TABLE 5.—*Recommended tree and shrub species, their arrangement in shelter belts, and their adaptation to soils*

NEBRASKA

Group and species	Sequence of rows [1]	Approximate height and position in shelterbelt								Adaptation to soil classes [2]							Remarks
										Uplands			Terraces				
		Under 15 feet	10–25 feet	20–40 feet	30–50 feet	Over 50 feet	30–50 feet	20–40 feet	10–25 feet	Under 15 feet	Sands [3]	Sandy loams [4]	Fine-textured soils [5]	Sands [3]	Sandy loams [4]	Fine-textured soils [5]	Low wet soils	
Hardwoods:																	
Cottonwood (*Populus* sp.)	1	-----	-----	-----	-----	X	-----	-----	-----	-----	Fa	Fa	Fa	G+	G+	G	G+	a Can use on uplands as 1 or 2 temporary rows; do not use on upland hard lands south of Platte River.
European white willow (*Salix alba* L.)	2	-----	-----	-----	-----	X	-----	-----	-----	-----	——	——	——	G	G	G	G	
Dwarf Asiatic elm (*Ulmus pumila* L.)	3	-----	-----	-----	X	-----	X	-----	-----	-----	G	G	G	G	G	G	E	
Honeylocust (*Gleditsia triacanthos* L.)	4	-----	-----	-----	X	-----	X	-----	-----	-----	Fa	F	F	F	G	G	G	a Does fairly well on fine loamy sands; keep off pure sands.
American elm (*Ulmus americana* L.)	5	-----	-----	-----	X	-----	X	-----	-----	-----	——	F	F	F	G	G	G	
Sycamore (*Plantanus occidentalis* L.)	6	-----	-----	-----	X	-----	X	-----	-----	-----	——	——	——	——	E	E	E	
Coffeetree (*Gymnocladus dioicus* (L.) Koch)	7	-----	-----	-----	X	-----	X	-----	-----	-----	——	——	——	——	E	E	E	
Hackberry (*Celtis occidentalis* L.)	8	-----	-----	-----	X	-----	X	-----	-----	-----	G	G	G	G	G	G	G	
Green ash (*Fraxinus pennsylvanica lanceolata* (Borkh.) Sarg.)	9	-----	-----	-----	X	-----	X	-----	-----	-----	——	Fa	Fa	G	G	G	G	a Subject to borer damage especially in western half of State; use not more than 2 rows on uplands.
Black walnut (*Juglans nigra* L.)	10	-----	-----	-----	X	-----	X	-----	-----	-----	——	(a)	(a)	——	F+	F+	F+	a Could use in small amounts on uplands in eastern half of shelterbelt zone.
Black locust (*Robinia pseudoacacia* L.)	11	-----	-----	-----	X	-----	X	-----	-----	-----	——	——	——	F+	G	F+	G	Subject to severe borer damage on uplands; good for gully planting.
Hardy catalpa (*Catalpa speciosa* Warder)	12	-----	-----	-----	X	-----	X	-----	-----	-----	——	——	——	F	F+	F+	G	Use only in southern one-third of State.
Bur oak (*Quercus macrocarpa* Michx.)	13	-----	-----	-----	X	-----	X	-----	-----	-----	E	E	E	E	E	E	E	
Osage-orange (*Toxylon pomiferum* Raf.)	14	-----	-----	-----	X	-----	X	-----	-----	-----	——	F	F	——	G	G	G	Use sparingly on uplands and in northern half of State.
Russian mulberry (*Morus alba tatarica* (L.) Loudon)	15	-----	-----	-----	X	-----	X	-----	-----	-----	F	F	F	G	G	G	G	
Conifers:																	
Ponderosa pine (*Pinus ponderosa* Laws)	16	-----	-----	X	-----	-----	-----	X	-----	-----	F+	F+	F	G	G	F+	——	Ordinarily 2 rows are enough; keep 10 feet from adjoining rows of hardwoods.
Scotch pine (*Pinus sylvestris* L.)	17	-----	-----	X	-----	-----	-----	X	-----	-----	E	E	E	E	E	E	E	Use experimentally until good seed source is found. Keep 10 feet from adjoining rows of hardwoods.
Austrian pine (*Pinus nigra austriaca* Schneid)	18	-----	-----	X	-----	-----	-----	X	-----	-----	——	F	F	——	F+	F+	E	Keep 10 feet from adjoining hardwoods.
Limber pine (*Pinus flexilis* James)	19	-----	-----	X	-----	-----	-----	-----	-----	-----	E	E	E	E	E	E	E	Use Nebraska seed. Otherwise as above.
Blue spruce (*Picea pungens* Engelm.)	20	-----	-----	X	-----	-----	-----	-----	-----	-----	——	F	F	——	F+	F+	F	Use not more than 1 row. Otherwise as above.
Eastern red cedar (*Juniperus virginiana* L.)	21	-----	-----	X	-----	-----	-----	X	-----	-----	G	G	G	G	G	G	E	Ordinarily use not more than 2 rows. Otherwise as above.
Rocky Mountain red cedar (*Juniperus scopulorum* Sarg.)	22	-----	-----	X	-----	-----	-----	X	-----	-----	G	G	G	G	G	G	E	Do.
Tall shrubs:																	
Golden willow (*Salix alba vitellina* (L.) Stokes)	23	-----	X	-----	-----	-----	-----	-----	X	-----	——	——	——	——	——	——	G	
Russian-olive (*Elaeagnus angustifolia* L.)	24	-----	X	-----	-----	-----	-----	-----	X	-----	F+	G	G	G	G	G	G	
Siberian pea-tree (*Caragana arborescens* L.)	25	-----	X	-----	-----	-----	-----	-----	X	-----	——	G	G	——	G	G	——	Good especially in northern half of State.
Choke cherry (*Prunus virginiana* L.)	26	-----	X	-----	-----	-----	-----	-----	X	-----	G	G	G	G	G	G	G	Spreads by suckering; valuable for gully planting.
Buffaloberry (*Shepherdia argentea* Nutt.)	27	-----	X	-----	-----	-----	-----	-----	X	-----	E	E	E	E	E	E	——	Suckering sometimes objectionable.
Nannyberry (*Viburnum lentago* L.)	28	-----	X	-----	-----	-----	-----	-----	X	-----	——	——	——	——	E	E	E	
Serviceberry (*Amelanchier canadensis* (L.) Medicus)	29	-----	X	-----	-----	-----	-----	-----	X	-----	E	E	E	E	E	E	E	
Low shrubs:																	
Hawthorn (*Crataegus* sp)	30	X	-----	-----	-----	-----	-----	-----	-----	X	E	E	E	E	E	E	E	Use not over 1 row; is host to cedar apple rust. Keep away from cedar.
Wild plum (*Prunus americana* Marsh.)	31	X	-----	-----	-----	-----	-----	-----	-----	X	G	G	G	G	G	G	G	Use for appearance value at ends of rows, near roads, etc.
Lilac (*Syringa* sp.)	32	X	-----	-----	-----	-----	-----	-----	-----	X	F+	G	G	F+	G	G	E	
Western snowberry (*Symphoricarpos occidentalis* Hook.)	33	X	-----	-----	-----	-----	-----	-----	-----	X	E	E	E	E	E	E	E	
Sumac (*Rhus* sp.)	34	X	-----	-----	-----	-----	-----	-----	-----	X	E	F	F	E	F	F	E	Use at ends of rows, near roads, gates, etc.
		North or east	← Orientation →							South or west								

[1] From center line of shelterbelt outward, any species having a larger number in this column will be planted in 1 or more rows outside the row or rows of any species having a smaller number. Ordinarily 1 or more species will be selected from each of the 4 groups indicated in the first column.

[2] Meaning of symbols: G, good adaptation to soil indicated; F, fair; E, for experimental use in very small amount; ——, poor, do not use; + or −, somewhat better or poorer than letter rating. Small letters refer to remarks in same line in last column. It is assumed that the following soils will be avoided, except experimentally: Coarse droughty gravels, claypan soils, undrained alkaline basins (buffalo wallows), shale-derived upland soils along Missouri River.

[3] Includes sands, loamy sands, and loamy fine sands.

[4] Includes sandy loams and fine sandy loams.

[5] Includes all soils of finer texture than the above; i. e., very fine sandy loams, loams, silt loams, silty clay loams, clay loams, clays.