
COMMON PURSLANE

Integrated Pest Management for Home Gardeners and Professional Horticulturists

Common purslane, *Portulaca oleracea* (Fig. 1), is a weedy summer annual species that is abundant throughout the world, invading gardens, low-maintenance lawns, ornamental plantings, commercial orchards, and vegetable crop production areas. It is particularly well adapted to the warm, moist conditions found in California's irrigated agricultural and ornamental sites. Common purslane is edible, with a sweet, yet acidlike flavor. An excellent crunchy salad plant, it is said to blend well with hotter-flavored salad herbs. It has been cultivated in India and the Middle East and has been popular in Europe since the Middle Ages. In the United States, common purslane is a minor crop because of its use in ethnic cooking and its reputed health benefits. Other members of the purslane family include moss rose, miner's lettuce, and redmaids (desert rockpurslane).

IDENTIFICATION AND LIFE CYCLE

Common purslane is a prostrate, succulent annual that often forms a dense mat. The reddish stems originate from a central rooting point, radiating out like spokes of a wheel (Fig. 2). The stems vary in length, commonly up to 12 inches. Leaves are stalkless (sessile), oval, smooth, succulent, and shiny, and vary from 1/2 to 2 inches in length. The leaves, although generally arranged opposite, may also occur alternately along the stem, particularly near the base. Small (3/8 inch), five-petaled, yellow flowers are borne singly in leaf axils and open only in sunshine. Seeds are borne in a small pod with a top that comes off like the lid on a cookie jar (Fig. 2) and are reddish brown to black,

oval, and tiny (about 1/64–1/32 inch in diameter). Common purslane is a prolific seeder. In late summer, flat mats of mature purslane can be turned over to reveal thousands of seeds on the soil surface.

Common purslane germinates from February to March in the southern desert areas to late spring in cooler areas when soil temperatures reach about 60°F. It germinates very near to or at the soil surface in large numbers after an irrigation or rain. Most of the tiny seedlings die, but the survivors grow rapidly and can produce flowers in a few weeks. The fleshy stems of common purslane can remain moist and viable for several days after cultivation and hoeing, and reroot forming "new" plants when gardens or fields are irrigated.

IMPACT

Because of its ability to produce large numbers of seeds, common purslane can rapidly colonize any warm, moist site. A few scattered plants in the first year can become an almost solid carpet of purslane the following year. Its ability to reroot after cultivation or hoeing frequently enables it to survive these cultural control practices. Common purslane is low in stature and forms dense mats. These vegetative mats utilize available moisture and nutrients and screen out light to the soil surface, preventing emergence of other seedlings. Common purslane is unsightly, reducing the esthetic value of turf and ornamental plantings. In commercial situations common purslane can limit summer vegetable production and reduce the efficiency of harvesting nut

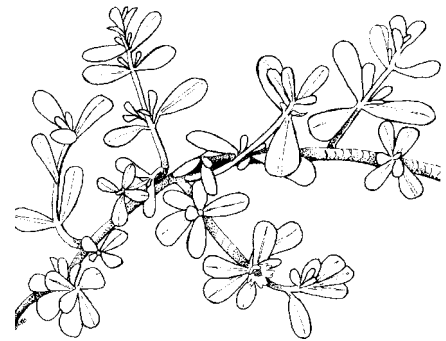


Figure 1. Common purslane.

crops, such as almonds and walnuts, from the orchard floor.

MANAGEMENT

The primary method of management for common purslane is prevention. Common purslane is such a prolific seeder that once it has become established it is difficult to control. Avoid bringing common purslane into uninfested areas. Use weed-free

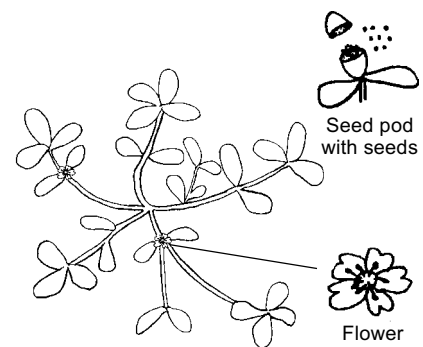


Figure 2. Flower and seed pod.

planting stock and seed. Clean mowers, planters, and cultivation equipment that have been used in infested areas before allowing them to enter clean areas. Monitor uninfested sites for common purslane seedlings and destroy them before they set new seed. In home landscapes and gardens, this weed is generally managed by cultural means such as hand-weeding and mulching.

Cultural Control

Cultivation following irrigation when common purslane seedlings are small can reduce the weed population. However, because common purslane germinates at or near the soil surface, cultivation can bring up a fresh supply of weed seeds from deeper regions of the soil for future germination. Carefully monitor for weed seedlings after each irrigation and cultivate while seedlings are still small. When cultivating or hoeing larger common purslane plants, either remove them or allow plant material to thoroughly dry before irrigation. This will prevent rerooting of the fleshy stem sections. Otherwise, cultivation or hoeing becomes a transplanting operation and little control is achieved.

If they screen out all light, mulches can be used to control common purslane in ornamental plantings, orchards, vineyards, vegetable crops, and gardens. To be effective, organic mulches should be at least 3 inches thick. Synthetic mulches, which screen out light and provide a physical barrier to seedling development, also work well. Combinations of physical barriers with organic or rock mulches on top are commonly used in ornamental plantings.

Soil solarization, the practice of covering moist soil with a clear plastic sheet for 5 to 6 weeks during summer, can kill common purslane and its seed. Solarization is done before gardens and ornamental areas are planted. To be effective it should be done during summer months when heat and light intensity are highest. Do not disturb the soil or cultivate after solarization as weed seeds from deeper layers of the soil may be brought to the surface for germination.

Biological Control

Purslane sawfly is an insect that feeds and reproduces on common purslane. It eats the leaves of common purslane, leaving the plants low in vigor and with little photosynthetic area. Common purslane plants that have been attacked by the purslane sawfly produce fewer seeds and are much less competitive with garden and crop plants. Unfortunately, purslane sawfly attacks common purslane too late in the season. By the time it develops sufficient numbers to have an impact on the common purslane population, seed development and much of the damage from purslane competition in the garden or crop have already occurred.

Chemical Control

Chemical control is generally not necessary for the control of common purslane in the home landscape; it is primarily used in conjunction with cultural methods for commercial situations and should be reserved for use only under unusual circumstances in the home landscape.

There are many preemergent and post-emergent herbicides that will control common purslane. If preemergent herbicides are to be used, make sure they are present at the soil surface during the time of seedling emergence. Tilling the preemergent herbicides deeply (2–3 inches) into the soil has resulted in failure to control common purslane. Post-emergent herbicides are effective when applied to the seedling stage; if applied to mature plants, control is often erratic and seed set may have already occurred.

Turfgrass. Common purslane is usually not a problem in healthy, well-established turfgrass. It can be found most commonly in weaker, poorly maintained turfgrass. Therefore, the improvement of cultural practices to obtain healthy, competitive turfgrass is the best method to deal with this weed problem. The herbicides dithiopyr, pendimethalin, proflaminate, or combinations of benefin and trifluralin or benefin and oryzalin (used in bermudagrass turf only) will control common

purslane as preemergent treatments. These products are mostly granular materials and some may be mixed with a turf fertilizer. Dicamba and 2,4-D are effective postemergent herbicides in turfgrass and both are available to the home gardener.

Ornamental Plantings. The use of a suitable mulch to limit the light reaching the soil surface can control common purslane in ornamental plantings and may eliminate the need for herbicides. Spot spraying a nonselective post-emergent herbicide such as glufosinate or glyphosate can provide good control if care is taken to avoid letting it contact the foliage of desirable plants. Depending on ornamental species and herbicide registrations, several preemergent herbicides will control common purslane. These herbicides include isoxaben, metolachlor, oryzalin, pendimethalin, and trifluralin. Oryzalin and trifluralin are available to the home gardener.

Vegetable Crops. Soil solarization, mulches, and early cultivation of common purslane seedlings can help to control infestations. Preemergent herbicides, if registered for use on the specific vegetable crops, are effective. These herbicides include benefin, bensulide, pendimethalin, pronamide, and trifluralin; of these, only trifluralin is available to the home gardener.

Commercial Orchards. Early, shallow cultivation of common purslane seedlings can help where cultivation is possible. Mulching in the tree or vine row has been successful if the mulch is thick enough (at least 3 inches). Flail mowing done to the soil surface can reduce common purslane seed production. Pre-emergent herbicides can be effective. In areas with long growing periods (southern California, coastal regions, and the San Joaquin Valley), two preemergent applications may be necessary for season-long common purslane control. Effective preemergent herbicides, depending on crop registration, include bromacil, diuron, EPTC, norflurazon, oryzalin, simazine,

thiazopyr, and trifluralin. Careful application of postemergent herbicides such as glyphosate and oxyfluorfen have also been effective; however, repeat applications are usually needed.

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AUTHORS: D. W. Cudney, C. L. Elmore
 TECHNICAL EDITOR: M. L. Flint
 DESIGN, COORDINATION, AND
 PRODUCTION: M. Brush
 ILLUSTRATIONS: Fig. 1: *Container Nursery Weed Control*. 1979. ANR Leaflet 21069;
 Fig. 2: Steve Reints

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Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash nor pour pesticides down sink or toilet. Either use the pesticide according to the label or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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