

Best Practices for Soil Management for Lawns

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In coastal regions of New Jersey, many landscapes have sandy soils that are low in soil organic matter making it challenging to establish and maintain turfgrass. Sandy soils require relatively frequent irrigation and fertilizer applications to establish and maintain acceptable turfgrass cover. Severe compaction of soil with heavy construction equipment is also a common problem of developed land, which also makes it difficult to establish and sustain cover with turfgrass and other plantings. This fact sheet summarizes best practices to manage these soil issues in lawns. For further information about basic turfgrass establishment recommendations see Rutgers Cooperative Extension Fact Sheet FS584 ([Seeding Your Lawn](#)).

New Lawn Establishment or Re-establishment of an Existing Lawn



Ideally, soil should be tested before seeding to determine recommendations for amending soil with organic matter, lime and fertilizer. Soil testing is available at the Rutgers Soil Testing Laboratory and other commercial laboratories. Contact your [county Extension office](#) or visit <http://njaes.rutgers.edu/soiltestinglab/howto.asp> for more details on soil testing. Make sure the soil testing laboratory will interpret the test results and provide recommendations for amending the soil.

For Sandy Soils

- Sandy soils require the addition of organic matter to aid in the establishment and persistence of turfgrass. Leaf compost and peat moss are examples of organic matter amendments that can be used. “Topsoil” products offered through landscape-garden centers are often very high in organic matter and can also be effective amendments for soil. Amendments should be added to increase the organic matter content of sandy soils to at least 2.5%, by weight (monitor through soil testing).
 - Leaf compost is available through Ocean County Department of Soil Waste Management. Peat moss and topsoil with high organic matter content can be purchased at landscape-garden centers.
 - Organic amendments will vary in characteristics and cost. Leaf compost is usually less expensive but may not be sufficiently composted (mature). Immature compost will create a nitrogen (plant nutrient) deficiency that could delay turfgrass establishment if a nitrogen fertilizer is not added. Topsoil purchased through landscape-garden centers may have low quantities of fertilizer added, so read the product label to know whether fertilizer use should be avoided or reduced when using these amendments. Topsoil products with fertilizer added will typically be more expensive. Bulk topsoil products purchased from garden centers at a discounted price typically will not have fertilizer added.



- The size (square feet) of a lawn area should be calculated to estimate how much organic matter to add. Examples of an approximate quantity of amendments to apply to 100 square feet of lawn to raise organic matter by 1% in the surface 3-inches of the soil are:
 - five 5-gallon-buckets of leaf compost
 - six ¾-cubic-foot bags of topsoil
 - one 3-cubic-foot compressed bale of peat moss
- Before seeding, the organic matter amendment should be spread uniformly over the soil surface and incorporated to a depth of 3-inches with a rototiller. If the soil test indicates that the pH is low, lime can be added based on the soil test recommendation and incorporated with the organic amendment. Nitrogen fertilizer is applied to the soil surface after tillage and seeding.

For Compacted Soils

- Severely compacted (very hard) soils require deep tillage to de-compact the soil. This work requires specialized equipment. So it is best to hire a landscape contractor that can use a subsoiler (12 inches deep) to break-up hard compacted soil to as deep as 12-inches.
- Once the hard packed soil is broken up into large clods with the subsoiler, a rototiller can be used to break-up the large clods into smaller clods to a depth of about 6-inches.
- Organic matter and lime can be added based on soil test recommendations and incorporated into the soil with the rototiller (see above).



Gradual Rejuvenation of Existing Lawns



Actions to improve sandy or compacted soil under existing lawns are more challenging when property owners cannot destroy the lawn and start over. Nevertheless, the soil should be tested to determine recommendations for amending soil with organic matter, lime and/or fertilizer. Soil testing is available at the Rutgers Soil Testing Laboratory and other commercial laboratories. Contact your [County Extension Office](#) or visit <http://njaes.rutgers.edu/soiltestinglab/howto.asp> for more details. Make sure the soil testing laboratory will interpret the test results and provided recommendations for amending the soil.

For Sandy Soils

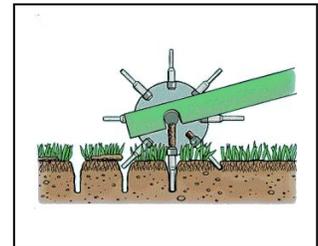
- Sandy soils require the addition of organic matter to improve the persistence of turfgrass. Leaf compost and peat moss are examples of organic matter amendments that can be used. “Topsoil” products offered through landscape-garden centers are often very high in organic matter and can also be effective organic amendments for soil.
- Leaf compost is available through Ocean County Department of Soil Waste Management. Peat moss and topsoil with high organic matter content can be purchased at landscape-garden centers.
- Organic amendments will vary in characteristics and cost. Leaf compost is usually less expensive, but may not be sufficiently composted (immature). Immature compost may create a nitrogen (plant nutrient) deficiency that would cause a yellowing of the grass leaf blades if nitrogen fertilizer is not added. Bagged topsoil purchased through landscape-garden centers may have low quantities of fertilizer added, so read the product label to know whether fertilizer use should be avoided or reduced when using these amendments for lawns. Topsoil products with fertilizer added will typically be more expensive. Bulk topsoil products purchased from garden centers at a discounted price typically will not have fertilizer added.



- Because the lawn is not destroyed in a rejuvenation process, amendments must be added in lower quantities to avoid smothering the grass. Thus, increasing the organic matter content of a sandy soil may require multiple applications over several years to observe large changes in soil organic matter content (changes can be monitored through soil testing). The quantity of an organic amendment that can be applied to an established lawn is governed by the fact that you do not want to smother the grass with too much amendment.
 - Add only as much organic amendment that will filter-down in between the leaf blades of the grass. Ideally, the amendment should drop down to the soil or at least into the thatch of the lawn.
 - Brushing, raking and dragging a mat over the lawn will help work the amendment down into the turf. Spreading the amendment across the lawn evenly and when the grass is dry will also ease incorporation.
 - Most amendments will incorporate relatively easily when 1 cubic-foot (7½ gallons) of the amendment is topdressed evenly over 100 square feet of lawn. Larger quantities can be applied if the effort is made to work-in the material and stand the leaf blades up through the amendment.
 - Aerating (as known as coring or plugging) the lawn before and/or after topdressing with an organic amendment will open up the turf/soil surface, which helps to incorporate the organic material into the soil.
 - Aerating and topdressing the lawn with an organic amendment are best done when the weather is cool. So spring and fall will be better times to implement these practices. Rain is often more frequent in spring and fall, which helps to work the amendment down into the soil.

For Compacted Soils

- Compacted soils will greatly benefit from the combined practices of aerating and topdressing with organic matter as described above.
- Improvements of lawns growing on compacted soil will be visible sooner if these practices can be performed twice a year in the spring and fall.
- Aerating to pull cores/plugs of soil from the lawn that are deep as feasible will be more effective at de-compacting soil. Aeration machines are available for rent that can penetrate 1½ to 3 inches deep in the soil. Look for machines that do not have worn (short) hollow tines.
- Additionally, aerating will be more effective if core/plug holes are spaced no more than 2 to 3 inches apart.



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Please visit our SHIP webpage for further details regarding this project
<http://www.soildistrict.org/healthy-yards/jakes-branch-ship-project/>



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