LOUISIANA HOME LAWN SERIES

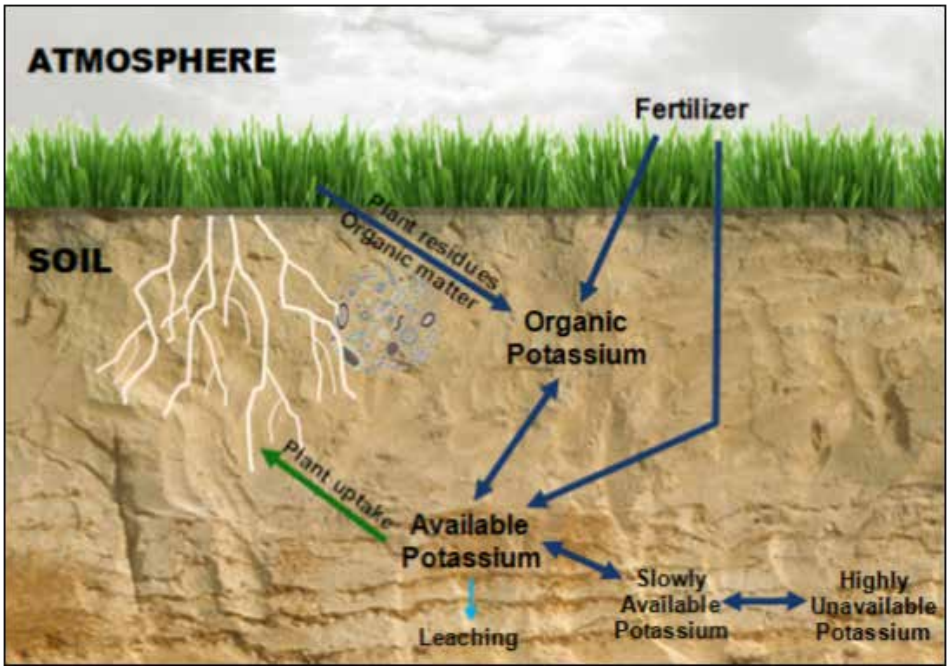
A guide to maintaining a healthy Louisiana lawn

Potassium

Potassium is an essential nutrient for turfgrass growth and development. Management of potassium, commonly referred to as potash, affects turfgrass water use as well as tolerances to drought, cold and warm temperatures, and wear. Sufficient potassium levels provide nutrition for turfgrass energy- and water-use efficiency. In warm-season turfgrasses potassium is often associated with increased winter survival. However, insufficient levels of potassium limit plant tolerances to water stress and wear. Turfgrasses with low potassium exhibit yellowed leaves and scorched leaf tips. Understanding potassium is important for maintaining a healthy turfgrass and developing the best fertility plan for your lawn.

Potassium plant uptake: Potassium from the soil is available for plant uptake in the form of K+. It can be found in four major forms: soil organic matter, primary minerals, fixed potassium and readily available potassium. Potassium exists in very low concentrations in soil organic matter. Organic matter is decomposed by microorganisms in the soil depending on temperature, moisture and soil pH and then becomes available for root uptake. Potassium in primary minerals constitutes the largest amount of potassium in the soil; however, potassium from these sources is released very slowly over time and are not major sources of potassium for plant uptake. Fixed potassium is highly unavailable potassium tied up in layers of clay but can be released slowly over time. The majority of readily available potassium is held in soil solution. Excessive potassium in the soil can affect other nutrients and contribute to higher soil salt concentrations. Another factor to consider concerning potassium fertility is with regard to calcium and magnesium. As soils become more alkaline (a pH greater than 7), calcium and magnesium can affect potassium availability in the soil and plant uptake. More acidic soils can also affect potassium availability and plant uptake. Potassium can be added to the soil through fertilizer application. Always have your soil tested before applying fertilizer.

Potassium losses: Potassium can be lost offsite through leaching. Leaching occurs when water moves available potassium downward through the soil where it is inaccessible to plant roots for uptake. However, leaching losses are relatively minor except in sandy-textured soils or soils with a low cation exchange capacity.



Potassium deficiency: Potassium deficiency in turfgrass limits plant growth and leads to less tolerance to wear and other forms of stress. Inadequate potassium fertility can affect the winter tolerance of turfgrass. Yellowing between the veins of older leaves as well as scorched leaf tips and edges can occur with potassium deficiency. Soil tests are a good way to determine potassium availability and ensure factors such as pH and other essential nutrients are within suitable ranges for turfgrass growth. Also check to make sure diseases or insects are not causing stunted turfgrass growth or leaf scorching.

When to apply: Potassium fertilizer should be applied when the turfgrass is actively growing. It is best to apply in spring when the turfgrass is fully out of dormancy and has been mowed several times. Similar to concerns one would have with some nitrogen fertilizers, potassium can also cause leaf burn when applied. Make sure to water in the potassium fertilizer. For turfgrasses growing in sand, consider lower rate applications applied more frequently.

January	February	March	April	May	June	July	August	September	October	November	December
Turfgrass dormant		Turfgrass active growth season								Turfgrass dormant	

Fertilizer sources: Listed are some common sources of potassium. Release of potassium can vary depending on the type of potassium fertilizer source applied and the environmental conditions at the time of application. Read the manufacturer's label for specific information before purchasing or applying any fertilizer.

Source	Release
Sulfur coated potassium	Slow
Polymer coated potassium	Slow
Potassium magnesium sulfate	Quick
Potassium nitrate	Quick
Monopotassium phosphate	Quick
Dipotassium phosphate	Quick
Potassium sulfate	Quick
Potassium chloride	Quick

How to calculate phosphorus fertilizer

Proper calculation can be advantageous in regards to cost, turfgrass health and environmental sustainability. Below is a basic calculation for solid (dry) fertilizers. ***Always test your soil and apply potassium (K) according to the test result recommendations.***

Calculation requirements

1. The area of your lawn in square feet (ft^2) that will be fertilized.
2. The rate of the potassium, in pounds of potassium per 1,000 ft^2, that you will be applying.
3. The fertilizer analysis on the fertilizer bag (N-P-K).

Calculating Fertilizer

Step 1. Multiply the total area (ft^2) of your lawn area by the appropriate rate of potassium (in the form of K2O). This calculation will result in the amount (lb) of potassium (K_2O) that is required to fertilize to the entire lawn area. For example:

$$5{,}000\ ft^2 \text{ lawn area} \times \frac{0.5 \text{ lb. } K_2O}{1{,}000\ ft^2} = 2.5 \text{ lbs. of potassium } (K_2O) \text{ (solution A)}$$

Step 2. Divide the amount (lbs.) of potassium (K_2O) required to fertilize the entire lawn area (solution A) by the percent of potassium (K_2O) contained in the fertilizer as labeled on the bag. Remember to put the percentage of potassium (K_2O) into decimal form (ex: 10 percent = 0.10). This calculation will result in the amount (lbs.) of fertilizer required to fertilize the entire lawn area. For example:

$$2.5 \text{ lb. of potassium } (K_2O) \div 0.10 = 25 \text{ lbs. of fertilizer}$$

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