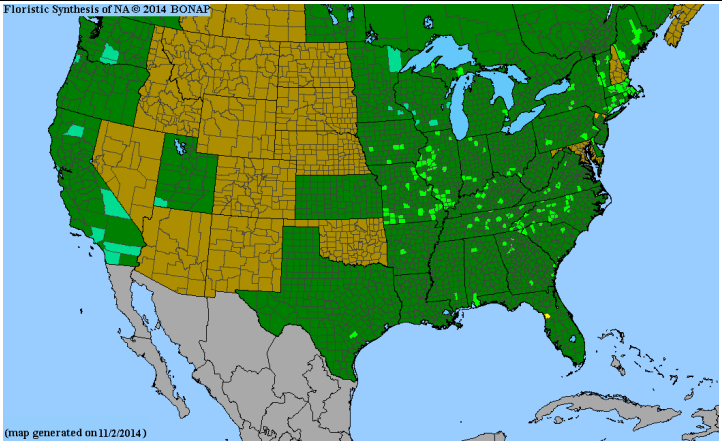
Plant Propagation Protocol for *Physalis grisea*
ESRM 412 – Native Plant Production
URL: https://courses.washington.edu/esrm412/protocols/*2021*/*PHGR22.pdf*

TAXONOMY	
Plant Family	
Scientific Name	*Solanaceae*[11]
Common Name	Potato family, nightshade family[10]
Species Scientific Name	
Scientific Name	*Physalis grisea* (Waterfall) M. Martínez[11]
Varieties	n/a
Sub-species	n/a
Cultivar	n/a
Common Synonym(s)	*Physalis pruinosa* sensu Rydb.[11] *Physalis pubescens* L. var. *grisea* Waterf.[11]
Common Name(s)	Strawberry-tomato, Downy Ground-cherry[9]
Species Code (as per USDA Plants database)	PHGR22[11]
GENERAL INFORMATION	
Geographical range	 4
Ecological distribution	Meadows, fields, anthropogenic habitats, upland terrestrial habitats.[8]
Climate and elevation range	*Physalis* species develop in a wide range of climates and soil types in temperate and tropical zones.[7] No specific elevation range has been documented for this species.
Local habitat and abundance	No information found about abundance.
Plant strategy type / successional stage	Stress tolerant and adaptable to different climates. Not tolerant to frost.[7]
Plant characteristics	Annual herb, grows up to around 18 inches tall.[9] Covered in small hairs, yellow flowers, rust colored fruit which develops inside a dry husk.[6]
PROPAGATION DETAILS	
Ecotype	n/a
Propagation Goal	Plants

Propagation Method	Seed
Product Type	Container (plug)
Stock Type	
Time to Grow	8-12 weeks[3]
Target Specifications	About 10cm tall, 3mm thick stem.[5]
Propagule Collection Instructions	Blend fruits with rubber blades until liquified. Leave blended fruits for 48 hours, then wash seeds. Allow seeds to dry in shade on an absorbent paper. Store at room temperature in an airtight container.[7]
Propagule Processing/Propagule Characteristics	A single fruit can contain over 100 seeds. Harvest a few fruits from each of the plants in a target population.[3] Seeds have a high germination percent of 85 to 90%. Seeds can be stored at room temperature for up to two years.[7]
Pre-Planting Propagule Treatments	Allow seeds to sit for two weeks after collection to reduce germination time once planted.[7]
Growing Area Preparation / Annual Practices for Perennial Crops	Seed two seeds per cell in an 18 cell 10x20 tray. Plant seeds 1/4th inch deep. Use a mix of 50% soil, 25% perlite and 25% peat moss as a seed starting medium. For each 35 liters of this mixture add 8oz dolomitic limestone and 10oz 20% superphosphate.[1]
Establishment Phase Details	Keep soil moist but do not overwater. keep under grow lights on a 16 hours on 8 hours off cycle.
Length of Establishment Phase	7-10 days.[3]
Active Growth Phase	Maintain proper watering and light cycles. If multiple seeds germinate in the same cell, remove the weaker seedling at the end of the active growth phase.
Length of Active Growth Phase	About 6-8 weeks.[5]
Hardening Phase	Harden seedlings off under a shaded sunlight location or under shade cloth while maintaining watering.[2]
Length of Hardening Phase	5-10 days.[2]
Harvesting, Storage and Shipping	After hardening off seedlings are ready to be out planted two weeks after the last frost date at the outplanting sight.[3]
Length of Storage	n/a
Guidelines for Outplanting / Performance on Typical Sites	n/a
Other Comments	Since there is little research on the propagation and cultivation of *Physalis grisea*, much of the propagation protocols are adapted from cultivation procedures for *Physalis peruviana* the widely cultivated Cape gooseberry.

INFORMATION SOURCES

References

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2) Harun Odhiambo, Harun, Lusike Wasilwa, Job Maangi, Mercyline Ong'awa, and Vincent Ochieng. “Evaluation of Fruit Yield in Two Gooseberry Cultivars Grown under Water Stress Conditions with Supplemental Irrigation.” *Journal of Horticulture*, 264, 8, no. 3 (2019).

	3) “How to Grow Ground Cherries (Physalis Spp.) .” Seed Savers Exchange, 2017. 4) Kartesz, John T. “Physalis Grisea.” BONAP's North American Plant Atlas . The Biota of North America Program (BONAP), 2014. http://bonap.net/Napa/TaxonMaps/Genus/County/Physalis. 5) Khehra, Savreet, Tanjeet Singh Chahal, and Adesh Kumar. “Standardization of Nursery Raising Methods in Cape Gooseberry (Physalisperuviana L.).” *The Journal of Rural and Agricultural Research* 16, no. 1 (2016): 76–78. 6) Kottaimuthu, Ramalingam, C. Rajasekar, C. P. Muthupandi, and K. Rajendran. “Physalis Grisea (Waterf.) M.Martínez (Solanaceae): A New Distributional Record for India.” *I3 Biodiversity* 3 (January 20, 2019). 7) Muniz, Janaína, Aike Anneliese Kretzschmar, Leo Rufato, Tânia Regina Pelizza, Andrea De Rufato, and Tiago Afonso Macedo. “General Aspects of Physalis Cultivation.” *Ciência Rural* 44, no. 6 (June 2014): 964–70. https://doi.org/10.1590/s0103-84782014005000006. 8) “Physalis Grisea (Waterfall) M. Martinez.” Go Botany. Native Plant Trust, 2021. Physalis grisea (Waterfall) M. Martinez. 9) “Physalis Grisea.” PLANT DATABASE. LADY BIRD JOHNSON WILDFLOWER CENTER, February 27, 2019. https://www.wildflower.org/plants/result.php?id_plant=PHGR22. 10) “The Powerful Solanaceae.” U.S. Forest Service. USDA. Accessed May 26, 2021. https://www.fs.fed.us/wildflowers/ethnobotany/Mind_and_Spirit/solanaceae.shtml. 11) USDA NRCS National Plant Data Team. “Physalis Grisea (Waterf.) M. Martínez.” PLANTS Database. USDA. Accessed May 26, 2021. https://plants.usda.gov/home/plantProfile?symbol=PHGR22.
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