MALLOWS

Integrated Pest Management for Home Gardeners and Landscape Professionals

Weedy mallow plants are found growing widely in California. All are from the family Malvaceae, which includes a number of desirable plants, most notably cotton, hibiscus, and okra. One species of this family (*Althaea officinalis*) is actually the original ingredient to make marshmallows. That species is not found in California and although some of the wild mallow species can be eaten, mallows are less than desirable when found growing in crop fields, orchards, lawns, gardens, and landscapes.

These annuals begin growing with the first rains in the fall and quickly develop a deep taproot that becomes woody and makes the plant very difficult to remove by hand or even with tools. The fruit is sometimes described as looking like a tiny wheel of cheese, giving it the common name of cheeseweed. The most widespread of the weedy mallows in California are *Malva neglecta* (common mallow or cheeseweed), and *M. parviflora* (little mallow, which is also called cheeseweed [Fig. 1]).

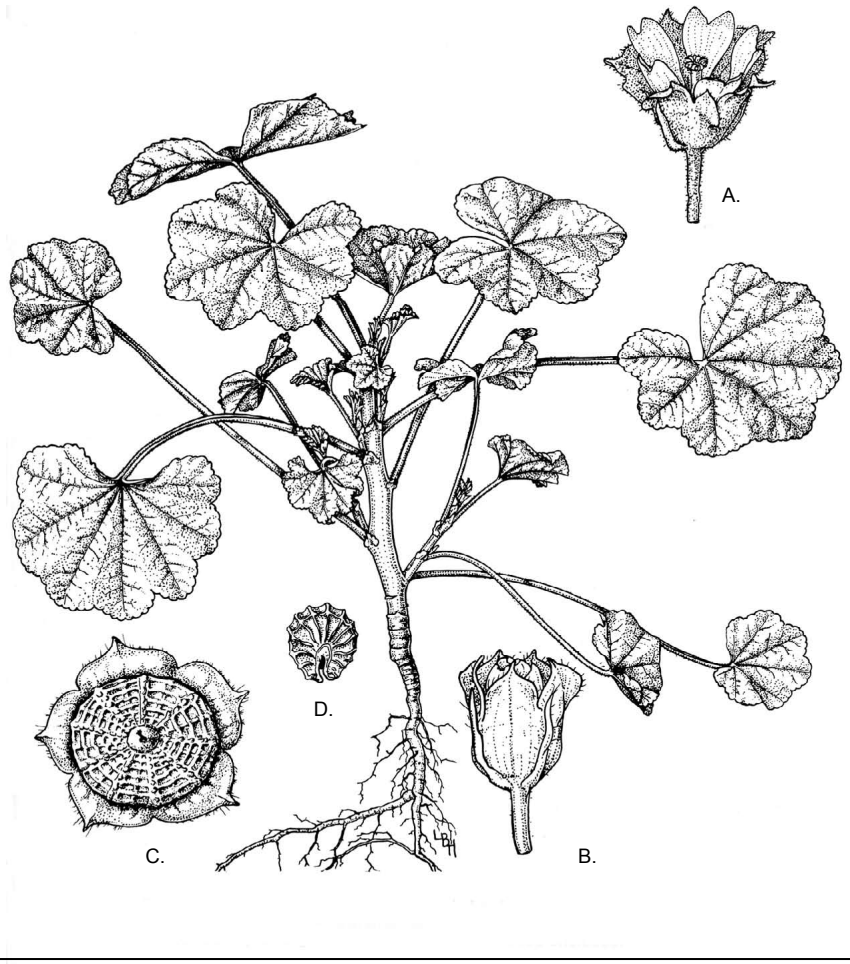

Figure 1. Leafy plant, little mallow *(Malva parviflora)*.
A: Normal flower. B: Flower unopened, when temperatures are low. C: Fruit surrounded by enlarged sepals. D: Carpel with seed enclosed.

IDENTIFICATION AND LIFE CYCLE

Malva (mallow) species look very similar. In fact, for most people, *M. neglecta* and *M. parviflora* can only be distinguished by comparing the flower petals and fruit shape. *M. neglecta* petals are longer than *M. parviflora* petals, and the fruit of *M. neglecta* are smooth while those of *M. parviflora* are wrinkled.

Mallow only reproduces by seed. Both species have a tough seed coat that results in low germination each year, but a long viability of the seeds; however, if the seed coat is nicked or otherwise altered to allow water in, seeds can germinate the same season they mature.

Common mallow (*M. neglecta*) is often referred to as an annual, winter annual, or biennial plant because it can be found growing all year. Seedlings have heart-shaped seed leaves (cotyledons) with smooth edges and first true leaves appear to be nearly circular or heart-shaped with the notch located where the long petiole attaches to the leaf. The leaf has five to seven rounded lobes and has a somewhat crinkled appearance. The mature leaves are similar to the first true leaves but are larger and alternate on the stem. Although the plant growth habit is spreading, the plants can reach two feet tall. The plant

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has a single deep tap root. White to light pink to light purple flowers are found in the leaf axils. The flowers have 5 petals, but each petal is notched at the tip so it may appear that there are 10 petals. The petals are about two times longer than the sepals (the leaflike structures at the base of the flower). The fruit is a round, smooth, flattened button-like structure that looks like a small, green, somewhat flattened pumpkin or wheel of cheese. Each of its 10 to 12 sections has one seed.

Little mallow (*M. parviflora*) is an annual with similar appearance to common mallow. Primary differences are found in the petal length, which are about the same length as the sepals and the fruit is wrinkled. The plant tends to have a more upright growth habit and can grow bushlike up to 5 feet tall. This species flowers from March to September in California. Studies on the flowering and seed development of little mallow in Australia have found that the plant flowers 49 to 92 days after germination, but seeds mature only 15 days after flowering.

IMPACT

Mallow growing in landscape beds and turf impact the aesthetic value of the area, while high numbers or large plants can decrease crop yields. Left uncontrolled, mallow plants can greatly interfere with the machinery used for harvesting crops. Additionally, if allowed to mature to the point of producing seed, the amount of seed in the soil will cause increasing problems in future years.

In commercial agricultural crops mallow can host or be a refuge site for whiteflies and thrips. Additionally, mallows can serve as a reservoir for a number of plant viruses including alfalfa mosaic virus, cotton leaf crumple virus, tomato yellow leaf curl, and tomato spotted wilt tospovirus. Whiteflies and thrips can vector these viruses from the surrounding weeds to the crop.

MANAGEMENT

Mallow control in home gardens and landscapes is best accomplished by pulling out young plants. Because of the rapid development of the long tap root, this is best accomplished when the plant has four or fewer true leaves. The taproot gets woody as it matures and is very difficult to cut or pull out. Removing plants before they seed will help reduce the impact of the plant in coming years.

Mechanical Control

Mallows are best controlled mechanically by hoeing or pulling out young plants. Young mallow can also be killed by cutting them off at the crown, but older plants may resprout from the crown. If there are a large number of plants, shallow mechanical cultivation may be used when the plants are young. The cultivator should be set so that the blades or tines will pull the plants from the ground or cut the tap root below the soil level. Mowing is not an effective method of control because the plants have viable buds on the stems below the height of the mower blade. Common mallow tends to have a more prostrate growth habit so that species is even less affected by mowing.

Solarization is not effective for mallow control, nor is flaming.

Cultural Control

Cultural control can be done by planting competitive desirable plants in areas where mallow is a problem. The shade provided by these plants will reduce germination and growth of mallow seedlings. Mulches can also be effective. At least 3 inches of organic mulch, such as bark or wood chips, will make it physically difficult for the seedling to emerge and will screen out the amount of light that mallow requires to effectively sprout. However, the mulch must be maintained to ensure that it remains at the needed depth. Otherwise, the seedling can push through the mulch and become established.

Biological Control

Some research has been directed towards developing a fungus, *Colletotrichum gloeosporioides* f. sp. *malvae*, for control of another weedy mallow (*Malva pusilla*) with limited success. However, there are no commercially available biocontrols for common mallow or little mallow.

Insects do feed on mallows, but there are none that are specialized for control of these weeds.

Chemical Control

Home Use. There are no chemical controls available for home use that are effective for controlling mallows.

Agricultural Use. Products containing oryzalin or pendimethalin can provide partial control if applied prior to seed germination. However, due to the erratic germination pattern of these weeds, it is difficult to predict how to time herbicide applications.

Landscape Use. Products containing 2,4-D provide limited control when applied to young plants. Limit use of 2,4-D to turf because it will injure any broadleaf plant it contacts.

Mallow is one of the few weeds that glyphosate is ineffective in controlling.

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