

Biology and Management of Common Purslane in Fruiting Vegetables, Cucurbits, and Strawberries¹

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Species Description

Class: Dicotyledonous plant

Family: *Portulacaceae* (evening primrose family)

Other Common Names: Little hogweed, portulaca-weed, purslane, pursley, verdolaga (Spanish)

Life Span: Summer annual

Habitat: Occurs in disturbed areas from spring to fall

Distribution: The origin of common purslane is unknown, but it is widely naturalized around the world and found in every US state except Alaska.

Growth Habit: Prostrate or spreading. It may grow more erect when growing with other plants.

Seedling: Cotyledons are hairless and usually reddish in color. The first true leaves appear at a 90° angle to the cotyledons, with the next set of emerging leaves also orientated 90° from the first set (Bryson and DeFelice 2009).

Shoot: Stems are green to reddish (Figure 1), succulent, and hairless. Leaves are also green to reddish, and spoon shaped with no petiole (Figure 2). The tip may be rounded, flat, or notched. Leaves are arranged on the stem in an alternate pattern but appear whorled.



Figure 1. Common purslane growth in a fallow field. Note fleshy stems and leaves with no hairs.

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Figure 2. Common purslane inflorescence (left) and capsules (right).

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Roots: Taproot with fibrous secondary roots.

Inflorescence: Occurs in the axis as a single flower or a cluster at branch tips. Flowers are open in the morning and have five yellow petals that are slightly notched and have no sepals.

Fruit and Seeds: Multiple black seeds are produced in small roundish capsules with pointed tips. When the seeds are mature, the top of the capsule dehisces, leaving a small cup-like structure (Figure 2) on the plant that contains the seeds. Under favorable conditions, common purslane can produce up to 240,000 seeds per plant (Miyanishi and Cavers 1980).

Similar Species: Pink purslane (*P. pilosa*) is a related species that also has fleshy stems and leaves. The leaves are more linear than common purslane, with hairs at the leaf axils. The flowers are pink and occur at the end of each stem.

Plant Biology

Common purslane occurs throughout the year in Florida, but seeds preferentially germinate in warm temperatures. It is relatively drought tolerant but a poor competitor with other plants. Persistence in disturbed areas can be attributed to the ability to produce thousands of seeds per plant in a relatively short period of time. Viable seeds are produced within three-six weeks of emergence. Seeds germinate readily but can also persist in the soil for up to 15 years. Vegetative reproduction also occurs, with shoot fragments capable of survival on the soil surface for extended periods of time. The shoots will re-root when exposed to moisture and can even flower and produce seeds after they have been pulled from the soil. This characteristic enables purslane to persist and increase in occurrence following cultivation.

Management

Physical and Cultural Control

Common purslane occurs in the row middles and planting holes of plasticulture production systems. It is a poor competitor and dense plantings can inhibit its growth and reduce seed production. This characteristic suggests that cover crops are a viable control option during fallow periods. Cultivation can reduce the population over time, but due to its ability to survive fragmentation, intensive cultivation is required to achieve a satisfactory reduction in density. Hand weeding is advised when extensive populations occur in planting holes, as purslane is a prolific seed producer. Hand-pulled plants need to be removed from

the field because they can continue to produce seeds after removal from the soil. Prevention of seed production is critical for long term management of this species.

Chemical control

There are a variety of preemergence and post emergence herbicides with activity on purslane (Table 1). For more information about herbicide use please see the most recent version of the *Vegetable Production Handbook for Florida* (2021-2022), available online at <https://edis.ifas.ufl.edu/cv292>.

Preemergence

Cucurbits

For watermelon, cantaloupe, and cucumber, halosulfuron (Sanda) provides good control when used in row middles or under polyethylene mulch. S-metachlor (Dual Magnum) can be applied under plastic mulch and in row middles in pumpkin and provides partial control. Sulfentrazone (Spartan FL 4F) can be used in citron melon, muskmelon, and watermelon and provides fair to good control.

Peppers

An application of oxyfluorfen (Goal 2XL or Goaltender) under polyethylene plastic mulch provides excellent control. Napropamide (Devrinol 50DF XT) applied under the plastic mulch provides good control. S-metachlor (Dual Magnum) provides partial control when applied pre-transplant. Flumioxazin (Chateau) provides excellent control in the row middles and pendimethalin (Prowl H₂O), and halosulfuron (Sanda) provide good control in the row middles. Sulfentrazone provides suppression when applied to the row middles or under the plastic mulch.

Strawberry

Oxyfluorfen (Goal 2XL or Goaltender) and flumioxazin (Chateau) provide excellent control when used under polyethylene mulch or in row middles. Napropamide (Devrinol DF XT), pendimethalin (Prowl H₂O) and sulfentrazone (Spartan FL 4F) provide good control under the plastic mulch or in row middles. S-metachlor (Dual Magnum) can be applied in row middles but only provides partial control.

Tomato

An application of oxyfluorfen (Goal 2XL or Goaltender), rimsulfuron (Matrix), napropamide (Devrinol 50DF XT), S-metachlor (Dual magnum), pendimethalin (Prowl H₂O), or halosulfuron (Sanda) under the polyethylene plastic mulch or to row middles provides good to excellent control.

Flumioxazin (Chateau SW) or rimsulfuron provides excellent control of purslane when applied to row middles.

Post Emergence

Cucurbits

In the row middles, paraquat or carfentrazone can be applied but will only provide good control of small seedlings. Larger plants will recover.

Pepper

Directed sprays of imazosulfuron (League) provide fair control of purslane. In the row middles, paraquat (Gramoxone Inteon) or carfentrazone (Aim EC or EW) can be applied but will only control newly emerged seedlings. Larger plants will recover.

Strawberry

In the row middles, paraquat or carfentrazone can be applied but will only provide good control of small seedlings. Larger plants will recover. Glyphosate (Roundup-type products) can be used in the row middles to provide excellent control of purslane, and the addition of carfentrazone (Aim) is often beneficial, especially when the purslane is large.

Tomato

A post-directed application of imazosulfuron (League), halosulfuron (Sanda), or metribuzin (Sencor) provides fair control. Lactofen (Cobra) provides good control in the row middles. Paraquat (Gramoxone Inteon) or carfentrazone (Aim EC or EW) can also be applied in the row middles but will only control newly emerged seedlings. Larger plants will recover.

Additional Comments

The entire plant is edible when young and tender and can be eaten raw or cooked as a potherb. It has a nice mild flavor and is frequently added to soups or used as a spinach replacement. Purslane plants should not be collected and eaten from fields where pesticides may have been applied.

References

Bryson, C. T., and M. S. DeFelice, eds. 2009. *Weeds of the South*. Athens: University of Georgia Press.

Miyanishi, K., and P. B. Cavers. 1980. The biology of Canadian weeds, 40. *Portulaca oleracea* L. Can J. Plant Sci. 60:953-963.

Table 1. Herbicides registered (R) for use in listed crops with efficacy on common purslane. Please see label for use patterns and application rates.

Active Ingredient (Example trade name)	Peppers	Tomatoes	Cantaloupe	Cucumbers	Squash	Watermelon	Strawberry
Carfentrazone (Aim)	R	R	R	R	R	R	R
Clopyralid (Stinger)	-	-	-	-	-	-	R
Ethalfuralin+Clomazone (Strategy)	-	-	R	R	R	R	-
Flumioxazin (Chateau)	R	R	R	R	R	R	R
Paraquat (Gramoxone)	R	R	R	R	R	R	R
Glyphosate (various)	R	R	R	R	R	R	R
Halosulfuron (Sanda)	R	R	R	R	R	R	-
Imazosulfuron (League)	R	R	-	-	-	-	-
Lactofen (Cobra)	R	R	-	-	-	-	-
Napropamide (Devrinol DFXT)	R	R					R
Oxyfluorfen (Goal 2XL)	R	R	-	-	-	-	R
Pendimethalin (Prowl H ₂ O)	R	R	-	-	-	-	R
Rimsulfuron (Marix)	-	R	-	-	-	-	-
S-metolachlor (Dual Magnum)	R	R	-	-	R	-	R
Sulfentrazone (Spartan FL 4F)	-	R	-	-	-	-	R
Trifluralin (Treflan)	R	R	-	-	-	-	-