

Name _____ School _____

**2015 Wyoming State FFA CDE
Agricultural Technology and Mechanical Systems
Machinery and Equipment Systems Activity- Sprayer**

During the summer you were retained for an internship at your local natural resources conversation district (NRCS). A farmer from the community needs assistance controlling Russian olive trees on his property. During your internship, you were trained on how to utilize the different options for management of his problem. The Russian olives cover a 15-acre area over .25 of a mile long. After investigating the problem, you have determined that it is too late for a spring spray program, so you plan on a late summer cut and spray technique. This technique requires that the manager remove the tree and then spray the infested area. The most cost efficient herbicide is Arsenal with the active ingredient *Imazapyr*. **The label calls for 3 pints of mixed solution (1% solution) applied to foliage per acre for the desired application rate.** Prior to managing the infestation, you are required to inspect the 25-gallon sprayer used for any concerns and replace the parts as needed.

Match the number, attached to a part on the sprayer, with the corresponding name.

	Part Number	Part Name		Part Number	Part Name
A	9	Handgun Clips	F	4	P.S.I. gauge
B	3	Threaded Tank Lid	G	7	Handgun
C	6	Lead Wire Assembly w/switch	H	1	Drain Plug Cap
D	2	25-gallon poly tank	I	8	Pump
E	10	Nylon Shut Off Valve	J	5	Poly Knurled Swivel Nut

Calculations

1 Pint = .125 gallons	Sprayer Coverage = Tank capacity ÷ Application rate		
\$389.95 for 2.5 Gallons	Pesticide total volume = Acreage x Application rate.		

1. Calculate the number of acres capable of being sprayed by a full tank of spray mixture.

$$\text{Acres per tank} = 25 \text{ gallon per tank} / .375 \text{ gal per acre} = 66.6 \text{ acres per tank}$$

2. Calculate the volume of pesticide to mix for the desired area

$$\text{Gallons of Arsenal} = 15 \text{ acres} \times .375 \text{ gal per acre} = 5.625 \text{ gal}$$

3. Calculate the total cost of Arsenal needed.

$$\$389.95 / 2.5 = \$155.98 \text{ per gallon}; \$155.98 \times 5.625 \text{ gal} = \$877.3875 \text{ Total cost.}$$

Criterion	Points Possible	Points Earned
Parts ID	20 (2 points each)	
Questions	6 (2 point each)	

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Safety	4 (recorded by skill proctor)	
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