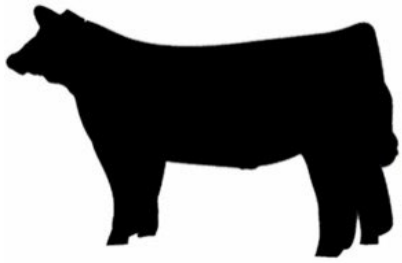
Revised 8-26-2026



4-H Livestock Project Book

20____

Breeding Heifer

Name		Age (as of Dec 31st)		Junior or Senior
Club Name		Club Leader's Name		
Year in 4-H	Year in this project	County Exhibit	State Exhibit	Grade in School

Commitment to Stewardship and Welfare

I WILL:

1. Provide comfortable housing for my animal(s).
2. Feed my animal(s) on time each day.
3. Provide my animal(s) with clean water at all times.
4. Keep my animal(s) free from parasites.
5. Strive to keep my animal(s) in good health.
6. Be kind to animals and act in their best interest.
7. Complete mandatory quality assurance trainings.
8. Keep an accurate record of my projects.
9. Submit required paperwork and forms on-time
10. Always show good sportsmanship in competition.
11. Participate in 4-H Club activities
12. Complete my project requirements.

I UNDERSTAND that the presence of any drug, antibiotic or biological residue in my project animal at slaughter will result in the condemnation of the carcass and forfeiture of all sale proceeds and premiums. I certify that any drug, antibiotic or biological which may have been administered by me, or any other person, was done so in strict compliance with the manufacturer's label requirements.

Member Signature	Parent Signature
Leader Signature	Agent Signature

COOPERATIVE EXTENSION
UNIVERSITY OF HAWAI'I AT MĀNOA
COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES

PROJECT PLAN

Before you purchase your animal, begin your project by completing a plan. Review your plan with your 4-H project leader.

Learning Goals – List 3 goals detailing what you hope to learn about and what skills do you want to practice while doing this project?

My goal for my project this year is to learn:	What I need to do to reach this goal

Planning Notes or Questions You Would Like Answered

Production Plan and Performance

		Example	Expected	Actual County	Actual State
Starting Date of Project	a.	11/24/19			
Ending Date of Project	b.	6/2/20			
Days on Feed	c.	190			
Starting Weight, lb	d.	600			
Final Weight, lb	e.	1200			
Total Weight Gain, lb = Final Wt. - Starting Wt.	f.	600			
Average Daily Gain, lb/day = Total Wt. Gain/Days on Feed	g.	3.16			
• **Expected** Feed Efficiency, lb feed / lb gain **(Beef - 7.5)** • **Actual** Feed Efficiency (i / f)	h.	**7.5**			
• **Expected** Amount of Feed ***Needed***, lb = (h x f) • **Actual** Amount of Feed **Used -** use "Total Feed Purchased" from Page 5	i.	4500			

Financial Plan

Expenses		Expected	Actual
Animal Purchase	a.		
Feed Costs	b.		
Treatment Expenses	c.		
Other Expenses	d.		
Exhibit Expenses	e.		
Total Expenses	f.		
Income		Expected	Actual
Animal Sales Income Needed to Break Even (same as F)	g.		

Project Finances Describe the financial agreements you have made with financial institutions, your family (parents) and/or other persons regarding this project.

Time Spent with Your Project Raising a 4-H livestock project is a time commitment. In the Expected column, document the hours you estimate you'll spend on the items below and at the end of the project document your actual hours.

	Expected	Actual
Hours spent providing general care (daily feeding, watering, pen cleaning, etc.)		
Hours spent preparing for show (training to lead, washing, clipping, etc.)		
Hours spent elsewhere (vaccination, veterinarian visits, quality assurance, etc.)		
Total number of hours spent with your project		

Youth Quality Care of Animals (YQCA) Training/Completion Date

PROJECT MANAGEMENT RECORD

Record this information at the time you purchase your animal and start the project.

Name of Animal		Breed	Color
Birthdate of Animal	Tag / Tattoo Number	Purchase Weight	Purchase Date
Breeder Name & Contact Information			Total Purchase Price

Did you replace the original animal that you originally started the project with? If so, describe that experience and put the original animal's information below.

Treatments: List vaccinations, medications (includes medicated feed) and products used for internal and external parasite control. Treatment records must be kept for one year after the last day of treatment, whereas feed medications records must be kept for two years. Attach prescriptions and other medication information to the Appendix (Page 11)

Date Given	*Product Name*	*Purchased From*	*Lot Number*	*Expiration Date*	*Condition Being Treated*
a.					
b.					
c.					
d.					
e.					

Estimated Animal Weight	*Treatment Amount*	*Treatment Route*[1] *(Oral, SQ, IM, drench, etc.)*	*Who gave Treatment?*	*Withdrawal Time*	*Rx? (Yes/No)*	*Total Cost ($)*
a.						
b.						
c.						
d.						
e.						
** Feel free to duplicate chart onto separate sheet, if more space is needed.					***Totals***	

[1] Subcutaneous (SQ) means injection under the skin; intramuscular (IM) means injection in the muscle.

Other Expenses: List expenses for other items used in the project (fencing, panels, ropes, show sticks, halters, feed troughs, waterers, other supplies, etc.)

Date	*Item Description*	*Quantity*	*Item Cost ($)*	*Total Cost ($)*
** Feel free to duplicate chart onto separate sheet, if more space is needed.			***Totals***	

Estimated Exhibit Record: List estimated expenses for other items used in the project (transportation costs, lodging, pen fees, other supplies, etc.)

Date	*Item Description*	*Est. Total Cost ($)*
** Feel free to duplicate chart onto separate sheet, if more space is needed.	***Totals***	

FEED RECORD

Feed Purchased and Associated Costs. Record purchases of feed and supplements (minerals, vitamins, salt, etc.) throughout the project period. Note if feed is complete feed (starter, grower or finisher), concentrate or a supplement.

Date	*Name of Feed (if applicable)*	*Size per bag (lbs)*	*Amount Purchased (lbs)*	*Cost per bag ($)*	*Total Cost ($)*
		Totals			

** Feel free to duplicate chart onto separate sheet, if more space is needed.

Did you have any issues feeding your animal or obtaining feed this year? Please explain.

Breeding Beef Project Information

Ask your 4-H leader, Extension Agent, Breeder, or Parents for help in completing this page

Basic Animal Statistics and Pedigree Information

Heifer's Ear Tag Number		Sire's ID or Name		Sire's Breed	
Heifer's Breed Composition		Dam's ID or Name		Dam's Breed	
Open or Bred Heifer Project		TSU ID for DNA			

Performance Projections

Initial WT (lbs.)		Initial Age (d)		Initial WDA[2]	
Initial Hip HT (in)		Initial Frame Score[3]		Est. Mature Cow WT[4]	
Final WT (lbs)		Final Age (d)		Final WDA[1]	
Final Hip HT (in)		Final Frame Score[2]		Est. Mature Cow WT[3]	

Complete the following if you had a commercial heifer:

- What is the breed composition of your heifer? Why did you select her for this project? Was she purchased or raised?

- What are some qualities (either positive or negative) about your heifer's conformation and/or performance traits? What traits does she excel in? What would you like to change?

- What bull or breed of did you use to breed your heifer (or what would desire to use for open heifers), and why did/would you select this bull or breed of bull?

- Are you planning to breed your heifer via natural service or through artificial insemination? If so, do you plan to use estrus synchronization, or detection of natural heats? If synchronizing estrus, what protocol did you (or are you planning to) use? Who helped you?

[2] Equation for Weight per Day of Age (WDA) = Weight/Days of Age

[3] Equation for Frame Score = -11.7086 + (0.4723 x Ht.) - (0.0239 x Age) + (0.0000146 x Age x Age) + (0.0000759 x Ht. x Age) where Age = days of age and Ht. = hip height. Can also use Table 1 on following page.

[4] Use Table 2 to project mature size based on animal's frame score.

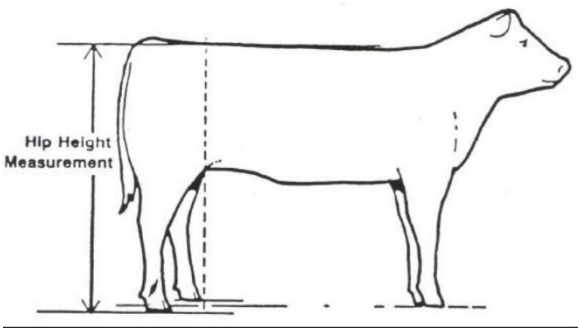


Figure 1. Recommended site for heifer hip height measurement to be taken for accurate projections of future mature cow size.

Table 1. Heifer Hip Height (inches) Frame Score for Ages 5 to 21 Months

Frame Score Based on Hip Height at Various Ages								
Age in Months	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
6	34.1	36.2	38.2	40.3	42.3	44.4	46.5	48.5
7	35.1	37.1	39.2	41.2	43.3	45.3	47.4	49.4
8	36.0	38.0	40.1	42.1	44.1	46.2	48.2	50.2
9	36.8	38.9	40.9	42.9	44.9	47.0	49.0	51.0
10	37.6	39.6	41.6	43.7	45.7	47.7	49.7	51.7
11	38.3	40.3	42.3	44.3	46.4	48.4	50.4	52.4
12	39.0	41.0	43.0	45.0	47.0	49.0	51.0	53.0
13	39.6	41.6	43.6	45.5	47.5	49.5	51.5	53.5
14	40.1	42.1	44.1	46.1	48.0	50.0	52.0	54.0
15	40.6	42.6	44.5	46.5	48.5	50.5	52.4	54.4
16	41.0	43.0	44.9	46.9	48.9	50.8	52.8	54.8
17	41.4	43.3	45.3	47.2	49.2	51.1	53.1	55.1
18	41.7	43.6	45.6	47.5	49.5	51.4	53.4	55.3
19	41.9	43.9	45.8	47.7	49.7	51.6	53.6	55.5
20	42.1	44.1	46.0	47.9	49.8	51.8	53.7	55.6
21	42.3	44.2	46.1	48.0	50.0	51.9	53.8	55.7

Table 2. Expected Mature Cow Size Based on Frame Scores

Frame Score	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Mature Cow Weight (lbs)	750 - 850	850 - 950	950 - 1050	1050 - 1150	1150 - 1250	1250 - 1350	1350 - 1450	1450 - 1550

Beef Knowledge and Skills I Gained This Year

Check 6-7 items below that you learned or improved in 4-H during the past year. Some may not apply to your project.

I learned or improved my ability to…

Beginning Skills	Intermediate Skills
☐ Identify 6 breeds.	☐ Read one or more livestock publications.
☐ Identify at least 2 characteristics for 3 breeds.	☐ Help a new member learn to correctly identify. 15-20 external parts for their project animal(s).
☐ Identify 10-15 parts of your project animal.	☐ Describe the proper procedure for deworming a project animal.
☐ Explain 3 steps you would take to prevent disease in a project animal.	☐ Name 5 management practices you use with your project animal.
☐ Identify equipment needed to raise a market or animal.	☐ Give a demonstration on 9 different breeds, including the origin, breed characteristics and use of each breed.
☐ Define the following terms for specie(s) you are raising: ewe/gilt/doe/heifer, ram/boar/billy/bull, wether, yearling, loin, purebred and grade.	☐ Using a picture or an actual animal, describe an ideal market animal or breeding animal, using judging terms.
☐ Visit a local grocery store, list of 2 different retail cuts of meat and identify the location of these two retail cuts on a live animal.	☐ Discuss the various records that a livestock producer should keep and explain why each is useful.
☐ Explain 2 types of parasites and name one of each kind that are common to your species.	☐ Help a new 4-H member update his/her record book.
☐ Identify 5 main categories of nutrients needed for growth and production.	☐ Name 9 by-products from the specie(s) you are raising for your project.
☐ Name 8 or more feed ingredients commonly fed to your project animal and tell the major use each serves in the ration as a source of protein, vitamins, minerals, fat, carbohydrates and water.	☐ Correctly identify 8 different cuts of meat produced by a market animal and explain where the cut of meat comes from.
☐ Explain 2 sections of a feed tag and what is included in the section.	☐ Name 3 methods of identification used for livestock.
☐ Identify the following undesirable characteristics: post-legged, weak pasterns, cow-hocked, overshot or undershot jaw.	☐ Explain the meaning of the following terms: carbohydrates, fat, minerals, protein, vitamins, fat soluble and water soluble.
☐ Describe 3 methods of giving an injection and the referred sites.	☐ Judge a class of 4 market or breeding animals and give oral reasons on your placings.
☐ Teach your project animal to lead and describe the proper way to put on a halter and the proper side to lead your project animal.	☐ Interview a livestock producer in order to discover the desired characteristics of the ideal market or breeding animal.
☐ Compete in a showmanship class.	☐ Explain the difference between a monogastric and ruminant animal.
☐ Identify 5 things that are essential in keeping your animal healthy and clean at the fair.	☐ Explain what a parasite is and name 4 that are common to your project animal.
☐ Other (optional):	☐ Other (optional):

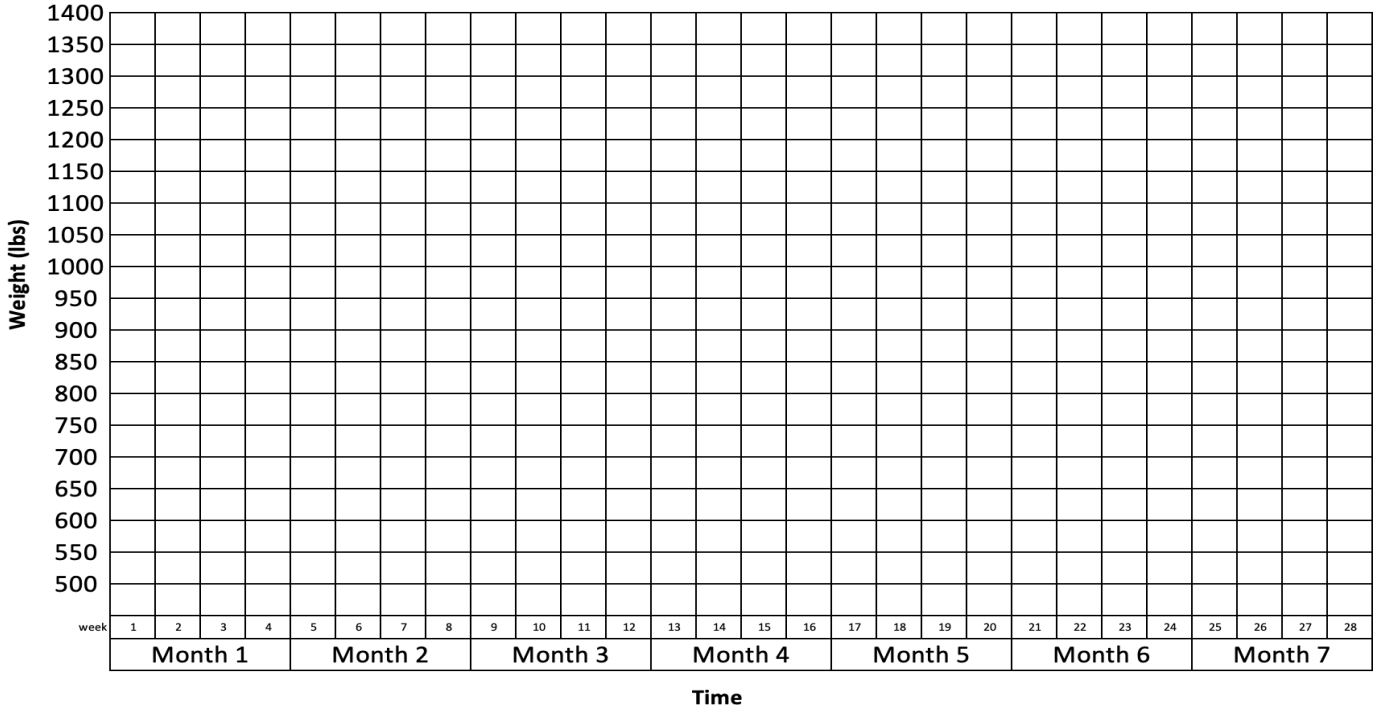
Advanced Skills

- ☐ Help a new 4-Her in a livestock project prepare their animal for showing.
- ☐ Help a new 4-Her select an animal for their livestock project.
- ☐ Describe what carcass measurements are listed for livestock, and listing all the formulas for all the areas.
- ☐ Compile a list of all retail cuts of meat that are produced by a market animal and identify from which wholesale cut each comes.
- ☐ Plan a waste disposal system for a livestock operation.
- ☐ Join a Junior breed association or a local or state breeder's association.
- ☐ Research the different careers available in animal science and visit a business that offers opportunities for people with animal science degrees.
- ☐ Develop a plan to deal with questions from the media on livestock practices.
- ☐ Research the various livestock marketing alternatives for your project animal.
- ☐ Lead an activity in your club meeting to teach members in your club how to write a proper Thank you note to award donors, buyers and anyone who helped you with your project.
- ☐ Explain 3 different ways to ensure high quality meat in a market project.
- ☐ Demonstrate how to properly store, label and account for all drug products and medicated feeds.
- ☐ Plan & organize a county-wide workshop.
- ☐ Help a new 4-H member update his/her record book.
- ☐ Shadow someone in a livestock-related career.
- ☐ Achieve a target rate of gain of 2.5 lbs/day on your beef project.
- ☐ Other (optional):

Appendix Section: Attach newspaper articles, feed labels, medication labels, or other artifact, etc., that support your Livestock project)

- For digital photos: Click “TOOLS” in the tool bar, click ‘EDIT PDF”, click “ADD IMAGE”, select your image and position on the page and click.

Breeding Heifer Performance Graph. Chart the estimated weight of your animal on this graph throughout the duration of the project. Use a tape to estimate weight if a scale is not available.



MY PROJECT CONCLUSION

1. What are some observations from working with your animal throughout the course of the project? Referring back to the *Production Plan & Performance* chart on Page 2, how did your animal's actual performance compare to the expected performance?

2. What would you change or do the same the next time you begin a heifer project? For example: different feed, different breed, frame size of animal, etc. you would start with.

3. Referring to the *Learning Goals* you wrote on Page 2, did you achieve your learning goals? What was most helpful in achieving them? What problems did you experience?

BREEDING HEIFER PROJECT BOOK SCORE SHEET

Name:_____ **County:** _____

Category: _____ **Ribbon Color:** _____ **Judge's Initials:**____

Instructions: Check one box for the statement on each row that best describes each record book section/criteria. Provide points for each row and specific details in the comment boxes if necessary.

	PTS	Excellent	Good	Fair	Needs Improvement	Comments
Cover Page - Complete with signatures		*(5)*	*(4-3)*	*(2)*	*(1)*	
Project Plan Goals - Realistic, age/skill appropriate and documents what member wants to learn.		*(15-11)*	*(10-6)*	*(5-2)*	*(1)*	
Production Plan & Performance - Member completed information on all sections, calculation are accurate.		*(15-11)*	*(10-6)*	*(5-2)*	*(1)*	
Financial Plan & Project Finances - Expected column completed, Actual column completed, along with any financial agreement.		*(15-11)*	*(10-6)*	*(5-2)*	*(1)*	
Summary of Time Spent with Project Animal & YQCA Date - All sections are completed.		*(5)*	*(4-3)*	*(2)*	*(1)*	
Project Management Records – Completed project animal information, treatment records, other expenses, exhibit expenses and feed expenses.		*(15-11)*	*(10-6)*	*(5-2)*	*(1)*	
Breeding Beef Project Information - Basic Animal Statistics and Pedigree Information chart completed along with well thought out responses to questions.		*(15-11)*	*(10-6)*	*(5-2)*	*(1)*	
Knowledge & Skill Sheet, Appendix & Graph – Member documented 6-7 new skills learned from their skill level section.		*(5)*	*(4-3)*	*(2)*	*(1)*	
Project Conclusion – Completed with well thought out responses to questions.		*(25-20)*	*(19-10)*	*(9-5)*	*(4-1)*	
Appendix & Graft - Attach newspaper articles, feed labels, or other artifact, etc., that supports this Livestock project and completed Breeding Heifer Performance Graph.		*(5)*	*(4-3)*	*(2)*	*(1)*	

** Blue = 120 - 108 pts Red = 107 - 96 pts White 95 pts or lower

Please include any other specific comments or suggestions for improvement here: