SWAT

Soil & Water Assessment Tool

A spatially referenced watershed model used to simulate the impact of land use, land management, and climate on water quantity and water quality.

1. **MODEL SET-UP – DATA INPUTS**

   - **Climate**
   - **Land Use**
   - **Land Management Actions**
     - Crop Rotations
     - Cover crops
     - Filter Strips
     - Fertilizer Application
   - **Tillage**
   - **Irrigation**
   - **Wetlands**
   - **Drainage**

2. **CALIBRATION**

   Make informed adjustments of model parameters so model outputs fit observed data, judged by goodness of fit statistics.

3. **VALIDATION**

   Run model with data from another time period or location, testing for statistical agreement between the model output and observations.

4. **SCENARIO ANALYSIS**

   Adjust climate, land use, or land management inputs to develop distinct “what if” scenarios to test with the model.

- **Climate**
  - Past, present, and/or future

- **Land Use**
  - Agricultural, forested, and/or urban/suburban

- **Land Management**
  - Implementation extent, intensity, and/or spatial locations of management actions

**WATERSHED MODEL APPLICATION**

**WATERSHED MODELING GOALS**

- Understand watershed processes
- Evaluate how alternative actions affect model outputs
- Inform land management decisions to improve water quality