TABLE 20.—*General characteristics of soils of the northern section of the Shelterbelt Zone (North Dakota and South Dakota)*

Soil	Approximate percentage of area in States of northern section	Physiography and drainage	Native vegetation	Approximate (minimum) depth of water table in feet
Aberdeen [1]	S. Dak., 0.77	Nearly level terraces; underdrainage restricted	Short and mixed grasses	15 to 100.
Barnes (fine-textured types) [2]	N. Dak., 54.00 S. Dak., 54.50	Nearly level to strongly rolling well-drained upland.	Tall and mixed grasses	40 to 100.
Barnes (sandy types) [2]	N. Dak., 4.70 S. Dak., 2.97	Undulating to strongly rolling well-drained upland.	Tall grasses	40 to 100.
Beadle [1]	S. Dak., 4.00	Nearly level uplands; underdrainage restricted	Short and mixed grasses	40 to 100.
Bearden [2]	N. Dak., 0.65 S. Dak., 8.94	Nearly level well-drained terraces	Tall, mixed, and short grasses	15 to 50.
Boyd [2]	N. Dak., [3] S. Dak., 0.30	Nearly level to hilly upland; surface drainage good to excessive, underdrainage slow.	Short grasses	90.
Cass [2]	N. Dak., 0.40 S. Dak., 2.00	Nearly level bottom lands; drainage variable	Tall grasses; trees and shrubs	5 to 20.

[1] Principal occurrence in South Dakota.
[2] Principal occurrence in North Dakota and South Dakota.
[3] Not stated.

Soil	Approximate percentage of area in States of northern section	Physiography and drainage	Native vegetation	Approximate (minimum) depth of water table in feet
Dickinson [2]	N. Dak., 1.00 S. Dak., 0.30	Nearly level to rolling upland; underdrainage good.	Tall grasses	15 to 60.
Dunesand [2]	N. Dak., 0.30 S. Dak., [3]	Rolling to hilly upland; underdrainage good to excessive.	Tall grasses and yucca	20 to 60.
Edgeley [2]	N. Dak., [3] S. Dak., 0.04	Nearly level to strongly rolling upland; underdrainage restricted.	Tall, mixed, and short grasses	90.
Fargo [2]	N. Dak., 4.00 S. Dak., 3.00	Glacial lake basins and river terraces; poor surface and underdrainage.	Alkali grasses and wheatgrasses; cattail and sedges.	15 to 100.
Gannett [2]	N. Dak., 0.30 S. Dak., [3]	Poorly drained sand-hill basins	Coarse marsh grasses, cattail, and sedges.	0 to 15.
Holt [1]	S. Dak., 0.50	Rolling to hilly; good to excessively drained upland.	Tall, mixed, and short grasses	40 to 100.
Lamoure [2]	N. Dak., 0.27 S. Dak., 1.02	Nearly level bottom lands; drainage variable	Tall grasses; trees and shrubs	5 to 20.
Maple [2]	N. Dak., 0.50 S. Dak., 0.40	do	Alkali grasses and wheatgrasses; cattail and sedges.	5 to 40.
Moody [1]	S. Dak., 0.45	Nearly level to hilly; well to excessively drained upland.	Tall and mixed grasses	50 to 100.
O'Neill (upland phase) [1]	S. Dak., 0.28	Nearly level to rolling upland; good surface but excessive underdrainage.	Tall and mixed grasses; cactus and yucca.	20 to 100.
Orman (dark-colored phase) [2]	N. Dak., [3] S. Dak., 0.10	Nearly level terraces; good surface but poor underdrainage.	Short and mixed grasses	15 to 100.
Pierce [2]	N. Dak., 1.00 S. Dak., 0.53	Strongly rolling to hilly upland; underdrainage excessive.	Sparse cover of mixed and short grasses; yucca.	50 to 100.
Rogers [2]	N. Dak., 0.80 S. Dak., 0.40	Glacial lake basins; poor surface and underdrainage.	Little or no vegetation	0 to 50.
Rosebud (fine-textured types) [1]	[3]	Nearly level to hilly; well to excessively drained upland.	Short grasses	50 to 100.
Rosebud (sandy types) [1]	[3]	Nearly level to strongly rolling well-drained upland.	Short and mixed grasses	50 to 100.
Rough broken land [2]	N. Dak., 8.00 S. Dak., 6.00	Hilly upland	Tall, mixed, and short grasses	30 to 100.
Sarpy [2]	N. Dak., 0.03 S. Dak., 0.04	Nearly level bottom lands; drainage variable	Tall grasses; trees and shrubs	5 to 15.
Sioux [2]	N. Dak., 3.00 S. Dak., 0.64	Nearly level to undulating terraces; underdrainage excessive.	Tall grasses	15 to 50.
Tripp [2]	N. Dak., 0.12 S. Dak., 0.20	Nearly level well-drained terraces	Short grasses	30 to 100.
Valentine [2]	N. Dak., 3.78 S. Dak., 0.33	Nearly level to hummocky uplands; underdrainage good to excessive.	Tall grasses; yucca	15 to 60.
Williams (fine-textured types) [2]	N. Dak., 16.22 S. Dak., 11.97	Nearly level to strongly rolling well-drained upland.	Short and mixed grasses	90.
Williams (sandy types) [2]	N. Dak., 0.93 S. Dak., 0.30	Undulating to strongly rolling well-drained upland.	Tall and mixed grasses	50 to 100.
Williams (silty types—aeolian phase) [1]	S. Dak., 0.02	Nearly level to strongly undulating well-drained upland.	Short and mixed grasses	50 to 100.

Soil	Upper portion of soil profile	Lower portion of soil profile	Parent material	General feasibility for trees
Aberdeen [1]	Very dark grayish brown to black; friable to moderately compact, loamy to clayey, 7 to 14 inches thick.	Brown to black claypan underlain by friable grayish-brown silty clay loam; 22 to 30 inches thick.	Silts and clays	Difficult to unsuited.
Barnes (fine-textured types) [2]	Very dark grayish brown to black; friable, coherent, loamy to clayey, 7 to 12 inches thick.	Friable dark-brown to light grayish-brown silty clay loam, 18 to 30 inches thick.	Glacial drift	Fair to difficult.
Barnes (sandy types) [2]	Very dark grayish brown to black; friable, coherent to moderately loose, sandy, 7 to 14 inches thick.	Friable dark brown to light grayish-brown; very fine sandy loam to loamy sand, 20 to 30 inches thick.	do	Fair to good.
Beadle [1]	Very dark grayish brown to black; friable to moderately compact, loamy to clayey, 6 to 13 inches thick.	Brown to black claypan underlain by friable light grayish-brown silty clay loam; 20 to 30 inches thick.	do	Difficult to unsuited.
Bearden [2]	Very dark to dark grayish brown; friable, loamy, 8 to 14 inches thick.	Friable dark-brown to grayish-brown silt to fine sandy loam; 18 to 30 inches thick.	Silt and silt-sand mixtures.	Good.
Boyd [2]	Very dark grayish brown to black; compact, clayey, 4 to 8 inches thick.	Compact grayish yellow to grayish-blue clay, 6 to 15 inches thick.	Pierre shale	Difficult to unsuited.
Cass [2]	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 gravels.	Good.
Dickinson [2]	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.	Sands	Good.
Dunesand [2]	Light grayish brown incoherent sand, ½ to 2 inches thick.	Yellowish loose sand	do	Fair.
Edgeley [2]	Very dark grayish brown; friable to moderately compact, loamy to clayey, 5 to 12 inches thick.	Compact grayish-yellow to grayish-blue clay or gravelly clay, 12 to 18 inches thick.	Shale or reworked shale and drift.	Difficult to unsuited.
Fargo [2]	Black; friable to moderately compact, loamy to clayey, 6 to 14 inches thick.	Grayish-brown to black; compact clay to silty clay loam, 18 to 24 inches thick.	Silts and clays	Unsuited.
Gannett [2]	Very dark grayish brown to black; friable, coherent, loamy to sandy, 8 to 20 inches thick.	Light grayish-brown; incoherent sand with thin clay layers in places; 12 to 20 inches thick.	Sands	Good for a few species only.
Holt [1]	Very dark grayish brown to black; friable, 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.
Lamoure [2]	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 clay loam, 12 to 30 inches thick.	Recent silts and clays.	Good.
Maple [2]	Very dark grayish brown; friable to moderately compact, loamy to clayey, usually alkaline; 6 to 16 inches thick.	Grayish brown to light grayish yellow; clay or sand and clay mixture, moderately compact, 10 to 18 inches thick.	do	Unsuited.
Moody [1]	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 (upland phase) [1]	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.	Sand and gravel	Difficult.

[1] Principal occurrence in South Dakota.
[2] Principal occurrence in North Dakota and South Dakota.
[3] Not stated.

Soil	Upper portion of soil profile	Lower portion of soil profile	Parent material	General feasibility for trees
Orman (dark-colored phase) [2]	Very dark grayish brown; compact, clayey, 8 to 14 inches thick.	Compact grayish-yellow to grayish-blue clay, 8 to 24 inches thick.	Clays and shales	Fair to good.
Pierce [2]	Dark grayish brown; friable to moderately loose, loamy to gravelly, 2 to 12 inches thick.	Brown to grayish brown; incoherent mixture of sand and gravel, 8 to 12 inches thick.	Coarse sands and gravels.	Unsuited.
Rogers [2]	Grayish brown; friable to moderately compact, loamy to clayey, alkaline; 7 to 12 inches thick.	Gray to light grayish yellow; clay to silty clay; compact, 12 to 18 inches thick.	Silts and clays	Do.
Rosebud (fine-textured types) [1]	Dark grayish brown; friable, coherent, loamy, 8 to 14 inches thick.	Light brown to light grayish brown; silt loam to very fine sandy loam, 12 to 30 inches thick.	Tertiary sandstone	Difficult.
Rosebud (sandy types) [1]	Dark grayish brown; friable, coherent to moderately loose, sandy, 10 to 16 inches thick.	Light grayish brown; friable; fine sandy loam to loamy fine sand, 12 to 30 inches thick.	do	Fair.
Rough broken land [2]	[3]	[3]	Variable	Variable.
Sarpy [2]	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.
Sioux [2]	Very dark grayish brown to black; friable, coherent to moderately loose, loamy to sandy, 10 to 14 inches thick.	Grayish brown; incoherent sand or sand and gravel mixture, 10 to 24 inches thick.	Coarse sands and gravels.	Fair to good.
Tripp [2]	Dark grayish brown; friable, coherent, loamy, 8 to 14 inches thick.	Light grayish brown; friable; silt loam to very fine sandy loam, 18 to 30 inches thick.	Silts	Do.
Valentine [2]	Grayish brown; loamy to sandy, usually incoherent, 2 to 7 inches thick.	Light grayish-brown incoherent sand, 12 to 20 inches thick.	Sands	Do.
Williams (fine-textured types) [2]	Dark grayish brown; friable, coherent, loamy, 4 to 10 inches thick.	Light brown to light grayish brown friable silty clay loam, 10 to 16 inches thick.	Glacial drift	Difficult.
Williams (sandy types) [2]	Dark grayish brown; friable, coherent to moderately loose, sandy, 5 to 10 inches thick.	Light brown to light grayish brown; friable; very fine sandy loam to loamy sand, 14 to 18 inches thick.	do	Fair to good.
Williams (silty types—aeolian phase) [1]	Dark grayish brown; friable, coherent, loamy, 8 to 14 inches thick.	Very light grayish-brown friable silt loam, 18 to 24 inches thick.	Silts	Fair.

[1] Principal occurrence in South Dakota.
[2] Principal occurrence in North Dakota and South Dakota.
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