

Partial Budgeting: A Crucial Risk **Management Tool**

An old adage says, "Planning is everything." Starting out as a new producer in any business is challenging enough—day-to-day decisions and duties can add up and guickly become overwhelming. The more planning you can accomplish, especially in the form of budgeting, the more prepared you will be to deal with uncertainty in your business. Budgeting helps organize and allocate resources for the most profitable outcome. Budget focus is best aimed at achieving long term objectives.

PARTIAL BUDGET APPROACH

Partial budgeting is often one of the first steps in budget planning. It offers a guick method for evaluating the effect of a management decision or change in net income. Changes could include business or enterprise expansion, machinery/equipment purchase, a change in marketing strategy, or a choice between custom hire and owning equipment.

The partial budget approach provides a comparison of risk management alternatives as well. Breaking down the effect of simple changes in business operation can help a manager better understand the related changes in overall risk exposure. This understanding can inform future risk management decisions to streamline decision making when timelines are short. It is extremely important to evaluate business decisions carefully, in today's high-cost environment and looming inflation.

A partial budget breaks down decisions by classify

effects into one of four categories: added return reduced cost added costs and reduced returns. The net effect of the change is calculated as benefits (add returns and reduced cost minus the costs (added

costs and reduced returns), Figure 1.

It is important to include only items that differ due to the management decision when assembling a partial budget; do not include items such as costs that remain constant. For example, if a producer is looking at the effects of a change in crop rotation, fixed costs such as land payments or property insurance would not be included, because they remain the same regardless of the crop planted. Items such as different seed, fertilizer, or tillage operations would be included.

It is also necessary to include all revenue and expense changes that might be possible when putting together the budget. This is critical to ensure an accurate and realistic estimate of the financial impact. It also important to be realistic when estimating cost and revenue values, such as commodity prices, input expenses, increased sale price, etc. Changes in these values can dramatically influence the bottom line of any analysis.

EXAMPLE PARTIAL BUDGET

The Smith Brothers*, Miles and Matt, are entering their third year of farming. The two are fresh out of college and trade school, respectively, and entered into a partnership on their Bighorn county farm purchased on contract from their uncle. They have been utilizing custom farming and spraying services for several field operations since getting started because they had limited resources for machinery purchases. In planning for the coming growing season, they notice there are disadvantages to this strategy, particularly hiring a sprayer.

Timely application is becoming a problem. They feel it is negatively affecting crop yields, especially in their barley and sugar beet crops. Miles believes it would be more profitable to purchase a sprayer and eliminate the custom applicator, while Matt is uncertain whether the high purchase cost will allow them to earn a profit. Miles also believes purchasing a sprayer could allow them to move to a reduced tillage system for several crops, again allowing them to spray on their terms and not needing to wait for a custom applicator. This is exactly the sort of question a partial budget can help evaluate.

Under added returns, Miles feels they are consistently giving up crop yield due to weed pressure resulting from untimely spraying. He estimates that by spraying themselves, they could gain at least ten bushels/acre for their malt barley (\$80/acre at \$8/bushel) and two tons per acre on their sugar beets (\$45/ton or \$90/acre total).

Positive Effects					
Added Returns	Quantity	-	Value		Total
Yield Increase, Barley (10 bushels/ac, \$8/bu)	10	\$	8.00	\$	80.00
Yeild Increase, Sugarbeets (2 tons/ac, \$45/ton)	2	\$	45.00	\$	90.00
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		1		\$	
Total Added Returns			\$	170.00	

Figure 2. Smith brothers' sprayer purchase estimated added returns.

Positive Effects				
Reduced Costs	Quantity	Value	-	
Custom Spraying	1	\$7.50	\$	7.50
Tillage pass (disking before barley)	1	\$40.00	\$	40.00
Secondary tillage pass (cultivate beets)	1	\$15.00	\$	15.00
Tillage repair cost	1	\$10.00	\$	10.00
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Total Reduced Costs			\$	72.50

Figure 3. Smith brothers' sprayer purchase estimated reduced costs.

Added Costs	Quantity	Value	-	
Initial Purchase Cost (loan payment per acre)	1	\$3.85	\$	3.85
Sprayer operation (tractor included)	1	\$6.50	\$	6.50
Repairs and maintenace (tractor and sprayer)	1	\$10.00	\$	10.00
Additional herbicide applications (herbicide co	1	\$50.00	\$	50.00
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Total Added Costs			\$	70.35

Figure 4. Smith brothers' sprayer purchase estimated added costs



Reduced costs for the Smith brothers include \$7.50/acre for custom spraving that is no longer needed. Owning a spraver would allow them to cut down on tillage and move to a reduced tillage system, saving at least one primary tillage pass with a disk before barley is planted at \$40/acre. They would also eliminate using a cultivator on beets, saving \$15/acre. Savings can also be realized in the form of lower repair and maintenance on tillage equipment, saving an added \$10/acre. Total reduced costs are estimated at \$72.50/acre. There would be no reduced returns under this scenario.

Under added costs, they have located a sprayer they could pull with an existing tractor for \$20,000. The resulting loan payment would be \$4,619.50/year, assuming a five percent interest rate. This cost would be spread over 1,200 acres (300 acres sprayed four times each year), resulting in an annual, per-acre cost of \$3.85. Miles estimates the operating costs at \$6.50/acre and repairs and maintenance at \$10/acre. Miles expects to apply an additional herbicide application, valued at \$50/acre, to cut down on tillage and move towards a reduced-till operation, if the brothers purchase the spraver

The next step is to calculate the total net benefit for the strategy. Added returns (\$170/acre) and reduced costs (\$72.50/acre) total \$242.50 per acre. Added costs total \$70.35/acre. Subtracting total costs from total benefits results in a net benefit of

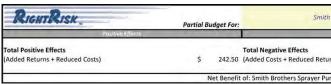


Figure 5. Smith brothers' sprayer purchase estimated net benefit.

FOR MORE INFORMATION

Many online resources are available for new and beginning producers offering opportunities to learn about partial budgeting and its application. Visit RightRisk.org, the National Ag Risk and Farm Management Library at agrisk.umn.edu, or the Beginning Farmer and Rancher toolbox at farmanswers.org/toolbox for online tools, templates, courses, and other material.

budg	et breaks down decisions	by classifying potential
ıs, ts,	Added Returns	Added Costs
s s: ded ts)	Reduced Costs	Reduced Returns

Figure 1. Partial budget format

\$172.15/acre, Figure 5. The Smith brothers should explore the purchase of the sprayer in greater detail, given these assumptions.

IMPORTANT CONSIDERATIONS

An important consideration the Smiths should keep in mind as they move forward with further analysis—cost



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accepting applications from hosts and interns interested to participate in 2022. The online application forms are available under the Hosts or Interns tabs at: GrowinG-WY.org.

and revenue values are generally entered as assumptions. This is fine for preliminary estimates. The problem becomes when these assumptions are inaccurate or where they are expected to remain constant. Suppose, for example, the Smith brothers were too optimistic in their estimate of the yield gains from owning the sprayer. Without the \$170/acre in added returns, the net benefit would be \$2.15/acre. For this and other reasons, it is important to estimate changes in costs and returns as realistically as possible, or account for the inherent variability in your numbers. This can be accomplished by using a range of values or by using a more advanced partial budget approach, like the Risk Scenario Planner available at RightRisk.org.

Brothers Sprayer Purchase			
Negative Effects	_	-	
rns)	\$	70.35	
chase	\$	172.15	

* The Smith brothers' operation is a case study example created to demonstrate RightRisk tools and their application. No identification with actual persons (living or deceased), places, or agricultural operation is intended nor should be inferred.

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