

**Missouri  
Agricultural Liming  
Materials Report**

**January 1 to June 30, 2002**

**Agricultural Experiment Station**

**University of Missouri-Columbia**

AGRICULTURAL LIMING MATERIALS REPORT

JANUARY 1 THROUGH JUNE 30, 2002

This bulletin is a detailed report of official samples obtained under the Missouri Agricultural Liming Materials Law collected from January 1 through June 30, 2002. There were 849 official samples collected in this period. All samples are analyzed to determine fineness of grind, calcium carbonate equivalent (CCE), and magnesium content (Mg). Effective neutralizing material (ENM) and effective magnesium (EMg) are calculated from this information, as prescribed by Rule, for each dry sample which meets the minimum specifications of at least 90% passing a U.S. No. 8 sieve and minimum 65% CCE. Products not meeting minimum specifications cannot be sold as agricultural liming materials. Twenty-eight deficient samples are reported, twenty-five for excessive coarseness and three for low CCE. There were two "stop sale" order's issued against producer stockpiles for excessive coarseness. Corrective actions taken by the producer has resulted in the release of one of the issued "stop sale" orders.

Table 1 lists registered producers and samples obtained at production sites. Table 2 lists samples obtained from retail distributor stockpiles, by producer.

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MISSOURI AGRICULTURAL LIMING MATERIALS TONNAGE  
REPORTED SINCE AUGUST 13, 1976

YEAR	SPRING	FALL	TOTAL
1976	-----	2,514,500	-----
1977	1,590,700	1,166,600	2,757,300
1978	1,116,100	2,546,250	3,662,350
1979	975,300	3,068,900	4,044,200
1980	1,431,000	2,266,900	3,697,900
1981	1,336,750	1,228,350	2,565,100
1982	825,100	1,029,000	1,854,100
1983	872,700	1,154,700	2,027,400
1984	595,725	899,459	1,495,185
1985	611,050	783,575	1,394,625
1986	967,375	646,115	1,613,490
1987	1,104,358	1,558,171	2,662,529
1988	1,036,917	1,605,444	2,642,361
1989	939,831	1,586,398	2,526,229
1990	504,100	1,204,551	1,708,651
1991	646,864	835,603	1,482,467
1992	859,648	771,536	1,631,184
1993	397,607	686,345	1,083,952
1994	681,464	967,450	1,648,914
1995	720,140	1,207,663	1,927,803
1996	704,151	886,627	1,590,778
1997	779,876	1,063,760	1,843,636
1998	626,186	1,048,308	1,674,494
1999	606,847	1,557,259	2,164,106
2000	886,861	996,123	1,882,984
2001	512,964	1,311,614	1,824,578
2002	696,205	1,303,795*	2,000,000*

\* PRELIMINARY ESTIMATE

TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
76 QUARRY, MANSFIELD, MO Stockpile #1										
Lab #0207	03-07-02	0.2	41.0	9.1	49.7	88.0	10.6	65.4	460	139
Lab #0551	05-07-02	0.2	48.9	8.9	42.0	87.1	11.0	59.6	415	131
Lab #0814	06-18-02	0.0	45.9	8.5	45.6	86.1	10.7	62.2	428	133
ADRIAN ROCK, INC, ADRIAN, MO Stockpile #1										
Lab #0005	02-05-02	0.1	43.7	12.2	44.0	93.5	0.4	62.2	466	5
Lab #0279	03-26-02	0.2	60.4	9.8	29.6	92.7	0.3	50.6	375	3
Lab #0593	05-14-02	0.5	51.9	11.4	36.2	91.5	0.5	56.0	410	6
AIRGAS - MID AMERICA, MOUNTAIN GROVE, MO										
ALBY QUARRY, CARLINVILLE, IL										
ALLEN QUARRIES INC, LOCKWOOD, MO Stockpile #1										
Lab #0524	05-02-02	2.6	47.8	14.2	35.4	96.9	0.7	55.9	433	8
Lab #0587	05-15-02	2.5	46.9	14.0	36.6	92.9	0.8	56.7	422	9
Lab #0816	06-19-02	3.6	48.2	13.3	34.9	93.7	0.5	54.9	412	5
AMPEL, INC.-HARVEY IOWA PLANT, DES MOINES, IA										
AMPEL, INC.-WEEPING WATER NE PLANT, DES MOINES, IA Stockpile #1										
Lab #0105	02-20-02	0.1	0.7	1.7	97.5	90.3	0.2	98.7	713	4
Lab #0405	04-17-02	0.1	0.6	1.7	97.6	88.9	0.4	98.8	702	8
Lab #0787	06-11-02	0.1	0.7	2.3	96.9	90.4	0.3	98.5	712	6
APAC-MISSOURI, INC. - BOONVILLE, BOONVILLE, MO Stockpile #1										
Lab #0013	02-05-02	3.4	44.2	12.4	40.0	96.1	0.1	58.5	450	1
Lab #0195	03-05-02	1.3	45.4	14.2	39.1	93.4	0.1	59.0	441	1
Lab #0268	03-26-02	0.8	44.8	14.6	39.8	90.9	0.2	59.8	435	2
Lab #0392	04-18-02	5.2	44.2	12.7	37.9	94.7	0.1	56.6	429	1
Lab #0600	05-10-02	1.2	48.3	13.6	36.9	96.0	0.1	57.1	439	1
Lab #0822	06-18-02	4.3	45.4	13.4	36.9	94.3	0.1	56.3	425	1
APAC-MISSOURI, INC., COLUMBIA, MO Stockpile #1										
Lab #0184	03-08-02	0.0	33.9	15.9	50.2	92.4	0.2	68.2	504	3
Lab #0318	04-02-02	1.2	39.5	16.6	42.7	92.2	0.2	62.5	461	3
Lab #0574	05-15-02	1.6	39.3	15.1	44.0	92.5	0.1	62.9	465	1
Stockpile #3										
Lab #0026	02-04-02	9.8	47.4	11.1	31.7	91.3	0.1	50.2	367	1
Lab #0183	03-08-02	8.1	47.3	11.9	32.7	91.8	0.1	51.7	379	1
Lab #0317	04-02-02	9.9	46.2	11.6	32.3	90.1	0.2	50.8	366	2
Lab #0573	05-15-02	5.4	47.0	13.8	33.8	89.8	0.2	53.8	387	2
APAC-MISSOURI, INC. - LANAGAN, SPRINGFIELD, MO Stockpile #1										
Lab #0139	02-26-02	2.3	47.2	11.8	38.7	86.9	0.7	57.6	400	8
Lab #0408	04-16-02	0.4	40.2	15.2	44.2	91.9	1.0	63.4	466	13
Lab #0616	05-20-02	3.7	45.5	11.8	39.0	89.9	1.0	57.5	413	11
Lab #0809	06-17-02	0.5	42.1	14.3	43.1	90.0	0.9	62.2	448	11
APAC-MISSOURI, INC. - LAURIE, COLUMBIA, MO										
APAC-MISSOURI, INC. - LINN CREEK, LINN CREEK, MO Stockpile #2										
Lab #0169	03-04-02	12.2*	38.8	12.4	36.6	98.4	11.8	53.7	0	0
Lab #0340	04-04-02	1.7	39.2	15.6	43.5	98.6	11.9	62.7	494	149
Lab #0590	05-13-02	0.6	39.1	15.1	45.2	98.2	11.7	64.0	503	150
Lab #0766	06-13-02	0.8	41.3	14.1	43.8	94.1	10.8	62.6	471	135
APAC-MISSOURI, INC. - COLUMBIA, SPRINGFIELD, MO Stockpile #2										
Lab #0548	05-07-02	7.8	43.2	8.0	41.0	89.9	11.3	56.6	407	128
Lab #0811	06-18-02	5.9	34.9	9.0	50.2	80.1	9.6	64.3	412	124
APAC-MISSOURI, INC. - MARSHALL, MARSHALL, MO Stockpile #1										
Lab #0153	03-01-02	4.4	52.8	9.6	33.2	89.5	2.6	52.2	373	27
Lab #0429	04-23-02	11.3*	47.9	7.2	33.6	88.7	2.8	49.9	0	0
Lab #0601	05-13-02	6.8	53.3	9.6	30.3	92.1	1.0	49.4	364	10
Lab #0693	05-29-02	3.5	57.6	10.2	28.7	92.1	1.1	49.2	363	11
Lab #0749	06-06-02	4.4	51.1	10.7	33.8	87.2	3.2	53.0	370	34
APAC-MISSOURI, INC. - NETTLETON, COLUMBIA, MO										

\* Does not meet minimum specification for Agricultural Liming Material.

TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
APAC MO INC CENTRAL COMPANIES DYL, OSAGE BEACH, MO										
APAC MISSOURI CENTRAL COMPANIES, OSAGE BEACH, MO										
Stockpile #1										
Lab #0170	03-04-02	1.9	45.5	13.6	39.0	91.8	11.7	58.5	430	137
Lab #0341	04-04-02	2.1	47.1	12.6	38.2	82.7	9.9	57.5	381	114
Lab #0591	05-13-02	3.1	48.2	12.6	36.1	83.5	10.0	55.7	372	111
Lab #0767	06-13-02	1.8	46.2	13.3	38.7	88.9	10.7	58.2	414	125
Stockpile #2										
Lab #0171	03-04-02	1.4	43.2	16.3	39.1	92.2	11.3	59.7	440	135
Lab #0342	04-04-02	4.4	41.3	14.8	39.5	93.7	11.3	58.7	440	133
Lab #0592	05-13-02	4.7	40.8	15.0	39.5	94.4	11.1	58.7	443	130
Lab #0768	06-13-02	7.2	40.0	14.1	38.7	94.0	11.0	57.2	430	126
APAC-MISSOURI INC. - ROARK CREEK, SPRINGFIELD, MO										
Stockpile #1										
Lab #0206	03-07-02	1.2	42.9	8.5	47.4	90.9	11.0	63.2	460	139
Lab #0550	05-07-02	0.7	39.3	10.3	49.7	91.3	11.6	65.7	480	152
Lab #0813	06-18-02	1.7	39.4	11.4	47.5	92.5	11.4	64.2	475	146
ARKANSAS LIME COMPANY, INC., BATESVILLE, AR										
ASC MINERALS PROCESSING, ALLERTON, IL										
ASH GROVE AGGREGATES INC-APPLETON, BUTLER, MO										
ASH GROVE AGGREGATES-ELDORADO SPRIN, BUTLER, MO										
Stockpile #1										
Lab #0260	03-20-02	10.1*	44.9	10.3	34.7	93.2	0.2	52.1	0	0
Lab #0338	04-02-02	10.3*	45.9	10.6	33.2	91.7	0.2	51.0	0	0
Lab #0383	04-12-02	0.4	48.5	12.2	38.9	93.4	0.2	58.3	436	2
Lab #0440	04-23-02	0.3	45.8	12.2	41.7	91.3	0.2	60.5	442	2
Stockpile #2										
Lab #0382	04-12-02	0.5	46.4	13.9	39.2	93.6	0.2	59.1	443	2
Lab #0556	05-08-02	0.3	42.0	13.4	44.3	93.2	0.5	62.8	469	6
ASH GROVE AGGREGATES INC-BUTLER, BUTLER, MO										
Stockpile #1										
Lab #0162	02-26-02	5.6	56.4	8.5	29.5	83.7	0.6	48.7	326	6
Lab #0284	03-26-02	5.8	54.6	9.5	30.1	85.2	0.6	49.5	337	6
Stockpile #2										
Lab #0163	02-26-02	6.8	59.3	8.5	25.4	86.8	0.8	45.3	315	7
Lab #0285	03-26-02	9.1	54.9	8.9	27.1	84.2	1.0	46.2	311	9
Lab #0456	04-25-02	7.6	50.5	8.5	33.4	82.8	1.0	51.1	339	10
Lab #0598	05-14-02	6.9	52.8	8.7	31.6	85.0	1.1	50.0	340	11
Stockpile #3										
Lab #0457	04-25-02	3.7	45.2	9.5	41.6	77.9	0.8	58.6	365	9
Lab #0599	05-14-02	3.6	46.4	9.4	40.6	79.9	0.8	57.8	370	9
Lab #0765	06-12-02	3.7	44.8	8.3	43.2	83.7	0.5	59.4	398	6
ASH GROVE AGGREGATES INC-RICHHILL, BUTLER, MO										
ASH GROVE AGGREGATES INC-LACYGNE, BUTLER, MO										
Stockpile #1										
Lab #0159	02-26-02	4.9	45.7	8.9	40.5	84.6	1.6	57.3	388	18
Lab #0283	03-26-02	5.2	46.7	8.8	39.3	81.6	1.3	56.3	367	15
Lab #0454	04-25-02	2.8	45.5	9.6	42.1	82.7	0.5	59.2	392	6
Lab #0597	05-14-02	6.4	43.1	8.4	42.1	84.5	1.4	57.9	392	16
Stockpile #2										
Lab #0455	04-25-02	3.1	45.0	10.5	41.4	83.0	0.5	59.0	391	6
ASH GROVE AGGREGATES INC-MARSHFIELD, BUTLER, MO										
Stockpile #1										
Lab #0021	02-08-02	10.5*	49.4	9.0	31.1	86.7	3.1	48.9	0	0
Stockpile #3										
Lab #0290	03-26-02	2.5	46.1	11.4	40.0	95.7	11.8	58.4	447	138
Lab #0406	04-15-02	0.4	45.8	13.3	40.5	97.4	12.1	59.9	467	145
Lab #0739	06-04-02	0.5	47.9	12.5	39.1	92.4	11.1	58.6	433	130
ASH GROVE AGGREGATES INC-MONTEVALLO, BUTLER, MO										
Stockpile #1										
Lab #0168	02-27-02	6.5	46.5	10.8	36.2	91.8	0.6	54.3	399	7
Lab #0300	03-28-02	5.1	41.9	9.8	43.2	85.2	3.2	59.6	406	38
Lab #0441	04-23-02	5.2	45.1	10.3	39.4	89.6	2.0	56.9	408	23
Lab #0672	05-29-02	5.4	43.1	9.9	41.6	88.2	2.6	58.3	411	30

\* Does not meet minimum specification for Agricultural Liming Material.

TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
ASH GROVE AGGREGATES INC-OSCEOLA, BUTLER, MO										
Stockpile #1										
Lab #0003	02-04-02	4.1	47.6	10.1	38.2	92.3	0.7	56.2	415	8
Lab #0174	03-05-02	3.7	46.0	11.1	39.2	92.0	0.7	57.4	422	8
Lab #0510	04-30-02	3.4	46.0	10.8	39.8	88.3	0.8	57.8	408	9
Lab #0668	05-28-02	5.0	45.0	11.2	38.8	87.8	1.1	56.8	399	12
Lab #0769	06-13-02	4.6	49.0	11.3	35.1	95.7	0.6	54.1	414	6
ASH GROVE AGGREGATES INC-PITTSBURG, BUTLER, MO										
Stockpile #1										
Lab #0449	04-24-02	5.7	46.4	12.2	35.7	95.4	0.2	54.6	417	2
Lab #0507	04-30-02	3.4	46.3	12.3	38.0	93.8	0.2	57.0	427	2
Lab #0671	05-28-02	2.1	45.3	12.1	40.5	91.5	0.2	59.1	433	2
Lab #0764	06-11-02	2.5	44.8	12.2	40.5	92.4	0.2	59.0	436	2
ASH GROVE AGGREGATES INC-FT SCOTT, BUTLER, MO										
Stockpile #1										
Lab #0009	02-07-02	6.7	54.7	8.5	30.1	91.2	0.4	48.9	357	4
Lab #0299	03-28-02	6.9	54.4	9.6	29.1	93.2	0.5	48.5	361	5
Lab #0443	04-23-02	5.8	54.1	9.0	31.1	94.2	0.5	50.0	377	5
Lab #0674	05-29-02	4.9	54.9	10.6	29.6	91.1	0.4	49.7	362	4
ASH GROVE AGGREGATES INC.-STOCKTON, BUTLER, MO										
Stockpile #1										
Lab #0076	02-14-02	3.2	47.0	13.3	36.5	94.7	0.3	56.2	426	3
Lab #0256	03-20-02	2.8	52.9	13.6	30.7	94.0	0.4	52.1	392	4
Lab #0416	04-17-02	3.8	43.1	13.8	39.3	96.5	0.2	58.4	451	2
Lab #0626	05-21-02	1.5	44.9	16.5	37.1	92.3	0.2	58.2	430	2
Stockpile #2										
Lab #0077	02-14-02	4.3	51.4	12.2	32.1	94.1	0.2	52.3	393	2
Lab #0257	03-20-02	5.3	53.8	11.7	29.2	95.4	0.2	49.7	379	2
Lab #0417	04-17-02	4.9	50.3	11.5	33.3	95.0	0.2	52.8	401	2
Lab #0627	05-21-02	3.3	53.6	12.7	30.4	93.8	0.1	51.4	386	1
Stockpile #3										
Lab #0078	02-14-02	2.2	49.7	13.6	34.5	92.9	0.2	55.1	409	2
Lab #0258	03-20-02	4.5	48.5	13.0	34.0	95.3	0.2	53.9	411	2
Lab #0418	04-17-02	2.8	49.1	13.3	34.8	93.3	0.2	55.1	411	2
Lab #0628	05-21-02	3.2	48.8	12.9	35.1	95.2	0.2	55.0	419	2
ASH GROVE AGGREGATES INC-WHEATLAND, BUTLER, MO										
Stockpile #2										
Lab #0007	02-06-02	5.5	45.8	11.0	37.7	95.7	0.4	55.8	427	4
Lab #0172	03-05-02	5.7	47.5	10.2	36.6	96.5	0.5	54.6	421	5
Lab #0509	04-30-02	5.0	46.3	10.7	38.0	96.4	0.4	56.0	432	4
Lab #0669	05-28-02	4.6	46.1	11.0	38.3	96.3	0.4	56.4	435	5
Lab #0762	06-11-02	4.0	47.1	10.7	38.2	96.2	0.3	56.4	434	3
ASH GROVE AGGREGATES INC-FT SCOTT E, BUTLER, MO										
ASH GROVE AGGREGATES INC-BOLIVAR, BUTLER, MO										
Stockpile #3										
Lab #0165	02-27-02	4.3	47.4	10.1	38.2	93.3	0.8	56.1	419	9
Stockpile #4										
Lab #0166	02-27-02	7.7	50.5	9.2	32.6	86.7	0.5	50.7	352	5
Lab #0296	03-27-02	6.7	50.9	9.7	32.7	89.7	0.3	51.2	368	3
Lab #0445	04-24-02	5.4	48.9	9.2	36.5	87.5	0.4	54.2	380	4
Lab #0678	05-30-02	7.1	49.2	9.7	34.0	94.2	0.3	52.1	393	3
Stockpile #5										
Lab #0167	02-27-02	7.0	48.1	9.5	35.4	96.8	0.5	53.1	411	5
Lab #0297	03-27-02	5.0	49.7	9.0	36.3	93.6	0.8	54.1	405	9
Lab #0446	04-24-02	6.2	47.5	9.3	37.0	94.6	0.9	54.5	412	10
Lab #0679	05-30-02	5.5	47.9	9.7	36.9	96.6	0.4	54.7	423	4
ASH GROVE AGGREGATES INC-BUFFALO, BUTLER, MO										
Stockpile #1										
Lab #0073	02-11-02	0.1	38.4	12.1	49.4	89.3	10.9	66.3	473	144
Lab #0217	03-12-02	0.2	43.6	13.7	42.5	91.4	10.9	61.6	451	134
Lab #0339	04-04-02	0.3	42.6	12.5	44.6	92.3	11.1	62.8	463	139
Lab #0511	05-02-02	0.2	43.1	12.9	43.8	92.8	11.6	62.3	463	145
AUXVASSE STONE & GRAVEL CO, KINGDOM CITY, MO										
Stockpile #1										
Lab #0039	02-11-02	5.6	45.5	9.6	39.3	92.7	1.7	56.4	419	19

\* Does not meet minimum specification for Agricultural Liming Material.

TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %					%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60	ENM				EMg	
BAILEY QUARRIES INC-CHESAPEAKE Q., MT VERNON, MO											
Stockpile #4											
Lab #0335	04-01-02	1.7	42.8	8.6	46.9	91.9	11.3	62.8	461	142	
Lab #0547	05-06-02	1.7	46.7	11.7	39.9	90.5	11.6	58.6	424	136	
Lab #0818	06-20-02	2.1	39.1	10.8	48.0	94.3	11.7	64.3	485	150	
BAILEY QUARRIES INC-JANE, JANE, MO											
Stockpile #2											
Lab #0138	02-26-02	1.2	41.3	8.2	49.3	92.5	11.5	64.5	478	148	
Lab #0407	04-16-02	2.6	50.5	7.0	39.9	95.1	11.7	56.7	432	133	
Lab #0617	05-20-02	2.2	39.0	8.0	50.8	91.4	11.6	65.4	478	152	
Lab #0808	06-17-02	0.2	38.1	8.9	52.8	96.0	12.4	67.7	520	168	
BAILEY QUARRIES, INC.-MADRY QUARRY, VERONA, MO											
Stockpile #2											
Lab #0385	04-12-02	0.3	18.7	13.5	67.5	81.9	1.4	80.3	526	22	
Lab #0545	05-10-02	0.2	41.6	11.9	46.3	79.4	1.2	63.8	406	15	
Lab #0589	05-17-02	0.2	39.0	11.2	49.6	80.0	1.2	66.1	423	16	
BAILEY QUARRIES INC-STOCKTON, STOCKTON, MO											
Stockpile #2											
Lab #0079	02-14-02	1.4	44.7	14.6	39.3	95.4	0.1	59.2	452	1	
Lab #0259	03-20-02	1.4	45.3	15.3	38.0	95.7	0.1	58.5	448	1	
Lab #0419	04-17-02	0.3	44.1	15.6	40.0	95.0	0.1	60.4	459	1	
Lab #0625	05-21-02	1.8	46.2	13.6	38.4	94.5	0.2	58.1	439	2	
BARBER & SONS AGGREGATES, LEE'S SUMMIT, MO											
Stockpile #1											
Lab #0048	02-11-02	7.6	52.8	7.5	32.1	89.7	0.4	49.8	357	4	
Lab #0216	03-12-02	7.4	51.3	8.1	33.2	89.9	0.4	50.9	366	4	
BARRETT MATERIALS INC, NEW HAVEN, MO											
Stockpile #1											
Lab #0035	02-05-02	0.0	16.7	11.7	71.6	78.5	9.7	82.8	520	161	
Lab #0191	03-07-02	0.1	18.0	10.3	71.6	86.4	10.5	82.3	569	173	
Lab #0517	05-01-02	15.1*	40.2	6.5	38.2	80.6	9.7	52.2	0	0	
Lab #0795	06-20-02	1.6	39.3	8.0	51.1	81.0	10.3	65.7	426	135	
Lab #0847	07-03-02	2.6	40.1	6.9	50.4	81.8	10.0	64.6	423	129	
BASE ROCK MINERALS, BONNE TERRE, MO											
JAMES ELROD TRUCK SERVICE, BELLE, MO											
Stockpile #1											
Lab #0125	02-21-02	0.5	28.5	9.7	61.3	98.7	3.0	74.2	586	45	
Lab #0277	03-19-02	0.3	26.4	9.7	63.6	91.7	3.9	76.0	558	59	
Lab #0435	04-22-02	0.2	28.1	11.3	60.4	95.4	3.7	74.2	566	55	
Lab #0544	05-09-02	0.5	30.3	12.5	56.7	98.5	2.1	71.8	566	30	
Lab #0718	06-03-02	0.2	28.8	13.2	57.8	93.8	3.0	72.9	547	44	
BLUFF CITY MINERALS CO., ALTON, IL											
Stockpile #1											
Lab #0117	02-21-02	0.3	6.1	4.4	89.2	90.6	1.7	93.4	677	32	
Lab #0344	04-08-02	0.2	14.6	13.2	72.0	90.1	1.4	83.6	602	23	
BOONE QUARRIES INC, COLUMBIA, MO											
Stockpile #1											
Lab #0028	02-04-02	0.3	27.8	10.8	61.1	98.6	3.2	74.5	588	48	
Lab #0186	03-08-02	0.1	28.5	13.6	57.8	97.7	3.3	73.1	571	48	
Lab #0315	04-02-02	0.4	26.4	9.7	63.5	87.9	5.0	75.9	534	76	
Lab #0576	05-15-02	0.9	28.9	10.1	60.1	98.4	1.4	73.4	578	21	
BOONE QUARRIES - EAST, COLUMBIA, MO											
Stockpile #1											
Lab #0027	02-04-02	4.1	46.9	10.7	38.3	90.3	2.9	56.4	408	33	
Lab #0185	03-08-02	3.4	46.7	11.4	38.5	95.4	2.2	57.0	435	25	
Lab #0316	04-02-02	8.1	48.5	9.3	34.1	92.9	3.5	51.8	385	36	
Lab #0575	05-15-02	4.9	47.0	9.5	38.6	89.6	4.4	56.1	402	49	
BUSSEN QUARRIES INC-EUREKA/ANTIRE, EUREKA, MO											
Stockpile #1											
Lab #0091	02-11-02	0.1	33.2	13.3	53.4	95.6	3.9	69.7	533	54	
Lab #0190	03-07-02	0.1	37.6	12.7	49.6	82.7	4.0	66.6	441	53	
Lab #0421	04-16-02	0.5	37.6	15.7	46.2	96.8	0.2	65.0	504	3	
Lab #0712	05-30-02	0.2	33.2	16.8	49.8	97.3	0.2	68.2	531	3	
CALCIUM PRODUCTS, INC., GILMORE CITY, IA											
CAPITAL QUARRIES INC-HOLTS SUMMIT 1, JEFFERSON CITY, MO											

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TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
CAPITAL QUARRIES, INC-STADIUM WEST, JEFFERSON CITY, MO										
Stockpile #2										
Lab #0037	02-08-02	1.6	40.3	9.5	48.6	89.5	11.3	64.4	461	145
Lab #0240	03-11-02	0.5	37.1	12.2	50.2	82.7	10.4	66.8	442	139
Lab #0364	04-11-02	0.7	36.4	12.3	50.6	86.9	10.5	67.1	466	141
Lab #0655	05-20-02	3.7	48.1	6.4	41.8	85.6	10.4	57.7	395	120
CAPITAL QUARRIES INC-ROLLA Q #4, JEFFERSON CITY, MO										
Stockpile #1										
Lab #0328	04-03-02	7.9	45.0	7.6	39.5	83.6	10.1	55.3	370	112
Lab #0514	04-29-02	7.0	43.7	7.3	42.0	84.7	10.3	57.3	388	118
Lab #0686	05-14-02	6.2	45.6	7.5	40.7	87.4	10.6	56.6	396	120
Lab #0724	06-05-02	5.2	43.6	7.8	43.4	86.2	10.4	59.0	407	123
CAPITAL QUARRIES CO. INC-HWY Y, JEFFERSON CITY, MO										
CAPITAL QUARRIES INC-CALIFORNIA Q#5, JEFFERSON CITY, MO										
CAPITAL QUARRIES CO., INC-LINN, JEFFERSON CITY, MO										
CAPITAL QUARRIES INC-HWY 63 N Q #10, JEFFERSON CITY, MO										
CAPITAL QUARRIES INC-SULLIVAN, BOURBON, MO										
Stockpile #1										
Lab #0089	02-12-02	0.1	22.8	19.0	58.1	103.5	12.9	75.2	623	194
Lab #0135	02-28-02	0.3	25.8	19.5	54.4	102.4	12.7	72.6	594	184
Lab #0275	03-22-02	0.8	35.0	16.7	47.5	95.2	11.4	66.3	505	151
Lab #0518	05-02-02	0.3	24.2	20.1	55.4	103.2	12.3	73.5	607	181
Lab #0714	05-30-02	0.2	25.5	19.8	54.5	103.6	12.2	72.8	603	178
CARROLL COUNTY STONE, INC., BERRYVILLE, AR										
Stockpile #1										
Lab #0116	02-22-02	1.4	39.4	9.4	49.8	86.3	10.4	65.3	451	136
Lab #0484	04-26-02	0.6	46.7	9.6	43.1	86.4	10.9	60.5	418	132
Lab #0698	05-28-02	0.8	40.8	10.0	48.4	86.6	10.4	64.6	448	134
CARTHAGE CRUSHED LIMESTONE, CARTHAGE, MO										
Stockpile #1										
Lab #0482	04-23-02	4.5	32.5	7.6	55.4	95.0	0.1	68.1	517	1
Lab #0773	06-10-02	8.0	27.8	5.7	58.5	94.8	0.2	68.9	522	3
CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO										
Stockpile #1										
Lab #0128	02-22-02	6.8	34.6	9.8	48.8	94.0	0.4	63.3	476	5
Lab #0307	03-28-02	6.5	35.5	9.3	48.7	92.5	0.4	63.2	467	5
Lab #0470	04-24-02	7.2	35.4	9.4	48.0	93.7	0.5	62.5	468	6
Lab #0651	05-24-02	8.7	36.2	9.2	45.9	93.5	0.5	60.5	452	6
Stockpile #3										
Lab #0129	02-22-02	0.6	23.0	11.4	65.0	87.6	0.4	77.6	544	6
Lab #0308	03-28-02	0.8	24.7	15.7	58.8	96.8	1.8	74.4	576	27
Lab #0471	04-24-02	0.6	23.6	12.8	63.0	92.5	0.5	76.6	567	8
Lab #0652	05-24-02	0.2	24.4	13.2	62.2	95.1	1.3	76.2	580	20
Stockpile #4										
Lab #0309	03-28-02	0.5	20.8	11.0	67.7	89.8	0.1	79.5	571	2
Lab #0472	04-24-02	0.6	29.0	13.8	56.6	94.5	0.1	72.1	545	1
Lab #0653	05-24-02	0.2	6.1	7.5	86.2	92.4	0.5	92.2	682	9
CENTRAL STONE COMPANY - BETHEL, BETHEL, MO										
Stockpile #1										
Lab #0067	02-14-02	3.5	36.1	11.7	48.7	95.1	1.4	64.7	493	18
Lab #0220	03-13-02	6.2	40.7	9.5	43.6	94.1	1.9	59.5	448	23
Lab #0464	04-22-02	6.9	41.6	8.9	42.6	93.3	1.9	58.3	435	22
Lab #0637	05-22-02	6.2	41.3	9.6	42.9	92.9	1.4	59.0	438	17
CENTRAL STONE CO - FORT BELLE - #31, FLORISSANT, MO										
Stockpile #1										
Lab #0127	02-21-02	0.1	0.2	9.5	90.2	88.2	1.7	96.0	677	33
Lab #0267	03-18-02	0.0	0.2	2.4	97.4	89.4	1.6	98.9	707	32
Lab #0353	04-08-02	0.0	0.9	9.0	90.1	87.2	1.4	95.7	668	27
Lab #0492	05-02-02	0.0	0.7	8.3	91.0	87.5	3.8	96.2	673	73
CENTRAL STONE CO - FORT BELLE -WEST, FLORISSANT, MO										
CENTRAL STONE COMPANY - GREENSBURG, HANNIBAL, MO										
CENTRAL STONE COMPANY - PARIS, PARIS, MO										
Stockpile #1										
Lab #0179	03-07-02	7.9	41.9	12.1	38.1	76.7	0.2	55.8	343	2
Lab #0412	04-16-02	9.4	44.8	10.0	35.8	77.1	0.3	53.0	327	3

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JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
CENTRAL STONE COMPANY - PARIS, PARIS, MO (Continued)										
Stockpile #1										
Lab #0607	05-20-02	8.3	43.7	10.7	37.3	75.5	0.2	54.6	330	2
CENTRAL STONE COMPANY - NEW LONDON, NEW LONDON, MO										
CENTRAL STONE COMPANY - CURRYVILLE, CURRYVILLE, MO Stockpile #1										
Lab #0609	05-21-02	14.8*	44.4	6.6	34.2	83.9	1.9	49.3	0	0
CENTRAL STONE COMPANY - PERRY, HANNIBAL, MO										
Stockpile #1										
Lab #0469	04-24-02	5.3	42.1	9.3	43.3	86.3	1.9	59.4	410	23
Lab #0650	05-24-02	6.5	40.9	8.7	43.9	85.2	1.8	59.3	404	21
CENTRAL STONE COMPANY - EWING, HANNIBAL, MO										
Stockpile #1										
Lab #0468	04-23-02	6.9	34.5	9.4	49.2	83.3	1.5	63.5	423	19
Lab #0705	05-31-02	5.8	37.2	9.6	47.4	79.7	0.2	62.5	398	2
CENTRAL STONE COMPANY - TAYLOR, TAYLOR, MO										
Stockpile #1										
Lab #0130	02-22-02	4.4	46.0	11.7	37.9	91.3	0.7	56.4	412	8
Lab #0310	03-28-02	5.9	44.1	11.3	38.7	91.2	0.7	56.5	412	8
Lab #0459	04-24-02	5.7	45.4	11.1	37.8	91.5	0.7	55.8	409	8
Lab #0654	05-24-02	6.1	45.5	11.6	36.8	90.7	0.6	55.1	400	7
Lab #0654	05-24-02	6.1	45.5	11.6	36.8	90.7	0.6	55.1	400	7
CLEVER STONE CO, CLEVER, MO										
Stockpile #1										
Lab #0137	02-25-02	2.4	51.0	13.4	33.2	94.5	0.1	54.0	408	1
Lab #0521	04-29-02	2.7	52.6	12.9	31.8	94.0	0.1	52.7	396	1
Lab #0775	06-11-02	0.4	52.9	15.6	31.1	94.0	0.2	53.7	404	2
COLONIAL LIMESTONE INC-PRINCETON, MILAN, MO										
CONCO QUARRIES, SPRINGFIELD, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Stockpile #1										
Lab #0068	02-11-02	0.0	13.0	15.1	71.9	96.4	0.2	84.2	649	3
Lab #0699	05-29-02	0.2	11.0	15.6	73.2	95.1	0.4	85.3	649	7
Stockpile #4										
Lab #0069	02-11-02	0.0	9.9	15.7	74.4	99.0	0.2	86.3	683	3
Lab #0700	05-29-02	0.0	9.9	14.9	75.2	97.3	0.3	86.6	674	5
COUNTY LINE QUARRY, WELLSVILLE, MO										
Stockpile #1										
Lab #0225	03-12-02	3.3	48.7	10.1	37.9	93.3	3.2	56.1	419	36
Lab #0387	04-12-02	1.9	45.3	10.8	42.0	94.7	4.0	59.8	453	48
Lab #0560	05-08-02	1.4	43.2	9.9	45.5	93.7	5.1	62.2	467	63
Lab #0706	06-03-02	1.1	44.0	10.2	44.7	94.7	4.3	61.8	468	53
CRAWFORD LIME & MATERIAL CO, CUBA, MO										
Stockpile #1										
Lab #0095	02-14-02	5.2	44.4	7.1	43.3	91.2	11.6	58.7	428	136
Lab #0331	04-03-02	6.4	46.5	7.9	39.2	90.3	10.9	55.6	401	121
Lab #0689	05-14-02	2.6	39.6	7.7	50.1	91.4	11.0	64.6	473	142
Lab #0728	06-05-02	3.0	41.6	8.5	46.9	91.6	11.2	62.4	457	140
CRIDER BROTHERS LIME CO, EMINENCE, MO										
Stockpile #2										
Lab #0055	02-12-02	4.9	47.9	13.6	33.6	103.7	11.4	53.7	446	123
Lab #0396	04-15-02	8.5	52.1	10.3	29.1	104.7	12.2	48.3	405	118
Lab #0639	05-14-02	7.2	48.1	12.3	32.4	103.1	11.5	51.8	427	119
CRIDER BROS LIME CO. INC.-VAN BUREN, EMINENCE, MO										
DOSS & HARPER STONE CO., HOUSTON, MO										
Stockpile #1										
Lab #0249	03-13-02	0.6	37.7	17.4	44.3	91.1	11.0	64.2	468	141
Lab #0620	05-22-02	0.5	35.7	16.6	47.2	92.6	11.5	66.1	490	152
Lab #0741	06-05-02	0.6	37.4	17.1	44.9	93.7	11.5	64.5	484	148
DOSS & HARPER STONE CO, WEST PLAINS, MO										
Stockpile #1										
Lab #0250	03-14-02	0.1	42.1	10.1	47.7	83.0	9.9	64.3	427	127
Lab #0621	05-22-02	0.5	46.0	5.6	47.9	84.8	10.7	62.8	426	134
Lab #0742	06-05-02	0.2	40.8	7.2	51.8	84.9	10.2	66.3	450	135

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Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
EVERETT QUARRIES #1-LATHROP, PLATTSBURG, MO										
Stockpile #2										
Lab #0061	02-13-02	4.5	48.3	11.5	35.7	86.7	1.1	54.7	379	12
Lab #0252	03-21-02	4.1	50.7	10.0	35.2	84.8	1.2	53.9	365	13
Lab #0615	05-16-02	6.5	52.1	9.4	32.0	86.2	1.4	50.7	349	14
Lab #0829	06-19-02	4.2	49.8	9.7	36.3	87.1	1.6	54.6	380	17
EVERETT QUARRIES #6-KING, PLATTSBURG, MO										
Stockpile #1										
Lab #0527	05-07-02	7.3	47.4	8.0	37.3	86.0	2.4	54.0	371	26
Lab #0660	05-24-02	7.2	47.6	8.3	36.9	87.4	2.3	53.8	376	25
Stockpile #2										
Lab #0528	05-07-02	7.9	48.4	7.2	36.5	88.1	2.1	52.9	373	22
EVERETT QUARRIES #53-CAMERON, PLATTSBURG, MO										
EVERETT QUARRIES #54-GOWER, PLATTSBURG, MO										
Stockpile #3										
Lab #0100	02-19-02	8.0	49.1	7.3	35.6	82.5	1.1	52.3	345	11
Lab #0377	04-10-02	2.5	47.7	10.3	39.5	81.6	1.1	57.6	376	13
Lab #0642	05-22-02	9.5	48.1	8.8	33.6	80.4	1.5	50.9	327	15
Lab #0830	06-19-02	4.3	46.8	9.7	39.2	81.3	1.2	56.7	369	14
EVERETT QUARRIES #59-STANBERRY, PLATTSBURG, MO										
FALL VALLEY STONE, INC., MT VERNON, MO										
Stockpile #1										
Lab #0334	04-01-02	0.1	43.9	12.1	43.9	100.9	12.2	62.1	502	152
Lab #0546	05-06-02	0.1	43.8	12.3	43.8	103.8	13.0	62.1	516	162
Lab #0817	06-20-02	0.3	38.9	11.4	49.4	101.3	12.5	66.0	535	165
FISCHER QUARRIES LLC, HUGHESVILLE, MO										
Stockpile #1										
Lab #0390	04-15-02	6.7	53.5	10.6	29.2	98.0	0.8	48.9	384	8
Lab #0432	04-23-02	4.8	48.9	11.3	35.0	97.9	1.0	54.0	423	11
Lab #0603	05-13-02	4.7	46.1	12.0	37.2	98.5	0.9	55.9	441	10
Lab #0751	06-06-02	7.8	46.5	10.3	35.4	97.7	1.3	53.2	416	14
Stockpile #2										
Lab #0023	02-08-02	13.4*	43.7	9.9	33.0	97.1	1.1	49.9	0	0
Lab #0155	03-01-02	11.8*	46.1	10.2	31.9	98.1	0.9	49.5	0	0
Lab #0200	03-08-02	11.5*	45.6	10.4	32.5	96.3	0.9	50.1	0	0
Lab #0322	04-01-02	8.9	46.2	10.7	34.2	97.4	1.2	52.2	407	13
Lab #0355	04-11-02	5.0	48.7	10.5	35.8	97.5	1.4	54.3	423	15
Lab #0389	04-15-02	3.4	50.0	9.2	37.4	97.2	1.4	55.4	431	16
FULLERTON STONE COMPANY INC, GRANBY, MO										
Stockpile #1										
Lab #0140	02-26-02	8.3	45.7	13.7	32.3	94.5	0.1	51.9	393	1
Lab #0523	05-01-02	1.5	47.6	14.5	36.4	93.0	0.1	57.0	424	1
Lab #0777	06-12-02	2.4	48.4	11.4	37.8	85.5	0.2	56.7	388	2
GABEL STONE COMPANY INC., WILLOW SPRINGS, MO										
Stockpile #1										
Lab #0071	02-14-02	0.6	41.1	16.0	42.3	91.5	11.0	62.2	455	137
Lab #0553	05-09-02	0.9	43.9	13.9	41.3	87.3	10.9	60.6	423	132
Lab #0622	05-23-02	1.1	43.0	13.8	42.1	87.6	10.9	61.1	428	133
GLASGOW QUARRIES INC, GLASGOW, MO										
Stockpile #4										
Lab #0214	03-11-02	9.6	35.2	7.6	47.6	88.3	5.7	61.0	431	69
Lab #0501	04-29-02	9.7	40.6	6.3	43.4	89.4	6.1	57.3	410	70
GLASGOW QUARRIES-GILLIAM, GILLIAM, MO										
Stockpile #1										
Lab #0051	02-12-02	3.3	46.6	6.5	43.6	90.0	6.6	59.2	426	78
Lab #0213	03-11-02	2.7	49.5	7.9	39.9	90.3	6.2	57.0	412	71
Lab #0500	04-29-02	2.5	44.3	7.7	45.5	89.2	5.8	61.2	437	71
GLASGOW QUARRIES - MARCELINE, MARCELINE, MO										
Stockpile #3										
Lab #0150	02-25-02	16.3*	46.6	5.6	31.5	89.8	7.1	46.5	0	0
Stockpile #4										
Lab #0370	04-10-02	3.3	45.8	7.5	43.4	90.0	6.4	59.4	427	76
Lab #0580	05-09-02	3.4	44.0	7.3	45.3	88.9	5.8	60.7	432	70
Lab #0841	06-14-02	3.0	41.3	7.4	48.3	89.3	5.9	63.1	451	74

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TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
HART LIME STONE, FARMINGTON, MO										
Stockpile #2										
Lab #0801	06-20-02	0.0	10.3	10.0	79.7	92.0	10.5	88.3	650	185
HERZOG CONTRACTING CORP, ST JOSEPH, MO										
HIGGINS - MEEKER QUARRIES LLC, DEEPWATER, MO										
Stockpile #2										
Lab #0745	06-07-02	2.0	49.6	9.7	38.7	76.4	4.1	56.9	348	47
Lab #0770	06-14-02	2.1	51.8	9.6	36.5	78.3	3.9	55.2	346	43
HILTY QUARRIES, INC. - QUARLES, CLINTON, MO										
Stockpile #1										
Lab #0074	02-13-02	6.2	48.7	9.3	35.8	79.0	0.8	53.6	338	9
Lab #0301	03-29-02	10.3*	50.5	7.9	31.3	79.2	0.6	48.7	0	0
Lab #0502	04-29-02	8.0	47.6	8.5	35.9	76.1	0.7	52.9	322	7
Lab #0680	05-31-02	4.4	50.1	9.3	36.2	78.2	0.7	54.3	340	8
Stockpile #2										
Lab #0075	02-13-02	0.2	47.2	13.6	39.0	76.3	0.9	59.0	360	11
Lab #0302	03-29-02	0.1	48.9	14.9	36.1	76.1	0.8	57.3	349	9
Lab #0503	04-29-02	0.2	42.1	13.3	44.4	73.9	0.8	62.9	372	10
Lab #0681	05-31-02	1.3	48.1	10.3	40.3	72.1	0.9	58.5	337	11
HILTY QUARRIES, INC. - MONTROSE, CLINTON, MO										
Stockpile #3										
Lab #0156	02-26-02	1.9	41.3	11.8	45.0	94.7	0.5	62.4	473	6
HILTY QUARRIES, INC. - MT. ZION, CLINTON, MO										
HILTY QUARRIES, INC- SOUTH-DELL JCT, CLINTON, MO										
Stockpile #1										
Lab #0086	02-19-02	0.1	39.8	14.4	45.7	89.6	2.1	64.3	461	27
Lab #0253	03-19-02	0.2	42.2	12.4	45.2	87.8	2.7	63.2	444	34
Lab #0506	04-29-02	0.3	45.6	14.1	40.0	94.2	1.2	59.9	451	14
Lab #0684	05-31-02	1.4	44.4	12.5	41.7	91.3	1.4	60.3	440	17
HILTY QUARRIES, INC - TIGHTWAD, CLINTON, MO										
Stockpile #1										
Lab #0087	02-19-02	0.8	39.2	12.5	47.5	88.5	0.4	64.8	459	5
Lab #0254	03-19-02	4.8	46.0	11.0	38.2	94.8	0.4	56.3	427	5
Lab #0504	04-29-02	1.2	43.7	11.5	43.6	92.6	0.4	61.4	455	5
Lab #0682	05-31-02	0.3	43.8	13.0	42.9	90.0	0.4	61.7	444	5
Stockpile #2										
Lab #0088	02-19-02	0.5	40.4	13.3	45.8	91.1	0.4	63.9	466	5
Lab #0255	03-19-02	0.3	35.0	13.3	51.4	81.8	0.3	68.1	446	4
Lab #0505	04-29-02	0.4	40.6	12.5	46.5	95.0	0.4	64.2	488	5
Lab #0683	05-31-02	0.2	36.5	13.9	49.4	88.8	0.4	66.9	475	5
HILTY QUARRIES, INC. - URICH, CLINTON, MO										
Stockpile #4										
Lab #0157	02-26-02	3.4	42.6	12.0	42.0	92.9	0.3	59.9	445	4
Lab #0381	04-08-02	1.5	41.6	12.8	44.1	94.8	0.4	62.2	472	5
Lab #0744	06-07-02	1.7	42.6	11.6	44.1	93.8	0.5	61.7	463	6
HILTY QUARRIES INC.-WARRENSBURG, CLINTON, MO										
Stockpile #4										
Lab #0427	04-22-02	1.5	44.4	10.6	43.5	69.3	1.3	61.0	338	16
HUNT MIDWEST MINING-BLUE MOUND, DAWN, MO										
Stockpile #1										
Lab #0845	07-01-02	0.1	50.8	11.1	38.0	90.2	0.3	57.4	414	3
HUNT MIDWEST MINING, INC.-TRENTON, EDINBURG, MO										
HUNT MIDWEST MINING - HWY 10 QUARRY, RAYVILLE, MO										
Stockpile #2										
Lab #0119	02-14-02	6.6	56.6	8.7	28.1	89.6	0.7	47.5	340	7
Lab #0262	03-18-02	6.6	58.5	9.2	25.7	91.0	0.6	45.8	334	6
Lab #0391	04-16-02	6.5	60.2	7.8	25.5	90.6	0.6	45.2	328	5
Lab #0756	06-10-02	7.6	59.7	7.4	25.3	90.8	0.6	44.7	324	5
HUNT MIDWEST QUARRY - STET QUARRY, RICHMOND, MO										
Stockpile #1										
Lab #0529	05-07-02	6.3	52.0	9.0	32.7	89.6	1.3	51.1	366	13
Lab #0659	05-24-02	14.1*	51.5	7.6	26.8	90.8	1.0	44.2	0	0
HUTCHENS CONSTRUCTION-PURDY, CASSVILLE, MO										
Stockpile #2										
Lab #0261	03-18-02	2.9	48.0	12.0	37.1	88.4	0.1	56.3	398	1

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JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
HUTCHENS CONSTRUCTION-PURDY, CASSVILLE, MO (Continued)										
Stockpile #2										
Lab #0483	04-24-02	1.1	44.1	14.0	40.8	79.5	0.1	60.2	383	1
Lab #0588	05-16-02	1.0	43.7	14.2	41.1	88.1	0.1	60.5	427	1
Lab #0779	06-14-02	0.7	41.4	13.9	44.0	88.1	0.1	62.7	442	1
HUTCHENS CONSTRUCTION-EAGLE ROCK, CASSVILLE, MO										
Stockpile #2										
Lab #0291	03-27-02	1.5	45.5	8.7	44.3	89.7	11.0	60.9	437	134
Lab #0526	05-03-02	1.1	44.3	9.2	45.4	89.1	11.3	62.0	442	140
Lab #0703	05-31-02	0.9	39.3	8.9	50.9	90.7	11.1	66.1	479	147
HUTCHENS CONSTRUCTION-WASHBURN, CASSVILLE, MO										
IDEKER INC. - NEW POINT QUARRY, ST JOSEPH, MO Stockpile #1										
Lab #0645	05-20-02	0.0	46.4	12.0	41.6	87.6	0.5	60.4	423	6
Lab #0658	05-29-02	0.0	44.4	12.7	42.9	88.3	0.5	61.6	435	6
Stockpile #2										
Lab #0755	06-06-02	0.0	48.1	11.5	40.4	88.9	0.5	59.3	422	6
IDEKER INC. - AMAZONIA, ST JOSEPH, MO										
Stockpile #1										
Lab #0062	02-15-02	3.1	50.7	11.4	34.8	88.8	0.7	54.3	386	8
Lab #0229	03-14-02	1.6	45.5	10.2	42.7	72.5	2.9	60.2	349	35
Lab #0375	04-10-02	2.2	47.1	12.4	38.3	71.1	2.5	57.5	327	29
Lab #0646	05-22-02	2.7	46.0	12.3	39.0	89.7	0.6	57.9	415	7
IOWA LIMESTONE CO-WEEPING WATER NE, WEEPING WATER, NE										
Stockpile #1										
Lab #0103	02-20-02	0.0	2.2	38.6	59.2	97.4	0.2	82.9	646	3
Lab #0398	04-17-02	0.0	0.7	2.3	97.0	96.9	0.4	98.6	764	8
Lab #0789	06-11-02	0.1	0.6	2.2	97.1	96.9	0.3	98.6	764	6
Stockpile #2										
Lab #0399	04-17-02	0.0	38.6	32.7	28.7	96.2	0.4	58.0	446	5
Lab #0790	06-11-02	0.0	27.5	33.1	39.4	97.2	0.3	66.1	514	4
Stockpile #3										
Lab #0400	04-17-02	0.1	56.1	21.8	22.0	97.9	0.3	49.1	385	3
Lab #0791	06-11-02	0.1	65.2	15.9	18.8	98.0	0.2	44.6	350	2
Stockpile #4										
Lab #0401	04-17-02	0.1	94.2	3.8	1.9	97.0	0.4	27.7	215	2
Lab #0792	06-11-02	0.1	93.8	3.8	2.3	97.7	0.2	28.0	219	1
Stockpile #5										
Lab #0402	04-17-02	4.2	95.3	0.2	0.3	97.7	0.3	24.2	189	1
Lab #0785	06-11-02	2.9	96.0	0.2	0.9	98.0	0.2	25.0	196	1
IOWA MINERAL PROCESSING, INC., ALDEN, IA										
JENKINS QUARRY, CASSVILLE, MO										
Stockpile #1										
Lab #0386	04-12-02	0.3	44.7	9.6	45.4	84.9	8.6	62.3	423	107
Lab #0554	05-10-02	0.0	41.3	9.4	49.3	83.8	9.8	65.3	438	128
LEO JOURNAGAN CONST CO-GAINESVILLE, SPRINGFIELD, MO										
Stockpile #1										
Lab #0014	02-05-02	0.4	37.1	8.5	54.0	84.9	10.2	68.4	464	139
Lab #0293	03-28-02	0.5	36.0	9.1	54.4	83.5	10.3	68.9	460	142
Lab #0618	05-21-02	0.5	34.7	9.4	55.4	85.5	10.7	69.7	477	149
LEO JOURNAGAN CONST CO-HOLLISTER SO, SPRINGFIELD, MO										
Stockpile #1										
Lab #0208	03-07-02	2.5	55.8	9.9	31.8	81.4	0.6	51.7	337	6
Lab #0552	05-07-02	3.0	48.2	11.2	37.6	93.4	0.7	56.4	421	8
Lab #0815	06-18-02	1.3	45.2	13.3	40.2	82.0	0.6	59.5	390	7
LEO JOURNAGAN CONST CO INC-OZARK, SPRINGFIELD, MO										
Stockpile #1										
Lab #0136	02-25-02	0.3	42.8	15.0	41.9	96.2	0.2	61.6	474	2
Lab #0520	04-29-02	0.7	42.9	14.5	41.9	95.7	0.2	61.3	470	2
Lab #0774	06-11-02	0.8	43.4	14.6	41.2	96.2	0.2	60.8	468	2
LEO JOURNAGAN CONST CO INC-AVA, SPRINGFIELD, MO										
LEO JOURNAGAN CONST. - SHELL KNOB, SHELL KNOB, MO										
Stockpile #1										
Lab #0292	03-27-02	3.5	46.2	7.8	42.5	93.0	11.5	58.7	437	135
Lab #0525	05-03-02	3.2	43.2	7.5	46.1	92.6	11.2	61.4	455	138
Lab #0704	05-31-02	3.1	43.7	7.3	45.9	92.5	11.1	61.2	453	136

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JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
JOPLIN STONE CO Q DUENWEG, JOPLIN, MO										
Stockpile #2										
Lab #0115	02-19-02	0.1	22.0	21.8	56.1	96.2	0.1	74.7	575	1
Lab #0522	05-01-02	0.2	15.1	20.8	63.9	96.9	0.1	80.2	621	2
Lab #0776	06-12-02	0.3	16.1	21.2	62.4	95.5	0.1	79.1	605	2
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Stockpile #1										
Lab #0131	02-25-02	8.3	41.6	7.7	42.4	92.7	2.0	57.4	426	23
Lab #0227	03-13-02	5.1	37.7	9.1	48.1	92.2	1.4	63.0	465	18
Lab #0465	04-22-02	6.2	46.0	8.9	38.9	93.8	1.3	55.7	418	14
Lab #0634	05-22-02	5.0	41.7	8.1	45.2	91.0	2.5	60.5	440	30
Stockpile #3										
Lab #0066	02-14-02	0.0	0.2	2.2	97.6	98.2	1.0	99.0	778	20
Lab #0218	03-13-02	2.3	14.6	2.9	80.2	88.4	1.2	85.6	605	21
Lab #0466	04-22-02	0.0	1.0	0.8	98.2	97.4	0.9	98.9	771	18
Lab #0636	05-22-02	0.1	0.6	0.5	98.8	98.0	0.8	99.3	778	16
Stockpile #4										
Lab #0219	03-13-02	2.4	13.7	3.9	80.0	89.1	1.2	85.8	611	21
Lab #0467	04-22-02	2.9	16.2	3.8	77.1	91.9	1.1	83.4	613	18
Lab #0635	05-22-02	1.8	14.9	3.9	79.4	92.6	1.4	85.5	633	24
Lab #0065	02-14-04	2.3	15.8	4.6	77.3	90.7	1.2	84.0	610	20
KELLEY QUARRY, CROCKER, MO										
Stockpile #2										
Lab #0439	04-23-02	4.7	43.0	10.2	42.1	91.3	11.4	59.0	431	134
Lab #0709	05-29-02	4.4	43.5	10.9	41.2	88.6	10.8	58.6	415	127
KERFORD LIMESTONE CO, WEEPING WATER, NE										
Stockpile #1										
Lab #0104	02-20-02	0.0	0.2	0.1	99.7	94.3	0.4	99.8	753	8
Lab #0404	04-17-02	0.0	0.2	0.4	99.4	89.6	0.8	99.7	715	16
Lab #0786	06-11-02	0.1	0.3	0.3	99.3	91.5	0.5	99.6	729	10
KEYSTONE QUARRY, WARRENSBURG, MO										
Stockpile #1										
Lab #0232	03-12-02	0.4	58.2	11.5	29.9	69.8	0.5	51.4	287	5
Lab #0428	04-22-02	0.9	56.2	9.9	33.0	65.2	1.2	53.0	276	13
Lab #0606	05-15-02	1.1	54.7	12.6	31.6	70.8	1.6	52.8	299	17
Lab #0819	06-12-02	1.3	50.6	12.2	35.9	67.0	1.4	55.9	299	16
KNOX COUNTY STONE CO, EDINA, MO										
Stockpile #1										
Lab #0132	02-25-02	3.0	47.7	10.9	38.4	88.7	2.3	56.9	404	26
Lab #0351	04-04-02	3.4	47.3	11.8	37.5	90.0	2.0	56.4	406	23
Lab #0565	05-13-02	2.7	42.7	12.0	42.6	91.4	2.8	60.5	442	34
Lab #0758	06-10-02	3.9	44.3	10.6	41.2	90.0	2.5	58.6	422	29
L & W QUARRIES INC., KAHOKA, MO										
Stockpile #1										
Lab #0133	02-26-02	6.3	46.8	9.3	37.6	90.7	1.0	54.9	398	11
Lab #0352	04-05-02	2.8	41.2	10.6	45.4	87.5	0.3	62.1	434	4
Lab #0566	05-14-02	2.1	44.6	10.8	42.5	86.8	0.2	60.1	418	2
Lab #0759	06-11-02	2.4	45.3	9.9	42.4	84.7	0.2	59.7	404	2
Stockpile #2										
Lab #0567	05-14-02	8.8	44.7	10.5	36.0	92.1	0.2	53.5	394	2
Lab #0760	06-11-02	8.9	46.3	10.1	34.7	92.8	0.3	52.3	389	3
Stockpile #3										
Lab #0568	05-14-02	3.3	50.5	7.7	38.5	85.7	1.9	55.7	382	21
Lab #0761	06-11-02	1.2	44.9	9.6	44.3	84.2	2.9	61.3	413	36
Lab #0823	06-20-02	1.2	45.3	10.2	43.3	85.2	2.9	60.7	414	35
LAFARGE QUARRY, SEDALIA, MO										
Stockpile #1										
Lab #0844	06-20-02	5.7	50.6	8.8	34.9	88.5	4.5	52.8	374	48
Stockpile #3										
Lab #0020	02-08-02	7.4	47.4	9.4	35.8	89.0	2.4	53.3	379	26
Lab #0152	03-01-02	5.3	37.5	8.9	48.3	85.0	2.4	63.0	429	30
Lab #0430	04-23-02	10.6*	52.0	6.4	31.0	87.9	4.6	47.8	0	0
Lab #0692	05-28-02	9.0	51.0	6.6	33.4	87.4	4.5	50.1	350	45

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Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
LAFARGE CORPORATION, SEDALIA, MO										
Stockpile #1										
Lab #0024	02-08-02	1.8	47.4	11.6	39.2	98.5	0.5	58.0	457	6
Lab #0201	03-08-02	2.1	47.7	9.5	40.7	96.9	0.9	58.3	452	10
Lab #0433	04-23-02	1.4	42.6	12.4	43.6	98.3	0.9	61.7	485	11
Lab #0604	05-13-02	1.3	42.6	11.5	44.6	98.1	1.2	62.2	488	15
Lab #0752	06-06-02	1.4	41.5	11.4	45.7	98.4	1.1	62.9	495	14
LAFARGE CORPORATION, SEDALIA, MO										
LAFARGE CONSTRUCTION MATERIALS, ST CHARLES, MO										
LAFARGE CONSTRUCTION MATERIALS, WARRENTON, MO										
Stockpile #1										
Lab #0120	02-19-02	5.6	46.9	7.7	39.8	97.0	4.1	56.1	436	46
Lab #0366	04-12-02	5.6	46.1	8.0	40.3	97.0	4.1	56.6	439	46
Lab #0516	05-01-02	5.6	45.6	8.1	40.7	97.2	4.3	57.0	443	49
Lab #0722	06-04-02	6.6	46.7	8.3	38.4	97.3	4.3	55.1	429	47
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Stockpile #1										
Lab #0241	03-13-02	0.0	0.8	6.5	92.7	92.7	10.4	96.8	718	201
Lab #0363	04-10-02	0.1	4.3	12.8	82.8	93.4	10.4	91.6	684	190
Lab #0537	05-07-02	0.0	1.2	4.7	94.1	91.1	11.0	97.2	709	214
Lab #0802	06-20-02	0.2	7.3	11.2	81.3	88.6	11.4	89.8	637	205
LILE QUARRY INC., STRAFFORD, MO										
Stockpile #1										
Lab #0289	03-26-02	0.9	55.6	6.5	37.0	92.4	11.4	54.8	405	125
Lab #0738	06-04-02	1.2	53.0	7.1	38.7	92.6	11.1	56.2	416	125
LIMPUS QUARRIES, INC. (BATES CITY), HARRISONVILLE, MO										
Stockpile #3										
Lab #0047	02-11-02	12.1*	45.3	8.4	34.2	87.8	0.7	50.6	0	0
Lab #0215	03-12-02	3.7	49.7	10.4	36.2	90.1	0.4	54.9	395	4
Lab #0288	03-21-02	4.6	52.9	8.5	34.0	90.0	0.4	52.3	377	4
Lab #0458	04-26-02	5.6	54.5	8.7	31.2	91.7	0.5	50.0	367	5
Lab #0605	05-15-02	3.6	53.3	9.0	34.1	90.9	0.5	52.8	384	5
Lab #0747	06-03-02	4.8	52.1	10.0	33.1	90.7	0.9	52.1	378	9
LIMPUS QUARRIES, INC. (GARDEN CITY), HARRISONVILLE, MO										
Stockpile #1										
Lab #0212	03-06-02	4.9	53.3	9.1	32.7	73.9	0.9	51.5	304	9
Lab #0380	04-08-02	6.5	51.7	8.7	33.1	74.8	0.9	51.2	307	9
Lab #0559	05-09-02	4.8	51.0	8.3	35.9	74.5	1.0	53.6	320	11
LIMPUS QUARRIES, INC. (GALLATIN), HARRISONVILLE, MO										
Stockpile #2										
Lab #0111	02-20-02	8.3	52.5	7.1	32.1	75.4	0.8	49.5	298	8
Lab #0498	05-02-02	7.1	50.0	8.5	34.4	71.9	1.3	52.0	299	14
Lab #0582	05-10-02	9.4	51.1	7.6	31.9	74.9	0.9	49.2	295	9
Lab #0662	05-28-02	9.6	50.4	7.1	32.9	75.6	0.9	49.8	301	9
LIMPUS QUARRIES, INC. (HARRISONVILLE), HARRISONVILLE, MO										
Stockpile #2										
Lab #0210	03-06-02	8.6	55.7	8.1	27.6	91.5	0.6	46.4	340	6
Lab #0379	04-08-02	6.8	50.8	8.5	33.9	90.2	1.0	51.7	373	10
Lab #0558	05-09-02	7.5	47.4	7.1	38.0	88.4	0.9	54.1	383	10
LIMPUS QUARRIES, INC. (HOLDEN), HARRISONVILLE, MO										
Stockpile #2										
Lab #0049	02-11-02	4.3	48.5	9.2	38.0	75.1	3.0	55.6	334	33
Lab #0231	03-12-02	4.9	52.9	8.3	33.9	75.6	2.6	52.1	315	27
Lab #0555	05-09-02	15.5*	41.6	7.0	35.9	74.2	3.4	50.5	0	0
Lab #0820	06-12-02	5.5	46.7	8.9	38.9	75.2	2.7	55.9	336	30
LIMPUS QUARRIES, INC.-SUGAR CREEK, HARRISONVILLE, MO										
MAGRUDER LIMESTONE CO-ASHLEY, BOWLING GREEN, MO										
Stockpile #1										
Lab #0126	02-20-02	0.1	47.4	11.6	40.9	97.7	0.8	59.7	467	10
Lab #0311	03-29-02	0.1	47.0	14.5	38.4	98.1	0.7	58.9	462	8
Lab #0460	04-25-02	0.3	48.6	10.3	40.8	97.9	0.9	59.1	463	11
Lab #0611	05-21-02	0.3	52.7	10.8	36.2	98.1	0.4	55.9	438	4
MAGRUDER LIMESTONE CO, INC.-BOWLING, BOWLING GREEN, MO										
Stockpile #1										
Lab #0031	02-06-02	0.5	49.7	13.2	36.6	84.6	0.2	56.9	385	2

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TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
MAGRUDER LIMESTONE CO, INC.-BOWLING, BOWLING GREEN, MO (Continued)										
Stockpile #1										
Lab #0178	03-05-02	0.1	49.9	12.1	37.9	77.4	0.7	57.6	357	8
Lab #0346	04-09-02	0.1	48.1	12.0	39.8	96.3	1.0	59.0	455	12
Lab #0612	05-21-02	0.3	44.9	11.3	43.5	94.4	1.6	61.5	464	20
MAGRUDER LIMESTONE CO-FRANKFORD, BOWLING GREEN, MO										
Stockpile #1										
Lab #0029	02-06-02	0.6	36.8	12.7	49.9	98.1	2.0	66.7	524	27
Lab #0176	03-05-02	0.2	38.4	12.4	49.0	98.2	2.0	66.0	519	26
Lab #0490	05-01-02	0.0	39.1	11.4	49.5	98.6	1.6	66.1	522	21
Lab #0610	05-21-02	0.3	37.5	11.0	51.2	97.9	1.7	67.2	526	23
MAGRUDER LIMESTONE - SILEX QUARRY, TROY, MO										
Stockpile #1										
Lab #0042	02-12-02	6.0	48.2	7.3	38.5	96.6	3.9	54.9	424	43
Lab #0221	03-11-02	3.7	45.1	8.1	43.1	96.3	4.0	59.2	456	47
Lab #0347	04-10-02	4.2	45.7	7.5	42.6	96.3	3.5	58.5	451	41
Lab #0561	05-09-02	5.2	47.9	6.4	40.5	96.5	3.7	56.3	435	42
MAGRUDER LIMESTONE CO Q TROY, TROY, MO										
Stockpile #1										
Lab #0044	02-12-02	1.3	48.4	9.7	40.6	85.4	2.9	58.5	400	34
Lab #0224	03-11-02	1.3	45.8	9.9	43.0	83.4	2.5	60.4	403	30
Lab #0350	04-10-02	2.8	52.0	7.7	37.5	86.6	3.3	55.1	382	36
Lab #0563	05-09-02	1.3	49.4	7.9	41.4	85.2	3.0	58.5	399	35
Stockpile #2										
Lab #0045	02-12-02	1.8	49.5	7.8	40.9	84.2	2.9	58.0	390	34
Lab #0223	03-11-02	2.3	50.5	8.6	38.6	85.1	2.7	56.4	384	30
Lab #0349	04-10-02	3.6	48.6	8.9	38.9	89.3	2.7	56.4	403	30
Lab #0564	05-09-02	2.0	48.1	8.3	41.6	86.4	3.3	58.6	405	39
MANSFIELD LIME & STONE, MANSFIELD, MO										
Stockpile #2										
Lab #0336	04-04-02	0.0	42.8	9.6	47.6	83.5	10.0	64.1	428	128
Lab #0585	05-13-02	0.0	42.4	8.2	49.4	84.1	10.0	64.9	437	130
MARTIN MARIETTA AGGREGATES-JEFFRIES, DAVIS CITY, IA										
Stockpile #3										
Lab #0737	06-05-02	8.0	50.5	8.8	32.7	87.5	1.4	50.6	354	14
Stockpile #4										
Lab #0530	05-08-02	7.5	47.5	8.4	36.6	87.3	1.2	53.5	374	13
Lab #0736	06-05-02	9.8	47.6	7.9	34.7	89.3	1.1	51.3	367	11
Lab #0833	06-07-02	7.8	47.6	8.9	35.7	88.7	1.1	52.9	376	12
MARTIN MARIETTA AGGREGATES-MERCER, MERCER, MO										
Stockpile #1										
Lab #0473	04-26-02	9.3	46.8	7.9	36.0	80.3	0.9	52.4	337	9
Lab #0665	05-29-02	8.6	45.8	7.8	37.8	80.0	0.8	53.9	345	9
Lab #0733	06-05-02	9.7	45.4	7.7	37.2	80.4	0.8	53.2	342	9
Stockpile #3										
Lab #0474	04-26-02	4.7	39.8	8.6	46.9	75.9	1.3	62.0	377	16
Lab #0666	05-29-02	6.6	40.3	7.0	46.1	74.0	1.1	60.4	357	13
Lab #0734	06-05-02	7.4	41.3	7.5	43.8	74.4	1.1	58.6	349	13
Stockpile #4										
Lab #0475	04-26-02	4.6	40.1	9.2	46.1	74.2	1.3	61.6	366	16
Lab #0667	05-29-02	5.1	39.6	8.1	47.2	73.7	1.3	62.0	365	16
Lab #0735	06-05-02	4.2	38.3	8.6	48.9	75.2	1.2	63.6	383	15
MARTIN MARIETTA MATERIALS-WATTERSON, MT AYR, IA										
MARTIN MARIETTA AGGREGATES-GOODEN, RAVENWOOD, MO										
Stockpile #1										
Lab #0754	06-07-02	0.8	42.7	9.7	46.8	79.3	1.9	63.3	402	24
Lab #0825	06-18-02	0.8	42.3	9.5	47.4	78.9	2.1	63.7	402	27
MARTIN MARIETTA AGG - APPLETON, PERRYVILLE, MO										
Stockpile #1										
Lab #0096	02-19-02	0.6	52.9	12.2	34.3	94.3	2.0	54.8	414	22
Lab #0487	05-01-02	1.4	48.7	10.7	39.2	97.0	5.0	57.8	448	58
MARTIN MARIETTA AGGREGATES-BARNARD, BARNARD, MO										
Stockpile #1										
Lab #0057	02-11-02	7.1	46.5	7.6	38.8	78.4	1.8	55.0	345	20
Lab #0228	03-11-02	5.5	44.5	9.1	40.9	77.1	1.9	57.5	355	22

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Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton		
		+8	-8+40	-40+60	-60				ENM	EMg	
MARTIN MARIETTA AGGREGATES-BARNARD, BARNARD, MO (Continued)											
Stockpile #1											
	Lab #0434	04-19-02	5.6	45.6	7.5	41.3	77.3	1.6	57.2	354	18
	Lab #0644	05-20-02	7.2	46.6	7.1	39.1	75.9	1.5	55.0	334	17
MARTIN MARIETTA AGGREGATES-BETHANY, BETHANY, MO											
Stockpile #3											
	Lab #0577	05-08-02	5.2	48.2	9.5	37.1	85.3	1.4	54.9	374	15
	Lab #0834	06-07-02	7.2	53.1	7.5	32.2	87.5	1.2	50.0	350	12
MARTIN MARIETTA AGGREGATES - BREIT, SAVANNAH, MO											
Stockpile #2											
	Lab #0063	02-15-02	1.1	49.0	11.9	38.0	89.2	0.7	57.4	410	8
	Lab #0230	03-14-02	2.1	46.7	11.9	39.3	83.8	1.2	58.1	390	14
	Lab #0376	04-10-02	0.4	48.7	11.8	39.1	88.0	0.9	58.4	411	11
	Lab #0647	05-22-02	0.1	44.7	11.4	43.8	77.3	1.5	61.8	382	19
MARTIN MARIETTA AGGREGATES-GALLATIN, GALLATIN, MO											
Stockpile #1											
	Lab #0110	02-20-02	8.7	50.4	8.4	32.5	82.5	0.8	50.1	331	8
	Lab #0497	05-02-02	9.1	49.0	7.7	34.2	74.3	1.5	51.1	304	15
	Lab #0581	05-10-02	6.2	53.5	9.3	31.0	82.7	0.9	50.0	331	9
	Lab #0661	05-28-02	6.8	52.3	8.6	32.3	77.6	1.2	50.5	314	12
MARTIN MARIETTA-GREENWOOD, GREENWOOD, MO											
MARTIN MARIETTA AGGREGATES-MAITLAND, SAVANNAH, MO											
MARTIN MARIETTA, PATTONSBURG, MO											
Stockpile #1											
	Lab #0059	02-12-02	5.9	52.6	8.8	32.7	85.1	0.7	51.1	348	7
	Lab #0324	04-02-02	5.9	59.3	7.4	27.4	89.3	0.7	46.7	333	7
	Lab #0613	05-15-02	9.4	51.0	8.0	31.6	89.3	0.8	49.2	351	8
	Lab #0827	06-19-02	6.9	50.1	9.0	34.0	89.2	0.7	51.9	371	7
Stockpile #2											
	Lab #0060	02-12-02	7.2	49.9	9.4	33.5	83.2	0.7	51.6	344	7
	Lab #0325	04-02-02	5.5	51.8	9.2	33.5	82.8	0.8	52.0	344	8
	Lab #0614	05-15-02	6.1	50.0	9.3	34.6	81.2	0.8	52.7	342	8
	Lab #0828	06-19-02	6.2	51.6	9.0	33.2	82.6	0.8	51.5	340	8
MARTIN MARIETTA MATERIALS-PECULIAR, PECULIAR, MO											
Stockpile #1											
	Lab #0209	03-06-02	6.9	56.3	7.8	29.0	91.2	0.6	47.8	348	6
	Lab #0378	04-08-02	7.0	57.0	8.2	27.8	91.7	0.7	47.0	345	7
	Lab #0557	05-09-02	6.4	52.8	8.8	32.0	91.7	0.5	50.5	370	5
MARTIN MARIETTA AGG-PERRYVILLE, PERRYVILLE, MO											
Stockpile #1											
	Lab #0251	03-14-02	1.6	8.9	4.8	84.7	94.2	1.9	89.8	677	34
	Lab #0361	04-09-02	2.0	11.9	6.0	80.1	95.2	1.7	86.7	660	29
	Lab #0538	05-08-02	2.0	12.7	5.4	79.9	95.1	2.0	86.3	657	35
	Lab #0807	06-21-02	0.2	13.6	8.7	77.5	94.6	1.7	86.1	652	29
Stockpile #2											
	Lab #0362	04-09-02	1.2	77.5	6.2	15.1	75.8	1.5	38.2	232	11
MARTIN MARIETTA AGGREGATE-PRINCETON, MERCER, MO											
MARTIN MARIETTA AGGREGATES- TRENTON, TRENTON, MO											
Stockpile #3											
	Lab #0303	03-26-02	2.3	48.5	9.6	39.6	76.7	1.3	57.5	353	15
	Lab #0496	05-01-02	3.7	47.1	10.3	38.9	80.5	1.6	56.9	366	18
	Lab #0584	05-13-02	4.0	44.8	8.7	42.5	76.2	1.6	58.9	359	19
MARTIN MARIETTA AGGREGATES INC, WEEPING WATER, NE											
Stockpile #1											
	Lab #0106	02-20-02	2.8	49.8	10.3	37.1	88.4	0.4	55.7	394	4
MERTENS CONST CO-AUXVASSE, KINGDOM CITY, MO											
Stockpile #1											
	Lab #0041	02-11-02	10.2*	53.5	7.9	28.4	96.4	0.7	46.5	0	0
	Lab #0181	03-08-02	6.9	48.9	10.7	33.5	95.6	2.4	52.1	399	25
	Lab #0312	04-02-02	8.1	47.6	8.2	36.1	92.2	3.8	52.9	390	40
	Lab #0461	04-29-02	7.8	48.1	8.8	35.3	89.8	4.0	52.6	378	42
	Lab #0569	05-15-02	9.4	52.8	8.4	29.4	94.8	3.2	47.6	361	30
Stockpile #3											
	Lab #0313	04-02-02	5.5	47.0	9.6	37.9	91.7	1.8	55.4	406	20
	Lab #0462	04-29-02	2.4	52.9	8.4	36.3	86.5	3.6	54.6	378	39

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		+8	-8+40	-40+60	-60				ENM	EMg
MERTENS CONST CO-AUXVASSE, KINGDOM CITY, MO (Continued)										
Stockpile #3										
Lab #0570	05-15-02	4.2	45.5	8.6	41.7	86.5	4.4	58.2	403	51
Stockpile #4										
Lab #0314	04-02-02	2.1	42.6	10.0	45.3	96.6	4.5	62.0	479	56
Lab #0463	04-29-02	1.5	39.9	11.0	47.6	96.8	4.6	64.2	497	59
Lab #0571	05-15-02	1.6	41.0	10.3	47.1	96.4	4.3	63.5	490	55
MERTENS CONST CO-Q-REFORM, KINGDOM CITY, MO										
Stockpile #1										
Lab #0033	02-04-02	7.2	55.6	7.3	29.9	87.7	1.7	48.2	338	16
Lab #0193	03-08-02	4.3	56.4	9.5	29.8	90.2	1.6	49.6	358	16
Lab #0327	04-02-02	4.1	53.3	8.7	33.9	89.1	2.7	52.4	374	28
Lab #0536	05-06-02	8.0	60.4	8.5	23.1	91.6	2.6	43.3	317	23
Lab #0716	05-31-02	11.7*	57.5	6.2	24.6	88.9	1.6	42.7	0	0
MFA INC, COLUMBIA, MO										
MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO										
Stockpile #1										
Lab #0032	02-04-02	6.6	46.7	11.5	35.2	87.7	0.3	53.8	377	3
Lab #0188	03-06-02	4.4	49.1	12.9	33.6	90.4	0.2	53.6	388	2
Lab #0426	04-19-02	5.1	49.1	12.4	33.4	90.2	0.2	53.1	383	2
Lab #0707	05-28-02	6.1	48.8	12.6	32.5	90.9	0.2	52.3	380	2
MID-MISSOURI LIMESTONE, INC.-HOUSTO, KINGDOM CITY, MO										
Stockpile #1										
Lab #0022	02-08-02	9.7	46.0	10.4	33.9	92.6	0.2	51.6	383	2
Lab #0154	03-01-02	6.6	44.5	12.3	36.6	91.7	0.3	55.1	404	3
Lab #0196	03-05-02	8.5	44.4	11.7	35.4	91.5	0.3	53.5	392	3
Lab #0431	04-23-02	8.3	46.4	10.2	35.1	90.4	0.6	52.8	382	6
Lab #0602	05-13-02	8.7	46.5	10.5	34.3	92.5	0.2	52.2	386	2
Lab #0750	06-06-02	8.5	48.9	10.9	31.7	92.7	0.2	50.5	374	2
MID-MISSOURI LIMESTONE-RIGGS, KINGDOM CITY, MO										
Stockpile #2										
Lab #0025	02-04-02	7.1	43.9	8.9	40.1	94.0	2.3	56.4	424	26
Lab #0182	03-08-02	7.4	47.1	9.7	35.8	95.6	1.7	53.4	408	18
Lab #0319	04-02-02	6.7	45.6	9.6	38.1	94.8	2.1	55.3	419	23
Lab #0572	05-15-02	4.8	44.1	9.0	42.1	97.1	3.5	58.5	455	41
MIDWEST MINERALS INC, JASPER, MO										
Stockpile #1										
Lab #0246	03-12-02	5.0	35.1	15.5	44.4	98.4	0.1	62.5	492	1
Lab #0771	06-10-02	2.9	32.9	13.6	50.6	98.5	0.2	67.0	528	3
Lab #0810	06-17-02	3.8	31.9	15.3	49.0	98.9	0.2	66.2	523	3
MISSISSIPPI LIME COMPANY, STE GENEVIEVE, MO										
Stockpile #1										
Lab #0358	04-09-02	0.0	0.4	0.5	99.1	99.4	0.3	99.5	791	6
Lab #0539	05-08-02	0.0	0.5	0.7	98.8	99.0	0.3	99.3	787	6
Lab #0805	06-21-02	0.0	0.3	0.5	99.2	99.4	0.2	99.6	792	4
Lab #0236	03-14-03	0.0	0.2	0.3	99.5	98.7	0.2	99.7	787	4
Stockpile #3										
Lab #0237	03-14-02	0.0	46.4	28.3	25.3	98.9	0.3	53.9	426	3
Lab #0359	04-09-02	0.0	42.7	28.6	28.7	99.4	0.2	56.5	450	2
Lab #0540	05-08-02	0.0	47.4	27.1	25.5	99.3	0.3	53.6	426	3
Lab #0806	06-21-02	0.0	39.8	28.5	31.7	99.4	0.2	58.8	467	2
MISSOURI LIME AND MATERIAL CO., INC, EUREKA, MO										
MISSOURI VALLEY MATERIALS, WASHINGTON, MO										
Stockpile #1										
Lab #0034	02-05-02	4.8	40.8	10.6	43.8	59.7*	7.5	60.4	0	0
Lab #0192	03-08-02	3.1	35.5	15.2	46.2	51.7*	6.3	64.2	0	0
Lab #0519	05-03-02	3.6	38.3	10.5	47.6	66.4	8.4	63.5	337	107
Lab #0715	05-31-02	2.9	35.8	10.5	50.8	66.8	8.1	66.1	353	107
MK MINERALS INC., MANHATTAN, KS										
Stockpile #1										
Lab #0099	02-18-02	0.0	0.2	1.5	98.3	78.5	0.8	99.3	623	16
Lab #0373	04-09-02	0.1	0.2	0.8	98.9	79.4	1.0	99.4	632	20
Lab #0648	05-22-02	0.0	0.2	0.9	98.9	79.3	1.1	99.5	631	22
Lab #0831	06-20-02	0.1	0.5	1.5	97.9	82.3	1.0	98.9	651	20

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		+8	-8+40	-40+60	-60				ENM	EMg
MORRIS ROCK, DEERFIELD, MO										
Stockpile #1										
Lab #0008	02-07-02	3.6	55.4	10.0	31.0	93.0	0.9	50.9	378	9
Lab #0298	03-28-02	2.6	54.3	10.4	32.7	92.5	0.9	52.5	389	9
Lab #0442	04-23-02	3.8	55.6	9.8	30.8	93.8	0.9	50.6	380	9
Lab #0673	05-29-02	2.9	58.3	10.0	28.8	95.3	0.4	49.4	376	4
MOUNTAIN GROVE QUARRY, MOUNTAIN GROVE, MO										
MUEKNS BROS. QUARRY, LOOSE CREEK, MO										
Stockpile #1										
Lab #0121	02-20-02	12.8*	43.8	6.5	36.9	92.8	11.5	51.8	0	0
Stockpile #2										
Lab #0723	06-05-02	2.3	53.2	7.5	37.0	85.2	10.3	54.8	374	113
Lab #0781	06-12-02	0.6	46.5	8.7	44.2	87.5	10.3	61.0	427	126
Lab #0783	06-13-02	1.4	50.6	7.3	40.7	88.5	10.7	57.7	409	124
NELSON BROS. QUARRIES, JASPER, MO										
Stockpile #1										
Lab #0247	03-12-02	3.3	42.1	14.6	40.0	96.9	0.2	59.3	460	2
Lab #0481	04-23-02	3.9	48.8	13.9	33.4	99.4	0.2	53.9	429	2
Lab #0772	06-10-02	3.4	48.8	13.3	34.5	97.6	0.4	54.7	427	4
NEMO SAND & GRAVEL, QUARRY, HERMITAGE, MO										
Stockpile #1										
Lab #0006	02-06-02	2.8	43.9	8.2	45.1	83.7	10.3	61.0	408	126
Lab #0173	03-05-02	3.9	52.1	8.2	35.8	80.6	9.9	53.7	347	106
Lab #0508	04-30-02	2.7	44.4	8.1	44.8	85.6	10.7	60.8	416	130
Lab #0670	05-28-02	2.4	46.1	7.7	43.8	85.1	10.2	59.9	408	122
Lab #0763	06-11-02	2.5	46.1	8.3	43.1	85.6	9.9	59.6	408	118
Stockpile #2										
Lab #0513	05-02-02	1.8	46.9	6.7	44.6	89.7	11.3	60.3	433	136
Lab #0624	05-20-02	1.5	44.6	6.0	47.9	88.8	10.8	62.7	445	135
NORRIS AGGREGATE PRODUCTS CO - EAST, MOBERLY, MO										
Stockpile #3										
Lab #0495	04-29-02	0.6	31.7	15.5	52.2	84.0	1.4	69.4	467	19
Lab #0835	06-11-02	4.1	39.8	13.1	43.0	84.3	0.9	60.8	410	11
NORRIS AGGREGATE PRODUCTS CO - WEST, MOBERLY, MO										
Stockpile #1										
Lab #0836	06-11-02	5.0	47.1	10.4	37.5	85.3	0.3	55.5	379	3
LEO O'LAUGHLIN INC, SHELBYNA, MO										
Stockpile #1										
Lab #0064	02-14-02	3.6	45.8	9.9	40.7	87.6	1.5	58.1	407	17
Lab #0226	03-13-02	7.8	50.0	9.0	33.2	91.7	1.6	51.1	375	16
Lab #0413	04-19-02	4.2	47.0	10.9	37.9	78.9	1.6	56.2	355	18
Lab #0633	05-22-02	4.7	51.4	8.8	35.1	86.0	1.5	53.2	366	16
PACE CONSTRUCTION CO.-DANVILLE QUAR, MONTGOMERY CITY, MO										
PHENIX ROCK, ASH GROVE, MO										
Stockpile #1										
Lab #0333	04-01-02	2.3	38.6	14.9	44.2	96.0	0.1	62.8	482	1
PRESTAGE QUARRIES INC, TIPTON, MO										
Stockpile #1										
Lab #0175	03-04-02	0.0	41.0	10.1	48.9	74.7	7.1	65.2	390	93
Lab #0388	04-15-02	0.0	44.2	10.2	45.6	76.3	6.7	62.8	383	84
Lab #0649	05-20-02	0.1	40.3	9.0	50.6	76.4	6.9	66.1	404	91
Lab #0757	06-11-02	0.0	38.9	8.6	52.5	72.5	6.8	67.4	391	92
R-B QUARRY #2 - FOLEY, ELSBERRY, MO										
ROCK QUARRIES, LLC, MOUNTAIN GROVE, MO										
Stockpile #1										
Lab #0409	04-17-02	2.7	39.6	7.8	49.9	90.8	11.0	64.5	468	142
Lab #0623	05-23-02	3.0	36.9	8.3	51.8	89.9	11.6	66.0	475	153
Lab #0743	06-06-02	2.1	32.5	9.4	56.0	88.4	10.6	69.8	493	148
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Stockpile #1										
Lab #0197	03-04-02	6.0	11.6	23.4	59.0	101.9	12.4	75.9	619	188
Lab #0535	05-08-02	4.6	13.1	22.2	60.1	101.3	13.0	76.7	622	199
S & A CONSTRUCTION LTD, ALLENDALE, MO										
Stockpile #1										
Lab #0374	04-08-02	1.3	42.9	8.9	46.9	67.8	1.6	63.0	342	20

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TABLE 1

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
S & A CONSTRUCTION LTD, ALLENDALE, MO (Continued)										
Stockpile #3										
Lab #0107	02-21-02	0.5	46.9	9.7	42.9	71.5	1.5	60.4	346	18
Lab #0643	05-24-02	4.2	53.5	8.7	33.6	81.2	1.0	52.2	339	10
Lab #0832	06-18-02	1.2	40.8	8.8	49.2	65.0	1.6	64.7	336	21
SCHILDBERG CONST. CO.-BEDFORD Q., GREENFIELD, IA										
Stockpile #1										
Lab #0788	06-12-02	0.2	38.5	10.6	50.7	82.9	0.7	66.7	442	9
Lab #0824	06-18-02	0.1	31.7	11.2	57.0	79.3	0.6	71.6	455	9
SCHILDBERG CONST. CO.-GRAHAM MO Q, GREENFIELD, IA										
Stockpile #1										
Lab #0058	02-11-02	0.3	47.7	11.6	40.4	86.7	0.6	59.3	411	7
Lab #0493	04-29-02	1.0	51.1	11.6	36.3	88.8	0.6	56.0	398	7
Lab #0753	06-06-02	0.9	50.0	11.9	37.2	89.3	0.6	56.8	406	7
SCHILDBERG CONST. CO.-SHAMBAUGH Q, GREENFIELD, IA										
Stockpile #1										
Lab #0494	05-01-02	4.3	51.8	11.6	32.3	86.6	0.7	52.2	362	7
Lab #0826	06-18-02	0.9	46.6	10.8	41.7	85.4	1.5	59.8	409	18
SCHILDBERG CONST. CO.-THURMAN, GREENFIELD, IA										
Stockpile #1										
Lab #0102	02-20-02	0.4	45.0	11.3	43.3	82.4	0.7	61.3	404	9
Lab #0403	04-17-02	1.4	43.8	11.2	43.6	80.7	0.8	61.3	396	10
Lab #0784	06-11-02	1.5	44.2	10.8	43.5	80.6	0.8	61.0	394	10
SOUTHWEST QUARRY & MATERIAL INC, ROLLA, MO										
Stockpile #3										
Lab #0093	02-14-02	0.7	36.4	10.1	52.8	92.4	11.8	68.0	502	160
Lab #0134	02-28-02	0.3	35.2	9.6	54.9	91.1	11.5	69.5	506	160
Lab #0329	04-03-02	2.5	42.3	8.6	46.6	85.2	10.3	62.3	425	128
Lab #0687	05-14-02	3.9	43.6	8.6	43.9	88.3	10.7	60.0	424	128
Lab #0725	06-05-02	2.3	39.9	9.8	48.0	85.4	10.4	63.9	436	133
SPRINGFIELD UNDERGROUND, INC., SPRINGFIELD, MO										
Stockpile #1										
Lab #0070	02-11-02	0.1	9.8	13.5	76.6	98.7	0.2	87.2	688	3
Lab #0701	05-29-02	0.2	11.2	12.3	76.3	97.8	0.2	86.5	677	3
Stockpile #2										
Lab #0702	05-29-02	0.1	2.4	7.2	90.3	97.4	0.2	95.2	742	4
S-S-S INC, LOUISIANA, MO										
Stockpile #1										
Lab #0030	02-06-02	5.5	46.0	10.8	37.7	97.3	0.1	55.7	433	1
Lab #0177	03-05-02	5.0	47.0	10.0	38.0	97.1	0.1	55.8	433	1
Lab #0345	04-09-02	5.5	49.8	9.0	35.7	96.4	0.1	53.6	413	1
Lab #0491	05-01-02	5.1	46.4	10.4	38.1	96.2	0.2	55.9	431	2
STANPHILL STONE, PIERCE CITY, MO										
T & M STONE LLC, FAIR PLAY, MO										
Stockpile #1										
Lab #0080	02-14-02	0.0	41.2	17.3	41.5	98.0	0.1	62.2	487	1
Lab #0295	03-27-02	0.0	45.6	14.1	40.3	95.4	0.1	60.2	459	1
Lab #0447	04-24-02	0.0	46.1	16.3	37.6	97.5	0.1	58.9	459	1
Lab #0676	05-30-02	0.0	45.4	15.0	39.6	97.1	0.1	60.0	466	1
TABLE ROCK ASPHALT CONST CO INC, BRANSON, MO										
Stockpile #1										
Lab #0205	03-07-02	4.0	45.3	7.6	43.1	85.8	10.3	59.0	405	122
Lab #0549	05-07-02	2.2	43.6	8.7	45.5	83.6	10.6	61.6	412	131
Lab #0812	06-18-02	15.1*	33.3	5.9	45.7	89.5	10.1	57.6	0	0
TABLE ROCK ASPHALT CONST CO INC-KIM, BRANSON, MO										
TAYLOR QUARRIES, LOCKWOOD, MO										
Stockpile #1										
Lab #0141	02-27-02	4.4	47.2	13.5	34.9	96.5	0.3	54.8	423	3
Lab #0204	03-05-02	3.4	48.5	12.7	35.4	95.6	0.4	55.1	422	4
Lab #0384	04-10-02	5.0	50.9	12.4	31.7	95.7	0.4	51.9	397	4
TOWER ROCK STONE CO, SCOTT CITY, MO										
Stockpile #2										
Lab #0098	02-21-02	7.5	41.9	12.1	38.5	96.8	1.6	56.2	435	18
Lab #0489	05-01-02	6.6	43.5	10.4	39.5	96.8	1.4	56.6	438	16

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JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
TOWER ROCK STONE CO, STE GENEVIEVE, MO										
Stockpile #1										
Lab #0239	03-14-02	1.6	40.6	13.1	44.7	98.0	1.3	62.7	492	16
Lab #0356	04-09-02	0.5	39.9	14.7	44.9	97.1	1.6	63.7	495	20
Lab #0541	05-08-02	1.1	41.5	14.1	43.3	97.1	1.5	62.1	483	19
Lab #0803	06-21-02	0.1	43.9	12.0	44.0	95.6	2.6	62.2	476	32
Stockpile #2										
Lab #0238	03-14-02	1.2	39.5	11.2	48.1	99.2	9.0	64.7	513	116
Lab #0357	04-09-02	0.4	45.4	10.2	44.0	97.5	9.2	61.5	479	113
Lab #0542	05-08-02	1.1	43.7	11.4	43.8	97.7	8.0	61.6	481	99
Lab #0804	06-21-02	1.6	44.9	9.6	43.9	95.6	8.2	60.9	466	100
TRAGER LIMESTONE, CHILLICOTHE, MO										
Stockpile #1										
Lab #0583	05-10-02	0.1	55.1	8.5	36.3	67.7	1.2	55.2	299	13
Lab #0663	05-28-02	0.0	48.4	8.6	43.0	57.8*	1.3	60.3	0	0
Lab #0842	06-21-02	0.2	51.8	9.2	38.8	69.0	1.2	57.3	316	14
Stockpile #2										
Lab #0843	06-21-02	0.2	50.2	9.5	40.1	69.4	1.4	58.4	324	16
TWIN LAKES QUARRIES INC, MOUNTAIN HOME, AR										
UEHLIN QUARRY, AMAZONIA, MO										
UNITED SUPPLIERS, ELDORA, IA VULCAN MATERIALS, JONESBORO, IL										
Stockpile #1										
Lab #0097	02-19-02	6.6	46.2	10.7	36.5	98.4	0.5	54.5	429	5
Lab #0798	06-17-02	3.0	34.8	10.9	51.3	99.0	0.6	66.5	527	8
WADE AG PRODUCTS-MAIN OFC, LACYGNE, KS										
Stockpile #1										
Lab #0160	02-26-02	5.7	45.4	9.4	39.5	87.0	1.2	56.5	393	14
Lab #0281	03-26-02	7.4	47.6	9.8	35.2	88.6	1.0	53.0	376	11
Lab #0452	04-25-02	5.4	45.5	9.4	39.7	87.6	1.2	56.7	397	14
Lab #0595	05-14-02	9.7	44.7	9.9	35.7	87.2	1.0	52.8	368	11
Stockpile #2										
Lab #0161	02-26-02	2.0	47.1	9.9	41.0	78.9	1.3	58.7	371	15
Lab #0282	03-26-02	1.8	45.7	10.7	41.8	80.7	1.2	59.6	385	14
Lab #0453	04-25-02	1.9	47.0	8.8	42.3	80.4	1.2	59.3	382	14
Lab #0596	05-14-02	2.5	44.0	9.4	44.1	79.5	1.2	60.7	386	15
WADE AG PRODUCTS Q BUTLER MO, LACYGNE, KS										
Stockpile #1										
Lab #0158	02-26-02	5.5	56.4	8.4	29.7	85.2	0.3	48.8	333	3
WADE AG PRODUCTS Q DREXEL, LACYGNE, KS										
Stockpile #1										
Lab #0004	02-05-02	2.0	44.5	9.0	44.5	76.4	1.1	61.0	373	13
Lab #0280	03-26-02	2.8	47.6	9.2	40.4	75.7	1.4	57.8	350	16
Lab #0451	04-25-02	2.4	46.3	9.0	42.3	74.7	1.5	59.3	354	18
Lab #0594	05-14-02	2.8	47.2	9.3	40.7	73.3	1.4	58.1	341	16
WADE AG PRODUCTS Q PLEASANTON, LACYGNE, KS										
Stockpile #1										
Lab #0085	02-18-02	4.8	51.0	8.7	35.5	84.6	1.0	53.5	362	11
Lab #0337	04-01-02	4.7	49.5	9.4	36.4	88.8	0.7	54.4	387	8
Lab #0444	04-23-02	4.6	50.0	8.9	36.5	83.4	1.1	54.3	363	12
Lab #0675	05-29-02	5.2	51.1	8.5	35.2	84.0	0.9	53.1	357	10
Stockpile #2										
Lab #0343	04-01-02	0.0	0.3	2.0	97.7	73.6	0.9	99.0	583	18
Lab #0485	04-23-02	0.1	0.3	2.1	97.5	69.0	0.9	98.8	546	18
FRED WEBER INC.-AUBURN QUARRY, ELSBERRY, MO										
FRED WEBER, INC - FOLEY QUARRY, FOLEY, MO										
Stockpile #2										
Lab #0043	02-12-02	6.2	53.6	18.8	21.4	90.8	2.9	46.1	335	27
Lab #0222	03-11-02	6.2	53.6	7.7	32.5	90.1	2.7	50.5	364	27
Lab #0348	04-10-02	6.4	53.2	8.1	32.3	90.5	2.8	50.5	365	28
Lab #0562	05-09-02	7.5	52.5	7.6	32.4	91.5	2.8	50.1	367	28
FRED WEBER INC-NORTH QUARRY, MARYLAND HEIGHTS, MO										
Stockpile #1										
Lab #0092	02-11-02	0.1	0.9	1.4	97.6	91.9	2.3	98.7	725	45
Lab #0189	03-07-02	0.2	1.2	1.8	96.8	93.4	1.7	98.2	734	33
Lab #0420	04-16-02	0.5	1.3	1.4	96.8	95.9	5.7	98.0	752	112

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## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Distributor	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
FRED WEBER INC-NORTH QUARRY, MARYLAND HEIGHTS, MO (Continued)										
Stockpile #1										
Lab #0711	05-30-02	0.1	0.9	1.7	97.3	93.1	1.9	98.5	734	37
FRED WEBER, INC. - TROY QUARRY, TROY, MO										
WEST LIMESTONE QUARRY, ARCADIA, MO										
WIELAND HAULING INC - PRINCETON, BETHANY, MO										
Stockpile #1										
Lab #0476	04-26-02	4.9	47.1	9.3	38.7	83.1	1.2	56.1	373	13
Lab #0656	05-14-02	6.3	47.8	8.3	37.6	83.1	1.0	54.5	363	11
Lab #0664	05-29-02	8.0	49.8	7.7	34.5	82.3	1.2	51.6	340	12
WILKERSON BROS QUARRY, PARIS, MO										
Stockpile #1										
Lab #0010	02-08-02	6.9	45.5	12.1	35.5	87.8	0.1	54.1	380	1
Lab #0180	03-07-02	0.6	42.5	15.0	41.9	87.9	0.3	61.5	433	4
Lab #0411	04-16-02	1.4	49.7	12.4	36.5	83.3	0.5	56.4	376	6
Lab #0608	05-20-02	0.1	50.3	11.2	38.4	88.0	0.1	57.7	406	1
Stockpile #2										
Lab #1744	12-07-00	7.4	44.9	11.1	36.6	89.2	3.1	54.5	389	34
Lab #0011	02-08-02	13.0*	46.2	10.3	30.5	87.9	0.2	48.2	0	0
WILLIAMSVILLE STONE CO, POPLAR BLUFF, MO										
Stockpile #1										
Lab #0001	01-15-02	11.8*	41.7	11.2	35.3	97.4	12.1	52.4	0	0
Lab #0056	02-12-02	6.4	44.7	11.0	37.9	96.4	11.8	55.7	429	131
Lab #0143	02-25-02	7.7	41.6	10.4	40.3	97.4	11.9	56.9	444	136
Lab #0198	03-04-02	6.0	39.0	13.1	41.9	97.1	12.0	59.5	462	143
Lab #0264	03-18-02	9.5	42.5	10.7	37.3	99.9	12.3	54.3	434	134
Lab #0533	05-08-02	12.4*	40.6	10.1	36.9	96.2	12.4	53.1	0	0
Stockpile #2										
Lab #0534	05-08-02	0.0	0.8	6.0	93.2	100.9	12.9	97.0	783	0

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TABLE 2

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
AG DISTRIBUTORS, CATRON, MO										
VULCAN MATERIALS, JONESBORO, IL										
Lab #0147	02-27-02	5.0	41.8	11.8	41.4	98.8	0.5	58.9	466	6
AGRI SERVICES OF LEBANON, LEBANON, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #0415	04-15-02	0.1	15.0	16.3	68.6	97.6	0.2	82.1	641	3
BACKES & TOLKE, NEW HAVEN, MO										
BACKES & TOLKE, NEW HAVEN, MO										
Lab #0717	05-16-02	11.3*	35.9	6.8	46.0	81.5	9.7	59.1	0	0
BARTLETT & CO, HIGGINSVILLE, MO										
BARTLETT & CO, HIGGINSVILLE, MO										
Lab #0286	03-21-02	5.6	48.4	10.1	35.9	97.6	1.3	54.1	422	14
BEAUFORT FEED STORE, BEAUFORT, MO										
BEAUFORT FEED STORE, BEAUFORT, MO										
Lab #0721	06-04-02	15.1*	38.2	6.4	40.3	79.5	9.4	53.7	0	0
BLAIR FEED & GRAIN INC, NEW MELLE, MO										
MAGRUDER LIMESTONE CO Q TROY, TROY, MO										
Lab #0641	05-23-02	4.6	51.9	6.9	36.6	85.1	3.1	53.7	366	33
BOOTHEEL LIMESTONE, KENNETT, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0018	02-05-02	4.6	10.8	26.2	58.4	101.0	12.4	76.8	621	191
BOOTHEEL LIMESTONE - SENATH, KENNETT, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0017	02-05-02	4.3	11.7	23.3	60.7	101.2	12.4	77.6	628	192
BROWN'S AGRISERVICE, ROCKPORT, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #0052	02-08-02	0.0	0.1	1.3	98.6	84.5	0.9	99.4	672	18
CARL BUCK, CONWAY, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #0512	05-02-02	0.3	17.5	16.0	66.2	97.1	0.2	80.2	623	3
DELTA GROWERS ASSN-EAST PRAIRIE, CHARLESTON, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0142	02-25-02	6.8	10.5	20.1	62.6	100.8	12.5	77.3	623	193
EAKIN LIME SERVICE, BELL CITY, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0016	02-04-02	6.0	14.4	24.8	54.8	101.8	12.4	73.3	597	182
FARMERS COOPERATIVE ASSN #301, SULLIVAN, MO										
BUSSEN QUARRIES INC-EUREKA/ANTIRE, EUREKA, MO										
Lab #0090	02-12-02	0.5	35.0	10.9	53.6	92.0	3.7	68.9	507	51
FOWLER ELEVATOR INC, NEWTOWN, MO										
KELLY LIME & ROCK, LA PLATA, MO										
Lab #0203	03-06-02	2.8	11.6	4.1	81.5	90.9	1.1	86.9	632	19
FOWLER ELEVATOR, UNIONVILLE, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0732	06-04-02	1.5	15.9	4.0	78.6	93.3	1.4	85.0	634	24
GIBSON LIME CO-DEXTER, DEXTER, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0015	02-04-02	5.3	10.0	21.0	63.7	99.9	12.3	78.8	630	194
HAWK FERTILIZER, BOLIVAR, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #0164	02-27-02	0.0	10.1	14.5	75.4	98.0	0.1	86.6	679	2
LOUIS HERZTING JR, FREEBURG, MO										
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Lab #0036	02-07-02	0.0	2.0	8.2	89.8	89.7	10.8	95.2	683	206
KABLE (CLIFFORD), THOMPSON, MO										
AUXVASSE STONE & GRAVEL CO, KINGDOM CITY, MO										
Lab #0040	02-11-02	1.4	42.6	9.9	46.1	96.2	5.0	62.7	482	63
KELLY LIME & ROCK, LA PLATA, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0082	02-11-02	5.5	43.1	7.6	43.8	90.7	1.3	59.1	429	15
KEN MO AG CENTER, KENNETT, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0638	05-06-02	3.2	9.8	23.6	63.4	100.4	12.4	80.0	643	198

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TABLE 2

## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
KINDER PLANT FOOD, LICKING, MO										
LEAD BELT MATERIALS CO INC, FLAT RIVER, MO										
Lab #0248	03-13-02	0.1	1.2	6.0	92.7	92.5	10.4	96.6	715	201
JERRY LINHART, FAYETTE, MO										
SOUTHDOWN, INC., COLUMBIA, MO										
Lab #0118	02-12-02	4.4	47.5	10.7	37.4	93.4	2.4	55.7	416	27
LINNEMAN LIME & FERT, SALISBURY, MO										
NORRIS AGGREGATE PRODUCTS CO - WEST, MOBERLY, MO										
Lab #0354	04-10-02	1.6	30.0	16.7	51.7	83.4	1.3	69.2	462	18
MFA AGRI SERVICE, KIRKSVILLE, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0233	03-14-02	3.3	14.5	3.7	78.5	89.8	1.1	84.3	606	19
MFA EXCHANGE, CHAMOI, MO										
MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO										
Lab #0272	03-18-02	5.6	50.3	12.3	31.8	92.0	0.3	51.8	381	3
MFA EXCHANGE, META, MO										
MFA EXCHANGE, META, MO										
Lab #0710	05-29-02	0.5	40.4	14.1	45.0	97.3	11.7	63.6	495	149
MFA AGRI SERVICES, ADVANCE, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0199	03-07-02	5.2	11.3	23.6	59.9	101.3	12.0	76.9	623	185
MFA AGRI SERVICE, BETHANY, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #0578	05-08-02	0.0	0.2	0.9	98.9	76.5	1.4	99.5	609	28
MFA AGRI SERVICE, BROOKFIELD, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0109	02-19-02	3.2	15.8	4.6	76.4	90.9	1.1	83.1	604	18
MFA AGRI SERVICE, BROWNING, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0113	02-22-02	3.8	12.6	3.7	79.9	88.3	1.1	85.3	60	19
MFA AGRI SERVICE, FREEBURG, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #0321	03-28-02	0.0	2.1	9.6	88.3	93.2	10.4	94.6	705	197
MFA AGRI SERVICE-WEST, HALE, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0367	04-05-02	3.3	12.4	3.4	80.9	91.0	1.1	86.0	626	19
MFA AGRI SERVICE, HIGGINSVILLE, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #0287	03-21-02	0.1	5.4	6.1	88.4	91.1	2.1	93.4	681	39
MFA AGRI SERVICE, LANCASTER, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0112	02-21-02	2.5	12.1	3.9	81.5	89.6	1.0	86.9	623	17
FARMERS PRODUCE EXCHANGE, LEBANON, MO										
CONCO QUARRIES INC Q US 160, WILLARD, MO										
Lab #0072	02-11-02	0.9	12.0	14.9	72.2	98.1	0.4	84.1	660	7
MFA AGRI SERVICE, LEXINGTON, MO										
BLUFF CITY MINERALS CO., ALTON, IL										
Lab #0263	03-18-02	0.0	4.3	5.4	90.3	91.2	2.2	94.6	690	42
MFA AGRI SERVICE, MACON, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0084	02-15-02	3.5	12.3	3.0	81.2	90.0	1.1	86.1	620	19
MFA AGRI SERVICE, MARYVILLE, MO										
AMPEL, INC.-WEEPING WATER NE PLANT, DES MOINES, IA										
Lab #0108	02-21-02	0.0	0.4	1.1	98.5	84.0	0.8	99.3	667	16
MFA AGRI SERVICE, MILAN, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0114	02-22-02	3.1	14.0	5.0	77.9	90.6	1.1	84.4	612	19
MFA AGRI SERVICE, NEW CAMBRIA, MO										
MISSISSIPPI LIME MANAGEMENT COMPANY, ALTON, IL										
Lab #0480	04-25-02	0.2	8.7	6.9	84.2	91.4	2.1	90.5	662	38
MFA AGRI SERVICE, OWENSVILLE, MO										
CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO										
Lab #0276	03-19-02	0.3	26.0	11.3	62.4	93.4	0.2	75.7	565	3

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## AGRICULTURAL LIMING MATERIALS SAMPLED FROM

JANUARY 1 THROUGH JUNE 30, 2002

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
MFA AGRI SERVICE, ST CLAIR, MO										
	MISSOURI LIME AND MATERIAL CO., INC, EUREKA, MO									
Lab #0422	04-18-02	0.3	32.2	16.3	51.2	95.3	0.2	69.0	526	3
MFA EXCHANGE, SALEM, MO										
	BLUFF CITY MINERALS CO., ALTON, IL									
Lab #0727	06-05-02	0.1	10.8	10.1	79.0	91.4	1.8	87.8	642	32
MFA AGRI SERVICE, SALISBURY, MO										
	KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO									
Lab #0151	02-27-02	3.4	14.8	4.8	77.0	89.5	1.1	83.6	599	18
MFA AGRI SERVICE, TRENTON, MO										
	MK MINERALS INC., MANHATTAN, KS									
Lab #0083	02-13-02	0.1	0.2	1.0	98.7	85.6	0.7	99.4	680	14
MFA AGRI SERVICE, UNIONVILLE, MO										
	KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO									
Lab #0046	02-07-02	4.4	14.6	3.7	77.3	89.6	0.8	83.2	596	13
MFA AGRI SERVICE, VERSAILLES, MO										
	BLUFF CITY MINERALS CO., ALTON, IL									
Lab #0278	03-25-02	0.0	4.5	5.7	89.8	90.7	2.0	94.3	685	38
MRM AG SERVICE INC, EAST PRAIRIE, MO										
	RUBLE ROCK & LIME INC, PIEDMONT, MO									
Lab #0244	03-15-02	3.0	8.5	28.4	60.1	102.3	12.8	79.3	649	203
NODAWAY HOLT FERTILIZER, SKIDMORE, MO										
	MK MINERALS INC., MANHATTAN, KS									
Lab #0053	02-05-02	0.0	0.1	1.1	98.8	84.1	0.8	99.5	669	16
LEO O'LAUGHLIN, MACON, MO										
	CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO									
Lab #0305	03-27-02	1.0	30.6	12.4	56.0	90.1	0.4	71.1	512	6
LEO O'LAUGHLIN INC, MARCELINE, MO										
	CENTRAL STONE COMPANY - HUNTINGTON, HANNIBAL, MO									
Lab #0148	02-25-02	1.3	17.2	9.9	71.6	91.6	0.3	81.8	600	5
OLEAN SEED COMPANY, OLEAN, MO										
	APAC MO INC CENTRAL COMPANIES DYL, OSAGE BEACH, MO									
Lab #0038	02-08-02	3.2	47.9	13.2	35.7	84.4	10.6	55.6	375	118
RAY CARROLL CO-CARROLLTON, RICHMOND, MO										
	MK MINERALS INC., MANHATTAN, KS									
Lab #0326	04-04-02	0.0	0.1	0.9	99.0	78.2	1.1	99.6	623	22
RICHLAND PLANT FOODS, RICHLAND, MO										
	CONCO QUARRIES INC Q US 160, WILLARD, MO									
Lab #0320	03-27-02	0.0	13.0	15.2	71.8	98.3	0.2	84.2	662	3
SCHAEPERKOETTER STORE, MT STERLING, MO										
	MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO									
Lab #0122	02-20-02	6.1	49.5	12.0	32.4	90.3	0.2	52.0	375	2
S & S BEGGS LIME SERVICE-JACKSON, JACKSON, MO										
	RUBLE ROCK & LIME INC, PIEDMONT, MO									
Lab #0265	03-21-02	5.0	13.2	22.6	59.2	98.8	12.1	76.1	601	184
SOUTHEAST COOP SERVICE, PUXICO, MO										
	RUBLE ROCK & LIME INC, PIEDMONT, MO									
Lab #0145	02-26-02	5.1	11.2	23.4	60.3	101.7	12.4	77.1	628	191
JOE SPALDING, BENTON, MO										
	RUBLE ROCK & LIME INC, PIEDMONT, MO									
Lab #0054	02-08-02	5.2	10.9	22.9	61.0	100.6	12.5	77.5	623	194
SPRINGFIELD AGGREGATES SUPPLY, NIXA, MO										
	CONCO QUARRIES INC Q US 160, WILLARD, MO									
Lab #0778	06-13-02	0.1	13.6	16.3	70.0	98.3	0.2	83.2	654	3
SUR-GRO PLANT FOOD, KING CITY, MO										
	AMPEL, INC.-WEEPING WATER NE PLANT, DES MOINES, IA									
Lab #0194	03-05-02	0.0	0.3	1.5	98.2	80.4	0.8	99.2	638	16
SUR-GRO PLANT FOOD, PLATTSBURG, MO										
	AMPEL, INC.-WEEPING WATER NE PLANT, DES MOINES, IA									
Lab #0101	02-19-02	0.0	0.2	1.3	98.5	80.1	0.8	99.3	637	16
WEST CENTRAL AGRISERVICE, CENTERVIEW, MO										
	MK MINERALS INC., MANHATTAN, KS									
Lab #0050	02-11-02	0.0	0.1	1.2	98.7	83.7	0.8	99.4	666	16

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JANUARY 1 THROUGH JUNE 30, 2002**

Dealer and Producer	Date Sampled	U.S. Sieve Fraction, %				%CCE	%Mg	Fineness Factor	Pounds/Ton	
		+8	-8+40	-40+60	-60				ENM	EMg
WEST CENTRAL AGRISERVICE, LLC, HARRISONVILLE, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #0211	03-06-02	0.0	0.2	1.1	98.7	87.4	0.5	99.4	695	10
WEST CENTRAL AGRISERVICES LLC, HOLDEN, MO										
MK MINERALS INC., MANHATTAN, KS										
Lab #0323	04-02-02	0.0	0.2	1.1	98.7	84.8	1.1	99.4	674	22
WETHINGTON LIME SERVICE, BLOOMFIELD, MO										
RUBLE ROCK & LIME INC, PIEDMONT, MO										
Lab #0144	02-26-02	7.9	12.9	22.2	57.0	102.3	12.5	73.5	602	184
WOODY BOGLER LIME-ROSEBUD, ROSEBUD, MO										
MID-MISSOURI LIMESTONE INC-MBQ, KINGDOM CITY, MO										
Lab #0274	03-20-02	5.7	49.0	12.2	33.1	91.2	0.3	52.7	384	3
WORTHINGTON AG SERVICE, WORTHINGTON, MO										
KELLY LIME & ROCK CO., INC., KIRKSVILLE, MO										
Lab #0234	03-14-02	3.4	12.7	4.6	79.3	91.7	1.2	85.2	625	20

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# Agricultural Experiment Station

University of Missouri-Columbia

Office of the Director  
Fertilizer Control Services

Columbia, MO 65211

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(573) 882-4891

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September 24, 2002

TO: AG LIMING MATERIALS PRODUCERS AND DISTRIBUTORS

SUBJECT: PRODUCER PERMITS TO SELL AG LIMING MATERIALS IN MISSOURI FOR FISCAL YEAR 2002-03.

The following producers have been issued permits to sell ag liming materials in Missouri for the fiscal year ending June 30, 2003. You will be notified when additional permits are issued.

Sales to other registered producers are exempt from inspection fee, but must be reported as a sales transaction semi-annually.

The last producer selling agricultural liming materials to a non-producer is responsible for paying the tonnage inspection fee to the Director of the Missouri Agricultural Experiment Station, Columbia, Missouri (Missouri Agricultural Liming Materials Law 266.500 to 266.550).

0010	76 QUARRY	1726 QUARRY ROAD	MANSFIELD MO 65704
0020	ADRIAN ROCK, INC	RR2 BOX 447	ADRIAN MO 64720
0030	AIRGAS - MID AMERICA	9221 WHEELER ARCHER RD	MOUNTAIN GROVE MO 65711
0040	ALBY QUARRY	P.O. BOX 206	CARLINVILLE IL 62626
0060	ALLEN QUARRIES INC	PO BOX A	LOCKWOOD MO 65682
0090	APAC-MISSOURI, INC. - BOONVILLE	PO BOX 117	COLUMBIA MO 65205-1117
0100	APAC-MISSOURI, INC.	P.O. BOX 1117	COLUMBIA MO 65205-1117
0110	APAC-MISSOURI, INC. - LANAGAN	PO BOX 1187	SPRINGFIELD MO 65802
0120	APAC-MISSOURI, INC. - LAURIE	PO BOX 1117	COLUMBIA MO 65205
0130	APAC-MISSOURI, INC. - LINN CREEK	ROUTE 1 BOX 104	LINN CREEK MO 65052
0140	APAC-MISSOURI, INC. - COLUMBIA	PO BOX 1187	SPRINGFIELD MO 65802
0150	APAC-MISSOURI, INC. - MARSHALL	RT 1 BOX 33	MARSHALL MO 65340
0160	APAC-MISSOURI, INC. - NETTLETON	PO BOX 1117	COLUMBIA MO 65205
0170	APAC MO INC CENTRAL COMPANIES DYL	PO BOX 909	OSAGE BEACH MO 65065
0180	APAC MISSOURI CENTRAL COMPANIES	PO BOX 909	OSAGE BEACH MO 65065
0200	APAC-MISSOURI INC. - ROARK CREEK	PO BOX 1187	SPRINGFIELD MO 65802
0210	ARKANSAS LIME COMPANY, INC.	P O BOX 2356	BATESVILLE AR 72503
0220	ASC MINERALS PROCESSING	PO BOX 200	ALLERTON IL 61810
0240	ASH GROVE AGGREGATES INC-APPLETON	HWY 52 WEST-BOX 70	BUTLER MO 64730
0250	ASH GROVE AGGREGATES-ELDORADO SPRIN	HWY 52 WEST BOX 70	BUTLER MO
0260	ASH GROVE AGGREGATES INC-BUTLER	HWY 52 WEST-BOX 70	BUTLER MO 64730
0270	ASH GROVE AGGREGATES INC-RICHHILL	HWY 52 WEST-BOX 70	BUTLER MO 64730
0280	ASH GROVE AGGREGATES INC-LACYGNE	HWY 52 WEST-BOX 70	BUTLER MO 64730
0290	ASH GROVE AGGREGATES INC-MARSHFIELD	HWY 52 WEST-BOX 70	BUTLER MO 64730
0300	ASH GROVE AGGREGATES INC-MONTEVALLO	HWY 52 WEST-BOX 70	BUTLER MO 64730
0310	ASH GROVE AGGREGATES INC-OSCEOLA	HWY 52 WEST-BOX 70	BUTLER MO 64730
0320	ASH GROVE AGGREGATES INC-PITTSBURG	HWY 52 WEST - BOX 70	BUTLER MO 64730
0330	ASH GROVE AGGREGATES INC-FT SCOTT	HWY 52 WEST-BOX 70	BUTLER MO 64730
0340	ASH GROVE AGGREGATES INC.-STOCKTON	HWY 52 WEST-BOX 70	BUTLER MO 64730
0350	ASH GROVE AGGREGATES INC-WHEATLAND	HWY 52 WEST-BOX 70	BUTLER MO 64730
0360	ASH GROVE AGGREGATES INC-FT SCOTT E	HWY 52 WEST-BOX 70	BUTLER MO 64730
0370	ASH GROVE AGGREGATES INC-BOLIVAR	HWY 52 WEST-BOX 70	BUTLER MO 64730
0380	ASH GROVE AGGREGATES INC-BUFFALO	HWY 52 WEST-BOX 70	BUTLER MO 64730

0390	BAILEY QUARRIES INC-CHESAPEAKE Q.	22699 HWY 174	MT VERNON MO 65712
0410	BAILEY QUARRIES INC-JANE	ROUTE #1-BOX 1043	JANE MO 64856
0420	BAILEY QUARRIES, INC.-MADRY QUARRY	RT. #1 BOX 96AA	VERONA MO 65769
0430	BAILEY QUARRIES INC-STOCKTON	16370 S 1225 RD	STOCKTON MO 65785
0440	BARBER & SONS AGGREGATES	11400 S 7 HWY	LEE'S SUMMIT MO 64063
0450	BARRETT MATERIALS INC	3880 BOEUF CREEK RD	NEW HAVEN MO 63068
0470	JAMES ELROD TRUCK SERVICE	HCR 2 BOX 48	BELLE MO 65013
0490	BLUFF CITY MINERALS CO.	PO BOX 2247	ALTON IL 62002
0500	BOONE QUARRIES INC	2604 N. STADIUM BLVD.	COLUMBIA MO 65202
0510	BOONE QUARRIES - EAST	2604 N STADIUM BLVD	COLUMBIA MO 65202
0530	CALCIUM PRODUCTS, INC.	P.O. BOX 281	GILMORE CITY IA 50541
0550	CAPITAL QUARRIES, INC-STADIUM WEST	822 W STADIUM BLVD. PO BOX 534	JEFFERSON CITY MO 65109
0560	CAPITAL QUARRIES INC-ROLLA Q #4	822 W STADIUM BLVD, PO BOX 534	JEFFERSON CITY MO 65109
0580	CAPITAL QUARRIES INC-CALIFORNIA Q#5	822 W STADIUM BLVD, PO BOX 534	JEFFERSON CITY MO 65109
0610	CAPITAL QUARRIES INC-SULLIVAN	3105 HWY FF	BOURBON MO 65441
0620	CARROLL COUNTY STONE, INC.	PO BOX 430	REPUBLIC MO 65738
0630	CARTHAGE CRUSHED LIMESTONE	P.O. BOX 1086	CARTHAGE MO 64836
0635	CASPER'S QUARRY	1164 TREE FARM ROAD	HIGH HILL MO 63350
0640	CENTRAL STONE COMPANY - HUNTINGTON	46445 SWEETBAY LANE	HANNIBAL MO 63401
0650	CENTRAL STONE COMPANY - BETHEL	BOX 77	BETHEL MO 63434-0077
0660	CENTRAL STONE CO - FORT BELLE - #31	14200 LEWIS & CLARK	FLORISSANT MO 63034
0670	CENTRAL STONE CO - FORT BELLE -WEST	14200 LEWIS & CLARK	FLORISSANT MO 63034-182
0680	CENTRAL STONE COMPANY - GREENSBURG	46445 SWEETBAY LANE	HANNIBAL MO 63401-7211
0690	CENTRAL STONE COMPANY - PARIS	16527 HWY 15	PARIS MO 65275
0700	CENTRAL STONE COMPANY - NEW LONDON	56741 QUARRY LANE	NEW LONDON MO 63459-2418
0710	CENTRAL STONE COMPANY - CURRYVILLE	15435 PIKE 27	CURRYVILLE MO 63339-2114
0720	CENTRAL STONE COMPANY - PERRY	46445 SWEETBAY LANE	HANNIBAL MO 63401-7211
0730	CENTRAL STONE COMPANY - EWING	46445 SWEETBAY LANE	HANNIBAL MO 63401-7211
0740	CENTRAL STONE COMPANY - TAYLOR	7040 COUNTY RD 344	TAYLOR MO 63471-0095
0750	CLEVER STONE CO	1075 WISE HILL RD	CLEVER MO 65631
0770	COLONIAL LIMESTONE INC-PRINCETON	370 N STATE ST.	MILAN MO 63556
0790	CONCO QUARRIES	PO BOX 50685	SPRINGFIELD MO 65805
0800	CONCO QUARRIES INC Q US 160	P.O. BOX 172	WILLARD MO 65781
0810	COUNTY LINE QUARRY	58 BETHEL CHURCH RD	WELLSVILLE MO 63384
0820	CRAWFORD LIME & MATERIAL CO	63 WEBER RD	CUBA MO 65453
0830	CRIDER BROTHERS LIME CO	PO BOX 35	EMINENCE MO 65466
0850	DOSS & HARPER STONE CO.	PO BOX 126	HOUSTON MO 65483
0860	DOSS & HARPER STONE CO	P O BOX 888	WEST PLAINS MO 65775
0880	EVERETT QUARRIES #1-LATHROP	PO BOX 276	PLATTSBURG MO 64477
0890	EVERETT QUARRIES #6-KING	PO BOX 276	PLATTSBURG MO 64477
0900	EVERETT QUARRIES #53-CAMERON	PO BOX 276	PLATTSBURG MO 64477
0910	EVERETT QUARRIES #54-GOWER	PO BOX 276	PLATTSBURG MO 64477
0930	EVERETT QUARRIES #59-STANBERRY	P.O. BOX 276	PLATTSBURG MO 64477
0940	FALL VALLEY STONE, INC.	P.O. BOX 287	MT VERNON MO 65712
0960	FISCHER QUARRIES LLC	21427 DUNHAM DR	HUGHESVILLE MO 65334
0980	FULLERTON STONE COMPANY INC	P O BOX 20	GRANBY MO 64844-0020
0990	GABEL STONE COMPANY INC.	2092 COUNTY RD 5900	WILLOW SPRINGS MO 65793
1000	GLASGOW QUARRIES INC	821 CO RD 317	GLASGOW MO 65254
1010	GLASGOW QUARRIES-GILLIAM	ROUTE 1-BOX 107	GILLIAM MO 65330
1020	GLASGOW QUARRIES - MARCELINE	ROUTE 2	MARCELINE MO 64658
1030	HART LIME STONE	P O BOX 942	FARMINGTON MO 63640
1040	HERZOG CONTRACTING CORP	600 S RIVERSIDE RD, BOX 1089	ST JOSEPH MO 64502
1050	HIGGINS - MEEKER QUARRIES LLC	951 SW 51 RD	DEEPWATER MO 64740
1060	HILTY QUARRIES, INC. - QUARLES	PO BOX 407	CLINTON MO 64735
1070	HILTY QUARRIES, INC. - MONTROSE	PO BOX 407	CLINTON MO 64735
1080	HILTY QUARRIES, INC. - MT. ZION	PO BOX 407	CLINTON MO 64735
1090	HILTY QUARRIES, INC- SOUTH-DELL JCT	PO BOX 407	CLINTON MO 64735
1100	HILTY QUARRIES, INC - TIGHTWAD	PO BOX 407	CLINTON MO 64735
1110	HILTY QUARRIES, INC. - URICH	PO BOX 407	CLINTON MO 64735
1120	HILTY QUARRIES INC.-WARRENSBURG	P.O. BOX 407	CLINTON MO 64735
1130	HUNT MIDWEST MINING-BLUE MOUND	24072 HWY Z	DAWN MO 64638
1140	HUNT MIDWEST MINING, INC.-TRENTON	585 NW QUARRY ST	EDINBURG MO 64683
1150	HUNT MIDWEST MINING - HWY 10 QUARRY	5932 HWY 10	RAYVILLE MO 64084
1160	HUNT MIDWEST QUARRY - STET QUARRY	46134 HWY K	RICHMOND MO 64085
1170	HUTCHENS CONSTRUCTION-PURDY	600 MILL STREET-BOX 485	CASSVILLE MO 65625
1180	HUTCHENS CONSTRUCTION-EAGLE ROCK	600 MILL STREET-BOX 485	CASSVILLE MO 65625
1190	HUTCHENS CONSTRUCTION-WASHBURN	600 MILL STREET	CASSVILLE MO 65625
1200	IDEKER INC. - NEW POINT QUARRY	PO BOX 7140	ST JOSEPH MO 64507
1210	IDEKER INC. - AMAZONIA	PO BOX 7140	ST JOSEPH MO 64503
1240	IOWA LIMESTONE CO-WEEPING WATER NE	36320 FLETCHER AVE	WEEPING WATER NE 68463
1250	IOWA MINERAL PROCESSING, INC.	P.O. BOX 33	ALDEN IA 50006
1260	JENKINS QUARRY	P.O. BOX 542	CASSVILLE MO 65625-0542
1280	LEO JOURNAGAN CONST CO-GAINESVILLE	3003 E CHESTNUT EXPWY, STE 1200	SPRINGFIELD MO 65802
1290	LEO JOURNAGAN CONST CO-HOLLISTER SO	3003 E. CHESTNUT SUITE 1200	SPRINGFIELD MO 64802
1300	LEO JOURNAGAN CONST CO INC-OZARK	3003 E CHESTNUT EXPRESSWAY	SPRINGFIELD MO 65802

1310	LEO JOURNAGAN CONST CO INC-AVA	3003 EAST CHESTNUT EXPY	SPRINGFIELD MO 65802
1320	LEO JOURNAGAN CONST. - SHELL KNOB	PO BOX 468	SHELL KNOB MO 65747
1330	JOPLIN STONE CO Q DUENWEG	4378 COUNTY RD 190	JOPLIN MO 64801
1340	KELLY LIME & ROCK CO., INC.	PO BOX 725	KIRKSVILLE MO 63501
1350	KELLEY QUARRY	19695 N HWY 133	CROCKER MO 65452
1370	KERFORD LIMESTONE CO	PO BOX 449	WEeping WATER NE 68463
1380	KEYSTONE QUARRY	435 SE 13 HWY	WARRENSBURG MO 64093
1400	KNOX COUNTY STONE CO	PO BOX 39	EDINA MO 63537-0039
1430	L & W QUARRIES INC.	P.O. BOX 48	KAHOKA MO 63445
1440	LAFARGE QUARRY	P.O. BOX 1232	SEDALIA MO 65302-1232
1460	LAFARGE CORPORATION	P.O. BOX 1232	SEDALIA MO 65302-1232
1470	LAFARGE CONSTRUCTION MATERIALS	2115 S. RIVER RD	ST CHARLES MO 63303
1480	LAFARGE CONSTRUCTION MATERIALS	18259 QUARRY ROAD	WARRENTON MO 63383
1500	LEAD BELT MATERIALS CO INC	PO BOX 607	FLAT RIVER MO 63601
1510	LILE QUARRY INC.	2868 N. FR 231	STRAFFORD MO 65757
1520	LIMPUS QUARRIES, INC. (BATES CITY)	1317 HWY Z	BATES CITY MO 64011
1530	LIMPUS QUARRIES, INC. (GARDEN CITY)	PO BOX 40	HARRISONVILLE MO 64701-0040
1540	LIMPUS QUARRIES, INC. (GALLATIN)	P.O. BOX 40	HARRISONVILLE MO 64701-0040
1550	LIMPUS QUARRIES, INC. (HARRISONVILLE)	P.O. BOX 40	HARRISONVILLE MO 64701-0040
1560	LIMPUS QUARRIES, INC. (HOLDEN)	PO BOX 40	HARRISONVILLE MO 64701
1570	LIMPUS QUARRIES, INC.-SUGAR CREEK	PO BOX 40	HARRISONVILLE MO 64701
1580	MAGRUDER LIMESTONE CO-ASHLEY	13614 PIKE 496	BOWLING GREEN MO 63334
1590	MAGRUDER LIMESTONE CO, INC.-BOWLING	13614 PIKE 496	BOWLING GREEN MO 63334
1600	MAGRUDER LIMESTONE CO-FRANKFORD	13614 PIKE 496	BOWLING GREEN MO 63334
1610	MAGRUDER LIMESTONE - SILEX QUARRY	255 WATSON RD	TROY MO 63379
1620	MAGRUDER LIMESTONE CO Q TROY	255 WATSON ROAD	TROY MO 63379
1630	MANSFIELD LIME & STONE	1726 QUARRY ROAD	MANSFIELD MO 65704
1680	MARTIN MARIETTA AGGREGATES-JEFFRIES	RR 1	DAVIS CITY IA 50065
1690	MARTIN MARIETTA AGGREGATES-MERCER	ROUTE 1 BOX 222	MERCER MO 64461
1700	MARTIN MARIETTA MATERIALS-WATTERSON	RR 2, BOX 100A	MT AYR IA 50854
1710	MARTIN MARIETTA AGGREGATES-GOODEN	38139 230TH STREET, P O BOX 188	RAVENWOOD MO 64479
1720	MARTIN MARIETTA AGG - APPLETON	521 QUARRY LN	PERRYVILLE MO 63775
1730	MARTIN MARIETTA AGGREGATES-BARNARD	36714 JET ROAD	BARNARD MO 64423
1740	MARTIN MARIETTA AGGREGATES-BETHANY	29365 OUTER ROAD, P O BOX 116A	BETHANY MO 64424
1750	MARTIN MARIETTA AGGREGATES - BREIT	16298 HWY 71, P.O. BOX 269	SAVANNAH MO 64485
1760	MARTIN MARIETTA AGGREGATES-GALLATIN	21901 STATE HWY 13, P O BOX 93	GALLATIN MO 64640
1770	MARTIN MARIETTA-GREENWOOD	15719 S AIRPORT ROAD, P O BOX 292	GREENWOOD MO 64034
1780	MARTIN MARIETTA AGGREGATES-MAITLAND	34635 HOLT 190, P O BOX 269	SAVANNAH MO 64485
1790	MARTIN MARIETTA	P.O. BOX 225	PATTONSBURG MO 64670
1800	MARTIN MARIETTA MATERIALS-PECULIAR	7410 E STATE YY	PECULIAR MO 64078
1810	MARTIN MARIETTA AGG-PERRYVILLE	521 QUARRY LANE	PERRYVILLE MO 63775
1820	MARTIN MARIETTA AGGREGATE-PRINCETON	RR 1 BOX 122	MERCER MO 64661-9720
1840	MARTIN MARIETTA AGGREGATES- TRENTON	38 NW HWY 146	TRENTON MO 64683
1850	MARTIN MARIETTA AGGREGATES INC	15601 WEEPING WATER ROAD, POB 448	WEeping WATER NE 68463
1870	MERTENS CONST CO-AUXVASSE	P.O. BOX 52 54	KINGDOM CITY MO 65262
1880	MERTENS CONST CO-Q-REFORM	6288 COUNTY RD 133	FULTON MO 65251
1890	MFA INC	201 RAY YOUNG DR	COLUMBIA MO 65201-3599
1900	MID-MISSOURI LIMESTONE INC-MBQ	P O BOX 52	KINGDOM CITY MO 65262
1910	MID-MISSOURI LIMESTONE, INC.-HOUSTO	BOX 100 - 2 TRICKUM RD	HOUSTONIA MO 65333
1920	MID-MISSOURI LIMESTONE-RIGGS	PO BOX 52	KINGDOM CITY MO 65262
1930	MIDWEST MINERALS INC	ROUTE 1-BOX 39B	JASPER MO 64755
1950	MISSISSIPPI LIME COMPANY	16147 US HIGHWAY 61	STE GENEVIEVE MO 63670
1970	MISSOURI LIME AND MATERIAL CO., INC	6800 BUSSEN RD-BOX 507	EUREKA MO 63025
1980	MISSOURI VALLEY MATERIALS	200 W. 12TH ST	WASHINGTON MO 63090
1990	MK MINERALS INC.	315 HOUSTON ST STE A	MANHATTAN KS 66502-6172
2000	MORRIS ROCK	RR#1-BOX 47A	DEERFIELD MO 64741
2010	MOUNTAIN GROVE QUARRY	2504 LIMESTONE DR	MOUNTAIN GROVE MO 65711
2020	MUENKS BROS. QUARRY	ROUTE 1-BOX 163	LOOSE CREEK MO 65054
2030	NELSON BROS. QUARRIES	PO BOX 334	JASPER MO 64755
2035	NEMO SAND & GRAVEL QUARRY - BUFFALO	RT 2 BOX 2471	HERMITAGE MO 65668
2040	NEMO SAND & GRAVEL, QUARRY	RT 2-BOX 2471	HERMITAGE MO 65668
2050	NORRIS AGGREGATE PRODUCTS CO - EAST	PO BOX 582	MOBERLY MO 65270
2060	NORRIS AGGREGATE PRODUCTS CO - WEST	PO BOX 582	MOBERLY MO 65270
2080	NUTRI-JECT SYSTEMS INC.	P.O. BOX 398	HUDSON IA 50643
2090	LEO O'LAUGHLIN INC	PO BOX 197	SHELBY MO 63468
2130	PHENIX ROCK	12940 W FARM ROAD 34	ASH GROVE MO 65604
2150	PRESTAGE QUARRIES INC	P O BOX 787	TIPTON MO 65081
2160	ROCK QUARRIES, LLC	PO BOX 620	MOUNTAIN GROVE MO 65711
2170	RUBLE ROCK & LIME INC	422 SOUTH MAIN	PIEDMONT MO 63957
2180	S & A CONSTRUCTION LTD	P.O. BOX 20	ALLENDALE MO 64420
2200	SCHILDBERG CONST. CO.-BEDFORD Q.	P O BOX 358	GREENFIELD IA 50849
2210	SCHILDBERG CONST. CO.-GRAHAM MO Q	P O BOX 358	GREENFIELD IA 50849
2220	SCHILDBERG CONST. CO.-SHAMBAUGH Q	P.O. BOX 358	GREENFIELD IA 50849
2230	SCHILDBERG CONST. CO.-THURMAN	P.O. BOX 358	GREENFIELD IA 50849
2240	SOUTHWEST QUARRY & MATERIAL INC	13073 STATE RT CC	ROLLA MO 65401
2250	SPRINGFIELD UNDERGROUND, INC.	P.O. BOX 2240	SPRINGFIELD MO 65801-2240

2260	S-S-S INC	PO BOX 474	LOUISIANA MO 63353
2270	STANPHILL STONE	PO BOX 146	PIERCE CITY MO 65723
2280	T & M STONE LLC	530 E 460TH RD	FAIR PLAY MO 65649
2290	TABLE ROCK ASPHALT CONST CO INC	PO BOX 1165	BRANSON MO 65615
2300	TABLE ROCK ASPHALT CONST CO INC-KIM	PO BOX 1165	BRANSON MO 65615
2310	TAYLOR QUARRIES	RT 3 BOX 200	LOCKWOOD MO 65682-9538
2320	TOWER ROCK STONE CO	834 COUNTY ROAD 307	SCOTT CITY MO 63780
2330	TOWER ROCK STONE CO	ROUTE 2-LOWER FRENCHMAN RD-BOX 111	STE GENEVIEVE MO 63670
2350	TRAGER LIMESTONE	6468 HWY Y	CHILLICOTHE MO 64601
2360	TWIN LAKES QUARRIES INC	PO BOX 705	MOUNTAIN HOME AR 72653
2370	UEHLIN QUARRY	P.O. BOX 7	AMAZONIA MO 64421
2380	UNITED SUPPLIERS	PO BOX 538	ELDORA IA 50627
2390	VULCAN MATERIALS	PO BOX AA	JONESBORO IL 62952
2400	WADE AG PRODUCTS-MAIN OFC	PO BOX 38	LACYGNE KS 66040
2420	WADE AG PRODUCTS Q DREXEL	P O BOX 38	LACYGNE KS 66040
2430	WADE AG PRODUCTS Q PLEASANTON	P.O. BOX 38	LACYGNE KS 66040
2440	FRED WEBER INC.-AUBURN QUARRY	3903 HWY B	ELSBERRY MO 63343
2450	FRED WEBER, INC - FOLEY QUARRY	765 N HWY 79	FOLEY MO 63347
2460	FRED WEBER INC-NORTH QUARRY	2320 CREVE COEUR MILL RD-BOX 2501	MARYLAND HEIGHTS MO 63043
2470	FRED WEBER, INC. - TROY QUARRY	2060 MYERS ROAD	TROY MO 63379
2500	WIELAND HAULING INC - PRINCETON	26341 E 330 ST	BETHANY MO 64424
2510	WILKERSON BROS QUARRY	20429 MONROE RD 962	PARIS MO 65275
2520	WILLIAMSVILLE STONE CO	PO BOX 234	POPLAR BLUFF MO 63902

EXAMPLES OF FINENESS FACTOR CALCULATION, ENM, AND EMg

DERIVATION OF FINENESS FACTOR

EXAMPLE

<u>US Standard Sieve Fractions</u>	<u>Efficiency Index</u>		<u>% Found in sample</u>	=	<u>Fineness Components</u>
Retained on 8	0	x	<u>4.0</u>	=	<u>0</u>
Pass. 8-Ret. on 40	.25	x	<u>34.0</u>	=	<u>8.5</u>
Pass. 40-Ret. on 60	.60	x	<u>10.0</u>	=	<u>6.0</u>
Passing 60	1.00	x	<u>52.0</u>	=	<u>52.0</u>

Sum of fineness components = FINENESS FACTOR = 66.5

EFFECTIVE NEUTRALIZING MATERIALS (pounds per ton)

$$\text{Formula: ENM} = \frac{\% \text{ CCE}}{100} \times \frac{\text{FINENESS FACTOR}}{100} \times 800$$

DRY AG LIME

	<u>FINENESS FACTOR</u>						
<u>% CCE</u>	<u>100</u>	<u>90</u>	<u>80</u>	<u>70</u>	<u>60</u>	<u>50</u>	<u>40</u>
100	800	720	640	560	480	400	320
90	720	648	576	504	432	360	288
80	640	576	512	448	384	320	256
70	560	504	448	392	336	280	224
65*	520	468	416	364	312	260	208

\* 65% is minimum % CCE allowed for dry lime

FLUID AG LIME

60	480	432	384
50	400	360	320
40	320	288	256
30	240	216	192
20	160	144	128
10	80	72	64

EFFECTIVE MAGNESIUM (pounds per ton)

$$\text{Formula: EMg} = \frac{\% \text{ Mg}}{100} \times \frac{\text{FINENESS FACTOR}}{100} \times 2000$$

	<u>FINENESS FACTOR</u>						
<u>% Mg</u>	<u>100</u>	<u>90</u>	<u>80</u>	<u>70</u>	<u>60</u>	<u>50</u>	<u>40</u>
13	260	234	208	182	156	130	104
11	220	198	176	154	132	110	88
9	180	162	144	126	108	90	72
7	140	126	112	98	84	70	56
5	100	90	80	80	70	60	40
3	60	54	48	42	36	30	24
1	20	18	16	14	12	10	8

Liming Still Pays on Cotton  
Dr. Gene Stevens

Soil pH is the cornerstone of a good fertility program. Without soil testing results to guide farmers' decisions, crops do not produce optimal yields either because soils are excessively acid (low pH) from not having enough lime applied or alkaline (high pH) from having too much lime applied. When nitrogen fertilizer is applied to crops without periodic liming, soils become progressively more acid over time. Low pH (soil acidity) reduces the availability of important nutrients such as phosphorus to crops and increases the availability of aluminum and manganese resulting in toxicity. In the past many Missouri farmers used the "three tons of lime every three years" rule of thumb without soil testing. This practice sometimes caused soil pH in crop fields to become too high which resulted in crop micronutrient deficiencies.

During the farm crisis of the early 1980's, farmers started to use less lime to save on input costs (Figure 1). Lime use increased briefly in 1987 when farmers received cost sharing to apply lime from the Conservation Reserve Program. However, after 1989, lime use dropped again. Although commodity prices rebounded for some crops in the early 1990's, lime use did not increase. In many fields, farmers were not applying enough lime to keep pace with acidification resulting from nitrogen fertilizer applications.

Shortly after I began working at the University of Missouri-Delta Research Center at Portageville in 1994, I received several phone calls from cotton farmers requesting field visits to help them determine why their crops were "sick". In the majority of the cases, soil tests showed that the problem was low soil pH. Some fields had soil  $pH_{salt}$  values less than 4.0. In 1996, we began an extension program to educate Southeast Missouri farmers on the importance of soil pH in preventing Al and Mn toxicity and maximizing the availability of other nutrients. Information was distributed to farmers through extension cotton meetings, field days, magazine articles, and radio announcements.

In Southeast Missouri, we found that a major factor contributing to the low pH problem in Southeast Missouri is absentee landowners. Landowners are sometimes heirs with little or no experience in crop production. Crop share rental agreements usually require the landowner to pay a share of the fertilizer costs each year. Because lime is normally not applied every year, landowners often resist helping buy lime when it is needed. Changing the behavior of landowners is difficult because they do not usually read agricultural magazines or attend extension meetings and field days. Sometimes they do not even live in the state of Missouri.

Many landowners and farmers know that liming fields with acid soils is a "good" practice, but question whether it provides a return on investment in today's ag economy. The answer is yes. By applying economics to recent lime research results at the Delta Center, we found that liming still pays. Tables 1 and 2 show the results of field experiment with red (dolomitic) and white (calcitic) lime treatments on cotton. The initial soil  $pH_{salt}$  in the plots was 4.6. Although the white lime caused a more rapid pH increase than red lime in 2000, the increase in cotton yields for the two limes as compared to the untreated check were about the same (Figure 2). Two-year average lint increase from lime was 113 to 129 lb lint per acre. Using 52 cent a pound cotton, the gross return from applying lime was \$59 to \$67 per year. At \$20 per ton using 2 tons per acre (\$40 per acre), the lime paid for itself in one year.

David Dunn and I have another lime test that we will be discussing in the future. In 2002, we began a soybeans and corn study funded by Missouri fertilizer/lime tax funds to determine whether lime should be incorporated with tillage. Red and white lime were applied on no-till, strip-till and conventional till plots. In addition to crop yields, we are monitoring soil pH in 2-inch increments in the profile.

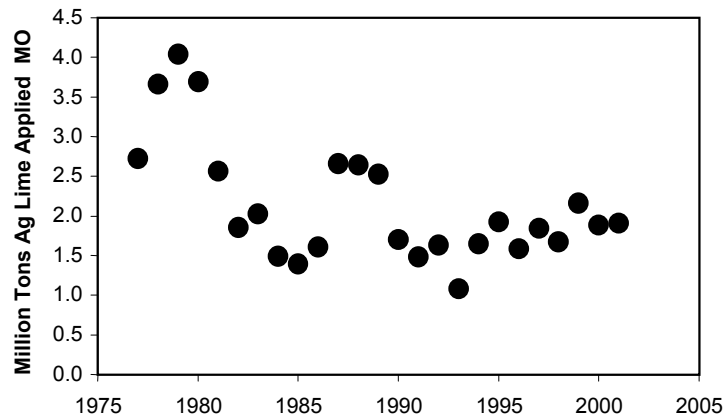


Figure 1. Annual tons of lime applied in Missouri from 1976- 2002.

Table 1. Lime quality and magnesium content of liming materials applied in experiment at Delta Center before planting in 2001.

Trt	Lime Source	EMN/ton	Ton/acre	%Mg	Mg lbs/acre
1	Untreated	0	0	0	0
2	Calcite	510	2.2	0.5	22
3	Dolomite	620	1.8	11.6	418

Calcite= white lime, Dolomite= red lime

Table 2. Effect of lime source on cotton lint yields in 2000 and 2001.

Trt	Lime Source	2000	2001	Average
-----lb lint /acre-----				
1	Untreated	594 a	741 b	667 b
2	Calcite	725 a	837 a	781 a
3	Dolomite	759 a	834 a	797 a

Values followed by the same letter were not significant at  $P \leq 0.05$ .

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This report also available on the web at:

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