

Seed Dormancy Classification with Examples
(Classification according to Baskin and Baskin, 2004)¹

Example family	Example species (dormancy class)	PD	MD	MPD	PY	PY+PD
GYMNOSPERMS						
Cupressaceae	<i>Chamaecyparis nootkatensis</i> - yellow cedar (PD)	X	X	X		
Cycadaceae	<i>Cycas rumphii</i> - cycads (MD)		X	X		
Ephedraceae	<i>Ephedra</i> spp. (PD)	X				
Ginkgoaceae	<i>Ginkgo biloba</i> - ginkgo (MPD)			X		
Pinaceae	<i>Pinus</i> spp. and <i>Picea</i> spp. (ND or PD)	X	X	X		
Taxaceae	<i>Taxus baccata</i> - European yew (MPD)	X	X	X		
Zamiaceae	<i>Zamia</i> spp. - cycads (MPD)		X	X		
ANGIOSPERMS						
Allicaceae	<i>Allium rothii</i> - onion relative (MPD)	X	X	X		
Amaranthaceae (incl. Chenopodiaceae)	<i>Beta vulgaris</i> - sugar beet (ND) <i>Chenopodium album</i> - lambsquarters (PD)	X				
Ancardiaceae	<i>Rhus glabra</i> - sumac (PY) <i>Rhus aromatica</i> - sumac (PY+PD)	X			X	X
Asteraceae	<i>Lactuca sativa</i> - lettuce (ND/PD) <i>Helianthus annuus</i> - sunflower (PD)	X	X	X		
Balsaminaceae	<i>Impatiens parviflora</i> - (PD)	X	X	X		
Begoniaceae	<i>Begonia</i> spp. - begonia (ND)	X				
Bixaceae	<i>Bixa orellana</i> (PY)	X			X	X
Brassicaceae	<i>Lepidium sativum</i> - garden cress (ND/PD) <i>Arabidopsis thaliana</i> - mouse-ear cress (ND/PD) <i>Brassica napus</i> - oilseed rape (ND) <i>Sinapis alba</i> - white mustard (ND) <i>Sinapis arvensis</i> - wild mustard (PD)	X				
Campanulaceae	<i>Campanula americana</i> - tall bellflower (MD)	X	X	X		
Cannaceae	<i>Canna</i> spp. (PY)	X			X	
Caryophyllaceae	<i>Dianthus</i> spp. and <i>Silene</i> spp. (PD)	X				
Cistaceae	<i>Cistus</i> spp. (PY)	X			X	X
Commelinaceae	<i>Commelina</i> spp. (PD)	X				
Cucurbitaceae	<i>Cucumis melo</i> - muskmelon (ND/PD)	X				
Droseraceae	<i>Drosera angelica</i> (PD)	X				
Ericaceae	<i>Erica</i> spp. (PD) <i>Leptecophylla tameiameia</i> (PD)	X	X	X		
Euphorbiaceae	<i>Ricinus communis</i> - castor bean (PD)	X				
Fabaceae	<i>Pisum sativum</i> - garden pea (ND) <i>Pisum elatius</i> - wild pea (PY) <i>Glycine max</i> - soybean (PY) <i>Medicago sativa</i> - lucerne (PY) <i>Trigonella foenum-graecum</i> - fenugreek (PY) <i>Melilotus alba</i> - clover (PY) <i>Trifolium</i> spp. - clover (PY/PY+PD)	X			X	X
Fagaceae	<i>Fagus sylvatica</i> - beech (PD)	X				

¹ Baskin JM and CC Baskin. 2004. A classification system for seed dormancy. Seed Science Research. 14: 1–16.

Geraniaceae	<i>Geranium robertianum</i> - (PY) <i>Geranium carolinianum</i> - (PY+PD) <i>Pelargonium zonale</i> - geranium (PY)	X			X	X
Iridaceae	<i>Iris</i> spp. (PD)	X	X	X		
Magnoliaceae	<i>Magnolia</i> spp. (MPD)		X	X		
Malvaceae	<i>Malva rotundifolia</i> (PY) <i>Tilia</i> spp. (PY+PD)	X			X	X
Nymphaeaceae	<i>Nymphaea alba</i> - water lily (PD)					
Oleaceae	<i>Fraxinus excelsior</i> - ash (MPD) <i>Syringa</i> spp. - lilac (PD)	X		X		
Poaceae	<i>Avena fatua</i> - wild oat (PD) <i>Triticum aestivum</i> - wheat (PD) <i>Hordeum vulgare</i> - barley (PD) <i>Zea mays</i> - maize, corn (ND)	X				
Ranunculaceae	<i>Delphinium carolinianum</i> (MD) <i>Delphinium tricorne</i> (MPD) <i>Trollius</i> spp. (MPD) <i>Anemone coronaria</i> (MD) <i>Anemone nemorosa</i> - wood anemone, windflower (MPD)	X	X	X		
Rhamnaceae	<i>Ceanothus</i> spp. (PY/PY+PD)	X			X	X
Rosaceae	<i>Rosa</i> spp. - rose (PD) <i>Prunus persica</i> - peach (PD)	X			X	X
Rubiaceae	<i>Coffea arabica</i> - coffee (ND/PD)	X		X		
Sapindaceae (incl. Aceraceae)	<i>Acer platanoides</i> - Norway maple (PD) <i>Acer pseudoplatanus</i> - sycamore (maple) (PD) <i>Aesculus hippocastanum</i> - horse chestnut (PD)	X			X	X
Solanaceae	<i>Nicotiana</i> spp. - tobacco (PD) <i>Petunia hybrida</i> - petunia (PD) <i>Lycopersicon esculentum</i> - tomato (PD) <i>Capsicum annuum</i> - pepper (PD) <i>Datura ferox</i> - Datura (PD)	X		X	X	
Violaceae	<i>Viola</i> spp. - violet (PD)	X				
Vitaceae	<i>Vitis</i> spp. - grape vines (PD or MPD)	X		X		

Adapted from 'The Seed Biology Place' (<http://www.seedbiology.de/dormancy2.asp>)

Note that the number of examples for different dormancy classes presented in the table is arbitrary

ND=No dormancy

PD = Physiological dormancy

MD = Morphological dormancy

MPD = Morphophysiological dormancy

PY = Physical dormancy

PY+PD = Combinational dormancy

Physiological dormancy (PD): an endogenous dormancy, associated with the seed embryo and thought to be caused by a physiological inhibiting mechanism. Seeds have PD if their germination can be increased following a period of after ripening, dry storage, warm or cold stratification, application of gibberellic acid (GA_3), or if excised embryos produce normal, healthy seedlings

Morphological dormancy (MD): an endogenous dormancy, associated with the embryo. Inside a morphologically dormant seed, the embryo is undeveloped or not fully grown and most of the seed interior is occupied with the endosperm. The embryo needs to grow inside the seed before the seed can germinate.

Physical dormancy (PY): seeds exhibiting physical dormancy possess covering structures that are impermeable to water. Differences in permeability to water can be exhibited across a population of seeds, but not for individual seeds. PY is observed in the following plant families: Fabaceae (predominate in all three subfamilies), Malvaceae, Convolvulaceae, Cistaceae and Rhamnaceae, but can also occur in other families such as Geraniaceae, Sapindaceae, Lauraceae and Cochlospermaceae.