



Morningglory Species

Ipomoea spp.

Also known as: morning glory, tievine

Morningglories are one of the most common weeds in North American agriculture. These warm-season, annual, vining plants can be found in cultivated fields, perennial crops, roadsides, pastures, fences, hedges, and natural areas across the United States. The *Ipomoea* genus contains more than 600 species, many of which are considered weedy in some way. The most common weedy species in the United States are all native.

Morningglories infest most major crops such as corn, soybean, sorghum, and cotton. They compete with crops for water, nutrients, and especially light, if they grow enough to cover the crop's canopy. They are also known for severely interfering with crop harvest. Their vining stems can wrap around the moving parts of harvesting equipment, slow down harvest operations, and increase grain losses during harvest, while seed contamination can reduce the value of the crop. Additionally, morningglory seeds germinate throughout the summer, even in shaded conditions, so season-long management is required to avoid issues at harvest.



Pitted morningglory covering a grain sorghum plant.
(Photo: Gustavo Camargo Silva, Texas A&M University)

Identifying Features

Although the appearance and growth characteristics of morningglory species vary considerably, some characteristics are common among species. They are warm season, annual plants, with optimum germination rates at around 77 °F (25 °C), which occur throughout the growing season as long as moisture is available.

They exhibit vining or spreading growth habits, preferring to climb on other plants or structures. The seeds are wedge-shaped, ranging from black to brown in color, and smooth to hairy in texture. The seeds are larger (>5 mm) than other weed species.



Identifying Features, con't.

Morningglory cotyledons are one of their most easily identifiable characteristics. The cotyledons are “butterfly shaped,” with deep indentations. The leaves are arranged alternately and generally have a heart shape with lobes, but the specific shape and number of lobes vary by species. The flowers are cone-shaped, with a characteristic 5-pointed star-shaped pattern in the petals. The fruits are dry, round capsules, which usually contain three to six seeds. The specific identifying features and photos of five most common weedy species in the U.S. are outlined in the table below:





















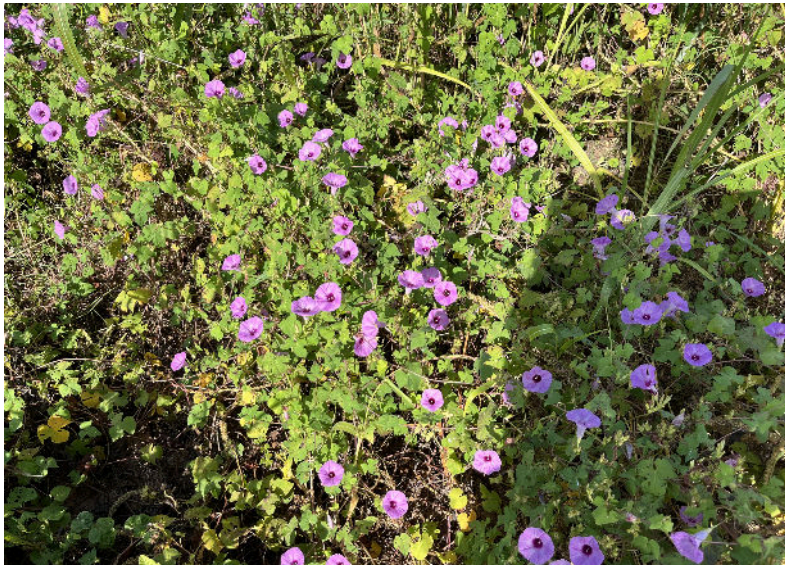
Common Name	Sharppod Morningglory	Ivyleaf Morningglory	Pitted Morningglory	Tall Morningglory	Palmleaf Morningglory
Species	<i>Ipomoea cordatotriloba</i>	<i>Ipomoea hederacea</i>	<i>Ipomoea lacunosa</i>	<i>Ipomoea purpurea</i>	<i>Ipomoea wrightii</i>
Identifying Features	Cotyledons have narrow lobes and pointed tips with “square shoulders;” leaves are usually 3-lobed, T-shaped, with no hairs; mature stems and leaf margins can be purple; flowers are pink	Cotyledons have wide lobes and rounded tips, with lobes spreading away from each other; leaves are usually 3-lobed (sometimes none or 5 lobes), covered by short soft hairs; flowers are blue to violet, with white centers.	Cotyledons have narrow lobes and pointed tips, with “square shoulders;” leaves have no lobes and no hairs; mature stems and leaf margins can be purple; flowers are white.	Cotyledons have wide lobes and rounded tips, with lobes being more parallel to each other; leaves have no lobes covered by short soft hairs; flowers are deep purple, with white centers.	Cotyledons have narrow lobes and pointed tips, with “rounded shoulders;” leaves have five lobes/leaflets, with no hairs, resembling an open palm; flowers are light pink with a purple center.
Range	Southern U.S. (Texas to Florida)	Eastern and Central U.S. (Ontario, Canada to Florida), and Southwest U.S. (Texas, New Mexico, Arizona, California)	Eastern and Central U.S. (Ontario, Canada to Florida) and California	Eastern and Central U.S. (Ontario, Canada to Florida) and Southwest U.S. (Texas, New Mexico, Arizona, California)	Southern U.S. (Texas to North Carolina)
Seedlings					
Leaves					
Flowers					
Seeds					

Chart and photos by Gustavo Camargo Silva, Texas A&M University



Identifying Features, con't.

Other weedy annual morningglory species in the United States include red morningglory (*Ipomoea coccinea*), entireleaf morningglory (*Ipomoea hederacea* var. *integriuscula*), and cypressvine morningglory (*Ipomoea quamoclit*). Some perennial species like swamp morningglory (*Ipomoea aquatica*) and bigroot morningglory (*Ipomoea pandurata*) can also be problematic.



Dense sharpshoot morningglory cover. (Photo credit: Gustavo Camargo Silva, Texas A&M University)

Seed Production

Morningglories are prolific seed producers. Each flower produces a seed pod, which can contain three to six seeds each. The seeds are large and have been reported to persist in the soil for about six years, but some sources report that buried seeds can survive for up to 39 years. Their long dormancy period makes it hard to deplete the seedbank. Morningglories can produce seeds as soon as nine weeks after emergence, but most seeds are produced in the mid to late summer. Depending on species and how large the plants grow, morningglories can produce from 5,000 to 15,000 seeds per plant.

The seeds can germinate even at depths of more than 4 inches, and they show high rates of viability, reaching >90% under the optimal conditions. Since seeds are large, they are commonly harvested with grain, increasing the contamination potential and reducing the value of the grain. Some morningglory species like wild sweet potato (*I. pandurata*), tievine (*I. cordatotriloba*), and water spinach (*I. aquatica*) can also be perennials and come back from the taproot if not controlled.



Herbicide Resistance

Although most morningglory species are naturally tolerant to glyphosate, glyphosate-resistant tall morningglory populations have been confirmed in Tennessee, North Carolina, and Virginia.

Integrated Weed Management Options

Mechanical Weed Control

Shallow, inter-row cultivation can be effective to control emerged seedlings, especially late-emerged seedlings. However, inversion tillage to bury the seeds are not effective tactics, because morningglories can germinate even when buried more than 4 inches deep. In peanuts, pre-harvest top-mowing (only the top few inches) can help to remove morningglory escapes and improve harvest efficiency.

Crop Rotation

Crop rotation can be one of the most effective cultural strategies to manage morningglories, especially when perennial forages or small grains are added into the rotation. Fall sown small grains and perennial crops can be highly competitive and disrupt the life cycle and germination patterns of morningglories. However, rotating warm-season row crops is not as effective, because morningglories are adapted to all common row crops in the U.S. Even so, row crop rotation allows for alternating herbicides and modes of action, which can prevent herbicide resistance in the long term.

Planting Arrangement

Higher planting populations and narrow row spacing can help to slow down morningglory germination rates and suppress growth. However, morningglories can emerge even in shaded conditions and climb on established crops.

Mulches and Cover Crops

Plastic mulches are effective to prevent emergence of morningglories. Cover crops alone are not as effective for morningglory control as they are for small-seeded weeds. Although high biomass levels and allelopathy from small grain cover crops may provide some degree of suppression, additional management is usually necessary for complete control of morningglories.



Herbicide Control Options

Cotton	Preemergence	pyrithiobac sodium/Group 2 (Staple), diuron/Group 7 (Direx), fluometuron/group 7 (Cotoran)
	Over the top postemergence	trifloxysulfuron/Group 2 (Envoke), 2,4-D/Group 4 (Enlist One) ¹ , Dicamba/Group 4 (Stryax) ¹ , glyphosate/Group 9 (Roundup) ¹ , Glufosinate/Group 10 (Liberty) ¹
	Directed postemergence	trifloxysulfuron/Group 2 (Envoke), prometryn/Group 5 (Caparol), diuron/Group 7 (Direx), linuron/Group 7 (Linex), flumioxazin/Group 14 (Valor)
Corn	Preemergence	atrazine/Group 5 (Atrazine 4L), simazine/Group 5 (Simazine 4L), flumioxazin/Group 14 (Valor), saflufenacil/Group 14 (Sharpen)
	Over the top postemergence	2,4-D/Group 4 (Enlist One) ¹ , dicamba/Group 4 (Diflexx), glyphosate/Group 9 (Roundup) ¹ , glufosinate/Group 10 (Liberty) ¹ , mesotrione/Group 27 (Callisto), tolpyralate/Group 27 (Shieldex), topramezone/Group 27 (Armezon)
Peanut	Preemergence	diclosulam/Group 2 (Strongarm), imazethapyr/Group 2 (Pursuit), flumioxazin/Group 14 (Valor)
	Over the top postemergence	imazapic/Group 2 (Cadre), acifluorfen/Group 14 (Ultra Blazer), lactofen/Group 14 (Cobra), paraquat/Group 22 (Gramoxone)
Rice	Preplant burndown	halosulfuron/Group 2 (Permit), thifensulfuron + tribenuron/Group 2 (FirstShot), 2,4-D/Group 4 (Enlist One), triclopyr/Group 4 (Grandstand), glyphosate/Group 9 (Roundup), saflufenacil/Group 14 (Sharpen), paraquat/Group 22 (Gramoxone)
	Preemergence	imazethapyr/Group 2 (Newpath) ¹ , quinclorac/Group 4 (Facet), saflufenacil/Group 14 (Sharpen)
	Over the top postemergence	imazamox/Group 2 (Beyond Xtra) ¹ , 2,4-D/Group 4 (2,4-D Amine), quinclorac/Group 4 (Facet), triclopyr/Group 4 (Grandstand), acifluorfen/Group 14 (Ultra Blazer)
Sorghum	Preemergence	atrazine/Group 5 (Atrazine 4L), simazine/Group 5 (Simazine 4L)
	Over the top postemergence	prosulfuron/Group 2 (Peak), 2,4-D/Group 4 (Enlist One), dicamba/Group 4 (Diflexx), bromoxynil/Group 6 (in Huskie), pyrasulfotole/Group 27 (in Huskie)
Soybean	Preemergence	chloransulam/Group 2 (FirstRate), chlorimuron/Group 2 (Classic), imazethapyr/Group 2 (Pursuit), flumioxazin/Group 14 (Valor), sulfentrazone/Group 14 (Authority)
	Over the top postemergence	2,4-D/Group 4 (Enlist One) ¹ , dicamba/Group 4 (Stryax) ¹ , glyphosate/Group 9 (Roundup) ¹ , glufosinate/Group 10 (Liberty) ¹ , acifluorfen/Group 14 (Ultra Blazer), fomesafen/Group 14 (Reflex), lactofen/Group 14 (Cobra)

NOTE: These are examples of effective active ingredients; this may not be a comprehensive list. There may be other tradenames of these active ingredients, and these active ingredients may be a component of premixes, as well. Always check with your local Extension weed specialist for recommendations for your region. Always read and follow the label.

¹Requires corresponding herbicide-tolerant trait for crop safety



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Resources

<https://ipm.ucanr.edu/weeds-identification-gallery/morningglories/#gsc.tab=0>

<https://cals.cornell.edu/weed-science/weed-profiles/morningglories>

https://weedid.missouri.edu/weedinfo.cfm?weed_id=138

<https://weedid.cals.vt.edu/profile/310>

https://weedid.missouri.edu/weedinfo.cfm?weed_id=142

https://www.wildflower.org/plants/result.php?id_plant=ipcoc2

<https://site.extension.uga.edu/colquittag/2013/08/late-season-options-for-morningglory-control-in-peanut/>

<https://extension.missouri.edu/media/wysiwyg/Extensiondata/Pub/pdf/miscpubs/mx1131.pdf>

<https://ag.purdue.edu/btny/purdueweedsience/wp-content/uploads/2021/03/Morningglory-Control-in-Roundup-Ready-Glyphosate-Tolerant-Corn.pdf>

<https://site.extension.uga.edu/colquittag/2020/03/morningglory-control-in-field-corn/>



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