

Tall Fescue & Kentucky Bluegrass

Athletic Field Maintenance Calendar

This calendar of suggested management practices is designed to assist you in the seasonal care of your athletic field. Location, terrain, soil type and condition, age of field, previous management practices, and other factors affect turf performance. For these reasons, the following management practices and dates should be adjusted to suit your particular athletic field conditions.

September through November

Mowing

Cut Kentucky bluegrass to 1 ½ to 2 ½ inches and tall fescue and mixtures of tall fescue and bluegrass to 2 to 3 inches. This high cut enhances deep rooting and promotes healthier plants. Mow as often as required, but do not remove more than 40 percent of the grass height at one time. Do not allow pure stands of bluegrass to grow taller than 3 ½ inches or fields with tall fescue to grow taller than 5 inches. Clippings rarely need to be collected if this schedule is followed. Remove clippings only if they will interfere with grass growth. If the grass gets excessively high during extended wet periods, raise the mower and remove one-third of the new growth; then lower the mower to the proper height and mow again in a day or two.

Fertilization

Apply 1 pound of nitrogen per 1,000 square feet in September and again in November when the grass is still green but not actively growing (Refer to Table 1).

Sample the soil to determine phosphorus, potassium, and lime requirements. Obtain test kits from your county Cooperative Extension agent or from the North Carolina Department of Agriculture and Consumer Services' Agronomic Division, 4300 Reedy Creek Rd., Raleigh, NC 27607-6465. Apply lime as suggested by the soil test, but do not apply more than 50 pounds per 1,000 square feet per application. To apply more than 50 pounds per 1,000 square feet, put down split applications at least 4 weeks apart. If possible, apply lime just before soil coring to ensure deeper movement into the soil.

Use a complete N-P-K fertilizer to supply the nitrogen, phosphorus, and potassium suggested on the soil-test report. This promotes deep rooting and healthier plants. Table 1 gives examples of several fertilizers and the rates needed to supply 1 pound of nitrogen per 1,000 square feet, which is 43.5 pounds of nitrogen per acre. Use Table 2 to determine the fertilizer needed for fields of various sizes. Your county Cooperative Extension agent can help with proper fertilizer selection based on the soil test and, if necessary, a closer determination of the acreage to be fertilized.

Irrigation

If rain doesn't supply 1 to 1 ¼ inches of water in a week, irrigate in the early morning, wetting the soil to a depth of 4 to 6 inches. In sandy soils, apply ½ to ¾ inch of water every 3 to 4 days. Occasionally probe the soil to determine soil moisture. Irrigate only when symptoms of wilt appear (folded or curled leaves, footprinting, or bluish-green color). Avoid light, frequent watering, which promotes shallow rooting and algae, moss, and turfgrass diseases.

To minimize compaction and wear, do not irrigate 2 days before heavy use, and limit use of the field when it is wet. Postpone play and use other practice sites. Game fields should be used only for team play and not for team practice, gym class, or band practice.

Soil Cultivation

Aeration (coring) relieves compaction on athletic fields subject to heavy traffic. Aerate monthly when the grass is actively growing using ¾- to 1-inch-diameter tines that remove soil cores. Aerate the field lengthwise twice and crosswise once. To penetrate heavy clay soils, the field must be moist but not excessively wet (water several days in advance). Allow the plugs to dry, then pulverize them with a mower or power rake and redistribute them with a dragmat. More frequent coring may be necessary along heavily trafficked and compacted areas, such as around player benches, between hash marks, along sidelines, and in front of goals. Football fields may be aerated right after the last game of the season to avoid disrupting team play.

Aeration is absolutely necessary to maintain an acceptable field. Rent, borrow, or contract for these services if you do not have the equipment on hand. Do not aerate if the turf is under severe stress (extended periods of drought, etc.). It may take 3 weeks of good growing conditions for turf to recover after aeration. The field can be used while it is recovering.

Thatch removal is not usually needed for tall fescue fields but may be necessary for Kentucky bluegrass fields. Consider removing thatch thicker than ½ inch. Do not dethatch (using a vertical mower or power rake) in late spring or summer.

Renovation

See [Grass Selection](#) and [Renovation](#) sections.

Weed Control

Use a combination product to control postemergence winter annuals and perennial broadleaf (see Table 3). Apply at the product label rate. For more difficult-to-control weeds (corn speedwell, woodsorrel, wild violets, etc.), apply half the label rate and repeat in 10 to 20 days. The herbicides listed in Table 3 do not control grassy weeds. Do not use herbicides on newly seeded or renovated fields until new seedlings have been mowed at least three times (For more details, see [Pest Control for Professional Turfgrass Managers, AG-408.](#))

Table 3. Application Rates for Postemergence, Broadleaf Herbicides

Product	Pints per acre
2,4-D + MCPP + dicamba (various trade names)	3 to 4
triclopyr + clopyralid (Confront)	1 to 2
2,4-D + clopyralid + dicamba (Millennium Ultra)	2 to 3
MCPA + triclopyr + dicamba (Horsepower) amine formulation	2 to 3
MCPA + triclopyr + dicamba (Coolpower) ester formulation	2 to 3
2,4-D + triclopyr (various trade names)	3
clopyralid (Lontrel Turf & Ornamental)	0.25 to 1.33

December through February

Mowing

Follow September-November guidelines.

Fertilization

Follow September-November fertilization guidelines. Fertilize between February 15 and March 15 at the rate of 1 pound of nitrogen per 1,000 square feet. Quick-release sources of nitrogen, such as urea (46-0-0) and ammonium nitrate (34-0-0), should be watered in immediately to prevent foliar burn.

Irrigation

Follow September-November guidelines. Irrigate dormant turf in warm, windy weather to prevent desiccation. Probe the soil to determine dryness.

Soil Cultivation

Do not cultivate at this time.

Renovation and Establishment

If worn or thin areas are heavily used in the fall, overseed with a suitable seed mixture.

Weed Control

Follow September-November guidelines.

March through May

Mowing

Follow September-November guidelines.

Fertilization

If the field was not fertilized in February, fertilize before March 15 at the rate of 1 pound of nitrogen per 1,000 square feet. Water in quick-release sources of nitrogen, such as urea (46-0-0) and ammonium nitrate (34-0-0), to prevent foliar burn.

Irrigation

Follow September-November guidelines.

Soil Cultivation

Do not cultivate soil when the temperature is consistently higher than 80°F.

Weed Control

Apply preemergence herbicides to control crabgrass, goosegrass, and foxtail around the time forsythia bushes are in bloom. If the area was reseeded in the spring, use only Tupersan (siduron).

Table 4. Application Rates for Preemergence Herbicides	
Product	Amount per acre
benefin (Balan 2.5G)	120 pounds
benefin + trifluralin (Team Pro 0.86G)	174 to 349 pounds
dithiopyr (Dimension 1EC)	2 quarts
oxadiazon (Ronstar 2G)	100 to 150 pounds
pendimethalin	
(Weedgrass Control 60WP)	5 pounds
(Pre-M 60WP)	5 pounds
(Pendulum 60WDG)	5 pounds
(Pendulum 3.3 EC)	7.3 pints
prodiamine	
(Barricade 65WG)	0.75 to 1.5 pounds
(Regal Kade 0.5G)	64 to 300 pounds
Siduron (Tupersan 50WP)	20 pounds*

* Use 8 pounds when seeding tall fescue or Kentucky bluegrass.

June through August

Mowing

If fields will not be used during the summer, mow bluegrass to 2 ½ inches and tall fescue and tall fescue and bluegrass mixtures to 3 ½ inches. The taller mowing height promotes deep rooting and healthier plants. Follow the September-November mowing guidelines for fields in play.

Fertilization

DO NOT fertilize tall fescue or Kentucky bluegrass.

Once every 3 years, submit a soil sample for analysis to determine nutrient requirements for fall application.

Irrigation

Either irrigate as needed to prevent drought, or allow fields to go dormant. Follow the September-November irrigation guidelines. Dormant fields should be watered once every 4 weeks in a drought.

Soil Cultivation

Avoid soil cultivation.

Weed Control

Apply postemergent herbicides to control summer annual and perennial grasses, broadleaf weeds, and sedges in early June, if necessary. Apply herbicides only when grass is actively growing, has adequate soil moisture, and the temperature is less than 85°F. Avoid herbicide applications in mid-summer or in a severe drought. For broadleaf weed control recommendations, see Table 5 and [Pest Control for Professional Turfgrass Managers, AG-408](#).

Product	Amount per acre	Weeds controlled
fenoxaprop (Acclaim Extra 0.57EC)	13 to 39 fluid ounces	crabgrass, goosegrass
quinclorac (Drive 75DF)	1 pound	crabgrass, foxtails, clovers, dandelion, and others
DSMA* (various trade names)	varies	crabgrass, goosegrass, bahiagrass, dallisgrass, purple and yellow nutsedge, annual sedges, sandbur
MSMA* (various trade names)	varies	same as DSMA plus green kyllinga
bentazon (Basagran T/O 4S) (Lescogran 4SL)	1 to 2 quarts	yellow nutsedge, annual sedge
halosulfuron (Manage 750F)	0.67 to 1.33 ounces	yellow and purple nutsedge, green kyllinga
* Tall fescue and Kentucky bluegrass have intermediate tolerance to these products. Use with caution and at reduced or minimum label rates.		

Grass Selection

Tall fescue, a relatively coarse-textured grass, is fairly pest tolerant, and it is the most heat- and drought-tolerant of the cool-season grasses. However, it is coarser in texture and less heat- and drought-tolerant than bermudagrass. It doesn't spread and doesn't tolerate mowing shorter than 2 ½ to 3 inches. To improve the recuperative potential of a tall fescue lawn, it is often seeded in combination with Kentucky bluegrass at the rate of 6 pounds of tall fescue to 1 pound of Kentucky bluegrass per 1,000 square feet.

K-31 tall fescue is an economical standard in seed mixtures, but a number of improved turf-type tall fescues are on the market. These grasses tend to be darker green, have a finer leaf texture, have greater shoot density, withstand lower mowing, and are more disease tolerant. However, there is little research to support claims of improved heat and drought tolerance. Both K-31 and the turf-type tall fescues need similar care and management, although the turf-type tall fescues

can be mowed approximately ½ inch shorter than K-31 and may be better suited for baseball infields. The following cultivars have shown good or very good performance in North Carolina.

Very good: Adventure II, Barlexus, Bonanza, Finelawn Petite, Genesis, Lancer, Marksman, Mini-Mustang, Phoenix, Rebel 3D, Safari, Shenandoah, Southern Choice, Tarheel, Taurus, Thoroughbred, Tomahawk.

Good: Adventure, Amigo, Avanti, Apache, Barnone, Crossfire, Emperor, Finelawn, Finelawn 5GL, Hounddog, Jaguar II, Mesa, Murietta, Mustang, Olympic, Olympic II, Rebel Jr., Rebel II, Rebel III, Richmond, Shortstop, Titan, Twilight, Vegas, Wrangler.

Kentucky bluegrass is a fine-textured, sod-forming grass that can be seeded alone or in combination with tall fescue or perennial ryegrass. It is very resilient and makes an excellent infield but is very slow to establish. Kentucky bluegrass performs well alone (when seeded at a rate of 2 pounds per 1,000 square feet) in the higher elevations of western North Carolina but should be combined with tall fescue in the lower elevations or at the eastern edge of the mountains. Blending two or more improved Kentucky bluegrass cultivars enhances performance over a wide range of conditions. A mix of 50 percent Kentucky bluegrass and 50 percent perennial ryegrass seeded at 2.5 pounds per 1,000 square feet also provides an acceptable playing surface as long as dollarspot and red thread diseases are not a threat. Some Kentucky bluegrass cultivars that have shown very good and good performance in North Carolina include:

Very good: A34, Aspen, Blacksburg, Bristol, Classic, Coventry, Eclipse, Explorer, Georgetown, Kelly, Monopoly, Nassua, Parade, Ram I, Rugby, Suffolk.

Good: Abbey, Able-I, Alene, Amazon, America, Ascot, Asset, Baron, Challenger, Chateau, Cheri, Chicago, Cynthia, Glade, Gnome, Huntsville, Jefferson, Kenblue, Livingston, Merit, Midnight, Nuglade, Princeton, Unique, Victa, Washington.

Perennial ryegrass is well adapted to the western region of North Carolina and may be used when quick establishment is desired. It can be combined with Kentucky bluegrass when red thread and dollarspot are not a major threat. A mixture of 50 percent Kentucky bluegrass and 50 percent perennial ryegrass seeded at 2.5 pounds per 1,000 square feet is the easiest and quickest grass to establish. This seed mixture results in excellent traffic and wear tolerance. However, it does not spread laterally and often requires reseeding to fill in bare areas that may result from divoting and excessive wear. Some cultivars that have shown good performance in national trials are Accent, Brightstar II, Caddieshack, Calypso II, Catalina, Esquire, Line Drive, Manhattan 3, Palmer III, Panther, Passport, Pennant II, , Prelude III, Premier II, Prizm, Secretariat, Top Hat.

Renovating Fields

When to Plant

Cool-season grasses are best seeded from mid-August in the western region to mid-October in the Piedmont and Coastal Plain. However, renovation of football fields must often be postponed until after the playing season has ended. Football fields are occasionally seeded in February in the Coastal Plain and Piedmont and March in the western region. Seeding too early in the fall or spring can result seedling diseases. Seeding too late in the spring can result in weed competition, diseases, heat stress, and drought stress.

When fields are used in both spring and fall, only sodding can be used to establish new turf. It is better to keep an existing field in good shape by following all the recommended management practices in this publication. Adding perennial ryegrass to seed mixtures may result in quicker establishment and, in turn, earlier use of the field. However, keep in mind that perennial ryegrass is usually a poor choice for a permanent cover because it is susceptible to diseases and heat.

Method of Reestablishment

Renovate only those areas that have been worn extensively. Kentucky bluegrass fields do not have to be overseeded if the bare areas are less than 2 inches in diameter. These areas will fill in naturally with proper mowing, watering, and fertilization. Bare areas in predominately tall fescue and perennial ryegrass fields must be overseeded because both are bunch-type grasses, which will not spread laterally.

When overseeding, good seed-to-soil contact is essential. Broadcasting seed onto the surface of the field without attempting to ensure seed-to-soil contact often leads to failure. Mow the area as low as possible without scalping and remove excessive debris. Fill in sunken areas with soil similar in texture to the existing root zone soil. Several methods can be used to ensure good seed-to-soil contact:

Slit Seeding: Use slit seeders to incorporate the seed and smooth the soil surface with minimal disruption to existing turf. These machines open a slit in the soil and place the seed at the desired depth. Less seed is required than with other methods, and seedling survival is excellent.

Calibrate the machine to deliver 20 pounds of Kentucky bluegrass and either 40 pounds of tall fescue or 20 pounds of perennial ryegrass per acre and traverse the area twice in different directions.

Coring: Traverse the field four to seven times with a coring machine, using $\frac{3}{4}$ -inch tines that remove soil cores. Although coring is less effective than slit seeding, the soil can be distributed (grooved) with a vertical mower (power rake) or by lightly disking the debris several times with the disk wheels running almost straight. Broadcast tall fescue at 6 pounds per 1,000 square feet or Kentucky bluegrass at 1 pound per 1,000 square feet, or use both. Incorporate the seed and plugs with a dragmat.

Topdressing: First, broadcast tall fescue at 6 pounds per 1,000 square feet or Kentucky bluegrass at 1 pound per 1,000 square feet, or both. Then topdress the area with $\frac{1}{4}$ inch of good topsoil similar to the existing root zone mix. Topdressing is practical only on small areas, but it helps to smooth the playing surface.

Whichever method you use to seed a field, fertilize the area with a starter-type fertilizer (high phosphorus) such as 10 pounds of 5-10-10 per 1,000 square feet. If the field is seeded in the spring, apply Tupersan (siduron) to prevent crabgrass competition.

Sodding: Sod a field that will be used 4 to 8 weeks after renovation. Use certified sod to ensure that the material is true to type and free of objectionable broadleaf and grassy weeds and other plants. If play is expected within 4 weeks, sod must be cut thicker than normal (1 $\frac{1}{2}$ to 2 inches

rather than ½ to ¾ inches) because there is insufficient time for rooting. (Thin sod generally roots quicker than thick sod.)

Apply fertilizer and lime as suggested on the soil-test report. If test results are not available and the field has not been limed in the past 3 years, apply 50 pounds of lime and 20 pounds of 10-10-10 per 1,000 square feet of area. Lightly disk or rototill the lime into the soil surface, being careful not to destroy existing surface drainage or the crown of the field. Rake or harrow the site to establish a smooth and level final grade. Lay the sod and roll the area to ensure good soil-to-sod contact.

Thoroughly irrigate the sod immediately after rolling, ensuring that the soil is wet. Keep the soil continually moist by watering daily until the sod starts to root. To determine rooting, wait 2 to 3 weeks, then gently tug on the sod; resistance indicates rooting. Once the sod has begun to root, gradually reduce watering to once a week after the sod is fully anchored. A high phosphorus starter fertilizer applied 3 weeks after installation may assist in rooting.

Reducing Compaction and Wear

Compaction is the main cause of turf failure on athletic fields. Extremely high soil compaction limits the amount of oxygen in the soil, which is necessary for good root growth. Aerification (coring) can reduce the problem. Aerification is done with a machine that inserts a hollow metal tine or spoon into the soil, normally removing a soil core. Aerification is the only way soil can be tilled without seriously disturbing the turf. The hole left by this process allows more oxygen to reach the root system and harmful gases to escape. These holes also enhance movement of water, nutrients, and pesticides into the soil.

Other steps that can be taken to reduce the effects of compaction are:

- Do not irrigate for 2 days before heavy use.
- Keep use to a minimum when the field is wet.
- Use alternate sites for band and practice sessions.
- Set aside one field for team or tournament play, if possible.
- Move nonstationary goals (see Figure 1 below) so play is not concentrated in the same area week after week. Consider making existing fields wider to enhance recovery.
- Stay off of partially thawed areas.
- Do not play on new areas until they are fully established.

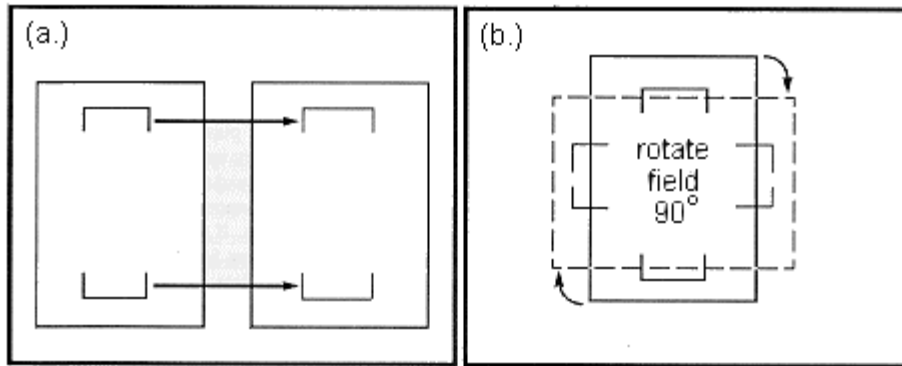


Figure 1. Movement of nonstationary goals (a.) or reorientation of fields (b.) can lengthen the life of an athletic field.

Pest Problems

Diseases and insects are seldom a problem on properly maintained athletic fields. If you suspect a pest problem, make sure you correctly identify the pest before applying a pesticide. Contact your county Cooperative Extension Service agent or refer to Extension Service publication [Turfgrass Pest Management Manual: A Guide to Major Turfgrass Pests and Turfgrasses, AG-348](#), if you need assistance in identification and nonchemical control measures. If pesticides are needed, select the most appropriate and read and follow label directions. Extension Service publication [Pest Control for Professional Turfgrass Managers, AG-408](#), provides the latest pesticide recommendations. Often a pest problem indicates that changes in the turf management program are necessary.

Integrated Pest Management: The Sensible Approach to Lawn Care

Many pest problems that cause your turf to look bad include diseases, weeds, insects, and sometimes animals. So what do you do? Use a pesticide? Or, make changes in cultural practices? Both methods, or some others as well, may be needed. The balanced use of all available methods is called integrated pest management (IPM). The idea is simple. It urges the use of all available prevention and control methods to keep pests from reaching damaging levels. The goal is to produce a quality turf and minimize the influence of pesticides on humans and the environment as well as on the turf. IPM methods include:

1. Selecting and using the best adapted grasses.
2. Proper use of cultural practices such as watering, mowing, and fertilization.
3. Proper selection and use of pesticides when necessary.

Early detection and prevention, or both, will minimize pest damage, saving time, effort, and money. Should a problem occur, determine the cause or causes, then choose the safest, most effective control(s) available.

When chemical control is necessary, select the proper pesticide, follow label directions, and apply when the pest is most susceptible. Treat only those areas in need. Regard pesticides as only one of many tools available for turf care. To learn more about integrated pest management, pest identification, turf care, and proper use of pesticides, contact your county Cooperative Extension Center.

DISCLAIMER: Recommendations for the use of agricultural chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services in this publication does not imply endorsement by the North Carolina Cooperative Extension Service nor discrimination against similar products or services not mentioned. Individuals who use agricultural chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage regulations and examine a current product label before applying any chemical. For assistance, contact your county Cooperative Extension Service agent.

Prepared by: Arthur H. Bruneau, Crop Science Extension Specialist, Turfgrass

with contributions and assistance from the following:

Richard J. Cooper, Turfgrass Teaching and Research

Fred H. Yelverton, Extension Crop Science Specialist, Weed Management

Henry C. Wetzel, Extension Specialist, Turfgrass Pathology

Rick L. Brandenburg, Extension Entomologist

Daniel C. Bowman, Turfgrass Research

Charles H. Peacock, Turfgrass Research and Teaching

Cale A. Bigelow, Extension Associate, Turfgrass

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