

Natural Seed Dispersal and Its Effects on Germination[®]

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Propagators acquiring seed from distant sources are often at a loss for reliable information pertaining to pre-germination treatments and other factors that affect germination. In order to enhance the likelihood of success the propagator must consider all information relating to the natural history of the plant. Although this poster considers only the method of natural seed dispersal the grower should also study the relationship of the plant to other species in the genus with known germination requirements, the natural distribution of the plant, the climate in its native habitat, and any and all literature citations. Knowing the method of natural seed dispersal can be crucial to success. Seed dispersal frequently correlates with the ease or difficulty of seed germination and often provides helpful clues to germination requirements.

The following tables indicate the relative ease of germination based on the means natural dispersal and the relative position of the seed plant within the forest. Genera marked with an asterisk are generally considered difficult to germinate and normally require treatments beyond simple moist-chilling. The tables (Tables 1 to 6) are adapted from Ridley (1930) and Munson and Nicholson (1994).

Observing the dispersal methods shown in the tables and the relative ease of germination indicates that wind-dispersed seeds are far less likely to require complex pre-germination treatments than those seed dispersed by animals, either birds or mammals.

Table 1. Wind-dispersed seed of understory genera.

<i>Abeliophyllum</i>	<i>Enkianthus</i>	<i>Philadelphus</i>
<i>Acer</i>	<i>Erica</i>	<i>Physocarpus</i>
<i>Aristolochia</i>	<i>Exochorda</i>	<i>Pieris</i>
<i>Buddleja</i>	<i>Forsythia</i>	<i>Potentilla</i>
<i>Calluna</i>	<i>Hibiscus*</i>	<i>Ptelea</i>
<i>Campsis</i>	<i>Hydrangea</i>	<i>Rhododendron</i>
<i>Clematis</i>	<i>Hypericum</i>	<i>Salix</i>
<i>Clethra</i>	<i>Kalmia</i>	<i>Spiraea</i>
<i>Cotinus*</i>	<i>Kolkwitzia</i>	<i>Staphylea*</i>
<i>Deutzia</i>	<i>Leucothoe</i>	<i>Weigela</i>

* Difficult germination requirements.

Table 2. Wind-dispersed seed of canopy genera.

<i>Abies</i>	<i>Eucommia</i>	<i>Platanus</i>
<i>Ailanthus</i>	<i>Fraxinus</i>	<i>Populus</i>
<i>Alnus</i>	<i>Halesia*</i>	<i>Pseudolarix</i>
<i>Betula</i>	<i>Larix</i>	<i>Pseudotsuga</i>
<i>Carpinus*</i>	<i>Liquidambar</i>	<i>Sciadopitys*</i>
<i>Catalpa</i>	<i>Liriodendron</i>	<i>Taxodium</i>
<i>Cedrus</i>	<i>Metasequoia</i>	<i>Thuja</i>
<i>Cercidiphyllum</i>	<i>Ostrya*</i>	<i>Tsuga</i>
<i>Cladrastis*</i>	<i>Oxydendrum</i>	<i>Ulmus</i>
<i>Cryptomeria</i>	<i>Picea</i>	<i>Zelkova</i>
<i>Cupressus</i>	<i>Pinus</i>	

*Difficult germination requirements.

Table 3. Bird-dispersed seed of understory genera.

<i>Acanthopanax*</i>	<i>Euonymus</i>	<i>Photinia</i>
<i>Amelanchier*</i>	<i>Hedera</i>	<i>Prunus</i>
<i>Aronia</i>	<i>Hippophae</i>	<i>Pyracantha</i>
<i>Berberis*</i>	<i>Ilex*</i>	<i>Rhamnus</i>
<i>Callicarpa</i>	<i>Juniperus*</i>	<i>Rhus*</i>
<i>Chionanthus*</i>	<i>Koelreuteria*</i>	<i>Rosa*</i>
<i>Cornus*</i>	<i>Ligustrum*</i>	<i>Rubus*</i>
<i>Cotoneaster*</i>	<i>Mahonia*</i>	<i>Sambucus*</i>
<i>Crataegus*</i>	<i>Malus</i>	<i>Sassafras*</i>
<i>Daphne*</i>	<i>Myrica</i>	<i>Sorbus*</i>
<i>Dirca*</i>	<i>Pachysandra*</i>	<i>Symphoricarpos*</i>
<i>Elaeagnus*</i>	<i>Paeonia*</i>	<i>Taxus*</i>
		<i>Viburnum*</i>

*Difficult germination requirements.

Table 4. Bird-dispersed seed of canopy genera.

<i>Celtis*</i>	<i>Kalopanax*</i>	<i>Sapindus*</i>
<i>Evodia</i>	<i>Magnolia</i>	<i>Tilia*</i>
<i>Hovenia*</i>	<i>Nyssa</i>	

* Difficult germination requirements.

Table 5. Mammal-dispersed seed of understory genera.

<i>Actinidia</i>	<i>Corylus</i>	<i>Pyrus</i>
<i>Akebia</i>	<i>Cytisus*</i>	<i>Ribes*</i>
<i>Amorpha*</i>	<i>Genista*</i>	<i>Robinia*</i>
<i>Arctostaphylos*</i>	<i>Indigofera*</i>	<i>Shepherdia*</i>
<i>Calycanthus*</i>	<i>Laburnum*</i>	<i>Stephanandra*</i>
<i>Camellia*</i>	<i>Lespedeza*</i>	<i>Stewartia*</i>
<i>Caragana*</i>	<i>Maackia*</i>	<i>Styrax*</i>
<i>Ceanothus*</i>	<i>Maclura</i>	<i>Wisteria</i>
<i>Cercis*</i>	<i>Mespilus*</i>	<i>Xanthoceras</i>
<i>Chaenomeles</i>		

*Difficult germination requirements.

Table 6. Mammal-dispersed seed of canopy genera.

<i>Aesculus</i>	<i>Davidia*</i>	<i>Gymnocladus*</i>
<i>Albizia*</i>	<i>Diospyros</i>	<i>Juglans</i>
<i>Asimina</i>	<i>Fagus</i>	<i>Quercus</i>
<i>Carya</i>	<i>Ginkgo*</i>	<i>Sophora*</i>
<i>Castanea</i>	<i>Gleditsia*</i>	

*Difficult germination requirements.

LITERATURE CITED

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- Ridley, H.N.** 1930. The dispersal of plants throughout the world. L. Reeve & Co., Ashford, Kent.