

The application of limestone to Illinois cropland is a time tested method of controlling soil acidity. It can help maintain optimum nutrient availability and consequently, crop production.

However, variations in limestone quality from the many sources available to farmers can make consistent and economical application difficult. This publication indexes many Illinois sources of agricultural limestone as a function of their effective neutralizing value. Calcium Carbonate Equivalents and Fineness Efficiency of the different limestones have all been figured for the producer.

The result is a correction factor at the end of each entry. Multiply this figure by the ton-per-acre of limestone recommended in your soil test for the correct application rate of each quarry's limestone.

The application rate number is figured with a one and four year conversion rate.

### Figuring ENV for one year conversion rates

The effective neutralizing value of a limestone product is determined by multiplying the Calcium Carbonate Equivalent (CCE given in booklet) by the total fineness efficiency value (TFEV).

You must figure this from data included in the booklet.

Total fineness efficiency values (TFEV's) are determined by first obtaining the weight percent (multiply by .01) of stone in the four particle size intervals. These are:

1. Greater than #8 mesh
2. #8 to #30 mesh
3. #30 to #60 mesh
4. #60 and finer mesh.

Obtain the greater than #8 mesh figure by subtracting the #8 mesh percent weight from 1.00. to obtain the #8 to #30 mesh, subtract the percent passing #30 from the percent passing #8 to obtain the #30 to #60 figure, subtract the #60 from the #30. The passing #60 figure is already given in the table.

Here is an example TFEV computation for particle size intervals.

For more information, see "A Guide to selecting Agricultural Limestone Products", by Jonathan H. Goodwin. Illinois Mineral Note 73, November, 1973. Illinois State Geological Survey and, Illinois Agronomy Handbook 1995-96 Circular 1333, Cooperative Extension Service, U of I. Or, you may contact your County Extension Advisor.

## Particle Size Interval Analysis

	Passing # 8	Passing # 30	Passing # 60
Step 1			
Jones County			
Cr Stone	85.9	35.2	21.4
		Weight Percent	
Step 2			
(Multiply by .01)	.859	.352	.214

Step 3  
 $1.00 - .859$  (#8 figure for #8 larger particle size) = .141

### Step 4 One Year Conversion Constants \*

\*The four bold constants are always used when figuring 1 year conversion rates.

- .141 x 5 = .70
- .507 x 20 = 10.14
- .138 x 50 = 6.90
- .214 x 100 = 21.4

39.14 = Total Fineness Efficiency Value

Step 5  
 (TFEV)  $39.14 \times (\text{CCE}) .9363 = 36.65$  (product)

Step 6  
 Always divide the product of step 5 into 46.35.

One Year application Rate  
 46.35  
 = 1.26  
 36.65

Step 7  
 $1.26 \times$  (ton-per-acre recommendation in your soil analysis) = ton-per-acre of Jones County Cr Stone to apply.