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 chose to use the routing feature and define flow between fields.
Spatial Inputs

- 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

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