

Phosphorus-Free Lawn Fertilizer Guidelines

COLORADO – Turf Managers



The following fertilizer guidelines are based on work by the New England Interstate Water Pollution Control Commission (*Regional Clean Water Guidelines for Fertilization of Urban Turf, 2011*). These guidelines were developed from a stakeholder process for the New England states and were intended to be adapted to other regions of the U.S. These guidelines summarize the key components to a lawn maintenance program to minimize environmental impacts, specifically to **downstream waters**. 

Guideline 1: Fertilizer applicators should have soil lab-tested (via Colorado State University extension service or other professional lawn care service) before seeding a new lawn and at least once every three years following establishment.

Guideline 2: Fertilizer applicators should choose a phosphate-free fertilizer for use on established turf unless a recent soil test (conducted within 12 months of planned application) shows an available phosphate deficiency.

Guideline 3: Manufacturers of turf fertilizer intended for maintenance of established turf should formulate these products as phosphate-free fertilizers (0.67% available phosphorus or less).

Guideline 4: Manufacturers of turf fertilizer containing available phosphate should label these products as lawn starter, lawn repair products, or equivalent.

Guideline 5: Manufacturers of turf fertilizer should formulate all nitrogen turf fertilizers to provide at least 20% of total nitrogen (TN) as slow-release nitrogen (SRN).

Guideline 7: Turf managers seeking to grow new turf, reseed bare or thin areas, or fix an available phosphate deficiency should apply no more than **1.0 lbs.** of active phosphate per 1,000 square feet per year, unless a soil recent soil test (within 12 months of the planned application) specifically recommends a higher application.

Guideline 8: Fertilizer applicators using a nitrogen fertilizer, other than an **Enhanced Efficiency Fertilizer**, in areas of normal environmental sensitivity should apply no more than **0.7 lbs.** of water-soluble nitrogen per 1,000 square feet and no more than **1.0 lbs.** of total nitrogen per 1,000 square feet with each application.

Guideline 9: Fertilizer applicators using a nitrogen fertilizer in areas of normal environmental sensitivity should apply no more than **3.2 lbs.** total nitrogen per 1,000 square feet per year.

Guideline 10: Manufacturers of turf fertilizer should label products containing nitrogen in such a way that Guidelines 8 and 9 will be met if an applicator, using properly calibrated equipment, correctly follows the label directions.

Guideline 11: Fertilizer applicators should ensure that spreader equipment is on the correct setting and is [calibrated properly](#) prior to use. Spreader equipment needs to be properly maintained and in good working order. **Clean all equipment** while on the lawn to avoid spills.

(Note: Environmentally sensitive areas can include: areas immediately adjacent to impaired waters/segments [especially for nutrients and response variables such as dissolved oxygen, chl-a, and pH], areas of steep topography, sandy or very shallow soils, and land overlying single-source drinking water aquifers or sensitive drinking water watersheds.)

Guideline 12: Fertilizer applicators using a nitrogen fertilizer, other than an Enhanced Efficiency Fertilizer, in [environmentally sensitive areas](#) should apply no more than **0.5 lbs.** of water-soluble nitrogen per 1,000 square feet and no more than **0.7 lbs.** of total nitrogen per 1,000 square feet with each application.

Guideline 13: Fertilizer applicators using a nitrogen fertilizer in [environmentally sensitive areas](#) should apply no more than **2.0 lbs.** total nitrogen per 1,000 square feet per year.

Guideline 14: Unused turf fertilizer should be returned to its original container and [stored](#) in a safe place for future application. Weighing the bag and recording the weight prior to storage will aid in determining how much area the remaining fertilizer will cover.

Guideline 15: If disposal of turf fertilizer is absolutely necessary, it should be taken to a household hazardous waste facility. Unwanted fertilizer should never be purposefully [over-applied](#) to grass; **dumped in a storm drain**, wetland, or waterbody; or emptied into a toilet or sink.

Guideline 16: Fertilizer applicators should never apply fertilizer to turf during the [winter](#) or when the ground is wholly or partially frozen.

Guideline 17: Fertilizer applicators should not apply fertilizer containing nitrogen or phosphate during [summer dormancy](#) (i.e., on turf that is not watered during the summer).

Guideline 18: Fertilizer applicators should always consult a [local weather](#) forecast prior to a planned fertilizer application and should never apply fertilizer to turf when a major rain/spring snow event is expected **within 48-hours**. Pay close attention to localized, afternoon thunderstorms.

Guideline 19: Fertilizer applicators should not apply fertilizer immediately following a major [rain/spring snow event](#) when the soil is still saturated.

Guideline 20: Manufacturers of turf fertilizer intended for retail sale for application on urban turf should include the following [message](#) in a legible and conspicuous manner on at least one side of the fertilizer label: “Do not apply near water, storm drains or drainage ditches. Do not apply if heavy rain is expected. Apply this product only to your lawn, and sweep any product that lands on the driveway, sidewalk, or street back onto your lawn.”

Guideline 21: Fertilizer applicators should time applications as described in Tables A and B below, based on the desired number of applications per year, type of grass, elevation, and whether in an environmentally sensitive area. Three to four applications are recommended.

Guideline 22: Fertilizer application rates depend on [type of grass](#) species and the amount of stress applied to the turf. Bluegrass with high traffic (high-maintenance) may require more fertilizer. Low-maintenance Bluegrass does not need to be fertilized as much.

Table A: Non-sensitive Areas

Non-sensitive Areas				
Time of Year*	-----Number of Annual Fertilizer Applications-----			
	Once	Twice	Three Times	Four Times
Spring ¹ (Mid Mar to April)		$\geq 50\%$ N as SRN** ≤ 1.6 lb. TN/1000 ft ²	20-50% N as SRN ≤ 1.0 lb. TN/1000 ft ²	20-50% N as SRN ≤ 0.8 lb. TN/1000 ft ²
Late Spring (May thru Jun)			20-50% N as SRN ≤ 1.0 lb. TN/1000 ft ²	20-50% N as SRN ≤ 0.8 lb. TN/1000 ft ²
Summer ² (Jul thru Aug)				20-50% N as SRN ≤ 0.8 lb. TN/1000 ft ²
Fall ³ (Sept to mid Oct)	$\geq 75\%$ N as SRN (enhanced efficiency fertilizer) ≤ 3.2 lb. TN/1000 ft ²	$\geq 50\%$ N as SRN ≤ 1.6 lb. TN/1000 ft ²	20-50% N as SRN ≤ 1.0 lb. TN/1000 ft ²	20-50% N as SRN ≤ 0.8 lb. TN/1000 ft ²
<i>Rational:</i>	Helps turf recover from summer stress. High SRN in EEF product will provide nutrition throughout fall and again in spring.	Provides nutrition during active growth/prior to summer stress and during fall recovery, with SRN provided throughout the growing season.	Provides nutrition immediately prior to and during active growth and during fall recovery.	Provides nutrition throughout the growing season.
<p>*Indicated timing is based on 4,000 to 6,000 ft elevation climate. Applicators in higher elevation areas should consider making spring applications 1-4 weeks later and fall applications 1-2 weeks earlier than indicated. Spring snows and isolated, afternoon thunderstorms during summer are critical to watch out for.</p> <p>** SRN is Slow-Release Nitrogen.</p> <p>1. Spring nitrogen application may not be needed if you fertilized late in the previous year. If spring green-up and growth is satisfactory, delay fertilizing until late Spring. March is the snowiest month for many parts of Colorado.</p> <p>2. Do not fertilize during the heat of the summer for cool-weather grasses like Kentucky bluegrass. Fertilizing is good during the summer only for warm-weather grass such as Buffalograss and blue grama during their peak growth period.</p> <p>3. When grass is still green and at least 2 -3 weeks from first freeze. Colorado freezing can come early in the fall.</p>				

Table B: Environmentally Sensitive Areas

Environmentally Sensitive Areas			
Time of Year*	-----Number of Annual Fertilizer Applications-----		
	Once	Twice	Three Times
Spring ¹ (Mid Mar to April)		$\geq 50\%$ N as SRN** ≤ 1.0 lb. TN/1000 ft ²	20-50% N as SRN ≤ 0.6 lb. TN/1000 ft ²
Late Spring (May thru Jun)			20-50% N as SRN ≤ 0.6 lb. TN/1000 ft ²
Summer (Jul thru Aug)	<i>Not recommended in sensitive areas</i>	<i>Not recommended in sensitive areas</i>	<i>Not recommended in sensitive areas</i>
Fall ² (Sept to mid Oct)	$\geq 75\%$ N as SRN (enhanced efficiency fertilizer) ≤ 2.0 lb. TN/1,000 ft ²	$\geq 50\%$ N as SRN ≤ 1.0 lb. TN/1000 ft ²	20-50% N as SRN ≤ 0.6 lb. TN/1000 ft ²
<p>*Indicated timing is based on 4,000 to 6,000 ft elevation climate. Applicators in higher elevation areas should consider making spring applications 1-4 weeks later and fall applications 1-2 weeks earlier than indicated. Spring snows and isolated, afternoon thunderstorms during summer are critical to watch out for.</p> <p>** SRN is Slow-Release Nitrogen.</p> <p>1. Spring nitrogen application may not be needed if you fertilized late in the previous year. If spring green-up and growth is satisfactory, delay fertilizing until late Spring. March is the snowiest month for many parts of Colorado.</p> <p>2. When grass is still green and at least 2 -3 weeks from first freeze. Colorado freezing can come early in the fall.</p>			

Guideline 23: For [Buffalo grass](#), fertilizer applicators using a nitrogen fertilizer in areas of normal environmental sensitivity should apply no more than **2.0 lbs.** total nitrogen per 1,000 square feet per year. Buffalograss is a warm-season, perennial grass that **should not** be fertilized in the spring or fall.

Guideline 24: Fertilizer applicators should never purposefully apply fertilizer to [paved surfaces](#) such as roads, driveways, patios, or footpaths. Incidental spills should be cleaned immediately by sweeping up spilled fertilizer granules and returning them to the bag, while incidentally scattered granules should be swept from paved surfaces back onto the lawn.

Guideline 25: Fertilizer applicators should never apply fertilizer to [bare ground](#) unless reseeding.

Guideline 26: Fertilizer applicators should not spread fertilizer on turf immediately adjacent to [water bodies and wetlands](#) and should be aware of any “no fertilization” buffer zones.

Guideline 27: Before fertilizing, fertilizer applicators should use a tarp or drop-cloth to [cover](#) storm water conveyances immediately adjacent to lawns, including storm drains, ditches, and swales. Scatter that collects on the cover should be shaken or swept onto the turf.

Guideline 28: Following fertilizer application, turf managers [should water](#) in the fertilizer using 1/4 – 1/3 inch of water; correct watering should dissolve the fertilizer granules but should not create runoff.

Guideline 29: Turf managers should [mow grass](#) to roughly 3 inches in length and should **leave clippings** on the lawn. Nitrogen application can be reduced as much as 1/3 when grass clippings are returned to the lawn. Grass clippings do not contribute to thatch accumulation in lawns.

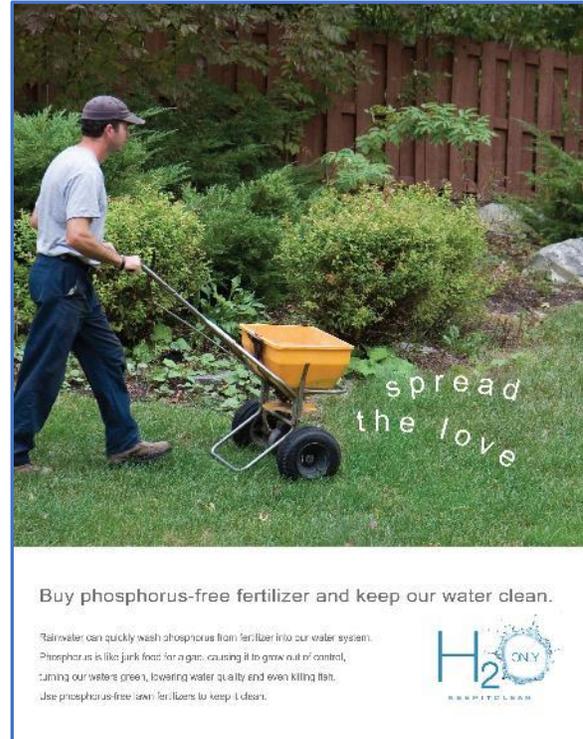
Guideline 30: If it is not practicable to leave clippings on the lawn, turf managers should contain them in yard bags or prepare for compost. Clippings should never be allowed to collect on paved surfaces or blown into the street. Clippings should [never be dumped](#) in waterbodies, storm drains, or wetlands.

Guideline 31: Turf managers wishing to use [soil amendments](#), manure, biosolids, or compost should treat and manage them like fertilizers. Follow the application directions and rates, avoid getting onto impervious surfaces, and clean up properly.

Guideline 32: Turf managers should **correct** excessive soil acidity indicated by a soil test by applying agricultural lime as directed by the soil test result.

Guideline 33: Turf managers should [aerate](#) turf at least once every two years, preferably in the spring or fall.

Guideline 34: Turf managers should evaluate turf areas for sparse and bare patches annually and should reseed/overseed areas, preferably with a seed mix containing fine fescues, where continued turf growth is desired and practicable. If turf is not desired or will not grow due to site constraints, different landscaping should be established.



Overall: Turf managers should follow the well-known 4R Principles of Nutrient Stewardship & Management:

Right Product, Right Rate, Right Time, and Right Place.

Right Product – Match fertilizer type to crop needs. Use phosphate-free lawn fertilizers when you can. Soil testing is important.

Right Rate – Match amount of fertilizer to crop needs. Follow the application rates on the fertilizer that are determined by the manufactures. Know how to calculate dosage.

Right Time – Make nutrients available when crops need them. Avoid storms, not apply during the winter, and the fall is the most important time to apply for lawns. Timing is very important.

Right Place – Keep nutrients where crops can use them. Keep away from sensitive water areas, off impervious surfaces, out of storm drains, and clean up spills. Don't waste it.

Phosphorus-Free Lawn Fertilizer Coalition Supporters:

