sold       |
|                                 |                             | Value of cull cow               | \$ 837          | \$/hd              |
| % weaned for cows exposed       | 76%                         | Annual cull value allotment     | \$ 243          | \$/ cow exposed    |
| lbs of calf per cow exposed     | 399 calf lbs/cow exposed    | Gross income per cow exposed    | \$ 881          | calf + cull income |
| Calf sale value per cow exposed | \$ 639 \$ calf income / cow | <b>Gross margin</b>             | <b>\$ (191)</b> | \$/ cow exposed    |

The negative gross margin shown on the bottom line is indicative of where the beef industry is right now. Most outfits not operating at scale have negative gross margins in the current market. Remember gross margin is return to overheads including salaries, equipment & facility depreciation, utilities, insurance, and taxes. It is not profit!

You can easily see why it is so important to have accurate accounting and production records if you are trying to assess the financial performance of any given enterprise. Even though this step in the calculator is set up on a per cow performance basis, production and financial performance on a per acre basis is a more critical assessment as the amount of land you can control is far more likely to limit your scale of operation than the number of cattle you could purchase. The final page of the worksheet looks at per acre and whole ranch production and performance.

You can use this calculator to help answer 'what if' questions like:

1) How low do I need to get my operating costs to have a positive gross margin?

With all other things remaining constant, your daily cost to keep a cow needs to be less than \$1.20/day or \$36/month. If you could find someone to custom graze/feed your cows for \$35/month, you would be better off not having a cow on your place. Just a few years ago we were seeing cow-calf gross margins in excess of \$500. Will we see those again? Someday, probably. Again, remember gross margin is return to overheads, not profit.

2) What would calf weaning weight need to be in able to afford \$1.70/cow-day cost?

With calf price set at \$1.60, the weaning weight would need to be 682 lbs to cover operating costs. What seems more likely outcome: That you could cut your per cow cost by \$150/cow or increase weaning weight from 525 lbs to 682 lbs without incurring a cost increase? Better to focus on cost management today.

3) What would happen if you increased weaned calf % from the current 76% to 88%?

It would improve your gross margin by about \$170/cow exposed if costs were held constant while making the improvement. Could you accomplish that 11% increase just with better management or would it require additional purchased inputs? Historic records suggest calf crops above 90% are generally achieved only by spending more money and generally do not increase overall profitability of the ranch.

The takeaway message from this little exercise is none of this means anything if you don't know what your own costs are. Getting an accounting system in place that allows you to accurately track your production costs needs to be one of your highest priorities for 2017.

Weaned calves from the cow-calf enterprise are moved into the growing phase of the business where they would remain through the winter. This phase runs for 150 days (overwintering) and gives us the starting weight and value of the cattle going into the finishing / seedstock phase next Spring. Cost for keeping the stocker is based on current custom wintering rates. Wintering costs may run higher depending on your location. Stockers look very good in this scenario and with a much lower per head overhead cost, growing calves to feeder weight looks to be a profitable enterprise.

**Table 10. Growing stocker enterprise gross margin calculator**

|                                    |                   |                                 |               |                 |
|------------------------------------|-------------------|---------------------------------|---------------|-----------------|
| Stocker beginning weight           | 525 lbs/hd        | daily intake target for stocker | 2.64%         | as % liveweight |
| Days on ranch                      | 150 calendar days | Daily cost to keep a stocker    | \$ 0.90       | \$/hd/day       |
| Expected ADG                       | 1.7 lbs/hd/day    | Cost to keep a stocker          | \$ 135        | \$/hd           |
| Ending stocker weight              | 780 lbs/hd        | Purchase cost of stocker        | \$ 840        | \$/hd           |
| Expected value / lb at this weight | \$ 1.45 \$/lb     |                                 |               |                 |
| Value of stocker at end of growing | \$ 1,131 \$/hd    | <b>Gross margin per head</b>    | <b>\$ 156</b> | \$/hd           |

You have the choice to sell the growing stockers at this point or retain them either into a replacement heifer program or pasture finishing. Because growing stock generally do not have a lot of overhead costs, the gross margin per head does not need to be nearly as large as it does for a cow. Winter growing phase does tend to be more expensive than a summer growing phase if the overwintering is based on stored forages as it would likely be at your location in WY. Using swaths on the irrigated land for a least part of the winter could lower overwintering cost.

Next we come to the finishing phase in Table II. The current finishing program at XXR is grain-based as the owner has little confidence in the ability of the ranch to produce a high quality finished product strictly on pasture. We have numerous clients doing this in the West on irrigated pastures so it is a proven model for your locale. The finishing phase picks up a yearling out of the growing phase. This could be either steers or heifers. Heifers are easier to finish on pasture and in a start up phase for a finishing enterprise, I tend to encourage beginning with heifers. Quality finishing requires maintaining the cattle at a good rate of gain. I generally recommend a season-long minimum of 2 lbs/hd/day.

**Table 11. Pasture-finishing enterprise gross margin calculator**

|                                    |                   |                                  |               |                 |
|------------------------------------|-------------------|----------------------------------|---------------|-----------------|
| Finishing beginning weight         | 780 lbs/hd        | Daily intake target for finisher | 2.87%         | as % liveweight |
| Days on ranch                      | 205 calendar days | Daily cost to keep a finisher    | \$ 1.65       | \$/hd/day       |
| Expected ADG                       | 2.25 lbs/hd/day   | Cost to keep a finisher          | \$ 338        | \$/hd           |
| Ending stocker weight              | 1241 lbs/hd       | urchase cost of heavy stocker    | \$ 1,131      | \$/hd           |
| Expected value / lb at this weight | \$ 1.35 \$/lb     |                                  |               |                 |
| Value of stocker at end of growing | \$ 1,676 \$/hd    | <b>Gross margin</b>              | <b>\$ 206</b> | \$/hd           |
| Target finish weight as 92% of dam | 1,242 lbs/hd      |                                  |               |                 |

A few years ago the national average for wholesale Choice grass-fed beef had been running about \$2,300/head with premiums running 50-75¢/lb liveweight over commodity feedlot beef. Unfortunately, this wholesale market has collapsed over the last year due to flood of imported grass fed beef. Most of the wholesalers are currently only paying about \$15/cwt over commodity finish. Using the current grass-fed wholesale price of about \$1.35/lb liveweight, the gross margin is about \$200/hd. That may or may not be profitable for this class of cattle.

Selling wholes and halves directly to consumers in the Intermountain region can earn about \$2.45/lb liveweight based on review of current prices on Eatwild.com. That price increase kicks the gross margin up to \$650-\$700/hd. While direct marketing can garner a much higher price than the wholesale avenue, it adds several additional layers of costs including processing, storage, marketing, and distribution. In the remainder of the assessment, I have used a price of \$1.55/lb liveweight for pasture-finished beef animals. That is somewhere between the current wholesale market and a full direct market enterprise.

The pasture-finishing enterprise provides the greatest GMV of anything in the beef sector. What really makes this work is the conversion of a commodity animal into a premium value animal. The challenge I see in this scenario is reaching the projected finish weight takes nearly seven months from the end of the growing phase to finish and you may not have seven months of finishing quantity and quality of forage. To reach the target weight either weaning weight needs to increase, overwintering weight gain needs to increase, and/or finishing period ADG has to increase. If the cattle are not at the desired quality grade at finish, the premium will not be so great and the gross margin will be much smaller.

Replacement heifers are not nearly the value they were just a few years ago, but they will be increasing in value again as the cattle cycle turns upward in the next few years. Until you put a bull with them and turn them into bred heifers, the heifers are included with the growing stockers. You have the choice of breeding them, grazing them to finished beef, or selling them at the 718 lbs they weighed at the end of the stocker phase.

If the heifers are being retained in your herd, you still need a basis for their valuation. While some cattlemen choose to use their development cost as the basis, I believe fair market value is the more appropriate value as you had the opportunity to sell that bred heifer so there is a forgone income opportunity if you choose to keep her rather than selling her. There is a lot of regional and seasonal



variation in the market value of bred heifers. I have used \$1400/hd in this assessment. You may have a different viewpoint on how to value these replacements, so you might want to change that entry in the live version of the Excel file you have received.

| <b>Table 12. Gross margin calculator for replacement heifer development enterprise</b> |          |            |                                   |               |                 |
|----------------------------------------------------------------------------------------|----------|------------|-----------------------------------|---------------|-----------------|
| Replacement heifer starting weight                                                     | 718      | lbs/hd     | Daily intake target for heifer    | 2.5%          | as % liveweight |
| Price of heifer at starting weight                                                     | \$ 1.35  | lbs/hd/day | Daily cost to keep a heifer       | \$ 0.95       | \$/hd/day       |
| Value of yearling heifer                                                               | \$ 969   | lbs/hd     | # of days heifer on ranch         | 285           | calendar days   |
| Target ADG breeding to calving                                                         | 1.30     | lb/hd      | Cost to raise a heifer to calving | \$ 271        | \$/hd           |
| Value of the bred replacement heifer                                                   | \$ 1,400 | \$/hd      |                                   |               |                 |
| Target weight at calving                                                               | 1088     | lbs/hd     | <b>Gross margin</b>               | <b>\$ 160</b> | \$/hd           |

Note the replacement heifer enterprise has a 285-day time line. She is a stocker until bred and becomes a cow at calving for purposes of record keeping.

Custom grazing stockers was a very profitable venture while cattle prices were high, but today it is largely a bust due to the collapse in cattle prices. You have to be a very, very low cost grazer to make custom grazing stockers work right now.

| <b>Table 13. Gross margin calculator for custom grazing stockers on rate of gain enterprise</b> |         |            |                                 |               |                 |
|-------------------------------------------------------------------------------------------------|---------|------------|---------------------------------|---------------|-----------------|
| In weight                                                                                       | 500     | lbs/hd     | Daily intake target for stocker | 3.00%         | as % liveweight |
| Target ADG                                                                                      | 1.75    | lbs/hd/day | Daily cost to keep a stocker    | \$ 0.75       | \$/hd/day       |
| Gain per head                                                                                   | 210     | lbs/hd     | Day on pasture                  | 120           | days            |
| Out weight                                                                                      | 710     | lbs/hd     | Cost to keep a stocker          | \$ 90         | \$/hd           |
| Pay rate / lb of gain                                                                           | \$ 0.42 | \$/lb      | Income for grazing season       | \$ 88.20      | \$/hd           |
| Daily income                                                                                    | \$ 0.74 | \$/hd-day  | <b>Gross margin</b>             | <b>\$ (2)</b> | \$/hd           |

To make custom grazing yearlings pay today either the rate of gain has to be higher than 1.75lbs/hd/day shown or the pay rate needs to be higher. It is challenging to get the cost under \$21/hd-month or 70¢/day.

The last enterprise we will take a look at the 'burger cow' business. This enterprise is based on the simple fact that a fat cull cow is worth more per pound than a thin cull cow. This is the only animal in the entire beef complex (along with cull bulls) that gains in value per pound as the weight and condition of the animal improves. This is also one of the most consistently profitable enterprises you can have on the farm. It can work entirely within the existing commodity marketing channels so no special effort is needed to sell these cows.

| <b>Table 14. Burger-cow grazing gross margin quick calculator</b> |         |              |                                    |               |                 |
|-------------------------------------------------------------------|---------|--------------|------------------------------------|---------------|-----------------|
| In weight                                                         | 1000    | lbs/hd       | Daily intake target for burger cow | 3.00%         | as % liveweight |
| Purchase price / lb                                               | \$ 0.58 | \$/lb        |                                    |               |                 |
| Purchase cost/cow                                                 | \$ 580  | \$/head      | Daily cost to keep a burger cow    | \$ 1.30       | \$/hd/day       |
| Day on pasture                                                    | 90      | calendar day | Operating cost / cow               | \$ 117        | \$/hd           |
| Target ADG                                                        | 2.50    | lbs/hd/day   | Purchase price + operating cost    | 697           | \$/hd           |
| Gain per head                                                     | 225     | lbs/hd       | Sale value / cow                   | \$ 809        | \$/head         |
| Out weight                                                        | 1225    | lbs/hd       |                                    |               |                 |
| Sale price/ lb                                                    | \$ 0.66 | \$/head      | <b>Gross margin</b>                | <b>\$ 112</b> | \$/hd           |

Because these cows usually do not stay on the ranch any longer than 2-4 months, they are very handy for balancing forage supply and livestock demand. Rate of gain is generally quite good as they have nothing more to do than just gain weight.

The caveat for this enterprise is try to buy thin, but healthy cows. Buying cows that are skinny because they are sick is not very likely to be a paying proposition.

We can take all of this information now and begin to evaluate which enterprises have the greatest likelihood of profitability based on the GMV/AUD as shown in Table 15 on the following page.

What jumps out most on the bottom line are the negative GMV/AUD for the cow-calf enterprise and the high GMV/AUD for the pasture finishing enterprise. This just bears out the basic business principle that the closer your product is to the end consumer, the greater the opportunity for profit. If we were singular focus and thought only about that numbers we would arrive at the conclusion that we should stock the ranch entirely with finishing animals only. The reality is any given ranch only has the capacity to produce a limited amount of 'finishing quality' feed. It can produce some 'growing quality' feed and it can produce a lot of 'cow maintenance' feed.

**Table 15. Comparison of potential gross margins/head and GMV/AUD for six different beef cattle enterprises.**

|                                           | Cow-calf<br>Pair | Growing<br>Stocker | Finishing<br>/Bulls | Replacement<br>Heifers | Custom<br>Stockers | Burger-<br>Cow |                         |
|-------------------------------------------|------------------|--------------------|---------------------|------------------------|--------------------|----------------|-------------------------|
| Mean animal live weight while on ranch    | 1350             | 653                | 1011                | 903                    | 605                | 1113           | <i>lbs/hd</i>           |
| Animal unit equivalency                   | 1.35             | 0.65               | 1.01                | 0.90                   | 0.605              | 1.11           | <i>live wt/1000 lbs</i> |
| # of calendar days stock are on the ranch | 365              | 150                | 205                 | 285                    | 120                | 90             | <i>calendar days</i>    |
| Target intake rate                        | 2.8%             | 2.5%               | 2.6%                | 2.5%                   | 2.7%               | 3.0%           | <i>as % of weight</i>   |
| Daily forage consumption                  | 37.8             | 16.5               | 26.1                | 22.3                   | 16.1               | 33.1           | <i>lbs/hd/day</i>       |
| Forage consumption for time on ranch      | 13797            | 2482               | 5341                | 6363                   | 1933               | 2982           | <i>lbs/hd/day</i>       |
| Seasonal equivalent AUD consumption       | 531              | 95                 | 205                 | 245                    | 74                 | 115            | <i>AUD/year</i>         |
|                                           |                  |                    |                     |                        |                    |                |                         |
| Gross return per animal                   | \$ 881           | \$ 1,131           | \$ 1,924            | \$ 1,400               | \$ 88              | 796.25         | <i>\$ /animal /year</i> |
| Operating cost per animal                 | \$ 1,073         | \$ 975             | \$ 1,469            | \$ 1,289               | \$ 84              | \$ 697         | <i>\$ /animal /year</i> |
| Gross margin / animal                     | \$ (191)         | \$ 156             | \$ 455              | \$ 111                 | \$ 4               | \$ 99.25       | <i>\$ /animal /year</i> |
| Gross margin value / AUD                  | \$ (0.39)        | \$ 1.59            | \$ 2.19             | \$ 0.43                | \$ 0.06            | \$ 0.99        | <i>\$/AUD</i>           |

As ranch managers, one of our most important jobs is figuring out how to allocate our grazing resources to different enterprises to capitalize on high value opportunities while optimizing the use of all of our lower value resources. I emphasize again that the key to making this process work is knowing your costs, both operating and overheads, so you can accurately determine your gross margin for each potential enterprise.

This has been a snapshot of the current market situation. It is not indicative of historic past or future opportunities. In today's market, the clear winner in the potential returns race is in the pasture-finishing business. If we were looking at the commodity market, we find conventional finishing is not very profitable today. A year or so ago almost all gross margins I calculated for growing stockers were negative because the cattle market was in free fall. Today it is positive even though we are at (hopefully) the bottom of the cattle cycle. As the cattle market improves, GMV for cow-calf, growing stockers, and replacement heifers should improve.

One of the lines shown in red in Table 15 is the 'Seasonal equivalent AUD consumption'. You will see

that the cow-calf phase has the greatest demand for AUDs (Land!) Per unit of production while custom grazing stockers has the lowest demand per unit. The low land requirement per unit is why custom grazing can work so well for beginning ranchers when custom grazing rates are more favorable. It takes a lot of land under your control to be in the cow business but much less to be in the custom grazing business.

Because, more often than not, what really limits the scale of our ranching enterprise is the amount of land that we control, we should assess the profitability of our business on a per acre basis rather the more common assessment of return per animal. Land produces the AUDs and how we harvest those AUDs determines the profit potential of the land.

The next worksheet in the stock policy calculator allows you to assign different amounts of AUDs from your grazing resources to different enterprises. Until we have the first three worksheets complete with your ranch specific information, there is little need to try to use the last piece. We can work on that part later.

As you work towards a more comprehensive grazing and financial record keeping system, recognize that each of the properties you operate on may have a different set of costs associated with it. That means an AUD from the pivots will not have the same cost as an AUD generated at the rangeland or flood irrigated

**Table 16. Comparison of potential gross margins/head and GMV/AUD for six different beef cattle enterprises with mean cow size of 1150 lbs.**

|                                           | Cow-calf<br>Pair | Growing<br>Stocker | Finishing<br>/Bulls | Replacement<br>Heifers | Custom<br>Stockers | Burger-<br>Cow |                  |
|-------------------------------------------|------------------|--------------------|---------------------|------------------------|--------------------|----------------|------------------|
| Mean animal live weight while on ranch    | 1150             | 618                | 905                 | 871                    | 605                | 1113           | lbs/hd           |
| Animal unit equivalency                   | 1.15             | 0.62               | 0.91                | 0.87                   | 0.605              | 1.11           | live wt/1000 lbs |
| # of calendar days stock are on the ranch | 365              | 150                | 160                 | 285                    | 120                | 90             | calendar days    |
| Target intake rate                        | 2.8%             | 2.5%               | 2.6%                | 2.5%                   | 2.7%               | 3.0%           | as % of weight   |
| Daily forage consumption                  | 32.2             | 15.7               | 23.3                | 21.5                   | 16.1               | 33.1           | lbs/hd/day       |
| Forage consumption for time on ranch      | 11753            | 2349               | 3733                | 6136                   | 1933               | 2982           | lbs/hd/day       |
| Seasonal equivalent AUD consumption       | 452              | 90                 | 144                 | 236                    | 74                 | 115            | AUD/year         |
|                                           |                  |                    |                     |                        |                    |                |                  |
| Gross return per animal                   | \$ 820           | \$ 1,080           | \$ 1,651            | \$ 1,400               | \$ 88              | 796.25         | \$/animal /year  |
| Operating cost per animal                 | \$ 755           | \$ 921             | \$ 1,288            | \$ 1,229               | \$ 84              | \$ 697         | \$/animal /year  |
| Gross margin / animal                     | \$ 65            | \$ 159             | \$ 363              | \$ 171                 | \$ 4               | \$ 99.25       | \$/animal /year  |
| Gross margin value / AUD                  | \$ 0.15          | \$ 1.72            | \$ 2.50             | \$ 0.69                | \$ 0.06            | \$ 0.99        | \$/AUD           |

land. AUDs from annual pastures or crop residue fields have a different cost. The public land leases have a different cost than deeded land. It is sometimes a bit challenging to sort out the true cost of grazing on public land. Until you have a record keeping system that provides that level of detail, it will be hard to address those specific questions. Sometimes it is those details that are make-or-break questions for a ranch.

You have also received a similar Excel file entitled 'XXR Grazing Resources & Stock Policy v2017 1150-lb cows.xlsx'. That file was based on reducing cow size to 1150 lbs from the current 1350 lbs. That causes a ripple effect through the production system as stocking rate goes up, feed consumption goes down, target finish weight decreases, and all the associated cost reductions.

Result of reducing cow size is the total gross margin for the ranch increased by over \$100,000. That is the kind of impact having more resource-appropriate sized cows can make. One you have set up the base line information for the ranch, there is no end to the different management and operational scenarios you can consider with this tool.

I have repeatedly made the point that gross margin is the same as return to overheads. There is an overhead calculator in the fourth worksheet of the file. Right now all the information in that file is from some other

client I templated your file from. Before you can assess actual profitability of XXR, you need an accurate accounting of all the overheads on the ranch. I strongly encourage you to fill out this worksheet to the best of your ability.

**Figure 17.** Example of overhead charges for a ranch with multiple beef enterprises.

| Overhead categories                   | Total annual charge | % assigned to cow enterprise | % assigned to stocker enterprise | % assigned to finishing enterprise | % assigned to replacement heifer enterprise | % assigned to custom grazing enterprise | % assigned to burger cow enterprise | % assigned to other |
|---------------------------------------|---------------------|------------------------------|----------------------------------|------------------------------------|---------------------------------------------|-----------------------------------------|-------------------------------------|---------------------|
| Total ranch payroll                   | \$ 60,000           | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Employee benefits                     | \$ 20,400           | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Payroll taxes                         | \$ 4,800            | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Housing costs                         | \$ 4,800            | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Property tax                          | \$ 3,200            | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Ranch insurance                       | \$ 1,200            | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Utilities                             | \$ 800              | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Infrastructure depreciation           | \$ 29,269           | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Equipment depreciation                | \$ 4,788            | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| Other overheads                       | \$ -                | 85%                          | 5%                               | 0%                                 | 10%                                         | 0%                                      | 0%                                  | 0%                  |
| <b>Total overheads excluding land</b> | <b>\$ 129,255</b>   | <b>\$ 109,867</b>            | <b>\$ 6,463</b>                  | <b>\$ -</b>                        | <b>\$ 12,925</b>                            | <b>\$ -</b>                             | <b>\$ -</b>                         | <b>\$ -</b>         |
| <b>Overheads/acre excluding land</b>  | <b>\$ 70.63</b>     | <b>\$ 60.04</b>              | <b>\$ 3.53</b>                   | <b>\$ -</b>                        | <b>\$ 7.06</b>                              | <b>\$ -</b>                             | <b>\$ -</b>                         | <b>\$ -</b>         |

When you do your overhead accounting, be honest. Are there some overheads you have only because of a particular enterprise on the ranch. In Ranching for Profit class, the instructors discourage you from trying to assign overheads to individual enterprises. Their position is overheads are basically sunk costs and you will need to pay them one way or another. In my view, if eliminating a particular enterprise would allow you to eliminate a layer of overheads, then I believe you need to assign overheads to specific enterprises. The way the assignment is done in this calculator is total overheads are divided by the % AUD demand of each enterprise.

The fifth and final page in the worksheet is called 'Bottom line'. Is it really, really the bottom line? If everything in the gross margin calculators is accurate and if the overhead worksheet is accurate, then 'Yes', the difference shown on this page should be true net return to the ranch.

Good luck & good accounting.