**Soil Health Economic Case Study Template & Writing Guide**

**Template Updated: May 2024**

**CASE STUDY TEMPLATE**

*(following AFT’s formatting)*

***Note: Aim for a total word count of 1200 including Introduction, Benefits, Closing and Footnotes sections***

**Soil Health Case Study**

**[*insert here producer name, farm name, county, state abbreviation*]**

**Farm at a Glance**

*Provide basic info about the farm/study area below:*

**COUNTY:**

**WATERSHED:**

**CROPS:** *List the study area crops*

**FARM SIZE:** *Give total farm acres then study area acres in parentheses (if different from total acres)*

*E.g.: 450 acres (100-acre study area)*

**SOILS:** *Dominant soil type(s) and topography to help readers quickly determine how similar their farm may be to the featured farm*

*E.g.: Silty loam on rolling hills of 1-10% slopes*

**SOIL HEALTH PRACTICES:** *List practices adopted by farmer on farm/study area*

**Introduction (About 300 Words):**

*Tip: Read other AFT case studies to guide your writing:* [*https://farmlandinfo.org/publications/soil-health-case-studies/*](https://farmlandinfo.org/publications/soil-health-case-studies/) *The following instructions are a rough outline of what we include in the introduction section, however, with whatever your word limitation may be, you will have to use your best judgment as to what to include and exclude.*

***First 1-2 paragraphs –*** *describe the farm generally, including what crops are grown and when/why they adopted the soil health practices being analyzed in the case study, include the following details if possible and depending on word count space:*

* 1. *Acreage, county, topography, generic soil type descriptions*
  2. *What’s grown, acres in crop rotation, etc.*
  3. *When the farmer started farming and who they farm with*
  4. *Optional: Acreage owned versus rented (especially if that has a bearing on use of SH practices on leased land); we want farmers to be empowered that they can adopt soil health practices on rented ground*
  5. *Mention if they have a conservation easement, since this is something AFT supports and promotes*
  6. *What motivated the farmer to try soil health practices (nice to include a farmer quote for this if possible)*
  7. *How the farmer learned about these practices (mentors, workshops, etc.)*
  8. *Mention if the farmer received financial assistance (if space allows); but definitely include a numbered footnote reference where you describe in detail what and how much FA was received (see RSHEC Tool for how to write up footnotes)*

***Next paragraphs –*** *detail in chronological order their soil health practice journey, including:*

* 1. *Description of each soil health practice being analyzed in the case study (including year of adoption or adoption in stages)*
  2. *As space is available include farmer quotes to accomplish relaying this information*
  3. *Depending on space available and story flow, you may start describing the benefits they’ve observed, or the struggles/setbacks faced in the beginning and how overcame those struggles, but save the quantitative details for the economic results section.*

**Soil Health Economic & Environmental Estimated Outcomes (About 500 Words):**

*Tips:*

* *All values should not include decimals (as we don’t want to infer we are accurate to the 100th decimal point); in some cases, you may want to include decimals to reduce confusion around rounding or if cost is less than a dollar*
* *Integrate soil health stories the farmer has told either for each soil health practice or the combined effect of practices like observed environmental, soil health benefits (e.g., reduced erosion, clearer runoff water, improvement in soil quality, color, smell, earthworms, tilth, water holding capacity, etc.)*

***First paragraph –*** *Introduce the PBA table using this template:*

Partial budgeting analysis was used to estimate the marginal benefits and costs of [X, Y, and Z] soil health practices on the [insert farm name].  The study was limited to only those income and cost variables affected by the adoption of these practices. The table on page 2 presents a summary of these economic effects revealing that, due to the [insert number] soil health practices, [insert farmer name]’s net income increased by $###/ac/yr, or by $###/yr, on the ###-acre study area, achieving a ###% return on investment.

***Following paragraphs –***

* *“Explain the numbers” in the partial budget table starting with describing any increases/decreases in income (top half of table), then the left side (decreases in cost) from top-down, then same for right side (increases in costs).*
* *AFT strives to make the table match the order in which you discuss the results, usually by related practices, AND modify the descriptions in the tables to be consistent with text description as best you can.*
* *Since the table starts with the story of increased yields for many farmers, you might start with a paragraph on that.*
* *If applicable: When you first mention results from changes in machinery, include number reference in reference to note on what is included in the machinery costs estimates and the sources (see references/notes section below).*
* *If applicable: When you first mention a cost savings from decreased erosion, include reference describing this calculation and the source advising this calculation (see references/notes section below).*
* *Weave in stories the farmer told you that led you to estimate the quantitative benefits and costs that appear in the table*

**OPTIONAL NTT &/or COMET Analysis Paragraph:**

***Last paragraph - describe results from NTT, COMET-Planner, and/or COMET-Farm using the following paragraph template.***

*Notes: Although you will not publish the NTT or the COMET results tables, do save a copy of the results in the appropriate SharePoint folder for this case study. Reference more recently published case studies for best examples of how to present these results, but they all generally follow this template:*

To estimate the water quality and climate benefits of these soil health practices, AFT used USDA’s [Nutrient Tracking Tool (NTT) and COMET-Farm or COMET-Planner] tools on a ###-acre representative field. [insert farmer’s name]’s use of [X, Y, and Z] reduced nitrogen, phosphorous, and sediment losses by ###%, ###%, and ###%, respectively, as estimated by NTT. Further, [insert farmer’s name]’s combined soil health practices resulted in a ###% reduction in total greenhouse gas emissions as estimated by the COMET-Farm Tool, corresponding to taking ### cars off the road.

**If not enough room for above paragraph, you can use these shortened descriptions:**

* **For NTT:** AFT used USDA’s Nutrient Tracking Tool to evaluate [farmer’s first name]’s use of [X, Y, and Z] practices on a ###-acre field and found that they reduced their N, P, and sediment losses by X%, Y%, and Z%, respectively.

# **For COMET-Planner:** The USDA’s COMET-Planner Tool estimates that [farmer’s first name]’s soil health practices resulted in a reduction of ### metric tons of CO2-equivalents/yr, corresponding to taking ## cars off the road for one year.

* **For COMET-Farm:** The USDA’s COMET-Farm tool estimates that [farmer’s first name]’s soil health practices resulted in an ###% reduction in total greenhouse gas emissions from this same field. This corresponds to taking ## cars off the road for one year.

**Closing Thoughts (About 100 Words):**

*Tips:*

* *Keep short*
* *Use this section to “wrap up”*
* *Ideally, include inspirational vignettes and farmer quotes to sum up the outcomes experienced by the farmer with their soil health practices.*
* *Can be a good place to note how the farmer is spreading the word about their successes, such as being on local boards or giving presentations or hosting field days.*

**Economic Effects of Soil Health Practices on [*insert farm name, state abbreviation*] (*2023* Prices)#**

*Tips:*

* *Edit PBA Table in the “Editable PBA” tab in the RSHEC Tool; rearrange and rename item descriptions as you see fit*
  + *As noted in results section above, ideally make the order of the items in the table follow the order in which you discuss the results in the text as closely as possible*
  + *Remove unused rows*
  + *Edit the description of items in the table to be more descriptive as you see fit*
  + *Values should have no decimals (as we don't want to infer we are accurate to the 100th decimal point), unless it is deemed necessary or the value is under a dollar*
* *Insert here, in your case study draft, your finalized Partial Budget Analysis Table as image* 
  + *Be sure to paste it as a “Picture” so as to avoid problems formatting the table. You will not be able to edit the table here in Word so make any edits in the excel RSHEC Tool before pasting, and any edits moving forward.*

**References/notes below the PBA table:**

*Tips:*

* *This is split between numbered references that reader is pointed to in the body text AND bulleted notes relating to PBA table*
* *Follow this template:*

# [insert grower's first name] received [$/ac/yr or $/yr] through the [insert name of program (years active)]. This is not included in the analysis because cost-share is temporary and not received by all. *Optional text if there is space:* Readers can assume that during the contract years, [insert farmer name]'s net income was higher than presented in this analysis.

*#* Machinery costs include the cost of equipment, custom hire, labor, depreciation, interest, insurance, housing, repairs, and fuel *(*Univ. of IL at Urbana-Champaign, Sept. 2023, *Farm Business Management Machinery Cost Estimates: Field & Forage Operations;* Iowa State University, Nov. 2023*, Ag Decision Maker: Iowa Farm Custom Rate Survey).*

*#* Value of decreased erosion is based on estimated N & P content of the soil (2.32 lbs N/ton, 1 lb P/ton) and fertilizer prices (USDA NRCS, May 2010, *Benefit-Cost Analysis for the EQIP*), and [insert farmer name]’s estimate of reduced mechanical erosion repair costs.

*#* This table represents estimated average costs and benefits attributed to adopting [*list SH practices*] over the entire study area (### acres), where [*list crops*] are grown, as reported by the farmer.

* All values are in [YYYY] dollars.
* Prices are stated as per acre values for items that vary by area. Prices such as learning costs, which don't vary by area, are only given as total costs.
* Prices used (5yr rolling averages): Barley: $6.56/bu, Canola: $13.32/bu, Corn Grain: $5.65/bu, Corn Silage: $53.25/ton, Ensilage: $68.42/ton, Flaxseed: $16.92/bu, Forage: $171.06/ton, Grain Sorghum: $5.69/bu, Hay alfalfa: $237.97/ton, Hay all other: $171.06, Millet: $8.85/bu, Mustard: $20.24/bu, Oats: $4.08/bu, Rapeseed: $11.74/bu, Rye: $7.23/bu, Safflower: $11.42/bu, Soybeans: $13.26/bu, Sugarbeets: $59.62/ton, Sunflower seed: $8.17/bu, Triticale: $4.20/ton, Winter Wheat: $7.06/bu, & Spring Wheat: $7.62/bu (USDA NASS, 2022-2024, *Crop Values Summary, 2019-2023 averages*); Nitrogen: $.63/lb, Phosphate: $.61/lb, Potash: $.54/lb (Iowa State University, 2022-2024, *Ag Decision Maker: Estimated Costs of Crop Production in Iowa, 2019-2023 averages*); 2023 hourly labor rate: $29.23/hr (U.S. Bureau of Labor Statistics, 2023, *Occupational Employment & Wage Statistics, First-Line Supervisors of Farming)*.
* Return on investment is the ratio of Annual Total Change in Net Income to Annual Total Decreased Net Income, as a percent.
* For information about study methodology, see farmlandinfo.org/rshec-toolkit
* This material is based on AFT’s work supported by a USDA NRCS Cooperative Agreement #NR223A750010C003 [*and insert any other associated grants funding this case study*].

**Bottom Banner:**

*Tips: Ideally, include author’s contact information AND an NRCS office or ideally a person for the county that this featured farmer is based.*

**For more information about this study or to discuss soil health practices, contact:**

[*AFT Case Study Author or Regional Contact’s Name, American Farmland Trust, Job Title, email@farmland.org*]

**To discuss soil health practices, contact:** Nancy Dusko, Soil Conservationist, NRCS Pottsville Field Office, nancy.dusko@usda.gov, 570-391-3315