Plant Propagation Protocol for *Acer saccharinum* L., Silver Maple
ESRM 412 – Native Plant Production
Spring 2008

TAXONOMY	
Family Names	
Family Scientific Name:	Aceraceae
Family Common Name:	Maple family
Scientific Names	
Genus:	*Acer*
Species:	*saccharinum*
Species Authority:	L.
Variety:	
Sub-species:	
Cultivar:	
Authority for Variety/Sub-species:	
Common Synonym(s) (include full scientific names (e.g., *Elymus glaucus* Buckley), including variety or subspecies information)	ACDA2 *Acer dasycarpum* Ehrh. ACSAL3 *Acer saccharinum* L. var. *laciniatum* Pax ACSAW *Acer saccharinum* L. var. *wieri* Rehder ARSA9 *Argentacer saccharinum* (L.) Small
Common Name(s):	Silver Maple, Silberahorn, White Maple, Soft Maple.
Species Code (as per USDA Plants database):	ACSA2
GENERAL INFORMATION	
Geographical range (distribution maps for North America and Washington state)	Wide range: AL, AR, CA, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, ME, MI, MN, MO, MS, NC, NE, NH, NJ, NM, NY, OH, OK, PA, RI, SC, SD, TN, VA, VT, WA, WI, WV.
Ecological distribution (ecosystems it occurs in, etc):	Silver Maple is dominant only beside streams and lakes, or occasionally swamps, gullies, and other areas with slow drainage. (Gabriel, William J.) It occurs in floodplain forests in Southern Wisconsin (Ware, George Henry,) and Illinois.
Climate and elevation range	Silver maple is moderately tolerant to not tolerant of shade, depending on other qualities of the site. (Gabriel, William J.) Stands form at low elevations, bottomland clearings and slopes. (Barnes, William J.; Dibble, Eric.) (Godfrey, Robert K.)
Local habitat and abundance; may include commonly associated species	Silver maple is commonly found in forests disturbed by floods. (Godfrey, Robert K.) It is a dominant species in elm-ash-cottonwood forest types. (Myers, Charles C.; Buchman, Roland G.) Is also one of a number of species that will follow eastern cottonwood, and form a

	mixed hardwood bottomland community. (Johnson, R. L.; Shropshire, F. W.)
Plant strategy type / successional stage (stress-tolerator, competitor, weedy/colonizer, seral, late successional)	Fast growing, (Gabriel, William J.) Facultative Seral Species. Dominates only near water, or in frequently flooded areas. (Godfrey, Robert K.)
Plant characteristics (life form (shrub, grass, forb), longevity, key characteristics, etc)	Life form : Tree. Longevity: Can live over 130 years. (Gabriel, William J.) Key Characteristics: Deciduous, medium-sized; mature height can be from 90 to 120 feet. Trunk often consists of several smaller branches close together. (Preston, Richard J.) Crown is open and rounded. (Godfrey, Robert K.)
PROPAGATION DETAILS	
Ecotype (this is meant primarily for experimentally derived protocols, and is a description of where the seed that was tested came from):	Collected at Cumberland Gap National Historical Park, LMU Campus, Cumberland Mt. Research Center by J. Copeland on 4/25/97, 5/12/98, 5/5/99 and 4/19/00. (Englert, John M.)
Propagation Goal (Options: Plants, Cuttings, Seeds, Bulbs, Somatic Embryos, and/or Other Propagules):	Plants
Propagation Method (Options: Seed or Vegetative):	Seed
Product Type (options: Container (plug), Bareroot (field grown), Plug + (container-field grown hybrids, and/or Propagules (seeds, cuttings, poles, etc.))	Plug + container-field grown hybrids. (Englert, John M.)
Stock Type:	Bare root seedlings, container sapling. (Englert, John M.)
Time to Grow (from seeding until plants are ready to be outplanted):	About 2 months. (Englert, John M.)
Target Specifications (size or characteristics of target plants to be produced):	6-16” for bare root plants; up to 84” for 3 gallon container trees. (Englert, John M.)
Propagule Collection (how, when, etc):	Seed crops produced annually inside “winged” fruit, and dispersed through wind.(Brown, Russell G.; Brown, Melvin L)
Propagule Processing/Propagule Characteristics (including seed density (# per pound), seed longevity, etc):	None needed, seeds are generally clean. Seeds/Kg: Approximately 2,800–4,000. Purity: Around 90%. (Englert, John M.)
Pre-Planting Propagule Treatments	Period of warm-moist stratification followed by cool

(cleaning, dormancy treatments, etc):	stratification for maximum germination, though not required. (Brown, Russell G.; Brown, Melvin L)
Growing Area Preparation / Annual Practices for Perennial Crops (growing media, type and size of containers, etc):	Ropak multipots, quarts, 1/2 gallon, 1,2,or 3 gallons for specimen and miscellaneous container plants. Germinated on desk blotter paper, transferred into Sunshine #5 plus 180 day Nutricote SR 18-6-8 at 20 oz. per batch. Larger container plants are potted in a woody mix. (Englert, John M.)
Establishment Phase (from seeding to germination):	Fertilized weekly, to bi-weekly with a water soluble fertilizer. Using water-soluble only has not promoted fast growth required for outplanting in the same season; slow release fertilizer is important. (Englert, John M.)
Length of Establishment Phase:	About 3 days. (Englert, John M.)
Active Growth Phase (from germination until plants are no longer actively growing):	Rapid growth is sixty days, then plants can be pulled from containers and transplanted. (Englert, John M.)
Length of Active Growth Phase:	Sixty days from sowing. (Englert, John M.)
Hardening Phase (from end of active growth phase to end of growing season; primarily related to the development of cold-hardiness and preparation for winter):	Seedlings in containers are hardened for about 2 weeks outdoors before out planting. (Englert, John M.)
Length of Hardening Phase:	2 weeks. (Englert, John M.)
Harvesting, Storage and Shipping (of seedlings):	2 years to harvest as bare root seedlings; 3 additional seasons to reach 3 gallon container size. Bareroot plants can be stored by being bundled into groups. Long roots should be trimmed, and bundles stored in plastic bins and covered with saw dust. Place bins in a cold (40 degrees) storage room, and continue to water. Plants in gallon sized containers can be stored outside, in weed-barrier fabric with 2 layers of mircrofoam insulating blanket. (Englert, John M.)
Length of Storage (of seedlings, between nursery and outplanting):	December through March. (Englert, John M.)
Guidelines for Outplanting / Performance on Typical Sites (eg, percent survival, height or diameter growth, elapsed time before flowering):	Can be damaged by winds, ice, wood rot and insects. (Merz, Robert W.) Seedlings can be damaged by rodents, (Minckler, Leon S.) foliage can be eaten by Gypsy Moth larvae.(Gottschalk, Kurt W.; Twery, Mark J.) Minimum seed bearing age is 11 years. (Olson, David F., Jr.; Gabriel, W. J.)
Other Comments (including collection restrictions or guidelines, if available):	
INFORMATION SOURCES	
References (full citations):	Gabriel, William J. 1990. Acer saccharinum L. silver maple. In: Burns, Russell M.; Honkala, Barbara H.,

technical coordinators. Silvics of North America. Volume 2. Hardwoods. Agric. Handb. 654. Washington, DC: U.S. Department of Agriculture, Forest Service: 70-77.

Ware, George Henry. 1955. A phytosociological study of lowland hardwood forests in southern Wisconsin. Madison, WI: University of Wisconsin.

Barnes, William J.; Dibble, Eric. 1988. The effects of beaver in riverbank forest succession. Canadian Journal of Botany. 66: 40-44.

Godfrey, Robert K. 1988. Trees, shrubs, and woody vines of northern Florida and adjacent Georgia and Alabama. Athens, GA: The University of Georgia Press. 734 p.

Myers, Charles C.; Buchman, Roland G. 1984. Manager's handbook for elm-ash-cottonwood in the North Central States. Gen. Tech. Rep. NC-98. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 11 p.

Johnson, R. L.; Shropshire, F. W. 1983. Bottomland hardwoods. In: Burns, Russell M., tech. comp. Silvicultural systems for the major forest types of the United States. Agric. Handb. 445. Washington, DC: U.S. Department of Agriculture, Forest Service: 175-179.

Merz, Robert W., compiler. 1978. Forest atlas of the Midwest. Washington, DC: U.S. Department of Agriculture, Forest Service, National Forest System Cooperative Forestry, Forestry Research. 48 p.

Minckler, Leon S. 1958. Bottomland hardwoods respond to cutting. Tech. Pap. 164. Columbus, OH: U.S. Department of Agriculture, Forest Service, Central States Forest Experiment Station. 10 p.

Gottschalk, Kurt W.; Twery, Mark J. 1989. Gypsy moth impacts in pine-hardwood mixtures. In: Waldrop, Thomas A., ed. Proceedings of pine-hardwood mixtures: a symposium on management and

	ecology of the type; 1989 April 18-19; Atlanta, GA. Gen. Tech. Rep. SE-58. Asheville, SC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station: 50-58. Preston, Richard J., Jr. 1948. North American trees. Ames, IA: The Iowa State College Press. 371 p. Brown, Russell G.; Brown, Melvin L. 1972. Woody plants of Maryland. Baltimore, MD: Port City Press. 347 p. Kujawski, Jennifer; Davis, Kathy M. 2001. Propagation protocol for production of plug + transplants of Acer saccharinum plants; USDA NRCS - Beltsville National Plant Materials Center, Beltsville, Maryland. In: Native Plant Network. URL: http://www.nativeplantnetwork.org (accessed 13 May 2008). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. Sullivan, Janet. 1994. Acer saccharinum. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2008, May 13]. Olson, David F., Jr.; Gabriel, W. J. 1974. Acer L. maple. In: Schopmeyer, C. S., technical coordinator. Seeds of woody plants in the United States. Agric. Handb. 450. Washington, DC: U.S. Department of Agriculture, Forest Service: 187-194.
Other Sources Consulted (but that contained no pertinent information) (full citations):	
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