APEX Online User Manual

Introduction

APEX Online is an interface developed to enable users to simulate long term impacts of management and conservation practices on runoff, sediment and nutrient loss on farms using the Agricultural Policy Environmental eXtender (APEX) model. The current version of the interface only allow simulation of a single field. Users can specify their field in terms of location (for determining the climate and soil information), topography (area, slope, and slope length), soil (soil name from the SSURGO database, soil test N and P), management (management editor is provided, tile drainage), and the climate data source.

The features of this interface include:

- Easy access
- Base data: the SSURGO database, Weather generator (CLIGEN) database for over 2,000 weather stations, apex core database
- Management editor: enabling simulation of both user management and conservation practices like nutrient management and cover crops.
- Result comparison: user can modify field, make multiple runs, the results of which are all listed for comparison among different management options and conservation practices.
- Project save for future use: after user made simulation, they can download the project file, which can be uploaded later and continue working on the same project.
- Safe: no user private information is stored. If the user do not want to save their project, all information will be deleted when the webpage is closed.

This document presents the user steps for using APEX online interface.

Chapter 1: Basic steps to make a run

This chapter describe steps on how to make a run.

1. Steps:
    a. Enter a project name to start a project
    b. Characterize user field by specifying information like location, topography, soil, management, and climate information.
    c. Click the "Run APEX model" button.
2. About project name: one project name is required to start a project. The name could be any combination of numbers and letters. Special characters and spaces are allowed.
3. About location: the location of the information is needed in two ways:
    a. Determine the closest climate station.
    b. Determine the soil list in selected zipcode.
4. About soil: soil names available in each selected zipcode is listed.
5. About management: management can be edited by clicking either the "Details" button or the "Management" tab. If a project is not setup at the home page, no action is allowed in the "Management" and "Result" tab. Instructions on how to deal with management is provided in Chapter 2.

6. About results:
   a. The results is divided into 5 sections: hydrology, soil erosion, nitrogen loss and phosphorus loss.
   b. In the hydrologic section, precipitation, surface runoff and tile flow was provided.
   c. In the nitrogen and phosphorus loss section, nitrogen and phosphorus losses in different transport media (surface runoff, tile flow, and sediment) are provided.
   d. In the run history section, the configuration of field for each run was listed in the order that these runs are made.

Chapter 2: Management editor

This steps describe functions of the management editor. After one project is initiated, the management tab content is enabled and users can get there by clicking either the "Detail" button in the management section of the project tab or directly click on the "Management" tab. The click on the "Detail" button will enable showing details of the management shown in the management section of the project page. The click on the "Management" tab, no details are shown.

After entering the management editor, the users will see two columns. The left column shows the template management that are default in the database. The right column shows the management created by user for the project. For newly initiated projects, there will be no user management. The functions of each button are introduced here:
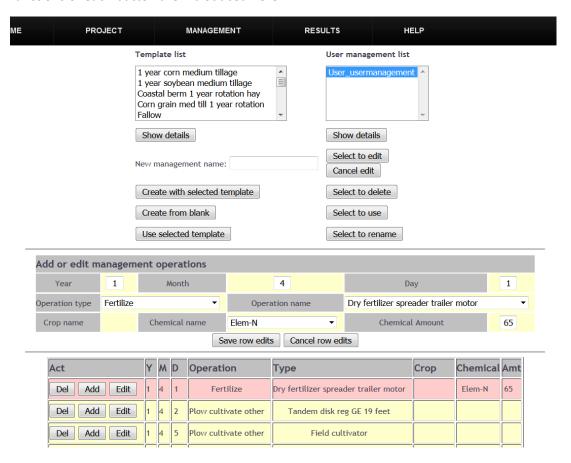

Table 1. Buttons and their functions

Button	Description
On the left column	Buttons related to create user management and using template mangement
Show details	User can select one management from the "Template list", and click on this button to see the details of selected management.
Create with selected template	User can select one management from the "Template list", enter a management name, and click this button to create a user management. The created management will be show in the "User management list". It is recommended that user create management from template, unless the user is very familiar with APEX model management database.
Create from blank	Under development…
Use selected template	If the user found the selected management from the "Template list" is acceptable or would like to try one of these template management, this button will direct the page back to the project page, with the selected management being assigned to the field.
On the right column	Buttons related to manipulating user management information
Show details	As the "Show detail" button on the left.
Select to edit	User select a management from "User management list" and the edit button will be enabled. There are three actions: delete, add, and edit.
Cancel edit	This button will disable the edit button on the management detail table.
Select to delete	User can select one management from the "User management list" and delete it by clicking on this button.
Select to use	User can select one management from the "User management list" and click on this button to direct the page to the "Project" page with the selected user management assigned to the field.
Select to rename	User can select one management from the "User management list" and click on this button to rename it.
Three actions on each line of the management detail table	
Del	Delete the current row
Add	Add a row below the current row
Edit	Edit the information. The editing window will be enabled with the corresponding management information in the selected row displayed.
Editing window	
Save edits	Save the edits made by user
Cancel edits	Cancel edits made by user without change the data in that row.

By using this management editor, the users are able to simulate nonstructural conservation practices, including cover crops, nutrient management, reduced till, etc.