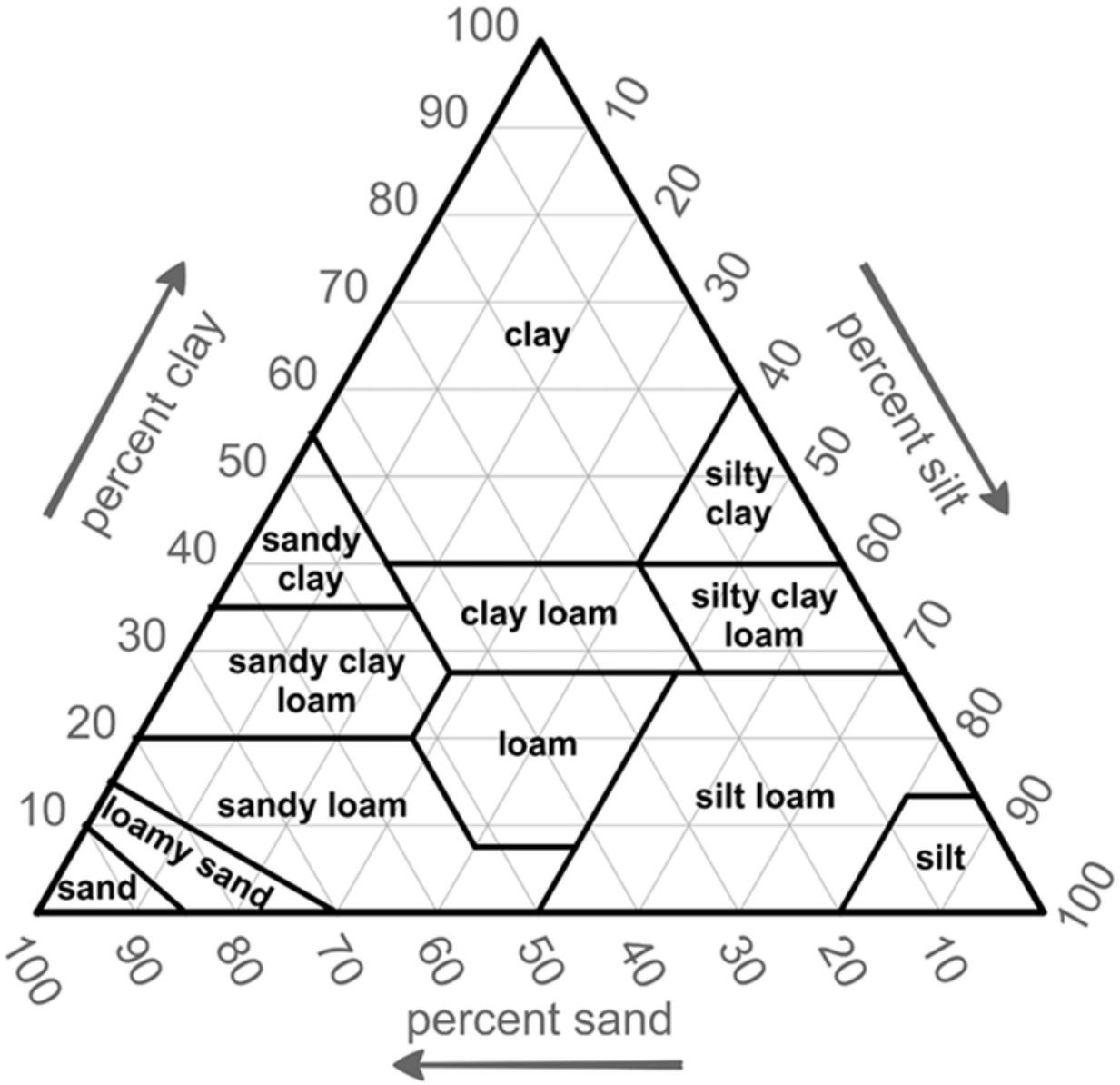
100
90
80
70
60
50
40
30
20
10
percent clay
percent silt
percent sand
clay
silty clay
sandy clay
clay loam
silty clay loam
sandy clay loam
loam
silt loam
sandy loam
loamy sand
sand
silt

Minor Components

Betis

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F133BY008TX - Northern Deep Sandy Upland
Hydric soil rating: No

Sacul

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Guyton

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY017TX - Loamy Bottomland
Hydric soil rating: Yes

EaC—Eastwood silt loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vxks
Elevation: 150 to 400 feet
Mean annual precipitation: 49 to 66 inches
Mean annual air temperature: 54 to 77 degrees F
Frost-free period: 212 to 262 days
Farmland classification: Not prime farmland

Map Unit Composition

Eastwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eastwood

Setting

Landform: Interfluves
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey marine deposits

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 45 inches: clay
H3 - 45 to 67 inches: silty clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Briley

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY006TX - Northern Sandy Loam Upland
Hydric soil rating: No

Sawyer

Percent of map unit: 5 percent
Landform: Fluviomarine terraces
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Minor Components

Smithdale
Percent of map unit: 9 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Malbis
Percent of map unit: 6 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY007TX - Southern Sandy Loam Upland
Hydric soil rating: No

RuD—Ruston fine sandy loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2wdl1
Elevation: 50 to 400 feet
Mean annual precipitation: 47 to 66 inches
Mean annual air temperature: 52 to 72 degrees F
Frost-free period: 205 to 300 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Ruston and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ruston

Setting
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Pleistocene loamy fluviomarine deposits

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 9 inches: fine sandy loam
Bt - 9 to 46 inches: sandy clay loam
Bt/E - 46 to 55 inches: fine sandy loam
B't - 55 to 80 inches: sandy clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Minor Components

Savannah

Percent of map unit: 8 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Smithdale

Percent of map unit: 5 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Malbis

Percent of map unit: 2 percent
Landform: Interfluves
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F133BY007TX - Southern Sandy Loam Upland

Hydric soil rating: No

SaC—Sacul fine sandy loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2tnhx
Elevation: 150 to 450 feet
Mean annual precipitation: 42 to 63 inches
Mean annual air temperature: 59 to 72 degrees F
Frost-free period: 190 to 259 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sacul and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sacul

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 12 inches: fine sandy loam
Bt - 12 to 39 inches: clay
Btg - 39 to 53 inches: sandy clay
BCg - 53 to 62 inches: clay loam
C - 62 to 80 inches: clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.1 to 0.3 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D
Ecological site: F133BY003TX - Loamy Over Clayey Upland
Hydric soil rating: No

Minor Components

Bowie
Percent of map unit: 10 percent
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

VaC—Vaiden loam, 1 to 5 percent slopes

Map Unit Setting
National map unit symbol: 1vxlt
Elevation: 150 to 400 feet
Mean annual precipitation: 49 to 66 inches
Mean annual air temperature: 54 to 77 degrees F
Frost-free period: 212 to 262 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Vaiden and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vaiden

Setting
Landform: Ridges
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Calcareous clayey alluvium

Typical profile
H1 - 0 to 3 inches: loam
H2 - 3 to 34 inches: clay
H3 - 34 to 73 inches: clay

Properties and qualities
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Water Features (Resource 2)

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or

soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

The *months* in the table indicate the portion of the year in which a water table, ponding, and/or flooding is most likely to be a concern.

Water table refers to a saturated zone in the soil. The water features table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. The kind of water table, apparent or perched, is given if a seasonal high water table exists in the soil. A water table is perched if free water is restricted from moving downward in the soil by a restrictive feature, in most cases a hardpan; there is a dry layer of soil underneath a wet layer. A water table is apparent if free water is present in all horizons from its upper boundary to below 2 meters or to the depth of observation. The water table kind listed is for the first major component in the map unit.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual

weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
BeC—Betis loamy fine sand, 1 to 5 percent slopes											
Betis	A	Negligible	Jan-Dec	—	—	—	—	—	None	—	None
BrC—Briley loamy fine sand, 1 to 5 percent slopes											
Briley	B	Very low	Jan-Dec	—	—	—	—	—	None	—	None
BRE—Briley loamy fine sand, 5 to 12 percent slopes											
Briley	B	Low	Jan-Dec	—	—	—	—	—	None	—	None
EaC—Eastwood silt loam, 1 to 5 percent slopes											
Eastwood	D	Very high	Jan-Dec	—	—	—	—	—	None	—	None
EAE—Eastwood silt loam, 5 to 12 percent slopes											
Eastwood	D	Very high	Jan-Dec	—	—	—	—	—	None	—	None
GuA—Guyton silt loam, 0 to 1 percent slopes, occasionally flooded											
Guyton	C/D	High	Jan-May	0.0-1.5	6.0	Apparent	—	—	None	Long (7 to 30 days)	Occasional
			Jun-Sep	—	—	—	—	—	None	—	
			Oct-Nov	—	—	—	—	—	None	Long (7 to 30 days)	Occasional
			Dec	0.0-1.5	6.0	Apparent	—	—	None	Long (7 to 30 days)	Occasional

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
GYA—Guyton-Iulus complex, 0 to 1 percent slopes, frequently flooded											
Guyton	C/D	High	Jan-May	0.0-1.5	6.0	Apparent	—	—	None	Long (7 to 30 days)	Frequent
			Jun-Aug	—	—	—	—	—	None	—	
			Sep-Nov	—	—	—	—	—	None	Long (7 to 30 days)	Frequent
			Dec	0.0-1.5	6.0	Apparent	—	—	None	Long (7 to 30 days)	Frequent
Iulus	C	Negligible	Jan-Apr	1.0-3.0	6.0	Apparent	—	—	None	Brief (2 to 7 days)	Frequent
			May-Nov	—	—	—	—	—	None	—	
			Dec	1.0-3.0	6.0	Apparent	—	—	None	Brief (2 to 7 days)	Frequent
HoC—Hornbeck clay, 1 to 5 percent slopes											
Hornbeck	D	Very high	Jan-Dec	—	—	—	—	—	None	—	None
RuB—Ruston fine sandy loam, 1 to 3 percent slopes											
Ruston	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
RuD—Ruston fine sandy loam, 3 to 8 percent slopes											
Ruston	B	Medium	Jan-Dec	—	—	—	—	—	None	—	None
SaC—Sacul fine sandy loam, 1 to 5 percent slopes											
Sacul	D	High	Jan-Apr	2.0-3.2	3.5-4.4	Perched	—	—	None	—	None
			May-Nov	—	—	—	—	—	None	—	None
			Dec	2.0-3.2	3.5-4.4	Perched	—	—	None	—	None
VaC—Vaiden loam, 1 to 5 percent slopes											
Vaiden	D	Very high	Jan-Mar	1.0-2.0	6.0	Apparent	—	—	None	—	None
			Apr-Oct	—	—	—	—	—	None	—	None
			Nov-Dec	1.0-2.0	6.0	Apparent	—	—	None	—	None

Map unit symbol and soil name	Hydrologic group	Surface runoff	Most likely months	Water table			Ponding			Flooding	
				Upper limit	Lower limit	Kind	Surface depth	Duration	Frequency	Duration	Frequency
				Ft	*Ft*		*Ft*				
W—Water											
Water	D		Jan-Dec	—	—	—	—	—	—	—	

Chufa Cultivation for Wildlife Forage (LA)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Gy	Guyton-Rosebloom complex, frequently flooded	Very poorly suited	Guyton (50%)	Depth to saturated zone (0.00)	20.4	17.3%
				Flooding (0.02)		
				Too acid or too alkaline (0.03)		
				Fair surface texture (0.60)		
				Climate (0.91)		
			Rosebloom (30%)	Ponding (0.00)		
				Depth to saturated zone (0.00)		
				Flooding (0.02)		
				Too acid or too alkaline (0.22)		
				Fair surface texture (0.60)		
Os	Ora-Savannah association, gently rolling	Very poorly suited	Ora (40%)	Depth cemented pan (0.00)	9.1	7.7%
				Too acid or too alkaline (0.00)		
				Drainage (0.80)		
				Low Water Erosion (0.86)		
				Climate (0.91)		
			Savannah (35%)	Depth cemented pan (0.00)		
				Too acid or too alkaline (0.00)		
				Drainage (0.80)		
				Climate (0.91)		
				Low Water Erosion (0.98)		
Ry	Ruston-Lucy association, hilly	Well suited	Ruston (41%)	Low Water Erosion (0.77)	88.4	75.0%
				Too acid or too alkaline (0.78)		
				Climate (0.91)		
Totals for Area of Interest					**117.8**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Well suited	88.4	75.0%
Very poorly suited	29.5	25.0%
Totals for Area of Interest	**117.8**	**100.0%**

Description

The Chufa Cultivation for Wildlife Forage (LA) interpretation evaluates a soil's suitability for planting and cultivating chufa in food plots to produce forage for upland wildlife species. The ratings are for soils in their natural condition and do not consider present land use.

Chufa (Cyperus esculentus L.) is a perennial gramminoid in the Family Cyperaceae. Other common names for chufa include flat sedge, earth almond, nut-grass, ground nut, tiger nut, and duck potato. In the lower 48 United States, some infra-taxa are native and others are introduced. Chufa has rhizomes with tuberous thickenings (commonly called nut-grass tubers) that are utilized by wildlife species (e.g. wild turkey, white-tailed deer, waterfowl, etc.).

Chufa is cultivated for upland wildlife species in food plots as part of a wildlife habitat management system. There should be consideration when establishing food plots for any wildlife species that the scale be appropriate to avoid increased predation on the target species. A consideration when establishing a vegetative species that is not a native component of the ecosystem, is the potential for future competition with beneficial native vegetation. Food plot establishment is typically much less beneficial to wildlife needs than reestablishing native vegetative components, or manipulations to manage the overall habitat that mimic applicable natural processes of succession, such as prescribed burning, select timber harvest, mid or understory vegetation manipulations, or planned soil disturbances.

The soil properties and qualities considered in the ratings are those that affect planting and growth of chufa and those that affect ease of tuber extraction by upland wildlife species. The soil properties that affect establishment and growth of chufa are surface texture; pH; salinity; soil drainage; surface gravel, cobbles, and stones; flooding; ponding; depth to water table; slope; and mean annual precipitation.

Numerical ratings or values indicate the relative degree of suitability attributed to individual soil features that sustain conventional tillage practices. Ratings are shown for supporting soil features as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest positive impact on the tillage system (1.00) and the point at which the soil feature is not suited (0.00). The overall interpretive rating assigned is the minimum degree of suitability of each soil interpretive feature considered in the rating process.

Rating class terms indicate the extent to which the soils are suited by the soil features that affect the soil interpretation. Soil rating classes are based on the lowest numerical rating for the least suited soil feature(s) considered in the rating process. The effort required to sustain the practice will increase as the numerical rating decreases. The "Very well suited" class (numerical value for the least suitable features less than or equal to 1.0 to greater than 0.8) indicates that the soil has the best-suited features for growing chufa. The "Well suited" class (numerical value for the least suitable features less than or equal to 0.8 to greater than 0.6) indicates that the soil has some unsuitable features for growing chufa,

but those conditions can generally be overcome with minimal effort and management. The "Moderately suited" class (numerical value for the least suitable feature less than or equal to 0.6 to greater than 0.4) indicates that the soil has unsuitable features for growing chufa that are somewhat difficult to overcome and require more management. The "Poorly suited" class (numerical value for the least suitable feature less than or equal to 0.4 to greater than 0.2) indicates that the soil has generally unsuitable features for growing chufa that are more difficult to overcome and require more intense management. The "Very poor suited" class (numerical value for the least suitable feature less than or equal to 0.2) indicates that the soil has unsuitable features for growing chufa and turkey foraging that are very difficult or impractical to overcome and or have a high chance of failure.

Soil features having a greater degree of suitability then the minimum are identified to provide the user with additional information about the soil's suitability. These soil features also need to be considered when planting chufa.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Soil Susceptibility to Compaction

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Fz	Frizzell-Guyton complex, 0 to 2 percent slopes	High	Frizzell (63%)	Soil texture, 0-12 inches (1.00)	149.7	80.6%
				Rock fragments, 0-12 inches (1.00)		
				Soil structure grade, 0-12 inches (1.00)		
				Bulk density-compactibility to 30cm (1.00)		
				Organic matter content, 0-30 cm (1.00)		
GY	Guyton silt loam, 0 to 1 percent slopes, frequently flooded	Medium	Guyton, frequently flooded (85%)	Soil texture, 0-12 inches (1.00)	36.0	19.4%
				Rock fragments, 0-12 inches (1.00)		
				Soil structure grade, 0-12 inches (1.00)		
				Organic matter content, 0-30 cm (1.00)		
				Subaerial (1.00)		
Totals for Area of Interest					**185.7**	**100.0%**

Rating	Acres in AOI	Percent of AOI
High	149.7	80.6%
Medium	36.0	19.4%
Totals for Area of Interest	**185.7**	**100.0%**

Description

Soils are rated based on their susceptibility to compaction from the operation of ground-based equipment for planting, harvesting, and site preparation activities when soils are moist. Soil compaction is the process in which soil particles are pressed together more closely that in the original state. Typically, the soil must be moist to be compacted because the mineral grains must slide together. Compaction reduces the abundance mostly of large pores in the soil by damaging the structure of the soil. This produces several effects that are unwanted in agricultural soils since large pores are most effective at transmitting water and air through the soil. Compaction also increases the soil strength which can limit root penetration and growth. The ability of soil to hold water is adversely affected by compaction since the large pores hold water. The degree of compaction of a soil is measured by its bulk density, which is the mass per unit volume, generally expressed in grams per cubic centimeter.

Compacted soils are less favorable for good plant growth because of high soil bulk density and hardness, reduced pore space, and poor aeration and drainage. Root penetration and growth is decreased in compacted soils because the hardness or strength of these soils prevents the expansion of roots. Supplies of air, water, and nutrients that roots need are also less favorable when compaction decreases soil porosity and drainage.

Interpretation ratings are based on soil properties in the upper 12 inches of the profile. Factors considered are soil texture, soil organic matter content, soil structure, rock fragment content, and the existing bulk density. Each of these is thought to contribute to resisting the susceptibility of a soil to compaction when present. Organic matter in the soil provides resistance to compaction and the resilience to ameliorate the effects with time. Soil structure adds strength as discrete aggregates and it is the aggregates that are deformed or destroyed by compactive forces, thus strong soil structure lowers the susceptibility to compaction. Similarly, rock fragments in the soil can bridge and provide a framework to resist compaction. Finally, if a soil is already fairly dense causing further compaction is more difficult.

Definitions of the ratings:

Low - The potential for compaction is insignificant. This soil is able to support standard equipment with minimal compaction. The soil is moisture insensitive, exhibiting only small changes in density with changing moisture content.

Medium - The potential for compaction is significant. The growth rate of seedlings may be reduced following compaction. After the initial compaction (i.e., the first equipment pass), this soil is able to support standard equipment with only minimal increases in soil density. The soil is intermediate between moisture insensitive and moisture sensitive.

High - The potential for compaction is significant. The growth rate of seedlings will be reduced following compaction. After initial compaction, this soil is still able to support standard equipment, but will continue to compact with each

subsequent pass. The soil is moisture sensitive, exhibiting large changes in density with changing moisture content.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

References:

Adams, P.W. 1998. Soil Compaction on Woodland Properties. Oregon State University Extension Publication EC 1109.

Adams, P.W. 1981. Compaction of Forest Soils. Oregon State University Extension Publication PNW 217.

Boyer, Don. 1997. Guidelines for Soil Resource Protection and Restoration for Timber Harvest and Post-Harvest Activities. U.S Forest Service, Pacific Northwest Region, Watershed Management.

Geist, J.M.; Hazard, J.W.; Seidel, K.W. 1989. Assessing Physical Conditions of Some Pacific Northwest Volcanic Ash Soils After Forest Harvest. Soil Science Society of America Journal 53:946-950.

Froehlich, Henry A and David H. McNab. 1983. Minimizing Soil Compaction in Pacific Northwest Forests. Proceedings of Sixth North American Forest Soils Conference, University of Tennessee.

Page-Dumrose, Deborah S. 1993. Susceptibility of Volcanic Ash Influenced Soils in Northern Idaho to Mechanical Compaction. U.S. Forest Service Intermountain Research Station. Research Note INT-409.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Table—Farmland Classification (Resource 5 - Pawnee County, Oklahoma)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
APPA	Ashport, Port and Pulaski soils, 0 to 1 percent slopes, frequently flooded	Not prime farmland	3.5	2.1%
CoLC	Coyle-Lucien complex, 1 to 5 percent slopes	All areas are prime farmland	4.8	2.9%
GAMD	Grainola-Ashport frequently flooded-Mulhall complex, 0 to 8 percent slopes	Not prime farmland	25.7	15.5%
GMLG	Grainola-Masham-Lucien complex, 5 to 40 percent slopes, very bouldery	Not prime farmland	5.5	3.3%
KrdB	Kirkland silt loam, 1 to 3 percent slopes	All areas are prime farmland	28.6	17.3%
MulC	Mulhall loam, 3 to 5 percent slopes	All areas are prime farmland	4.1	2.4%
NorB	Norge silt loam, 1 to 3 percent slopes	All areas are prime farmland	7.7	4.7%
NorC	Norge silt loam, 3 to 5 percent slopes	All areas are prime farmland	24.2	14.6%
NorC2	Norge silt loam, 3 to 5 percent slopes, eroded	Not prime farmland	5.6	3.4%
RenB	Renfrow silt loam, 1 to 3 percent slopes	All areas are prime farmland	17.8	10.8%
RenC2	Renfrow silt loam, 3 to 5 percent slopes, eroded	Not prime farmland	16.0	9.7%
ZaHC	Zaneis-Huska complex, 1 to 5 percent slopes	All areas are prime farmland	22.1	13.4%
Totals for Area of Interest			**165.5**	**100.0%**

Rating Options—Farmland Classification (Resource 5 - Pawnee County, Oklahoma)

Aggregation Method: No Aggregation Necessary

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the

map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The majority of soil attributes are associated with a component of a map unit, and such an attribute has to be aggregated to the map unit level before a thematic map can be rendered. Map units, however, also have their own attributes. An attribute of a map unit does not have to be aggregated in order to render a corresponding thematic map. Therefore, the "aggregation method" for any attribute of a map unit is referred to as "No Aggregation Necessary".

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Hydrologic Soil Group and Surface Runoff (Resource 5 - Pawnee County, Oklahoma)

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff (Resource 5 - Pawnee County, Oklahoma)

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff–Pawnee County, Oklahoma			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
APPA—Ashport, Port and Pulaski soils, 0 to 1 percent slopes, frequently flooded			
Ashport, frequently flooded	40	Negligible	B
Port, frequently flooded	35	Negligible	B
Pulaski, frequently flooded	15	Negligible	A
CoLC—Coyle-Lucien complex, 1 to 5 percent slopes			
Coyle	60	Medium	C
Lucien	32	Very high	D
GAMD—Grainola-Ashport frequently flooded-Mulhall complex, 0 to 8 percent slopes			
Grainola	26	High	C
Ashport, frequently flooded	21	Negligible	B
Mulhall	20	Low	B
GMLG—Grainola-Masham-Lucien complex, 5 to 40 percent slopes, very bouldery			
Grainola, very bouldery	37	Very high	D
Masham, very bouldery	22	Very high	D
Lucien, very bouldery	21	Very high	D
KrdB—Kirkland silt loam, 1 to 3 percent slopes			
Kirkland	80	Very high	D
MulC—Mulhall loam, 3 to 5 percent slopes			
Mulhall	75	Low	B
NorB—Norge silt loam, 1 to 3 percent slopes			
Norge	85	Low	B
NorC—Norge silt loam, 3 to 5 percent slopes			
Norge	90	Low	B

Hydrologic Soil Group and Surface Runoff–Pawnee County, Oklahoma			
Map symbol and soil name	**Pct. of map unit**	**Surface Runoff**	**Hydrologic Soil Group**
NorC2—Norge silt loam, 3 to 5 percent slopes, eroded			
Norge, eroded	85	Low	C
RenB—Renfrow silt loam, 1 to 3 percent slopes			
Renfrow	85	Very high	D
RenC2—Renfrow silt loam, 3 to 5 percent slopes, eroded			
Renfrow	85	Very high	D
ZaHC—Zaneis-Huska complex, 1 to 5 percent slopes			
Zaneis	54	Low	B
Huska	32	Negligible	C