



COPPICE AGROFORESTRY

Resprout Silviculture for the 21st Century

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Appendix 2: Crude protein content of leaves of selected woody plants, in Latin name order, based on scientific papers published through 2012. Data may contain percent crude protein (% CP) content of samples taken at various times of year, including dead or senesced leaves taken off the ground in autumn. Some samples in the dataset may have included twigs or young green shoots, but for the most part such data was excluded. Data for species with average leaf crude protein below 9.0% not shown. *Please note* the number of studies (# Refs) for each species in the right-hand column: this table is highly preliminary and narrowly focused! We desperately need much more research and practical experience to enhance the depth and breadth of understanding here.

<i>Genus</i>	<i>species</i>	common name	Reported Leaf % CP Average	Reported Leaf % CP Low	Reported Leaf % CP High	# Refs
<i>Acer</i>	<i>rubrum</i>	red maple	11.4	2.7	12.8	6
<i>Acer</i>	<i>saccharinum</i>	silver maple	14.0	11.7	16.3	3
<i>Acer</i>	<i>saccharum</i>	sugar maple	12.5	7.8	28.8	4
<i>Ailanthus</i>	<i>altissima</i>	tree-of-heaven	18.2	10.5	27.2	2
<i>Albizia</i>	<i>julibrissin</i>	mimosa	19.3	16.8	23.8	3
<i>Alnus</i>	<i>cordata</i>	Italian alder	15.9	12.1	19.7	1
<i>Alnus</i>	<i>glutinosa</i>	European black alder	15.2	9.4	19.7	4
<i>Alnus</i>	<i>incana</i>	European gray alder	20.1	17.6	25.0	2
<i>Alnus</i>	<i>rubra</i>	red alder	14.2	12.7	15.6	2
<i>Amelanchier</i>	<i>utahensis</i>	Utah serviceberry	12.0	11.0	13.0	1
<i>Amorpha</i>	<i>fruticosa</i>	false indigo	18.2	12.5	19.7	5
<i>Betula</i>	<i>allegheniensis</i>	yellow birch	23.5	12.5	34.4	1
<i>Betula</i>	<i>alnoides</i>	xi hua	19.4			1
<i>Betula</i>	<i>lenta</i>	black birch	13.5			1
<i>Betula</i>	<i>pendula</i>	European white birch	19.3	16.9	23.0	2
<i>Betula</i>	<i>pubescens</i>	downy birch	15.4	17.6	13.2	2
<i>Caragana</i>	<i>jubata</i>	shag-spine	20.3			1
<i>Caragana</i>	<i>korshinskii</i>	Korshinsk peashrub	17.0	13.3	19.1	3
<i>Caragana</i>	<i>microphylla</i>	litteleaf peashrub	16.8			1
<i>Castanea</i>	<i>sativa</i>	European chestnut	14.5	12.4	17.0	3
<i>Celtis</i>	<i>occidentalis</i>	hackberry	11.5	8.7	13.5	1
<i>Cornus</i>	<i>stolonifera</i>	red-osier dogwood	14.4	11.3	17.5	2
<i>Corylus</i>	<i>avellana</i>	European filbert	10.5	8.5	12.1	1
<i>Corylus</i>	<i>cornuta</i>	beaked hazel	13.8	12.4	14.6	1
<i>Elaeagnus</i>	<i>angustifolia</i>	Russian olive	18.0	11.1	25.0	6
<i>Elaeagnus</i>	<i>umbellata</i>	autumn olive	17.9	13.8	21.9	1
<i>Fagus</i>	<i>grandifolia</i>	American beech	11.6	10.8	12.3	1
<i>Fagus</i>	<i>sylvatica</i>	European beech	16.1	11.9	17.5	3
<i>Fraxinus</i>	<i>americana</i>	white ash	14.4			1
<i>Fraxinus</i>	<i>pensylvanica</i>	green ash	9.9			1

(continued)

Genus	species	common name	Reported Leaf % CP Average	Reported Leaf % CP Low	Reported Leaf % CP High	# Refs
<i>Ginkgo</i>	<i>biloba</i>	ginkgo	11.9			1
<i>Gleditsia</i>	<i>triacanthos</i>	honeylocust	13.7	10.9	17.7	6
<i>Hippophae</i>	<i>rhamnoides</i>	seabuckthorn	19.7	15.6	21.8	4
<i>Liquidambar</i>	<i>styraciflua</i>	sweetgum	10.9	9.0	16.9	3
<i>Liriodendron</i>	<i>tulipifera</i>	tulip-tree	12.4	7.9	16.8	5
<i>Morella</i>	<i>cerifera</i>	southern bayberry	13.1	9.5	16.0	1
<i>Morus</i>	<i>alba</i>	white mulberry	20.5	10.7	35.9	24
<i>Populus</i>	<i>alba</i>	white poplar	14.8	13.0	16.5	2
<i>Populus</i>	<i>deltoides</i>	eastern cottonwood	12.0	5.6	18.5	5
<i>Populus</i>	<i>nigra</i>	black poplar	13.7	11.3	19.7	4
<i>Populus</i>	<i>tremula</i>	aspens	18.5	12.8	27.7	4
<i>Populus</i>	<i>tremuloides</i>	quaking aspen	13.8	5.4	26.9	5
<i>Quercus</i>	<i>alba</i>	white oak	9.2	3.4	12.9	3
<i>Quercus</i>	<i>nigra</i>	water oak	13.0	10.3	19.1	1
<i>Quercus</i>	<i>robur</i>	English oak	14.7	11.5	18.2	2
<i>Quercus</i>	<i>rubra</i>	red oak	11.7	8.7	13.9	3
<i>Quercus</i>	<i>stellata</i>	post oak	12.3	12.1	12.4	1
<i>Quercus</i>	<i>velutina</i>	black oak	9.5	8.6	10.3	1
<i>Quercus</i>	<i>virginiana</i>	live oak	9.5	9.1	10.2	1
<i>Robinia</i>	<i>pseudoacacia</i>	black locust	19.8	11.9	27.3	23
<i>Salix</i>	<i>babylonica</i>	weeping willow	14.5	6.9	24.8	3
<i>Salix</i>	<i>caprea</i>	goat willow	18.8	16.5	22.3	2
<i>Salix</i>	<i>fragilis</i>	crack willow	15.5			1
<i>Salix</i>	<i>humboldtiana</i>	Humboldt's willow	12.7	6.9	18.4	1
<i>Salix</i>	<i>nigra</i>	black willow	10.5	8.3	13.3	2
<i>Salix</i>	<i>pentandra</i>	laurel willow	18.3			1
<i>Salix</i>	<i>purpurea</i>	purpleosier willow	23.7			1
<i>Salix</i>	<i>udensis</i>	fantail willow	9.9	8.2	11.4	1
<i>Salix</i>	<i>viminalis</i>	basket willow	18.3			1
<i>Sassafras</i>	<i>albidum</i>	sassafras	13.5	5.5	28.3	2
<i>Sorbus</i>	<i>aucuparia</i>	rowan	14.6	14.3	14.8	2
<i>Ulmus</i>	<i>alata</i>	winged elm	13.0	7.3	27.6	2
<i>Ulmus</i>	<i>americana</i>	American elm	12.6	4.8	16.3	3
<i>Ulmus</i>	<i>crassifolia</i>	cedar elm	10.9	8.7	12.1	1
<i>Ulmus</i>	<i>glabra</i>	Scotch elm	17.6			1
<i>Ulmus</i>	<i>minor</i>	smooth-leaved elm	15.0	12.1	19.7	2
<i>Ulmus</i>	<i>rubra</i>	red elm	9.9			1
<i>Zanthoxylum</i>	<i>americana</i>	prickly ash	17.2			1