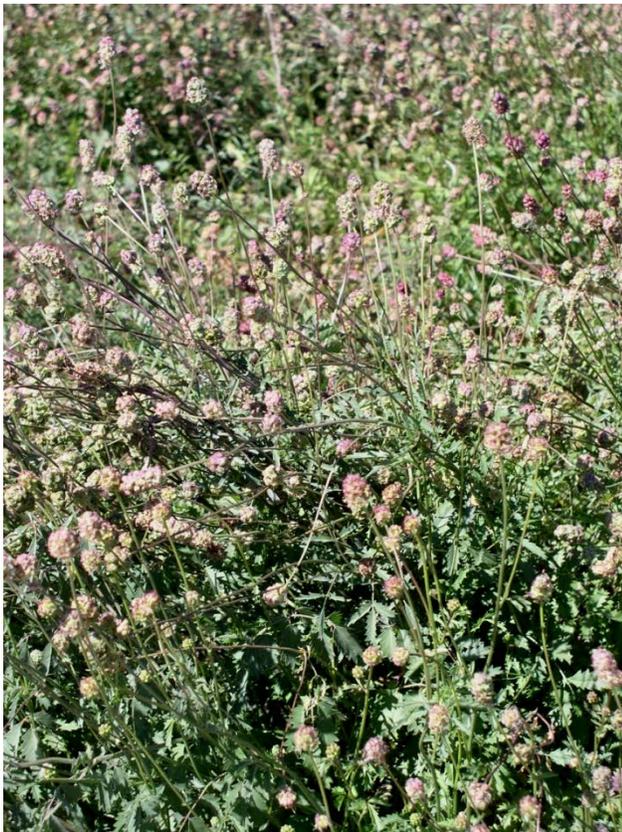


## SMALL BURNET

### *Sanguisorba minor* Scop.

Plant Symbol = SAMI3

Contributed by: USDA NRCS Idaho Plant Materials Program and National Plant Data Center



'Delar' small burnet. Photo by Derek Tilley, Aberdeen Plant Materials Center.

#### Alternate Names

Common Alternate Names: *garden burnet, salad burnet*

#### Uses

**Grazing/rangeland:** Small burnet has good to excellent forage value for livestock and wildlife during all seasons. It stays green throughout the growing season and into winter until heavy snow cover occurs, providing forage and seed to livestock and wildlife. It provides excellent diversity to the seeded plant community (Fryer, 2008; Ogle, et al., 2011a).

**Erosion control/reclamation:** Small burnet is noted for value in mixes for erosion control and beautification. It is also used for rehabilitation after wildfire, post-fire weed

control and rehabilitation after chaining for juniper control (Fryer, 2008). It is also used in vegetative fuel breaks or green strips in areas that receive at least 14 inches annual precipitation because it establishes with ease and is semi-evergreen (St. John, et al., 2009).

**Wildlife:** Small burnet is considered very desirable forage for elk, deer, antelope and birds either as herbage or seed. Birds use the seed in fall, winter and spring. It also provides cover for selected small bird species (Ogle, et al., 2011a; Fryer, 2008). Greater sage-grouse also utilize small burnet (Fryer, 2008).

**Pollinators:** Small burnet attracts bees (Ogle, 2011b) and is rated moderate as a honeybee food in New Zealand (Fryer, 2008).

#### Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

#### Weediness

There was a report of small burnet being invasive in a pasture in Wyoming. This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use. Weed information is also available from the PLANTS Web site at <http://plants.usda.gov/>. Please consult the Related Web Sites on the Plant Profile for this species for further information.

#### Description

**General:** Rose Family (Rosaceae). *Sanguisorba minor* is an introduced, hardy, herbaceous, relatively long-lived, evergreen, non-leguminous, perennial forb. It usually has a branched caudex (thick base of stems) with a prominent taproot and is sometimes-weakly rhizomatous. The stems are simple or branched above and sparsely pilose with moniliform hairs or sometimes glabrous. Plants are 25-55 cm tall. The lower leaves are cauline and pinnate with the stipules adherent to the petiole and 10-15 cm long. Leaflets are crenate-toothed, alternate and pinnately compound and progressively reduced upward. The inflorescence is a dense head or spike at the end of a long naked peduncle, 10-25 mm long. Each flower is subtended by a papery bract and there are approximately 12 stamens. There are no petals and the four sepals are broad, 4-5 mm long, greenish or white to red or purple.

The fruit is an achene. Chromosome number is X=14 (Cronquist, et al. 1997).



Flower and leaf detail of small burnet. Photo by Robert Mollenbrock, Weed Science Institute.

### **Ethnobotany**

Small burnet is used as a folk medicine in Europe and the Middle East as an astringent to stop bleeding and to treat gout and rheumatism. Medical studies in Europe, Turkey and Iran have shown small burnet may have anti-HIV activity, caused lowered blood sugar and provided protection against ulcers in mice, and may have fungicidal activity. In Europe, more so than North America, small burnet leaves are used as a cucumber-flavoring in iced drinks, salads, and other foods (Fryer, 2008).

*Distribution:* Small burnet is native to Europe, western Asia and Siberia, and northern Africa. In North America it is found sporadically in the western U.S. and to a lesser extent in the eastern U.S. from Tennessee and North Carolina to New England and the Great Lakes region. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

*Habitat:* Small burnet grows in grasslands and shrublands in Europe and is most common on the chalk grasslands in England. It is usually planted on rangelands in western North America including pinyon-juniper woodlands, ponderosa pine forests, dry quaking aspen parklands, mountain grasslands, chaparral, desert and mountain shrublands, and sagebrush steppe (Fryer, 2008).

### **Adaptation**

In Europe, small burnet is restricted to calcareous soils but is not restricted by soil type or texture in North America (Fryer, 2008). In North America, small burnet grows on relatively infertile, well drained soils and is most productive on silty or loamy soils with annual precipitation of 14 inches or greater. It will establish but not persist on drier sites (down to 12 inches annual precipitation) or shaded or poorly drained soils (Ogle, 2011a). It is adapted to a broad range of elevation from 100 feet above sea level in California to 8,900 feet in the Intermountain West (Fryer, 2008).

### **Establishment**

Small burnet should be seeded with a drill at a depth of  $\frac{1}{4}$  to  $\frac{3}{4}$  inch into a firm seedbed or broadcast using seed dribblers or aerial applications. Small burnet is not recommended for single component seeding. The full seeding rate (not recommended) is 20 pounds Pure Live Seed (PLS) per acre or 20 PLS per square foot. When used as a component of a mix, adjust to percent of mix desired. In most cases a rate of 2 to 5 pounds per acre would be adequate in mixtures with other species. For mined lands and other harsh critical areas, double the seeding rate component of small burnet (Ogle, et al., 2011a).

The best seeding results are obtained from seeding in late fall to very early spring (because of grass component of mix) on heavy to medium textured soils and in late fall on medium to light textured soils. Late summer (August - mid September) seeding is not recommended unless site is irrigated. Mulching, irrigation and weed control all benefit stand establishment. Seedling vigor is excellent, but the plant establishes slowly. Germination normally occurs the first growing season if adequate moisture is available. Full flowering should not be expected until at least the second growing season.

Stands may require weed control measures during establishment. Because small burnet is a broadleaf, use of broadleaf herbicides is not recommended. Mowing weeds at or prior to their bloom stage will reduce weed seed development. Grasshoppers and other insects may also damage new stands and pesticides may be needed.

### **Management**

Growth of small burnet begins in early spring and flowers appear in late May through June. The plant establishes slowly and should not be grazed until at least the second growing season. Small burnet plants have been known to persist for more than 20 years on western rangelands. As with other species, the life of the plant can be prolonged if it is permitted to set seed on a rotational basis.

Allow plants to reach 12 inches in height before grazing and remove grazing when plants are about 6 inches. Rest periods between grazing should be about 35 days (Ogle, et al., 2009).

## **Pests and Potential Problems**

Disease problems are minimal with small burnet. Damage from wildlife and rodents may occur and they may need to be controlled.

## **Environmental Concerns**

Small burnet is an introduced species and establishes and can spread relatively quickly via seed distribution. Generally, it is not considered "weedy" or an invasive species, but can spread into adjoining vegetative communities under ideal climatic and environmental conditions. There was a report of it having invasive weedy characteristics in a pasture in Wyoming.

## **Control**

To control small burnet in a pasture use a tank mix of Escort®, Banvel®, 2,4-D and a surfactant. The addition of 2,4-D may make the mix hot enough to kill the burnet. A mix of Stinger® (0.5-1.5 pt) and 2,4-D (1-2 pt) could also be used. Another suggestion is application of Tordon®, but only as a last resort (Hutchinson, personal communication).

Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method. Trade names and control measures appear in this document only to provide specific information. USDA NRCS does not guarantee or warranty the products and control methods named, and other products may be equally effective.

## **Seed and Plant Production**

*Seed Production:* Small burnet should be seeded in rows to allow for mechanical weed control and harvest. With 36 inch row spacing the seeding rate is 10.4 pounds PLS/ac which is equal to 30 PLS per linear foot of row (Cornforth, et al., 2001). It should be seeded in early spring (April - May). There are approximately 42,000 seeds per pound (Ogle, et al., 2011a).

Hand rousing within row and cultivation between rows may be required after plants have reached 2 to 3 inches in height. Split applications of nitrogen in spring and fall and application of phosphorus in fall will enhance production following the establishment year. For optimum production, do not stress plants for moisture during late bud stage, pollination and re-growth.

Bees are very active in seed fields when plants are in full bloom and is considered a good nectar producer.

Seed is generally harvested in mid to late August by direct combining with platform set high enough to get most of the seed while leaving as much green material as possible. Seed development occurs progressively from the bottom of plant to the top and is mature when dry and seed is hard and dark in color. Harvest when approximately 80 percent of seed clusters are ripe. Seed shatter is not a serious problem with this species. Seed should be

allowed to dry to 12 to 15 percent moisture and then stored in a cool dry area. Seed retains viability for several years under these conditions.

Seed yields of 500 to 550 pounds per acre can be expected under irrigated conditions and 150 to 200 pounds per acre under dryland conditions (Cornforth et al., 2001). Seed production under dryland conditions is not recommended below 14 inches of average annual precipitation.

## **Cultivars, Improved, and Selected Materials (and area of origin)**

'Delar' was released by the Aberdeen Plant Materials Center and the University of Idaho Agricultural Experiment Station in 1981. The original source location of 'Delar' is unknown but was traced back to a private seed company in Paducah, Kentucky from which a small quantity of seed was obtained for testing in 1957. 'Delar' was tested with four other outstanding accessions in replicated plantings in Southern Idaho. It had the highest forage and seed production and was the most attractive and cold tolerant of the accessions evaluated. Breeder and Foundation seed is maintained by the Aberdeen PMC (Howard, 1981). Seed is available from commercial sources.

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**Prepared By:**

Daniel G. Ogle, USDA, NRCS Boise, Idaho  
Loren St. John, USDA, NRCS Aberdeen, Idaho  
J. Scott Peterson, USDA, NRCS Baton Rouge, Louisiana

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