

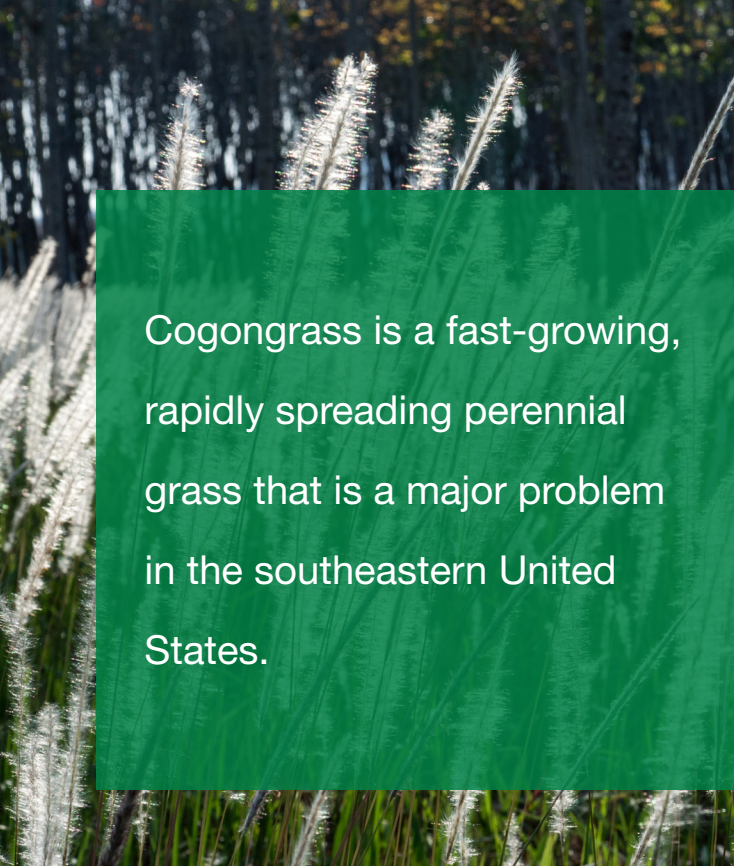
The BASF logo, consisting of a white square with a smaller white square inside, followed by the letters "BASF" in a bold, white, sans-serif font.

We create chemistry

Professional Vegetation Management

Fight Cogongrass

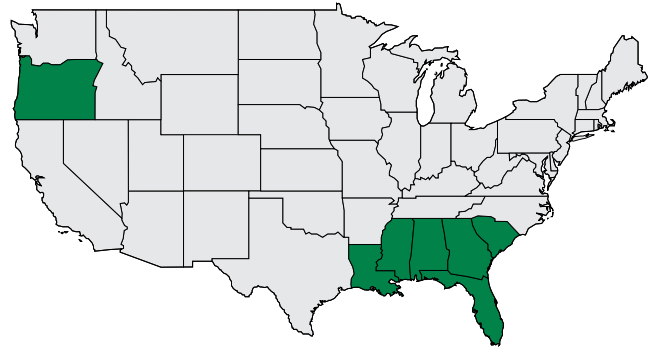
With Arsenal[®] AC Herbicide and
Arsenal Herbicide



Cogongrass is a fast-growing, rapidly spreading perennial grass that is a major problem in the southeastern United States.

Cogongrass distribution in the United States

States Affected States Not Affected



Cogongrass

- Non-native, fast-growing perennial grass.
- Forms dense ground-level mats, with scaly rhizomes below ground.
- Extremely flammable: dense growth causes hotter and more frequent fires. Alters natural fire regimes.

Negative Impact

Driving Out Native Plants. Dense cogongrass stands compete for nutrients, rooting space, moisture and sunlight by literally growing through the roots of other vegetation. In addition, cogongrass is allelopathic: chemicals produced by the weed suppress the growth of other plants.¹

This may be the reason stands of cogongrass tend to be monotypic, that is, populated only by cogongrass. But the aggressive alien weed also crowds out native plants, forming thick ground-level mats that act as a physical barrier to seedling establishment.

Displacing Forage. Plant-eating animals shy away from cogongrass for good reason. It drives out healthy, native food sources and is a poor substitute for foraging livestock and wildlife.

Displacing Wildlife. As it overwhelms native plant species favored by ground-nesting wildlife, like turkey and bob white quail, cogongrass displaces wildlife such as the endangered gopher tortoise, which depends on grasses and legumes driven out by the weed. As one wildlife biologist puts it, large cogongrass infestations “create biological deserts that have no value as brood rearing habitat for quail and turkeys or as foraging grounds for various songbirds.”²

Fire Risk. While cogongrass roots and rhizomes are remarkably fire-tolerant, the plant is extremely flammable. Worse yet, its vegetative density means that burning cogongrass can send temperatures soaring to more than 840°F at heights of up to five feet. The result? More frequent, hotter fires and disruption of the natural fire regime.

“In Field Studies, Arsenal Consistently Provided Excellent Results In The Long-Term Management Of Cogongrass.”

Wilson Faircloth, Auburn University

The Perfect Solution

Integrated Vegetation Management with Arsenal® AC herbicide and Arsenal herbicide

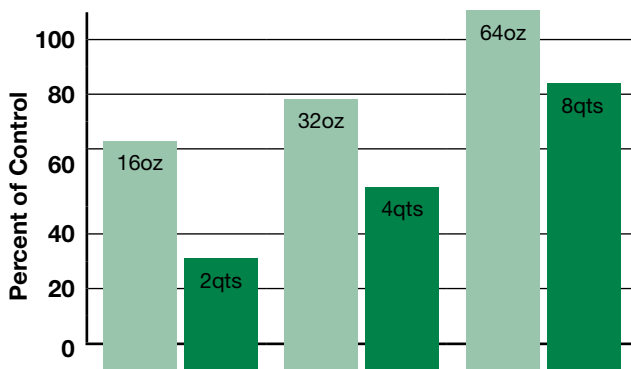
Cogongrass spreads quickly in a variety of ways. Wind-borne seeds – as many as 3,000 from a single plant, attached to feather-light, silky-white bloom-hairs – can be carried as far as 15 miles. Cogongrass is also spread unwittingly by people – through rhizome-contaminated hay, dirt and sod – as well as through land-management practices, excavation, construction machinery and harvesting equipment, which pick up contaminated dirt or cogongrass rhizome fragments. Once it's taken root, cogongrass is very hard to control. Mowing is only effective in removing above ground portions of the plant – allowing cogongrass recovery with little adverse effect as new shoots emerge. For effective, long-term control, integrated vegetation management tactics are best, using a selective herbicide such as Arsenal or Arsenal AC. According to studies conducted by the Agronomy and Soils Department at Alabama's Auburn University, Arsenal AC herbicide is a key component in the effective, long-term control of cogongrass. Research shows that Arsenal AC herbicide also fits well into re-vegetation systems – both crimson clover and bahiagrass were found to thrive in areas previously infested with cogongrass that had been treated with Arsenal AC herbicide. In recent studies, it reduced cogongrass stems by more than 80 percent – without prohibiting colonization by other species. With the addition of glyphosate and overplanting, above-ground control reached 100 percent after two years. Yet, Arsenal AC herbicide was recognized as “the key factor – with or without glyphosate.”³

Cogongrass Control

Arsenal vs. Glyphosate October Application

■ Arsenal ■ Glyphosate

12 months after treatment



Old Patch (Miller, 1998). Arsenal rates have been calculated to represent Arsenal® herbicide 2 lb active ingredient.

Targeted Control, Enhanced Habitat.

Arsenal AC herbicide is powerfully effective – controlling cogongrass and other undesirable species down to the roots. Plus, it works on an enzyme found only in plants, not humans. Arsenal AC herbicide doesn't target wildlife or the sources wildlife use for food. When desirable native plants are freed from competition with cogongrass and other invaders, wildlife can flourish, too.

Noncropland Area Application:

Recommended for controlling cogongrass in noncropland areas that include but are not limited to railroad, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, non-irrigation ditchbanks, wildlife openings within noncropland sites and other similar areas. Recommended use rate for broadcast spray is 32-64 fluid ounces per acre (equivalent to 0.5 to 1.0 lb ai/A). Recommended use rate for spot treatment is 2.0% spray solution by volume.

Forestry Sites Application:

Recommended for cogongrass (*Imperata cylindrica*) control within forestry sites. With Arsenal AC herbicide, cogongrass can be controlled with a choice of broadcast or spot treatment applications.

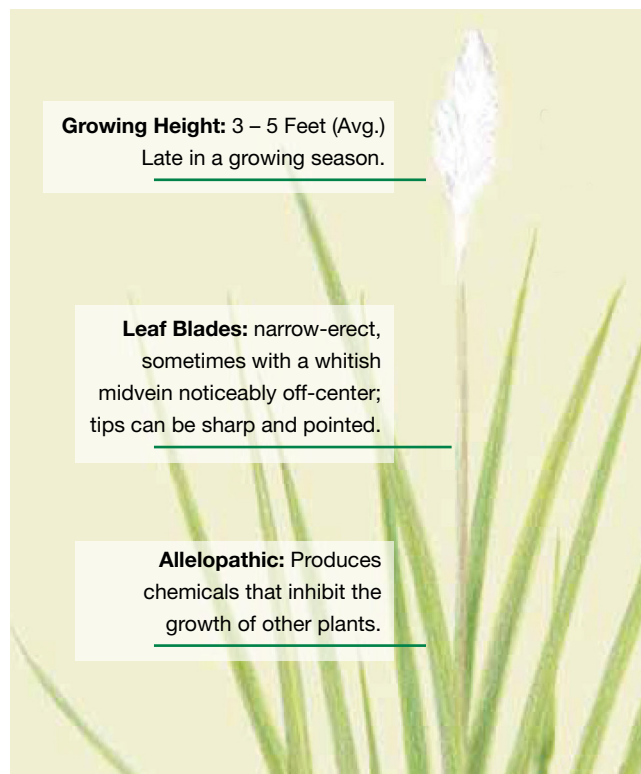
EPA approved use sites for cogongrass control: Forestry sites including forestry roadsides and wildlife openings within forestry sites. Not approved for pasture or hay use.

Recommended use rate: Broadcast spray – 16 to 32 fluid ounces per acre (equivalent to 0.5 to 1.0 lb ai/A). Arsenal AC herbicide contains 4 lb ai/gallon. Use the lower rate when applying to stands of slash or longleaf pine. Spot treatment – 0.5% spray solution by volume. Read the label for complete instructions.

Benefits of Arsenal AC herbicide Treatment

- Controls the entire plant, including root system
- Allows for re-colonization of desirable species
- Can be mixed with glyphosate

Cogongrass Plant Characteristics



Flowers: White-silky and plume like; paired on unequal stalks, with each spikelet surrounded by long white hairs. Blooming cogongrass and silver beardgrass look similar, but silver beardgrass blooms mid-summer, while cogongrass blooms in spring (Except in Florida, where it blooms year-round).

¹ Hussain, F.M., Abidi, S. Ayaz and A-U-R Saljoqi. 1992. Allelopathic suppression of wheat and maize seedling growth by *Imperata cylindrica* (L.) Beauv. *Sarhad Journal of Agriculture* 1992; 8(4): 433-9. ² Browning R., Cogongrass: Interesting Facts About The Perfect Weed. *Wildlife Issues* 2003; Fall/Winter. ³ Faircloth, W., Patterson, M., Teem, D., Miller, J., Cogongrass: *Imperata cylindrica* - Management Tactics on Rights-Of-Way (Presentation). Auburn University, 2003.