

Cowboy Classic 2014
Agricultural Technology and Mechanical Systems
Team Activity: Integrated Pest Management

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 horticulture and plant sciences.

 - 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 scratch paper provided, thank you.

Scenario:

You are working as a consultant for T's pest services. Your boss has time on his hands and since you and your team are new in the business your boss decides to challenge your team. He has recently received numerous phone calls from alfalfa farmers, including three clients with 240 acres in Casper, 320 acres Wheatland, and 280 acres in Rawlins, Wyoming. They have all complained of pest issues. They share similar symptoms with their alfalfa crop wilting. Altogether their crop yields are less abundant than expected, proper irrigation and nutrients are being provided for proper growth. Your boss tells you some light to dark green, long-legged, slender insects with long mostly green antenna, have been found in abundance in the alfalfa fields by the farmers.

Part A (Proper identification= ___ pts/ Justifications = ___ pts):

Put together a word document that you can turn into your boss by the end of the hour. In it include the suspected pests' name, lifespan, damage it may cause to plants, and identification characteristics (in your own words). As well, brainstorm on biological control ideas, modification suggestions for cultural practices, and chemical control; include an example of each. He wants subheadings with specific findings following each heading to make the document easy to interpret. Part A should be no more than 1 page double spaced.

Part B (Calculations work= ___pts/Calculations justified = ___pts):

Once you properly identify the pest species your boss asks you to make a gas cost analysis sheet. He wants you to do this the old fashioned way using a map and your resources provided. Your business of operation is in Laramie, Wyoming and you need to travel to Casper, Wheatland, and Rawlins to determine if a chemical method of controlling the pest is the best method. With diesel at about \$3.51 per gallon and your company truck receiving an estimated 17 mpg make a cost sheet in excel or word for the cheapest/shortest route of travel (make this clear). Make this near accurate (use major highways).

Part C (Calculations work= ___pts/Calculations justified = ___pts):

You return back with stem and sweep net samples of pest species per leaf at different plant heights for further study. With the solutions your team provided one farmer decided he would follow your suggestions and alter his farming practices for a potential solution to his pest problem. On the other hand, the other two clients were undecided between biological control practices and/or a chemical-use method. Your boss gives you a chart to help determine which method is the best:

Pest	Plants <10"	Plants 10-20"	Plants > 20"
	40-50 / stem	70-80 /stem	100+ /stem

*if there are 4 or more adult lady bird beetles or 3 or more larvae per sweep for every 40 pests treatment is not needed (one larva/sweep: 50 pests/stem for stubble).

You gather three more samples and average them every two to three days from your clients:

Location	Plant height	Pest/ stem	Pest/ stem	Pest/ stem	Pest/ stem
Rawlins	8"	50	46	42	38
Casper	10"	67	75	73	77
Location	Plant height	Predator/stem	Predator/stem	Predator/stem	Predator/stem
Rawlins	8"	3	3	4	4
Casper	10"	1	2	2	1

With this information you should be able to assist your clients with the cheapest solution and justification for their next method of action (Make this clear). In the excel document/word, compare the two pesticides that your boss recommends to give an estimate of cost to the client(s) for one application.

Pesticide	Active ingredient	Dilution (water)	Application rate	Cost
Lorsban 4E	1.25 pint/ acre	15 gal/ pint	1 pint/ acre	\$3.20/ pint
Dimethoate 2.67 EC	.35 pint/ acre	30 gal/ pint	1 pint/ acre	\$9.00/ pint