



Designing a Fertility Program From a Soil Test Report

In this tutorial, we will focus on crops whose nutritional requirements are expressed in units of amount/area. For example, kg/ha or lb/acre.

1. Selecting the calculation method

From the main menu of the program, select **Mix Fertilizers** → **Amount/Area** → **Method 1**

The calculation screen opens.

2. Entering nutrient requirements/uptake

In order to calculate fertilizer rates, first we must know the nutrient requirements/uptake of the crop.

There are two options:

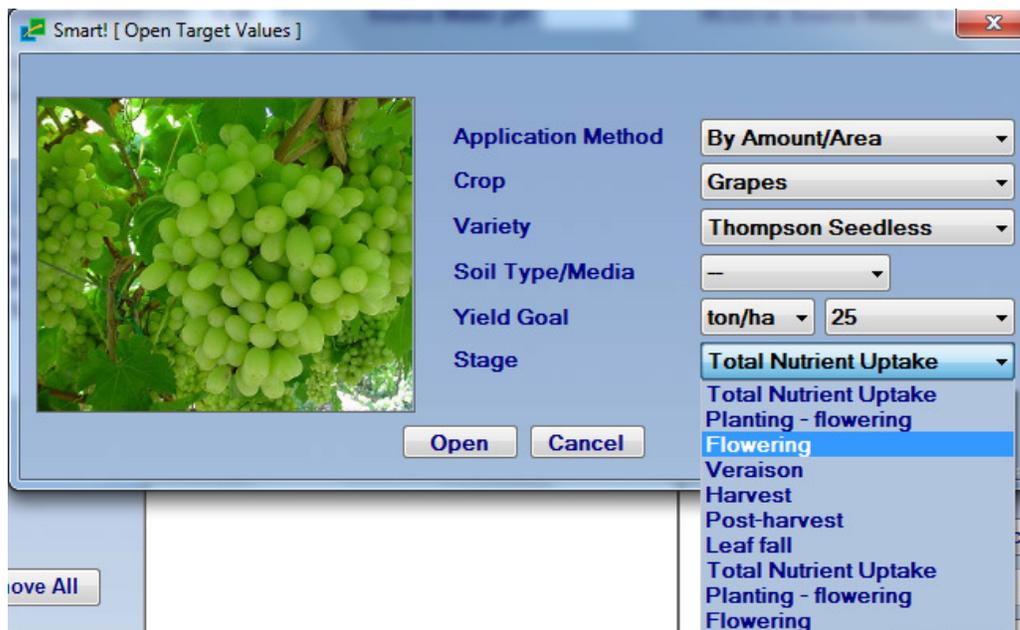
a. Entering nutrient requirements/uptake manually

In the **Target Values** row, enter the nutrient requirements/uptake.

Please refer to page 46 in the user manual of SMART! PRO, Step 1: Entering Target Values for Nutrient Application Rates.

b. Using nutrient requirements/uptake of crops from database

- From the menu bar of Method 1, select **Target Values** → **Open**.
- Select the crop, variety, soil/media type, yield goal and the growth stage.
- Click **Open**.



The nutrient requirements of the crop will appear in the Target Values row.

3. Adjusting the nutrient requirements using a soil test

- Click the **Adjust by Soil/Tissue Analysis** button.
- Select **Soil Analysis** → **OK**. The Soil Test Interpretation window opens.
- The nutrient requirements/uptake, as entered in the previous screen, will appear in the **Crop Consumption** row.
- From the **Interpretation** drop-down menu, select the set of extraction (analytical) methods that corresponds with the extraction methods used by the laboratory that issued the soil test report.
- In the **Extraction Methods** row select, for each element, the method used by the laboratory to determine this element.
- In the Results row, select the units and enter the soil test results from your soil analysis report, or select **Soil Test Results** from the menu bar to open previously saved results.

Smart! [Soil Test Interpretation]

Soil Test Results Crop Consumption Current Application Clear

Interpretation Default Nutrient Application Rules

Application Rules – Default

	N-NO3	P	K	Ca	Mg	S	B	Fe	Mn	Zn	Cu
Extraction Method	Kjeldhi	olsen	Ammonium Acetate	Ammonium Acetate	Ammonium Acetate	KCL 40	Hot Water	DTPA	DTPA	DTPA	DTPA
Interpretation	Low	Adequate	High	Adequate	Excessive	High	Low	Adequate	Adequate		
Results (ppm)	12.00	22.50	400.00	1803.00	403.00	18.00	0.400	3.200	1.800	0.000	0.000
Extraction Method											
Crop Consumption (Kg/Ha)	100.00	19.35	86.80	49.00	15.70	12.00	1.000	5.000	2.000	1.300	0.000
Current Application (Kg/Ha)	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000
Target Values (Kg/Ha)	100.00	38.70	60.76	49.00	0.00	8.40	1.10	5.00	2.00	0.00	0.00

Open as Target Values

- Smart! Interprets the results and calculates a nutrient recommendation. This recommendation appears in the **Target Values** row in the interpretation window. Note that Smart! Calculates a recommendation only for nutrients that have **Crop Consumption** data.
- Saving the results (optional) – from the menu bar of the interpretation window, select **Soil Test Results** → **Save**.
- Click the **Open as Target Values** button. The interpretation window closes and the new nutrient recommendations appear in the **Target Values** row of the calculation screen. If you wish to make any changes in the recommended target values, you can do them now.

(Grapes - Thompson Seedless - -- - Total Nutrient Uptake)

	N				P	K	Ca	Mg	S	B	Fe	Mn	Zn
	Total N	N-NO3	N-NH4	N-NH2									
Application Interval (days)	100.00				38.70	60.76	49.00	0.00	8.40	1.100	5.000	2.000	
Source Water pH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000
HCO3 in Source Water													

Application Interval (days) 365.00 Source Water pH HCO3 in Source Water 0.00 ppm

Adjust by Soil/Tissue Analysis

Select fertilizers to be used

4. Calculating Fertilizer Dose

- Select the fertilizer sources you have available.
- Click the **Calculate** button.

Smart! selects the best combination of fertilizers to reach the target values, and their required doses.

Selected Fertilizers	Fertilizers Application	
<input type="checkbox"/> Urea	55.43 lb/acre	<input type="button" value="Calculate"/> <input type="button" value="View Result"/> <input type="button" value="Report"/> Cost/acre/application
<input type="checkbox"/> Mono Ammonium Phosphate(MAP12-61-0)	130.28 lb/acre	
<input type="checkbox"/> Calcium Nitrate	230.06 lb/acre	
<input type="checkbox"/> Solubor	4.69 lb/acre	
<input type="checkbox"/> FE-EDTA 13%	34.31 lb/acre	
<input type="checkbox"/> Mn-EDTA 13%	13.72 lb/acre	
<input type="button" value="Fill Tanks"/>		

Saving your fertilizer program

To save the fertilizer program, click the **Fill Tanks** button and select **Save** or **Save as** from the menu bar.

If the fertilizer application is by fertigation, you can proceed with the recipe design. Please refer to the user manual.

Summary of steps:

1. Select Mix Fertilizers → Amount/Area → Method 1.
2. Enter/open target values.
3. Click the **Adjust by Soil/Tissue Analysis** button → Soil Analysis → OK.
4. Select the set of interpretation methods from the **Interpretation** drop-down menu.
5. Make sure that the extraction methods that are indicated coincide with the extraction methods used by your laboratory.
6. Enter soil test results in the **Results** row.
7. Click the **Open as Target Values** button.
8. Select fertilizers.
9. Click the **Calculate** button.
10. Check results and save program.