

TABLE 21.—General characteristics of soils of the central section of the Shelterbelt Zone (Nebraska and Kansas)

Soil type	Approximate percentage of area in States of central section	Physiography and drainage	Native vegetation	Approximate (minimum) depth of water table
Albion (fine-textured types) ¹	Kansas, 0.20	Undulating to rolling well-drained upland.	Tall and mixed grasses	Feet 40-100
Albion (sandy types) ¹	Kansas, 0.10	do.	Tall grasses	40-100
Arkansas ²	Kansas, 4.00	Nearly level to undulating bottom lands; surface drainage variable.	Tall grasses; trees and shrubs	5-50
Boyd ³	Nebraska, 0.70	Nearly level to hilly upland; surface drainage good to excessive, underdrainage slow.	Short grasses	90
Bremer ⁴	(⁵)	Nearly level low terrace, well drained	Tall grasses; trees and shrubs	20-50
Bridgeport-Mitchell ⁵	Nebraska, 0.50	Nearly level well-drained terrace or gradual colluvial slopes.	Short and bunch grasses	20-75
Canyon ⁶	(⁷)	Rolling to hilly excessively drained upland	Short and bunch grasses, yucca	50-100
Cass ⁷	(Nebraska, 8.50)	Nearly level bottom land; drainage variable.	Tall grasses, trees, and shrubs	5-15
Castleton ⁸	(Kansas, 2.00)			
Cheyenne ⁹	(¹⁰)	Nearly level to undulating upland, surface drainage good, underdrainage slow.	Short and mixed grasses	50-100
Colby ⁷	(Nebraska, 19.80)	Nearly level terrace; excessive underdrainage.	Short and bunch grasses; yucca, cactus	15-60
Crete ⁷	(Kansas, 16.12)	Nearly level to hilly and broken surface; drainage good to excessive.	Short and bunch grasses	50-100
Dawes ⁵	(Nebraska, 0.30)	Nearly level to undulating upland; surface drainage fair, underdrainage slow.	Short and mixed grasses	50-100
Dickinson ⁸	(¹¹)	Nearly level to undulating upland; surface drainage fair to good, underdrainage slow.	Short grasses	100
Dunesand ⁷	(Nebraska, 4.00)	Nearly level to rolling upland; underdrainage good	Tall grasses	15-60
Dunlap ⁹	(Nebraska, 14.40)	Rolling to hilly upland; underdrainage good to excessive.	Tall and bunch grasses; yucca	20-60
Englewood (fine-textured types) ⁷	(Kansas, 1.08)			
Englewood (sandy types) ²	(¹²)	Nearly level upland; surface drainage good, underdrainage slow.	Short grasses	100
Epping ¹⁰	(¹³)	Nearly level to gently rolling well-drained upland	Tall and mixed grasses	50-100
Ewing ¹¹	(¹⁴)	Undulating to gently rolling well-drained upland	Tall grasses	50-100
Gannett ³	(¹⁵)	Steeply sloping to hilly, well to excessively drained upland.	Short grasses	50-100
Greensburg ²	(¹⁶)	Level to undulating uplands; surface drainage good, underdrainage slow.	Tall and mixed grasses	100
Hall ⁷	(¹⁷)	Poorly drained sand hill basins	Coarse marsh grasses; cattail sedges	0-15
Holdrede ⁷	(¹⁸)	Nearly level to rolling well-drained upland	Tall, mixed, and short grasses	30-100
Holt ⁸	(¹⁹)	Nearly level well-drained terraces	do.	15-50
Keith ¹²	(²⁰)	Nearly level rolling well-drained upland	Mixed and short grasses	50-100
Lamour ⁷	(²¹)	Undulating to hilly, well to excessively drained upland	Tall, mixed, and short grasses	40-100
Laurel ⁷	(²²)	Nearly level to rolling well-drained upland	Short grasses	50-100
Lincoln ¹	(²³)	Nearly level bottom lands; drainage variable.	Tall grasses; trees and shrubs	5-20
Miller ¹	(²⁴)	do.	do.	5-15
Minatare ⁵	(²⁵)	do.	do.	5-15
Moody ¹¹	(²⁶)	do.	do.	5-15
O'Neill ²	(²⁷)	do.	do.	5-15
O'Neill (upland phase) ¹¹	(²⁸)	do.	do.	5-15
Orman ¹³	(²⁹)	Nearly level to hilly, well to excessively drained upland.	Tall and mixed grasses	50-100
Pierre ¹³	(³⁰)	Nearly level to undulating terrace; underdrainage good to excessive.	Tall and mixed grasses; cactus, yucca	10-50
Plainfield-Sparta ³	(³¹)	Nearly level rolling upland; good surface drainage but excessive underdrainage.	do.	20-100
Pratt (fine-textured types) ¹	(³²)	Nearly level terrace; good surface drainage but slow underdrainage.	Short grasses	15-100
Pratt (sandy types) ¹	(³³)	Undulating to hilly upland; surface drainage good to excessive, underdrainage slow.	do.	100
Richfield (fine-textured types) ¹	(³⁴)	Nearly level to undulating terrace; underdrainage good to excessive.	Sparse tall grasses; cactus, yucca	20-60
Richfield (sandy types) ¹	(³⁵)	Nearly level to rolling well-drained upland	Tall, bunch, and short grasses	5-30
Rosebud-Sidney (fine-textured types) ⁵	(³⁶)	Nearly level to rolling well-drained upland	Tall grasses	30-100
Rosebud-Sidney (sandy types) ⁵	(³⁷)	Nearly level to rolling, well to excessively drained upland.	Short grasses	50-100
Rough broken land ¹⁴	(³⁸)	Nearly level to rolling well-drained upland	Short and mixed grasses	30-100
Sarpy ⁷	(³⁹)	Severely eroded upland	Bunch, mixed, and short grasses	30-100
Scott-Butler-Fillmore ⁷	(⁴⁰)	Nearly level bottom lands; drainage variable.	Tall grasses; trees and shrubs	5-15
Sioux ¹²	(⁴¹)	Poorly drained hard-land basins	(Variable, depending on moisture supply)	50-100
Sogn ⁷	(⁴²)	Nearly level terraces; underdrainage excessive	Tall grasses	15-50
Summit ²	(⁴³)	Steeply sloping to hilly excessively drained upland	Chiefly short and bunch grasses	50-100
Tripp-Yale ⁴	(⁴⁴)	Nearly level to hilly, well to excessively drained upland	Tall and mixed grasses	50-100
Valentine ¹²	(⁴⁵)	Nearly level well-drained terraces	Short grasses	20-75
Vernon (fine-textured types) ¹	(⁴⁶)	Nearly level to hummocky uplands; underdrainage good to excessive.	Tall and bunch grasses	10-40
Vernon (sandy types) ¹	(⁴⁷)	Rolling to rough and broken upland; drainage good to excessive.	Tall, bunch, and short grasses	100
	(⁴⁸)	Rolling to hilly well-drained upland	Tall grasses	60-100

Footnotes at end of table.

Soil type	Upper portion of soil profile	Lower portion of soil profile	Parent material	General feasibility for trees
Albion (fine-textured types) ¹	Dark brown to very dark brown; friable, loamy, 10 to 14 inches thick.	Reddish brown to brownish red; loamy to clayey; contains abundance of coarse sand and gravel; 20 to 30 inches thick.	Tertiary silts and clays	Good.
Albion (sandy types) ¹	Dark brown; friable, loamy to sandy, 8 to 14 inches thick.	Red to reddish brown; incoherent sand to friable sandy clay, 20 to 36 inches thick.	Tertiary sands and gravel.	Do.
Arkansas ²	Brown to dark brown; friable; texture and drainage variable; 8 to 12 inches thick.	Light brown to yellowish brown; loamy to sandy or gravelly, 12 to 20 inches thick.	Recent silt and silt-sand mixtures.	Do.
Boyd ³	Very dark grayish brown to black; compact, clayey, 4 to 8 inches thick.	Grayish yellow to grayish blue compact clay, 6 to 15 inches thick.	Pierre shale	Difficult to unsuited.
Bremer ⁴	Very dark grayish brown to black; friable, loamy to clayey, 8 to 12 inches thick.	Grayish brown to very dark grayish brown; moderately compact, silty to clayey, 20 to 30 inches thick.	Silts and clays	Good.
Bridgeport-Mitchell ⁵	Dark grayish brown; friable, loamy to sandy, 6 to 10 inches thick.	Very light grayish brown; friable, loamy to moderately sandy, 20 to 30 inches thick.	Silts and silt-sand mixtures.	Fair to difficult.
Canyon ⁶	Grayish brown; friable, loamy to gravelly, 2 to 7 inches thick.	Light grayish brown; friable, stony and gravelly, 2 to 12 inches thick.	Tertiary gravel and bedrock.	Difficult.
Cass ⁷	Very dark grayish brown to black; coherent to moderately loose, friable, loamy to sandy, 6 to 10 inches thick.	Incoherent grayish brown sand or sand-and-gravel mixtures, 8 to 14 inches thick.	Recent sands and gravel.	Good.
Castleton ⁸	Dark brown to grayish brown; friable, loamy, 8 to 12 inches thick.	Gray clay mixed with shaly limestone, friable, 10 to 15 inches thick.	Shaly limestone	Fair to difficult.
Cheyenne ⁹	Grayish brown; moderately loose to incoherent, loamy to gravelly, 4 to 8 inches thick.	Light grayish brown incoherent mixture of coarse sand and gravel, 12 to 18 inches thick.	Sands and gravel	Do.
Colby ⁷	Dark grayish brown to grayish brown; friable, loamy to silty, 2 to 8 inches thick.	Very light grayish brown; friable, silty, 10 to 15 inches thick.	Peorian loess	Do.
Crete ⁷	Very dark grayish brown; friable, loamy to silty, 12 to 20 inches thick.	Grayish-brown to brown compact claypan over very light grayish-brown friable silt; 18 to 40 inches thick.	do.	Do.
Dawes ⁵	Dark grayish brown; friable, loamy, 10 to 15 inches thick.	Very dark grayish-brown thin claypan over very light grayish brown friable silt or silt-sand mixture; 12 to 18 inches thick.	Tertiary silts and clays	Difficult.
Dickinson ⁸	Dark to very dark grayish brown; coherent to moderately loose, friable, loamy to sandy, 8 to 18 inches thick.	Brown to grayish brown incoherent sand, noncalcareous, 16 to 30 inches thick.	Sand	Good
Dunesand ⁷	Light grayish brown incoherent sand, ½ to 2 inches thick.	Incoherent sand	do.	Fair.
Dunlap ⁹	Dark grayish brown; friable, loamy to silty, 10 to 18 inches thick.	Grayish brown moderately compact silty clay over very light grayish brown friable silt; 10 to 36 inches thick.	Tertiary sandstone	Difficult.
Englewood (fine-textured types) ⁷	Dark brown to brown; friable, loamy, 16 to 20 inches thick.	Brown to reddish brown; loamy, 10 to 15 inches thick.	Triassic and Permian "Red Beds."	Fair to good.
Englewood (sandy types) ²	Light reddish brown; coherent to moderately loose, sandy to loamy, 12 to 16 inches thick.	Very light reddish brown; moderately loose to incoherent, sandy, 15 to 24 inches thick.	do.	Good.
Epping ¹⁰	Grayish brown; friable, loamy to silty, 4 to 10 inches thick.	Very light gray; friable, silty to clayey, 6 to 16 inches thick.	Brule clay	Difficult to unsuited.
Ewing ¹¹	Very dark grayish brown; friable, loamy, 12 to 18 inches thick.	Grayish-brown moderately compact sandy clay over light grayish brown incoherent sand-gravel mixture; 14 to 30 inches thick.	Pleistocene gravel and clay.	Fair to difficult.
Gannett ³	Very dark grayish brown to black; friable, coherent, loamy to sandy, 8 to 24 inches thick.	Light grayish brown incoherent sand with thin clay layers in places; 12 to 20 inches thick.	Sand	Good for a few species only.
Greensburg ²	Very dark grayish brown; friable, 15 to 18 inches thick.	Grayish-brown to light grayish brown friable silt, 20 to 24 inches thick.	Limestone	Fair to difficult.
Hall ⁷	Very dark grayish brown; friable, loamy to silty, 16 to 20 inches thick.	Grayish brown; friable, loamy to silty, 16 to 40 inches thick.	Silts and clays	Good.
Holdrede ⁷	Very dark grayish brown; friable, loamy to silty, 16 to 18 inches thick.	Grayish brown; friable, loamy to silty, 24 to 40 inches thick.	Peorian loess	Fair to difficult.
Holt ⁸	Very dark grayish brown to black; coherent to moderately loose, loamy to sandy, 8 to 14 inches thick.	Brown to light grayish brown; friable, loam to fine sandy loam, 10 to 20 inches thick.	Tertiary sandstone	Fair to good.
Keith ¹²	Dark grayish brown; friable, loamy to silty, 10 to 14 inches thick.	Light grayish brown; friable, silty, 15 to 40 inches thick.	Peorian loess	Fair to difficult.
Lamour ⁷	Very dark grayish brown to black; friable to moderately compact, loamy to clayey, locally alkaline; 8 to 18 inches thick.	Dark grayish brown to gray, moderately compact clay to silty loam clay, 12 to 30 inches thick.	Recent silts and clays	Good.
Laurel ⁷	Dark grayish brown; friable, loamy to silty, 6 to 12 inches thick.	Light grayish brown; friable, loamy to silty, 12 to 36 inches thick.	Recent silts and silt-sand mixtures.	Do.
Lincoln ¹	Brown; coherent to moderately loose, loamy to sandy, 10 to 15 inches thick.	Light grayish brown; moderately loose to incoherent, sandy, 24 to 30 inches thick.	Recent sands and silt-sand mixtures.	Do.
Miller ¹	Dark chocolate red; friable to moderately compact; texture and thickness variable.	Chocolate red; moderately compact, loamy to clayey, 20 to 30 inches thick.	Recent silt-sand-clay mixtures.	Do.
Minatare ⁵	Dark grayish brown; friable to moderately compact, loamy to clayey, locally alkaline, 8 to 14 inches thick.	Gray, with rusty brown and green mottlings; moderately compact, clayey, 10 to 30 inches thick.	Recent silts and clays.	Good to unsuited.
Moody ¹¹	Very dark grayish brown; friable, coherent, loamy, 7 to 16 inches thick.	Brown to light grayish yellow friable silt loam, 14 to 36 inches thick.	Gray loess (Peorian?)	Good.
O'Neill ²	Very dark grayish brown; moderately loose to incoherent, 10 to 18 inches thick.	Grayish brown incoherent sand or sand-gravel mixture, 12 to 24 inches thick.	Sands and gravels	Fair to good.
O'Neill (upland phase) ¹¹	Very dark grayish brown; friable, coherent to moderately loose, loamy to gravelly, 6 to 10 inches thick.	Brown to grayish brown incoherent mixture of sand and gravel, noncalcareous, 10 to 30 inches thick.	do.	Difficult.
Orman ¹³	Dark grayish brown; compact, clayey, 8 to 14 inches thick.	Grayish yellow to grayish blue compact clay, 8 to 15 inches thick.	Clays and shales	Do.
Pierre ¹³	Dark grayish brown; compact, clayey, 4 to 8 inches thick.	Grayish yellow to grayish blue compact clay, 4 to 10 inches thick.	Pierre shale	Difficult to unsuited.
Plainfield-Sparta ³	Light grayish brown; loose to incoherent, loamy to sandy, 4 to 10 inches thick.	Very light grayish brown incoherent sand, 12 to 20 inches thick.	Sands and gravels	Good.
Pratt (fine-textured types) ¹	Brown; coherent, friable, loamy, 10 to 14 inches thick.	Light brown to pale reddish brown; friable, loamy to sandy, 10 to 20 inches thick.	Tertiary silts and clays	Fair to difficult.
Pratt (sandy types) ¹	Brown; loose to moderately coherent, loamy to sandy, 10 to 18 inches thick.	Light grayish brown with reddish tinge; moderately loose to incoherent, sandy, 18 to 24 inches thick.	Tertiary sands and gravels.	Good.
Richfield (fine-textured types) ¹	Brown to dark brown; friable, loamy to clayey, 10 to 18 inches thick.	Dark-brown to brown crumbly clay to clay loam, 18 to 40 inches thick.	Tertiary silts and clays	Fair to difficult.
Richfield (sandy types) ¹	Brown; coherent to moderately loose, loamy to sandy, 10 to 18 inches thick.	Light brown to brown; friable, loamy to sandy, 18 to 40 inches thick.	Tertiary sands and gravels.	Fair to good.

Footnotes at end of table.

Soil type	Upper portion of soil profile	Lower portion of soil profile	Parent material	General feasibility for trees
Rosebud-Sidney (fine-textured types) ⁵	Dark grayish brown; friable, loamy, 8 to 16 inches thick.	Light grayish brown; friable, loamy to silty, 14 to 24 inches thick.	Tertiary sandstone	Difficult.
Rosebud-Sidney (sandy types) ⁵	Dark grayish brown; moderately loose to incoherent, 10 to 16 inches thick.	Light grayish brown; friable, loamy to sandy, 14 to 20 inches thick.	do.	Fair to good.
Rough broken land ¹⁴	(⁴⁹)	(⁵⁰)	Variable	Variable.
Sarpy ⁷	Grayish brown; friable, usually incoherent and sandy, ½ to 8 inches thick.	Light-gray incoherent sand or sand-and-gravel mixture, 6 to 12 inches thick.	Recent sands and gravels.	Good.
Scott-Butler-Fillmore ⁷	Dark grayish brown to black; friable to moderately compact, loamy to clayey, 4 to 18 inches thick.	Light bluish-gray, compact claypan, 24 to 40 inches thick.	Silts and clays	Unsuited.
Sioux ¹²	Very dark grayish brown to black; friable, coherent to moderately loose, loamy to sandy, 10 to 14 inches thick.	Grayish-brown incoherent sand, locally mixed with gravel, 10 to 24 inches thick.	Sands and gravels	Fair to good.
Sogn ⁷	Dark grayish brown to grayish brown; friable, loamy, 2 to 6 inches thick.	Grayish brown to light grayish brown; friable, stony, 4 to 16 inches thick.	Limestone	Fair to difficult.
Summit ²	Black; silty to clayey, friable, 10 to 14 inches thick.	Very dark grayish-brown to black moderately compact clay, underlain by yellowish to light grayish brown friable clay; 20 to 36 inches thick.	do.	Good.
Tripp-Yale ⁴	Dark grayish brown; friable, coherent, loamy, 8 to 14 inches thick.	Light grayish brown, friable in Tripp, moderately compact in Yale; silt loam to very fine sandy loam, 18 to 20 inches thick.	Silts and clays	Fair to good.
Valentine ¹²	Grayish brown; loamy to sandy, usually incoherent, 2 to 7 inches thick.	Light grayish-brown incoherent sand, noncalcareous, 10 to 30 inches thick.	Sand	Good.
Vernon (fine-textured types) ¹	Red to reddish brown; friable, loamy to clayey, 2 to 10 inches thick.	Red; friable loamy to sandy clay, 10 to 14 inches thick.	Triassic and Permian "Red Beds."	Fair to difficult.
Vernon (sandy types) ¹	Red to reddish brown; coherent to moderately loose, loamy to sandy, 6 to 14 inches thick.	Red; moderately loose to incoherent, sandy, 12 to 20 inches thick.	do.	Good.

¹ Principal occurrence in Kansas and Oklahoma.
² Principal occurrence in Kansas.
³ Principal occurrence in Nebraska.
⁴ Not stated.
⁵ Principal occurrence in western Nebraska.
⁶ Principal occurrence in western Nebraska and Kansas.
⁷ Principal occurrence in Nebraska and Kansas.
⁸ Principal occurrence in northern Nebraska.
⁹ Principal occurrence in northwestern Nebraska.
¹⁰ Principal occurrence in northwestern Nebraska and southwestern South Dakota.
¹¹ Principal occurrence in northeastern Nebraska.
¹² Principal occurrence in southwestern Nebraska.
¹³ Principal occurrence in Nebraska and South Dakota.
¹⁴ Principal occurrence in Nebraska, Kansas, and Oklahoma.