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| --- | --- | --- | --- |
| **Appendix I**: Mean weight of pollen offered per flower for various entomophilous species | | | |
| **Family** | **Species** | **Pollen (mg) per flower or inflorescence\*** | **Reference** |
| Actinidiaceae | Actinidia deliciosa | 1.81-9.01 | Gonzalez et al. 1994 |
| Adoxaceae | Sambucus nigra | 7 | Percival 1955 |
| Alismataceae | Alisma plantago aquatica | 0.1 | Percival 1955 |
| Amaryllidaceae | Allium porrum | 50 | Percival 1955 |
| Amaryllidaceae | Allium ursinum | 0.2 | Percival 1955 |
| Amaryllidaceae | Galanthus nivalis | 0.9 | Percival 1955 |
| Amaryllidaceae | Leucojum aestivum | 0.1 | Percival 1955 |
| Apiaceae | Daucus carota | 0.026 | Bosch et al. 1997 |
| Apiaceae | Foeniculum vulgare | 0.039 | Bosch et al. 1997 |
| Apiaceae | Heracleum sphondylium | 0.081 | Percival 1950 |
| Apiaceae | Petroselinum crispum | 0.5 | Percival 1955 |
| Aquifoliaceae | Ilex aquifolium | 0.3 | Percival 1955 |
| Asparagaceae | Hyacinthoides non-scripta | 0.8 | Percival 1955 |
| Asparagaceae | Scilla hispanica | 0.8 | Percival 1955 |
| Asparagaceae | Scilla siberica | 1.1 | Percival 1955 |
| Asteraceae | Andryala integrifolia | 0.023 | Bosch et al. 1997 |
| Asteraceae | Arctium vulgare | 2.2\* | Percival 1955 |
| Asteraceae | Centaurea aspera | 0.17 | Bosch et al. 1997 |
| Asteraceae | Centaurea montana | 4\* | Percival 1955 |
| Asteraceae | Centaurea nigra | 2.4\* | Percival 1950 |
| Asteraceae | Cirsium palustre | 1.2\* | Percival 1955 |
| Asteraceae | Galactites tomentosa | 0.092 | Bosch et al. 1997 |
| Asteraceae | Helianthus annuus | 26.6\* | Percival 1955 |
| Asteraceae | Hypochaeris radicata | 0.6\* | Percival 1950 |
| Asteraceae | Jacobaea vulgaris | 0.5\* | Percival 1955 |
| Asteraceae | Ligularia clivorum | 0.426 | Wróblewska & Stawiarz 2012 |
| Asteraceae | Ligularia przewalskii | 0.223 | Wróblewska & Stawiarz 2012 |
| Asteraceae | Reichardia picroides | 0.107 | Bosch et al. 1997 |
| Asteraceae | Sonchus oleraceus | 0.005 | Percival 1955 |
| Asteraceae | Sonchus tenerrimus | 0.025 | Bosch et al. 1997 |
| Asteraceae | Taraxacum officinale | 1.2\* | Percival 1955 |
| Asteraceae | Tussilago farfara | 0.4\* | Percival 1955 |
| Balsaminaceae | Impatiens roylei | 3.1 | Percival 1955 |
| Berberidaceae | Berberis darzvinii | 0.4 | Percival 1955 |
| Boraginaceae | Phacelia tanacetifolia | 0.3 | Percival 1955 |
| Boraginaceae | Symphytum officinale | 0.63 | Denisow 2008 |
| Brassicaceae | Arabis albida | 0.4 | Percival 1955 |
| Brassicaceae | Aubrieta deltoidea | 0.5 | Percival 1955 |
| Brassicaceae | Brassica fruticulosa | 0.151 | Bosch et al. 1997 |
| Brassicaceae | Brassica napus | 0.88 | Kołtowski 2001 |
| Brassicaceae | Brassica oleracea | 1 | Percival 1955 |
| Brassicaceae | Cardamine pratensis | 0.2 | Percival 1955 |
| Brassicaceae | Cheiranthus x allionii | 1.2 | Percival 1955 |
| Brassicaceae | Erysimum cheiri | 2.4 | Percival 1955 |
| Brassicaceae | Lobularia maritima | 0.018 | Bosch et al. 1997 |
| Brassicaceae | Lunaria annua | 1.3 | Percival 1955 |
| Brassicaceae | Raphanus raphanistrum | 0.7 | Percival 1955 |
| Brassicaceae | Sinapis alba | 0.85 | Masierowska & Piętka 2014 |
| Brassicaceae | Sinapis arvensis | 0.5 | Percival 1955 |
| Cactaceae | Carnegiea gigantea\*\* | 286 | Schmidt & Buchmann 1986 |
| Caprifoliaceae | Centratithus ruber | 0.1 | Percival 1955 |
| Caprifoliaceae | Scabiosa atropurpurea | 0.07 | Bosch et al. 1997 |
| Commelinaceae | Tradescantia virginica | 1 | Percival 1955 |
| Convolvulaceae | Calystegia sylvestris | 7.9 | Percival 1955 |
| Convolvulaceae | Convolvulus minor | 1.3 | Percival 1955 |
| Crassulaceae | Sedum sediforme | 0.254 | Bosch et al. 1997 |
| Cucurbitaceae | Cucurbita maxima | 24.15 | Gavilánez-Slone 2000 |
| Cucurbitaceae | Cucurbita pepo | 54.7 | Percival 1955 |
| Ericaceae | Rhododendron luteum | 0.95 | Weryszko-Chmielewska & Chwil 2005 |
| Ericaceae | Rhododendron ponticum | 2.8 | Percival 1955 |
| Euphorbiaceae | Euphorbia segetalis | 0.012 | Bosch et al. 1997 |
| Fabaceae | Amorpha fruticosa | 0.11 | Szlanowska & Dabska 1993 |
| Fabaceae | Caragana arborescens | 0.36-0.445 | Szlanowska & Dabska 1993; Stawiarz & Wróblewska 2014 |
| Fabaceae | Caragana decorticans | 0.27 | Szlanowska & Dabska 1993 |
| Fabaceae | Cassia reticulata | 4.2 | Snow & Roubik 1987 |
| Fabaceae | Colutea arborescens | 1.23 | Szlanowska & Dabska 1993 |
| Fabaceae | Colutea orientalis | 1.77 | Szlanowska & Dabska 1993 |
| Fabaceae | Cytisus ratisbonen | 0.48 | Szlanowska & Dabska 1993 |
| Fabaceae | Cytisus suspinus | 0.19 | Szlanowska & Dabska 1993 |
| Fabaceae | Labunrum alpinum | 0.34 | Szlanowska & Dabska 1993 |
| Fabaceae | Laburnum anagyroides | 0.3-0.608 | Szlanowska & Dabska 1993; Stawiarz & Wróblewska 2013 |
| Fabaceae | Lathyrus clymenum | 0.265 | Bosch et al. 1997 |
| Fabaceae | Lathyrus latifolius | 0.358 | Bosch et al. 1997 |
| Fabaceae | Ononis natrix | 0.516 | Bosch et al. 1997 |
| Fabaceae | Psoralea bituminosa | 0.212 | Bosch et al. 1997 |
| Fabaceae | Robinia pseudoacacia | 0.45 | Szlanowska & Dabska 1993 |
| Fabaceae | Robinia viscosa | 0.67 | Szlanowska & Dabska 1993 |
| Fabaceae | Sarothamnus scoparius | 1.2 | Percival 1955 |
| Fabaceae | Trifolium repens | 0.0187 | Percival 1950 |
| Fabaceae | Ulex europaeus | 0.6 | Percival 1955 |
| Fabaceae | Ulex gallii | 0.3 | Percival 1955 |
| Fabaceae | Vicia faba | 0.6 | Percival 1955 |
| Garryaceae | Aucuba japonica | 0.2 | Percival 1955 |
| Gentianaceae | Exacum affine | 2.22 | A. Russell & S. Buchmann unpubl. data |
| Grossulariaceae | Ribes nigrum | 0.2 | Percival 1955 |
| Grossulariaceae | Ribes sanguineum | 0.3 | Percival 1955 |
| Hydrangeaceae | Deutzia gracilis | 0.1 | Percival 1955 |
| Hypericaceae | Hypericum perforatum | 0.4 | Percival 1955 |
| Iridaceae | Crocosmia pottsii | 1.1 | Percival 1955 |
| Iridaceae | Crocus albiflorus | 1.87 | Percival 1955 |
| Iridaceae | Crocus aureus | 1.9 | Percival 1955 |
| Liliaceae | Lilium longiflorum | 5 | Labarca & Loewus 1972 |
| Limnanthaceae | Limnanthes douglasii | 0.3 | Percival 1955 |
| Loasaceae | Bartonia aurea | 5.2 | Percival 1955 |
| Magnoliaceae | Magnolia stellata | 0.3 | Percival 1955 |
| Magnoliaceae | Magnolia x soulangeana | 2.6 | Percival 1955 |
| Oleaceae | Ligustrum vidgare | 0.4 | Percival 1955 |
| Onagraceae | Epilobium angustipolium | 4 | Percival 1950 |
| Onagraceae | Epilobium parviflorum | 0.2 | Percival 1955 |
| Onagraceae | Fuchsia magellanica | 0.4 | Percival 1955 |
| Papaveraceae | Eschscholzia californica | 3.2 | Percival 1955 |
| Papaveraceae | Papaver dubium | 6.6 | Percival 1955 |
| Papaveraceae | Papaver orientale | 114 | Percival 1950 |
| Papaveraceae | Papaver rhoeas | 11.24 | Bosch et al. 1997 |
| Phrymaceae | Mimulus guttatus | 0.01-0.05 | Yeamans et al. 2014 |
| Plantaginaceae | Digitalis purpurea | 2.4 | Percival 1955 |
| Proteaceae | Banksia spinulosa | 0.2 | Turner 1984 |
| Proteaceae | Banksia ericifolia | 0.29 | Van Tets 1996 |
| Proteaceae | Banksia paludosa | 0.23 | Van Tets 1996 |
| Proteaceae | Banksia serrata | 0.42 | Turner 1984 |
| Ranunculaceae | Aconitum carmichaelii | 0.82 | Antoń et al. 2014 |
| Ranunculaceae | Aconitum lycoctonum | 0.1 | Antoń et al. 2014 |
| Ranunculaceae | Anemone apennina | 0.3 | Percival 1955 |
| Ranunculaceae | Anemone nemorosa | 0.3 | Percival 1955 |
| Ranunculaceae | Aquilegia vulgaris | 3.28 | Denisow & Antoń 2011 |
| Ranunculaceae | Aquilegia x hybrida | 1.9 | Percival 1955 |
| Ranunculaceae | Clematis vitalba | 0.2 | Percival 1955 |
| Ranunculaceae | Helleborus abchasicus | 1 | Percival 1955 |
| Ranunculaceae | Helleborus cyclophyllus | 9.71 | Żuraw & Denisow 2002 |
| Ranunculaceae | Helleborus foetidus | 5.1 | Żuraw & Denisow 2002 |
| Ranunculaceae | Helleborus hybridus | 4.65 | Żuraw & Denisow 2002 |
| Ranunculaceae | Helleborus lividus | 7.74 | Żuraw & Denisow 2002 |
| Ranunculaceae | Helleborus niger | 13.75 | Denisow & Ronicza 2002 |
| Ranunculaceae | Helleborus purpurascens | 3.25 | Denisow & Ronicza 2002 |
| Ranunculaceae | Helleborus viridis | 11.8 | Żuraw & Denisow 2002 |
| Ranunculaceae | Ranunculus bulbosus | 0.77 | Percival 1955 |
| Ranunculaceae | Ranunculus ficaria | 0.38 | Percival 1955 |
| Ranunculaceae | Ranunculus repens | 0.57 | Percival 1955 |
| Resedaceae | Reseda odorata | 0.1 | Percival 1955 |
| Rosaceae | Crataegus monogyna | 0.4 | Percival 1955 |
| Rosaceae | Fragaria x ananassa | 0.6 | Percival 1955 |
| Rosaceae | Malus sylvestris | 0.83 | Percival 1955 |
| Rosaceae | Potentilla fruticosa | 0.14-0.72 | Denisow et al. 2013 |
| Rosaceae | Prunus dulcis | 0.29-1.26 | Hill 1985; DeGrandi-Hoffman & Thorp 1991 |
| Rosaceae | Prunus laurocerasus | 0.4 | Percival 1955 |
| Rosaceae | Prunus persica | 0.4 | Percival 1955 |
| Rosaceae | Pyrus communis | 0.31 | Percival 1955 |
| Rosaceae | Rosa canina | 3.32 | Żuraw et al. 2015 |
| Rosaceae | Rosa gallica | 13.2 | Żuraw et al. 2015 |
| Rosaceae | Rosa rugosa | 26.7 | Żuraw et al. 2015 |
| Rosaceae | Rosa spinosissima | 3.6 | Percival 1955 |
| Rosaceae | Rosa x damascena | 8.91 | Żuraw et al. 2015 |
| Rosaceae | Rubus fruticosus | 1.1 | Percival 1955 |
| Rosaceae | Rubus idaeus | 0.2 | Percival 1955 |
| Rosaceae | Rubus loganobaccus | 2.4 | Percival 1955 |
| Sapindaceae | Aesculus hippocastanum | 0.5 | Percival 1955 |
| Scrophulariaceae | Buddleia variabilis | 4.7 | Percival 1955 |
| Solanaceae | Lycopersicon esculentum | 0.025-0.329 | Poulton et al. 2002 |
| Solanaceae | Solanum adelphum | 0.42 | Passarelli & Cocucci 2007 |
| Solanaceae | Solanum betaceum | 0.88 | Passarelli & Cocucci 2007 |
| Solanaceae | Solanum elaeagnifolium | 5.43 | A. Russell & S. Buchmann unpubl. data |
| Solanaceae | Solanum glaucophyllum | 1.54 | Passarelli & Cocucci 2007 |
| Solanaceae | Solanum granuloso-leprosum | 0.845 | Passarelli & Cocucci 2007 |
| Solanaceae | Solanum stuckertii | 2.457 | Passarelli & Cocucci 2007 |
| Solanaceae | Solanum tridynamum | 4.03 | A. Russell unpubl. data |
| Solanaceae | Solanum tuberosum | 3.16-0.81 | Atlin 1984 |
| Tropaeolaceae | Tropaeolum majus | 0.9 | Percival 1955 |
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| \*\*Bat pollinated, but visited infrequently by native bees (and frequently by non-native honeybees; Fleming et al. 2001) | | | |
| We report the mean pollen weight in mg, rather than mean quantity of grains (which vary in their mass) for 44 families, 103 genera, and 157 species of flowering plants. Ranges were reported when multiple means were provided | | | |
| Mean ± SE: 3.55 ± 0.91; *Carnegiea gigantea* is not included in this calculation | | | |