

Biology and Management of Cogongrass¹

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Cogongrass is considered to be one of the 10 worst weeds in the world. It is native to warm regions of southeast Asia, but occurs in similar climates around the world. Cogongrass (*Imperata cylindrica* (L.) Beauv.) was accidentally introduced into Alabama in about 1911 as seed in packing materials from Japan (Dickens 1974). Purposeful introductions primarily for forage production soon followed in Alabama, Mississippi and Florida (Bryson and Carter 1993). Cogongrass was introduced into Florida in the 1930s and 1940s as potential forage and for soil stabilization purposes. However, people eventually realized that cogongrass was of little economic (forage) benefit and could become a serious pest. Consequently, it was placed on the noxious weed list, which prohibits new plantings (MacDonald et al. 2006).

Biology

Cogongrass is an aggressive, colony-forming perennial grass. Leaf blades are narrow, erect and often yellowish-green, with sharp-pointed tips and short fine hairs at the base; they are flat and smooth



Figure 1. Cogongrass growing in a mature pine plantation. Note the lack of other vegetation in the cogongrass area. Credits: Rick Williams

on the upper surface with a whitish mid-vein that is noticeably off-center, and the blade margins are finely toothed like a hack-saw blade. The flower stalks are cylindrical, white-silky and plume-like. Tiny flowers are paired on unequal stalks, and are surrounded by long white hairs. Cogongrass often attains a height of 3 to 5 feet late in a growing season (Miller 2003). Cogongrass spreads primarily from rhizomes, rhizome fragments, and windborne seeds.

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Figure 2. Cogongrass in bloom. Credits: Rick Williams

Even a small rhizome fragment can develop into a fully functional plant. Cogongrass is highly flammable when mature or dry and actually burns hotter than native grasses, but the roots and rhizomes are remarkably resistant to fire (Bryson and Carter 1993).

Management Strategies

Biological Strategies

Since cogongrass is out of its native range in the southeastern U.S., the normal biological control organisms are not present. Research in biological control methods is limited because we do not want to introduce another non-native pest to our environment.

Fire

Fire alone is not a good method for managing cogongrass. In fact, cogongrass thrives in a fire environment, burning at hotter temperatures than the native vegetation. The below-ground component of cogongrass is extensive and responds rapidly with new growth after a fire consumes the surface vegetation. Fire will only be beneficial if herbicides are used after the fire on the new growth.

Machinery

Cogongrass can be mowed, but mowing alone will not reduce cogongrass. Mowing is used primarily to remove the dense overstory vegetation before spraying new sprouts with a herbicide. Repeated disking has shown some promise of reducing cogongrass. The goal is to disk the cogongrass often

enough to reduce the nutrient reserves stored in the roots and rhizomes. Disking followed by agricultural crops is being attempted in some places to eliminate or reduce infestations of cogongrass (personal communication with Mike Davidson Resource Management Services).

Herbicides

The most effective method of managing cogongrass is with herbicides. Two herbicides, glyphosate (Roundup®Pro, Razor Pro®, or Accord®XRT II) and imazapyr (Arsenal AC®, Chopper® Gen2, E-Pro® 4, or Polaris® AC) may be used alone or in combination to reduce cogongrass infestations (Miller 2003, Faircloth et al. 2005). Treat cogongrass in the fall while the leaves are still green. Thoroughly wet the leaves with glyphosate (2% solution, 8 oz. of product per 3 gallon mix) or imazapyr (1% solution, 4 oz. product per 3 gallon mix), or a combination of these herbicides. Always include a surfactant to improve herbicide absorption by the cogongrass foliage. When using imazapyr or imazapyr glyphosate combinations,, include 1 to 3 percent methylated seed oil (MSO) in your mixture. MSO improves herbicide uptake by plants, which is important in the management of difficult grasses such as cogongrass.

Best results with standard glyphosate and imazapyr applications are obtained with herbicide treatment in September or October. Older infestations will be more difficult to manipulate due to dense leaf cover, and a second application may be necessary in April or May the following year before the plant produces flowers.

New treatment trials at the University of Florida indicate that glyphosate herbicides at 1 lb. active ingredient per acre (1 quart of Roundup® or equivalent per acre) mixed with one quart of Cogon-X per acre improves cogongrass eradication by 10% over glyphosate alone. Spring and summer treatments using glyphosate herbicide plus Cogon-X also proved to be effective as long as cogongrass was treated when it was green, growing and not stressed by lack of water.

In summary, imazapyr and glyphosate herbicides provide effective management strategies for manipulating cogongrass. Don't let this invasive plant go untreated and continue spreading on your property. Cogongrass infestations cause loss of productive forest areas, hinder forest activities and severely degrade wildlife habitat by replacing native plants.

Important Considerations

- If you are spraying under pines – glyphosate or imazapyr or a combination of these herbicides can be used.
- If you are spraying over the top of pine seedlings – don't use glyphosate products, use Arsenal® AC instead.
- If you are spraying around or under hardwood trees that you want to keep – don't use imazapyr products like Arsenal® AC or Chopper®, use glyphosate products instead (don't spray hardwood foliage).

Literature Cited

- Bryson, C. T. and R. Carter. 1993. Cogongrass, *Imperata cylindrica*, in the United States. *Weed Technology*. 7:1005-1009.
- Dickens, R. 1974. Cogongrass in Alabama after sixty years. *Weed Science*. 22(2):177-179.
- Fairecloth, W. H., M. G. Patterson, J. H. Miller and D. H. Teem. 2005. Wanted dead not alive: Cogongrass. Alabama A&M and Auburn Universities, Alabama Cooperative Extension publication ANR-1241. 4 p.
- MacDonald, G. E., B. J. Brecke, J. F. Gaffney, K. A. Langeland, J. A. Ferrell and B. A. Sellers. 2006. Cogongrass (*Imperata cylindrica* (L.) Beauv.) biology, ecology and management in Florida. Univ. Florida, Cooperative Extension Service, SS-AGR-52. 3 p. <http://edis.ifas.ufl.edu/WG202>.
- Miller, J. H. 2003. Nonnative invasive plants of southern forests: A field guide for identification and control. USDA Forest Service Southern Research Station General Technical Report SRS-62. Asheville, NC. 93 p.

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