

# PLANT MATERIALS TODAY

A newsletter from the USDA-NRCS Montana-Wyoming Plant Materials Program for those interested in Plants and Conservation



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## 🌿 Feature Topic 🌿

### *Vitis riparia* – Riverbank or wild grape

As the search continues in Montana and Wyoming for native species for riparian habitat stabilization after Russian olive removal, one valuable plant is often overlooked. Riverbank or wild grape, *Vitis riparia* Michx., is a native deciduous vine that prefers the moist soils found along many Montana and Wyoming creeks and rivers east of the Continental Divide. Once established, wild grapes are long-lived and have strong, vigorous root systems that prevent riverbank soil erosion and collapse during high flow events. They grow well in medium- to coarse-textured soils with a pH of 6.1 to 8.5, but do not tolerate salinity. When fully mature, wild



Figure 1. Wild grape

grapes often ascend high into the upper canopy of tall trees. Many examples of this trait can be found in the Tongue River Canyon, west of Dayton, Wyoming.

Wild grape foliage is typically resistant to mildew and black rot and the roots are resistant to the phylloxera louse (*Daktulosphaira vitifoliae*). These are disease and insect pests of many wine grape varieties. Leaves are alternate, often with opposite tendrils, coarsely toothed, 2 to 10 inches long and 2 to 8 inches wide. They sometimes have sparse hairs on the underside of the veins.



Figure 2. A grape tendril wrapping around a tree branch for support

Wild grapes generally bloom in late spring, flowers are small, highly fragrant, dioecious, white or greenish in color, and are insect pollinated. These plants may also prove beneficial in a pollinator planting. Fruits grow in fairly tight clusters, ripen from September to November, and may persist into winter. Each berry generally contains one to four seeds and there are approximately 14,500 seeds per pound. The berries should be collected as soon as they ripen and birds, such as robins, will let you know the proper time for picking! Wild grape

has been used for thousands of years for food and habitat by indigenous peoples, as well as many species of wildlife. Insect pollinators feed on the early spring flowers, deer and antelope browse the leaves during the summer, and birds and animals "share" the berries in the fall with their human counterparts on a first-come-first-served basis.

Many commercial hybrid grape varieties released in the United States have *Vitis riparia* as either one of their parents or have been grafted onto their very hardy rootstock. A local example is 'Valiant', a South Dakota State University grape release, whose male parent was collected on the Milk River east of Glasgow, Montana. Valiant is very winter hardy and has survived temperatures below -35° F. Some wild grape vines have been known to withstand temperatures as low as -70° F.

The species roots and grafts with ease when wood cuttings are used. Propagation may also be accomplished by seed; however, it may be a full year before germination occurs after planting outdoors. As a result, plant the seed in the fall or have it cold-moist stratified for a period of 60 to 120 days at 41° F.

The optimum time for wild grape collection (wood cuttings) is in the fall after a killing frost. Cuttings can be taken anytime during the dormant season, although those taken before the coldest months of the year will suffer less winter damage. One-year-old wood that is a light, reddish-tan color is preferred. Avoid taking gray, older wood and any wood less than 1/4-inch in diameter. An ideal grape cutting is about the diameter of a pencil; approximately 12 inches long, and has 3 to 4 buds or nodes. If the cutting is going to be stored under refrigeration, dip the open ends into wax to prevent desiccation during winter storage. Grafting wax can be used; however, the wax used to manufacture toilet rings is inexpensive, much easier to use, and works just as well.

According to *Growing Grapes in Minnesota*, another method for over-wintering grape cuttings is burying the bundled cuttings in 6 to 10 inches of garden soil. A much easier method is to pack them in a double plastic bag with an ample amount of damp (not wet) peat moss and store it in a refrigerator at 33° to 35° F. Care should be taken to inspect the cuttings weekly for signs of unwanted mold and to maintain the dampness of

the peat moss. Dormant grape wood will normally not break bud (begin growing) until early spring.

When preparing the stored cuttings for rooting in the spring, nip off the wax-covered, bottom end at this time. It is also *very important* to make sure the buds are pointed upward along the cutting. If they are pointing downward, any growth will be toward the ground. Use a sharp knife to gently scrape the bark down to, but not through, the green cambium layer. Use this technique at several random locations around the lower-half of the cutting. Scrape the bottom-most node(s) off as well. Apply a rooting hormone to these scraped areas and at the end of the cutting before sticking it into damp (not wet) peat moss or potting soil.

Rooted cuttings will be ready for planting outdoors when they have a well-developed root system and at least two leaves (see Figure 3). Notice also in Figure 3, that the cutting on the right, which is smaller than the recommended 1/4-inch in diameter, did not develop the roots necessary to assure transplanting success.

Grapevines thrive on a site that has full sunlight (southern exposure), heat, good air circulation, and well-drained soils. The planting site should be free of competitive vegetation or shading by neighboring trees and shrubs. If a rhizomatous grass/weed is present, such as smooth brome or Canada thistle, a glyphosate application may be needed to control aggressive rhizomes. One important consideration when choosing a planting site is proximity to 2,4-D applications. Planting grapes next to cultivated fields where broadleaf herbicides are applied often results in severe injury or death to grapes.

If supplemental watering is available for the first few years, the spot selected can be within 5 feet of a desirable tree species for later climbing purposes. If water is not available, place the vine further away from the tree to avoid water and nutrient competition.



Figure 3. Rooted grape cuttings

Once a good site has been selected, plan 4 ft<sup>2</sup> for each cutting to be planted. At the center of the square, deeply spade a 1-foot diameter area. Install the dormant cutting into the loose soil until only the topmost node is showing (greater establishment success may take place if rooted cuttings are used or rooting hormone is applied at this time). Install weed barrier over the 4 ft<sup>2</sup> and make a 3-inch opening in the center for the dormant cutting to slip through. Then install a 4 ft<sup>2</sup> fence for protection against animal damage, primarily from deer. Limit nitrogen fertilization at planting or use only small applications of slow-release, starter fertilizer to aid in overall plant health. Too much nitrogen fertilizer stimulates prolific stem growth, excessive above-ground foliage during the establishment year, and may reduce root carbohydrate storage needed for successful over-wintering. Inspect the planting often and water as needed to maintain adequate soil moisture through the first growing season.

If possible, return early the next spring before bud break and prune the vine back to one cane with four buds. This cultural practice sounds drastic, but it enables the plant to optimize energy for root system development that will sustain the vine later in life.

Unlike grape wood, grape leaves are very sensitive to frost and fall temperatures below 30° F. will cause them to turn brown the next day. In addition, immature grape berries will not ripen any further after a hard fall frost. Late frosts in the spring have the same effect, but the vine normally recovers and sends out new shoots

and leaves from auxiliary buds. The plant will not, however, produce fruit from the damaged bud tissue that growing season. Fruit is only produced on 1-year-old wood.

Currently, the Bridger PMC has received collections of grape cuttings and seeds from the following areas in Montana: Milk River (Culbertson); Yellowstone River (Forsyth); Yellowstone River (Miles City); and the Big Horn River. From Wyoming, collections were in Ten Sleep Canyon, North Platte River, and Tongue River Canyon. These collections were grown from seed and out-planted as containerized material. A total of 148 grape seedlings were planted on July 6, 2012, in Field 4 at the Bridger PMC (see Figure 4). More collections are encouraged from both States, as room allows for 52 more seedlings in this Comparative Evaluation Planting.



Figure 4. Forsyth, MT, collection in CEP

*Roger Hybner, PMC Research Agronomist.*

## From the Field



An important component of any plant materials program is the field planting. These plantings serve a variety of purposes, but are most commonly used for determining range of adaptation, testing new technologies, or simply for demonstration. Demonstration plantings can be great educational and public relation tools when they are designed, installed, and maintained properly.

The Prairie County Cooperative Grazing District, the Prairie County Conservation District, and the NRCS Terry Field Office, partnered in 2012 to install an extensive People's Garden demonstration planting featuring native and introduced conservation species. Funding was received through a 223 grant for incidentals like fencing, benches, gravel walking paths, and signs for individual plants and the plot. Local field office, conservation district, area, and state office staff helped install the majority of the



planting on April 25. Five Earth Team Volunteers installed weed fabric between rows of grasses and conservation district board members installed fabric around the trees. A few species that were not available in 2012 will be planted this spring. When it has been completed, a total of 54 grasses and 25 tree and shrub species will be on display. There is nothing like a live plant to generate public interest and curiosity!



Plantings of this size and scope require substantial up-front planning. It is recommended that, to be successful, a design and proposal be submitted to the Plant Materials Specialist two years prior to planned installation – if possible. This allows time to secure seeds, other materials, and for control of competing vegetation, especially rhizomatous grasses and weeds.

Congratulations to all of the partners in the successful Terry demonstration planting!

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