

# Soil Nutrient Analysis Laboratory

Soil Nutrient Analysis Laboratory; 6 Sherman Place, Unit 5102, Storrs, CT 06269-5102 • Phone: 860-486-4274  
Fax: 860-486-4562 Location: Union Cottage, Depot Campus, Mansfield

## Growing Warm Season Grasses in Connecticut

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Warm season grasses are often an important component of wildlife habitat improvement programs. Areas of warm season grasses provide cover for nesting, brood-rearing, roosting and escape for a variety of song and game birds. Small mammals like rabbits also benefit from their cover. Because of their bunching growth patterns, warm season grasses tend to have a fairly high percentage of bare ground between plants. These bare areas are important because they provide for ease of movement essential both for escape and food collection. At the same time, the soil is held in place reducing the potential for erosion.

Birds may feed on insects concentrated in warm season grass plantings as well as plant parts including seeds. Generally these native grasses mature to form a 1 to 3 foot high ground cover that holds up well over the winter providing an insulating effect which is important for many wildlife species.

For prime wildlife habitat, warm season grasses are generally used in conjunction with plantings and management of cool season grasses, forbes and woody plants for maximum habitat diversity. Due to their growth habits, the establishment and maintenance of warm season grasses requires some diligence on the part of landowners. Left unattended, stands become too dense for good wildlife habitat as plant material accumulates or becomes overrun by more aggressive cool season grasses and forbes.

Properly managed stands of warm season grasses can be cut for hay and provide grazing during the hot, dry mid-summer months. Since, most of their



growth occurs from mid-June through mid-August, refrain from haying between April 15<sup>th</sup> through August 1<sup>st</sup>. Although, like most plants, warm season grasses prefer deep, fertile, well-drained soils, they will tolerate sandy soils, acidic conditions and low phosphorus sites.

### Common Species of Warm Season Grasses

Little Bluestem – *Schizachyrium scoparium* is a long-lived, low maintenance bunchgrass that reaches from 1 ½ to 5 feet in height. Plants are slender and erect with a bluish-green to purplish color at the base of their somewhat bulbous stems. After frost, whole plants take on a becoming reddish hue. Stems are hairy and strongly flattened at the base. The inflorescence is a spike-like raceme with bristly awns and fluffy white seeds. Little bluestem will form a dense cover on sites with adequate moisture but thins out on drier sites. The seeds are favored by small mammals and waterfowl.

Switchgrass – *Panicum virgatum* is a rhizomatous grass that reaches 3 to 5 feet. Although bunch-like in appearance, switchgrass produces short rhizomes under grazing. Late season leafy regrowth arises from basal tillers and shoots will emerge along the lower stems at leaf nodes. This perennial grass can tolerate poorly drained soils and can withstand occasional flooding and perched water tables. Forage quality is good when immature but both palatability and nutrient content decline after seed head formation.

Big Bluestem – *Andropogon gerardi* is an erect, perennial bunchgrass growing from 3 to 6 feet. It often takes on an attractive reddish purple color at

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maturity. Growing points generally are low to the ground with early season buds forming at basal nodes and from short, scaly rhizomes. They become elevated as seed heads form. Big bluestem can be used on sites with excessively well drained soils. It also retains its palatability after reaching maturity better than switchgrass or Indiangrass.

Indiangrass – *Sorghastrum nutans* is a slow spreading, upright, perennial grass that matures at 3 to 6 feet and produces short, knobby rhizomes. It begins growth later than switchgrass or big bluestem but produces good quality forage throughout most of the summer. Moderately well-drained soils are preferred but Indiangrass can withstand occasional flooding. Palatability is moderate after seed head formation.

Eastern Gamagrass – *Tripsacum dactyloides* is a tall, erect bunchgrass that grows from 6 to 12 feet tall. It is related to corn and is among the earliest of warm season grasses to begin growth each spring. Plants form large clumps with sizeable space between plants. Eastern gamagrass could be used for hay or grazing but mowing is difficult over the rough, clumpy stands, and this warm season grass species requires a long, late summer rest period. Ideal growing sites include fertile bottomlands, alongside streambeds and in swampy areas as deep soils with high water holding capacity are necessary for good development. Eastern gamagrass is very slow to establish and has a high seed dormancy rate.

The species listed above are readily available from commercial sources. The Connecticut office of Natural Resources Conservation Service recommends shorter warm season grass species for wildlife habitat enhancement. It is believed that at one time, Connecticut contained short grass prairie ecosystems. Also, along roadsides and other disturbed areas, shorter warm grass species

are common. Some recommended shorter warm season grass species include little bluestem (mentioned above), Coastal little bluestem (*Schizachyrium scoparium subsp. littoralis*), broom sedge (*Andropogon virginicus L.*), beard grass (*Andropogon elliotti*), side oats grama (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), June grass (*Koeleria macrantha*), dropseed (*Sporobolus indicus*) and buffalo grass (*Buchloe dactyloides*).

Finding seed sources for the shorter warm season grasses can be more difficult but should become easier as the demand for conservation mixes increases. The NRCS also strongly recommends purchasing seed from local or, at least regional sources. This may also be challenging for some species but plantings are generally more successful if locally adapted seed sources are used. Appendix A lists several seed/plant sources.

## Seeding Warm Season Grasses

In general, warm season grasses are slow to establish requiring a minimum of 2 years for adequate stand development. They are poor competitors with cool season grasses and weed species. Close attention must be paid to their growth requirements for successful establishment. When evaluating potential establishment sites, determine if warm season grasses are already present. Intensive management may be all that is needed for warm season grasses to be restored.

For new seedings, begin by selecting a site with low weed pressure, or control the weeds on the area to be seeded. Weed control can often be achieved by prescribed burning or tilling the soil. An ideal location might be where row crops were previously grown and competing weeds controlled. Warm season grasses have been successfully seeded into conventionally prepared seedbeds, using no-till practices in small grain

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stubble, and no-till practices into pastures where herbicides were applied to kill existing sod.

A soil fertility test is also recommended 6 months to a year before seeding. Warm season grasses are tolerant of low pH soils, however, better results are generally obtained when the soil pH is around 6.0. Adjustments to the soil pH are made through additions of ground limestone.

Before seeding, incorporate phosphorus and potassium according to soil test recommendations. Do not apply nitrogen at seeding as it will stimulate weed competition which is detrimental to these slow establishing grasses. In the case of very low fertility site, about 30 pounds of nitrogen per acre can be applied in July after the grasses have started growing if the stand is vigorous and few weeds are present.

It is recommended that warm season grass seed be purchased by pounds of pure live seed (PLS). This should be listed on the bag of seed along with the germination rate and percentages of dormant seeds, weed seeds and inert materials. The CT Department of Environmental Protection suggests only purchasing seed originating no more than 100 miles north or 200 miles south of the project site. Depending on the species, seeding rates range from 5 to 12 lbs. of PLS per acre.

Wildflowers and legumes can be added to the seed mix at about 1 lb PLS per acre. Seeds require contact with bare mineral soil to germinate.

Table 1. Suggested Warm Season Grass Cultivars for Connecticut \*

Species	Cultivar	Geographic Use Area
Big Bluestem	Kaw Niagra	Southern VT/NH & South All
Little Bluestem	Aldous Camper	NY & South NY & South
Salt meadow cordgrass	Avalon	VA to NH, Coastal Wetlands
Smooth cordgrass	Bayshore	VA to NH
Deertongue	Tioga	All
Eastern gamagrass	Pete	All
Sideoats gramma	El Reno Trailway	NY & South Southern New England & North
Indiangrass	NE-54 Rumsey	NY & North VA & North

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\*From *Managing Grasslands, Shrublands, and Young Forest Habitats for Wildlife: A Guide for the Northeast*. Ed. by Oehler, J.D., Covell, D. F., Capel, S. and Long, B. 2006. Northeast Upland Technical Committee

May and early June seedings of warm season grasses are recommended for the Connecticut area. Minimum air and soil temperatures should be between 60 to 65 degrees F, and 50 degrees F, respectively. Early May seedings give plants more time during their first growing season for stand development. Seedings made later than mid-June may not be successful due to competition from cool season grasses and weed species and dry, summertime conditions.

## Warm Season Grass Maintenance

The key to successfully establishing warm season grasses is patience. Young seedlings spend most of their first two years establishing extensive root systems resulting in sparse top growth. Two full growing seasons should pass before an evaluation of stand establishment can generally be made. Ideally there should be one vigorous plant per square foot by the second growing season. According to both the CT Department of Environmental Protection and the Natural Resources Conservation Service, it may take two to three years for a stand to be fully established.

It is critical to control competition from weeds during the first two years of stand establishment.

This can be done by mowing, herbicides and prescribed burning. Burning is not recommended until years three or four. Overgrazing should be avoided.

Although warm season grasses are more tolerant of low soil fertility levels, studies have shown moderate amounts of nutrients to be beneficial. Plants respond with increased levels of

productivity, vigor and persistence. Generally 40 pounds per acre of nitrogen, phosphorus and potassium is recommended annually. To fulfill this requirement, apply 400 pounds of 10-10-10 or the equivalent per acre. Fertilizer is applied when grasses are three to four inches high, usually in mid-May. Soil fertility tests can be conducted every three to five years to monitor soil pH and fertility levels.

Warm season grasses serve as an important habitat for many species of grassland birds, mammals and other animals. Restoration efforts are supported by a number of government programs including the USDA Wildlife Habitat Incentives Program, Grassland Reserve Program, DEP Landowner Incentives Program, Conservation Reserve Program, Wetlands Reserve Program and the U. S. Fish and Wildlife Partners Program. Contact the CT Department of Environmental Protection, the Natural Resources Conservation Service or the U. S. Department of Fish and Wildlife to find out about technical assistance or funding opportunities.

Appendix A. Sources for warm season grass seed and plants.

New England Wetland Plants  
820 West Street  
Amherst, MA 01002  
(413) 548-8000  
[www.newp.com](http://www.newp.com)

Natural Attraction Project, Inc.  
Denise Ciastko  
PO Box 113  
Canterbury, CT 06331  
Email: [info@naturalattractionproject.com](mailto:info@naturalattractionproject.com)  
[www.napinc.org](http://www.napinc.org)

Ernst Conservation Seeds  
9006 Mercer Pike

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Meadville, PA 16335-9299  
(800) 873-3321  
[www.ernstseed.com](http://www.ernstseed.com)

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