

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

Nathan S. Boyd, Andrew W. MacRae, Rick Kelly, and Ixchel M. Hernandez²



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

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 U.S. 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.

Roots: Taproot

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

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2. Nathan S. Boyd, assistant professor; Andrew W. MacRae, former assistant professor; Rick Kelly, former research coordinator; and Ixchel M. Hernandez, former graduate student; UF/IFAS Gulf Coast REC.



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

the seeds. Under favorable conditions, common purslane can produce up to 240,000 seeds per plant (Miyanishi and Cavers 1980).

Similar Species: Pink purslane (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

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 fields is due to its ability to produce thousands of seeds per plant in a relatively short period of time. Seeds mature within six weeks of emergence. They 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 spread 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* (2013-2014), available online at <http://edis.ifas.ufl.edu/cv292>

Preemergence

Cucurbits: On bare-ground plantings and in row middles, DCPA (Dacthal W-75) provides good control, while the combination of ethalfluralin and clomazone (Strategy) provides excellent control. For watermelon, cantaloupe, and cucumber, halosulfuron (Sanda) provides good control when used in row middles or under polyethylene mulch.

Peppers: An application of oxyfluorfen (Goal 2XL or Goaltender) under polyethylene plastic mulch provides excellent control. Napropamide (Devrinol 50DFXT) applied under the plastic mulch provides good control. Flumioxazin (Chateau SW) provides excellent control in the row middles and pendimethalin (Prowl H₂O), and halosulfuron (Sanda) provide good control in the row middles. All row middle applications require rain or overhead irrigation to activate the herbicide.

Strawberry: Oxyfluorfen (Goal 2XL or Goaltender) provides excellent control when used under polyethylene mulch. Napropamide (Devrinol DFXT) provides good control under the plastic mulch. Flumioxazin (Chateau) provides excellent control and pendimethalin (Prowl H₂O) provides good control in the row middles.

Tomato: An application of oxyfluorfen (Goal 2XL or Goaltender), rimsulfuron (Matrix), or napropamide (Devrinol 50DFXT) under the polyethylene plastic mulch provides good to excellent control. Flumioxazin (Chateau SW) or rimsulfuron provides excellent control of purslane when applied to row middles. Pendimethalin (Prowl H₂O) and halosulfuron (Sanda) provide good control. All row middle applications require rain or overhead irrigation to activate the herbicide.

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

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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)	Eggplant	Peppers	Tomatoes	Cantaloupe	Cucumbers	Squash	Watermelon	Strawberry
Carfentrazone (Aim)	R	R	R	R	R	R	R	R
Clpyralid (Stinger)	-	-	-	-	-	-	-	R
DCPA (Dacthal W75)	-	-	-	R	R	R	R	-
Ethalfuralin+Clomazone (Strategy)	-	-	-	R	R	R	R	-
Flumioxazin (Chateau)	R	R	R	R	R	R	R	R
Paraquat (Gramoxone)	R	R	R	R	R	R	R	R
Glyphosate (various)	R	R	R	R	R	R	R	R
Halosulfuron (Sanda)	R	R	R	R	R	R	R	-
Imazasulfuron (League)	-	R	R	-	-	-	-	-
Lactofen (Cobra)	-	R	R	-	-	-	-	-
Napropamide (Devrinol DFXT)	R	R	R					R
Oxyfluorfen (Goal 2XL)	-	R	R	-	-	-	-	R
Pendimethalin (Prowl H ₂ O)	R	R	R	-	-	-	-	R
Rimsulfuron (Marix)	-	-	R	-	-	-	-	-
S-metolachlor (Dual Magnum)	R	R	R	-	-	-	-	-
Trifluralin (Treflan)	R	R	R	-	-	-	-	-