Additional Use Cases for the R-SHEC Toolkit

While this tool was designed to conduct a partial budget analysis of a farmer's costs and benefits associated with their adoption and continued use of soil health practices for case studies, the tool has proven useful for much more. For example, it can be applied to:

- **Compare annualized costs of various harvest, tillage, and application machinery.** The R-SHEC tool contains a wealth of data in the Machinery Costs tab that is pulled into calculations when conducting an analysis. If you are solely interested in, for example, the annual cost of using a 15' versus a 20' no-till drill (according to the University of Illinois), you can scan the Tillage and Planting Machinery Costs table and find the $/acre cost of those two implements. Scroll further down to see the Fertilizer & Chemical Application Machinery Costs table and the Harvesting Machinery Costs table.

- **Compare various crop rotations.** With increased interest in diversifying crop rotations, you could see how incorporating a new crop into a rotation, or changing the number of years of a certain crop within a rotation, would impact net income. In the R-SHEC tool, enter the current crop rotation as the Benchmark rotation in the Study Area Overview tab, and the potential new rotation as the Current rotation. Enter the remaining practices, costs, and yields for these rotations into the other tabs. In the Results tab, you'll see the economic impact due to crop rotation in one of the "Changes in net income due to CCR" boxes – if it's in the increases in net income side (left & green), then the new rotation would have a positive impact on net income. If it's in the decreases in net income side (right & red), it would have a negative impact.

- **Analyze cover crop costs alone to compare seed, planting, termination, and other costs.** In the Cover Crops tab of the R-SHEC tool, enter seed cost, planting and termination equipment, and any other cover crop costs. Check the Results tab to see the annual cover crop cost. You can then change the data you entered in the Cover Crops tab and see how that impacts the economic results on the Results tab.

- **Compare synthetic to non-synthetic fertility options.** You could determine the cost of incorporating compost into an existing nutrient management plan. In the Cash Crop Inputs tab of the R-SHEC tool, enter a synthetic fertility scenario in the Benchmark fields, and a non-synthetic fertility scenario in the Current fields. The

Results tab will then show the annual net income change associated with changing from synthetic to non-synthetic fertility.

- **Compare organic to non-organic cropping systems.** While organic crops can fetch a higher price, the inputs may be pricier; this tool allows you to determine how net income might be affected by changing to organic methods. To do this in the R-SHEC tool, enter all the data for conventional production, ensuring "N" is selected in the Study Area Overview tab for the field about organic crops. Review and save the Output Tables at the bottom of the Yields tab. Then enter data for organic production, ensuring "Y" is selected in the Study Area Overview tab for the field about organic crops. Review and save the Output Tables and compare these to the previous Output Tables to see how the net income per crop has changed.'

- **Conduct future planning by comparing current practices to potential future practices.** In the R-SHEC tool, instead of entering previous practices into the Benchmark fields, enter current practices. Then, instead of entering current practices into the Current fields, enter potential future practices. This will allow you to compare the potential changes in input and machinery costs between practices. On the Results tab, you'll see the potential economic effects of implementing those potential future practices.

    - Please note that AFT developed a separate tool, the Predictive Soil Health Economic Calculator (P-SHEC), to estimate the potential long-term costs and benefits of adopting certain soil health practices. This tool includes the predicted yield and yield resilience changes from implementing soil health practices.

Outside of direct application by conservation professionals to conduct a partial budget analysis and/or produce case studies with "soil health successful" farmers, this tool has been used:

- by teachers for educational purposes with high school and college students,
- by producer groups and conservation professionals to frame conversations about cost-benefit analyses with growers,
- by researchers to develop other tools, and more!

Please reach out if you'd like to discuss how the R-SHEC tool could be used for your specific situation or if you require troubleshooting assistance. Please contact: Robert Ellis, Agricultural Economist (rellis@farmland.org).