



COMET-Farm for Water Quality

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How we got here

- NRCS & TIAER developed NTT prototype—a web-based tool that utilizes the APEX model.
- NRCS & OEM led efforts to develop NTT internally.
- 2016, NRCS & OEM decided to change course and “combine” WQ tool with COMET.

COMET-Farm for Water Quality

- APEX will be integrated into COMET-Farm's cropland component
- APEX user data inputs overlap about 90%, so only a few additional user inputs will be required
- Models will not be linked, will be run side-by-side.
- Will begin with cropland (not pasture) and a limited number of conservation practices

About APEX

The Agricultural Policy Environmental eXtender (APEX):

- Simulates environmental and yield impacts of land management practices on agricultural land
- Estimates edge-of-field losses of nutrients, sediment & flow
- Can route flow between fields to create small to medium sized watersheds and estimate losses at the outlet
- Suitable for crop and pasture

APEX Inputs

- Fertilizer application rates/timing/placement
- Crop schedule
- Tillage
- Stocking rates & grazing schedules
- Tile drains
- Soil P
- Irrigation type and schedule
- Soil type and slope
- Weather

APEX Conservation Practices

APEX can simulate conservation and best management practices such as:

- Nutrient management
- Cover crops/alternative crops
- Rotational Grazing
- Drainage water management
- Buffers
- Reduced Tillage and No-Till
- Ponds and Wetlands
- Strip cropping/contour buffers

Considerations for addition of WQ Component

- Differences in how the models are typically run
- Need to show flow linkages between fields
- Need to accommodate additional conservation practices
- Need to account for P (fertilizer/manure and soil)
- Additional data for operations such as planting/grazing

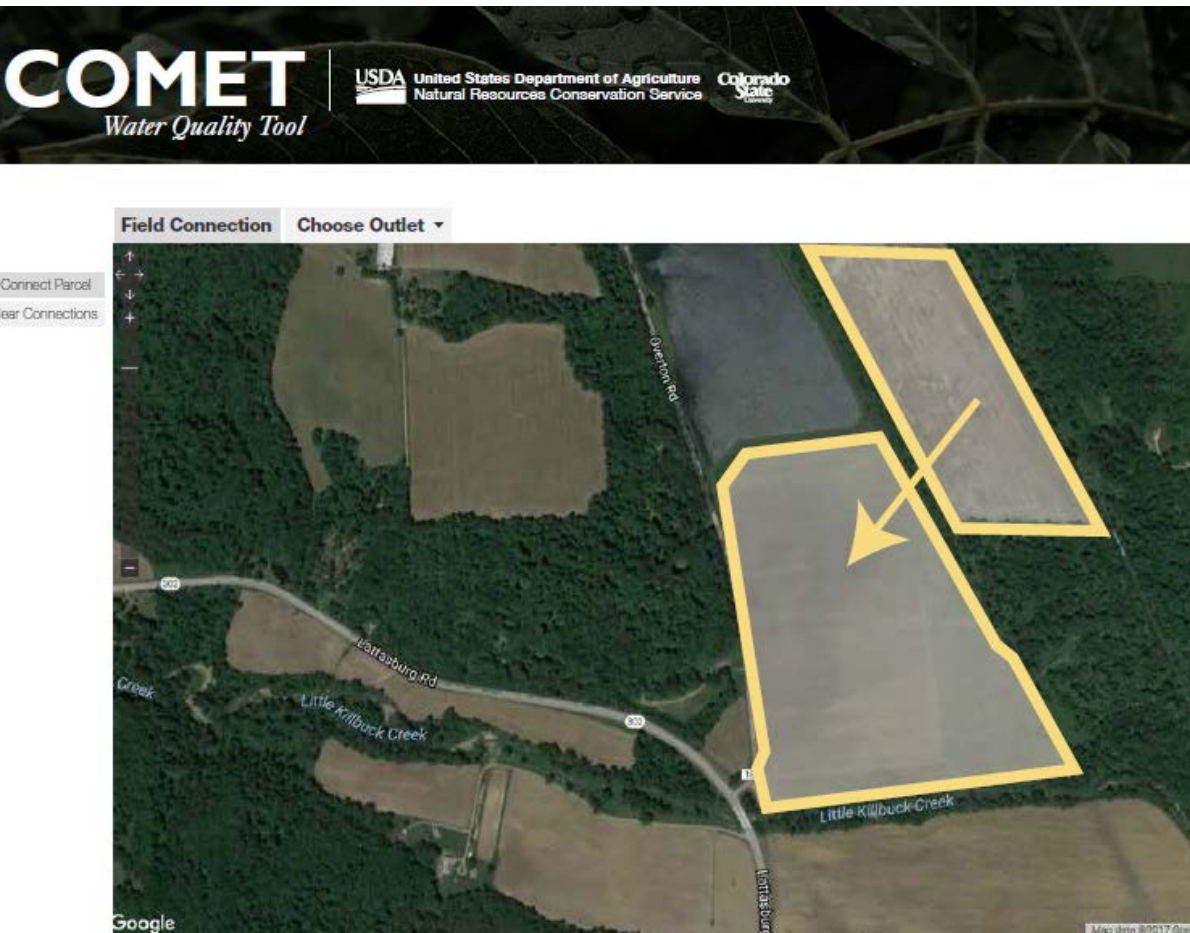
Select the WQ Module for Croplands

Water Quality (Croplands Module)
 GHG

Cropland
 Animal Agriculture

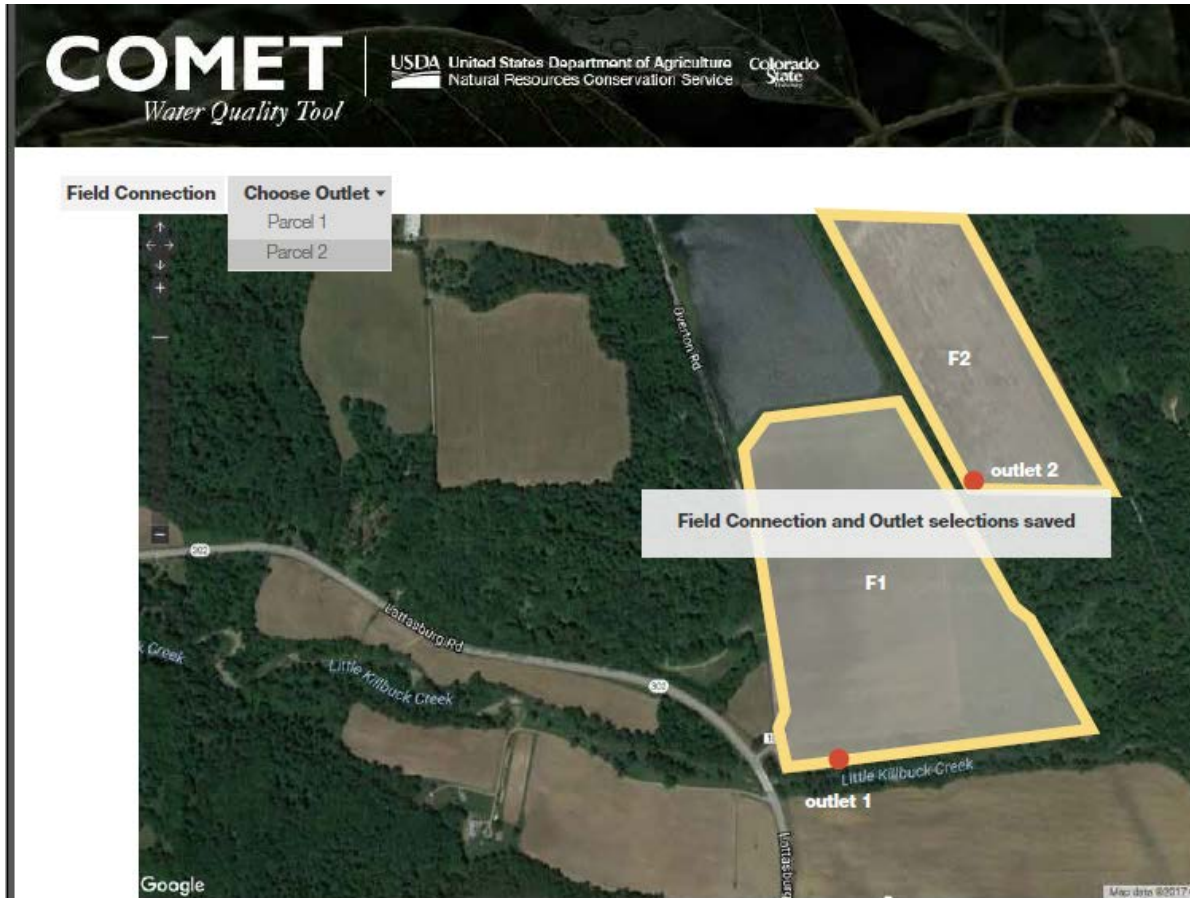
Agroforestry
 Forestry

Spatial Inputs



- User can choose to run fields separately
- Alternately, user may choose to use the routing feature and define flow between fields.

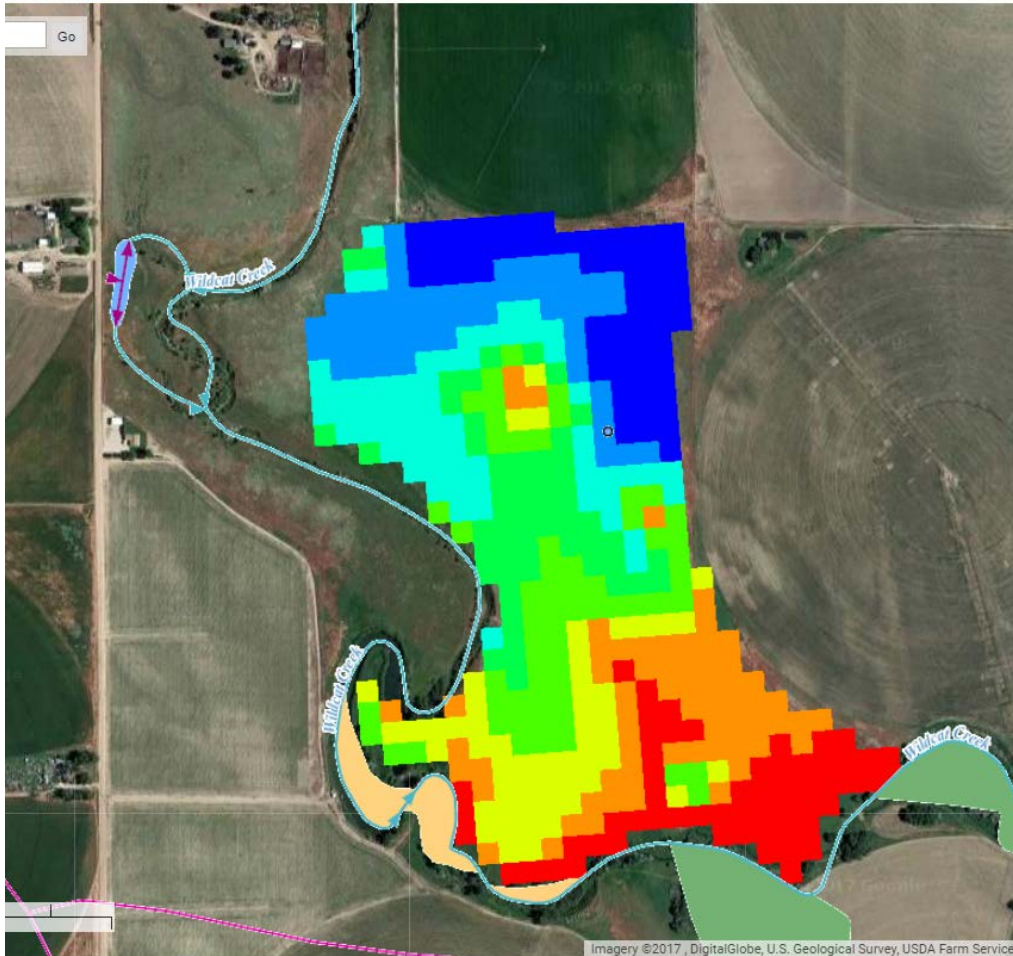
Spatial Inputs



Instructions

- If routing is selected, user will also need to define field outlets

Spatial Inputs



- Use Digital Elevation Models (DEM) to inform routing and outlet selections

Conservation Practices

COMET
Water Quality Tool

USDA United States Department of Agriculture
Natural Resources Conservation Service

Add to Future Management Page

Structural Conservation Features

- Filter Strip
- Grass Waterway
- Riparian Forest Buffer
- Terrace
- Contour
- Tile Drainage

Phosphorus from Soil Test

Amount PPM

Date

- Additional panels to select conservation practices and input soil P test results

A landscape photograph featuring a body of water, likely a marsh or pond, with tall green reeds in the foreground. The water reflects the overcast, cloudy sky. In the background, a dense line of trees borders the water. The text "Thank You" is overlaid in the center of the image.

Thank You