Ratings of Illinois Soils

In Illinois, soils are rated by productivity. An Index is used to compare soils. There are two systems used in Illinois to compare soils. The Index numbers do not represent yields but are designed to make soil comparisons.

Bulletin 810 – Index used for calculating Illinois farm productivity for *property taxes* determination based on soil productivity.

Bulletin 811 – Index used in *farmland sales* to value farm soils for productivity.

Index numbers are not yields but are an indexed for comparing soils.

Bulletin 811 index values are higher than Bulletin 810 values. The index values are simply comparison values for soils within the respective Bulletin and should not be cross referenced as a Productivity Index of a soil should be compared within the same Index to other soils.

Below is an example of a Soil and the corresponding Productivity Index (PI) within each Index (Bulletin 810 or Bulletin 811).

Examples:

Example 1

56 Dana Silt Loam
The number 56 is the Identification Number assigned to Dana Silt Loam. The Productivity Index value (PI) for both Bulletins (also known as indexes) is below.

PI of 103 in Bulletin 810

PI of 116 in Bulletin 811

Example 2

152 Drummer Silty Clay Loan

The number 152 is the Identification Number assigned to Drummer Silty Clay Loam. The Productivity Index value (PI) for both Bulletins (also known as indexes) is below.

PI of 127 in Bulletin 810

PI of 144 in Bulletin 811

As can be seen in either Bulletin, Drummer Soils are more Productive than Dana Soils therefore will be taxed at a higher rate (Bulletin 810) and should sale at a higher value (Bulletin 811).

Slope

The slope of your farm soils is indicated in the soil identification number. A soil with a higher slope generally has the PI scaled down due to erosion damage. The Dana soil is used as an example below.

A listing of a Dana soil on your farm will be listed ats *56 Dana Silt Loam*

If the identification number says 56B, 56C, 56D and so on, the letter indicates the slope of the land. Generally the letter A is not assigned and one can assume a soil Identification without a letter has no slope or a slight slope of under 2%.

Erosion Damage

A number after the letter in the identifier indicates how badly the soil is erosion. Our 56B soil could read 56B2. The higher the last digit, the worse the erosion damage. In this case the 3 would indicate moderate erosion. A 4 is severely eroded and a 2 is slightly eroded (see chart below). If no number is added after the letter, one can assume there is no discount for erosion damage, so therefore a 1 will not be used in the identification number.

Below is the slope calculations chart for Bulletin 810. The factors are slightly different for Bulletin 811, listed after Bulletin 810, but the methodology is the same.

Find your soil slope letter (example 56B) From the left, B correlates with 2-5% slope. Next find the subsoil rating of either Favorable or Unfavorable. In the Bulletin you will find FAV for favorable and UNF for Favorable subsoil factors are on the left columns and Unfavorable on the right

Table 7. Decimal Adjustments in Crop Yields and Productivity Indices Under an Average Level of Management for Various Slope Groups and Erosion Phases

Slope class %	Average management Favorable subsoils: Slightly eroded	Moderately eroded	Severely eroded	Average management Unfavorable subsoils: Slightly eroded	Moderately eroded	Severely eroded
A, B, C, D, E, F, G						
0–2	1.00	0.96	0.88	1.00	0.93	0.78
2–5	0.99	0.95	0.86	0.98	0.91	0.76
5–10	0.96	0.92	0.84	0.95	0.88	0.72
10–15	0.92	0.87	0.78	0.90	0.82	0.67
15–20	0.86	0.80	0.73	0.84	0.76	0.61
20–25	0.79	0.72	0.65	0.76	0.69	0.54
25–30	0.70	0.63	0.57	0.67	0.60	0.45
30–35	0.59	0.53	0.46	0.56	0.49	0.34
35–40	0.51	0.46	0.38	0.48	0.41	0.26
43+	0.47	0.42	0.34	0.44	0.37	0.22
Erosion Ratings	2	3	4	2	3	4

How to calculate our example

56 Dana Soils have a FAV subsoil rating so use the left column. Our example 56 Dana as 56B which is 2-5% slope. Let's assign the number 2 after the letter making our soil ID look like this." 56B2 for being slightly eroded. Following the chart, the factor is .99. Remember, the initial rating is a Productivity Index (PI)of 103 on Bulletin 810. Therefore, multiply the PI by .99 and our new PI number is 103 X .99 = 102.

Chart for Bulletin 811

Slope class %	Optimum management Favorable subsoils			Optimum management Unfavorable subsoils		
	Slightly eroded	Moderately eroded	Severely eroded	Slightly eroded	Moderately eroded	Severely eroded
0–2	1.00	0.96	0.89	1.00	0.94	0.79
2–5	0.99	0.95	0.88	0.99	0.93	0.78
5–10	0.97	0.93	0.86	0.96	0.90	0.74
10–15	0.93	0.89	0.81	0.91	0.84	0.69
15–20	0.87	0.82	0.75	0.85	0.78	0.63
20–25	0.80	0.75	0.68	0.77	0.71	0.56
25–30	0.71	0.66	0.59	0.68	0.62	0.47
30–35	0.60	0.55	0.48	0.57	0.51	0.36
35–40	0.52	0.48	0.40	0.49	0.43	0.28
43+	0.48	0.44	0.36	0.45	0.39	0.24

All identification numbers are either a 2, 3, or 4 digits. If you have a 4-digit Identifier, the first number to the left, indicates special circumstances. You will not find the 4th number on either Bulletins, but a soil might be assigned a 4th number on your tax bill or on a farm sale listing. For example, let's look at Drummer soils

Identifier = 152

If a 4th digit is added, it is on the left side as aprefix. So, the number would read like X152. Below is the chart used to help identify the special circumstances.

Prefix 1	Wet phase	1000–1999
Prefix 2	Urban land-soil complex	2000–2999
Prefix 3	Frequently flooded phase	3000–3999
Prefix 4	Ponded phase	4000–4999
Prefix 5	Karst phase (also mine sinks)	5000–5999
Prefix 6	Variant of series (no longer in use)	6000–6999
Prefix 7	Rarely flooded phase	7000–7999
Prefix 8	Occasionally flooded phase	8000–8999
Prefix 9	Not assigned	9000–9999

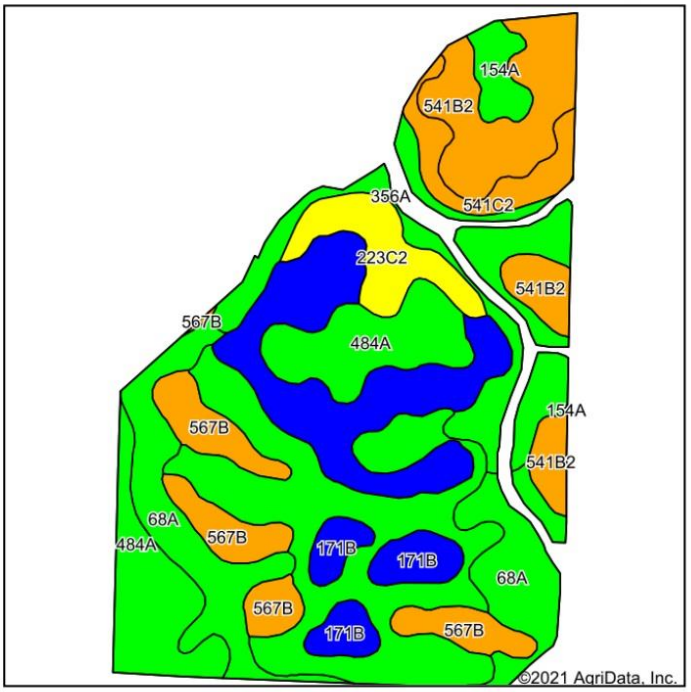
Therefore a Identifier of 4152 is a Drummer soil that is Ponded (See Prefix 4)
2152 is a Drummer converted to Urban soils
7152 is a Drummer that is rarely Flooded

Note that Dana soils are identified by only two digits (56). Therefore an Urban land-soil complex Dana soil would read as 2056 Indentifier. As a side note, Dana soils generally have a slope and typically would not be ponded.

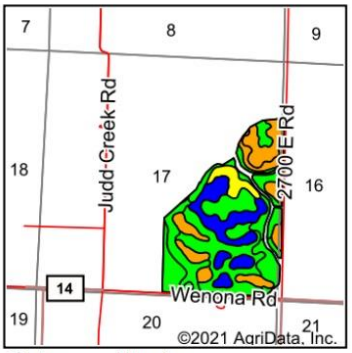
Your tax bill is based on the Productivity of your farm. Your farm will not likely be just one soil, so the farm soils are averaged together based on the % of total acres on your farm. Remember Bulletin 810 is used for your taxes.

Bulletin 811 is typically used for farm sales and is also average together for an average PI for your farm. Below is a sample soil map from AgriData. Note the average PI of 135.7. This is using the Bulletin 811 index PI values. Most farms have multiple soil types. This map does assign an A to less than 2% slopes.

Soils Map



Soils data provided by USDA and NRCS.



State: **Illinois**
County: **Marshall**
Location: **17-30N-1E**
Township: **Evans**
Acres: **172.85**
Date: **12/15/2021**

Maps Provided By surety CUSTOMIZED ONLINE MAPPING © AgriData, Inc. 2021 www.AgriDataInc.com

Code	Soil Description	Acres	Percent of field	Il. State Productivity Index Legend	Subsoil rooting *a*	Corn Bu/A	Soybeans Bu/A	Wheat Bu/A	Sorghum *c* Bu/A	Alfalfa *d* hay, T/A	Crop productivity index for optimum management
484A	Harco silt loam, 0 to 2 percent slopes	53.49	30.9%		FAV	190	61	74	0	0.00	140
**171B	Catlin silt loam, 2 to 5 percent slopes	29.82	17.3%		FAV	**185	**58	**72	0	**6.70	**137
68A	Sable silty clay loam, 0 to 2 percent slopes	22.82	13.2%		FAV	192	63	74	0	0.00	143
**541B2	Graymont silt loam, 2 to 5 percent slopes, eroded	18.08	10.5%		FAV	**174	**54	**67	0	**5.72	**127
356A	Elpaso silty clay loam, 0 to 2 percent slopes	17.58	10.2%		FAV	195	63	66	0	0.00	144
**567B	Elkhart silt loam, 2 to 5 percent slopes	14.07	8.1%		FAV	**169	**53	**64	0	**5.22	**124
**223C2	Varna silty clay loam, 5 to 10 percent slopes, eroded	7.98	4.6%		FAV	**147	**47	**60	0	**4.55	**108
**541C2	Graymont silty clay loam, 5 to 10 percent slopes, eroded	5.64	3.3%		FAV	**170	**53	**66	0	**5.60	**125
154A	Flanagan silt loam, 0 to 2 percent slopes	3.37	1.9%		FAV	194	63	77	0	0.00	144
				Weighted Average		**184**	**58.7**	**70.4**	*-	**2.57**	**135.7**

Table: Optimum Crop Productivity Ratings for Illinois Soil by K.R. Olson and J.M. Lang, Office of Research, ACES, University of Illinois at Champaign-Urbana. Version: 1/2/2012 Amended Table S2 B811
Crop yields and productivity indices for optimum management (B811) are maintained at the following NRES web site: http://soilproductivity.nres.illinois.edu/
** Indexes adjusted for slope and erosion according to Bulletin 811 Table S3
a UNF = unfavorable; FAV = favorable
c Soils in the northern region or in both regions were not rated for grain sorghum and are shown with a zero "0".
d Soils in the poorly drained group were not rated for alfalfa and are shown with a zero "0".