

TABLE 3.—Recommended tree and shrub species, their arrangement in shelterbelts, and their adaptation to soils

## NORTH DAKOTA

| Group and species                                                     | Sequence of rows <sup>1</sup> | Approximate height and position in shelterbelt |             |            |            |              |            |            |            |               | Adaptation to soil classes <sup>2</sup> |                          |                                  |                    |                          |                                  | Remarks |                                                                                     |
|-----------------------------------------------------------------------|-------------------------------|------------------------------------------------|-------------|------------|------------|--------------|------------|------------|------------|---------------|-----------------------------------------|--------------------------|----------------------------------|--------------------|--------------------------|----------------------------------|---------|-------------------------------------------------------------------------------------|
|                                                                       |                               | Under 15 feet                                  | 10-25 feet  | 20-35 feet | 30-50 feet | Over 50 feet | 30-50 feet | 20-35 feet | 10-25 feet | Under 15 feet | Uplands                                 |                          |                                  | Terraces           |                          |                                  |         | Low wet soils                                                                       |
|                                                                       |                               |                                                |             |            |            |              |            |            |            |               | Sands <sup>3</sup>                      | Sandy loams <sup>4</sup> | Fine-textured soils <sup>5</sup> | Sands <sup>3</sup> | Sandy loams <sup>4</sup> | Fine-textured soils <sup>5</sup> |         |                                                                                     |
| Hardwoods:                                                            |                               |                                                |             |            |            |              |            |            |            |               |                                         |                          |                                  |                    |                          |                                  |         |                                                                                     |
| Cottonwood ( <i>Populus</i> sp.).....                                 | 1                             |                                                |             |            |            | X            |            |            |            |               | Ga                                      | Fb                       | Fb                               | G                  | G                        | F+                               | G       | a Keep off dunes. b Will be short-lived.                                            |
| European white willow ( <i>Salix alba</i> L.).....                    | 2                             |                                                |             |            |            | X            |            |            |            |               | F                                       | G                        | G                                | F                  | G                        | G                                | G       |                                                                                     |
| Dwarf Asiatic elm ( <i>Ulmus pumila</i> L.).....                      | 3                             |                                                |             |            | X          |              | X          |            |            |               | F                                       | G                        | F                                | F                  | G                        | G                                | G       |                                                                                     |
| American elm ( <i>Ulmus americana</i> L.).....                        | 4                             |                                                |             |            | X          |              | X          |            |            |               | a                                       | a                        |                                  | a                  | a                        |                                  | G       | a Could be used where water table is within 10 feet.                                |
| Golden willow ( <i>Salix alba vitellina</i> (L.)Stokes).              | 5                             |                                                |             |            | X          |              | X          |            |            |               |                                         |                          |                                  |                    |                          |                                  | G       | Use only in south half of State.                                                    |
| Honeylocust ( <i>Gleditsia triacanthos</i> L.).....                   | 6                             |                                                |             |            | X          |              | X          |            |            |               |                                         | E                        | E                                | E                  | E                        | E                                | E       |                                                                                     |
| Hackberry ( <i>Celtis occidentalis</i> L.).....                       | 7                             |                                                |             |            | X          |              | X          |            |            |               | G                                       | G                        | G                                | G                  | G                        | G                                | G       |                                                                                     |
| Green ash ( <i>Frazinus pennsylvanica lanceolata</i> (Borkh.) Sarg.). | 8                             |                                                |             |            | X          |              | X          |            |            |               | G                                       | G                        | G                                | G                  | G                        | G                                | G       |                                                                                     |
| Bur oak ( <i>Quercus macrocarpa</i> Michx.).....                      | 9                             |                                                |             |            | X          |              | X          |            |            |               | E                                       | E                        | E                                | E                  | E                        | E                                | E       |                                                                                     |
| Conifers:                                                             |                               |                                                |             |            |            |              |            |            |            |               |                                         |                          |                                  |                    |                          |                                  |         |                                                                                     |
| Ponderosa pine ( <i>Pinus ponderosa</i> Laws.).....                   | 10                            |                                                |             | X          |            |              |            | X          |            |               | G—                                      | G—                       | F                                | G—                 | G                        | F                                | —       | Ordinarily use not more than 2 rows; keep 10 feet from adjoining rows of hardwoods. |
| Scotch pine ( <i>Pinus sylvestris</i> L.).....                        | 11                            |                                                |             | X          |            |              |            |            |            |               | E                                       | E                        | E                                | E                  | E                        | E                                | E       | Use experimentally till good seed source is found.                                  |
| Blue spruce ( <i>Picea pungens</i> Engelm.).....                      | 12                            |                                                |             | X          |            |              |            |            |            |               |                                         | F+                       | F                                |                    | F+                       | F+                               | F       | Keep 10 feet from adjoining rows of hardwoods.                                      |
| Douglas fir ( <i>Pseudotsuga taxifolia</i> (La M.) Britt.).....       | 13                            |                                                |             | X          |            |              |            |            |            |               | E                                       | E                        | E                                | E                  | E                        | E                                | E       | Do.                                                                                 |
| Eastern red cedar ( <i>Juniperus virginiana</i> L.).....              | 14                            |                                                |             | X          |            |              |            | X          |            |               | F+                                      | G                        | G                                | G                  | G                        | G                                | E       | Ordinarily use not over 2 rows; keep 10 feet from adjoining rows of hardwoods.      |
| Rocky Mountain red cedar ( <i>Juniperus scopulorum</i> Sarg.).        | 15                            |                                                |             | X          |            |              |            | X          |            |               | F+                                      | G                        | G                                | G                  | G                        | G                                | E       | Do.                                                                                 |
| Tall shrubs:                                                          |                               |                                                |             |            |            |              |            |            |            |               |                                         |                          |                                  |                    |                          |                                  |         |                                                                                     |
| Laurel willow ( <i>Salix pentandra</i> L.).....                       | 16                            |                                                | X           |            |            |              |            |            | X          |               | a                                       | a                        |                                  | a                  | a                        |                                  | G       | a Could be used where water table is within 10 feet.                                |
| Russian-olive ( <i>Elaeagnus angustifolia</i> L.)...                  | 17                            |                                                | X           |            |            |              |            |            | X          |               | G—                                      | G                        | G                                | G                  | G                        | G                                | G       |                                                                                     |
| Buffaloberry ( <i>Shepherdia argentea</i> Nutt.).....                 | 18                            |                                                | X           |            |            |              |            |            | X          |               | E                                       | G                        | G                                | E                  | G                        | G                                | —       | Suckering sometimes considered objectionable.                                       |
| Siberian pea-tree( <i>Caragana arborescens</i> Lam.).....             | 19                            |                                                | X           |            |            |              |            |            | X          |               |                                         | G                        | G                                |                    | G                        | G                                |         |                                                                                     |
| Choke cherry ( <i>Prunus virginiana</i> L.).....                      | 20                            |                                                | X           |            |            |              |            |            | X          |               | Ga                                      | G                        | G                                | Ga                 | G                        | G                                | G       | a Possibly should use seed collected from parent trees growing on sand.             |
| Serviceberry ( <i>Amelanchier canadensis</i> (L.) Medicus).           | 21                            |                                                | X           |            |            |              |            |            | X          |               | E                                       | E                        | E                                | E                  | E                        | E                                | E       |                                                                                     |
| Hawthorn ( <i>Crataegus</i> sp.).....                                 | 22                            |                                                | X           |            |            |              |            |            | X          |               | E                                       | E                        | E                                | E                  | E                        | E                                | E       | Keep away from red cedars because of cedar apple rust.                              |
| Wild plum ( <i>Prunus americana</i> Marsh.).....                      | 23                            |                                                | X           |            |            |              |            |            | X          |               | F                                       | F                        | F—                               | F                  | F                        | F                                | G       | Use only in short sections of 3 or 4 dozen plants.                                  |
| Low shrubs:                                                           |                               |                                                |             |            |            |              |            |            |            |               |                                         |                          |                                  |                    |                          |                                  |         |                                                                                     |
| Tatarian honeysuckle ( <i>Lonicera tatarica</i> L.).....              | 24                            | X                                              |             |            |            |              |            |            |            | X             | E                                       | G                        | G                                | E                  | G                        | G                                | E       |                                                                                     |
| Nannyberry ( <i>Viburnum lentago</i> L.).....                         | 25                            | X                                              |             |            |            |              |            |            |            | X             | E                                       | E                        | E                                | E                  | E                        | E                                | E       |                                                                                     |
| Lilac ( <i>Syringa</i> sp.).....                                      | 26                            | X                                              |             |            |            |              |            |            |            | X             | F                                       | G                        | G                                | F                  | G                        | G                                | E       | Particularly desirable for appearance value.                                        |
| Western snowberry ( <i>Symphoricarpos occidentalis</i> Hook.).....    | 27                            | X                                              |             |            |            |              |            |            |            | X             | E                                       | E                        | E                                | E                  | E                        | E                                | E       |                                                                                     |
|                                                                       |                               | North or east                                  | Orientation |            |            |              |            |            |            |               | South or west                           |                          |                                  |                    |                          |                                  |         |                                                                                     |

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Includes sands, loamy sands, and loamy fine sands.

<sup>4</sup> Includes sandy loams and fine sandy loams.

<sup>5</sup> Includes all soils of finer texture than the above; i. e., very fine sandy loams, loams, silt loams, silty clay loams, clay loams, clays.