

Agricultural Technology and Mechanical Systems Career Development Event 2012
Team Activity – Theme: Materials Handling Systems

Directions:

Work as a group to complete parts A, B and C. You may use both word and excel to produce a report of your work. Please submit all materials imbedded in a single word document. (Consult the included report scoring rubric to include all necessary criteria and formatting for your document). Organize yourselves in order to properly address all sections. While you are working you will be evaluated by an observer on your ability to work as a team. Save a copy of your document and print one copy for submission and evaluation. You have 1 hour.

Scenario:

You are a Northeast Wyoming rancher. Currently you have expanded your business and now find you need another fenced hay yard to accommodate for the new expansion of feed. You have budgeted \$575 for the project.

Today your team needs to decide the dimensions of a hay yard and the costs associated with building it. You currently use 4'x4'x6' square bales to feed your operation. You need to create a square hay yard to accommodate 100 bales (make sure to allow 50% extra room for maneuverability). You are able to stack bales four high for storage in your yard.

You have decided to build the hay yard with an option of either steel or wood posts and then 1 unit of woven wire and 2 units of barbed wire in order to prevent access to the feed from wildlife. The distance between each wood post must be 6' and each steel post is 4'. The yard must have one gate entrance 12' wide (a gate purchase will not be included in the costs because you currently own a gate). 1 unit of woven wire and 2 units barbed wire per foot will be used to create a fence 10' high. Cost associated per foot is on attached on cost sheet. Also, any tools or additional materials have already been purchased and have not been factored into the costs.

Part A

As a team, calculate the area and perimeter of your hay yard. After doing so, calculate the amount of material needed to complete the project. (Remember that each wood post must be 6' apart, and each steel post must be 4' apart; you have one gate entrance; 50% excess room to maneuver).

Part B

Create a materials cost estimate for each approach to complete the hay yard. Your estimate(s) should include the costs of using posts, woven wire, and barbed wire. Create a cost sheet for the wood post option and steel post option.

Part C

What are you going to recommend to your business partners? Use your knowledge of good business practice and information from Part A and B to justify your recommendation with a 1 paragraph response.

Cost Sheet

14' Wood Posts	\$23.50 each
12' Steel Post	\$18.75 each
Barbed Wire	\$0.15 per foot
8' Woven Wire	\$1.06 per foot

Answer Key

Part A

Points Possible: 50 pts

100 bales * 4' x 6' bales = 2400 square feet

2400 square feet / 4 bales stacked = 600 square feet stacked

600 square feet * 50% maneuverability = 900 square feet needed

$\sqrt{900} = 30' \times 30'$ enclosure

30' + 30' + 30' + 30' = 120' perimeter – 12' gate = 108' perimeter

Final answer = 108' perimeter

108' / 6' = 18 wooden posts

108' / 4' = 27 steel posts

108' of woven wire, 216' of barbed wire

Part B:

Points Possible: 50 pts

Wooden posts cost = \$423

Steel posts cost = \$506.25

Woven Wire = \$114.48

Barbed Wire = \$32.4

Materials Used:	Post Costs	Woven Wire Costs	Barbed Wire Costs	Total Cost
Wood Posts/Woven Wire/Barbed Wire	\$423	\$114.48	\$32.40	\$569.88
Steel Posts/Woven Wire/Barbed Wire	\$506.25	\$114.48	\$32.40	\$653.13

Part C:

Points Possible: 40

Area	10 Points	5 Points	0 Points
Decision	Logically justified business decision	Decision is poorly justified	Decision is listed or completely unjustified
Justification	Makes logical sense	Justification is incomplete or illogical	No justification given or justification is completely off target