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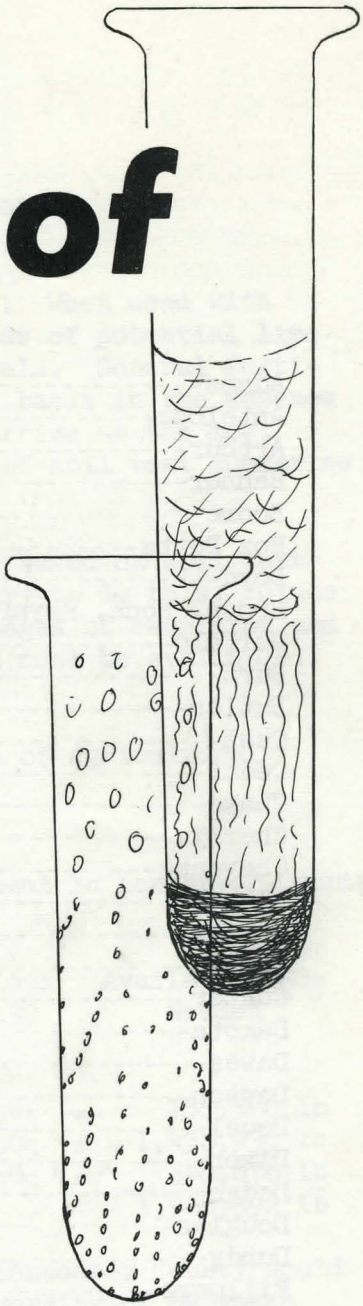
SUMMARY of SOIL TESTS



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University of Nebraska

SOIL TESTING SERVICE

Agricultural Extension Service

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
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SUMMARY OF SOIL TEST REPORTS
UNIVERSITY OF NEBRASKA SOIL TESTING SERVICE

July 1, 1956

Delno Knudsen, Assistant Extension Agronomist (Soils)

Summaries of soil test results are useful in a number of ways. When used with crop acreages and fertilizer or lime recommendations, estimates of potential lime or fertilizer needs can be made on county, area, or state levels. General fertilizer recommendations from summaries can be made on a limited basis in the absence of soil tests. Summaries have been used in other states to arrive at the most desirable fertilizer grades for certain soil areas. A study of soil test summaries may also be valuable in pinpointing areas of needed research.

Much interest has been shown in lime and fertilizer estimates based on soil test summaries. Two additional sources of information are necessary to do this. Since recommendations vary according to crops being grown, the acreages of each crop and the fertilizer or lime recommendation according to soil tests must be available. The sources of this information are:

Nebraska Agricultural Statistics, State-Federal Division of Agricultural Statistics
Extension Circular 132, Soil Tests and Fertilizer Use

For example, the amount of phosphate fertilizer needed for wheat in Lancaster County could be estimated as follows:

Acreage from Agri. Statistics (1954)		Percent of samples from Soil Test Summary		Recommendations from E.C. 132		Available P_2O_5 Needed
79,290 acres	x	5% (very low)	x	40 lb P_2O_5	=	158,580 lb
"	x	46% (low)	x	40 lb P_2O_5	=	1,458,936 lb
	x	22% (medium)	x	20 lb P_2O_5	=	348,876 lb
						1,966,392 lb

Thus the estimate of phosphate fertilizer need for wheat in Lancaster County would be 982 tons of available phosphate per year according to University of Nebraska recommendations. This would be equivalent to 2,182 tons of 0-45-0. This procedure can be used for each crop to obtain the total needs for the county.

As a study of these data will indicate, considerable variation occurs in each county. Consequently caution should be used in making blanket recommendations on the basis of soil test summaries. It is known that the level of phosphorus availability varies considerably within fields. On the other hand, it is obvious that lime is not generally needed in many of the counties in the western half of the state with the possible exception of some local areas in the Sandhills. Even though the soil test indicates a lime requirement for some loess soils west of Hall and Adams counties, it is doubtful that lime is needed since adequate lime can be found within 18 inches of the surface in most of these soils. Many of the soils in the eastern one-third of Nebraska need lime for good alfalfa and clover production. The lime requirement

varies considerably within counties and on individual farms. It is always advisable to have a soil test made before applying lime or phosphate fertilizers.

Summaries have been made on the basis of soil areas as well as counties. These areas have been determined on the basis of physiographic regions, soil classification and results of the summaries. These areas are shown in Figure 1. The names are similar to those of the physiographic regions but have been modified to suit the purpose of this circular. Since information is available on the basis of civil boundaries, the areas are delineated along county lines as shown in Figure 2. Counties which are not primarily one soil area are grouped separately. It may be possible to apply data from adjacent soil areas to a corresponding section of such counties.

The summary of soil tests for available phosphorus is based on samples received from January 1, 1954, to July 1, 1956. The Bray and Kurtz Number 1 method has been used during this time. This represents about 43,000 samples. The relationship of the test to fertilizer recommendations is reported in E.C. 132. For several areas in the state, available phosphorus results have been summarized separately for acid and alkaline soils. As might be predicted the alkaline soils were generally lower in available phosphorus since this group includes the calcareous soils. Figure 3 shows on a county basis the percent of samples testing low and very low (less than 16 ppm) in available phosphorus.

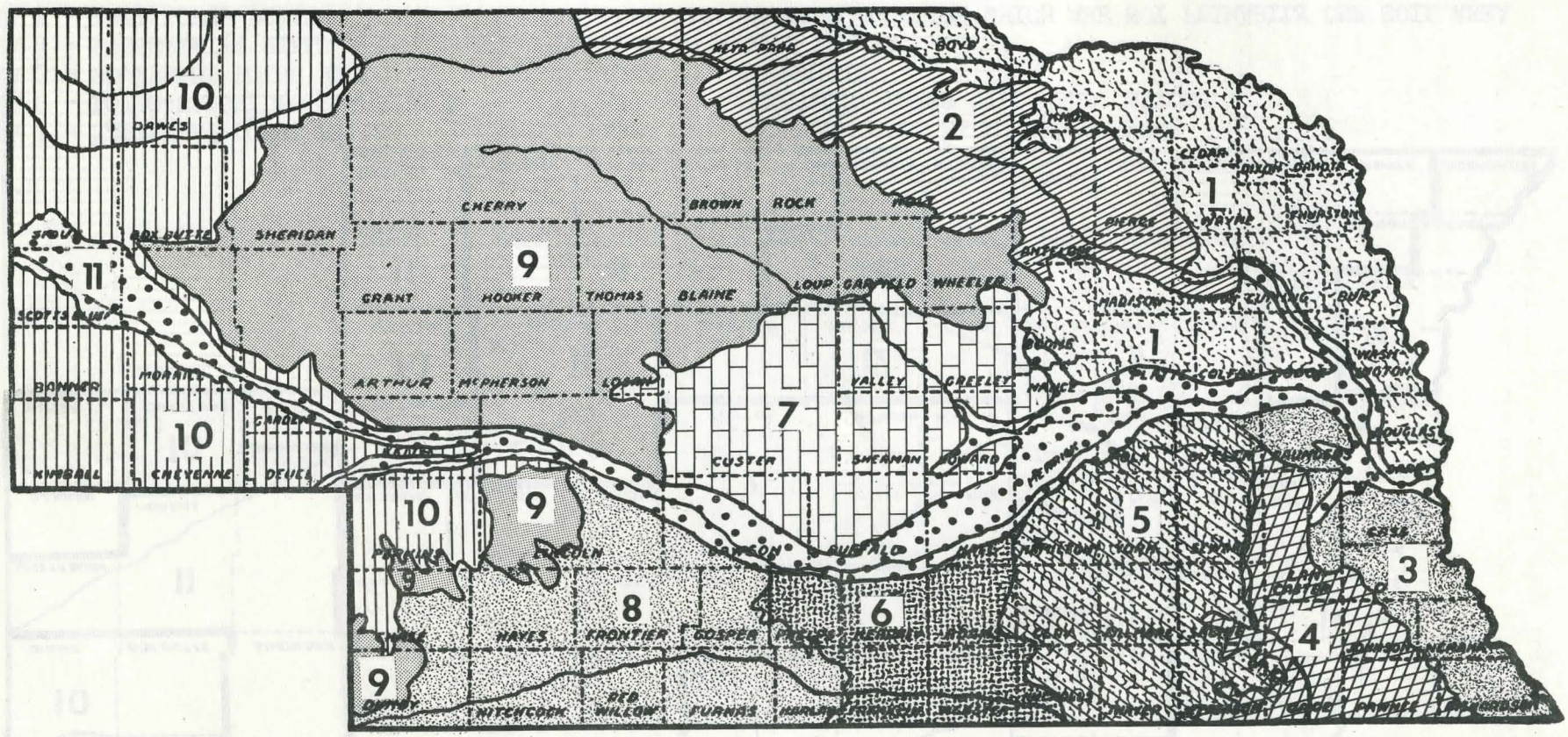
The soil tests made between November 1, 1954, and July 1, 1956, have been summarized according to lime requirement. This includes about 29,000 samples. The test for pH value is made on all samples. The lime requirement test is made on soil samples having a pH of 6.2 or less, since lime is often needed for good legume production on such soils. The percent of samples falling in this category is shown on a county basis in Figure 4.

Tests for available potassium, soluble salts and excess lime are summarized for samples received from January 1, 1949, to July 1, 1956. This includes 65,598 samples. Samples received from lawns and gardens are not included in this circular. Samples on which available potassium tests were not made number about 2500. Thus tests have been made on about 70,000 samples during this period.

The number of samples received since 1949 is shown in Figure 5. About 3/4 of the counties have submitted a sufficient number of samples to be a fair representation of the soils within those counties. In those counties where few samples have been submitted, more emphasis should be placed on the summary for the area than on the one for the county. The summaries for available phosphorus and lime requirement are based on tests made on smaller numbers of samples received during shorter periods of time. Thus the number of samples listed in the tables should be considered in evaluation of the summaries for these tests.

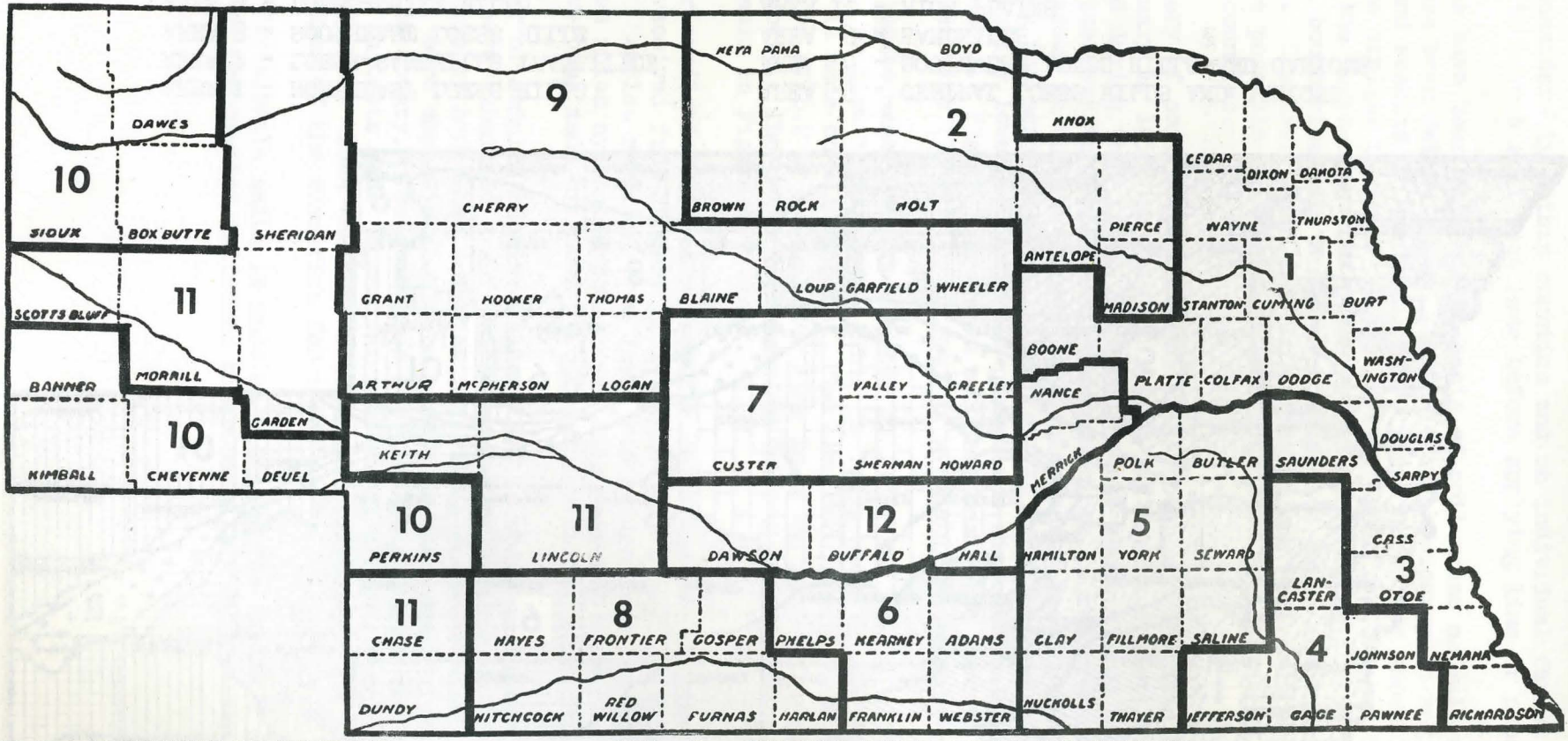
The test for soluble salts is made only on samples having a pH of 8.0 or above, or where other information indicates the possibility of a saline or saline-alkali soil.

SOIL AREAS OF NEBRASKA
(Figure 1)



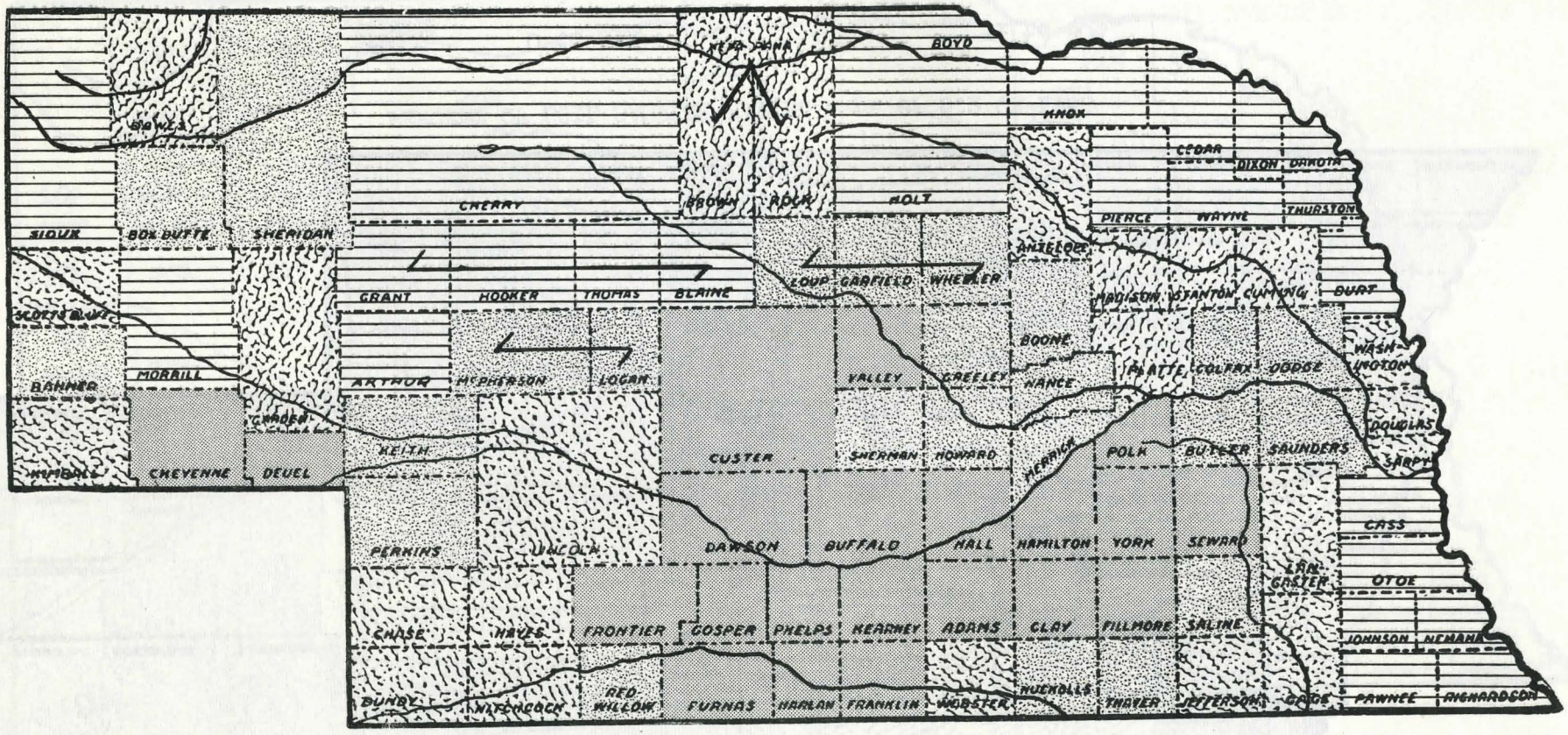
AREA 1 - NORTHEAST LOESS HILLS
AREA 2 - LOESS-SANDHILLS TRANSITION
AREA 3 - SOUTHEAST LOESS HILLS
AREA 4 - LOESS-DRIFT HILLS
AREA 5 - EAST LOESS PLAINS
AREA 6 - WEST LOESS PLAINS
AREA 7 - CENTRAL LOESS HILLS AND CANYONS
AREA 8 - SOUTHWEST LOESS HILLS AND CANYONS
AREA 9 - SANDHILLS
AREA 10 - HIGH PLAINS
AREA 11 - BOTTOMLANDS AND TERRACES

COUNTIES ENCLOSED BY SOIL AREAS FOR SOIL TEST SUMMARIES
(Figure 2)



AREA 1 - NORTHEAST LOESS HILLS
AREA 2 - LOESS-SANDHILLS TRANSITION
AREA 3 - SOUTHEAST LOESS HILLS
AREA 4 - LOESS-DRIFT HILLS
AREA 5 - EAST LOESS PLAINS
AREA 6 - WEST LOESS PLAINS
AREA 7 - CENTRAL LOESS HILLS AND CANYONS
AREA 8 - SOUTHWEST LOESS HILLS AND CANYONS
AREA 9 - SANDHILLS
AREA 10 - HIGH PLAINS
AREA 11 - WESTERN COUNTIES WHICH ARE NOT PRIMARILY ONE SOIL AREA
AREA 12 - CENTRAL COUNTIES WHICH ARE NOT PRIMARILY ONE SOIL AREA

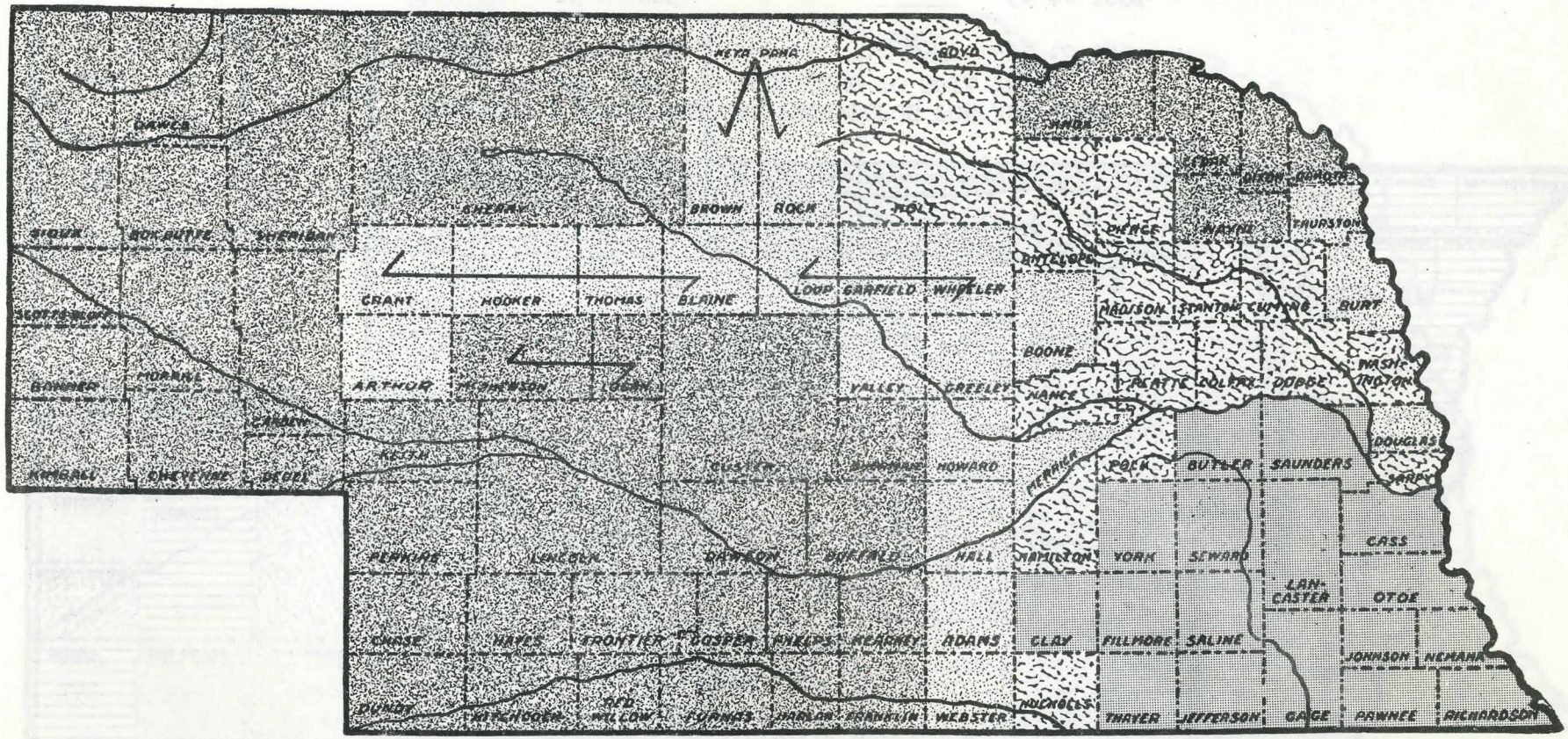
PHOSPHORUS NEEDS OF NEBRASKA SOILS
AS INDICATED BY SOIL SAMPLES RECEIVED
BY UNIVERSITY OF NEBRASKA SOIL TESTING SERVICE
JANUARY 1954 TO JUNE 1956
(Figure 3)



PERCENT OF SOILS NEEDING PHOSPHORUS FOR ALL CROPS
(LOW AND VERY LOW ACCORDING TO SOIL TEST)

	0 to 35%		51 to 65%
	36 to 50%		66 to 100%

LIME NEEDS OF NEBRASKA SOILS
AS INDICATED BY SOIL SAMPLES RECEIVED
BY UNIVERSITY OF NEBRASKA SOIL TESTING SERVICE
NOVEMBER 1954 TO JULY 1956
(Figure 4)

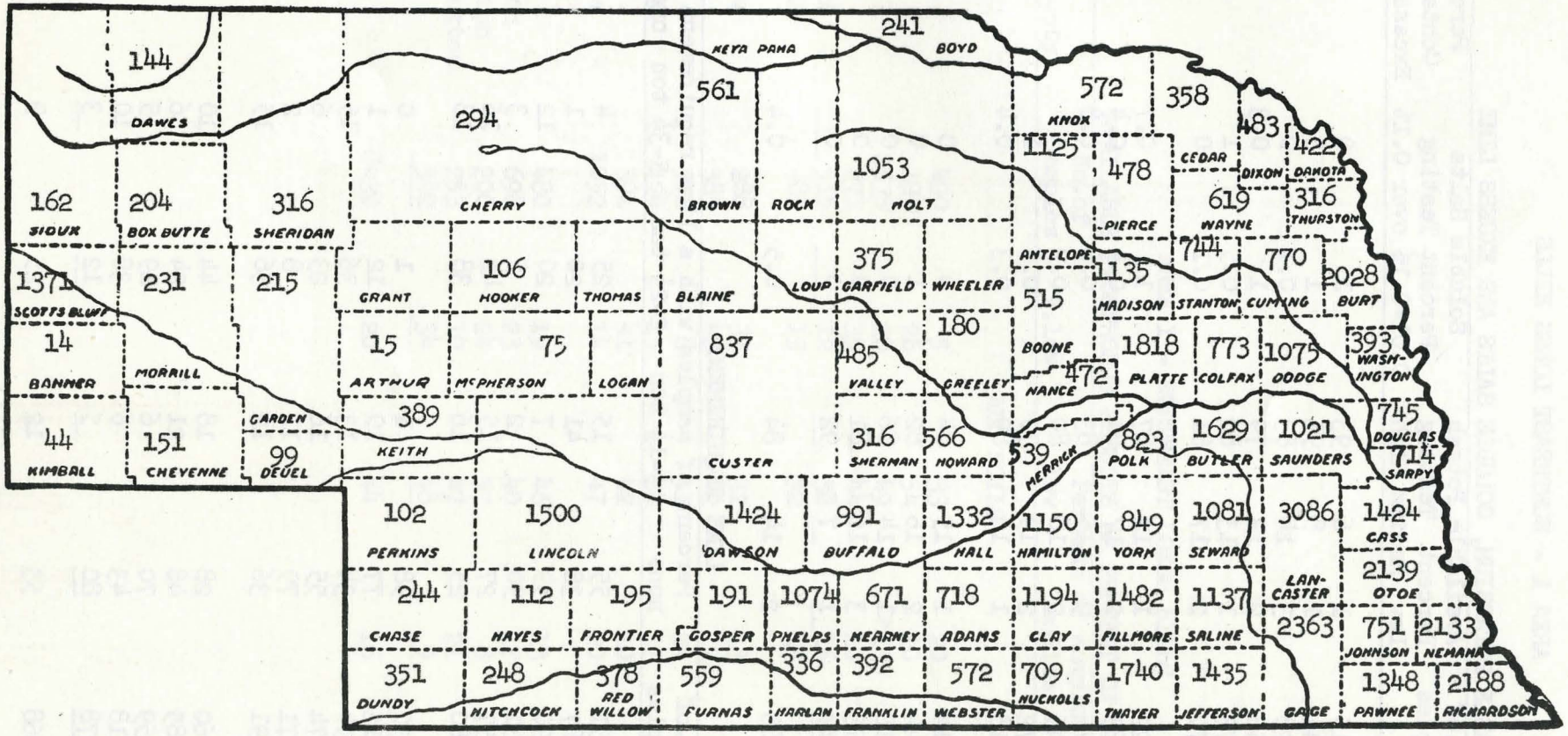


PERCENT OF SOIL SAMPLES HAVING A pH OF 6.2 OR LESS

	0 to 25%		51 to 80%
	26 to 50%		81 to 100%

NUMBER OF SOIL SAMPLES RECEIVED BY COUNTIES FROM JANUARY 1949 TO JULY 1956

(Figure 5)



TOTAL FOR STATE - 65,598

AREA 1 - NORTHEAST LOESS HILLS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Boone	515	1	6	93	1	0	18
Boyd	241	1	8	91	1	3	28
Burt	2028	3	14	83	0.1	0	21
Cedar	358	2	19	79	1	0.3	53
Colfax	773	1	13	80	0.5	1	15
Cuming	770	2	17	81	0.1	0	11
Dakota	422	1	12	87	1	0.7	60
Dixon	483	2	17	81	0.4	0.4	54
Dodge	1075	2	15	83	0.8	0.8	15
Douglas	745	2	18	80	0.9	1	30
Knox	572	2	19	79	0.5	1	49
Platte	1818	1	10	89	0.3	0.4	12
Sarpy	714	1	15	84	0	0	6
Stanton	744	2	16	82	1	0	31
Thurston	316	<1	14	86	0	0	42
Washington	393	3	16	81	0	0	20
Wayne	619	1	7	92	0	0	54
AREA	12,586	2	14	84	0.5	0.4	25

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Boone	251	55	15	25	4	0.4
Boyd	87	38	41	20	1	0
Burt	390	59	7	20	12	2
Cedar	231	90	2	5	3	0
Colfax	357	27	15	42	16	0
Cuming	280	25	16	38	18	3
Dakota	230	98	1	1	0	0
Dixon	312	77	10	12	1	0
Dodge	294	34	13	36	15	2
Douglas	274	55	16	23	6	0
Knox	271	79	11	8	2	0
Platte	491	36	12	36	15	1
Sarpy	360	28	18	44	10	0
Stanton	385	48	21	24	6	1
Thurston	159	70	6	19	5	0
Washington	218	43	6	38	10	3
Wayne	278	80	5	12	3	0.3
AREA	4868	53	12	25	9	1

AREA 1 - NORTHEAST LOESS HILLS

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No.of Samples	Percent of samples testing V.low	low	medium	high	V.high
			ALL SOILS			
Boone	420	5	33	20	12	30
Boyd	194	26	54	10	3	7
Burt	1535	20	49	13	6	12
Cedar	271	35	44	10	5	6
Colfax	515	12	38	16	8	26
Cuming	483	13	52	19	8	8
Dakota	288	37	32	13	7	11
Dixon	385	40	42	12	2	4
Dodge	508	8	41	24	9	18
Douglas	424	15	38	17	6	24
Knox	391	41	42	10	3	4
Platte	1052	14	47	20	7	12
Sarpy	480	19	46	13	8	14
Stanton	698	23	40	17	8	12
Thurston	200	24	57	8	5	7
Washington	253	10	47	21	7	15
Wayne	342	34	48	9	3	6
AREA	8439	20	44	16	7	13

AREA 1 - NORTHEAST LOESS HILLS

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
		ACID SOILS (pH of 7.0 or less)				
Boone	345	3	31	22	14	30
Boyd	143	17	59	11	5	8
Burt	1084	12	55	15	5	13
Cedar	100	18	48	17	6	11
Colfax	465	7	39	17	9	28
Cuming	388	10	53	21	8	8
Dakota	48	23	23	12	17	25
Dixon	161	13	63	14	4	6
Dodge	442	4	42	25	10	19
Douglas	260	10	44	17	7	22
Knox	149	22	54	17	2	5
Platte	879	9	49	22	7	13
Sarpy	431	18	47	14	8	13
Stanton	465	8	47	21	9	15
Thurston	108	7	68	10	7	8
Washington	182	9	53	20	4	14
Wayne	142	13	60	13	4	10
AREA	5792	10	49	18	8	15
		ALKALINE SOILS (pH of 7.1 or more)				
Boone	75	16	41	14	4	25
Boyd	51	49	37	8	2	4
Burt	451	38	36	9	5	12
Cedar	171	45	42	5	4	4
Colfax	50	62	24	0	8	6
Cuming	95	25	44	11	9	11
Dakota	240	40	34	12	5	9
Dixon	224	58	28	10	1	3
Dodge	66	32	33	18	3	14
Douglas	164	24	28	17	4	27
Knox	242	52	35	7	3	3
Platte	173	38	40	7	6	9
Sarpy	49	26	35	8	2	29
Stanton	233	52	27	7	6	8
Thurston	92	44	45	4	3	4
Washington	71	14	31	23	14	18
Wayne	200	49	40	6	2	3
AREA	2647	41	35	9	5	10

AREA 2 - LOESS-SANDHILLS TRANSITION

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Antelope	1125	4	32	64	0.3	0.1	4
Brown, Rock, KeyaPaha	561	6	35	59	0.2	1	12
Holt	1053	8	41	51	0.4	0.2	19
Madison	1135	4	24	72	0.1	0.2	22
Pierce	478	3	25	52	0.2	0.2	20
AREA	4352	5	32	63	0.3	0.3	15

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Antelope	717	29	46	22	3	0.3
Brown, Rock, KeyaPaha	220	50	35	14	1	0
Holt	627	45	36	17	2	0.1
Madison	593	42	30	25	3	0.3
Pierce	297	45	28	23	4	0
AREA	2454	40	36	21	3	0.2

AREA 2 - LOESS-SANDHILLS TRANSITION

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No.of Samples	Percent of samples testing V.low	low	medium	high	V.high
			ALL SOILS			
Antelope	942	12	48	21	7	12
Brown, Rock, KeyaPaha	267	24	38	25	5	8
Holt	747	28	49	13	3	7
Madison	875	17	45	19	7	12
Pierce	363	23	47	18	5	7
AREA	3194	19	47	19	5	10
			ACID SOILS (pH of 7.0 or less)			
Antelope	822	8	48	24	7	13
Brown, Rock, KeyaPaha	224	17	41	29	5	8
Holt	583	17	55	17	3	8
Madison	646	5	49	23	9	14
Pierce	269	10	55	21	6	8
AREA	2544	10	50	22	7	11
			ALKALINE SOILS (pH of 7.1 or more)			
Antelope	120	39	44	9	1	7
Brown, Rock, KeyaPaha	43	56	28	4	7	5
Holt	164	66	29	2	0	3
Madison	229	49	36	8	2	5
Pierce	94	62	23	10	1	4
AREA	650	54	33	7	1	5

AREA 3 - SOUTHEAST LOESS HILLS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Cass	1424	1	16	83	0.2	0	2
Nemaha	2133	4	23	73	0.1	0	4
Otoe	2139	2	20	78	0.1	0.04	2
Richardson	2188	4	28	68	0	0	3
Saunders	1021	1	10	89	1	1	6
AREA	8905	3	21	76	0.2	0.1	3

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Cass	646	12	15	52	20	1
Nemaha	692	19	10	47	23	1
Otoe	640	11	11	55	22	1
Richardson	746	17	10	43	27	3
Saunders	314	12	11	47	28	2
AREA	3038	15	11	49	24	1

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
Cass	956	11	56	19	5	9
Nemaha	1011	16	50	12	5	17
Otoe	1083	16	58	14	4	8
Richardson	1343	13	53	11	5	18
Saunders	475	3	43	25	7	22
AREA	4868	13	53	15	5	14

AREA 4 - LOESS DRIFT HILLS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Gage	2363	5	31	64	0.04	0	0.6
Jefferson	1435	0.5	9	90	0.1	0	1
Johnson	751	4	28	68	0.1	0	2
Lancaster	3086	2	16	82	0.1	0.1	2
Pawnee	1348	2	28	70	0	0	2
AREA	8983	3	21	76	0.1	0.05	2

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Gage	658	9	9	46	33	3
Jefferson	480	10	13	46	28	3
Johnson	225	9	10	52	27	2
Lancaster	1216	13	9	45	30	3
Pawnee	695	15	8	36	36	5
AREA	3274	12	9	44	32	3

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
Gage	1139	11	53	18	6	12
Jefferson	947	8	50	25	6	11
Johnson	413	23	46	13	6	12
Lancaster	1900	5	46	22	7	20
Pawnee	938	22	51	12	6	9
AREA	5337	11	49	19	7	14

AREA 5 - EAST LOESS PLAINS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Butler	1629	3	21	76	1	1	8
Clay	1194	0.1	2	98	0.2	0	1
Fillmore	1482	0	5	95	0.1	0	0.3
Hamilton	1150	0.3	3	97	0.1	0	1
Nuckolls	709	0.1	3	97	0	0.1	8
Polk	823	0.4	12	88	0.1	2	8
Saline	1137	1	9	90	0	0.1	0.4
Seward	1081	1	7	92	0.1	0	2
Thayer	1740	1	10	89	0.1	0.1	1
York	849	0.2	6	94	0	0	0.4
AREA	11,794	0.7	9	91	0.2	0.2	3

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Butler	423	16	14	42	27	1
Clay	642	19	25	45	10	1
Fillmore	482	8	14	52	25	1
Hamilton	578	24	20	46	10	0.3
Nuckolls	331	22	18	54	6	0
Polk	147	29	14	38	18	1
Saline	434	7	10	51	30	2
Seward	505	11	12	45	30	2
Thayer	504	17	17	53	13	0.5
York	397	15	8	53	23	1
AREA	4443	16	16	48	19	1

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
Butler	689	7	39	26	10	18
Clay	825	2	16	33	21	28
Fillmore	874	2	13	36	19	30
Hamilton	798	1	21	33	17	28
Nuckolls	528	3	36	32	14	15
Polk	337	8	26	31	14	21
Saline	774	2	36	30	10	22
Seward	672	3	27	31	13	26
Thayer	991	3	35	33	13	16
York	579	1	21	29	13	36
AREA	7067	2	27	32	15	24

AREA 6 - WEST LOESS PLAINS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Adams	718	0.4	4	96	1	1	5
Franklin	392	1	14	85	2	1	28
Kearney	671	1	4	95	0.1	1	13
Phelps	1074	0	1	99	0.6	2	11
Webster	572	0	6	94	0.6	0.1	25
AREA	3427	0.3	5	95	0.8	1	15

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Adams	371	50	25	22	2	1
Franklin	164	79	13	7	1	0
Kearney	403	85	11	4	0	0
Phelps	691	79	14	6	0.5	0.1
Webster	247	64	23	13	0	0
AREA	1876	73	16	10	1	0.1

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
Adams	482	2	22	25	17	34
Franklin	290	5	24	26	17	28
Kearney	528	5	20	25	20	30
Phelps	928	3	17	26	16	38
Webster	357	7	46	20	11	16
AREA	2585	4	23	25	17	31

AREA 7 - CENTRAL LOESS HILLS AND CANYONS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Custer	837	0.3	6	94	0.5	0.3	17
Greeley	180	0	10	90	0	0	20
Howard	566	4	20	76	0.5	0.3	11
Sherman	316	0.4	5	95	2	1	24
Valley	485	0.3	3	97	2	1	17
AREA	2384	1	9	90	1	0.6	17

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	$\frac{1}{2}$-$1\frac{1}{2}$ ton	2-$2\frac{1}{2}$ ton	3-$3\frac{1}{2}$ ton	over 4 ton
Custer	538	80	15	5	0.5	0
Greeley	100	58	28	12	2	0
Howard	189	51	33	15	0.5	0
Sherman	197	82	12	5	0	0
Valley	288	63	21	14	2	0
AREA	1312	70	19	10	1	0

AREA 7 - CENTRAL LOESS HILLS AND CANYONS

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
			ALL SOILS			
Custer	654	6	22	20	14	38
Greeley	139	12	35	22	8	23
Howard	260	7	32	27	12	22
Sherman	226	14	24	11	10	41
Valley	372	7	21	23	14	35
AREA	1651	8	25	20	13	34
			ACID SOILS (pH of 7.0 or less)			
Custer	477	1	20	21	16	42
Greeley	90	4	32	27	9	28
Howard	216	3	31	28	13	25
Sherman	132	3	20	14	11	52
Valley	300	2	19	24	16	39
AREA	1215	2	23	23	14	38
			ALKALINE SOILS (pH of 7.1 or more)			
Custer	177	19	28	18	9	26
Greeley	49	4	41	14	6	15
Howard	44	27	36	21	9	7
Sherman	94	30	30	6	9	25
Valley	72	28	30	17	6	19
AREA	436	24	32	15	8	21

AREA 8 - SOUTHWEST LOESS HILLS AND CANYONS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Frontier	195	0	2	98	0	0	26
Furnas	559	0	2	98	1	0.1	36
Gosper	191	0	5	95	0	0	2
Harlan	336	0	4	96	0.2	0	23
Hayes	112	0	13	87	3	2	81
Hitchcock	248	0	1	99	0.8	1.6	57
Red Willow	378	1	5	94	1	2	46
AREA	2019	0.2	4	96	0.8	0.7	36

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	$\frac{1}{2}$-$1\frac{1}{2}$ ton	2-$2\frac{1}{2}$ ton	3-$3\frac{1}{2}$ ton	over 4 ton
Frontier	102	87	13	0	0	0
Furnas	369	91	7	2	0.5	0
Gosper	129	87	8	4	1	0
Harlan	182	91	7	2	0	0
Hayes	43	95	3	2	0	0
Hitchcock	114	100	0	0	0	0
Red Willow	159	98	1	1	0	0
AREA	1098	92	6	2	0.2	0

AREA 8 - SOUTHWEST LOESS HILLS AND CANYONS

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
		ALL SOILS				
Frontier	159	0	20	30	21	29
Furnas	462	6	22	18	16	38
Gosper	179	6	26	26	15	27
Harlan	258	3	25	27	17	28
Hayes	74	4	53	25	7	11
Hitchcock	155	8	57	22	5	8
Red Willow	195	4	37	18	13	28
AREA	1486	5	30	23	14	28
		ACID SOILS (pH of 7.0 or less)				
Frontier	108	0	16	29	21	34
Furnas	237	1	15	18	15	51
Gosper	165	4	25	28	14	29
Harlan	162	0	18	31	23	28
Hayes	43	0	53	26	7	14
Hitchcock	18	5	17	50	22	6
Red Willow	38	5	34	21	3	37
AREA	771	2	21	26	16	35
		ALKALINE SOILS (pH of 7.1 or more)				
Frontier	51	0	29	33	20	18
Furnas	225	11	30	19	16	24
Gosper	14	29	36	7	21	7
Harlan	96	8	37	20	7	28
Hayes	31	10	52	26	6	6
Hitchcock	137	8	62	19	3	8
Red Willow	157	3	38	18	15	26
AREA	711	8	40	20	12	20

AREA 9 - SANDHILLS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Arthur	15	0	20	80	0	0	6
Cherry	294	6	25	69	0.7	6	52
Garfield, Loup, Wheeler	375	3	19	78	0	0	16
Logan, McPherson	75	1	20	79	0	0	37
Thomas, Blaine, Grant, Hooker	106	6	25	69	4	2	23
AREA	865	4	22	74	0.6	2	30

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Arthur	13	61	38	0	0	0
Cherry	128	85	13	1	0	1
Garfield, Loup, Wheeler	224	64	30	5	1	0
Logan, McPherson	56	80	14	4	2	0
Thomas, Blaine, Grant, Hooker	63	65	30	2	2	1
AREA	484	71	24	4	0.6	0.4

AREA 9 - SANDHILLS

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
			ALL SOILS			
Arthur	15	7	73	20	0	0
Cherry	197	42	30	10	5	13
Garfield, Loup, Wheeler	307	12	35	21	8	24
Logan, McPherson	64	14	33	20	8	25
Thomas, Blaine, Grant, Hooker	69	22	51	10	4	13
AREA	652	22	36	16	7	19
			ACID SOILS (pH of 7.0 or less)			
Arthur	12	9	75	16	0	0
Cherry	85	14	39	18	10	19
Garfield, Loup, Wheeler	249	8	34	22	10	26
Logan, McPherson	56	11	32	20	9	28
Thomas, Blaine, Grant, Hooker	47	6	60	13	6	15
AREA	449	9	39	20	9	23
			ALKALINE SOILS (pH of 7.1 or more)			
Arthur	3	0	67	33	0	0
Cherry	112	62	23	5	2	8
Garfield, Loup, Wheeler	58	33	34	14	3	16
Logan, McPherson	8	38	37	25	0	0
Thomas, Blaine, Grant, Hooker	22	55	32	4	0	9
AREA	203	51	29	8	2	10

AREA 10 - HIGH PLAINS

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Banner	14	0	7	93	0	0	100
Box Butte	204	0	0.5	99	3	5	32
Cheyenne	151	0	5	95	3	6	62
Dawes	144	0	6	94	7	4	44
Deuel	99	0	0	100	2	5	20
Kimball	44	0	9	91	0	0	39
Perkins	102	5	13	82	0	0	9
Sioux	162	1	3	96	2	1	53
AREA	920	1	4	95	3	3	40

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	$\frac{1}{2}$-$1\frac{1}{2}$ ton	2-$2\frac{1}{2}$ ton	3-$3\frac{1}{2}$ ton	over 4 ton
Banner	10	100	0	0	0	0
Box Butte	86	100	0	0	0	0
Cheyenne	71	86	13	1	0	0
Dawes	50	94	0	6	0	0
Deuel	33	88	3	6	3	0
Kimball	9	100	0	0	0	0
Perkins	37	86	14	0	0	0
Sioux	79	100	0	0	0	0
AREA	375	94	4	2	0.3	0

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
Banner	15	0	47	27	20	6
Box Butte	155	6	31	33	13	17
Cheyenne	82	8	27	17	15	33
Dawes	84	15	38	30	10	7
Deuel	37	8	19	6	16	51
Kimball	18	11	50	22	11	6
Perkins	63	5	33	16	16	30
Sioux	117	6	68	20	2	4
AREA	571	8	40	23	11	18

WESTERN COUNTIES WHICH ARE NOT PRIMARILY ONE SOIL AREA
(AREA 11)

AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No. of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Chase	244	1	9	90	1	1	36
Dundy	351	1	13	86	2	4	50
Garden	215	0	11	89	0.4	4	39
Keith	389	1	7	92	4	2	22
Lincoln	1500	0.5	7	93	3	9	36
Morrill	231	0	3	97	3	5	68
Scotts Bluff	1371	0	1	99	3	6	59
Sheridan	316	0	6	94	2	4	31
AREA	4617	0.5	6	94	3	6	44

LIME REQUIREMENT

County	No. of Samples	Percent of samples with a lime requirement of none	$\frac{1}{2}$-$1\frac{1}{2}$ ton	2-$2\frac{1}{2}$ ton	3-$3\frac{1}{2}$ ton	over 4 ton
Chase	159	98	2	0	0	0
Dundy	240	96	4	0	0	0
Garden	79	100	0	0	0	0
Keith	201	95	5	0.5	0	0
Lincoln	1079	96	3	1	0.1	0
Morrill	116	100	0	0	0	0
Scotts Bluff	865	100	0	0	0	0
Sheridan	128	91	8	0	1	0
AREA	2867	98	2	0.3	0.1	0

AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No. of Samples	Percent of samples testing V.low	low	medium	high	V.high
Chase	184	10	45	27	7	11
Dundy	258	9	49	23	8	11
Garden	157	23	29	26	11	11
Keith	291	10	30	25	12	23
Lincoln	1289	25	29	17	6	23
Morrill	186	11	63	21	3	2
Scotts Bluff	1204	7	58	24	6	5
Sheridan	234	11	35	23	11	20
AREA	3803	15	42	22	7	14

CENTRAL COUNTIES WHICH ARE NOT PRIMARILY ONE SOIL AREA
(AREA 12)
AVAILABLE POTASSIUM, SOLUBLE SALTS AND EXCESS LIME

County	No.of Samples	Available Potash Percent Testing Low	Medium	High	Soluble Salts Percent Testing 0.01-0.1%	over 0.1%	Percent Containing Excess Lime
Buffalo	991	1	2	97	2	5	17
Dawson	1424	0	2	98	1	8	15
Hall	1332	0.4	6	94	1	2	15
Merrick	539	4	25	71	2	2	14
Nance	472	3	16	81	1	1	11
AREA	4758	1	7	92	1	4	15

LIME REQUIREMENT

County	No.of Samples	Percent of samples with a lime requirement of none	½-1½ ton	2-2½ ton	3-3½ ton	over 4 ton
Buffalo	678	85	12	3	0.1	0
Dawson	955	92	6	2	0.1	0.1
Hall	744	74	15	9	2	0
Merrick	141	59	16	20	4	0.7
Nance	146	36	21	36	6	1
AREA	2664	81	11	7	1	0.1

CENTRAL COUNTIES WHICH ARE NOT PRIMARILY ONE SOIL AREA
(AREA 12)
AVAILABLE PHOSPHORUS RESULTS AS PERCENT OF SAMPLES

County	No.of Samples	V.low	Percent of samples testing low	medium	high	V.high
			ALL SOILS			
Buffalo	863	8	17	20	13	42
Dawson	1201	5	19	23	13	40
Hall	985	9	24	23	14	30
Merrick	254	15	28	24	9	24
Nance	204	9	33	20	13	25
AREA	3507	8	21	22	13	36
			ACID SOILS (pH of 7.0 or less)			
Buffalo	572	2	15	22	15	46
Dawson	747	1	16	24	15	44
Hall	701	0.3	23	27	17	33
Merrick	187	7	26	30	11	26
Nance	173	5	30	23	14	28
AREA	2380	2	19	25	15	39
			ALKALINE SOILS (pH of 7.1 or more)			
Buffalo	291	18	22	16	11	33
Dawson	454	11	23	21	11	34
Hall	284	31	29	13	6	21
Merrick	67	37	33	6	5	19
Nance	31	32	52	3	10	3
AREA	1127	20	26	16	9	29