

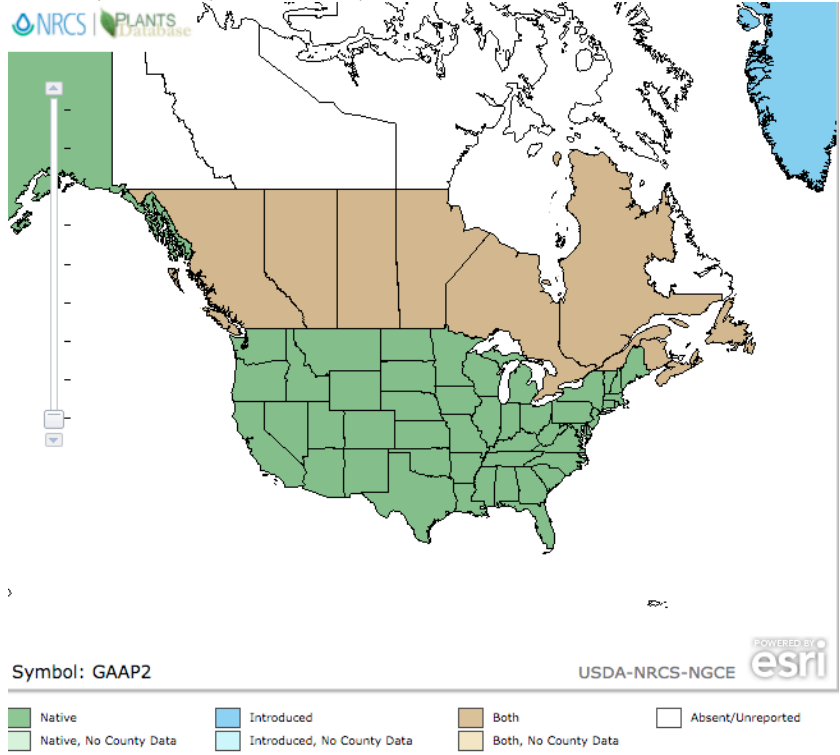
Plant Propagation Protocol for *[Insert Species]*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/GAAP2.pdf>

Previous Protocol: <http://depts.washington.edu/propplnt/Plants/GAAP.htm>

TAXONOMY	
Plant Family	
Scientific Name	Rubiaceae
Common Name	Stickywilly
Species Scientific Name	
Scientific Name	<i>Galium aparine</i> L.
Varieties	N/A
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	<i>Galium aparine</i> L. var. <i>echinospermum</i> (Wallr.) Farw. <i>Galium aparine</i> L. var. <i>intermedium</i> (Merr.) Briq. <i>Galium aparine</i> L. var. <i>minor</i> Hook. <i>Galium aparine</i> L. var. <i>vaillantii</i> (DC.) Koch <i>Galium spurium</i> L. var. <i>echinospermum</i> (Wallr.) Hayek <i>Galium spurium</i> L. var. <i>vaillantii</i> (DC.) G. Beck <i>Galium spurium</i> L. var. <i>vaillantii</i> (DC.) Gren. & Godr. <i>Galium aparine</i> L. ssp. <i>spurium</i> (L.) Simonkai <i>Galium agreste</i> Wallr. var. <i>echinospermum</i> <i>Galium spurium</i> L. <i>Galium vaillantii</i> DC. ⁷
Common Name(s)	Bedstraw, goosegrass, catchweed bedstraw, cleavers, cleaverwort, scarthgrass, white hedge ⁷
Species Code (as per USDA Plants database)	GAAP2
GENERAL INFORMATION	

Geographical range	<p>Alaska, Canada, Greenland, and Lower 48 States⁷</p>  <p>Symbol: GAAP2</p> <p>USDA-NRCS-NGCE esri</p> <p>Native Introduced Both Absent/Unreported Native, No County Data Introduced, No County Data Both, No County Data</p> <p>Source: USDA</p>
Ecological distribution	Grassy headland prairies, grass balds, shady edge, hedgerow ¹
Climate and elevation range	Cool/Cold moist climates, low altitude 0-500 m coastal areas, found up to 1,800 m ¹
Local habitat and abundance	The plant will rapidly grow in most situations, but prefers a moist well-drained neutral soil in a grassy and shady site. It will adapt to sun. ⁵
Plant strategy type / successional stage	It's a weedy herbaceous forb that's suitable for sandy, loamy, and clay soils, as well as acidic, neutral and alkaline pH soils. ⁶ At the stem angles are hooked hairs or bristles that further aid in clambering and provide for plant dispersal. ²
Plant characteristics	<i>G. aparine</i> is an annual herbaceous forb that can grow 1.2 m by 3 m. It's hermaphrodite flowers are out from June to August, which are pollinated by flies, beetles and itself. ⁶
PROPAGATION DETAILS	
Ecotype	Moist, heavy shaded soils
Propagation Goal	Seeds
Propagation Method	Seed
Product	Propagules soil beds
Stock Type	
Time to Grow	Fall to Summer
Target Specifications	Plants can reach a maximum height of 120 cm. ³

Propagule Collection Instructions	When flowers fade during the summer, allow the seed heads to dry on the plants. Then remove and comb to separate propagules from flower head. ³
Propagule Processing/Propagule Characteristics	The seed can be viable for around 2-6 years unless frozen. Maintain an above average fertility and pH of 5.5-8.0 during germination for best results. ⁴ One plant can produce up to 300-400 seeds. 500,000 seeds per pound. ⁷
Pre-Planting Propagule Treatments	Store seeds in a cool, dry environment and soak seeds before planting. <i>G. aparine</i> seeds are conditionally dormant or non dormant. Freshly matured seeds of <i>Galium aparine</i> collected from plots sprayed with MCPA or 2,4-D were found less dormant. ¹
Growing Area Preparation / Annual Practices for Perennial Crops	Since these plants are short-lived annuals, soil beds for seed collection would be the best option. Then harvest the seeds after the flowers fade. ⁷
Establishment Phase Details	Prepare a seed bed by tilling soil and sowing seeds at least 1cm in depth. Seeds of <i>G. aparine</i> germinate to high percentages in the darkness. Seeds buried at 1cm germinated 90-100% at 8, 10, 15, 20 and 30°C. Seeds buried at 3cm germinated 90-100% at only 8, 10 and 15° Seedlings can emerge at a maximum of 7 cm with adequate moisture. ¹
Length of Establishment Phase	2 weeks
Active Growth Phase	Germination is ideal for temperatures below 20° C. Flowers appear 8 weeks after germination typically from spring to late summer, and seedlings appear throughout this growing season. ²
Length of Active Growth Phase	Not long after blooming, seeds mature and dry weeks within flowering.
Hardening Phase	No hardening phase since it's an annual.
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	Seedlings aren't a viable option since it's a short-lived annual so it's better to directly harvest seeds. Seeds are harvested during the summer when flowers bloom. Then they can be stored or shipped within 2 years. The longer the wait, the lower the chance for the seed to survive and germinate. ⁴
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	<i>G. aparine</i> is not recommended for outplanting since it's more viable to plant from seed at restoration sites. A good size would be root lengths 5-6 cm. ²
Other Comments	<i>G. aparine</i> is known for causing skin irritation and allergic reactions through contact. ²
INFORMATION SOURCES	
References	Baskin, J. M., & Baskin, C. C. (2014). <i>Seeds: Ecology, Biogeography, and Evolution of Dormancy and Germination</i>. Academic Press.¹

	<p>Forest Service stickywilly. (n.d.). Retrieved April 26, 2017, from https://www.fs.fed.us/database/feis/plants/forb/galapa/all.html#HABITAT TYPES AND PLANT COMMUNITIES²</p> <p>Galium aparine. (n.d.). Retrieved April 26, 2017, from https://www.greenplantswap.co.uk/plants/8410-galium-aparine³</p> <p>Galium aparine L. (n.d.). Retrieved April 26, 2017, from http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:30007294-2⁴</p> <p>McVicar, J., & Majerus, M. (2008). <i>Seeds: the ultimate guide to growing successfully from seed</i>. London: Kyle Cathie.⁵</p> <p>Plants for a Future. (n.d.). Retrieved April 26, 2017, from http://www.pfaf.org/user/Plant.aspx?LatinName=Galium%2Baparine⁶</p> <p>USDA. (n.d.). Retrieved April 26, 2017, from https://plants.usda.gov/core/profile?symbol=gaap2⁷</p>
Other Sources Consulted	<p>Goose Grass - Galium aparine - Overview. (n.d.). Retrieved April 26, 2017, from http://eol.org/pages/1098038/overview</p> <p>Med: Galium aparine. (n.d.). Retrieved April 26, 2017, from http://www.ndhealthfacts.org/wiki/Galium_aparine</p> <p>Ribot, F. (n.d.). Goosegrass or cleavers. Retrieved April 26, 2017, from http://www.waterwereld.nu/cleaver.php</p>
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