Plant Propagation Protocol for *Ribes niveum*

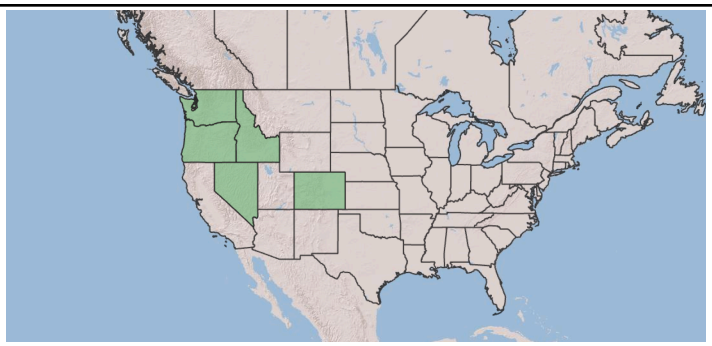
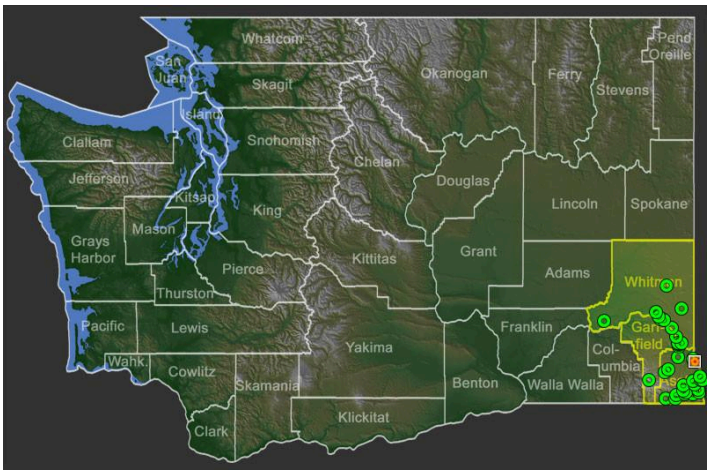
ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/*2026*/RINI2.*pdf*

Figure 1: *Ribes niveum* flowers taken on April 16, 2026, by Robert L. Carr in Asotin, Washington[2]

Figure 2: *Ribes niveum* vegetation taken on June 1, 2013, by Robert L. Carr in Malheur, Oregon[2]

TAXONOMY	
Plant Family	
Scientific Name	Grossulariaceae DC. [1]
Common Name	Currant family [1]
Species Scientific Name	
Scientific Name	*Ribes niveum* Lindl. [1]
Varieties	None
Sub-species	None
Cultivar	Primus, Bela Šampanjska, Bela iz Iteburga, Bela Perla and Viktoria [10]
Common Synonym(s)	None
Common Name(s)	snow currant [1], snow gooseberry [6], Snake River gooseberry [6]
Species Code (as per USDA Plants database)	RINI2
GENERAL INFORMATION	

Geographical range	 Figure 3: United States Distribution [1]  Figure 4: Washington State Distribution [2] Occurs across Washington, Oregon, Nevada, and Colorado. Found in the southeastern region of Washington, including Whitman, Garfield, and Asotin counties. [2] Once believed to be gone from Colorado but was rediscovered near Cañon City in Fremont County. [9]
Ecological distribution	Mostly in thickets along intermittent or permanent streams in the Columbia/ Snake R. and Humboldt R. watersheds. [7]
Climate and elevation range	Climate: Full sun is best, but it tolerates partial shade.[8] Elevation: 400-2400 m [6]
Local habitat and abundance	Habitat: This species grows in streamside thickets and open slopes. [6] Abundance: 1000-2500 individuals. [7] Large populations were rarely encountered in the 1982 field survey. [15]

Plant strategy type / successional stage	Assume early to mid-seral colonizer (due to sunny, disturbed riparian habitats [6,7]), although not explicitly stated in the literature.
Plant characteristics	Life form: Shrub [1,2] Longevity: Not found Key Characteristics: Plants: Range from 0.5-3 meters tall, forming upright to somewhat spreading shrubs, and may occasionally root where the stem tips touch the ground. Stems are smooth and hairless, with 1–3 (up to 6) spines at each node, typically 5–15(up to 20) mm long. Internodes may lack prickles entirely or bear many. [6] Leaves: Carried on petioles 0.5–4 cm long (up to 6 cm), which may be smooth or bear hairs and stalked glands. The leaf blades are broadly kidney-shaped to broadly ovate, divided into 3–5 lobes that extend one-third to halfway toward the midrib. Blades measure 0.8–5 cm, with bases that are truncate to rounded-cuneate. Surfaces may be finely hairy overall or mostly between the veins on the underside. Lobes are broad and rounded, and the margins are once or twice crenate-dentate. Tips end in a small point (mucronate or apiculate). [6] Inflorescences: Hang downward and may consist of a single flower or short racemes of 2–4 (occasionally 5) flowers, typically 4–6 cm long. The axis may be smooth or softly hairy, and the flowers are evenly spaced. Pedicels are 4–15 mm, hairless, and not jointed. Bracts are lance-shaped, 1.2–3 mm, and either glabrous or finely ciliate. [6] Flowers: Have a hypanthium that is white to pale greenish or cream, narrowly bell-shaped, and 1.6–3 mm long, usually hairless. Sepals do not overlap and bend sharply backward; they are white or faintly pink-tinged, narrow, and 5–8 mm long. Petals stand erect and meet at the tips, white or slightly pinkish with reddish venation, and measure 1.7–3.2 mm. The nectary disk is not strongly developed. Stamens are 2.5–3 times longer than the petals; filaments are linear, 6.5–9(–10) mm, and finely hairy. Anthers are cream to greenish, 0.8–1.6 mm, and rounded at the tip. A notable trait about this species is its anthers,

	which may be nearly hairless, finely hairy, or cobwebby, and which close and elongate as the fruit develops. The ovary is glabrous, and the styles are fused for more than half their length, 8–14 mm, with hairs on the lower half to three-quarters. [6] Fruits: Edible but tart, yellow-green when unripe, turning blue-black to purple at maturity. They are globose, 5.5–12 mm, and hairless. Chromosome number: 2n = 16. Flowering occurs from April to July. [6] Other: Pollination: Bumblebees, bees, hummingbirds [2] Threats: Grazing, alteration of riparian habitat, and urban development [7]
PROPAGATION DETAILS: FROM SEED Note: I used a protocol based on the congener *Ribes aureum* because it had the most complete seed propagation information among the species in the *Ribes* genus listed on the RNGR database. [3] *Ribes aureum* had similar habitat requirements as *Ribes niveum,* like full sun to partial shade and moist hillside/river valley ecosystems. [13] Any sources mentioned in this section from Pfister and Sloan [5] are generalized to the genus *Ribes.*	
Ecotype	Not found
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Bareroot (field growth) [3]
Stock Type	Not found
Time to Grow	1 year [3]
Target Specifications	Height: 8 in [3] Caliper: 3/16 in [3] Root system: Reasonably balanced root to shoot ratio[3]
Propagule Collection Instructions	Gather fruits from wild populations in the fall. [3] Fruits should be collected as soon as they reach full ripeness to avoid losses to birds. If seed extraction will not occur immediately, the harvested fruits should be spread in shallow layers so they do not overheat during temporary storage. [5] Keep seeds sorted by their collection site, elevation, and source. [3]
Propagule Processing/Propagule Characteristics	Cleaning: Maceration and washing are used to separate the seeds from the pulp. [5,12] Dried fruits should first be soaked in water before cleaning. Small quantities of berries can be cleaned in a kitchen blender. The berries are covered with water and ground in the blender for 15 to 45 seconds.

	After the seeds have separated from the pulp, additional water is added to allow the sound seeds to settle. The pulp, empty seeds, and excess water can then be decanted. Seeds may be washed using a funnel lined with filter paper and then dried on the filter paper. [5] Storage: Currant seeds are orthodox and remain viable for long periods when stored in sealed containers at a low moisture content. [5] Seeds are kept in a seed storage room at temperatures below freezing. [3] Seed density (# per pound): The seed density for *Ribes aureum* ranged from 200-285 seeds per pound, with an average of 233 seeds per pound. The seed yields from 100 pounds of berries were 4 pounds for *Ribes aureum.* [5] **Table 5**—*Ribes*, currant, gooseberry: seed yield data Cleaned seeds (x1,000)/weight Range / Average | Species | Place collected | Range /kg | Range /lb | Average /kg | Average /lb | Samples | |---|---|---|---|---|---|---| | *R. americanum* | — | 544–741 | 247–336 | 690 | 313 | 4 | | *R. aureum* | — | 441–628 | 200–285 | 514 | 233 | 4 | | *R. aureum* var. *villosum* | North Dakota | 234–395 | 106–179 | 368 | 167 | 8 | | *R. cereum* | California | 443–624 | 201–283 | 553 | 251 | 5 | | *R. cynosbati* | — | 417–487 | 189–221 | 452 | 205 | 2 | | *R. hudsonianum* | Idaho | 1,389–2,703 | 630–1,226 | 2,127 | 965 | 12 | | *R. inerme* | Idaho & California | 780–877 | 354–398 | 807 | 366 | 5 | | *R. lacustre* | California | — | — | 1,135 | 515 | 1 | | *R. missouriense* | — | 344–370 | 156–168 | 357 | 162 | 2 | | *R. montigenum* | Utah | — | — | 313 | 142 | 1 | | *R. nevadense* | California | 650–935 | 295–424 | 862 | 391 | 10 | | *R. roezlii* | California | 388–650 | 176–295 | 520 | 236 | 10+ | | *R. sanguineum* | Oregon | — | — | 626 | 284 | 1 | | *R. viscosissimum* | Idaho & California | 562–769 | 255–344 | 657 | 298 | 5 | **Sources:** Pfister (1974), Quick (1936, 1954). Figure 5: Table of *Ribes* seed yield data, not including *Ribes niveum* [5]
Pre-Planting Propagule Treatments	Dormancy Treatments: There was no information about dormancy treatments for *Ribes niveum* in any of the sources that I consulted. However, I would recommend experimenting with at least 90-120 days at 0°C if stratifying in laboratory conditions, since this was the median range from where most of the other *Ribes sp.* germinated. [5] It is emphasized that because each *Ribes* species exhibits its own dormancy behavior, no single germination protocol works universally across the genus. A deeper understanding of the specific dormancy mechanisms within *Ribes* is still needed, and additional research will be required to refine species-appropriate propagation methods. [5] Therefore, germination techniques in a non-controlled

	or laboratory setting could be utilized. Multiple sources suggest leaving them outside where the winter weather can chill the seeds and help break dormancy for spring germination. [5,12] This bareroot propagation might be of interest for *Ribes niveum* since germination requirements are not known. Seeds can be naturally stratified by sowing them in the fall in a thin layer of sand spread over mulched field beds. [5,12] **Table 6**—*Ribes*, currant, gooseberry: pregermination treatments and germination test results Pregermination treatment / Germination under test conditions* (%) / Germination capacity† (%) / Germination Samples Species / Temp (°C) / Days *R. alpinum* 0 to 10 90+ 80 — 10 *R. americanum* –2 to 2 90–120 68 76 39 *R. aureum* –2 to 2 60 60 63 19 *R. aureum* var. *villosum* 20/0 (D/N) 120 94 98 3 *R. cereum* –2 to 0 120–150 61 72 61 *R. cynosbati* –2 to 5 90–150 69 72 19 *R. hudsonianum* NP NP 57 85 116 0 to 2 90–120 69 76 42 *R. inerme* 0 120–200 60 74 54 *R. lacustre* 0 120–200 48 61 64 *R. missouriense* –2 to 5 90+ 73 — 3 *R. montigenum* 0 200–300 53 — 6 0 120–150 8 33 15 *R. nevadense* 0 120 78 87 43 *R. oxyacanthoides* ssp. *irriguum* 0 to 5 90 79 81 11 *R. roezlii* 0 100–150 80 87 200 *R. rotundifolia* –2 to 0 90+ 80 81 10 *R. sanguineum* 0–2 100–140 61 64 55 *R. viscosissimum* –2 to 0 140 58 67 88 **Sources:** NBV (1946), Pfister (1974), Quick (1939, 1940, 1941, 1943, 1945, 1947). **Note:** D/N = day/night, NP = no pretreatment. * Virtually all of the tested seeds were stratified and germinated in sand moistened with nutrient solution. The germination tests were conducted under greenhouse conditions for periods of 30 to 40 days. † Germination capacity was determined by retrial stratification and a repeat germination test with conditions about the same as used initially. Figure 6: Table of *Ribes* – current, gooseberry: Pregermination treatments and germination results, not including *Ribes niveum*. [5]
Growing Area Preparation / Annual Practices for Perennial Crops	Soils: The field soils are Taylorsville Sandy clay loam with Cca horizon shallower than 12", Taylorsville sand clay loam variant with Cca deeper than 12", Taylorsville Clay loam variant with Cca horizon shallower than 12" and Taylorsville Clay loam variant with Cca horizon deeper than 12". [3] Field Bed Preparation: Beds are laid out and shaped as needed, followed by an April application of 0-45-0 (N:P:K). Before sowing, 2–3 inches of compost are incorporated into the seed beds. Sulfur is added in May, and the fields are cultivated for weed control throughout the growing season. [3] Irrigation: Watering is provided through overhead irrigation, delivered via movable two-inch aluminum pipe that can be shifted between fields annually. The primary water supply comes from a nearby canyon stream, which provides high-quality irrigation water. [3]

Establishment Phase Details	Seeds are sown in mid-September using an Oyjard seed drill, placing them at a depth of 0.12 inches. After sowing, the seed row is lightly covered, and irrigation is applied whenever the soil surface begins to dry during warm periods. The target field density for establishment is 30 shrubs per square foot. [3]
Length of Establishment Phase	1 month post-emergence in spring [3]
Active Growth Phase	Fertilization: During the first year, Morgro 21-0-0 (N:P:K) is applied with a Gandy spreader—set to 18, operated at 2 mph, and running between 1100–1200 rpm—during the second week of each month from April through August. The application rate is 120 lbs per acre. After each fertilizer pass, the field is irrigated for at least 45 minutes to prevent foliar burn and to move nutrients into the root zone. Fertilizer is never applied to wet foliage. Because sulfur and 0-45-0 (N:P:K) are immobile in soil, these amendments must be mechanically incorporated. [3] Root Pruning Procedures: Root pruning for deciduous species begins once seedlings reach 10 inches in height. The field is heavily irrigated for 2–3 days beforehand to fully saturate the root zone. During pruning, the blade is adjusted to slightly lift or wrench the seedlings, and the pruning depth is checked frequently to maintain consistency. Following pruning, the field receives a minimum of two hours of irrigation to settle soil around the roots—an essential step for preventing post-pruning mortality. An additional 2–3 days of heavy irrigation further stabilizes the soil profile. [3] Top Pruning: Top pruning is carried out using a sickle-bar mower mounted on the 656. Operating speed varies but remains below 1200 rpm. Plants are cut to the desired height, with continuous monitoring and adjustments throughout the process. All field personnel remain behind the cutting head for safety. [3]
Length of Active Growth Phase	4 months [3]
Hardening Phase	Hardening begins in the third week of August or as soon as dormancy has been triggered. After August 28, no additional fertilizer is applied. Both the frequency and duration of irrigation are gradually

	reduced, and water is supplied only when conditions indicate it is necessary. [3]
Length of Hardening Phase	2 months [3]
Harvesting, Storage, and Shipping	Harvesting: The lifting period occurs in early spring, typically from early February through mid-March, when seedlings remain in a fully dormant state. After the beds are undercut to a depth of 8 inches using a lifter, the seedlings are removed by hand. [3] Storage: Once lifted, seedlings are placed on stacked pallets and stored in the cooler. Storage conditions are maintained at 36–42°F with 92–98% relative humidity and adequate air circulation to preserve seedling quality. [3] Shipping: Not found
Length of Storage	Not found
Guidelines for Outplanting / Performance on Typical Sites	Not found
Other Comments	Not found

PROPAGATION DETAILS: VEGETATIVE

Note: I used a protocol based on a congener, *Ribes bracteosum,* because it had the most complete vegetative propagation information among the species in the *Ribes* genus listed on the RNGR database. [4] *Ribes bracteosum* had similar habitat requirements as *Ribes niveum,* like occurring in wet thickets. [13] Adjustments were made to the *Ribes bracteosum* to account for the differences in light requirements. The information from this protocol was reorganized from the original, which could explain the discrepancies between the two sources. For example, the information in the original protocol for the establishment phase was separated to account for the active growth phase and adjusted to match up with the 10-12 month timeline stated in the "Time to Grow" section. Additionally, the concentration of IBA was not found in the *Ribes bracteosum* protocol, but the *Ribes cereum* mentioned 0.8%. [16]

Ecotype	Not stated
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container (plug) [4]
Stock Type	Not found
Time to Grow	Seedlings are transferred to the outplanting site after spending 10–12 months growing in the nursery. [4]
Target Specifications	Not stated
Propagule Collection Instructions	Whips are gathered once *Ribes bracteosum* has dropped its leaves in late fall through early winter. Collected stems are typically 2–5 feet in length. Select

	current-season shoots with minimal lateral branching and uniform, bright bark. [4]
Propagule Processing/Propagule Characteristics	Not applicable for vegetative propagation
Pre-Planting Propagule Treatments	Keep the cut ends of the whips moist at all times by placing them in water or wrapping them in wet burlap until they are ready to be planted. Before inserting them into containers, treat the basal ends with 0.8%[16] indole-3-butyric acid (IBA), and place two cuttings per tube. [4]
Growing Area Preparation / Annual Practices for Perennial Crops	Growing media: The potting blend consists of half grower-grade peat moss, combined with 15% coarse perlite, 20% fine bark, and 15% vermiculite. A 21-4-8 Osmocote slow-release fertilizer (12–14 month formulation) is incorporated at a rate of 2.5 cups per wheelbarrow of mix. [4] Containers: D60 containers measure 14 inches long and 2.7 inches in diameter, providing a total volume of 60 cubic inches. [4]
Establishment Phase Details	Cuttings set in November were placed in a greenhouse maintained between 35–65°F and irrigated by overhead misters for 10 minutes twice a day. After roughly three months, about 80% of the tubes contained at least one cutting that had formed roots. [4]
Length of Establishment Phase	3 months [4]
Active Growth Phase	In March, rooted material was spaced out and moved into wetland beds, where it was watered with impact sprinklers for about 50 minutes, three times per week.[4]
Length of Active Growth Phase	4 months [4]
Hardening Phase	Plants remained in these beds until they were outplanted in December. More than 91% of the rooted stock survived the summer growing period and were successfully planted out. [4]
Length of Hardening Phase	3 months [4]
Harvesting, Storage, and Shipping	Not stated
Length of Storage	Not stated
Guidelines for Outplanting / Performance on Typical Sites	Outplanting is done in wetland sites using an auger-drilled hole. Young plants are protected with cages for the first three years to reduce damage from seasonal flooding. [4]
Other Comments	Not stated

INFORMATION SOURCES	
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	College of Natural Resources, Forest Research Nursery
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