

productivity of benchmark and key soils



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Productivity of Benchmark and Key Soils In Oklahoma

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Oklahoma's soil is the backbone of her economy. The rapid change in farming and ranching in recent years has stimulated wide-spread interest in the effects of soil properties, climate, fertilizers, crop varieties and management factors on trends in production.

Information concerning the characteristics and distribution of the major soils in Oklahoma was published in *Soils in Oklahoma*, Oklahoma Agricultural Experiment Station Miscellaneous Publication, MP-56. For more detailed information on the soil of a specific location refer to the published soil survey of your county. In the event the soil survey has not been published, refer to the Soil Conservation Service for detailed soil information.

Estimated Crop Yields

The per acre average yields that can be expected of the principal crops under a high level of management are shown in Tables 1 through 9. Key soils of Oklahoma are listed alphabetically by Major Land Resources Areas in these tables. The Major Land Resource Areas of Oklahoma are shown on a map of Oklahoma. (Fig. 1).

In any given year, yields may be higher or lower than those indicated in Tables 1 through 9 because of climatic or management variations. Absence of a yield estimate indicates that the crop is not commonly grown on the soil.

The estimated yields are based mainly on the experience and records of farmers, conservationists and extension agents. Results of field trials and demonstrations were also considered.

The latest soil and crop management practices used by many farmers are assumed in estimating the yields. Pasture yields are estimated for one grass variety suited to the soil.

The management needed to achieve the indicated yields of the various crops depends upon the kind of soil and the crop. Such management practices

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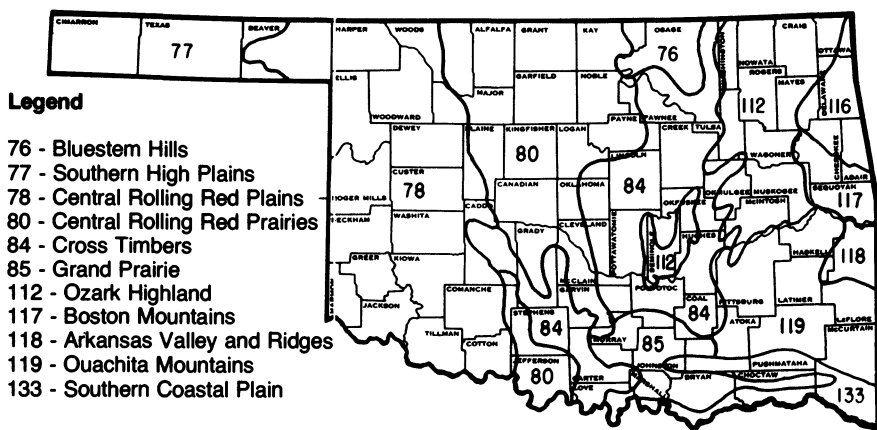


Figure 1. Major Land Resource Areas

provide (1) effective use of crop residues (2) drainage, (3) erosion control, (4) protection from flooding, (5) proper planting and seeding rates, (6) suitable high-yielding crop varieties (7) appropriate tillage practices (8) control of weeds, plant diseases and harmful insects, (9) favorable soil reaction and optimum levels of nitrogen, phosphorous, potassium and trace elements for each crop, (10) harvesting with the smallest possible loss and (11) timeliness of all fieldwork.

The estimated yields reflect the relative productive capacity of the soils for each of the principal crops. Yields are likely to increase in the future as new production technology is developed. The relative productivity of a given soil compared to other soils, however, is not likely to change.

Yield estimates are not listed for the average level of management. Basically, average level of management yields are within 10 percent of those listed in the tables.

The Use of Published Soil Surveys

The published soil survey contains much information useful in any land planning program. Of prime importance, are the predictions of soil behavior for selected land use. The soil survey has been prepared for farmers, ranchers, foresters, agronomists, civil engineers, community planners, developers, homebuyers, teachers, students and many others.

There are great differences in soil properties within short distance. These differences are important in any land planning program.

Soil Properties Effects on Yields

The effects of soil properties on crop production are not fully understood. Each soil has a set of characteristics by which it can be distinguished from other soils. Those characteristics are the soil properties that determine the response of the soil to a particular crop in a particular environment. Dr. Ferris P. Allgood worked on the utilization of soil characteristics in computing productivity ratings of Oklahoma soils. This unpublished data is recorded in his Doctor of Philosophy Thesis dated May 1975.

Increased demands on agricultural land require a uniform method of comparing soils. As the population expands, greater emphasis will be placed on soil potentials for industrial expansion, urban expansion, roads, sanitary facilities, production of food and fiber and other uses.

General significance of various soil characteristics were used in determining the productivity of many of the soils listed in the bulletin. Slope is one of the important characteristics used in determining productivity. However, the value of slope in determining productivity is modified by other characteristics, such as permeability and percentage of clay or sand. Some of the other important characteristics used in determining the productivity are, kinds of clay, percentage of clay and sand, permeability, percentage of base saturation, amount of sodium, percentage of organic matter, thickness of solum, drainage class, available water capacity and reaction.

Climate is one of the major factors in crop production. The influence of climate on yield is primarily between rather than within soil series.

Climate

Oklahoma has a continental type climate with pronounced seasonal ranges in temperature and precipitation. The western part of the state receives less moist winds from the Gulf of Mexico and consequently are drier than the eastern part.

Hot dry winds from the southwest often occur during summer months. Approximately 75 percent of the annual precipitation falls during the growing season. The average length of growing season varies from 180 days in the panhandle to 240 days in the extreme southeast.

The average annual precipitation, Figure 2, varies from 16 inches in Cimarron County to 56 inches in McCurtain County. The annual mean air temperature, Figure 3, varies from 56 to 65°F.

Major Land Resources Areas

Soils are grouped into the major areas primarily on the basis of climate, geologic material, vegetation and topography. Oklahoma has a complex geology ranging from recent sediments through Precambrian. Periods of regional uplift, faulting, and folding have altered the normal soil forming processes on horizontal bedded materials in some areas.

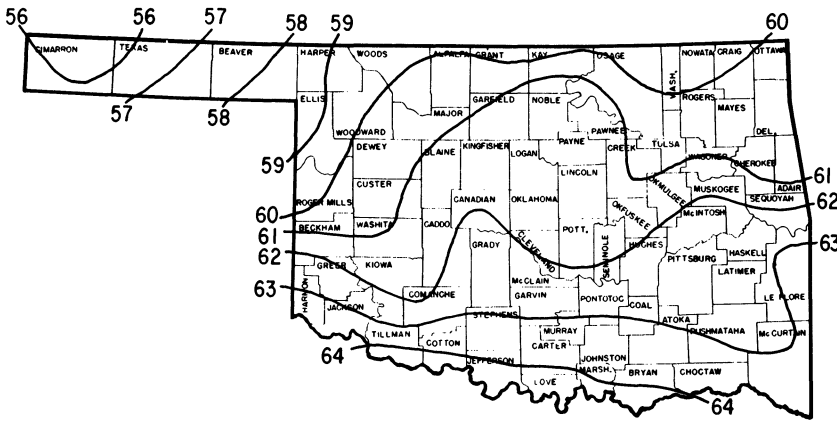


Figure 3. Annual Mean Temperature

sandstones; a few soils are formed in materials weathered from shales. Sandy and loamy soils developed in materials weathered from recent sediments are less extensive and occur adjacent to the streams. The approximate elevation of these soils ranges from 900 to 1300 feet. The average annual precipitation ranges from about 30 to 40 inches. The annual mean air temperature ranges from 60 to 64°F.

The Grand Prairie (85) occurs in southeast Oklahoma. The soils in this area are formed in materials weathered from clayey Cretaceous sediments. The approximate elevation ranges from 800 to 1200 feet. The average annual precipitation ranges from 36 to 50 inches. The annual mean air temperature ranges from 63 to 65°F.

The Cherokee Prairies (112) and **Bluestem Hills** (76) occur in northeast Oklahoma. Most of the soils in this area are formed in materials weathered from Pennsylvanian shales, sandstones and limestones. Lesser amounts are formed in recent loamy and clayey sediments from the streams. The approximate elevation ranges from 600 to 1100 feet. The average annual precipitation ranges from 36 to 42 inches. The annual mean air temperature ranges from 60 to 62°F.

The Ozark Highlands (116), **Boston Mountains** (117), and **Arkansas Valley and Ridges** (118) occur in northeast Oklahoma. Most of the soils in this area are formed in materials weathered from level bedded to tilted cherty limestone, dolomites, shales and sandstones. Lesser amounts of soils developed in recent alluvial sediments occur along the streams. The approxi-

mate elevation ranges from 500 to 1500 feet. The average annual precipitation ranges from 42 to 48 inches. The annual mean air temperature ranges from 60 to 63°F.

The Ouachita Mountains (119) occur in southeast Oklahoma. Most of the soils in this area are formed in materials weathered from tilted shales and sandstones. Lesser amounts are formed in materials weathered from recent loamy sediments. A few are formed in materials weathered from cherty limestone.

The approximate elevation ranges from 500 to 2600 feet. The average annual precipitation ranges from 44 to 56 inches. The annual mean air temperature ranges from 62 to 63°F.

The Southern Coastal Plain (133) occurs in southeast Oklahoma. Most of the soils in this area are formed in material weathered from cretaceous and clayey sediments. Loamy and clayey soils formed in materials from alluvial sediments occur adjacent to Red River. The approximate elevation ranges from 400 to 700 feet elevation. The average annual precipitation ranges from 36 to 52 inches. The annual mean air temperature ranges from 63 to 64°F.

Table 1. Estimated Average Annual Crop Yields on Key Soils in Southern High Plains - Major Land Resource Area - 77

Soil	Grain Sorghum bu/a		Wheat bu/a		Corn bu/a
	dryland	irrigated	dryland	irrigated	irrigated
Bayard fine sandy loam, 0 to 1 percent slopes	25	85	17	47	102
Berthoud loam, 0 to 3 percent slopes	20	80	15	40	96
Bippus clay loam, 1 to 3 percent slopes	25	90	18	42	108
Dalhart fine sandy loam, 0 to 1 percent slopes	32	110	18	47	132
Dalhart fine sandy loam, 1 to 3 percent slopes	27	100	15	40	120
Dalhart loamy fine sand, 0 to 3 percent slopes	23	75	-	-	90
Mansic clay loam, 1 to 3 percent slopes	18	90	16	47	108
Mansic clay loam, 3 to 5 percent slopes	15	-	14	40	-
Mansker clay loam, 1 to 3 percent slopes	16	-	15	40	-
Portales clay loam, 0 to 1 percent slopes	19	80	17	42	96
Portales clay loam, 1 to 3 percent slopes	16	-	15	38	-
Pullman clay loam, 0 to 1 percent slopes	16	95	18	50	114
Richfield clay loam, 0 to 1 percent slopes	22	115	22	55	138
Richfield clay loam, 1 to 3 percent slopes	18	105	17	50	126
Richfield fine sandy loam, 0 to 1 percent slopes	30	115	22	55	138
Richfield loam, 0 to 1 percent slopes	27	125	23	60	150
Spur clay loam, 0 to 1 percent slopes	24	115	22	55	138
Ulysses clay loam, 0 to 1 percent slopes	20	115	20	55	138
Ulysses clay loam, 1 to 3 percent slopes	18	90	17	50	126

Table 2. Estimated Average Annual Crop Yields on Key Soils in Central Rolling Red Plains Major Land Resource Area 78

Soil	Alfalfa T/a	Barley bu/a	Cotton lint lbs/a	Grain Sorghum bu/a	Oats bu/a	Wheat bu/a
Abilene clay loam, 0 to 1 percent slopes	-	33	275	34	39	26
Altus fine sandy loam, 0 to 1 percent slopes	3.5	33	400	50	39	26
Altus fine sandy loam, 1 to 3 percent slopes	3.2	30	350	44	36	24
Altus loamy fine sand, 0 to 3 percent slopes	-	25	300	40	30	20
Canadian fine sandy loam, 0 to 1 percent slopes	4.0	40	425	52	48	32
Carey silt loam, 1 to 3 percent slopes	2.5	30	300	34	36	24
Carey silt loam, 3 to 5 percent slopes	-	25	250	28	30	20
Carey silt loam, 5 to 8 percent slopes	-	19	-	-	22	15
Carwile fine sandy loam, 0 to 1 percent slopes	-	27	-	37	31	21
Clairemont silt loam, 0 to 1 percent slopes	4.5	42	425	55	50	33
Cobb fine sandy loam, 1 to 3 percent slopes	2.5	28	325	36	33	22
Cobb fine sandy loam, 3 to 5 percent slopes	-	23	275	31	27	18
Dale silt loam, 0 to 1 percent slopes	4.0	40	400	50	48	32
Devol fine sandy loam, 0 to 1 percent slopes	3.2	30	350	38	36	24
Devol fine sandy loam, 1 to 3 percent slopes	3.0	26	300	34	31	21
Devol loamy fine sand, 0 to 3 percent slopes	-	23	275	30	27	18
Devol loamy fine sand, 3 to 8 percent slopes	-	18	-	25	21	14
Dill fine sandy loam, 1 to 3 percent slopes	2.5	27	325	35	33	22
Dill fine sandy loam, 3 to 5 percent slopes	-	23	275	29	27	18
Enterprise very fine sandy loam, 0 to 1 percent slopes	3.0	35	375	45	42	28
Enterprise very fine sandy loam, 1 to 3 percent slopes	2.6	30	325	40	36	24
Enterprise very fine sandy loam, 3 to 5 percent slopes	-	25	275	32	30	20
Enterprise very fine sandy loam, 5 to 8 percent slopes	-	19	-	-	22	15
Foard silt loam, 0 to 1 percent slopes	-	28	250	30	33	22
Grandfield fine sandy loam, 0 to 1 percent slopes	3.4	34	400	50	40	27
Grandfield fine sandy loam, 1 to 3 percent slopes	3.1	29	350	44	34	23
Grandfield fine sandy loam, 3 to 5 percent slopes	-	25	300	37	30	20
Grandfield loamy fine sand, 0 to 3 percent slopes	-	25	300	30	30	20
Hardeman fine sandy loam, 0 to 1 percent slopes	3.2	32	400	50	37	25
Hardeman fine sandy loam, 1 to 3 percent slopes	2.9	28	350	46	33	22
Hardeman fine sandy loam, 3 to 5 percent slopes	-	25	300	41	30	20
Hardeman fine sandy loam, 5 to 8 percent slopes	-	20	-	-	24	16

Table 2. (continued)

	Production of Benchmark and Key Soils						
	Soil	Alfalfa T/a	Barley bu/a	Cotton Lint lbs/a	Grain Sorghum bu/a	Oats bu/a	Wheat bu/a
	Hollister clay loam, 0 to 1 percent slopes	-	30	250	30	36	24
	Hollister clay loam, 1 to 3 percent slopes	-	25	200	25	30	20
	Indiahoma silty clay loam, 1 to 3 percent slopes	-	25	225	25	30	20
	Indiahoma silty clay loam, 3 to 5 percent slopes	-	20	175	20	24	16
	Lawton loam, 0 to 1 percent slopes	2.5	33	300	36	39	26
	Lawton loam, 1 to 3 percent slopes	2.2	28	250	32	33	22
	Lawton loam, 3 to 5 percent slopes	-	25	200	27	30	20
	Lawton loam, 5 to 8 percent slopes	-	20	-	-	24	16
	Lugert loam, 0 to 1 percent slopes	4.5	44	425	55	53	35
	Mangum clay, 0 to 1 percent slopes	2.5	25	225	28	30	20
	Miles fine sandy loam, 0 to 1 percent slopes	3.3	33	375	48	39	26
	Miles fine sandy loam, 1 to 3 percent slopes	3.0	28	325	42	33	22
	Miles fine sandy loam, 3 to 5 percent slopes	-	23	300	35	28	19
	Port silt loam, 0 to 1 percent slopes	4.5	44	425	55	53	35
	Pratt fine sandy loam, 0 to 3 percent slopes	-	29	-	44	34	23
	Pratt fine sandy loam, 3 to 5 percent slopes	-	24	-	37	28	19
	Pratt loamy fine sand, 0 to 3 percent slopes	-	24	-	35	28	19
	Pratt loamy fine sand, 3 to 8 percent slopes	-	19	-	29	22	15
	Reinach silt loam, 0 to 1 percent slopes	4.0	40	400	50	48	32
	St. Paul silt loam, 0 to 1 percent slopes	2.5	35	300	40	42	28
	St. Paul silt loam, 1 to 3 percent slopes	2.2	30	250	35	36	24
	St. Paul silt loam, 3 to 5 percent slopes	-	25	200	27	30	20
	Tillman clay loam, 0 to 1 percent slopes	-	34	275	32	39	26
	Tillman clay loam, 1 to 3 percent slopes	-	29	225	28	34	23
	Tipton loam, 0 to 1 percent slopes	3.4	40	400	50	48	32
	Tipton loam, 1 to 3 percent slopes	3.0	35	350	45	42	28
	Weymouth loam, 3 to 5 percent slopes	-	20	-	21	24	16
	Woodward loam, 1 to 3 percent slopes	-	24	250	28	28	19
	Woodward loam, 3 to 5 percent slopes	-	21	200	22	25	17
	Woodward loam, 5 to 8 percent slopes	-	18	-	-	22	14
	Yahola fine sandy loam, 0 to 1 percent slopes	4.2	38	425	55	45	30

Table 3. Estimated Average Annual Crop Yields on Key Soils in Central Rolling Red Prairies - 80

Soil	Alfalfa T/a	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Cotton Lint lbs/a	Wheat bu/a
Bethany silt loam, 0 to 1 percent slopes	3.5	47	55	7.0	-	375	33
Bethany silt loam, 1 to 3 percent slopes	3.0	40	47	6.5	-	325	28
Brewer silty clay loam, 0 to 1 percent slopes	4.3	54	60	7.5	-	-	36
Canadian fine sandy loam, 0 to 1 percent slopes	4.0	49	55	7.5	1700	425	33
Chickasha loam, 0 to 1 percent slopes	3.7	55	57	7.5	1700	375	34
Chickasha loam, 1 to 3 percent slopes	3.2	48	49	7.0	1500	325	29
Dale silt loam, 0 to 1 percent slopes	5.5	68	63	8.5	1700	425	38
Gaddy loamy fine sand, 0 to 3 percent slopes	3.0	36	33	6.5	1300	-	20
Gracemont fine sandy loam, 0 to 2 percent slopes	3.7	40	43	8.0	-	-	25
Gracemore loamy fine sand, 0 to 2 percent slopes	2.5	36	34	7.0	-	-	20
Grant silt loam, 0 to 1 percent slopes	3.7	55	58	7.5	-	400	34
Grant silt loam, 1 to 3 percent slopes	3.2	48	48	7.0	-	350	29
Grant silt loam, 3 to 5 percent slopes	-	39	42	6.5	-	300	25
Grant silt loam, 5 to 8 percent slopes	-	-	30	6.0	-	-	18
Kingfisher silt loam, 1 to 3 percent slopes	-	44	48	6.5	-	275	29
Kingfisher silt loam, 3 to 5 percent slopes	-	38	40	6.5	-	225	24
Kingfisher silt loam, 5 to 8 percent slopes	-	-	28	5.5	-	-	17
Kirkland silt loam, 0 to 1 percent slopes	-	40	50	5.5	-	300	30
Kirkland silt loam, 1 to 3 percent slopes	-	34	44	5.0	-	250	26
Lela clay, 0 to 1 percent slopes	3.5	48	44	6.5	-	-	26
McLain silty clay loam, 0 to 1 percent slopes	5.5	60	60	7.5	-	425	36
Miller clay, 0 to 1 percent slopes	3.5	48	47	6.5	-	-	28
Minco loam, 0 to 1 percent slopes	2.8	55	60	8.5	1700	400	36
Minco loam, 1 to 3 percent slopes	2.3	48	52	7.5	1500	350	31
Minco loam, 3 to 5 percent slopes	-	36	44	7.0	-	300	26
Minco loam, 5 to 8 percent slopes	-	-	34	6.5	-	-	20
Nash silt loam, 1 to 3 percent slopes	-	-	40	6.0	-	275	24

Table 3. (continued)

Soil	Alfalfa T/a	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Cotton Lint lbs/a	Wheat bu/a
Nash silt loam, 3 to 5 percent slopes	-	-	32	5.5	-	225	19
Norge loam, 0 to 1 percent slopes	3.5	48	60	7.5	-	400	36
Norge loam, 1 to 3 percent slopes	3.0	41	52	7.0	-	350	31
Norge loam, 3 to 5 percent slopes	-	-	43	6.5	-	300	26
Norge loam, 5 to 8 percent slopes	-	-	32	6.0	-	-	19
Pond Creek silt loam, 0 to 1 percent slopes	3.5	50	60	7.5	-	400	36
Pond Creek silt loam, 1 to 3 percent slopes	3.0	43	52	7.0	-	350	31
Port silt loam, 0 to 1 percent slopes	5.5	65	63	8.5	-	425	38
Reinach silt loam, 0 to 1 percent slopes	5.0	63	62	8.5	1700	425	37
Renfrow silt loam, 1 to 3 percent slopes	-	34	43	5.0	-	250	26
Renfrow silt loam, 3 to 5 percent slopes	-	28	37	4.5	-	-	22
Shellabarger fine sandy loam, 0 to 1 percent slopes	3.0	55	55	7.5	-	375	33
Shellabarger fine sandy loam, 1 to 3 percent slopes	2.5	48	48	7.0	-	325	29
Shellabarger fine sandy loam, 3 to 5 percent slopes	-	40	40	6.5	-	275	24
Tabler silt loam, 0 to 1 percent slopes	-	40	47	5.5	-	300	28
Teller loam, 0 to 1 percent slopes	3.2	55	58	8.0	1700	375	35
Teller loam, 1 to 3 percent slopes	2.6	48	50	7.5	1500	325	30
Teller loam, 3 to 5 percent slopes	-	40	42	7.0	-	275	25
Teller loam, 5 to 8 percent slopes	-	-	32	6.5	-	-	19
Vanoss silt loam, 0 to 1 percent slopes	3.5	50	60	7.5	1700	400	36
Vanoss silt loam, 1 to 3 percent slopes	3.0	43	52	7.0	1500	350	31
Yahola fine sandy loam, 0 to 2 percent slopes	3.9	54	53	7.5	1600	400	32
Watonga clay, 0 to 1 percent slopes	3.5	50	43	6.5	-	-	26
Zaneis loam, 1 to 3 percent slopes	2.3	48	49	6.5	1500	325	29
Zaneis loam, 3 to 5 percent slopes	-	40	40	6.0	-	275	24

Table 4. Estimated Average Annual Yields on Key Soils in Cross Timbers - 84

Soil	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Soybeans bu/a	Wheat bu/a
Chigley gravelly sandy loam, 1 to 5 percent slopes	30	30	5.0	----	--	18
Chigley gravelly sandy loam, 5 to 12 percent slopes	--	--	4.5	----	--	--
Darnell fine sandy loam, 1 to 5 percent slopes	--	--	4.5	----	--	--
Darnell fine sandy loam, 5 to 15 percent slopes	--	--	4.0	----	--	--
Dougherty loamy fine sand, 0 to 3 percent slopes	33	34	6.0	1200	--	20
Dougherty loamy fine sand, 3 to 8 percent slopes	27	28	4.5	----	--	17
Dougherty loamy fine sand, 8 to 20 percent slopes	--	--	4.0	----	--	--
Eufaula fine sand, 0 to 3 percent slopes	25	--	4.5	1100	--	--
Eufaula fine sand, 3 to 15 percent slopes	--	--	3.5	----	--	--
Galey loamy fine sand, 0 to 3 percent slopes	41	40	6.0	1400	--	24
Konawa fine sandy loam, 0 to 1 percent slopes	51	54	7.5	1700	28	32
Konawa fine sandy loam, 1 to 3 percent slopes	45	47	7.0	1500	26	28
Konawa fine sandy loam, 3 to 5 percent slopes	37	38	6.5	----	--	23
Konawa fine sandy loam, 5 to 8 percent slopes	--	30	6.0	----	--	18
Konawa loamy fine sand, 0 to 3 percent slopes	41	44	6.0	1400	--	26
Konawa loamy fine sand, 3 to 8 percent slopes	34	35	5.5	----	--	21
Niotaze fine sandy loam, 3 to 15 percent slopes	--	--	4.5	----	--	--
Noble fine sandy loam, 1 to 3 percent slopes	44	45	6.5	1400	--	27
Noble fine sandy loam, 3 to 5 percent slopes	33	--	6.0	----	--	22
Noble fine sandy loam, 5 to 8 percent slopes	--	25	5.5	----	--	15
Noble fine sandy loam, 8 to 12 percent slopes	--	--	4.5	----	--	--
Pulaski fine sandy loam, 0 to 1 percent slopes	52	54	7.5	1600	28	32
Pulaski soils, frequently flooded, 0 to 2 percent slopes	--	--	7.0	----	--	--
Stephenville fine sandy loam, 1 to 3 percent slopes	43	45	6.0	1400	19	27
Stephenville fine sandy loam, 3 to 5 percent slopes	36	35	5.5	----	--	21
Stephenville fine sandy loam, 5 to 8 percent slopes	--	27	5.0	----	--	16
Stephenville fine sandy loam, 8 to 15 percent slopes	--	--	4.5	----	--	--
Tribbey soils, frequently flooded, 0 to 2 percent slopes	--	--	6.5	----	--	--
Weatherford fine sandy loam, 1 to 3 percent slopes	45	47	6.5	1400	20	28
Weatherford fine sandy loam, 3 to 5 percent slopes	38	37	6.0	----	--	22
Windthorst fine sandy loam, 1 to 3 percent slopes	38	43	6.0	1400	--	26
Windthorst fine sandy loam, 3 to 5 percent slopes	32	27	5.5	----	--	16

Table 5. Estimated Average Annual Yields on Key Soils in Grand Prairie - 85

Soil	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Soybeans bu/a	Wheat bu/a
Burleson clay, 0 to 1 percent slopes	60	63	7.5	28	35
Burleson clay, 1 to 3 percent slopes	55	57	7.0	25	32
Burleson clay, 3 to 5 percent slopes	45	47	6.5	20	26
Clarita silty clay, 1 to 3 percent slopes	52	54	7.0	23	30
Clarita silty clay, 3 to 5 percent slopes	45	47	6.5	19	26
Clarita silty clay, 5 to 8 percent slopes	--	40	6.0	--	22
Crockett loam, 1 to 3 percent slopes	55	60	7.0	28	33
Crockett loam, 3 to 5 percent slopes	45	47	6.5	23	26
Durant loam, 1 to 3 percent slopes	55	60	7.0	28	33
Durant loam, 3 to 5 percent slopes	45	47	6.5	23	26
Ferris clay, 3 to 5 percent slopes	45	47	6.0	19	26
Ferris clay, 5 to 20 percent slopes	--	--	4.5	--	--
Heiden clay, 1 to 3 percent slopes	55	56	6.5	23	31
Heiden clay, 3 to 5 percent slopes	45	47	6.0	19	26
Heiden clay, 5 to 12 percent slopes	--	--	4.5	--	--
Hollywood silty clay, 1 to 3 percent slopes	55	54	7.5	28	30
Hollywood silty clay, 3 to 5 percent slopes	45	45	7.0	23	25
Kaufman clay, 0 to 1 percent slopes	70	72	8.0	32	40

Table 6. Estimated Average Annual Yields on Key Soils in Bluestem Hills - 76 and Cherokee Prairies - 112

Soil	Alfalfa T/a	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Soybeans bu/a	Wheat bu/a
Apperson silty clay loam, 0 to 1 percent slopes	4.4	70	79	7.5	34	44
Apperson silty clay loam, 1 to 3 percent slopes	3.8	61	68	7.0	30	38
Apperson silty clay loam, 3 to 5 percent slopes	3.2	52	58	6.5	25	32
Bates loam, 1 to 3 percent slopes	---	59	54	6.5	22	30
Bates loam, 3 to 5 percent slopes	---	48	45	6.0	--	25
Catoosa silt loam, 1 to 3 percent slopes	---	59	54	6.5	24	30
Catoosa silt loam, 3 to 5 percent slopes	---	48	45	6.0	20	25
Catoosa silt loam, 5 to 8 percent slopes	---	--	36	5.5	--	20
Choteau silt loam, 0 to 1 percent slopes	4.5	75	82	7.5	36	45
Choteau silt loam, 1 to 3 percent slopes	3.9	70	70	7.0	32	39
Claremore loam, 1 to 3 percent slopes	---	35	40	4.5	--	22
Cleora fine sandy loam, 0 to 1 percent slopes	4.5	80	69	8.5	36	38
Collinsville fine sandy loam, 1 to 5 percent slopes	---	--	--	3.5	--	--
Coweta fine sandy loam, 1 to 15 percent slopes	---	--	--	4.0	--	--
Dennis silt loam, 1 to 3 percent slopes	3.9	70	72	7.0	33	40
Dennis silt loam, 3 to 5 percent slopes	3.2	62	58	6.5	27	32
Eram clay loam, 1 to 3 percent slopes	---	56	54	6.5	24	30
Eram clay loam, 3 to 5 percent slopes	---	45	45	6.0	20	25
Eram clay loam, 5 to 12 percent slopes	---	--	--	5.5	--	--

Table 6. (continued)

Soil	Alfalfa T/a	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Soybeans bu/a	Wheat bu/a
Lightning silt loam, 0 to 1 percent slopes	---	49	53	5.5	25	29
Lula silt loam, 1 to 3 percent slopes	3.8	63	69	7.0	30	38
Lula silt loam, 3 to 5 percent slopes	3.2	52	58	6.5	24	32
Mason silt loam, 0 to 1 percent slopes	5.5	80	83	8.5	38	46
Newtonia silt loam, 0 to 1 percent slopes	4.5	80	81	8.0	37	45
Newtonia silt loam, 1 to 3 percent slopes	3.9	70	70	7.5	32	39
Okemah silty clay loam, 0 to 1 percent slopes	4.5	75	81	7.0	36	45
Okemah silty clay loam, 1 to 3 percent slopes	3.9	70	72	7.0	33	40
Osage clay, 0 to 1 percent slopes	3.2	55	54	6.5	30	30
Parsons silt loam, 0 to 1 percent slopes	---	45	65	6.0	29	36
Parsons silt loam, 1 to 3 percent slopes	---	43	60	6.0	26	33
Radley silt loam, 0 to 1 percent slopes	5.5	80	83	8.5	38	46
Radley soils, frequently flooded, 0 to 1 percent slopes	---	--	--	7.0	--	--
Summit silty clay loam, 0 to 1 percent slopes	4.5	74	81	7.5	35	45
Summit silty clay loam, 1 to 3 percent slopes	3.9	65	71	7.0	30	39
Summit silty clay loam, 3 to 5 percent slopes	3.2	56	58	6.5	25	32
Taloka silt loam, 0 to 1 percent slopes	---	75	76	7.0	35	42
Taloka silt loam, 1 to 3 percent slopes	---	70	69	6.5	32	38
Verdigris silt loam, 0 to 1 percent slopes	5.5	80	83	8.5	38	46
Verdigris soils, frequently flooded, 0 to 1 percent slopes	---	--	--	7.0	--	--
Woodson silt loam, 0 to 1 percent slopes	---	45	65	6.0	30	36
Wynona silty clay loam, 0 to 1 percent slopes	4.2	65	63	8.5	35	35

Table 7. Estimated Average Annual Yields on Key Soils in Ozark Highlands 116, Boston Mountains 117 and Arkansas Valley and Ridges 118.

Soil	Alfalfa T/a	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Soybeans bu/a	Strawberries qts/a	Tree Height feet
Bodine cherty silt loam, 0 to 3 percent slopes	-	-	-	4.5	-	2760	4
Bodine very cherty silt loam, 1 to 8 percent	-	-	-	4.5	-	2760	4
Bodine stony silt loam, 5 to 15 percent slopes	-	-	-	4.0	-	2760	4
Bodine stony silt loam, 15 to 50 percent slopes	-	-	-	-	-	-	4
Baxter silt loam, 1 to 3 percent slopes	-	55	59	6.5	23	2760	4
Baxter cherty silt loam, 1 to 3 percent slopes	-	50	54	6.0	21	2760	4
Clarksville stony silt loam, 5 to 20 percent slopes	-	-	-	4.5	-	2760	4
Clarksville stony silt loam, 20 to 50 percent slopes	-	-	-	-	-	-	4
Counts silt loam, 0 to 1 percent slopes	-	53	52	7.0	29	-	4
Counts silt loam, 1 to 3 percent slopes	-	50	50	7.0	26	-	4
Dickson silt loam, 1 to 3 percent slopes	-	55	59	6.0	23	2760	4
Dickson cherty silt loam, 0 to 3 percent slopes	-	43	46	5.0	18	2760	4
Enders loam, 3 to 8 percent slopes	-	-	-	5.0	-	-	4
Enders stony loam, 2 to 12 percent slopes	-	-	-	4.5	-	-	4
Enders stony loam, 12 to 30 percent slopes	-	-	-	4.0	-	-	4
Etowah silt loam, 0 to 1 percent slopes	-	78	84	8.5	33	-	2
Etowah silt loam, 1 to 3 percent slopes	-	67	72	8.0	28	-	2
Garton silty clay loam, 0 to 1 percent slopes	6.0	80	86	8.5	40	-	2
Hector stony sandy loam, 10 to 30 percent slopes	-	-	-	4.0	-	-	5

Table 7. (continued) Estimated Average Annual Yields on Key Soils in Ozark Highlands 116, Boston Mountains 117 and Arkansas Valley and Ridges 118.

Soil	Alfalfa T/a	Grain Sorghum bu/a	Oats bu/a	Pasture Animal U/Mo's	Soybeans bu/a	Strawberries qts/a	Tree Height feet
Hector stony sandy loam, 30 to 60 percent slopes	-	-	-	-	-	-	5
Kiomatia fine sandy loam, 0 to 2 percent slopes	3.5	54	58	7.5	-	-	2
Lela clay, 0 to 1 percent slopes	3.5	55	58	7.0	30	-	3
Linker fine sandy loam, 1 to 3 percent slopes	-	60	64	6.5	27	2640	4
Linker fine sandy loam, 3 to 5 percent slopes	-	47	51	6.0	21	2640	4
Linker fine sandy loam, 5 to 8 percent slopes	-	-	-	5.0	-	2640	4
Oklared very fine sandy loam, 0 to 1 percent slopes	5.0	80	71	9.0	35	-	2
Redport loam, 0 to 1 percent slopes	6.0	85	88	9.0	40	-	2
Sallisaw loam, 0 to 1 percent slopes	-	72	77	8.0	30	2760	3
Sallisaw loam, 1 to 3 percent slopes	-	64	69	7.5	27	2760	3
Sallisaw loam, 3 to 5 percent slopes	-	57	61	7.0	24	-	3
Sallisaw loam, 5 to 8 percent slopes	-	38	41	6.5	-	2760	3
Stigler silt loam, 0 to 1 percent slopes	-	63	68	7.5	34	-	4
Stigler silt loam, 1 to 3 percent slopes	-	60	63	7.5	30	-	4
Tamaha loam, 1 to 3 percent slopes	-	65	70	7.5	32	-	4
Tamaha loam, 3 to 5 percent slopes	-	57	61	7.0	26	-	4
Vian silt loam, 1 to 3 percent slopes	-	60	64	7.0	27	-	4
Vian silt loam, 3 to 5 percent slopes	-	50	54	6.5	21	-	4
Wister silt loam, 1 to 3 percent slopes	-	43	46	6.0	25	-	5
Wister silt loam, 3 to 5 percent slopes	-	37	40	5.5	21	-	5

Table 8. Estimated Average Annual Yields on Key Soils in Ouachita Mountains - 119

Soil	Grain Sorghum bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Soybeans bu/a	Tree Height feet
Alikchi loam, 1 to 3 percent slopes	--	6.0	----	--	3
Bigfork stony loam, 20 to 60 percent slopes	--	---	----	--	5
Carnasaw gravelly loam, 8 to 20 percent slopes	--	5.0	----	--	3
Carnasaw stony loam, 20 to 45 percent slopes	--	---	----	--	4
Ceda gravelly loam, 0 to 2 percent slopes	--	4.0	----	--	-
Counts silt loam, 0 to 1 percent slopes	53	7.0	----	29	4
Dela fine sandy loam, 0 to 1 percent slopes	65	8.0	----	30	2
Dela soils; frequently flooded, 0 to 1 percent slopes	--	7.0	----	--	2
Enders loam, 2 to 20 percent slopes	--	5.0	----	--	4
Enders stony loam, 20 to 45 percent slopes	--	---	----	--	5
Endsaw loam, 2 to 20 percent slopes	--	5.0	----	--	5
Endsaw stony loam, 20 to 45 percent slopes	--	---	----	--	5
Goldston gravelly loam, 12 to 30 percent slopes	--	---	----	--	4
Hector fine sandy loam, 10 to 30 percent slopes	--	---	----	--	5
Honobia gravelly loam, 8 to 20 percent slopes	--	5.5	----	--	4
Kanima soils, 1 to 30 percent slopes	--	2.0	----	--	-
Linker fine sandy loam, 1 to 3 percent slopes	60	6.5	1200	27	4
Linker fine sandy loam, 3 to 5 percent slopes	47	6.0	1000	21	4
Moyers silt loam, 1 to 3 percent slopes	60	6.0	----	27	5
Moyers silt loam, 3 to 5 percent slopes	47	5.5	----	21	5
Naldo fine sandy loam, 0 to 3 percent slopes	68	7.0	1400	30	2
Naldo fine sandy loam, 3 to 5 percent slopes	50	6.5	1150	23	2
Nashoba gravelly loam, 8 to 20 percent slopes	--	6.0	----	--	4
Pickens shaly silt loam, 0 to 15 percent slopes	--	2.5	----	--	5

Table 8. (Continued) Estimated Average Annual Yields on Key Soils in Ouachita Mountains - 119

Soil	Grain Sorghum bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Soybeans bu/a	Tree Height feet
Pirum fine sandy loam 12 to 20 percent slopes	--	5.5	----	--	3
Pirum fine sandy loam 20 to 45 percent slopes	--	---	----	--	4
Porum fine sandy loam, 3 to 5 percent slopes	40	5.5	----	20	4
Pushmataha loam, 0 to 1 percent slopes	68	9.0	----	30	2
Rexor silt loam, 0 to 1 percent slopes	75	9.0	1200	35	2
Sacul fine sandy loam, 5 to 20 percent slopes	--	5.0	----	--	3
Sacul gravelly fine dany loam, 20 to 45 percent slopes	--	---	----	--	3
Shermore fine sandy loam, 1 to 3 percent slopes	63	7.0	1325	28	3
Shermore fine sandy loam, 3 to 5 percent slopes	50	6.5	1100	23	3
Sherwood fine sandy loam, 1 to 3 percent slopes	63	7.0	1325	28	3
Sherwood fine sandy loam, 3 to 5 percent slopes	50	6.5	1100	23	3
Sherwood fine sandy loam, 5 to 12 percent slopes	--	5.5	----	--	3
Spiro silt loam, 1 to 3 percent slopes	60	7.0	----	27	-
Spiro silt loam, 3 to 5 percent slopes	48	6.5	----	22	-
Stigler silt loam, 0 to 1 percent slopes	63	7.5	----	34	4
Stigler silt loam, 1 to 3 percent slopes	58	7.0	----	29	4
Tamaha silt loam, 1 to 3 percent slopes	65	7.5	----	32	4
Tamaha silt loam, 3 to 5 percent slopes	57	7.0	----	26	4
Whakana loamy fine sand, 3 to 8 percent slopes	50	6.0	----	--	2
Yanush cherty silt loam, 1 to 3 percent slopes	--	5.5	----	--	4
Yanush cherty silt loam, 3 to 5 percent slopes	--	5.0	----	--	4
Yanush cherty silt loam, 5 to 20 percent slopes	--	3.5	----	--	5
Zafra loam, 1 to 8 percent slopes	41	5.0	----	--	3
Zafra loam, 8 to 20 percent slopes	--	4.0	----	--	3

Table 9. Estimated Average Annual Yields on Key Soils in Southern Coastal Plain - 133

Soil	Alfalfa T/a	Grain Sorghum bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Soybeans bu/a	Tree Height feet
Bernow fine sandy loam, 0 to 1 percent slopes	-	65	8.5	1600	28	4
Bernow fine sandy loam, 1 to 3 percent slopes	-	55	8.0	1400	25	4
Bernow fine sandy loam, 3 to 5 percent slopes	-	46	7.5	1150	21	4
Bernow fine sandy loam, 5 to 8 percent slopes	-	-	6.5	-	-	4
Bernow fine sandy loam, 8 to 20 percent slopes	-	-	6.0	-	-	4
Bernow loamy fine sand, 0 to 3 percent slopes	-	48	6.5	1100	20	4
Bernow loamy fine sand, 3 to 8 percent slopes	-	-	6.0	-	-	4
Blevins fine sandy loam, 1 to 3 percent slopes	-	55	8.0	1400	25	2
Bosville fine sandy loam, 1 to 3 percent slopes	-	50	7.5	1275	25	4
Bosville fine sandy loam, 3 to 5 percent slopes	-	42	6.5	1075	19	4
Bosville fine sandy loam, 5 to 12 percent slopes	-	-	6.0	-	-	4
Cadeville loam, 2 to 5 percent slopes	-	42	6.5	-	19	3
Cahaba fine sandy loam, 0 to 1 percent slopes	-	63	9.5	1650	28	2
Cahaba fine sandy loam, 1 to 3 percent slopes	-	55	8.0	1400	25	2
Caspiana silt loam, 0 to 1 percent slopes	6.0	88	10.0	1700	40	2
Coushatta silty clay loam, 0 to 1 percent slopes	6.0	88	10.0	-	40	2
Felker loam, 0 to 2 percent slopes	-	53	7.0	-	23	2
Frizzell loam, 0 to 1 percent slopes	-	54	7.5	-	24	2
Gallion very fine sandy loam, 0 to 1 percent slopes	6.0	84	10.0	1700	38	2
Garton silt loam, 0 to 1 percent slopes	6.0	84	10.0	-	38	2
Gasil fine sandy loam, 1 to 3 percent slopes	-	55	8.0	1400	25	-
Gasil fine sandy loam, 3 to 5 percent slopes	-	46	7.5	1150	21	-
Guyton silt loam, 0 to 1 percent slopes	-	-	7.0	-	23	2
Hamden fine sandy loam, 0 to 2 percent slopes	-	60	7.5	-	27	3
Idabel silt loam, 0 to 1 percent slopes	6.0	85	10.0	1700	40	2
Kinta clay loam, 0 to 2 percent slopes	-	-	6.5	-	23	3

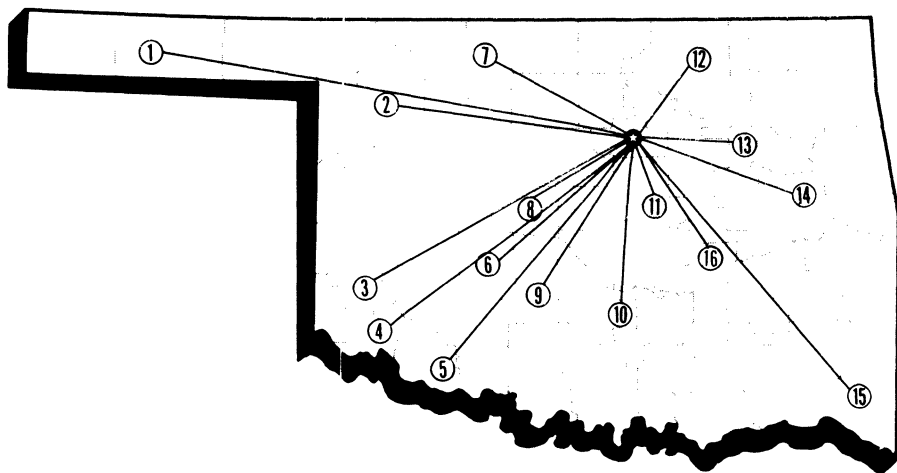
Table 9. (continued) Estimated Average Annual Yields on Key Soils in Southern Coastal Plain - 133

Soil	Alfalfa T/a	Grain Sorghum bu/a	Pasture Animal U/Mo's	Peanuts lbs/a	Soybeans bu/a	Tree Height feet
Kiوماتia fine sandy loam, 0 to 2 percent slopes	3.5	54	7.5	-	-	2
Kiوماتia soils, frequently flooded, 0 to 2 percent slopes	-	-	7.5	-	-	2
Konsil loamy fine sand, 0 to 3 percent slopes	-	48	6.5	1100	20	-
Konsil loamy fine sand, 3 to 8 percent slopes	-	40	6.0	-	-	-
Kullit fine sandy loam, 0 to 2 percent slopes	-	60	8.5	-	23	2
Latanier clay, 0 to 1 percent slopes	3.5	50	7.0	-	25	2
Muskogee loam, 1 to 3 percent slopes	-	55	7.5	-	27	3
Ochlockonee fine sandy loam, 0 to 1 percent slopes	-	65	9.0	1550	-	2
Oklared very fine sandy loam, 0 to 1 percent slopes	5.0	75	10.0	1700	30	2
Pledger Clay, 0 to 1 percent slopes	4.0	63	7.0	-	25	3
Redlake clay, 0 to 1 percent slopes	4.0	62	7.0	-	25	3
Redport silty clay loam, 0 to 1 percent slopes	6.0	85	9.0	-	40	2
Ruston fine sandy loam, 1 to 3 percent slopes	-	60	8.0	1400	25	3
Ruston fine sandy loam, 3 to 5 percent slopes	-	46	7.5	1150	21	3
Ruston fine sandy loam, 5 to 8 percent slopes	-	-	7.0	-	-	3
Ruston loamy fine sand, 0 to 3 percent slopes	-	48	7.0	1100	-	3
Ruston loamy fine sand, 3 to 8 percent slopes	-	-	6.5	-	-	3
Saffell gravelly fine sandy loam, 1 to 5 percent slopes	-	33	5.0	-	-	4
Saffell gravelly fine sandy loam, 5 to 12 percent slopes	-	-	4.5	-	-	4
Severn very fine sandy loam, 0 to 1 percent slopes	6.0	85	10.0	1700	40	2
Tiak fine sandy loam, 1 to 3 percent slopes	-	50	7.0	1275	23	3
Tiak fine sandy loam, 3 to 5 percent slopes	-	42	6.5	1075	19	3
Tiak fine sandy loam, 5 to 8 percent slopes	-	-	6.0	-	-	3
Tomast silt loam, 0 to 2 percent slopes	-	-	7.0	-	23	2
Tuscumbia clay, 0 to 1 percent slopes	-	-	7.0	-	-	3
Wrightsville silt loam, 0 to 1 percent slopes	-	-	7.0	-	23	3

OKLAHOMA

Agricultural Experiment Station

System Covers the State



Main Station — Stillwater, Perkins and Lake Carl Blackwell

1. Panhandle Research Station — Goodwell
2. Southern Great Plains Field Station — Woodward
3. Sandyland Research Station — Mangum
4. Irrigation Research Station — Altus
5. Southwest Agronomy Research Station — Tipton
6. Caddo Research Station — Ft. Cobb
7. North Central Research Station — Lahoma
8. Southwestern Livestock and Forage Research Station — El Reno
9. South Central Research Station — Chickasha
10. Agronomy Research Station — Stratford
11. Pecan Research Station — Sparks
12. Veterinary Research Station — Pawhuska
13. Vegetable Research Station — Bixby
14. Eastern Research Station — Haskell
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