Allegany County Cooperative Extension

Senior 4-H Market Beef Project Book



INSERT A PHOTO OF YOUR MARKET ANIMAL HERE

LIvestock interviews will be Friday of Fair from 9.30- 11:00am. Near the Livestock area.
Project records will be due into the 4H office on the first friday of September. If showing at State Fair they will be due into the 4H office the second Friday of September

Name: _____

Age (as of January 1st) _____

Years in 4-H _____

Date Project Started_____

Date Project Closed _____

Why Records Are Important

The objective of a steer project is to give youth an opportunity to develop skills that will advance them in the future. This hands-on opportunity will help youth develop skills like leadership, organization critical thinking, goal setting, time management and communication. The task of keeping records can also help prevent a youth from falling short of their goals and maximize their opportunity to grow, learn and develop as an individual.

What You Need to Get Started

- an interest in raising a steer
- a place to keep and raise a steer
- money to purchase and raise a steer
- equipment to handle, feed and water a steer safely
- support from an adult

Knowledge About Steers

- different breeds and their characteristics
- cattle terminology
- body parts of a steer
- what steers eat to grow efficiently
- common steer behavior

Instructions

1. Use this project record for Market and Non-Market Steer Projects.

2. In this project record you will need to show pre-purchase evaluations of both your actual project animal and an animal you considered but did not purchase.

3. Keep a separate record for each individual animal.

4. Fill out a new project record book every year for Market and Non-Market Steers.

5. Write the things you do with and without your animal that relates to your steer project.

6. Keep all receipts as proof of money spent for your project. Photo copies of receipts are allowed.

7. Turn in your project records after the market sale by the date given by extension to receive your check. Non-market animals should be turned in by this date as well using true market estimations or actual sale price of animal.

Here is Some Terminology to Help You Get Started

Artificial Insemination- Manually placing semen into the reproductive tract of the female with the purpose of producing pregnancy (AI)

Backgrounding- Growing program for feeder cattle from the time calves are weaned until they are on a finishing ration in the feedlot

Dystocia- difficulty giving birth

Expected Progeny Difference- one half of the breeding value of a sire or dame; the difference in expected performance of future progeny of a sire, when compared with that expected from future progeny of bulls in the same sire summary (EPD)

Estrus- Adjective meaning “heat”; the estrous cycle is the time from one heat to the next

Hybrid vigor- The degree to which the offspring out performs its parents

Open- not pregnant

Ovulation- The process of releasing eggs or ova from the ovarian follicles

Palpation- Examine by touching

Seedstock- Registered animals for establishing a breeding herd

Project Animal's Information

Animal's Name _____

Identification Number and/or Tattoo _____

County Identification Number _____

Breed(s) _____

Gender _____ Date of Birth _____

Date of Purchase _____ Total Purchase Amount $_____

Purchase Weight _____lbs Purchase Hip Height (inches) _____

Days from Purchase till fair weigh in _____

Estimated Finish Weight _____lbs

Estimated Amount of pounds needed to gain to finish _____lbs

Estimated pounds gained per day till fair weigh in _____lbs

Project Evaluation

Most of this information you should be able to get directly from the breeder. However, every breeder operates differently and some estimation can be use like Sire's mature weight and Dam's weight. Most registered pureblood herds are required to collect this data for every animal and those breeders can make the information readily available to you while other breeders may not know what these values are. By collecting all of this data is good practice and know how if you plan to be a part of a breeding herd someday. Your steer's current weight and hip height should be true values and not "eyeballed". Use the charts in the following pages to calculate an estimated finishing weight and frame score of your steer.

The next few data collection points will help you determine your profitability. Subtract the steer's current weight from the calculated finish weight. This equals the total number of pounds needed to gain prior to fair weight in. Next multiply this by five as a general rule it takes five pounds of feed for one pound of gain for a steer. By multiplying your total pounds needed to gain by five you have calculated the estimated number of pounds of feed your steer will eat during his growing period to reach his target weight. If you have already priced out feed great break down the cost to a single pound unit and multiply it by the estimated pounds of feed needed to finish your steer. This calculation will give you an estimated cost of your total feed dollars. Your other estimated costs such as hay, healthcare, and other expenses you can look at past records our use your best judgment. Add all of these cost and the cost of your steer together to get the total estimated cost to raise.

Moving on to market pricing. Cooperative Extension can give you last year's sale prices to use for your high and low values. It may be a good idea to also get the high and low weights of the steers sold in the previous year as well. This will help give you a better estimation on your "goal" price per pound. These values should not be made up numbers or current market values as you may find in the end they were incorrect for this sale. Now you have all the data needed to project profitability. Take each value (low, average, goal) and subtract it accordingly from your total cost to raise.

How does your profitability look?

This calculation may play a big factor in your marketing scheme for your steer. Finally after evaluating not only the steer you are documenting in this project record you will collect the data on a second steer and compare the two. Be sure you use the same sale values for each steer evaluated. Keep in mind a heavier steer is probably going to bring slightly less per pound

than a lighter steer. This maybe something you determine in your profitability justification. You can also take into account structural values as this plays a larger role in that of a show steer verses a commercial steer. If higher structural value is most likely to gain you more money come sale time even though that particular steer is going to cost you a little more to raise it may be in your best interest to purchase the more structurally sound steer. This is all a part of hedging. No penalties will be given if you do not choose the most profitable steer but it is important to give a proper justification as to why you would not want to have a more profitable steer. It is also important to know how to calculate and project profitability of an animal before purchase. This also gives you a baseline to watch how the steer should grow and let you know if your project is in danger of not finishing on time before it is too late. If you are capable of having two steer projects evaluating them from the start and comparing to the final numbers may help you choose a better project steer in the future. If you need help contact your extension office and you can be guided to a committee member that can help you directly on farm.



Project Evaluation

Here is where you need to compare a minimum of two animals (one animal you purchased and one animal you did not purchase but considered).

Animal 1

Name/identification number _____ Date of Birth _____

Pedigree or back ground breeds _____

Preconditioning with what and when _____

Birth weight _____lbs Weaning weight _____lbs

Number of days from birth till weaning _____ days Average daily gain _____lbs

Dam's frame score _____ Dam's body condition score _____ Dam's weight _____lbs

Sire's frame score _____ Sire's yearling weight _____lbs Sire's mature weight _____lbs

Steer's current weight _____lbs Steer's hip height _____inches

Calculated frame score _____ Calculated finish weight _____lbs

Number of pounds needed to gain to finish _____lbs (times) 5lbs of feed _____lbs

Estimated cost per pound of grain $_____ (times) estimated feed needed $_____

Estimated cost of hay $_____ Estimated cost of health care $_____

Estimated cost of other expenses $_____ Cost of animal $ _____

Estimated Total cost to raise $_____

Estimated sale price per pound (low) $_____/lb (times) Estimated finishing weight $_____

Estimated sale price per lb (Average) $_____/lb (times) Estimated finishing weight $_____

Estimated sale price per lb (goal) $_____/lb (times) Estimated finishing weight $_____

Projected profitability of animal at low sale price $_____

Projected profitability of animal at average sale price $_____

Projected profitability of animal at your goal sale price $_____

Animal 2

Name/identification number _____ Date of Birth _____

Pedigree or back ground breeds _____

Preconditioning with what and when _____

Birth weight _____lbs Weaning weight _____lbs

Number of days from birth till weaning _____ days Average daily gain _____lbs

Dam's frame score _____ Dam's body condition score _____ Dam's weight _____lbs

Sire's frame score _____ Sire's Yearling weight _____lbs Sire's mature weight _____lbs

Animal's current weight _____lbs Animal's hip height _____inches

Calculated frame score _____ Calculated finish weight _____lbs

Number of pounds needed to gain to finish _____lbs (times) 5lbs of feed _____lbs

Estimated cost per pound of grain $_____ (times) estimated feed needed $_____

Estimated cost of hay $_____ Estimated cost of health care $_____

Estimated cost of other expenses $_____ Cost of animal $ _____

Total cost to raise $_____

Estimated sale price per pound (low) $_____/lb (times) Estimated finishing weight $_____

Estimated sale price per lb (Average) $_____/lb (times) Estimated finishing weight $_____

Estimated sale price per lb (goal) $_____/lb (times) Estimated finishing weight $_____

Projected profitability of animal at low sale price $_____

Projected profitability of animal at average sale price $_____

Projected profitability of animal at your goal sale price $_____

You may add pages to keep records on all animals considered or with other notes like structural values of each animal.

Comparison

Which animal shows better projected profitability and why?

_____

_____

_____

Which animal did you choose and why?

_____

_____

_____

Did you have higher inputs for one animal over the other due to backgrounding?

_____

_____

_____

Was one animal's genetics better when looking at EPD's or by looking at dam, sire and other siblings?

_____

_____

_____

Did one animal have better structural values over the other if so what where they and how does this affect your project vs a commercial steer?

_____

_____

_____

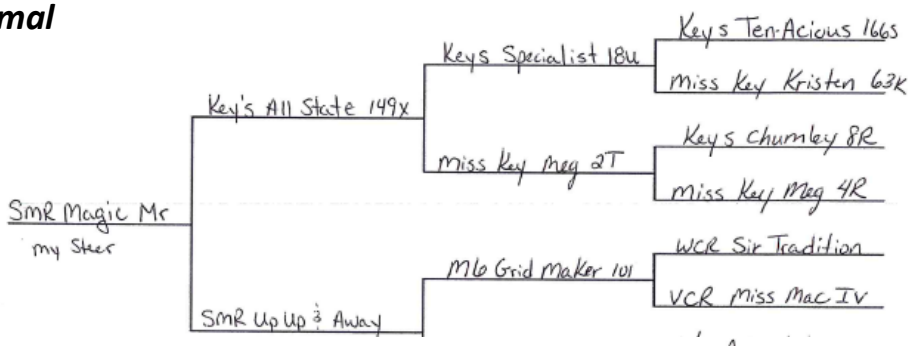
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You Have a Project Steer

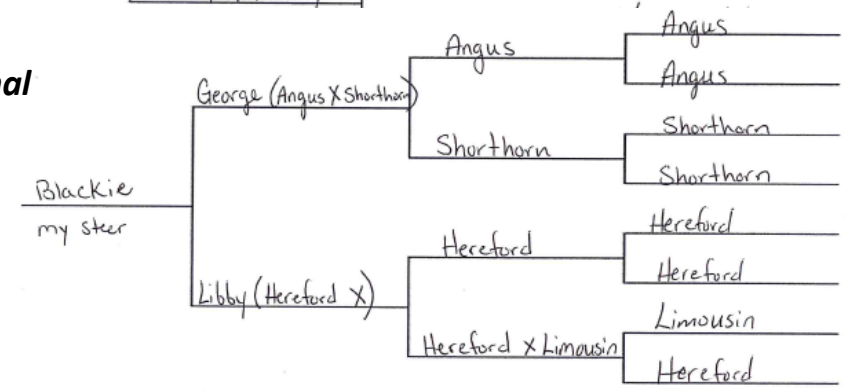
Review the fair rules to ensure your project animal gets the proper vaccinations and meets all other requirements such as weight and age for fair entry (attached).

If your animal is registered with a specific breed association copy, the names directly into the given pedigree. If your steer is a crossbreed fill in what you know even if it is just the breed. An example of each has been provided below.

Registered Animal

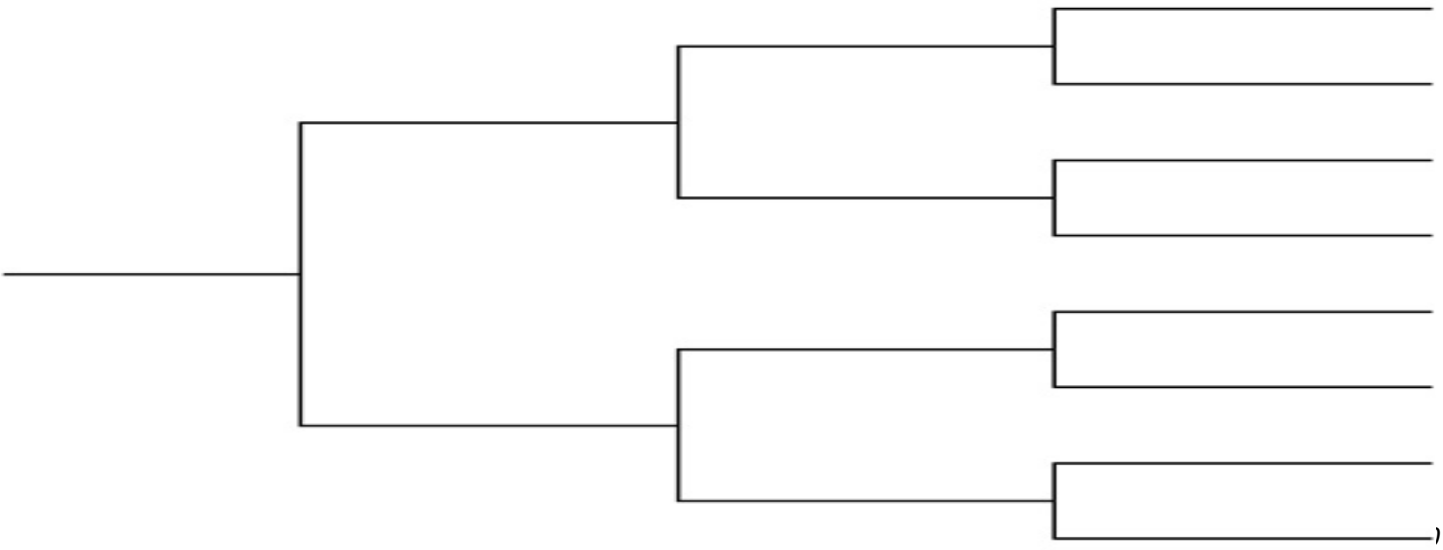


Estimation of animal



Project's Pedigree

Fill in as much of your project's pedigree even if it is just different breeds that make up your animal.



Purchase Information

Because every breeder is different you may need to obtain some of the information yourself. Most breeders should be able to give you the animals tag or tattoo identification and location (left ear, right ear, both ears etc.), what breed(s) makes up your chosen animal, gender, birth date, and current weight. The county will be around to tag your animal with a county tag for identification.

Your steer's hip height should be measured in inches, then determine your steer's age in months. Use the charts below get an estimated finish weight. Count the number of days until fair weigh in. Next subtract the estimated finish weight of your steer and his current weight to get the total number of pounds he needs to gain by fair weigh in to be considered a finished steer. Finally, divide the total number of pounds the animal needs to gain by the number of days until fair weigh in to get your estimated average daily gain (ADG).

Age (Months)	Frame Score								
	1	2	3	4	5	6	7	8	9
5	33.5	35.5	37.5	39.5	41.6	43.6	45.6	47.7	49.7
6	34.8	36.8	38.8	40.8	42.9	44.9	46.9	48.9	51
7	36	38	40	42.1	44.1	46.1	48.1	50.1	52.2
8	37.2	39.2	41.2	43.2	45.2	47.2	49.3	51.3	53.3
9	38.2	40.2	42.3	44.3	46.3	48.3	50.3	52.3	54.3
10	39.2	41.2	43.3	45.3	47.3	49.3	51.3	53.3	55.3
11	40.2	42.2	44.2	46.2	48.2	50.2	52.2	54.2	56.2
12	41	43	45	47	49	51	53	55	57
13	41.8	43.8	45.8	47.8	49.8	51.8	53.8	55.8	57.7
14	42.5	44.5	46.5	48.5	50.4	52.4	54.4	56.4	58.4
15	43.1	45.1	47.1	49.1	51.1	53	55	57	59
16	43.6	45.6	47.6	49.6	51.6	53.6	55.6	57.5	59.5
17	44.1	46.1	48.1	50.1	52	54	56	58	60
18	44.5	46.5	48.5	50.5	52.4	54.4	58.4	58.4	60.3
	Hip Height (inches)								

Frame Score	2	3	4	5	6	7	8	9
Est. Finish Weight (lbs)	850	950	1050	1150	1250	1350	1450	1550

Project Performance

This is where you can document a minimum of four weigh-ins including your final weigh-in. There are also columns to calculate more detailed performance data on your steer. You may find these calculations useful to determine if your project is on target for fair or if you need to change something like the type or quantity of feed being given.

Here is how to do the calculations:

1) Count the number of days between weights taken.
2) Subtract the current weight with the last weight to get total number of pounds gained to date.
3) Divide total number of pounds gained by number of days in this growth period to determine average daily gain (ADG).

You can see if your steer is gaining enough weight per day to reach your target finish weight. Keep in mind steers grow in stages just like people, so seasons and weather changes will effect growth. It is important to look and re-evaluate your steer's target finish weight. Keep in mind most steer's finishing weight is within a few hundred pounds of their dam's mature weight. Therefore, if your steer is calculating to finish at a thousand pounds but you know his dam's weight is closer to one thousand four hundred pounds, you probably should adjust your steer's target finish weight to one thousand, two hundred pounds. However, you may find the next time you weigh him in and re-take his hip height that he went on a growing spurt and is not calculating closer to the one thousand, two hundred pounds.

4) Add up the total pounds of feed from the feed record chart to get the pounds of feed eaten for this growing period.
5) Divide pounds of feed eaten by total pounds gained to see how many pounds of your current feed it takes for your steer to gain one pound.

These calculations may help you determine if you should consider switching to a different feed or feed more of your current feed. Keep in mind changing feed on a steer to quickly can become deadly so it is important to make feed adjustments over several days and not all at once.

Project Performance Record

Periodically it will be important to take measurements of your animal to help ensure it is on track and to help correct problems early when there is still time to correct them. This should be done a minimum of four times during the project year however, more are recommended. Weight tape measurements are ok to use.

Date	Current Weight	Hip Height	Frame Score	Calculated Finish Weight	#of days between weigh-ins	Pound Gained (current weight- last weight)	Average Daily Gian (lbs. Per Day)	Current Pounds of Feed Eaten	Feed Efficiency

Project Performance Evaluations

As your animal grows throughout the project year, document adjustments made for poor or over performance values. This is where you will compare projected and actual values. You can use any weigh-in you like if you have completed more than four or addition sheets can be attached.

First weigh-in

Is your project gaining appropriate amounts to finish on time? _____

How does this actual compare with your initial estimation? _____

_____

What changes need to be made? _____

_____

Second weigh-in

Is your project gaining appropriate amounts to finish on time? _____

How does this actual compare with your initial estimation? _____

_____

What changes need to be made? _____

_____

Third weigh-in

Is your project gaining appropriate amounts to finish on time? _____

How does this actual compare with your initial estimation? _____

_____

What changes need to be made? _____

_____

Fourth weigh-in

Is your project gaining appropriate amounts to finish on time? _____

How does this actual compare with your initial estimation? _____

_____

What changes need to be made? _____

_____

Final Fair weigh-in

Did your project gain appropriate amounts to finish on time? _____

How does this actual compare with your initial estimation? _____

_____

What changes could have been made to correct or improve the final results?

_____

_____

_____

Feed Record

Because not everyone has the same availability or set up to feed a project steer we have allowed for this record to be kept as fed feed or purchased. If you come from a large farm that grows most or all of the feed stuffs given to your steer, it may be easier to keep records on an 'as fed' basis. You could choose to document this daily, however this is not considered necessary. Keep in mind you need to know the amount feed eaten per weigh-in for your calculations.

If you document every time you buy feed, you may need to add a notation of 'pounds fed per day' unless the day you run out of feed is a day you choose to measure your steer's performance and you can simply add up the total pounds for that growth period.

Feed Record Example

Date	Bought (B) or Grown (G)	Feed Type/ Source	Number of Units	Weight of a Unit	Total weight	Cost per Unit Total Cost	Cost per Pound
2-7	*G*	*Hay/Forage*	*6 Bales*	*40 lbs per Bale*	*240 lbs*	*$2/ Bale $24.00*	*$.05*
2-7	*B*	*Corn/Energy*	*6 Bags*	*100 lbs*	*600 lbs*	*$10.95/ Bag $65.70*	*$.11*
2-7	*B*	*Grower/ Complete*	*8 Bags*	*100 lbs*	*800 lbs*	*$13.95/ Bag $111.60*	*$.14*
2-7	B	Grower/ Complete	.21 Bags	100 lbs	21 lbs	$10.00/ Bags $2.10	$.10

Your Feed Documentation

Date	Bought (B) or Grown (G)	Feed Type/ Source	Number of Units	Weight of a Unit	Total weight	Cost per Unit Total Cost	Cost Per Pound

Additional pages can be added if needed. Remember purchased or bought items should have a receipt to document the purchase. Photo copies of receipts are allowed. If you are feeding more than one animal only document the feed that is fed to the specific animal you are documenting as this will directly effect this animal's profitability. Estimations for this purpose are acceptable as long as the documented receipt can prove to be accurate.

For example: You are feeding two steers and buying 2, 100 pound bags of feed every week at $10/bag. One steer is bigger and gains seven pound more than the other steer:

The project record for the bigger steer should read: 1.25 bags, 100 pounds/bag, 125 pounds eaten/fed, $12.50 for 1.25 bags, $.10 per pound.

Steer #2's project record should read .75 bags, 100 pounds/bag, 75 pounds eaten, $7.50 for .75 bags, $.10 per pound.

A notation should be made on the receipt to show the split.

Total cost of forages fed (add all forage total cost) _____

Total cost of grains fed (add all grain total cost) _____

Total cost of supplements fed (add all supplement total cost) _____

Total feed cost (add all three totals up) _____

Project Health Treatment Record

It will be important to document not only what you treated your animal with but to collect the proper data off the label. Sometimes labels are not always clear but the data needed can typically be found by searching the internet. If you wish to become a future farm owner or manager someday treatment records are mandated. Here are a few examples of why proper records are needed:

If you have a cow that gets sick and you treat it with an antibiotic and then decided to cull the cow to an auction and that buyer in turn slaughters the cow for consumption, that cow's carcass could test positive for harmful contaminates. If the product you treated the cow with had a slaughter withdrawal time and the animal went to slaughter, your farm is legally responsible for any contamination or harm done to others.

In a different scenario, if you sell a heifer for breeding and you vaccinated her for shipping fever you would want to help ensure her health to your buyer. However the next thirty days go by and the new owner decides to slaughter the heifer instead. The vaccine you treated her with had a forty five day withholding and now your farm is being fined because the vaccine was given at your facility and you did not give the proper documentation to inform the new owner of the correct date of treatment, product used, and the withholding time.

It can also be useful when dealing with sickness on a farm to document the success of a treatment in case you need to look back and treat a different animal for similar symptoms. For example in a group of steers one steer starts breathing heavily due to respiratory disease. Your veterinarian recommends feeding that steer half a pound of granular Aureomycin a day for five days. Ten days after the treatment the heavy breathing returns in the same animal. Your veterinarian then recommends a ten cc shot of Draxxin which clears up the problem completely in this animal. The following year a different group of steers present the same heavy breathing issue. Looking back you can see it may be better for your herd to be treated with the Draxxin verses the Aureomycin and more cost efficient.

Project Health Treatment Record

Record your animal's health record, treatment etc. In the table below

Date	Animal or pen ID	Product Name	Amount adminis-tered	Person who treated animal	Preslaughter withdrawal	Date with drawl completed	Date & treatment results	Advising veterinarian	Cost

Other Costs or Income

Here is where you may document things like buying shampoo to wash your steer or a halter to show him in. You can also document entry fees paid. If you take your animal to a show and you win prize money you will need to document it here. In the next section you will need to separate out if it was an income or an expense to be sure you are documenting it correctly in your chart. Final sale information will be placed on the financial summary page.

Date	Item/description	Cost ($)	Income ($)
Example 4/18	Entry Fee	$5.00	
Total			

Financial Summary Example

This section is where you will be calculating your profit or loss. If a loss did occur this page may help you determine why you had a loss so you can improve upon it with next year's project. This chart is meant to keep a running total in the last column.

	Actual Amount ($)	Total ($)
Cost of animal at Purchase ($)	$500.00	$500.00
Total Cost of Feed ($)	$2,000.00	$2,500.00
Total Health Care Cost ($)	$50.00	$2,550.00
Other Cost ($)	$380.00	$2,930.00
Other Income ($)	$100.00	$2,830.00
Total Sale Price of Animal ($)	$2.00/lb x 1200lbs =$2,400.00	$430.00
Profit or Loss		Loss

Financial Summary

Here is where you are going to put all your documentation together from the previous pages.

Income

Other income total $_____ Sale Price $_____ Final Weight _____lbs

Expenses

	Beginning Evaluation ($)	Actual Amount ($)	Total ($)
Cost of animal at Purchase ($)			
Total cost of Feed ($)			
Total Health Care Cost ($)			
Other Cost ($)			
Other Income ($)			
Total Sale Price of animal ($)			
Profit or Loss			

How did you do and what can you do differently next year to increase profitability of your project?

_____

_____

_____

_____

How did your initial profitability evaluation and the actual compare and why?

_____

_____

_____

_____

Marketing a Project Steer

In the above example of a financial summary we can draw a few different conclusions and then check our observation by looking deeper into our project record:

1) You notice your "other cost" total seems high. When you look back you see you documented the purchase of several start up items such as buckets, halters, and clippers because it is your first year. Many of these items will carry over to next year's project. This would be one way your profit would improve next year as you won't have these start-up costs next year since these items can be reused.
2) You also know you relied on buyers present at the sale to purchase your steer because you did not take the time to find a minimum of two buyers for your steer and you received the lowest price per pound for your steer on sale night.

This is where marketing comes into play. To make a good "sales pitch" to a potential buyer it is important to take the time and evaluate your steer. The information given to you by the breeder and the measurements you took upon purchase like current weight, hip height, age and breed can all play a role in your marketing scheme. By calculating your estimated finish weight you know about the total pounds your steer will weight come sale night. This is important since steers are typically sold on a per pound bases. Then by taking the weights

throughout the growing period you can see if your animal is staying on target to finish at that weight estimation or if it has changed. You will also start to see how efficient your steer is at turn feed (dollars invested) into pounds (product) to be sold and marketed. This can help you estimate what your final cost to raise your steer might be and give you time to change it before it is too late. You then can calculate what your approximant breakeven price would be (do not use your breakeven price as your market price as your goal should be to make a profit). Pick a reasonable dollar amount say five hundred dollars for profit. Add that amount to your estimated cost to raise and divide out by estimated finish weight to get your estimated desired market price. This is the dollar amount per pound you should be marketing to your buyers. Because steers are very costly not only to raise but to purchase be sure your potential buyer knows approximately what your steer is going to weigh so they can have a total dollar figure prepared when coming to buy. As you advance through the steer project you will be given more tools and ways to help calculate profitability however none of this will matter if you don't market your steer just as diligently as the effort put forth into raising him.

Summing up Your Experience

Answer these final questions before turning in your project record. Answering these questions will help the program educators better understand where they can help improve the program for future years. It will also help you make realizations about your experience of raising a steer.

What You Experienced

What skills did you learn or improve?

_____

_____

_____

_____

What goals did you meet?

_____

_____

_____

In what ways did you help or teach others?

_____

_____

_____

Where did you struggle with your project and what did you do to fix it?

_____

_____

_____

_____

_____

What would you like to learn more about next year?

_____

_____

_____

Portions of this Project Book were adapted from publications from Penn State University's College of Agricultural Sciences and Penn State Extension

Body Condition Score (BCS) Descriptions and Depictions

BCS	Description
1	Clearly defined bone structure of shoulder, ribs, back, hooks and pins easily visible. Little to none muscle tissue or fat present.
2	Small amount of muscling in the hindquarters. Fat is present, but not abundant. Space between spinous process is easily seen.
3	Fat begins to cover loin, back and foreribs. Upper skeletal structures visible. Spinous process is easily identified.
4	Foreribs becoming less noticeable. The transverse spinous process can be identified by palpation. Fat and Muscle tissue not abundant, but increasing fullness.
5	Ribs are visible only when the animal stand stretched. Spin is not visible. Each side of the tailhead is filled but not mounded.
6	Ribs not noticeable to the eye. Muscling in hindquarters plump and full. Fat around tail head and covering the foreribs.
7	Spinous process can only be felt with firm pressure. Fat cover in abundance on either side of tail head.
8	Animal smooth and blocky appearance; bone structure difficult to identify. Fat cover is abundant.
9	Structures difficult to identify. Fat cover is excessive and mobility may be impaired.

Body condition scoring is a subjective measurement, meaning that one producer may score slightly different than another. There are many reasons to body score your herd often and at specific life stages. Many studies have been published and document correlating body condition scores with finish and cutability, colostrum production, pregnancy rates, pregnancy losses, and nutritional status. Body condition scores of 5-7 are optimal bull and cow scores and should be the scores to maintain.



BCS 2



BCS 3



BCS 4



BCS 5



BCS 6



BCS 7