

Biology and Management of Mulberry Weed (*Fatoua villosa*) in Ornamental Crop Production¹

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Species Description

Class: Dicotyledonous plant

Family: *Moraceae* (mulberry family)

Other Common Names: Hairy crabweed, fatoua

Life Span: Summer annual

Habitat: Occurs in disturbed areas and wetlands; often found growing in landscapes, greenhouses, container pads, and in nursery pots. It prefers to grow in irrigated or moist shaded areas.

Distribution: Mulberry weed is native to Eastern Asia and was first reported in Louisiana in the 1950s (Bryson and DeFelice 2009). Mulberry weed has naturalized throughout much of the eastern United States and is found from Texas to Florida and north to Michigan and Delaware. It also occurs along the west coast from California into Washington (Gregory 2014; USDA NRCS 2014).

Growth Habit: Upright growth habit (Figure 1)



Figure 1. Mulberry weed (*Fatoua villosa*) growing inside a nursery container. Note upright growth habit.

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Seedling: Seedlings are dark to light green. Cotyledons are round and notched at the center. First true leaves are simple and slightly serrate (toothed) and triangular in shape (Figure 2).



Figure 2. Mulberry weed seedlings.

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Shoot: Stems are round, pubescent (hairy), and light green but can have a reddish to purple hue near the base. Shoot height can range from a few inches to over 4 feet. Leaves are simple, alternately arranged on the stem, papery in texture, pubescent, triangular to cordate (heart-shaped), and have serrate (toothed) margins (Figure 3).



Figure 3. Mulberry weed leaf.

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Roots: Taproot

Inflorescence: Dense light green to purplish cymes (clusters) occur in leaf axils (Figures 4 and 5). Flower clusters begin turning dark brown as the plant ages.



Figure 4. Mulberry weed flowers. Note purplish hue of flowers and location in leaf axils.

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Figure 5. Close-up view of flower in leaf axil.

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Fruit and Seeds: Seeds (achenes) are light tan, oval, and about 1 mm in diameter (Wunderlin 1997). Some of the seeds are forcibly expelled when mature and can travel up to 4 feet away from the mother plant (Neal and Derr 2005).

Similar Species: When young, the mulberry tree (*Morus alba*) resembles mulberry weed. Mulberry tree also can be a problematic weed in nursery production and landscapes but grows much taller (up to 45 feet tall) and exudes a

milky sap from young twigs when broken (Neal and Derr 2005). Another group of similar looking species is *galinsoga* (*Galinsoga* spp.) which can be distinguished from mulberry weed by its white ray and yellow disc flowers.

Plant Biology

Mulberry weed occurs from spring to fall in Florida, primarily growing in moist, shaded areas. Plants flower from early spring through late fall and then die after the first freeze. Optimal temperatures for germination are approximately 70 to 85°F, but seeds have been shown to germinate in temperatures ranging from 60 to 100°F (Penny and Neal 2003). Seedlings may flower and fruit within 12 days of reaching the two-leaf growth stage (Neal and Derr 2005). Germination may be reduced in dry conditions; however, this is rarely seen since irrigation typically is applied regularly to nursery crops and landscapes.

Management

Physical and Cultural Control

Mulberry weed prefers moist soil conditions, but reducing irrigation is often impractical in a container nursery setting. Due to the fast growth and prolific seed production, control efforts should focus on prevention and sanitation. Regularly scout container beds, greenhouses, propagation areas, and non-crop areas for presence of this weed. Closely inspect new plant shipments for presence of weeds. Hand pull mulberry weed as quickly as possible before it flowers. Remove pulled weeds from production areas or landscape beds and dispose of them, as seed can continue to be spread from pulled weed material if left on the soil. Mulberry weed germination is stimulated by light, therefore mulch materials placed on top of container media or in the landscape can significantly reduce seed germination. Pine bark nuggets applied at depths of 1.5 inches or more have been shown to provide up to 90 percent control (Penny and Neal 2003).

Chemical Control

PREEMERGENCE

Mulberry weed is effectively controlled with many preemergence herbicides but continues to be a problematic weed due to fast growth and prolific seed production. A list of preemergence herbicides labeled for use in and around ornamentals in nurseries and landscapes which can be used for mulberry weed control is provided in Table 1.

POSTEMERGENCE

Many different postemergence herbicides will control mulberry weed, although these herbicides can be applied as only a directed application. Contact herbicides such as diquat (Reward®), and pelargonic acid (Scythe®) and systemic herbicides such as glyphosate (RoundUp®) will control mulberry weed, but these products are most effective when weeds are less than 4 inches tall and actively growing. When applying these herbicides, ensure that the herbicide spray does not drift or come in contact with any part of the ornamental plants.

References

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Table 1. Partial list of preemergence herbicides labeled for use in ornamental plant production and landscapes to control mulberry weed.

Common Name (active ingredient)	Example trade name and formulation	WSSA Herbicide Group ¹	Efficacy ²	Container production	Field production	Greenhouse or fully enclosed structures	Landscape
dithiopyr	Dimension® 2EW	3	S-C	YES	YES	NO	YES
pendimethalin	Pendulum® 2G	3	S	YES	YES	NO	YES
	Pendulum® 3.3EC, 3.8AC			YES	YES	NO	YES
proflumicarb	Barricade® 4FL, 65 WG	3	S	YES	YES	NO	YES
flumioxazin	Broadstar™ 0.25G	14	C	YES	YES	NO	YES
	SureGuard® 51WDG			YES ³	YES ³	NO	YES ⁴
oxadiazon	Ronstar® 2G	14	S-C	YES	YES	NO	YES
dimethenamid-p	Tower® 6EC	15	S-C	YES	YES	NO	YES
s-metolachlor	Pennant Magnum® 7.6 EC	15	S	YES	YES	NO	YES
isoxaben	Gallery® 75DF, 4.16SC	21	S-C	YES	YES	NO	YES
indaziflam	Marengo® 0.622 SC	29	C	NO ⁵	YES	YES ⁶	NO
	Marengo® 0.0224G			YES	YES	NO	NO
benefin + oryzalin	XL 2G	3 + 3	S-C	YES	YES	NO	YES
pendimethalin + dimethenamid-p	FreeHand® 1.75G	3 + 15	C	YES	YES	NO	YES
trifluralin + isoxaben	Snapshot® 2.5TG	3 + 21	S-C	YES	YES	NO	YES
proflumicarb + isoxaben	Gemini™ 3.75C	3 + 21	S-C	YES	YES	NO	NO
oxadiazon + pendimethalin	Jewel® 3.25G	14 + 3	C	YES	YES	NO	YES
oxyfluorfen + oryzalin	Rout® 3G	14 + 3	C	YES	YES	NO	YES
oxyfluorfen + pendimethalin	OH2® 3G	14 + 3	C	YES	YES	NO	YES
oxyfluorfen + prodiamine	Biathlon® 2.75G	14 + 3	S-C	YES	YES	NO	YES
oxyfluorfen + trifluralin	Granular Herbicide 75 5G	14 + 3	S-C	YES	YES	NO	YES
oxyfluorfen + oxadiazon	Two OX E-Pro 3G	14 + 14	S-C	YES	YES	NO	YES
trifluralin + isoxaben + oxyfluorfen	Showcase® 2.5G	3 + 21 + 14	C	YES	YES	NO	YES

¹Herbicide groups are based according to primary sites of action and can be used to select herbicides that have differing sites of action (Weed Technology 17:605–619 [2003]) so as to minimize the potential for the development of herbicide resistant weeds.

²P = poor control; S = suppression, C = good control. Efficacy may vary (better or worse) depending on environmental factors and weed pressure in a given location.

³Can be used only in selected conifer and deciduous tree species. Check manufacturer's label for a complete list of species and recommended application methods.

⁴Can be applied as a directed application around established woody landscape ornamentals.

⁵Marengo 0.622 SC can be used in pot-in-pot container ornamentals as a directed application only. Specticle™ is labeled for use in landscapes.

⁶Labeled for use on greenhouse floors prior to plant production. Plants can be placed back inside greenhouse 24 hours after application.