

Name: _____ Class: _____

Cost of Artificial Insemination

Worksheet Answer Key

Based on the information given determine if it is better to cost effective to use AI for breeding Dairy Cattle.

<i>Name of Item</i>	<i>Cost per unit</i>
<i>Drug cost for synchronization</i>	\$15/ head
<i>Semen cost</i>	\$25 per straw
<i>Technician Cost</i>	\$10/ head
<i>Semen tank cost</i>	\$950/ 20 years
<i>Liquid Nitrogen</i>	\$30/ Month

Information about the herd:

# of Cows	100
# of Heifers	15
Bulls required for NS	5
Average purchase price of bulls	\$2,750/ head
Salvage value of bulls	\$1,700/ head
Useful life of bull	3 yrs.
Annual bull maintenance expense	\$650/ head
Bull to Cow Ratio	1:25

- Based on the information given above determine how much it **costs to own bulls** on this farm to breed all the animals. Note when calculating bull cost, you will also need to include a "Risk of Bull Loss" fee which is calculated with the following formula: $0.2[(\text{Average Purchase Price of Bull} + \text{Salvage Value})/2]$. The risk of bull loss term represents potential financial loss due to a bull becoming incapacitated through death, injury, infertility, etc. The factor 0.2 represents the probability of such a loss occurring.

	\$/bull	Total for 5 bulls
Annual ownership cost: $(2,750 - 1,700)/3$	\$350	\$1,750
Annual maintenance cost	\$650	\$3,250
Risk of bull loss: $0.2[(\$2,750 + \$1,700)/2]$	\$445	\$2,225
Total Cost	\$1,445	\$7,225

- Using the information given calculate the cost of Artificial Insemination to breed all the animals present.

	\$/head	\$/115
Drug Costs	\$15	\$1,725
Semen Cost	\$25	\$2,875
Technician Fees	\$10	\$1,150
Tank cost (950/20 years)	\$0.41	\$47.50
Liquid Nitrogen Cost (\$30 x 12 months)	\$3.13	\$360
Total cost	\$53.54	\$6,157.50

3. Based on the values calculated in #1 and #2 which would you recommend, Artificial Insemination or Natural Service?

In this example it is cheaper to use AI. This may not be the case if you have to handle the animals more times. This can also be considered as another example.

4. Even if AI is more expensive are there other benefits to using Artificial Insemination.

Using AI eliminates having a temperamental bull on the premises. It is safer for the farmer and their hired help if a bull is not present. Semen straws also do not require feed and veterinary services. A farmer using AI also has access to the latest greatest genetics. The bull may have been top notch when he was purchased, but there may be a better bull a year or two after the bull's purchase.