

Wyoming FFA Cowboy Classic Contest 2015
Agricultural Technology and Mechanical Systems
Team Activity: Livestock Production

Event Format:

A. Equipment Provided:

1. Calculator – participants will be allowed to provide their own.
2. Scratch paper for problem solving.

B. Objective:

The team activity evaluates the ability of team members to work together while using decision-making and problem analysis skills by applying concepts taught in livestock production and animal science.

1. Members of a team work together cooperatively to complete this section.
2. Sixty (60) minutes are allowed for completion of the team activity. At the end of the activity, each team submits the completed documents to be scored.
3. The team activity involves the use of construction skills and the resource information.
4. The team activity has a maximum value of 400 points per team and is only included in the team score
5. All team members must be involved in the team activity to receive credit. If a team has two or less participants no credit will be allowed in the team portion of the event.

Directions:

Work as a group to complete parts A, B, and C. While you are working you will be evaluated by an observer on your ability to work as a team. Your team will have 60 minutes to create a computer generated report while utilizing materials and equipment provided to solve the problems below. Your document must include a cover page with title, state name, a description of the activity, a description of each team member's role, calculations/ diagrams identified by instructions and correlated with the activity theme. You must also include any and all justification(s) about how you reached your answer, as well as proper formatting throughout the typed document, including: typed Times New Roman 12pt font, 1" margins, and double spacing. Recall you will be graded on process and team cooperation and sharing of roles and tasks, as well. PLEASE be respectful of materials and equipment provided, do not mark on anything except for ration calculation sheet and scratch paper provided, thank you.

Scenario:

The University of Wyoming Beef Unit has expanded with 50 heifers obtained at weaning and has just hired your team to manage these heifers from weaning to calving. Your duties will challenge your team's knowledge of equipment, feeding, and breeding. It will be your duty to identify the equipment/tools, compare cost analysis of rations for these heifers, and recommend a bull to be used on this set of heifers. These three parts need to be presented in a formal document using Word or Excel. Please ensure that there is a cover page with the required fields as listed above. Your report needs to contain graphs and or figures and the three sections listed below.

A. **(Identification 25 pts./ Justification 25 pts.)** Since you have been hired, some of the tools for the beef unit have gone missing. There is a list of all the tools the beef unit has previously had. Your team's first task is to use the photos provide to identify tools that remain for your use in the heifer production. Your team will also need to explain what each tool is used for. After you finish that part you will need to create a list of the available tools that are necessary for this operation. Please note that tagging is the preferred identification method at the University of Wyoming Beef Unit.

Tool	Name	Function
Tool A	Pour-On Gun	Used to medicate with anti-parasitic drugs.
Tool B	Syringe	Used to administer the appropriate vaccine or medicine to prevent or cure diseases.
Tool C	Tagger	Used to insert the tag into cattle ear
Tool D	Ear Notcher	Used to notch a cattle's ear for identification purposes.
Tool E	Balling Gun	Used for oral administration of capsules and boluses of animals
Tool F	Tattoo Gun	Used to apply a tattoo mark on cattle for identification purposes
Tool G	Bander	Used to apply castration bands to castrate animals.
Tool H	Branding Iron	Used to leave a permeant brand mark on cattle for ownership or identification purposes
Tool I	Chute	Used to safely handle cattle for contact related needs.
Tool J	AI Gun	Used to manually impregnate cattle.
Tool K	Livestock Markers	Used for temporary identification purposes
Tool L	Cattle Tag	Used for identification purposes.
Tool M	Bale Feeder	Used to feed bales of hay
Tool N	Warm Bath	Used to keep the AI Guns Warm while AI-ing
Tool O	Calf Puller	Used to pull the calf from the cow in a difficult birth
Tool P	Scale	Used to weigh the cattle
Tool Q	Panel	Used to keep livestock in a certain area
Tool R	AI Glove	Used for protection and cleanliness while AI-ing
Tool S	Bottle	Used to hand feed milk to calves
Tool T	Implant Gun	Used to inject implants, such as hormones, to improve nutrients or growth/production rates
Tool U	Liquid-Nitrogen Tank	Used to rapid freeze and store semen
Tool V	Calf Nipple	Used to hand feed milk to calves
Tool W	Dehorner	Used to cut out horns on calves
Tool X	Castration Bands	Used to castrate animals by cutting off blood circulation
Tool Y	Ratchet Bander	Used to apply castration bands, typically for larger animals.

List of essential tools

- Pour-On Gun
- Syringe
- Tagger
- Balling Gun
- Chute
- AI Gun
- Livestock Markers
- Cattle Tag
- Bale Feeder
- Warm Bath
- Calf Puller
- Scale
- Panel
- AI Glove
- Liquid-Nitrogen Tank

- B. (Calculations 20 pts./ Work Shown 20 pts.) One of your duties for this position is formulating rations to feed the heifers and determine the cheapest cost. On another sheet that is provided please formulate rations based on the two life stages and cost for each ration based on 100 lbs. don't forget to staple the ration calculation sheet to the back of the report. You might consider using a pie chart to help show the distribution of the two feeds in your rations.

Ration Calculation Sheet

The beef unit has provided you with two different types options for feeding you will need to complete a ration (determine the percentage of each of the two feeds that will be in a serving) for each option and then determine which would be most cost effective. Use the feed composition table and the comedies price to help complete this activity.

~*~ Hint: When determining cost base the feed on percentages of 100 lbs.

The two feed combinations include:

- Alfalfa Hay and Sweet Corn Silage
- Bromegrass Hay and Dried Brewers Grain

- 1) As you may already know growing animals require more protein than grown animals. As you begin your job you need to formulate rations for your growing heifers, your boss recommends feeding 13% crude protein. In the space below please formulate rations and determine feed cost.

Alfalfa Hay 13% 13%
CP 1 parts
Corn silage 14% 1 parts
2 parts

Bromegrass Hay 10% 13%
CP 16 parts
Dried Distillers 29 Grain 3 parts
19 parts

Alfalfa Hay

$\frac{1}{2}$ parts \Rightarrow 50% so, 50 pounds
 $\$189.50 / 2,000 \text{ lbs} = \$0.09475 \text{ per pound}$
 $\$0.09475 \times 50 \text{ pounds} = \$4.74 \text{ for 50 lbs hay}$

Corn Silage

$\frac{1}{2}$ parts \Rightarrow 50% so, 50 pounds
 $\$134.18 / 2,000 \text{ lbs} = \$0.06709 \text{ per pound}$
 $\$0.06709 \times 50 \text{ lbs} = \3.35

Total Cost

$\$4.74 + \$3.35 = \$8.09 / 100 \text{ pounds}$

Bromegrass Hay

$\frac{16}{19} \text{ parts} \Rightarrow 84.21\% \text{ so, } 84.21 \text{ pounds}$
 $\$173.00 / 2,000 \text{ lbs} = \0.0865 per pound
 $\$0.0865 \times 84.21 \text{ pounds} = \7.28

Dried Distillers Grain

$\frac{3}{19} \text{ parts} \Rightarrow 15.79\% \text{ so, } 15.79 \text{ pounds}$
 $\$135.00 / 2,000 = \0.0675 per pound
 $\$0.0675 \times 15.79 = \1.07

Total Cost

$\$7.28 + \$1.07 = \$8.35 / 100 \text{ pounds}$

~~Alfalfa Hay and Corn Silage is cheapest?~~

2) When cattle begin to cycle (prior to being bred) their energy requirements increase by roughly 20%. In feed the amount of energy is estimated by the Total Digestible Nutrients (TDN). You find that it is recommend to feed 60% TDN for this time in the reproductive cycle. Using the same feed combination as before, calculate a new ration for 60% TDN and calculate the cost.

Alfalfa hay 50% 60% TDN 5 parts
 Corn Silage 65% 60% TDN 10 parts
 15 parts

Bromegrass Hay 55% 60% TDN 32 parts
 Distillers grain 92 60% TDN 5 parts
 37 parts

Alfalfa Hay

$5/15 \Rightarrow 33.33\%$ so, 33.33 pounds
 $\$189.56/2,000 \text{ lbs} = \$0.09475 \text{ per pound}$
 $\$0.09475 \times 33.33 \text{ pounds} = \3.16

Corn Silage

$10/15 \Rightarrow 66.67\%$ so, 66.67 pounds
 $\$134.18/2,000 \text{ pounds} = \$0.06709 \text{ per pound}$
 $\$0.06709 \times 66.67 \text{ pounds} = \4.47

Total Cost

$\$3.16 + \$4.47 = \$7.63 \text{ per 100 pounds}$

Bromegrass Hay

$32/37 \Rightarrow 86.49\%$ so, 86.49 pounds
 $\$173.00/2,000 \text{ pounds} = \0.0865 per pound
 $\$0.0865 \times 86.49 = \7.48

Distillers grain

$5/37 \Rightarrow 13.51\%$ so, 13.51 pounds
 $\$135.00/2,000 \text{ lbs} = \0.0675 per pound
 $\$0.0675 \times 13.51 \text{ pounds} = \0.91

Total Cost

$\$7.48 + \$0.91 = \$8.39$

~~*****~~
~~Alfalfa Hay and Corn Silage~~
~~is cheapest~~
~~*****~~

- C. **(Identification 20pts./ Justification 30pts.)** One of the final duties that your team has for this year's heifer project is to rank the bulls provided from the university from best to worst. Provided are four bull pictures and Estimated Progeny Differences (EPD). This is a class of four bulls to breed your herd of heifers to. Be concerned with birth weight, weaning weight, and yearling weight. In a perfect world, low birth weights with high weaning and yearling weights are ideal. Also look at phenotype with the photos provided. You all will then rank the bulls 1 to 4, and give reasons to why the bulls are ranked in that manner.

Rank Place	Bull	Reasoning
1	Bull D	Isn't the lowest birth weight, but comes in second with that. Has very high and good weaning and yearling weights. Overall has the best phenotype of all of the bulls seen in this class.
2	Bull B	This bull has the lowest birth weight percentages. He does not show the greatest weaning and yearling weights compared to bull D.
3	Bull A	This bull has a higher birthweight with not the greatest weaning and yearling weight compared to bulls D & B.
4	Bull C	This bull has the largest birthweight, with lower weaning and yearling weights. As we are breeding heifers we would like to have a low birth weight for calving ease.