

NAPRA-web User Manual¹

Acushla Antony², Indrajeet Chaubey, Bernard Engel, Natalie Carroll

²Respectively, Graduate student, Professor, Professor and Head, and Professor, Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, IN 47907

Email: ichaubey@purdue.edu (Chaubey); engelb@purdue.edu (Engel); ncarroll@purdue.edu (Carroll)

Software requirement: This site supports browsers Internet Explorer 4.0 or higher, Google chrome or any Java compactable browser to run java applets. Or download java freely onto the system from the NAPRA home page.

Minimum hardware requirements: Any computer with a connected web browser.

Steps to run the NAPRA Web model

1. Type the url : <https://engineering.purdue.edu/napra>
2. Click on <<**NAPRA Model**>> option and select open form.



3. Enter your **scenario name** first (*No space in the name*). It uniquely identifies the scenario.

Field Input -- Choose either SSURGO or STATSGO or NASSIS soil data--> NASSIS data is only available for Indiana
Scenario Name*: <input type="text" value="Scen_id"/> (no space in scenario name!)

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4. Click on the *STATSGO* radio button. A soil type must be entered.

Soil Data Type*: Use SSURGO Soil Data Use **STATSGO** Soil Data Use NASS Soil Data

The State Soil Geographic (STATSGO) data were developed by U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). It is operational for all the states in United States. The STATSGO soil data was designed mainly for regional, multistate, river basin, state and multicounty resource planning, management, and monitoring. STATSGO data are typically not detailed enough to make interpretations at a farm level.

5. Once the **STATSGO** option has being selected,
 - a. Select the <<Use **STATSGO** Soil Data >> option.
 - b. Select the state and county, soil type and the component (ranges from 1-21)

STATSGO			
Select State	SELECT STATE		
County	SELECT COUNTY	Soil Symbol	N/A
		Component	1

6. Enter the slope length, hydrologic condition and landuse of the field.

Slope Length (ft)*	100	Hydrologic Condition*	Good	Landuse/Practice *	Row Crops (SR+CT)
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- a. Slope Length (the default is 100 ft).
- b. Hydrologic Condition (the default is Good the other option is Poor).
- c. Land use/Practice: (a set of practices are available; the default is Row Crops (SR + CT) where
 - **SR** : Straight Row
 - **CT** : Conservation Tillage
 - **CNT** : Contoured
 - **TER** : Terraced
 - The different land use practices are shown in the graphic to the right.

Row Crops (SR+CT)
Fallow (SR)
Fallow (SR+CT)
Row Crops (SR)
Row Crops (SR+CT)
Row Crops (CNT)
Row Crops (CNT+CT)
Row Crops (CNT+TER)
Row Crops (CNT+TER+CT)
Drilled Soybeans (SR+CT)
Drilled Soybeans (CNT)
Drilled Soybeans (CNT+CT)
Small Grain (SR)
Small Grain (SR+CT)
Small Grain (CNT)
Small Grain (CNT+CT)
Small Grain (CNT+TER)
Small Grain (CNT+TER+CT)
Dense Legumes or Rotation Meadow (SR)
Dense Legumes or Rotation Meadow (CNT)
Dense Legumes or Rotation Meadow (CNT+TER)
Pasture or Range (Non-CT)
Pasture or Range (CNT)
Meadow
Woods
Farmsteads
Dirt Roads
Hard Surface Roads

7. Select the weather data. For Indiana long-term measured precipitation data are available and for other states, the CLIGEN and GEM model simulate the weather data.

Long-Term Measured Precipitation Data (Only available for IN) CLIGEN and GEM Generated Weather Data

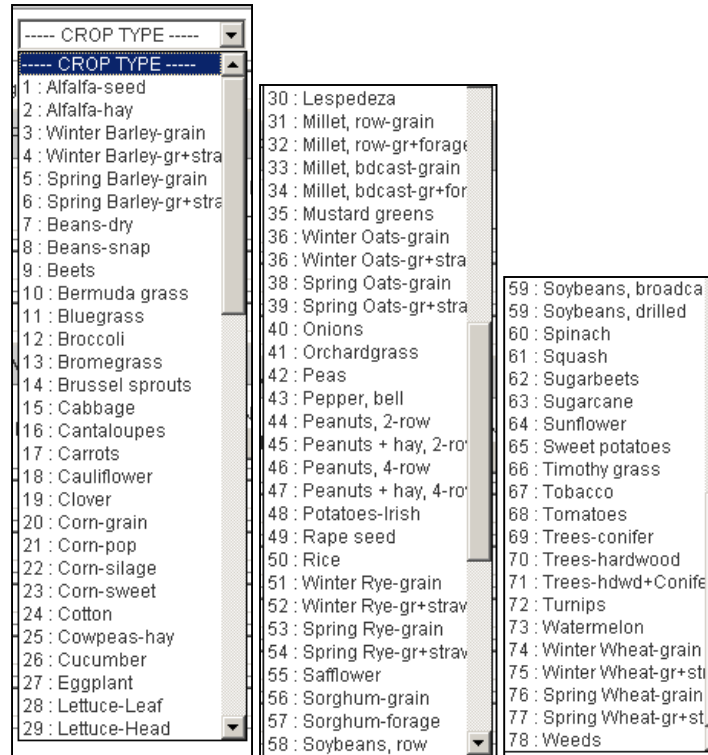
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8. Management, pesticide and nutrient inputs

i. Crop 1 Management Inputs

(If the crop list size is a short list, then the full list can be activated by selecting the full list. The option is available at the top of the screen.)

1. Select the **crop type**



(Crop choices are shown above. Example: choose “20: Corn-grain” in the crop list.)

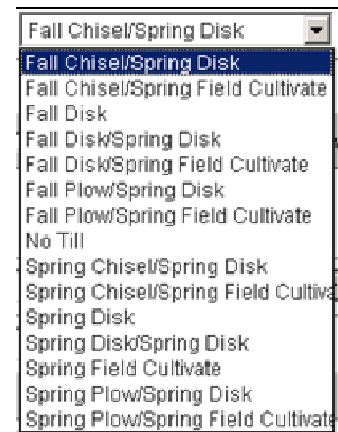
2. Select the Tillage type

(Example: We will use “Fall Chisel/Spring Disk” for tillage.)

3. Enter the Effective Rooting Depth (the default is 30in)

4. Based on the crop type, enter the Planting Date, Maturity Date, Harvest Date (Example Change the “Planting Date” to May 8, Change the “Harvest Date” to Oct 5th). The default dates automatically are assigned. These values can be changed.

5. Enter Buffer width, contour or corn stover removal, if desired.



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Buffer Width(ft)* 0	Contour* No	% of above Surface Residue Removal 0
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Note: *Buffer width* has 0, 5, 15, 30 meter width options. Buffer width improves water quality by intercepting sediment, nutrients and agricultural chemicals before they enter the receiving water bodies.

6. Contour has a yes or no option. Contour planting is a recommended best management practice which helps to block pollutants from leaving the field.

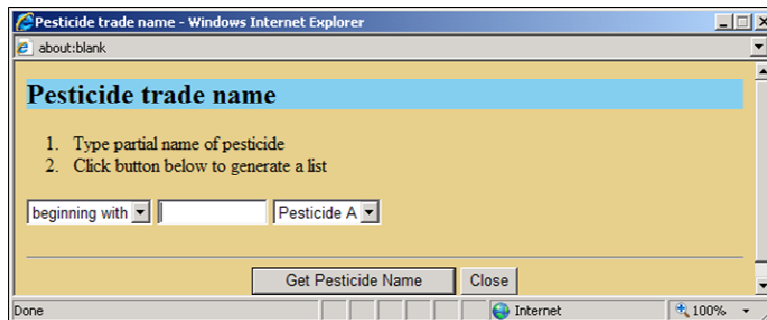
7. % of residue removal has options of 38%,52.2% and 70%.

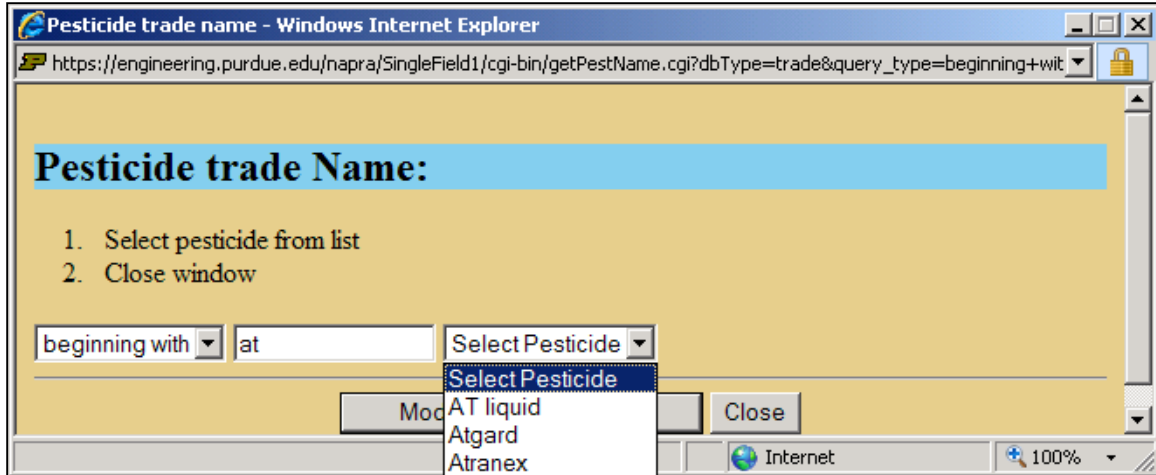
ii.Pesticide Inputs

Crop 1 Pesticide Inputs			<input type="radio"/> User Pesticide database <input checked="" type="radio"/> NAPRA Pesticide database		
Trade Name	Common Name	% of soil surface covered by residue and vegetation	Application Method	Application Date	Application Rate (lb/ac) Active Ingredient
<input type="radio"/>	<input type="text"/>	<input type="text"/>	0 : Surface Application	Jan 1	<input type="text"/>
<input type="radio"/>	<input type="text"/>	<input type="text"/>	0 : Surface Application	Jan 1	<input type="text"/>

1. Click the radio button to open the *Pesticide Query Window* on the left if the trade name is familiar and on the right side if the common name is familiar.
2. A small window will open so you can search the valid pesticide name.
3. For example enter “at” – partial name of “atrazine” and press “Get Pesticide Name” button.
4. Select the required pesticide from the list. Then click the “Close” button to close this pop up window. Or choose *modify* to change the list.

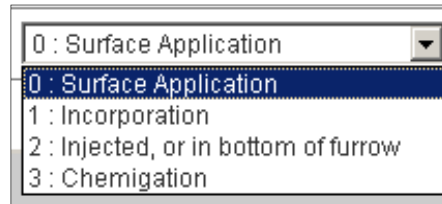
Example:





5. Enter the percentage of soil surface covered, method of application and the date of application of pesticide (Example: Use 15% for soil surface covered by residue and vegetation. Change the pesticide application date from Jan 1).

Application method choices:



6. Enter the application rate in lb/ac (Example : Apply 1.25 lb/ac of atrazine active ingredient)
7. If the active ingredient is not known, then click the active ingredient button.
8. Two pesticides maybe entered for each crop.

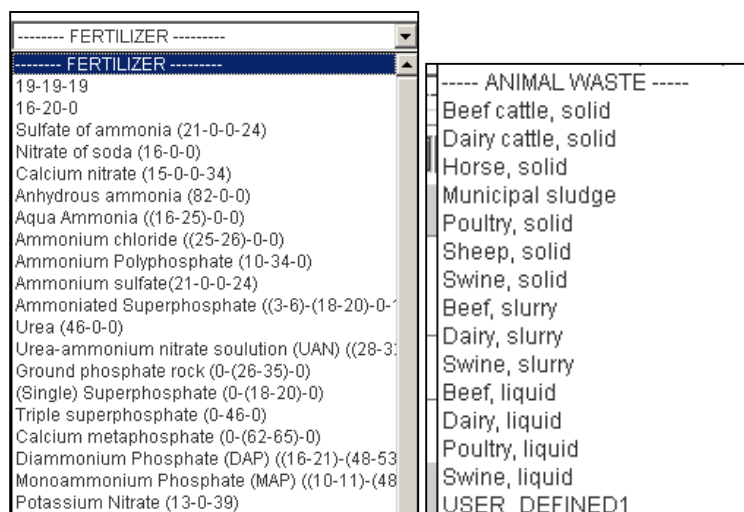
iii. Nutrient Inputs

Crop 1 Nutrient Inputs			
Application Date	Nutrient Type Animal Waste Composition Manure Production	App. Rate UNIT: <input type="text"/>	Application Method
Jan <input type="text" value="1"/>	----- FERTILIZER -----	<input type="text"/>	0 : Surface application
Jan <input type="text" value="1"/>	----- FERTILIZER -----	<input type="text"/>	0 : Surface application

1. Enter the nutrient application date.

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2. Select a nutrient type.



3. Enter nutrient application rate.

4. Select an application method.

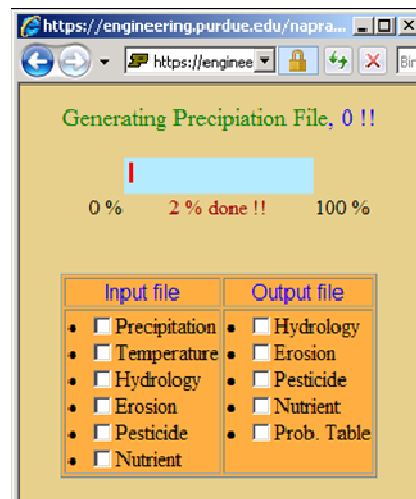


Example:

- Enter April 15 as application date for Anhydrous ammonia (82-0-0), an amount of 130 lb/ac, injected.
- Enter May 8- Ammonium Polyphosphate (10-34-0), 50 lb/ac, surface application.
- Enter Oct 20, Swine, Liquid, 3000 lb/ac, injected.

9. Running NAPRA-web

- Scroll down to the bottom of the screen and click the “**Run NAPRA**” button.
- A small window will pop up show the progress of calculations. It will take around 30 seconds for the model to run (depending on the network status).
- Once the calculations are complete, probability tables will be displayed. They show 50% (median) and 10% (worst case) pesticide and nutrient probability of exceedence value from surface, shallow groundwater and sediment losses.



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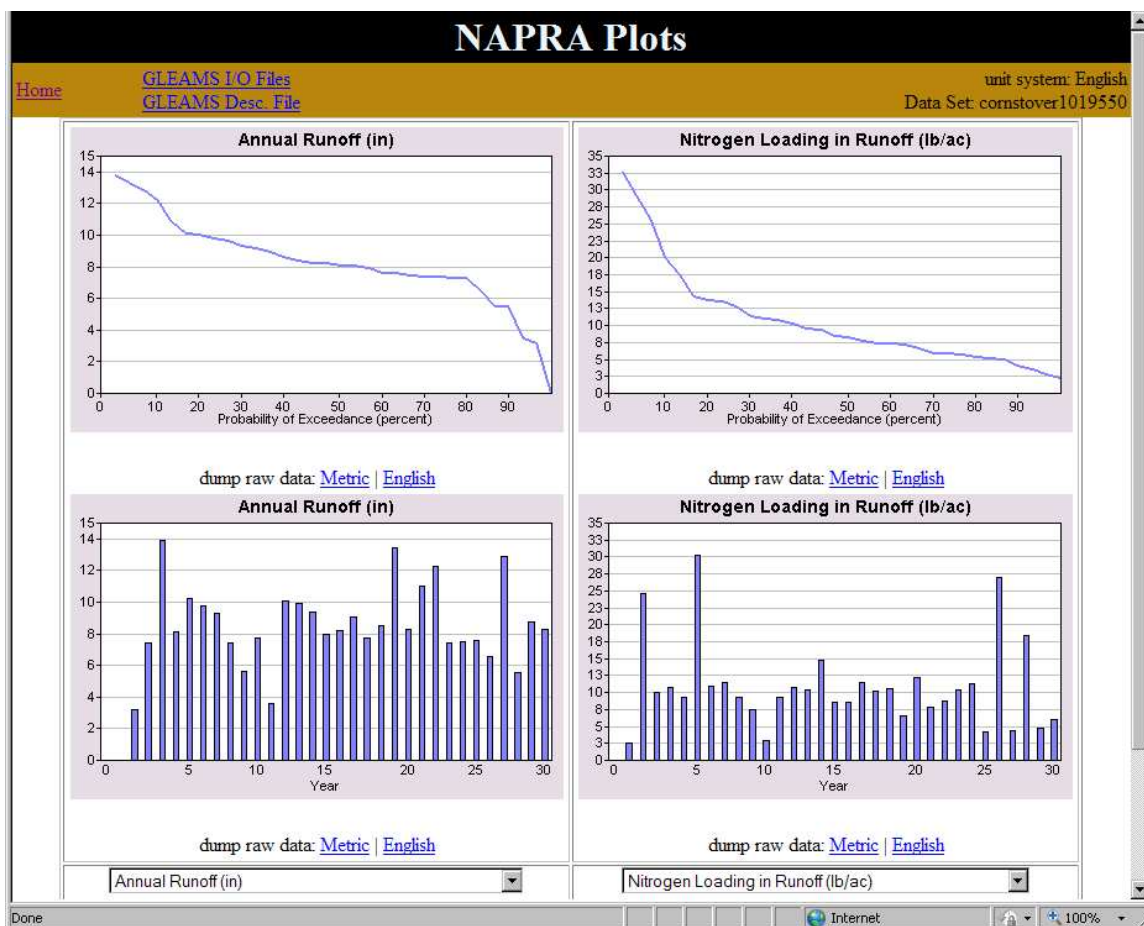
10. Output

50% and 10% Pesticide and Nutrient Probability of Exceedence Values for Surface, Shallow Groundwater and Sediment Losses						
NAPRA Predicted Mass Lost	Runoff		Shallow Groundwater		Sediment	
	50 %	10 %	50 %	10 %	50 %	10 %
Atrazine (oz/ac)	0.0056	0.0155	0.1368	0.3306	0.0000	0.0000
Nitrogen (lb/ac)	3.8005	6.1905	22.1535	54.3982	0.0847	0.1940
Phosphorus (lb/ac)	0.8425	1.2783	0.0003	0.0006	0.7113	1.8858
NAPRA Predicted Concentration Lost	Runoff		Shallow Groundwater		Sediment	
	50 %	10 %	50 %	10 %	50 %	10 %
Atrazine (ppb)	0.3532	1.3056	5.7719	19.8451	---	---
Nitrogen (ppm)	3.4783	6.0393	15.2454	32.3266	---	---
Phosphorus (ppm)	0.8469	0.9676	0.0002	0.0003	---	---

• [Click here to see the results](#)

- a. Click the link at the bottom “**Click here to see the results**” to see the calculated probability of exceedance graphs.

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b. Many graphical output options available:

- Annual Runoff (in)
 - Annual Percolation (in)
 - Nitrogen Loading in Runoff (lb/ac)
 - Nitrogen Concentration in Annual Runoff (ppm)
 - Phosphorus Loading in Runoff (lb/ac)
 - Phosphorus Concentration in Annual Runoff (ppm)
 - Nitrogen Loading in Sediment (lb/ac)**
 - Phosphorus Loading in Sediment (lb/ac)
 - Nitrogen Loading Leached Annually (lb/ac)
 - Nitrogen Concentration Leached Annually (ppm)
 - Phosphorus Loading Leached Annually (lb/ac)
 - Phosphorus Concentration Leached Annually (ppm)
-
- Pesticide Loading in Annual Runoff (oz/ac)
 - Pesticide Loading in Annual Sediment (oz/ac)
 - Pesticide Loading Leached Annually (oz/ac)
 - Pesticide Concentration in Four-Day Runoff (ppb)
 - Pesticide Concentration Leached in Four Days (ppb)
 - Pesticide Concentration in Annual Runoff (ppb)
 - Pesticide Concentration Leached Annually (ppb)

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- c. To view GLEAMS inputs and outputs, click on the GLEAMS I/O files option at the top of the screen.



- d. GLEAMS input and options are:

