

Soil Test and Fertilizer Sales Data: Summary for the 2004 Growing Season

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BACKGROUND INFORMATION AND RESEARCH PROBLEM

Soil-test data from samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna during the period 1 September 2003 through 30 August 2004 were categorized according to geographic area, county, soil association number (SAN), and selected cropping systems. This period roughly corresponds to the 2004 crop growing season; therefore, those samples should represent the soil fertility of that cropping season. The geographic area and SAN were from the General Soil Map, State of Arkansas (Base 4-R-38034, USDA, and University of Arkansas AES, Fayetteville, Ark, December 1982). Descriptive statistics of the soil-test data were calculated for categorical ranges for soil pH, phosphorus (P), potassium (K), and zinc (Zn). Soil pH and extractable (Mehlich-3, 1:7 extraction ratio analyzed by inductively coupled atomic plasma spectroscopy) soil nutrient (i.e., P, K, Zn, etc.) concentrations indicate the relative level of soil fertility.

RESULTS AND DISCUSSION

Crop Acreage and Soil Sampling Intensity

During the interval from 1 September 2003 through 30 August 2004, 100,134 soil samples were analyzed by the University of Arkansas Soil Testing and Research Laboratory in Marianna. A total of 59,535 soil samples, representing 1,636,611 acres and 28 acres/sample, had complete data for the county, SAN, last crop produced, geographic area, total acres, soil pH, P, K, Zn, and month/day/year categories and are described in this report. Samples that did not have values in all of those categories were not included in this report. Soil samples

from the Bottom Lands and Terraces and Loessial Plains, primarily row-crop areas, represented 54% of the total samples and 78% of the total acreage (Table 1). The average number of acres represented by each soil sample ranged from 2 to 96 acres/sample (Table 2). Clients from Arkansas (5161), Craighead (3449), Washington (3170), Desha (2433), and Lonoke (2253) counties submitted the most soil samples for analyses.

Soil association numbers show that most samples were taken from row-crop and pasture production areas (Table 3). The 44 and 45 SAN's represented 33% of the sampled acreage. Crop codes indicate that, in addition to row crops and pastures, turf and garden enterprises contributed largely to the number of samples submitted but represented only a small percentage of the total acreage (Table 4).

Soil Test Data

Information in Tables 5, 6, 7, and 8 pertain to the fertility status of Arkansas soils as categorized by geographic area, county, SAN, and the crop intended for production in 2004, respectively. The soil-test values relate to the potential fertility of a soil, but not necessarily to the productivity of the soil. Therefore, it is not realistic to compare soil-test values among SAN without knowledge of factors such as location, topography, and cropping system. Likewise, soil-test values among counties cannot be realistically compared without knowledge of the SAN and a profile of the local agricultural production systems. Soil-test data for cropping systems can be carefully compared; however, the specific agricultural production systems often indicate past fertilization practices or may be unique to certain soils that would influence the current soil-test values. For example, soils used for cotton production have a history of intensive

fertilization, whereas intensive fertilization of soybean is normally not practiced. Similarly, rice is commonly grown on soils with low P and K concentrations, which may be more a reflection of the management practices (i.e., flooded soil conditions) used rather than routine fertilization practices. The soil pH of most soils in Arkansas ranges from 5.5 to 6.5, however the predominant soil pH range varies among counties (Table 6), SAN (Table 7), and crop (Table 8).

Table 8 contains soil-test concentration ranges and the median concentrations for each of the cropping system categories. Soil-test nutrient concentration ranges, from low to high concentrations, can be categorized into soil-test levels of 'Very Low' to 'Low', 'Medium', 'Optimum', 'High', and 'Excessive' (for P). The median is the value that has an equal number of higher and lower observations and thus is a better overall indicator of a soil's fertility status than is a mean value. Among row crops, the lowest median concentrations of P and K occur in soils used for the production of rice and irrigated soybean, whereas soils used for cotton production have the highest median concentrations of P and K among row crops. The highest median concentrations of Zn occur in soils used for non-row-crops (i.e., grasses and fruit and nut trees) excluding vegetable. Fertilizer consumption by county (Table 9) and by fertilizer nutrient and formulation (Table 10) illustrates the wide use of inorganic fertilizer predominantly in row-crop production areas, however does not account for the use of animal manures or other by-products as a source of nutrients that may be applied to the land.

PRACTICAL APPLICATIONS

The data presented, or more specific data, can be used in county- or commodity-specific educational programs on soil fertility and fertilization practices. Comparisons of annual soil-test information can also document trends in fertilization practices or areas where nutrient management issues may need to be addressed.

ACKNOWLEDGMENTS

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Table 1. Sample number and total acreage by geographic area for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

Geographic area	Acres sampled	No. of samples	Acres/sample
Ozark Highlands			
- Cherty Limestone and Dolomite	124,209	8,845	14
Ozark Highlands			
- Sandstone and Limestone	7,863	410	19
Boston Mountains	39,995	3,035	13
Arkansas Valley and Ridges	75,370	5,034	15
Ouachita Mountains	36,367	4,504	8
Bottom Lands and Terraces	727,000	19,518	37
Coastal Plain	50,085	3,849	13
Loessial Plains	542,054	12,402	44
Loessial Hills	30,348	1,685	18
Blackland Prairie	5,320	253	21

Table 2. Sample number and total acreage by county for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

County	Acres sampled	No. of samples	Acres/ sample	County	Acres sampled	No. of samples	Acres/ sample
Arkansas, De Witt	141,029	3,025	47	Lincoln	5,274	189	28
Arkansas, Stuttgart	88,306	2,136	41	Little River	8,957	259	35
Ashley	27,471	954	29	Logan, Booneville	2,978	163	18
Baxter	2,291	397	6	Logan, Paris	7,917	416	19
Benton	27,982	1,976	14	Lonoke	91,691	2,253	41
Boone	14,744	794	19	Madison	15,294	976	16
Bradley	1,008	122	8	Marion	7,423	299	25
Calhoun	497	63	8	Miller	5,887	466	13
Carroll	20,689	862	24	Mississippi, Blytheville	27,772	1,028	27
Chicot	53,469	597	90	Mississippi, Osceola	1,634	17	96
Clark	2,640	239	11	Monroe	59,152	951	62
Clay, Corning	18,884	1,020	19	Montgomery	4,240	307	14
Clay, Piggott	28,366	898	32	Nevada	2,073	97	21
Cleburne	4,391	332	13	Newton	3,336	210	16
Cleveland	3,791	172	22	Ouachita	427	98	4
Columbia	3,976	306	13	Perry	7,415	409	18
Conway	10,222	698	26	Phillips	28,084	617	46
Craighead	100,935	3,449	29	Pike	6,938	323	22
Crawford	5,117	353	15	Poinsett	69,732	1,381	51
Crittenden	71,128	1,718	41	Polk	5,592	327	17
Cross	83,629	1,637	51	Pope	14,590	853	17
Dallas	570	46	12	Prairie, Des Arc	4,883	154	32
Desha	26,097	2,433	11	Prairie, De Valls Bluff	18,749	435	43
Drew	2,545	169	15	Pulaski	3,810	1,836	2
Faulkner	3,808	545	7	Randolph	15,238	690	22
Franklin, Charleston	740	50	15	Saline	962	371	3
Franklin, Ozark	11,667	611	19	Scott	6,626	288	23
Fulton	3,359	125	27	Searcy	9,521	291	33
Garland	3,156	1,102	3	Sebastian, Fort Smith	6,812	594	12
Grant	1,953	151	13	Sebastian, Greenwood	66	6	11
Greene	34,071	1,666	21	Sevier	6,996	284	25
Hempstead	4,606	282	16	Sharp	3,494	259	14
Hot Spring	1,115	212	5	St. Francis	10,083	427	24
Howard	7,147	434	17	Stone	2,165	176	12
Independence	11,236	430	26	Union	1,260	231	6
Izard	3,849	265	15	Van Buren	4,228	382	11
Jackson	23,890	646	37	Washington	30,674	3,170	10
Jefferson	45,884	1,385	33	White	19,363	1,633	12
Johnson	3,850	382	10	Woodruff	13,402	426	32
Lafayette	15,165	357	43	Yell, Danville	5,969	312	19
Lawrence	33,479	983	34	Yell, Dardanelle	4,198	202	21
Lee	144,954	2,007	72				

Table 3. Sample number and total acreage by soil association number (SAN) for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

SAN	Soil association	Acres sampled	No. of samples	Acres/sample
1.	Clarksville-Nixa-Noark	33,644	1,607	21
2.	Gepp-Doniphan-Gassville-Agnos	13,152	1,069	12
3.	Arkana-Moko	12,186	765	16
4.	Captina-Nixa-Tonti	60,784	5,213	12
5.	Captina-Doniphan-Gepp	3,562	124	29
6.	Eden-Newnata-Moko	881	67	13
7.	Estate-Portia-Moko	4,191	180	23
8.	Brockwell-Boden-Portia	3,672	230	16
9.	Linker-Mountainburg-Sidon	15,649	722	22
10.	Enders-Nella-Mountainburg-Steprock	24,346	2,313	11
11.	Falkner-Wrightsville	1,131	62	18
12.	Leadvale-Taft	25,910	1,985	13
13.	Enders-Mountainburg-Nella-Steprock	9,235	462	20
14.	Spadra-Guthrie-Pickwick	4,276	208	21
15.	Linker-Mountainburg	34,818	2,317	15
16.	Carnasaw-Pirum-Clebit	13,190	2,658	5
17.	Kenn-Ceda-Avilla	4,586	295	16
18.	Carnasaw-Sherwood-Bismarck	10,626	1,098	10
19.	Carnasaw-Bismarck	57	14	4
20.	Leadvale-Taft	1,083	56	19
21.	Spadra-Pickwick	6,825	383	18
22.	Foley-Jackport-Crowley	97,258	2,860	34
23.	Kobel	101,248	1,599	63
24.	Sharkey-Alligator-Tunica	136,977	2,029	68
25.	Dundee-Bosket-Dubbs	124,888	4,070	31
26.	Amagon-Dundee	43,380	1,642	26
27.	Sharkey-Steele	3,688	89	41
28.	Commerce-Sharkey-Crevasse-Robinsonville	27,704	567	49
29.	Perry-Portland	45,430	2,652	17
30.	Crevasse-Bruno-Oklared	1,416	22	64
31.	Roxana-Dardanelle-Bruno-Roellen	6,875	256	27
32.	Rilla-Hebert	118,246	3,245	36
33.	Billyhaw-Perry	10,178	226	45
34.	Severn-Oklared	7,672	142	54
35.	Adaton	65	5	13
36.	Wrightsville-Louin-Acadia	1,611	93	17
37.	Muskogee-Wrightsville-McKamie	364	21	17
38.	Amy-Smithton-Pheba	5,196	213	24
39.	Darco-Briley-Smithdale	52	6	9
40.	Pheba-Amy-Savannah	5,415	410	13
41.	Smithdale-Sacul-Savannah-Saffell	13,681	1,321	10
42.	Sacul-Smithdale-Sawyer	13,877	1,446	10
43.	Guyton-Ouachita-Sardis	11,864	453	26
44.	Calloway-Henry-Grenada-Calhoun	301,270	6,943	43
45.	Crowley-Stuttgart	240,784	5,459	44
46.	Loring	4,932	131	38
47.	Loring-Memphis	25,354	1,543	16
48.	Brandon	62	11	6
49.	Oktibbeha-Sumter	5,320	253	21

Table 4. Sample number and total acreage by crop for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

Crop	Acres sampled	No. of samples	Acres/sample
Soybean - dryland	53,089	1,344	40
Soybean - irrigated	605,641	13,300	46
Cotton	304,673	8,388	36
Rice	171,150	3,508	49
Wheat	20,387	521	39
Double-crop wheat-soybean - dryland	4,004	92	44
Double-crop wheat-soybean - irrigated	18,278	411	45
Warm season grass - establish	8,056	481	17
Warm season grass - maintain	126,177	6,116	21
Cool season grass - establish	6,118	287	21
Cool season grass - maintain	55,279	2,855	19
Grain sorghum	20,495	510	40
Corn	68,756	1,588	43
All garden	7,757	3,538	2
Turf and ground cover	11,746	5,980	2
Fruit and nut	1,922	502	4
Vegetable	156	28	6
Other	154,927	10,086	15

Table 5. Soil test data by geographic area for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

Geographic area	pH ^z		P ^y (lb/acre)				K ^v (lb/acre)				Zn ^v (lb/acre)				
	<5.5	5.5-6.5	<26	26-44	45-100	101-300	>300	<176	176-220	221-350	>350	<4.0	4.0-8.0	8.1-12.0	>12.0
Ozark Highlands															
- Cherty Limestone & Dolomite	15	57	5	8	20	36	31	19	11	27	43	5	19	15	61
Ozark Highlands															
- Sandstone & Limestone	16	57	8	11	27	37	17	28	14	29	29	9	35	17	39
Boston Mountains	22	62	7	10	20	41	22	32	14	24	30	8	24	16	52
Arkansas Valley and Ridges	31	53	12	13	22	33	20	31	13	27	29	11	27	17	45
Ouachita Mountains	29	52	6	11	22	35	26	33	14	29	24	6	23	19	52
Bottom Lands & Terraces	10	55	9	15	43	31	2	13	12	34	41	19	49	19	13
Coastal Plain	36	49	11	11	21	32	25	39	13	23	25	12	27	15	46
Loessial Plains	12	39	20	35	37	8	0	32	25	29	14	25	44	16	15
Loessial Hills	18	54	18	18	31	28	5	21	12	36	31	14	41	20	25
Blackland Prairie	32	35	27	17	23	20	13	27	11	22	40	17	25	22	36
Average	22	51	12	15	27	30	16	28	14	28	30	13	31	18	38

(Percentage of sampled acreage)

^z Analysis by electrode in 1:2 soil weight:deionized water volume.
^y Analysis by ICAP in 1:7 soil weight:Mehlich-3 volume.

Table 6. Soil test data by county for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

County	pH ^z		P ^y (lb/acre)				(Percentage of sampled acreage)				K ^v (lb/acre)			Zn ^y (lb/acre)		
	<5.5	5.5-6.5	<26	26-44	45-100	101-300	>300	<176	176-220	221-350	>350	<4.0	4.0-8.0	8.1-12.0	>12.0	
Arkansas, De Witt	6	28	23	42	32	2	1	34	27	27	12	22	45	21	12	
Arkansas, Stuttgart	18	52	26	33	33	8	0	23	28	32	17	35	42	16	7	
Ashley	9	48	11	11	36	41	1	21	14	41	24	33	39	15	13	
Baxter	4	25	4	11	23	37	25	12	11	33	44	3	13	15	69	
Benton	19	61	1	3	13	38	45	16	8	24	52	2	13	13	72	
Boone	10	64	4	9	27	40	20	19	11	26	44	6	25	22	47	
Bradley	24	40	4	8	18	39	31	31	13	31	25	12	20	21	47	
Calhoun	48	38	11	13	11	41	24	48	21	18	13	25	30	11	34	
Carroll	9	69	1	3	13	33	50	14	6	20	60	2	10	9	79	
Chicot	6	37	18	34	34	12	2	8	5	17	70	16	65	11	8	
Clark	45	36	21	21	21	18	19	48	12	18	22	18	42	14	26	
Clay, Corning	8	70	19	28	45	8	0	36	29	32	3	13	53	25	9	
Clay, Piggott	15	61	6	13	38	43	0	13	14	38	35	15	55	24	6	
Cleburne	32	54	12	15	26	34	13	41	15	31	13	14	26	14	46	
Cleveland	26	59	20	17	23	29	11	16	7	17	60	8	42	15	35	
Columbia	44	44	12	11	18	32	27	46	11	24	19	13	21	17	49	
Conway	42	43	12	13	32	21	22	29	16	25	30	19	30	15	36	
Craighead	6	51	7	12	35	44	2	11	9	35	45	9	50	27	14	
Crawford	24	59	11	14	27	34	14	30	17	28	25	6	31	24	39	
Crittenden	11	60	4	11	47	37	1	3	6	31	60	14	49	28	9	
Cross	5	34	16	39	39	5	1	34	21	23	22	19	50	17	14	
Dallas	61	33	11	35	22	20	12	72	15	7	6	20	44	17	19	
Desha	5	44	6	8	52	33	1	7	9	35	49	33	48	11	8	
Drew	30	33	18	13	27	26	16	29	14	20	37	12	36	21	31	
Faulkner	38	39	16	15	31	25	13	37	16	24	23	15	39	15	31	
Franklin, Charleston	34	60	26	20	12	28	14	48	2	20	30	24	32	6	38	
Franklin, Ozark	29	67	4	7	16	38	35	18	13	32	37	1	16	17	66	
Fulton	34	34	10	20	38	23	9	33	22	27	18	18	43	18	21	
Garland	25	56	7	11	25	31	26	38	12	28	22	6	26	21	47	
Grant	56	33	15	7	27	38	13	45	11	25	19	18	35	18	29	
Greene	18	58	14	25	39	20	2	27	17	35	21	20	55	16	9	
Hempstead	39	49	10	12	28	29	21	29	9	34	28	10	29	21	40	
Hot Spring	21	62	7	8	15	41	29	32	8	23	37	7	34	18	41	
Howard	28	59	7	7	12	31	43	28	10	24	38	5	16	13	66	
Independence	15	53	7	13	34	34	12	30	20	32	18	10	31	14	45	
Izard	15	71	7	16	28	34	15	33	15	31	21	16	37	14	33	
Jackson	16	59	18	27	37	16	2	32	25	33	10	22	42	12	24	
Jefferson	13	47	11	15	47	23	4	15	12	40	33	27	44	13	16	
Johnson	24	48	9	14	20	38	19	28	11	24	37	9	30	16	45	
Lafayette	17	53	6	21	21	26	26	18	10	24	48	23	29	12	36	
Lawrence	12	68	32	28	30	8	2	29	21	32	18	14	48	24	14	
Lee	13	55	4	13	55	26	2	15	13	29	43	22	55	17	6	
Lincoln	25	58	13	14	43	22	8	19	14	32	35	22	36	11	31	
Little River	31	44	13	21	28	34	4	25	13	25	37	13	46	17	24	

continued

Table 6. Continued.

County	pH ^z		P ^v (lb/acre)					K ^v (lb/acre)					Zn ^v (lb/acre)		
	<5.5	5.5-6.5	<26	26-44	45-100	101-300	>300	<176	176-220	221-350	>350	<4.0	4.0-8.0	8.1-12.0	>12.0
Logan, Booneville	45	49	28	22	23	20	7	38	17	28	17	13	37	26	24
Logan, Paris	25	64	6	13	26	33	22	32	10	22	36	5	20	21	54
Lonoke	18	59	13	25	40	21	1	18	19	36	27	37	45	11	7
Madison	19	70	2	7	15	39	37	21	10	24	45	2	17	18	63
Marion	17	61	1	10	31	41	17	19	9	25	47	4	37	21	38
Miller	34	47	11	13	24	35	17	38	13	21	28	15	24	15	46
Mississippi, Blytheville	8	57	1	2	37	59	1	3	3	45	49	2	41	40	17
Mississippi, Osceola	0	59	0	24	65	11	0	12	18	53	17	0	71	29	0
Monroe	6	39	16	28	47	9	0	24	21	42	13	26	56	12	6
Montgomery	27	54	3	3	14	37	43	33	13	22	32	4	17	20	59
Nevada	38	50	27	11	26	22	14	49	18	13	20	13	31	19	37
Newton	10	52	9	9	18	45	19	13	14	31	42	12	31	17	40
Ouachita	44	41	17	12	29	32	10	61	16	13	10	25	31	10	34
Perry	37	56	16	11	20	30	23	31	11	25	33	11	31	18	40
Phillips	16	49	1	10	62	26	1	10	14	33	43	15	59	16	10
Pike	42	50	4	8	17	31	40	35	12	28	25	6	25	17	52
Poinsett	8	35	17	32	37	12	2	37	23	25	15	10	34	23	33
Polk	38	53	3	5	14	40	38	40	12	25	23	5	23	18	54
Pope	28	55	12	11	19	31	27	29	14	26	31	12	25	15	48
Prairie, Des Arc	18	51	27	38	21	8	6	34	20	33	13	27	36	21	16
Prairie, De Valis Bluff	17	43	27	40	26	6	1	47	26	22	5	29	41	17	13
Pulaski	27	44	6	13	24	39	18	28	18	34	20	5	22	20	53
Randolph	15	58	32	22	30	14	2	32	23	30	15	16	44	18	22
Saline	26	46	9	12	23	37	19	38	14	28	20	10	25	19	46
Scott	37	57	23	18	22	23	14	44	12	19	25	16	35	20	29
Searcy	42	47	9	10	30	40	11	29	18	26	27	20	34	20	26
Sebastian, Fort Smith	25	49	14	9	25	32	20	21	13	33	33	6	21	19	54
Sebastian, Greenwood	17	17	0	17	17	0	66	17	0	50	33	0	17	0	83
Sevier	43	52	3	11	17	34	35	36	12	21	31	3	20	18	59
Sharp	9	48	17	12	23	32	16	28	18	31	23	12	33	15	40
St. Francis	17	46	12	22	36	27	3	22	12	31	35	22	36	16	26
Stone	34	52	7	11	19	38	25	21	14	35	30	7	26	15	52
Union	29	52	11	9	17	29	34	39	13	21	27	12	23	10	55
Van Buren	30	60	8	12	23	41	16	34	12	29	25	18	33	19	30
Washington	13	55	7	9	19	35	30	17	13	30	40	4	14	16	66
White	25	57	9	14	25	45	7	44	16	23	17	15	29	16	40
Woodruff	11	38	14	28	49	6	3	15	23	46	16	11	29	17	43
Yell, Danville	35	59	10	12	16	36	26	37	10	20	33	8	19	21	52
Yell, Dardanelle	33	51	20	11	19	31	19	41	11	16	32	11	32	15	42
Average	24	51	12	16	28	29	15	29	14	28	29	14	34	17	35

^z Analysis by electrode in 1:2 soil weight:deionized water volume.

^v Analysis by ICAP in 1:7 soil weight:Mehlich-3 volume.

Table 7. Soil test data by soil association number (SAN) for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

SAN	Soil association	pH ^z		P ^y (lb/acre)						K ^v (lb/acre)						Zn ^y (lb/acre)		
		<5.5	5.5-6.5	<26	26-44	45-100	101-300	>300	<176	176-220	221-350	>350	<4.0	4.0-8.0	8.1-12.0	>12.0		
1.	Clarksville-Nixa-Noark	13	65	22	6	21	44	26	20	11	26	43	5	22	19	54		
2.	Gepp-Doniphan-Gassville-Agnos	18	42	40	14	16	28	14	23	15	30	32	12	31	15	42		
3.	Arkana-Moko	10	64	26	4	10	23	30	23	9	24	44	6	23	11	60		
4.	Captina-Nixa-Tonti	16	57	27	5	6	17	36	17	11	28	44	3	14	15	68		
5.	Captina-Doniphan-Gepp	14	66	20	7	15	25	36	20	6	16	58	6	41	18	35		
6.	Eden-Newmata-Moko	42	40	18	8	18	28	37	9	27	24	24	21	33	18	28		
7.	Estate-Portia-Moko	16	58	26	2	7	32	41	18	19	9	29	43	7	31	41		
8.	Brockwell-Boden-Portia	15	57	28	13	14	24	33	16	35	18	28	19	38	14	37		
9.	Linker-Mountainburg-Sidon	18	65	17	6	7	19	28	40	25	11	22	42	9	19	61		
10.	Enders-Nella-Mountainburg-Steprock	24	60	16	7	11	20	46	16	34	15	26	8	25	18	49		
11.	Falkner-Wrightsville	31	66	3	24	19	18	23	16	47	8	21	24	13	37	40		
12.	Leadvale-Taft	30	51	19	14	13	25	31	17	30	14	27	29	9	29	44		
13.	Enders-Mountainburg-Nella-Steprock	39	52	9	12	18	23	38	9	34	16	28	22	31	18	39		
14.	Spadra-Guthrie-Pickwick	33	61	6	10	14	23	34	19	35	14	24	27	13	24	40		
15.	Linker-Mountainburg	30	54	16	11	12	20	33	24	30	13	26	31	13	26	46		
16.	Carnasaw-Pirum-Clebit	26	50	24	6	12	24	37	21	34	16	30	20	5	22	51		
17.	Kenn-Ceda-Avilla	25	61	14	5	10	23	37	25	36	11	21	32	8	22	54		
18.	Carnasaw-Sherwood-Bismarck	33	52	15	4	7	16	32	41	31	12	29	28	5	23	57		
19.	Carnasaw-Bismarck	21	57	22	0	21	29	29	21	29	29	21	21	14	29	7		
20.	Leadvale-Taft	43	46	11	25	13	23	20	19	46	9	16	29	25	18	30		
21.	Spadra-Pickwick	36	57	7	15	11	21	30	23	30	11	26	33	11	32	39		
22.	Foley-Jackport-Crowley	12	62	26	25	28	40	7	0	29	24	36	11	17	51	12		
23.	Kobel	9	54	37	11	20	43	26	0	19	19	30	32	19	58	7		
24.	Sharkey-Alligator-Tunica	12	53	35	7	23	49	21	0	5	5	21	69	16	53	8		
25.	Dundee-Bosket-Dubbs	8	60	32	2	8	40	48	2	7	9	39	45	11	51	14		
26.	Amagon-Dundee	9	61	30	9	9	31	49	2	13	10	39	38	7	42	21		
27.	Sharkey-Steele	8	75	17	27	16	38	46	0	1	0	17	82	0	55	10		
28.	Commerce-Sharkey-Crevasse-Robinsonville	4	46	50	2	7	62	28	1	4	3	23	70	5	48	10		
29.	Perry-Portland	8	45	47	8	13	53	24	2	10	9	32	49	29	49	11		
30.	Crevasse-Bruno-Oklared	0	73	27	0	27	68	5	0	23	9	23	45	27	36	37		
31.	Roxana-Dardanelle-Bruno-Roellen	22	45	33	8	16	36	29	11	22	17	34	27	11	39	27		
32.	Rilla-Hebert	10	52	38	6	12	45	37	0	10	12	42	36	36	45	8		
33.	Billyhaw-Perry	7	50	43	10	35	33	20	2	7	8	23	62	31	51	9		
34.	Severn-Oklared	21	42	37	6	18	39	33	4	22	9	32	37	27	37	20		
35.	Adaton	20	80	0	20	20	20	40	0	60	0	20	20	60	0	20		
36.	Wrightsville-Louin-Acadia	41	48	11	11	19	14	43	13	41	18	25	16	18	36	31		
37.	Muskogee-Wrightsville-McKamie	14	81	5	5	0	0	29	66	24	10	33	33	0	0	86		
38.	Amy-Smithton-Pheba	41	39	20	16	18	23	30	13	45	18	18	19	22	40	24		
39.	Darco-Briley-Smithdale	17	67	16	0	0	0	17	83	17	33	50	0	0	0	83		
40.	Pheba-Amy-Savannah	40	47	13	12	11	22	35	20	41	12	21	26	10	34	38		
41.	Smithdale-Sacul-Savannah-Saffell	33	49	18	10	9	18	33	30	38	13	25	24	11	21	52		
42.	Sacul-Smithdale-Sawyer	36	49	15	14	11	23	31	21	40	12	23	25	13	29	45		

continued

Table 7. Continued.

SAN	Soil association	pH ^z		P ^y (lb/acre)			K ^y (lb/acre)			Zn ^y (lb/acre)						
		<5.5	>6.5	<26	26-44	45-101	>300	<176	176-220	221-350	>350	<4.0	4.0-8.0	8.1-12.0	>12.0	
----- (Percentage of sampled acreage) -----																
43.	Guyton-Ouachita-Sardis	38	10	5	15	19	29	32	33	13	22	32	6	27	14	53
44.	Calloway-Henry-Grenada-Calhoun	12	50	17	32	39	10	2	35	22	29	14	22	45	14	19
45.	Crowley-Stuttgart	11	49	24	38	33	5	0	28	28	31	13	28	44	18	10
46.	Loring	17	24	30	30	22	16	2	46	21	24	9	21	34	18	27
47.	Loring-Memphis	18	29	17	17	32	30	4	19	11	37	33	14	41	20	25
48.	Brandon	9	73	46	9	36	9	0	73	9	9	9	0	46	36	18
49.	Oktibbeha-Sumter	32	35	27	17	23	20	13	27	11	22	40	17	25	22	36
	Average	21	55	12	15	28	30	15	28	13	31	28	14	33	18	35

^z Analysis by electrode in 1:2 soil weight:deionized water volume.

^y Analysis by ICAP in 1:7 soil weight:Mehlich-3 volume.

Table 8. Soil-test median (Md) values and percentage distribution for selected ranges by crop for soil samples submitted to the University of Arkansas Soil Testing and Research Laboratory in Marianna from September 2003 through August 2004.

Crop	pH ^z			P ^y (lb/acre)						K ^y (lb/acre)						Zn ^y (lb/acre)																	
				26-44		45-100		101-300		>300		Md		<176		176-220		221-350		>350		Md		<4.0		4.0-8.0		8.1-12.0		>12.0		Md	
	<5.5	5.5-6.5	>6.5	Md																													
Soybean - dryland	25	55	20	5.9	11	24	49	15	1	56	24	18	31	27	247	21	48	19	12	48	19	12	6.0										
Soybean - irrigated	8	44	48	6.5	18	35	41	6	0	43	30	25	29	16	212	23	49	17	11	5.8													
Cotton	5	57	38	6.4	1	3	43	53	0	104	3	6	41	50	350	20	51	21	8	6.2													
Rice	10	42	48	6.5	34	34	30	2	0	33	23	17	25	35	259	22	50	16	12	5.8													
Wheat	29	53	18	5.9	8	15	46	29	2	73	25	21	30	24	231	30	42	16	12	5.2													
Double-crop wheat - soybean - dryland	20	51	29	6.1	2	9	58	31	0	75	20	26	26	28	231	17	41	19	23	6.6													
Double-crop wheat - soybean - irrigated	6	38	56	6.6	9	28	46	17	0	54	29	27	30	14	209	18	45	18	19	6.4													
Warm season grass - establish	33	47	20	5.7	10	8	24	39	19	124	35	11	28	26	240	13	27	17	43	10.5													
Warm season grass - maintain	30	61	9	5.7	8	10	19	34	29	160	32	11	24	33	250	9	23	16	52	12.7													
Cool season grass - establish	29	57	14	5.8	19	11	16	26	28	114	31	14	19	36	261	16	16	11	57	15.8													
Cool season grass - maintain	17	69	14	5.9	4	8	22	37	29	165	22	11	26	41	301	6	23	18	53	13.4													
Grain sorghum	14	60	26	6.2	6	18	52	24	0	69	11	14	41	34	281	21	49	18	12	6.0													
Corn	11	55	34	6.3	4	13	53	30	0	80	13	16	41	30	283	17	49	21	13	6.4													
All garden	13	40	47	6.5	3	5	14	36	42	245	13	10	27	50	353	5	16	13	66	19.9													
Turf and ground cover	23	52	25	6.1	7	11	29	45	8	110	27	16	34	23	242	6	24	23	47	11.8													
Fruit and nut	28	52	20	5.9	8	14	22	35	21	122	24	14	32	30	260	7	24	16	53	13.0													
Vegetable	18	36	46	6.3	4	0	54	29	13	91	11	29	31	24	247	29	36	14	21	5.8													
Other	28	52	20	5.9	14	15	22	28	21	96	32	14	25	29	240	13	29	14	44	10.3													
Average	19	51	30		9	15	36	29	11		23	17	30	30		16	36	17	31														

^z Analysis by electrode in 1:2 soil weight:deionized water volume.

^y Analysis by ICAP in 1:7 soil weight:Mehlich-3 volume.

Table 9. Fertilizer consumption in Arkansas counties from 1 July 2003 through 30 June 2004².

County	Total	County	Total
	(tons)		(tons)
Arkansas	87,986	Lee	28,492
Ashley	22,665	Lincoln	19,085
Baxter	2,333	Little River	2,771
Benton	16,465	Logan	3,490
Boone	5,970	Lonoke	38,504
Bradley	1,550	Madison	5,517
Calhoun	342	Marion	2,850
Carroll	3,677	Miller	7,392
Chicot	17,771	Mississippi	85,760
Clark	2,931	Monroe	30,615
Clay	51,037	Montgomery	606
Cleburne	2,276	Nevada	2,010
Cleveland	300	Newton	1,514
Columbia	702	Ouachita	171
Conway	7,119	Perry	1,966
Craighead	63,246	Phillips	61,925
Crawford	6,689	Pike	5,689
Crittenden	21,983	Poinsett	81,207
Cross	44,798	Polk	1,469
Dallas	550	Pope	2,873
Desha	35,676	Prairie	34,746
Drew	13,444	Pulaski	11,687
Faulkner	4,844	Randolph	26,405
Franklin	2,792	Saline	3,030
Fulton	2,854	Scott	1,157
Garland	553	Searcy	4,623
Grant	286	Sebastian	1,110
Greene	33,671	Sevier	2,802
Hempstead	5,442	Sharp	1,318
Hot Spring	2,580	St. Francis	44,994
Howard	1,984	Stone	2,254
Independence	11,951	Union	1,174
Izard	3,324	Van Buren	7,917
Jackson	33,924	Washington	5,487
Jefferson	41,899	White	29,821
Johnson	2,359	Woodruff	36,864
Lafayette	6,286	Yell	4,912
Lawrence	34,895		

² Arkansas Distribution of Fertilizer Sales by Counties 1 July 2003-30 June 2004, Arkansas State Plant Board, Division of Feed and Fertilizer, Little Rock, Ark., and University of Arkansas AES, Fayetteville, Ark.

Table 10. Fertilizer nutrient and formulation consumed in Arkansas from 1 July 2003 through 30 June 2004².

Fertilizer	Bulk	Bagged	Fluid	Totals
	----- (tons) -----			
Mixed	384,504	42,846	14,744	442,094
Nitrogen	526,290	5,275	108,166	639,730
Phosphate	19,414	108	4	19,526
Potash	53,156	515	52	53,723
Other	41,717	4,597	1,969	48,283
Totals	1,025,080	53,342	124,935	1,203,357

² Arkansas Distribution of Fertilizer Sales By Counties 1 July 2003-30 June 2004, Arkansas State Plant Board, Division of Feed and Fertilizer, Little Rock, Ark., and University of Arkansas AES, Fayetteville, Ark.