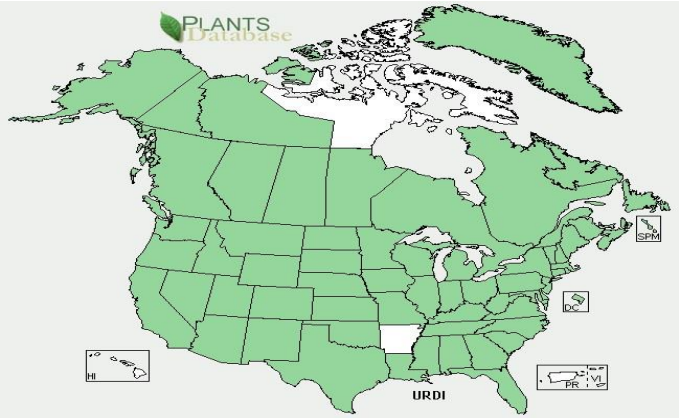
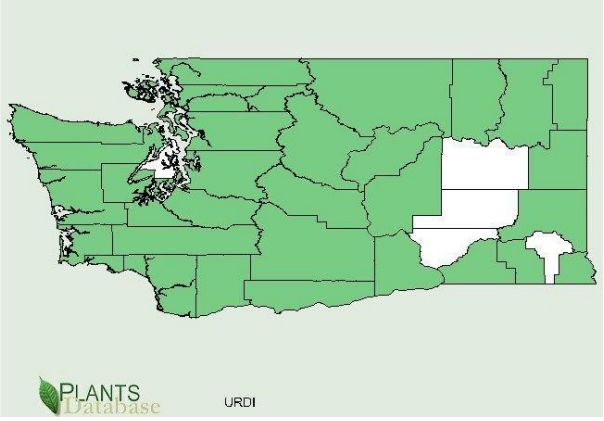
Plant Propagation Protocol for *Urtica dioica*
ESRM 412 – Native Plant Production
http://courses.washington.edu/esrm412/protocols/URDI.pdf

North America Distribution



Washington State Distribution



Source: USDA PLANTS Database

TAXONOMY	
Family Names	
Scientific Name	Urticaceae
Common Name	Nettle Family
Scientific Names	
Genus:	*Urtica*
Species:	*dioica*
Species Authority	Linnaeus
Varieties:	
Sub-species:	*Urtica dioica* L. ssp. *Dioica* *Urtica dioica* ssp. *Gracilis* (Aiton) Seland. *Urtica dioica* L. ssp. *Holosericea* (Nutt.) Thorne
Cultivar:	
Common Synonyms	
Common Name(s)	Stinging nettle, Tall nettle, California nettle, Slender Nettle
Species Code (as per USDA Plants database)	URDI
GENERAL INFORMATION	

Geographical range	Occurs throughout Canada and much of the United States. In the east and mid-west it occurs as far south as Virginia and in the west it occurs along the coast to central California and south in the Rocky Mountains to Mexico. [1] See maps above for distribution in North America and Washington State.
Ecological distribution	*U. dioica* is found in thickets, stream-banks, meadows, and open forests. It is often growing in disturbed habitats, slash piles, barnyards, avalanche tracks and road sides. [2]
Climate and elevation range	A very common plant which is locally abundant from the lowlands to subalpine elevations. Found always in moist rich soil.[2] Occurs from sea level to 10,000 feet in the southern part of its range and 2,300 feet-6,600 feet in the northern part of its range. [1] Occurs on fresh to very moist, nitrogen rich soils. As elevation increases *Urtica dioica*'s occurrence will decrease. A nitrophytic species found at disturbed sites. [3]
Local habitat and abundance	*U. dioica* is a common understory component of riparian communities. It occurs in or adjacent to marshes and meadows. In the southern Appalachian Mountains it is found in moist forest communities. [1]
Plant strategy type / successional stage	*U. dioica* is intermediate in shade tolerance. Occurs and produces seed in shady habitats but will produce more in full sun. It is a facultative wetland species[1]
Plant characteristics	An herbaceous perennial plant that produces spreading rhizomes. Stems are leafy and upright from 1-3m tall. Small greenish numerous flowers found in dense drooping clusters or spikes at the stem tips and leaf axils. Monoecious with terminal female spike inflorescences. Leaves are opposite and are narrowly lance-shaped to oval to cordate. Has prominent stipules that are 5-15mm in length and a coarsely saw-toothed margin. The fruits are flattened, lens shaped achenes.[2] Forms dense clonal patches. Leaves, stems and flowers can be moderately covered with stinging hairs. Will flower from late May to October[1]
PROPAGATION DETAILS (SEEDS)	
Propagation Goal	Plants
Propagation Method	Seed.
Product type	Propagules

Stock Type	12-24 inch container grown stock
Time to Grow	*U. dioica* is a fast growing herbaceous perennial. It will continue to grow throughout its life. Will die down every winter. Buds up from rhizomes each spring. In the wild will spread and reproduce vegetatively from rhizomes. [1]
Target Specifications	2-24 inches
Propagule Collection Instructions	*U. dioica* can cause irritation to the skin. Seeds should be collected using gloves. Seeds can be obtained by stripping the female inflorescence or topping them off. [4] Seeds should be collected in late autumn, before frost causes seed-fall. [5] Seeds can be collected after flowering from June-October. Seeds sown in late fall will germinate the following spring or summer. [4]
Propagule Processing/Propagule Characteristics	1 gram is approximately 6,000 seeds. [6]
Pre-Planting Propagule Treatments	*Urtica dioica* needs to be warm stratified for 3 months. Optimum germination rates occur in temperatures between 15/20 C. *U. dioica* requires light for germination to occur. [7]
Growing Area Preparation / Annual Practices for Perennial Crops	Plants grow best in moist, nitrogen rich fertile soil in full sun to partial shade.[6] Open ground is preferred for germination. [5] Stinging nettle produces abundant seeds in the shade and in the sun. Plants in the shade will produce approximately 500-5,000 seeds per shoot while plants grown in full sunlight produce 10,000-20,000 seeds per shoot. Seeds should be planted at most 2 inches deep [1]
Establishment Phase Details	After stratification seeds will germinate in 10-21 days. [8]
Length of Establishment Phase	Plant will reach maturity 90-110 days from seed break. [8]
Active Growth Phase	Hardening off is not needed. Fast growing, summer flowering perennial. Growth of plant occurs during the summer months. Little supplementary watering is needed.
Length of Storage	Plant is extremely hardy and can be stored at the nursery for an indefinite amount of time. Will die back every winter and buds up from rhizomes each spring. [1]
PROPAGATION DETAILS (VEGETATIVE)	
Propagation Goal	Plants
Propagation Method	Vegetative
Product type	Cuttings and Rhizomes

Propagule Collect ion Instructions	Using a mother plant grown in the greenhouse can allow cuttings to be taken any part of the year. [4, 9] Rhizome division can be done from spring through late summer. [5]
Pre-Planting Propagule Treatments	Using IBA can increase time of root development. 25 C is the optimum temperature for the development of roots. Higher percentages of rooted shoots were seen when MS salts were supplemented with IBA at a concentration of 1.5 mg. [9]
Growing Area Preparation / Annual Practices for Perennial Crops	Agri-perlite is the optimal medium for root development of cuttings. [9]
Establishment Phase Details	Will respond well to generous watering. [5]
Length of Establishment Phase	Without any pre-treatments or particular care, roots will develop within 10-12 days from cuttings. [9]
Guidelines for Outplanting / Performance on Typical Sites	Rooted cuttings or Rhizomes can be directly outplanted to target site.
Other Comments	Vegetative propagation allows a large number of plants to be obtained in a short amount of time but requires more space than if propagated from seed. [9] *U. dioica* is considered a common weed in most parts of the world. Nettle has been used for medicine and food for centuries and is still harvested today for those purposes. Given the tendency to flop, if a neat appearance is desired, *U dioica* should be grown with support.[5] Seedlings will start spreading vegetatively the first year of establishment. If planted in late summer it can spread up to 2.5 meters in diameter. [1]
Protocol Author	Michael Bradshaw
Date Protocol Updated	May 20, 2014
Stock Type	Wild
Time to Grow	Cuttings can be rooted anytime during the year in a greenhouse. Vegetative growth emerge from buds on rhizomes every spring[1]
Target Specifications	2-24 inches

References:

[1] USDA Forest Service, FEIS Website: http://www.fs.fed.us/database/feis/plants/forb/urtdio/all.html

[2] Pojar, Jim, A MacKinno n, and Paul B. Alaback. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia & Alaska*. Redmond, Wash: Lone Pine Pub, 1994. pp. 87 Print.

[3] Klinka, K. Indicator plants of Coastal British Columbia. Vancouver: University of British Columbia Press, 1989. Print.

[4]Luna, Tara. "Propagation Protocol for Stinging Nettle (Urtica dioica)." *Native Plants Journal (Indiana University Press)*. 2.2 (2001). Print.

[5]Royal Botanic Gardens, Kew "Urtica dioica" *Science and conservation>Plants and fungi* http://www.kew.org/science-conservation/plants-fungi/urtica-dioica-nettle

[6] Nicky's Nursery. *Product Preview Nettle Commom Urtica dioica.*. Web. http://www.nickysnursery.co.uk/garden-shop/seeds/herbs/n/nettle-common-urtica-dioica

[7] Baskin, Carol C, and Jerry M. Baskin. *Seeds: Ecology, Biogeography, and Evolution of Dormancy and Germination*. San Diego, Calif: Academic Press, 1998. Print. PG 373

[8] Restoration Seeds. *Stinging Nettle.* Web. http://www.restorationseeds.com/products/stinging-nettle

[9] Gatti, Di Virgilio, and Bacci. *Development of Propagation Methods for Organic Production of Fibre. (Urtica dioica L).* International Conference on Flax and Other Bast Plants. 2008. pp. 445

Other Sources Consulted:

University of Washington. "Plant Data sheet: *Urtica dioica"* http://depts.washington.edu/propplnt/Plants/Urtica%20dioica.htm

Grime JP, Mason G, Curtis A., Rodman J, Band S, Mowforth M, Neal A, Shaw S. 1981. A comparative study of germination characteristics in a local flora. Journal of Ecology 69:1017–1059.