

## How to Use the Landspreading Spreadsheet LSCALC.XLS

Look on the lower left of the Excel window. Note that there are 2 spreadsheets in this workbook:

- 1.) "Calculation Spreadsheet" is the landspreading calculation sheet. Each calculation assumes only 1 stockpile. You can run the spreadsheet as many times as you have stockpiles with different contaminant levels.
- 2.) "Label rates" is a table with useful label rates (in lb A.I./acre) of many pesticides in relation to the soil type

Click once on "Calculation Spreadsheet" to select this spreadsheet. Notice that there are 2 major divisions here: "**INPUT Columns**" and "**OUTPUT Columns**." Note the yellow areas under and above the "INPUT Columns." *The cells in the yellow area are where you type in the necessary information for your landspreading calculations.* Use only the cells that you need.

The INPUT area in the upper left includes: "**STOCKPILE NUMBER**", "**Factor of Safety**", "**Volume of Soil**" in cubic yards, and "**Soil Density**" in pounds per cubic foot. Except for "**STOCKPILE NUMBER**", all of these input fields require non-zero, numeric inputs for the calculation sheet to work. "Soil Density" can be generally placed within the following ranges:

<u>Soil Type</u>	<u>Soil Density (lb/ft<sup>3</sup>)</u>
Clay	70
Silt	85
Sand	100
Gravel	110
Compacted Soils	110

The INPUT Columns are: "**Active Ingredient Name**", "**Active Ingredient Type**" (either 'F' for fertilizer or 'P' for pesticide, this can not be blank or anything other than "F" or "P"), "**A.I. Conc.**" (contaminant concentration in ppm), and "**Label Rate**" (in lb/acre). Except for "**Active Ingredient Name**" and "**Active Ingredient Type**", all the columns require non-zero, numeric inputs or blanks.

The OUTPUT Columns are: "**Application Rate**" (label rate divided by the safety factor); "**Mass Fertilizer A.I.**" in pounds, "**Mass Pesticide A.I.**" in pounds, "Fertilizer Acres Required" (area required by individual fertilizer type contaminant), "Pesticide Acres Required" (area required by individual pesticide type contaminant), and "**A.I. Credit**" (in lb/acre for the total acres to be used). At the bottom of the page the following are calculated: "**Total Acres Required**" (maximum sum of the areas required by individual fertilizer or pesticide type contaminant), and "**Soil Landspreading Rate**" ("Volume of Soil"/ "Total Acres Required").

The following exercises should help you get familiar with the spreadsheet. You can overwrite the existing entries to get started.

Problem Example 1: How many acres are needed to landspread your sandy soil ( $\Psi_{\text{soil}} = 100$  lb/ft<sup>3</sup>) stockpile (volume = 400 yds<sup>3</sup>) contaminated with 20 ppm atrazine (label rate = 0.75 lb/acres) and 450 ppm total nitrogen (label rate = 125 lb/acre)?

Solution: In the upper right input area, enter the factor of safety (2), volume of soil (400), and the soil density (100). Using a factor of safety of 2 will give twice the required acres as using a factor of safety of 1. In the input columns, enter (in the row 10) *Atrazine, P, 20,*

and 0.75 under the columns “Active Ingredient Name”, “A.I. Type”, “A.I. Conc.”, and “Label Rate”, respectively. In the row 11, enter *Nitrogen, F, 450*, and *125* under their respective columns. The number of acres needed will 57.6. Now try using a nitrogen concentration of 3500 ppm. The necessary acres for the pesticide remains 57.6, but because the limiting acreage is due to the high fertilizer concentrations, the required acreage becomes 61.

Problem Example 2: In addition to 20 ppm of atrazine and 3500 ppm nitrogen, the soil also contains 15 ppm of alachlor (label rate = 2.5 lb/acre) and 10 ppm of metolachlor (label rate = 2 lb/acre). How many acres are needed?

Solution: In row 12, enter *Alachlor, P, 15*, and *2.5*; in row 13, enter *Metolachlor, P, 10*, and *2*. You should get the results below:

- 1 STOCKPILE NUMBER
- 2 Factor of Safety
- 400 Volume of Soil (yds<sup>3</sup>)
- 100 Soil Density (lb/ft<sup>3</sup>)

INPUT COLUMNS					OUTPUT COLUMNS					
Active Ingredient Name	A.I. Type (F or P)	A.I. Conc. (ppm)	Label Rate (lb/acre)	A.I. Spreading Rate (lb/acre)	Mass Fert. A.I. (lb)	Mass Pest. A.I. (lb)	Fertilizer Acres Required	Pesticide Acres Required	A.I. Credit (lb/acre)	
Atrazine	P	20	0.75	0.375		21.6		57.6	0.26	
Nitrogen	F	3500	125	62.500	3780.0		60.5		46.10	
Alachlor	P	15	2.5	1.250		16.2		13.0	0.20	
Metolachlor	P	10	2	1.000		10.8		10.8	0.13	
Totals:						3780	48.6	60.5	81.4	

**Total Acres Required: 82**

**Soil Landspreading Rate (yds<sup>3</sup>/acre): 4.9**

If you have additional questions about or problems with the landspreading calculation spreadsheet, please call your DATCP project manager.