

Biology and Control of Goosegrass in Sugarcane¹

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Goosegrass (*Eleusine indica*), also referred to as white crabgrass, wiregrass, bullgrass, or silver crabgrass, is an important weed species in sugarcane (SWSS 1993). Originally native to Eurasia, goosegrass is widely distributed in the United States from Massachusetts to South Dakota and Kansas south to Florida and Texas and also along the west coast. It is also widespread in Florida, where it is commonly found in cultivated fields, turf, pastures, landscapes, orchards, roadsides, and other disturbed sites. Goosegrass is found year-round in southern Florida and is commonly associated with newly planted and stubble (ratoon) sugarcane fields.

Biology and Life Cycle

Goosegrass is an annual plant that produces a prostrate, mat-like rosette with flattened stems radiating from a central point (Figure 1). It is often described as looking like someone has stepped in the middle of the plant, flattening it out. Because of the whitish to translucent color of the leaf sheath margins, goosegrass usually appears white to silver; this is why it is known as white or silver crabgrass. It germinates when soil temperatures are above 65°F (Chauhan and Johnson 2008) and can grow from 4 inches up to 3 feet tall (Uva, Neil, and DiTomaso 1997). Seedling emergence is greatest for seeds on the soil surface and declines as depth of burial increases. Germination completely ceases if seeds

are buried deeper than 3 inches (Chauhan and Johnson 2008).



Figure 1. Goosegrass mat-like rosette with flattened stems radiating from a central point.

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Seedling

The first leaf blade is usually 3–5 times longer than it is wide, and it will open parallel to the ground. The leaves are folded in the bud and have a fringed, membranous ligule. The white to translucent leaf sheath margins are broad, smooth, and flattened.

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Mature Plant

The leaf blade is flat or folded and can grow 2–8 inches long by $\frac{1}{13}$ – $\frac{1}{3}$ -inch wide. Leaf blades are mostly hairless except for occasional sparse long hairs on the upper surface near the base. The ligule is membranous and uneven. Leaf sheaths are flattened, smooth to sparsely hairy toward the ligule, and whitish at the base. The seedhead consists of 2–13 fingerlike spikes, which can be 2–6 inches long and $\frac{1}{10}$ – $\frac{1}{3}$ -inch wide at the top of stems (Figure 2). Usually one spike is below the others, which are bunched toward the tip. On the underside of each spike, there are two rows of 3–6 seeds, which are brown to black and $\frac{1}{13}$ -inch long. Goosegrass has a fibrous root system and never roots at the nodes.

Control

Goosegrass is not highly competitive with sugarcane; however, severe infestations caused by a poor sugarcane stand or poor control measures can result in sugarcane yield losses (Figure 3). Goosegrass can be controlled with preemergence and postemergence herbicides (Table 1). Tillage and appropriate weed control during fallow periods can also successfully reduce goosegrass populations in sugarcane.

References

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Figure 2. Goosegrass seedhead.
Credits: D. C. Otero, UF/IFAS



Figure 3. Severe goosegrass infestation in sugarcane.
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Table 1. Herbicide options for goosegrass control in sugarcane.

Herbicide	Trade name	Rate per acre	Timing	Comments
Metribuzin	Metribuzin	1½–2½ lb	Preemergence	Apply prior to weed emergence after planting or after harvest on stubble cane. Higher rates are suited for fields with a history of heavy infestation. Tank-mixing with pendimethalin improves the efficacy. Use on muck soils only and not on sandy (mineral) soils.
Pendimethalin	Prowl H ₂ O	4.2–8.4 pts	Preemergence	Apply prior to weed emergence after planting or after harvest on stubble cane. Higher rates are suited for fields with a history of heavy infestation. Tank-mixing with metribuzin improves the efficacy. Does not have postemergence activity.
S-metolachlor + atrazine + mesotrione	Lumax EZ	2.75–3.75 qts	Preemergence	Apply prior to weed emergence on plant or ratoon cane. Apply the higher rate on muck (organic) soils. For emerged weeds, add a crop oil concentrate at 1% v/v (1 gallon/100 gallon) or a nonionic surfactant at 0.25% v/v (1 quart/100 gallon). The total amount applied (preemergence + postemergence) cannot exceed 5.25 qt/acre/year.
S-metolachlor + atrazine + mesotrione	Lumax EZ	1.5–3.0 qts	Postemergence	Apply at 1.5–3.0 qt/acre before the sugarcane reaches 60 inches in height. Use higher rates on 6 inches tall or greater goosegrass. Add a crop oil concentrate at 1% v/v (1 gallon/100 gallon) or a nonionic surfactant at 0.25% v/v (1 quart/100 gallon) with postemergence applications. The total amount applied (preemergence + postemergence) cannot exceed 5.25 qt/acre/year.
Metribuzin	Metribuzin	1½–2½ lb	Early postemergence	Apply over the top of stubble or plant cane when sugarcane is less than 14 inches tall. Or apply post-directed to sugarcane that is a minimum of 14 inches tall and before row closing. Use on muck soils only and not sandy (mineral) soils.
Asulam	Asulox Asulam (several)	6–8 pts	Postemergence	Apply to plant or stubble cane when goosegrass is actively growing. Lower rates should be used when goosegrass is 6–8 inches tall or less. Higher rates should be used if goosegrass is greater than 8 inches tall. Apply with either a non-ionic surfactant at 1–2 quarts per 100 gallons (0.25–0.50% v/v) or crop oil concentrate at 4 quarts per 100 gallons (1% v/v).
Trifloxysulfuron	Envoke	0.3 oz	Postemergence	Apply to seedlings less than 6 inches in height. It can be broadcasted in stubble cane but only post-directed in plant cane. Tank-mixing with asulam at 4 pints per acre improves control of larger goosegrass (more than 12 inches in height). Apply with a non-ionic surfactant at 1–2 quarts per 100 gallons (0.25–0.50% v/v).
Topramezone	Armezon	1–2 fl oz	Postemergence	Apply to plant or stubble cane on actively growing goosegrass. The lower rate should be used when goosegrass is 4–6 inches tall or less and the higher rate on goosegrass greater than 6 inches. Sequential applications can be done with a minimum of 14 days between applications. Do not apply more than 2 fl oz/acre in a single application or more than 4 fl oz/acre per year. Add a crop oil concentrate or a seed oil at 1% v/v (1 gallon/100 gallon). Applications should not be made within 100 days of sugarcane harvest. Topramezone can be tank-mixed with pendimethalin, atrazine, or metribuzin. It may cause transient discoloration, yellowing, and chlorosis of sugarcane.