

Protocol Information

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Family Scientific Name: **Fagaceae**

Family Common Name: **Beech**

Scientific Name: ***Castanea pumila* Mill. 'Golden'**

Common Synonym: ***Castanea pumila* Mill. var.
*pumila***

Common Name: **chinkapin, Allegheny
chinkapin, American
chinquapin, chinquapin, dwarf
chestnut, golden chinquapin**

Species Code: **CAPU9**

General Distribution: **Chinkapin is native to the eastern and southern United States in USDA plant hardiness zones 6 to 10, where its range is from New Jersey and West Virginia west to Missouri and Oklahoma and south to Texas and Florida. Chinkapin typically occurs in mixed hardwood forests among pine and oak trees on high ridges and slopes that are free from limestone. It is also found on well-drained stream terraces, dry pinelands, and disturbed sites such as railroad rights-of-way, power line clearings, fence and hedgerows, pine plantations, and old fields. Chinkapin grows in droughty and well-drained sites on dry, rocky, sandy, or loamy soils. It will grow on black sandy dunes in the Carolinas, but not on frontal dunes. Chinkapin ranges in elevation from sea level to about 4,450 feet. It occurs in open areas and is tolerant of high heat. It is tolerant of acid soils (pH 5.5-6.0), but is not tolerant of coastal salt spray or shade.**

Known Invasiveness: **None**

Propagation Goal: **Plants**

Propagation Method: **Seed**

Product Type: **Bareroot (field grown)**

Stock Type: **1-0**

Time To Grow: **1 Years**

Target Specifications: **A second spring seedling ranging in height from 8" to 16" with a 1/16" to 3/16" caliper stem and a compact, well developed tap root system.**

Propagule Collection: **Seeds are collected from established seed orchards in the fall immediately after the burrs (spiny husks) have split open to expose the nuts.**

Propagule Processing: **Chinkapin reproduces readily from seed. Seed has no physiological dormancy and should be sown immediately upon harvest for best results. Fall sown seed typically exhibits >90% germination, while seeds stored overwinter exhibit greatly reduced germination; typically <50%.**

Pre-Planting Treatments: **Seed may be floated in water to help determine viability. Seed that floats is normally poorly filled and has low or no viability. Floaters are discarded, while the seed that sinks is retained for planting.**

Growing Area Preparation/
Annual Practices for Perennial Crops: **Best germination and growth of seedlings is in raised beds or sandy soil with adequate moisture. Prepare beds by deep rototilling or other tillage methods that achieve thorough loosening and mixing of soil. Seed are placed into 3/4" to 1" deep furrows scribed into the tilled soil. Furrows are spaced 2" apart and seed are placed 1" apart within furrows to optimize seedling development. Seed are covered with soil to a depth equal to 1 and 1/2 times the average diameter of the seed; usually 3/4" to 1" of soil. Beds should then be covered with a 2 - 3 inch thick layer of straw to insulate against frost heaving. When seedlings begin to emerge, one-half of the straw**

should be removed.

Establishment Phase: **A radicle is produced in the fall soon after planting. Top growth is initiated the following spring.**

Length of Establishment Phase: **4-6 months which includes the overwintering period.**

Active Growth Phase: **Plants require little maintenance during active growth other than application of at least 1 inch of water per week during drouth conditions and elimination of weed competition. Weeds must be removed during early growth phases to avoid uprooting the chinkapin seedlings.**

Length of Active Growth Phase: **6-8 months**

Hardening Phase: **Since the plants are grown outside, no additional hardening is required.**

Length of Hardening Phase: **None**

Harvesting, Storage and Shipping: **Seedlings are harvested in late winter while dormant. The best harvesting method employs a nursery bed lifter/shaker which undercuts the seedlings and gently loosens the soil around the roots. Bare root seedlings are then plucked from the loosened soil by hand. Refrigeration is employed to maintain seedling dormancy after harvest until shipping. Optimal temperatures for maintenance of dormancy are 35-40 degrees Fahrenheit. Root dessication during storage is prevented through packing in aged, moistened hardwood sawdust.**

Length of Storage: **1-2 months**

Outplanting performance on typical sites: **Best survival and growth of chinkapin is achieved by planting while the plants are dormant between the date of the first frost in the fall and the date of the last frost in the spring. Plantings for wildlife habitat improvement or forest restoration should be established at a ten foot spacing between plants and rows. Plantings for seed orchards or wildlife habitat improvement where seed production is a primary goal should be established at a spacing of fifteen to twenty feet. Dipping bareroot plants in root gel before planting to retain moisture around the roots may enhance survival and growth. Applying a slow release fertilizer at planting will also enhance survival and early growth.**

Other Comments: **Chinkapin is moderately resistant to chestnut blight.**

Seed orchards should be fenced to minimize browsing by deer and livestock. Root collars may be necessary if girdling of woody plants by rabbits is a problem.

Chinkapin is not resistant to herbicides that control broadleaf weeds such as 2,4-D, dicamba, picloram, and silvex. However, it may resprout following herbicide treatments. Trade names and control measures appear in this protocol only to provide specific information. USDA-NRCS does not guarantee or

warrant the products and control methods named, and other products may be equally effective.

References: **Agricultural Research Center. 2004. GRIN taxonomy (<http://www.ars-grin.gov/cgi-bin/npgs/html/index>, 9 May 2004). USDA, Beltsville.**

American Chestnut Growers Foundation. 2004. Genus Castanea (<http://www.ppws.vt.edu/griffin/acccast.html>, 9 May 2004). Department of Plant Pathology, Physiology and Weed Science, Virginia Tech, Blacksburg.

Anagnostakis, S.L. 2004. Identification of American chestnut trees (<http://www.caes.state.ct.us/FactSheetFiles/PlantPathology/fspp034f.htm>, 9 May 2004). The Connecticut Agricultural Experiment Station, New Haven.

Finical, L. 2004. Texas native trees (<http://aggie-horticulture.tamu.edu/ornamentals/natives/about.html> 9 May 2004). Dallas Arboretum, Texas Agricultural Experiment Station, Dallas.

Hamel, Paul B. and M.U. Chiltoskey. 1975. Cherokee plants and their uses—a 400 year history. Herald Publishing, Sylva.

Johnson, F.L. and B.W.

Hoagland. Catalog of the woody plants of Oklahoma (<http://www.biosurvey.ou.edu/shrub/cover.htm>, 9 May 2004). Oklahoma University, Norman.

Nelson, G. 1996. Shrubs and woody vines of Florida. Pineapple Press Co., Sarasota.

Russell, A.B. 1997. Trees of the Maritime forest (<http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/maritime/Castapu.htm>, 9 May 2004). Department of Horticultural Science, North Carolina State University, Raleigh.

Sullivan, J. 1994. *Castanea pumila*. (<http://www.fs.fed.us/database/feis/>, 9 May 2004). Fire Sciences Laboratory, Rocky Mountain Research Station, USDA Forest Service, Missoula.

Taylor, L.A. 1940. Plants used as curatives by certain southeastern tribes. Botanical Museum of Harvard University, Cambridge.

Wunderlin, R.P., and B.F. Hansen. 2003. Atlas of Florida vascular plants (<http://www.plantatlas.usf.edu>, 9 May 2004). Institute of Systematic Botany, University of South Florida, Tampa.

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