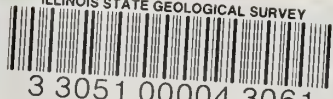


ILLINOIS STATE GEOLOGICAL SURVEY



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State of Illinois  
Henry Horner, Governor  
Department of Registration and Education  
John J. Hallihan, Director

Division of the  
S T A T E G E O L O G I C A L S U R V E Y  
M. M. Leighton, Chief  
Urbana, Illinois

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No. 47

C I R C U L A R

April 15, 1939

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AGRICULTURAL LIMESTONE DISTRIBUTION IN 1938\*

Preliminary Report

By

W. H. Voskuil and G. N. Oliver

- - - - -

Returns from producers of agricultural limestone indicate that the farmers of Illinois applied approximately 1,160,339 tons in 1938. This is the third consecutive year that reported agricultural limestone consumption exceeded a million tons. The market for agricultural limestone is not yet fully developed, as shown by the wide variation in consumption per acre among the counties of the State. While there are differences in the lime requirements among the soils of the State, the low average of consumption in district No. 3 (see fig. 1) is in part accounted for by a lack of widely distributed limestone deposits in this area and a higher delivered cost of stone from established producing quarries. The economy of limestone utilization, however, is not to be gauged by the cost, but rather by the net added return resulting from its use over cost of application.

Detailed statistics were received from Illinois producers and from producers in Indiana, Kentucky, Missouri, Iowa, and Wisconsin, who ship agricultural limestone into Illinois. Information was also received from certain farm advisers in Illinois, supplying data for the many small local producers in several counties whose production figures were not available.

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\* In cooperation with the Mid-West Agricultural Limestone Institute.

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A preliminary report on the total tonnage of agricultural limestone marketed in each county in Illinois during 1937 and 1938 is given in table 2. The approximate number of pounds of limestone used per acre of arable land in each county during 1938 is given in table 3. This is calculated on the basis of the acreage of arable land in each county as reported by the United States Census of Agriculture, 1935. The counties in this table are grouped into areas as defined on the index map at the end of this report.

Revised figures based upon more complete data will be published in the annual statistical report of the State Geological Survey. It is not anticipated that substantial changes from the preliminary figures will occur.

### FARM TENANCY AND THE LIMESTONE MARKET

Farm operators in Illinois are classified, according to the United States Census, into three general classes on the basis of the terms under which they operate their farms, as follows:

- Full owners and part owners. The latter own a part and rent from others the land they operate.
- Managers operating farms for others and receiving wages or salaries for their services.
- Tenants operating hired or rented land only.

In the State of Illinois in 1935 there were 31,661,205 acres of arable farm land, divided according to tenure as follows:

	<u>Acres</u>	<u>Per cent of total</u>
Total land in farms ...	31,661,205	100.0
Full owners .....	8,961,846	28.3
Part owners .....	6,670,637	21.1
Managers .....	470,468	1.5
Tenants .....	15,558,254	49.1

The marketing of agricultural limestone to tenant farmers presents problems. For instance, when a tenant gives up his lease and rents another farm, a suitable arrangement often does not exist between landlord and tenant with respect to compensation for unused benefits of limestone. Certain classes of landlords also do not properly appreciate the value of limestone as a means of maintaining the productive value of the soil, and as a consequence tenanted farm land is in many cases not supplied with limestone in amounts that are necessary to preserve its productivity. It would appear that an essential step in the encouragement of limestone use on tenant farms is to work out a formula of compensation for unused limestone, which would be acceptable to both tenant and landlord. This is particularly important in view of the high percentage of tenancy in Illinois in the leading agricultural counties. Proportion of farm tenancy by counties is shown in figure 1 and table 1.

Table 1. - Farm Acreage in Illinois, by Type of Operator, by Counties, 1935\*

County	All lands in farms	Full owners	Part owners	Managers	Tenants	Tenants' per cent of total
Adams	492,933	182,181	99,032	5,575	206,145	42
Alexander	103,133	25,172	13,152	2,037	62,772	61
Bond	221,362	61,559	72,364	3,026	84,413	40
Boone	174,000	56,229	20,684	5,592	91,495	53
Brown	172,844	69,831	31,728	2,764	68,521	40
Bureau	520,711	147,488	64,293	7,952	300,978	58
Calhoun	149,906	76,653	29,018	1,291	42,944	29
Carroll	271,978	115,592	21,728	6,617	128,041	48
Cass	218,074	56,581	46,146	1,704	113,643	52
Champaign	612,154	95,307	139,282	9,770	367,795	60
Christian	433,424	78,801	106,022	5,477	243,124	56
Clark	283,229	93,419	98,569	1,941	89,300	31
Clay	251,682	71,402	110,308	4,933	65,039	26
Clinton	267,080	62,199	68,580	1,110	135,191	50
Coles	303,413	75,321	74,223	3,117	150,752	50
Cook	231,764	89,893	39,074	15,110	87,687	38
Crawford	226,382	87,762	79,693	1,933	56,994	25
Cumberland	201,031	59,023	79,262	412	62,334	31
DeKalb	392,411	109,762	42,002	9,547	231,100	59
DeWitt	239,754	43,272	38,051	2,489	155,942	65
Douglas	251,634	44,911	62,667	5,351	138,705	55
DuPage	141,633	42,077	19,772	9,948	69,836	50
Edgar	379,905	90,748	86,642	2,526	199,989	53
Edwards	139,198	41,370	57,510	368	39,950	29
Effingham	278,378	90,921	108,941	1,547	76,969	28
Fayette	406,168	113,013	139,463	6,276	147,416	36
Ford	299,921	47,245	44,230	2,663	205,783	69
Franklin	196,612	79,603	64,568	1,349	51,092	25
Fulton	518,373	151,509	71,656	9,705	285,503	55
Gallatin	160,853	38,982	54,339	4,619	62,913	39
Greene	320,679	86,614	68,691	8,317	157,057	49
Grundy	255,650	46,182	38,150	1,187	170,131	66
Hamilton	230,552	67,873	80,913	1,563	80,203	35
Hancock	465,270	124,655	109,026	3,784	227,805	49
Hardin	81,089	47,393	8,064	1,775	23,857	30
Henderson	210,015	49,198	38,859	2,120	119,838	57
Henry	485,439	148,305	52,648	6,341	278,145	57
Iroquois	687,944	127,503	121,963	9,131	429,347	62
Jackson	312,463	106,710	75,848	6,393	123,512	39
Jasper	282,756	69,456	133,198	840	79,262	28
Jefferson	314,882	118,937	106,007	2,054	87,884	28
Jersey	215,104	82,665	41,130	6,372	84,937	40
Jo Daviess	356,638	201,932	36,350	3,590	114,766	32
Johnson	194,853	94,724	35,505	5,576	59,048	30
Kane	300,922	94,621	29,182	18,760	158,359	52

(Continued on page 4)

\* Bureau of the Census, U. S. Census of Agriculture, 1935. Illinois, Statistics by Counties. Washington, 1937.

Table 1 (Continued)

County	All lands in farms	Full owners	Part owners	Managers	Tenants	Tenants' per cent of total
Kankakee	386,110	105,863	71,074	6,631	202,542	52
Kendall	198,471	55,595	25,243	2,621	115,012	60
Knox	418,070	120,037	66,076	2,027	229,930	55
Lake	191,029	54,960	39,492	19,997	76,580	40
LaSalle	669,496	147,971	116,157	3,157	402,211	60
Lawrence	182,215	49,916	56,505	3,350	72,444	40
Lee	437,789	127,877	52,176	2,963	254,773	58
Livingston	644,571	112,760	114,955	5,139	411,717	64
Logan	366,933	52,565	50,938	4,511	258,919	70
McDonough	349,554	90,546	73,486	3,357	182,165	50
McHenry	363,894	113,951	45,981	15,867	188,095	52
McLean	719,297	122,264	111,012	10,441	475,580	66
Macon	347,178	60,215	65,689	9,182	212,092	61
Macoupin	504,925	146,999	108,547	5,028	244,351	48
Madison	384,549	124,563	79,048	3,097	177,841	46
Marion	319,766	110,750	116,550	2,217	90,249	28
Marshall	227,487	42,870	40,845	1,846	141,926	63
Mason	301,649	52,195	65,365	4,459	179,630	60
Massac	128,895	77,763	22,763	3,052	25,307	20
Menard	184,611	42,162	40,746	764	100,939	54
Mercer	328,292	114,618	53,109	3,184	157,381	48
Monroe	215,652	53,749	46,883	1,731	113,289	52
Montgomery	414,156	113,700	104,348	4,420	191,688	46
Morgan	340,954	94,227	76,685	5,114	164,928	48
Moultrie	208,092	36,696	51,440	3,707	116,249	56
Ogle	467,122	136,291	51,418	18,044	261,369	56
Peoria	350,399	119,179	54,622	2,813	173,785	50
Perry	222,889	59,312	98,232	1,475	63,870	29
Piatt	267,833	39,199	50,119	6,871	171,644	64
Pike	473,844	167,316	92,144	1,555	212,829	45
Pope	182,626	96,498	24,416	550	61,162	33
Pulaski	103,166	44,823	21,200	3,859	33,284	32
Putnam	94,165	24,119	15,382	2,096	52,568	56
Randolph	319,535	114,436	81,879	4,163	119,057	37
Richland	211,344	61,371	93,664	1,012	55,297	26
Rock Island	234,633	94,965	31,702	5,086	102,880	44
St. Clair	345,637	107,056	65,294	1,153	172,134	50
Saline	203,106	91,367	48,326	2,355	61,058	30
Sangamon	507,269	118,510	107,671	8,821	272,267	54
Schuyler	254,350	67,709	48,528	1,200	136,913	54
Scott	145,325	41,832	29,763	640	73,090	50
Shelby	466,284	112,475	134,469	5,517	213,823	46
Stark	169,989	48,850	25,611	1,381	94,147	55
Stephenson	346,031	137,173	37,065	5,295	166,498	48
Tazewell	381,776	77,991	81,277	4,371	218,137	57
Union	208,184	101,971	25,102	5,381	75,730	37
Vermilion	516,208	105,486	112,031	9,386	289,305	56

(Continued on page 5)



Table 1 (Continued)

County	All lands in farms	Full owners	Part owners	Managers	Tenants	Tenants' per cent of total
Wabash	124,584	32,441	43,970	1,158	47,015	38
Warren	322,488	74,467	53,254	3,834	190,933	59
Washington	308,437	88,558	80,209	972	138,698	45
Wayne	376,937	115,628	143,519	2,694	115,096	30
White	275,132	61,157	91,465	1,600	120,910	44
Whiteside	412,864	110,221	35,250	3,269	264,124	64
Will	471,632	145,419	80,463	7,502	238,248	50
Williamson	205,609	100,007	57,693	2,201	45,708	22
Winnebago	285,520	102,516	35,864	7,561	139,579	49
Woodford	318,456	74,092	65,384	4,239	174,741	55
State totals	31,661,205	8,961,846	6,670,637	470,468	15,558,254	49

Table 2. - Reported Agricultural Limestone Used in Illinois  
During 1937 and 1938

County	1937	1938		Total used in 1938
		Produced in Illinois	Produced in other states	
Adams	12,162	15,946	537	16,483
Alexander	191	94	.....	94
Bond	11,619	11,001	357	11,358
Boone	501	(a)	.....	(a)
Brown	1,907	398	.....	398
Bureau	12,602	12,764	356	13,120
Calhoun	3,203	(a)	.....	(a)
Carroll	2,200	(b)	(b)	2,089
Cass	910	903	.....	903
Champaign	20,800	20,347	10	20,357
Christian	14,011	15,197	45	15,542
Clark	11,206	19,422	228	19,650
Clay	2,033	1,111	595	1,706
Clinton	25,552	13,982	.....	13,982
Coles	3,803	1,327	1	1,328
Cook	12,199	7,566	56	7,622
Crawford	4,164	2,510	.....	2,510
Cumberland	5,099	5,702	874	6,576
DeKalb	6,330	8,000	.....	8,000
DeWitt	12,156	10,757	.....	10,757
Douglas	5,452	7,345	219	7,564
DuPage	7,424	6,452	259	6,711

(Continued on page 6)

Table 2 (Continued)

County	1938			Total used in 1938
	1937	Produced in Illinois	Produced in other states	
Edgar	5,095	2,190	1,568	3,758
Edwards	9,159	7,034	1,170	8,204
Effingham	11,812	12,356	12,065	24,421
Fayette	13,763	9,579	422	10,001
Ford	17,688	21,264	.....	21,264
Franklin	9,875	6,753	63	6,816
Fulton	7,877	3,324	1,725	5,049
Gallatin	2,142	2,564	.....	2,564
Greene	11,147	16,045	.....	16,045
Grundy	5,746	6,262	.....	6,262
Hamilton	5,073	3,494	721	4,215
Hancock	12,995	4,188	362	4,550
Hardin	2,091	2,251	.....	2,251
Henderson	11,500	(a)	(a)	(a)
Henry	23,201	17,229	12,771	30,000
Iroquois	31,767	17,345	10,490	27,835
Jackson	12,212	7,901	.....	7,901
Jasper	7,876	8,719	202	8,921
Jefferson	8,744	13,414	1,408	14,822
Jersey	49,022	7,100	.....	7,100
Jo Daviess	2,008	4,543	2,057	6,600
Johnson	1,957	1,164	.....	1,164
Kane	9,709	7,293	.....	7,293
Kankakee	15,634	20,683	.....	20,683
Kendall	9,514	9,098	.....	9,098
Knox	21,418	2,783	8,248	11,031
Lake	2,462	2,711	26	2,737
LaSalle	28,537	28,838	.....	28,838
Lawrence	3,465	452	1,069	1,521
Lee	11,730	37,000	.....	37,000
Livingston	44,639	49,022	.....	49,022
Logan	2,380	15,339	.....	15,339
McDonough	4,812	1,111	2,637	3,748
McHenry	6,874	2,430	163	2,593
McLean	40,154	58,120	.....	58,120
Macon	10,833	7,838	368	8,206
Macoupin	6,185	5,140	.....	5,140
Madison	30,779	10,702	.....	10,702
Marion	14,578	9,500	5,963	15,463
Marshall	11,265	11,531	.....	11,531
Mason	6,625	9,603	.....	9,603
Massac	827	439	.....	439
Menard	1,629	2,787	.....	2,787
Mercer	11,129	(b)	(b)	4,985
Monroe	40,642	21,017	.....	21,017
Montgomery	15,153	13,551	50	13,601

(Continued on page 7)

Table 2 (Continued)

County	1937	1938		Total used in 1938
		Produced in Illinois	Produced in other states	
Morgan	2,487	2,317	2,785	5,102
Moultrie	3,689	4,519	533	5,052
Ogle	62	35,000	.....	35,000
Peoria	21,495	8,925	2,853	11,778
Perry	7,982	4,394	.....	4,394
Piatt	9,694	8,702	215	8,917
Pike	2,122	143	105	248
Pope	3,831	1,218	.....	1,218
Pulaski	287	405	.....	405
Putnam	4,548	9,336	.....	9,336
Randolph	27,734	16,322	1,255	17,577
Richland	8,911	6,392	108	6,500
Rock Island	20,838	(b)	(b)	8,286
St. Clair	36,489	27,374	.....	27,374
Saline	4,745	5,762	.....	5,762
Sangamon	6,326	14,598	.....	14,598
Schuyler	823	358	42	400
Scott	3,400	6,399	162	6,561
Shelby	14,821	14,625	346	14,971
Stark	8,200	1,425	8,286	9,711
Stephenson	(c)	35,000	.....	35,000
Tazewell	8,984	15,215	.....	15,215
Union	8,608	8,290	.....	8,290
Vermilion	25,809	13,047	3,640	16,687
Wabash	12,167	483	2,811	3,294
Warren	14,924	12,758	514	13,272
Washington	26,225	15,535	9,018	24,553
Wayne	11,176	2,959	530	3,489
White	20,647	1,019	7,135	8,154
Whiteside	4,859	(b)	(b)	5,348
Will	19,050	11,454	.....	11,454
Williamson	2,198	3,285	.....	3,285
Winnebago	3,700	25,000	.....	25,000
Woodford	21,953	18,254	.....	18,254
Trucked, county unknown	25,013	38,862	.....	38,862
Total	1,158,040	1,041,599	118,740	1,160,339

(a) No report received.

(b) Figures concealed in total.

(c) Figures not available.

Table 3. - Consumption of Limestone on Crop Land in Illinois, 1938<sup>(a)</sup>  
 (Pounds Per Acre)

County	Farm land in crops (1934)	Limestone used (1938)	County	Farm land in crops (1934)	Limestone used (1938)
G. R. O. U. P. 1 <sup>(b)</sup>			G. R. O. U. P. 3 (Continued)		
Cook	178,385	85	Douglas	207,392	72
DuPage	106,526	126	Edgar	273,073	28
Ford	247,539	190	Fulton	290,102	34
Grundy	200,769	62	Hancock	274,919	33
Iroquois	554,440	100	Henderson	130,350	(c)
Kane	223,860	65	Knox	254,902	86
Kankakee	309,935	133	Logan	300,583	100
Kendall	155,459	116	Macon	278,949	58
Lake	115,301	46	Marshall	155,738	148
Livingston	540,819	180	Mason	220,996	86
McHenry	218,840	24	McDonough	227,081	34
Will	370,187	60	McLean	581,994	198
Average used per acre ....		106	Menard	130,123	42
G. R. O. U. P. 2			Morgan	222,219	46
Boone	115,787	(c)	Moultrie	162,653	62
Bureau	359,529	73	Peoria	218,763	106
Carroll	153,278	27	Piatt	220,133	90
DeKalb	307,266	52	Pike	237,252	2
Henry	334,421	178	Putnam	59,339	320
Jo Daviess	145,556	90	Sangamon	704,299	40
La Salle	519,354	110	Scott	164,424	80
Lee	320,207	230	Schuyler	823	972
Mercer	182,750	54	Shelby	524,942	56
Ogle	319,048	220	Stark	232,288	84
Rock Island	133,212	124	Tazewell	284,658	106
Stephenson	414,429	168	Vermilion	399,851	84
Whiteside	282,383	38	Warren	215,866	154
Winnebago	182,962	260	Woodford	233,462	156
Average used per acre ....		126	Average used per acre .....		82
G. R. O. U. P. 3			G. R. O. U. P. 4		
Adams	256,222	128	Calhoun	68,901	(c)
Brown	78,104	10	Greene	178,198	18
Cass	144,961	12	Jersey	115,901	122
Champaign	510,585	78	Macoupin	292,187	35
Christian	338,156	92	Madison	267,693	80
Clark	151,845	240	Monroe	125,696	134
Coles	214,023	12	Randolph	204,931	170
Cumberland	119,122	110	St. Clair	427,863	128
DeWitt	182,562	118	Average used per acre .....		124

(a) Calculated on the basis of the acreage of arable land in each county, U. S. Census of Agriculture, 1935.

(b) See index map for grouping of counties.

(c) No report received.

Table 3 (Continued)

County	Farm land in crops (1934)	Limestone used (1938)	County	Farm land in crops (1934)	Limestone used (1938)
G R O U P 5					
Alexander	48,999	4	Lawrence	117,274	26
Bond	132,099	172	Marion	171,537	180
Clay	151,435	22	Massac	55,590	16
Clinton	192,686	144	Montgomery	257,105	106
Crawford	124,307	40	Perry	138,507	62
Edwards	85,356	192	Pope	66,401	36
Effingham	163,598	298	Pulaski	66,790	12
Fayette	228,559	88	Richland	133,173	96
Franklin	113,057	120	Saline	188,122	60
Gallatin	104,998	48	Union	108,386	152
Hamilton	134,746	62	Wabash	92,213	70
Hardin	29,189	154	Washington	216,960	226
Jackson	172,337	90	Wayne	208,166	32
Jasper	176,936	100	White	190,289	86
Jefferson	177,301	166	Williamson	105,094	42
Johnson	72,686	32	Average used per acre .....		52.4

Table 4. - Agricultural Limestone Produced in Other States and Marketed in Illinois, 1934-38 (Tons)

Year	Amount used in Illinois	Per cent of total consumption
1934	56,095	16.2
1935	54,803	10.5
1936	77,264	7.5
1937	87,479	7.9
1938	118,740	10.2

Table 5. - Agricultural Limestone Produced in Illinois and Marketed in Other States, 1934-38 (Tons)

Year	Indiana	Kentucky	Missouri	Michigan	Mississippi	Tennessee	Total
1934	9,093	-	2,232	1,546	-	238	13,259
1935	10,102	32	130	4,135	-	1,095	15,562
1936	28,976	4,129	587	4,950	-	6,020	44,398
1937	53,375	12	845	7,522	-	2,703	64,746
1938	36,356	4	675	1,288	40	4,100	42,463

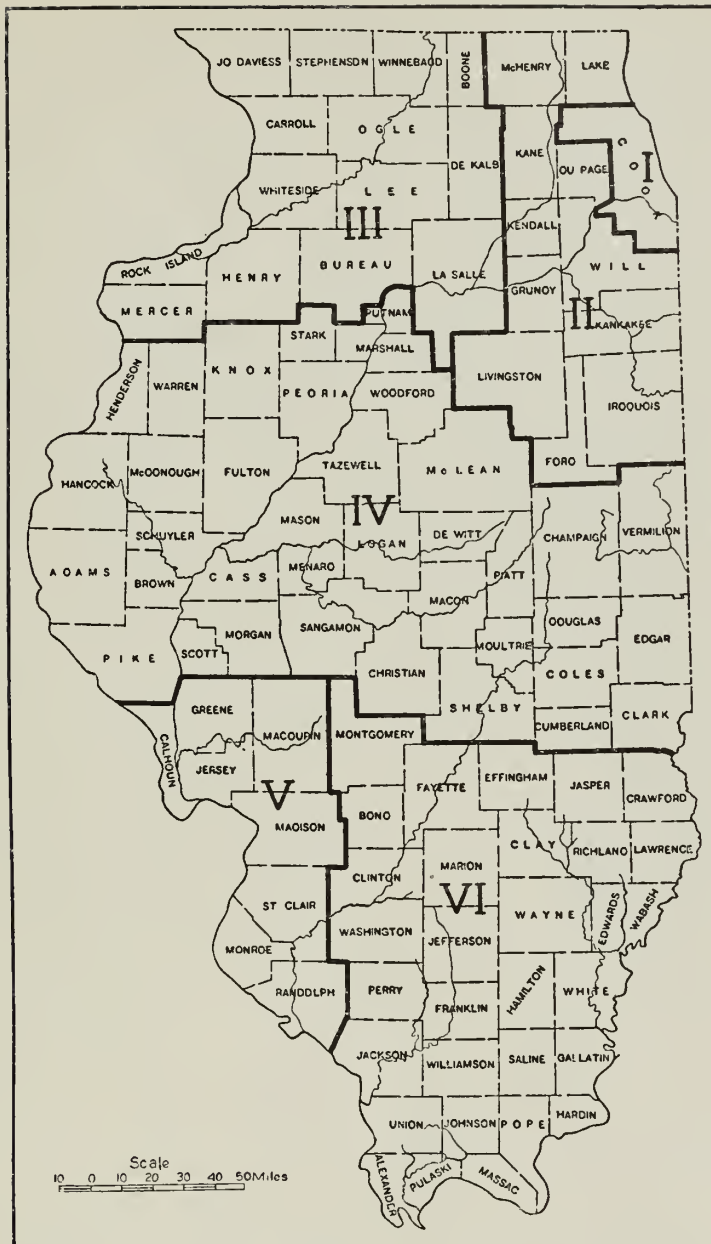
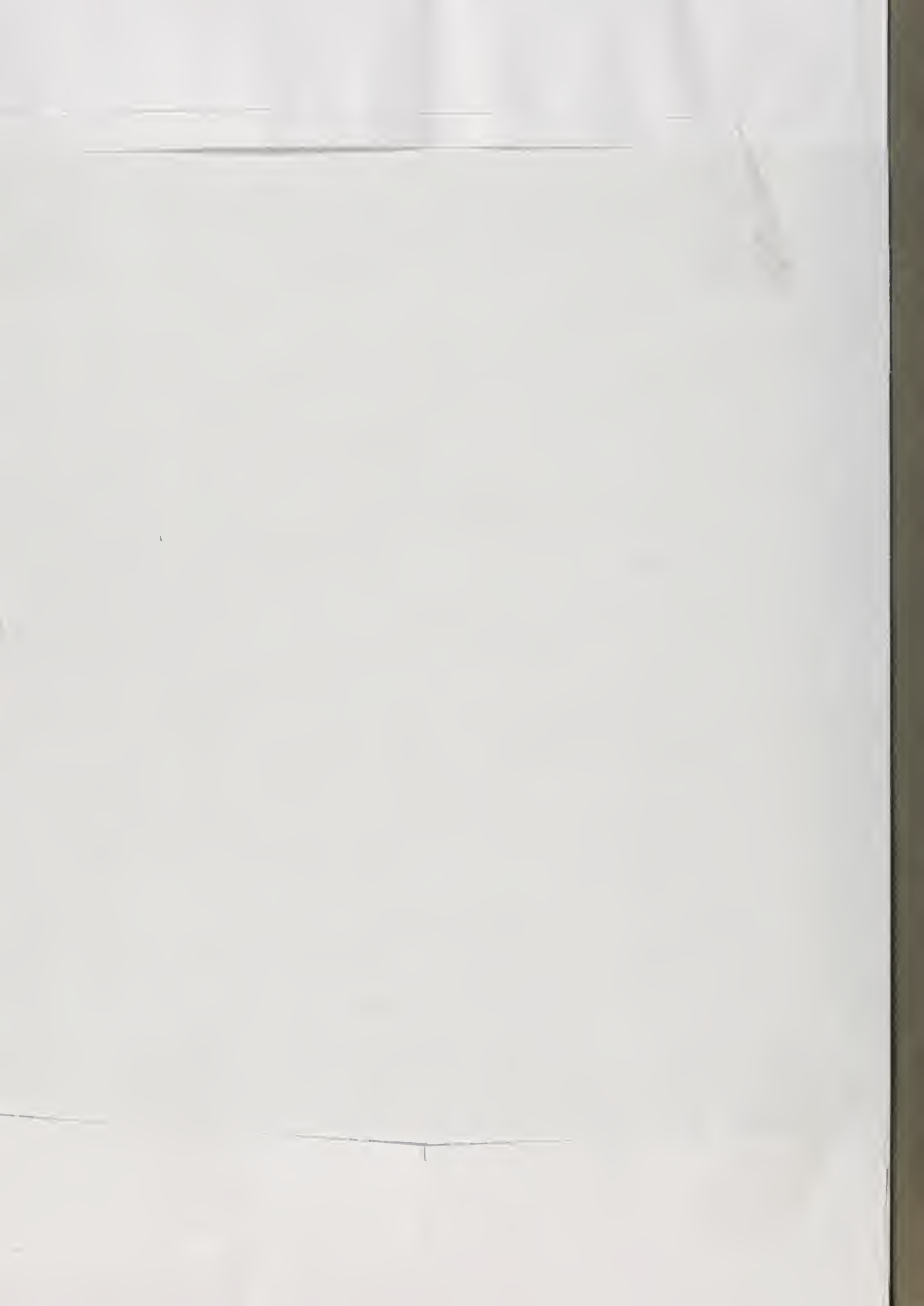


FIGURE 1.— Index map to accompany table 3, showing location of districts according to which consumption of limestone is given.







"WASCHER'S"  
LIBRARY BINDERS  
307 S. Goodwin  
Urbana, Ill.

