

Partial Budgeting Examples

AAE 320: Farming Systems Management

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AGRICULTURAL & APPLIED ECONOMICS





Think Break #1

- You are a corn-soybean farmer currently custom hiring all combining. You are considering buying a combine.
- Do a partial budget analysis of a Combine Purchase vs. Custom Hire
- Corn acres = 250; Soybean acres 250
- Custom Rates = \$35/ac for corn, \$33/ac for soybeans
- Ownership Cost Estimates: \$40/ac for corn, \$38/ac for soybeans
- 1% yield increase due to more timely harvest
- Average Yields = 180 bu/ac for corn and 60 bu/ac for soybeans
- Expected Prices = \$3/bu for corn and \$9/bu for soybeans

Think Break #1 Answer: Combine purchase vs custom hire			
Benefits	Costs		
Additional Revenues What will be new or added revenues?	Additional Costs What will be new or added costs?		
<u>Costs Reduced</u> What costs will be reduced or eliminated?	<u>Revenues Reduced</u> What revenues will be reduced or lost?		
Total Benefits	Total Costs		
Calculate Net Gain =Total Benefits – Total Costs			

Think Break #1: Answer

Benefits

- What will be new or added revenues? 1% Yield gains
 - Corn: 1% x 180 bu/ac x \$3/bu x 250 ac = \$1,350
 - Soybean: 1% x 60 bu/ac x \$9/bu x 250 ac = \$1,350
- What costs will be reduced or eliminated? Custom hire costs
 - Corn custom hire: \$35/ac x 250 ac = \$8,750
 - Soybean custom hire: \$33/ac x 250 ac = \$8,250

<u>Costs</u>

- What will be new or added costs? **Ownership costs**
 - Corn ownership: \$40/ac x 250 ac = \$10,000
 - Soybean ownership: \$38/ac x 250 ac = \$9,500
- What revenues will be reduced or lost? None

Think Break #1 Answer: Combine purchase vs custom hire

Benefits		Costs	
Additional Revenues		Additional Costs	
 What will be new or Corn: 1% x 180 lac = \$1,350 Soybean: 1% x 6 250 ac = \$1,350 	added revenues? ou/ac x \$3/bu x 250 50 bu/ac x \$9/bu x	 What will be new or added costs? Corn ownership: \$40/ac x 250 ac = \$10,000 Soybean ownership: \$38/ac x 250 ac = \$9,500 	
Costs Reduced		Revenues Reduced	<u>I</u>
 What costs will be reduced or eliminated? Corn custom hire: \$35/ac x 250 ac = \$8,750 Soybean custom hire: \$33/ac x 250 ac = \$8,250 		What revenues will be reduced or lost? None 	
Total Benefits	\$19,700	Total Costs	\$19,500
Calculate Net Gain =Total Benefits – Total Costs \$20		\$200	



Biological Seed Treatment



What's on Your Seed?

- Seed treatments are very common for most seeds
- Fungicides, insecticides, nematicides, plant growth regulators
- <u>https://ipcm.wisc.edu/downl</u> <u>oad/pubsPM/Whats on your</u> <u>seed web.pdf</u>

Example #2: Seed Treatment

- You plant soybeans every year and are considering reducing seed costs by not buying an insecticidal seed treatment
- Do a partial budget analysis of with and without a seed treatment
- Seed seller: save \$10/ac if no insecticide seed treatment
- Plant more seed per acre (stand loss due to insects)
 - Increase costs by \$4/ac
- Yield loss when planting later to avoid early season pests: lose 1 bu/ac
- Use a soybean price of \$9/bu

Example #2 Answer: Insecticide seed treatment			
Benefits	Costs		
Additional Revenues What will be new or added revenues?	Additional Costs What will be new or added costs?		
<u>Costs Reduced</u> What costs will be reduced or eliminated?	Revenues Reduced What revenues will be reduced or lost?		
Total Benefits	Total Costs		
Calculate Net Gain =Total Benefits – Total Costs			

Example #2 Answer: Insecticide seed treatment			
Benefits		Costs	
Additional Revenu What will be new or • None	<u>es</u> added revenues?	Additional Costs What will be new or added costs? • More seeds per acre adds cost of \$4/ac	
Costs Reduced What costs will be reduced or eliminated? • Seed treatment costs \$10/ac		<u>Revenues Reduced</u> What revenues will be reduced or lost? • Yield loss 1 bu/ac x \$9/bu = \$9/ac	
Total Benefits	\$10/ac	Total Costs	\$13/ac
Calculate Net Gain =Total Benefits – Tot		otal Costs	-\$3/ac

Example #3









Example #3: Hay Baler

- You have a small hay farm, with 100 acres of grass hay. You own a tractor, mower, and rake, but not a baler, so you custom hire someone to bale hay.
- On average, your yield is 5 bales of 1,200 pounds (= 3 tons/acre) each year and you pay the custom baler \$10 per bale (= \$50/acre)
- You are considering buying a hay baler because scheduling the custom hire is slow and sometimes your hay gets rained on before it's baled and you get a lower price.
- You currently get \$100/ton on average for your hay. If you buy a baler, you expect to get an average price of \$120/ton due to selling higher quality hay.
- You estimate the full cost to own & maintain a baler would be \$18 per bale

Example #3 Answer: Buying a hay baler			
Benefits	Costs		
Additional Revenues What will be new or added revenues?	Additional Costs What will be new or added costs?		
Costs Reduced What costs will be reduced or eliminated?	<u>Revenues Reduced</u> What revenues will be reduced or lost?		
Total Benefits	Total Costs		
Calculate Net Gain =Total Benefits – Total Costs			

Example #3 Answer: Buying a hay baler			
Benefits		Costs	
Additional Revenu What will be new or a • Higher price for • \$20/ton x 3 ton	<u>es</u> added revenues? all hay s/ac = \$60/acre	Additional Costs What will be new or added costs? Cost to own and operate baler \$18/bale x 5 bales/ac = \$90/ac	
<pre>Costs Reduced What costs will be reduced or eliminated? Cost of custom baling 5 bales/ac x \$10/bale = \$50/ac</pre>		Revenues Reduced What revenues will be reduced or lost? • None	
Total Benefits	\$110/ac	Total Costs	\$90/ac
Calculate Net Gain =Total Benefits – Total Costs \$20/ac			\$20/ac