
DANDELIONS

Integrated Pest Management for Home Gardeners and Professional Horticulturalists



Figure 1. Dandelion.

Dandelion (*Taraxacum officinale*), also known as lion's tooth, puffball, blowball, and monk's head, is a major problem in turf, ornamental plantings, meadows, pastures, and alfalfa. The genus *Taraxacum* consists of about 40 species worldwide, but only two are found in California. *Taraxacum californicum* is found in mountain meadows and *T. officinale* is found as a weed throughout California.

Dandelion was introduced from Europe and has been used as a potherb and medicinal plant since Roman times. It has a high vitamin and mineral content. Mature leaves are often dried and used to make a mild tea. Roots are often used to make stronger tea or dried and used for various medicinal purposes including a mild diuretic. Salads, beer, and wine are also made from the leaves and flowers.

IDENTIFICATION AND LIFE CYCLE

Dandelion (Fig. 1) is a perennial that grows best in moist areas in full sun; however, it can survive some shade and dry conditions once established. Dandelion grows year round in California except in the coldest intermountain areas where it is dormant during the winter. It produces a strong taproot that is capable of penetrating the soil to a depth of 10 to 15 feet, but it is most commonly 6 to 18 inches deep. Buds grow from the uppermost area of the root, producing a crown that can regenerate "new" plants even though the plant is cut off at or below the soil surface. Sections of the root as short as 1 inch in length are also capable of producing new plants. There are no true stems, rather the leaves are clustered in a rosette at the base of the plant. Leaves vary in length from 2 to 14 inches and from 1/2 to 3 inches wide. Margins of the leaves (Fig. 2) are deeply serrated forming the typical "lion's tooth" outline from which the name is derived (dent-de-lion = tooth of the lion).

Flowering stalks are 6 to 24 inches in length and terminate in a compound inflorescence or head that contains 100 to 300 ray flowers and looks like a characteristic puffball. Each ray flower has a strap-shaped yellow petal with five notches at the tip. Dandelion flowers are not normally pollinated but develop asexually. Flowering occurs nearly year round in the temperate climatic regions of California. The seeds (Fig. 3) are achenes and are about 1/8 inch in length with five to eight ribs. At the apex of the achene there is a slender stalk (about two to

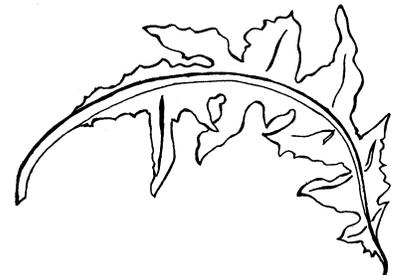


Figure 2. Deeply serrated dandelion leaf margin.

four times the length of the achene) that terminates in a parachute-like structure (pappus), allowing the seed to be transported via wind currents for miles.

Seed germination occurs at or very near the soil surface. Light increases germination. The seed germinates when soil is moist and soil temperature is at least 50°F; however, germination is more rapid when the soil temperatures are closer to 77°F. Germination occurs throughout the grow-

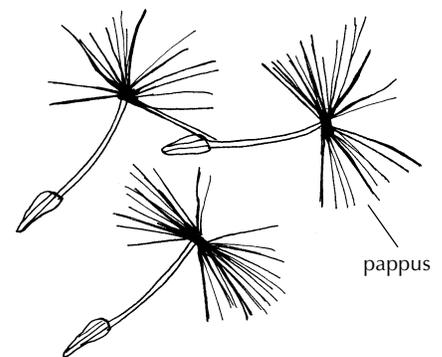


Figure 3. Dandelion seed.

ing season. The seedling stage can last 8 to 15 weeks, depending on temperature and growing conditions. Seedling growth is slower in cold weather.

Flowering begins soon after the seedling stage and continues throughout the life of the plant. Dandelion plants can survive for many years, developing massive, thickened crowns 6 to 10 inches across. These perennial plants are well adapted to irrigated areas such as in turfgrass, pastures, or alfalfa where frequent mowing or grazing is practiced.

IMPACT

Dandelion can be a major weed problem for turf and ornamental managers. In turf, it forms clumps that cause poor footing for athletic fields and golf courses. Dandelion’s texture and color vary from that of normal turfgrass and the yellow flowers reduce the aesthetic quality of the turfgrass.

When dandelion infests turfgrass and ornamental plantings, it forms dense circular mats of leaves (6 to 14 inches in diameter) that crowd out desirable species and reduce the vigor of those plants that survive. Because of the extensive root system of established plants, hand-pulling or hoeing to remove dandelion is usually futile unless done repeatedly over a long period of time. Thus, control by this means is most successful in areas such as home lawns and gardens. Once a few plants become established in turfgrass or ornamental areas, their seed can be spread by wind or equipment.

Dandelion is also found in nontilled orchards where mowing is used for weed control. It can be a problem in spring when trees are in bloom because it is very attractive to bees. The pappus on the seed frequently clogs up tractor radiators, and roots of dandelion are attractive to gophers. As a weed in irrigated pastures and alfalfa, dandelion is usually most serious in the intermountain regions of California where these sites remain in pro-

duction for long periods of time (more than 5 years). Although it is slow to establish, once established it is difficult to control because of its extensive root system.

MANAGEMENT

Because dandelion seed can be windborne for several miles, prevention of new infestations is difficult. Solitary new dandelion plants along fence rows, roadsides, flower beds, and in turfgrass should be grubbed out (digging out the entire plant, taproot and all) before they produce seed. Monitor the area for several months to make sure that removal was complete. Areas with infestations should be isolated and seed heads removed until control can be accomplished. Turfgrass and ornamental areas should be well maintained to assure maximum vigor. Making these plantings as competitive as possible will slow invasion of the weed. Dense stands of turfgrass and ornamentals shade the soil surface, making the establishment of new dandelion seedlings more difficult.

Home Landscapes

In the home landscape, dandelion plants can easily be grubbed out, especially when they are young. Dandelion knives and similar specialized tools are available for removing indi-

vidual weeds and their roots while minimizing soil disturbance. Control dandelion plants before they set seed to reduce the potential for further invasion by this weed. Also, landscape fabrics (see “Ornamentals” below) can be used to control this weed.

Turfgrass

No single control procedure has been successful in controlling dandelion in turfgrass. Early grubbing of new seedlings has been successful when practiced diligently. These plants must be dug up regularly for several years to be successfully eliminated. Spot spraying isolated plants with glyphosate can be helpful, but the turfgrass is killed, leaving open areas. Overseed the open spots to establish a vigorous turf sod.

The preemergent herbicides commonly used to control crabgrass in turfgrass have not been successful in limiting germination of dandelion. However, a relatively new broadleaf preemergent herbicide, isoxaben, has been effective but, like all preemergent herbicides, must be applied to the soil before the dandelion seed germinates (Table 1).

Postemergent herbicides that control broadleaf weeds (2,4-D, triclopyr,

TABLE 1. Summary of Herbicides for Dandelion Control.

Site	Material	Applied to soil before germination	Applied to young plants	Readily available to home gardeners
Turfgrass	glyphosate	—	x	yes
	isoxaben	x	—	yes
	2,4-D	—	x	yes
	triclopyr	—	x	yes
	MCPA	—	x	yes
	mecoprop	—	x	yes
Ornamentals	isoxaben	x	—	no
	oxyfluorfen	x	—	no
Orchards	glyphosate	—	x	yes

x = yes
— = no

MCPA, and mecoprop) can control dandelion seedlings. Control of established plants with a postemergent treatment is much more difficult; 2,4-D works best for established dandelion control while triclopyr, MCPA, and mecoprop reduce dandelion vigor but do not kill it.

Ornamentals

There are few options for the control of dandelion in ornamental plantings. Prevention is very important. Hand removal or spot treatment of solitary plants with glyphosate will save time and money in the long run. Pulling or hand-hoeing is helpful if done periodically during the year; however, re-growth from the extensive perennial root system limits the effectiveness of this method.

Mulching with landscape fabrics can be particularly effective for controlling seedlings if the fabric is overlapped and no light is allowed to penetrate to the soil. Use a polypropy-

lene or polyester fabric or black polyethylene (plastic tarp) to block all plant growth. Fabric mulches should be covered with an organic mulch to improve aesthetics and to reduce photodegradation. Organic mulches may also be effective in controlling dandelion seedlings if they are at least 3 inches deep and are managed in such a way as to not provide a growth medium for new dandelion seedlings.

Isoxaben and oxyfluorfen have been useful in limiting dandelion when they are applied to the soil before the seed germinates. These materials can only be applied by a licensed pesticide applicator, and control may be difficult because of dandelion's extended germination period. If isoxaben is used, lightly hoe any dandelion seedlings that escape the treatment; if oxyfluorfen is used, do not disturb the soil after application.

Few postemergent herbicides are registered for use in established orna-

mental plantings. Spot treatment with glyphosate can control existing dandelion plants, but do not allow the spray or drift to contact desirable plants or injury will result.

Orchards

Dandelion can be managed in commercial orchards through summer cultivations or by maintaining a competitive cover crop. Glyphosate is often used to spot treat individual plants.

REFERENCES

- Letchamo, W., and A. Gosselin. 1996. Light, temperature and duration of storage govern the germination and emergence of *Taraxacum officinale* seed. *J. of Hort. Sci.* 71(3):373-377.
- Mitich, L. W. 1989. Common dandelion—the lion's tooth. *Weed Tech.* 3:537-539.

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WARNING ON THE USE OF CHEMICALS

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 and/or vegetables ready to be picked.

Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse the containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. Never burn pesticide containers.

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