

Core Aeration vs. Spike Aeration: What's the Difference?

By Jeffery Keusseyan | Updated: July 15, 2024

General Lawn Care



When your gloomy lawn is suffocating from compacted soil, it's time to rent an aerator. But should you perform core aeration or spike aeration? Hint: Core aeration almost always outperforms spike aeration.

Both aeration methods create holes in your lawn, but you won't obtain the same results in the long run. Spike aeration **pushes** soil into the ground, which could worsen things if the soil is moderately compacted. Core aeration **removes** soil plugs, providing more relief

for the grassroots. We'll expand on each method, go over their pros and cons, and explore various types of aerating tools.

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What Is Core Aeration?



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Core aeration, with the help of an aerator, is the process of removing soil plugs and reducing soil compaction to allow more water, nutrients, and oxygen into the soil. Aerators contain hollow tines that mechanically remove soil plugs and thatch from the ground. Depending on the type used, the holes left by aerators are **2 to 4 inches** apart. Each hole will have a diameter of about **1 inch**.

In addition to the holes left by the aerator, you'll notice soil plugs on the lawn surface. But don't worry, they're only temporary. The soil plugs will break down after 1 or 2 weeks, releasing valuable nutrients back into the soil.

For this reason, the soil plugs should be kept exactly where they are. But what about the holes? They will eventually be filled with deeper and newly-grown roots, proving that your grass is receiving additional nutrients, moisture, and oxygen.

Here's a [video explaining what aeration is](#).

Core aeration works well for:

- Heavily-compacted lawns
- Lawns that endure heavy foot traffic
- Medium- to large-sized lawns
- Lawns with severe thatch problem
- Lawns that haven't been aerated for more than a year

Core aeration is the **method of choice** for lawn care professionals. The removal of soil plugs helps loosen the soil more effectively, boosting root growth and providing you with much denser grass. To better understand the mechanics of aerators, we will explore the different types of plug aerators and how they work.

Types of Core Aerators

Depending on your lawn size and the severity of soil compaction, there are three types of core or plug aerators you can choose from:

Manual Core Aerator

If you don't mind a good upper-body workout, manual core aerators are the old-school way of removing soil plugs. They are budget-friendly and suitable for small-sized lawns with mild soil compactions. For this reason, the use of manual aerators is sometimes called spot aeration.

How it works: Push the manual aerator into the soil while using your foot as an additional weight (maximum piercing). After pulling the aerator out, you'll notice soil cores or plugs coming out of the hollow tines. The plugs will drop onto the surface of the lawn, and should be kept there for reasons we'll get into later.

Tow-Behind Core Aerator

Do you have and enjoy using a lawn tractor? If yes, then a tow-behind core aerator would be a perfect investment. They are pricier than other types of aerators, but they help you

save a lot of time. Tow-behind core aerators are suitable for large lawns with moderate or severe soil compaction problems.

How it works: The tow-behind aerator attaches to the lawn tractor. Afterwards, the process is similar to mowing the lawn. Ride the lawn tractor across the lawn perpendicularly to get the same amount of holes all over the lawn.

Push-Behind Core Aerator

This type of aerator is what most homeowners prefer. It looks just like a lawn mower, except that it drills 1-inch holes into the soil. Push-behind aerators are suitable for medium- to large-sized lawns that are prone to moderate or high soil compaction. Its hollow tines are typically made of metal or reinforced metal.

How it works: The process is similar to that of a lawn mower. Go over the lawn twice in different directions each time (perpendicular). The goal is to get from 20 to 40 holes for every square foot of lawn, piercing holes that are 2 to 3 inches apart.

Pros and Cons of Core Aeration

The removal of soil plugs is one of the main advantages of core aeration, but can it stress out your lawn? Let's find out whether the pros of core aerators outweigh the cons:

Pros

- ✓ **Long-term results:** Core aerators remove soil plugs off the ground, getting rid of your soil compaction problem. The new grass roots will grow deeper, giving you a denser and greener lawn.
- ✓ **Prevents weed growth:** Dense grass won't allow weeds to thrive and spread across your lawn.
- ✓ **Minimizes thatch:** Removing soil cores off the ground will also contribute to thatch removal.
- ✓ **Covers large surfaces:** Tow-behind and gas-powered aerators are highly suitable for aerating medium- to large-sized lawns.
- ✓ **Eco-friendly:** Reduced soil compaction helps reduce water runoff and decreases your grass's needs for fertilizers.
- ✓ **Boosts curb appeal:** A dense lawn with freshly-grown grass will improve your home's

aesthetics.

✓ **Option to rent:** Purchasing tow-behind aerators are expensive, but you can rent one to save money.

Cons

✗ **Unattractive plugs:** The newly-removed soil plugs left on the surface will look unappealing until they break down.

✗ **Stress on your lawn:** Core aeration may increase the stress on your turf if performed too often, or in the wrong season (depending on grass type).

✗ **Time and labor:** Manual core aerators can be back-breaking and take up a lot of time if used on medium or large lawns.

What Is Spike Aeration?



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With spike aeration, you won't have to worry about soil plugs. With the help of solid tines, spike aerators create holes in the ground by pushing the soil down.

In other words, no soil is removed from the ground. It is a much simpler process of piercing holes into the ground, letting the roots breathe and allowing more nutrients into the soil. Spike aeration may also help with thatch breakup, but many lawn care pros agree that it offers a short-term solution. Why is that?

Spike aeration pushes the soil further down the ground, which means an already-compacted soil might get even worse. Since no soil is removed, watering the lawn can cause the temporary holes to seal up quickly, before the roots have a chance to grow deeper. Despite all this, spike aeration may benefit some homeowners that have:

- Small-sized lawns or small patches of grass that need aerating
- Mild soil compaction
- Thatch layers that are not over 0.5 inch
- No stones or debris mixed with the soil to interfere with the tines

If spike aeration suits your lawn needs, then browse through the different types of spike aerators you can choose from:

Types of Spike Aerators

Similar to core aerators, you have an affordable option such as pitchforks and a costlier one with tow-behind aerators.

Rolling (Push) Aerator

These spike aerators work well for small lawns with mild soil compaction. It would be impractical to use this type of aerator for medium or large lawns, unless you're looking for a back-breaking activity. Additionally, rolling aerators will get damaged if used on rocky soil.

How it works: Rolling aerators work similar to manual lawn mowers. Go over the soil in one direction, and a second time perpendicularly. It's best to choose a model with a steel tray to obtain maximum piercing.

Tow-Behind Spike Aerator

It is similar to the core tow-behind aerator, except that it pierces the ground rather than pulling out soil plugs. Tow-behind spike aerators contain 10 to 12 star-shaped blades that will push the soil (and thatch) downwards. They are suitable for medium- to large-sized lawns with moderate soil compaction. Tow-behind spike aerators save you plenty of time, but cost higher than other spike aerators.

How it works: Attach the aerator onto your lawn tractor and spike areas with moderate soil compaction. Once again, maintain the perpendicular shape.

Pitchfork

That's right, pitchforks can be useful tools for spike aeration. They're budget-friendly and very easy to use. However, they're only suitable for small-sized lawns or for specific spots prone to heavy foot traffic. The spikes or tines are typically made of stainless steel or other metal alloys.

How to use it: Simply insert the pitchfork tines into the soil, ideally about 3 inches deep. Tilt the pitchfork forward and backwards to loosen the soil.

Pros and Cons of Spike Aerators

Will the positive attributes outweigh the negatives? Let's find out:

Pros

- ✓ **Efficient for small spots:** Spike aeration can be a quick and easy fix for small spots that experience heavy foot traffic.
- ✓ **Less strain on the soil:** Spike aeration doesn't remove soil plugs, so there's less stress on the turf than with core aeration.
- ✓ **Subtle results:** Spike aeration won't leave obvious signs on your lawn surface such as soil plugs
- ✓ **Affordable equipment:** Spike aeration is possible with pitchforks, which aren't expensive.

Cons

- ✗ **Short-term results:** Spike aeration only pushes soil deeper into the ground, creating holes that will fill up quickly and even worsen soil compaction.
- ✗ **Not suitable for large spaces:** Rolling push aerators and pitchforks are unsuitable for medium- to large-sized lawns prone to moderate levels of soil compaction.
- ✗ **Shallow holes:** The holes created by spike aerators aren't as deep as those done by core aerators.
- ✗ **Potential harm to local environment:** The fact that spike aeration is inefficient for countering soil compaction could result in increased fertilizer use and water runoff.

Core Aeration vs Spike Aeration: Is There a Winner?

It was an interesting clash with good arguments for both sides, but core aeration comes out on top.

For homeowners with small lawns and little or no soil compaction, spike aeration may be enough to maintain a healthy turf. But after more than a year without proper aeration, even small lawns may struggle with thatch build-up and compaction issues. All in all, spike aeration is seen as a short-term fix.

Core aeration comes ahead of spike aeration because it yields long-term results in small- to large-sized lawns, and can counter moderate to severe soil compaction. The removal of soil plugs allows roots to absorb more water, oxygen, and nutrients. Following this, your grass will grow denser and greener.

When to Aerate Your Lawn

Generally speaking, the best time to aerate your lawn is during the grass's growing season. But does your lawn have cool-season or warm-season grass? Answering this will determine the right season to aerate your lawn.

- **Warm-season grasses:** The best time to aerate lawns with warm-season grasses, such as zoysia, is late spring through early summer. This is when warm-season grasses enter peak growth season, allowing them to recover faster post-aeration. For more on these types of grasses, here's a [Guide to Growing Warm-Season Grasses](#).

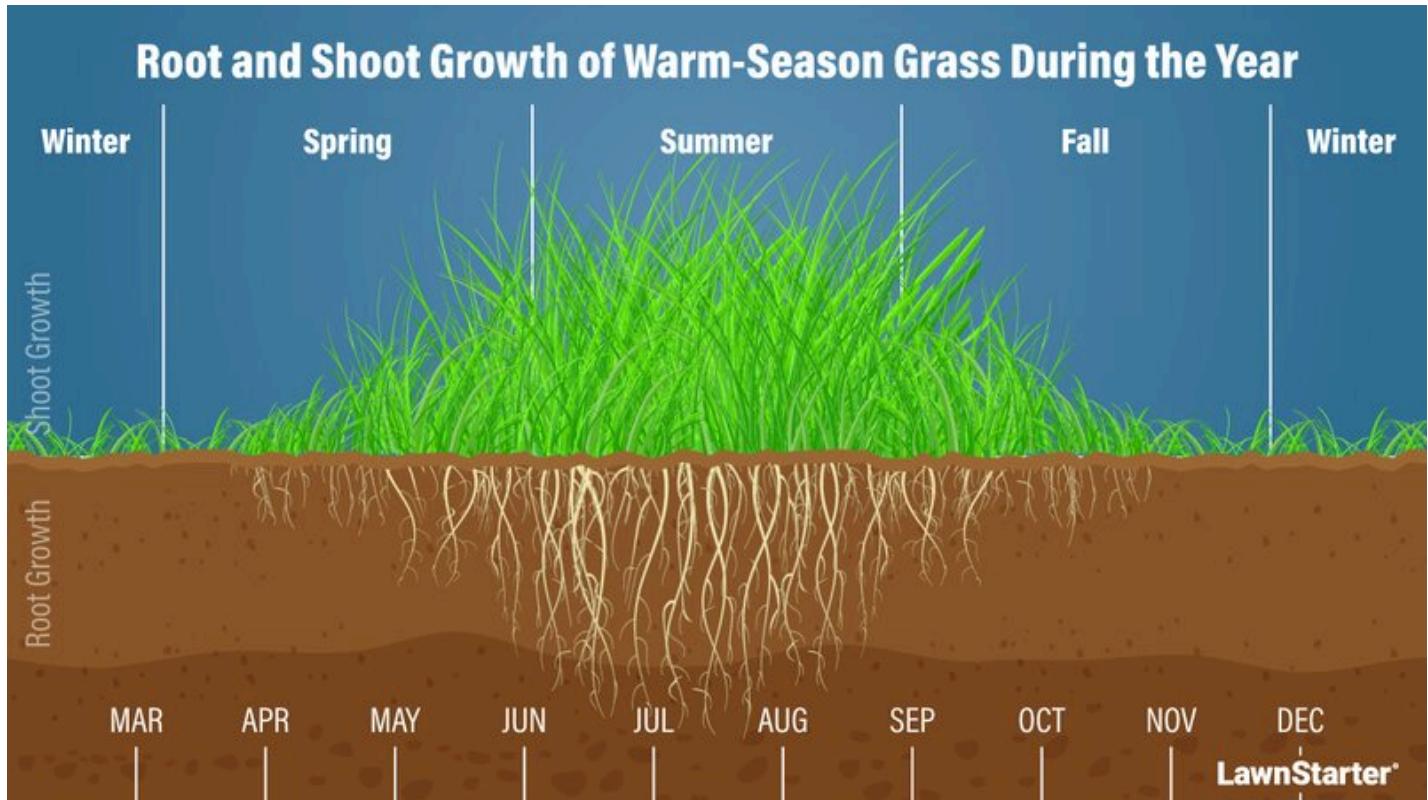


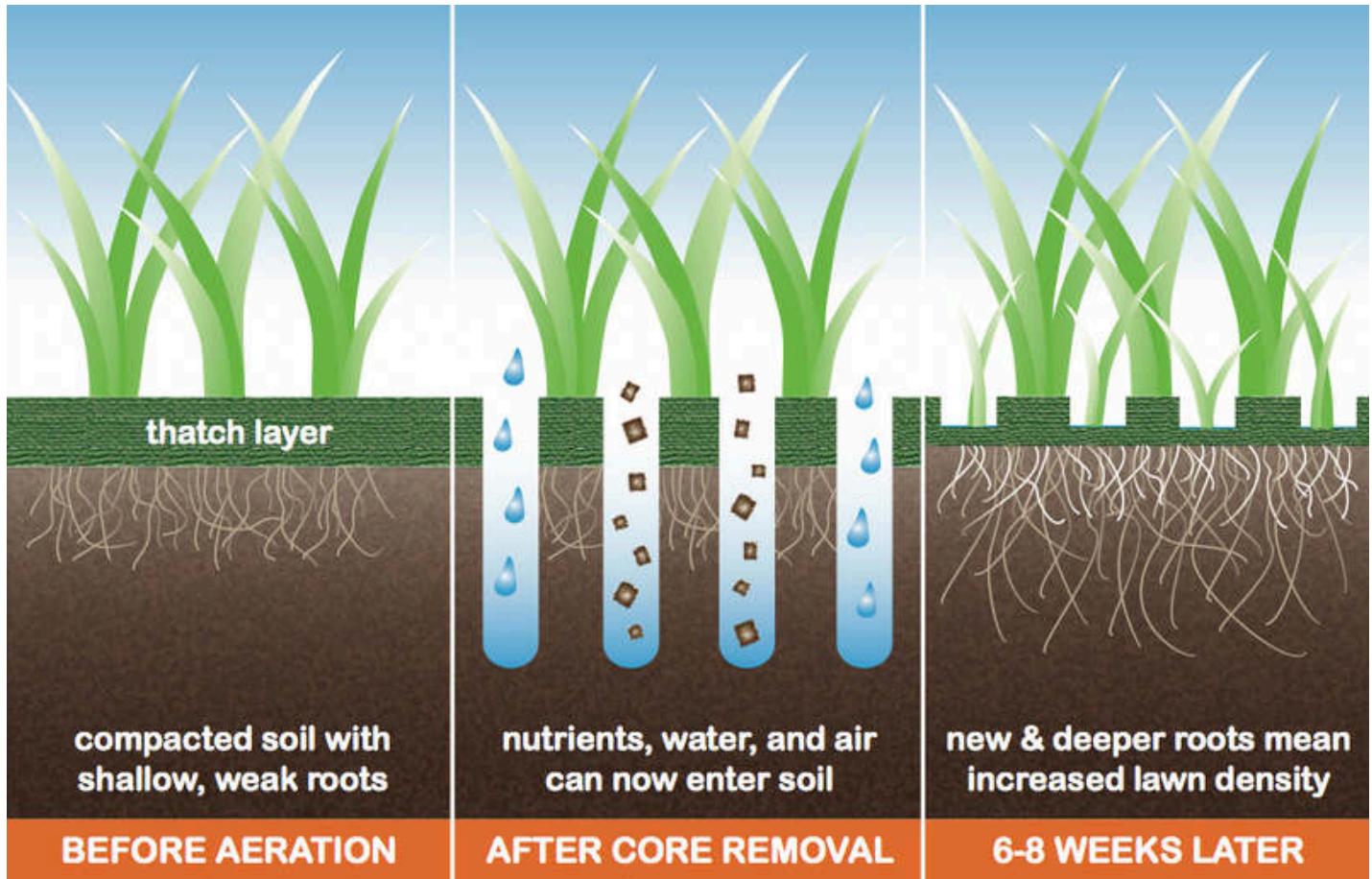
Photo Credit: Juan Rodriguez

- **Cold-season grasses:** If you live in the northern states, the best time aerate lawns with cool-season grasses is early fall. Aerating the lawn before the winter will encourage new root growth before the grass becomes dormant. To learn more about the winter-loving grasses, visit this [Guide on Growing Cool-Season Grasses](#).



Infographic by Juan Rodriguez

What Comes After Lawn Aeration?



Infographic by Juan Rodriguez

By asking yourself this question, you're on the right track for optimum lawn maintenance. After aeration, your lawn is fully set for other beneficial treatments such as topdressing and applying fertilizers. Here are the best measures to perform after aeration, in order:

- 1. Let the soil plugs decompose:** As previously mentioned, it's best to leave the soil plugs on the surface of the lawn to break down naturally. This will release many beneficial nutrients back into the soil.
- 2. Overseed your lawn:** Post-aeration is a great opportunity to spread some extra seeds for a ticker turf. The best time to overseed is similar to that of aerating, which is early fall for cool-season grasses. As for warm-season grasses, the best time to overseed is late spring through early summer. Just don't overseed or aerate too late.
- 3. Topdressing:** This is the process of adding a thin layer of material such as compost over the new seeds to keep them settled and increase their growth rate. To learn

more about how topdressing is done and its benefits, here's an article on [Topdressing a Lawn](#).

4. **Water your lawn:** Just enough water to soak up the new seeds and topdressing. More watering will be required after applying fertilizer and liming.
5. **Apply fertilizer:** The holes created in the soil, especially after core aeration, allow more nutrients to reach the roots. It's best to purchase fertilizer with a balanced ratio of nitrogen, potassium, and phosphorus. Before applying fertilizer, be sure to test your soil.
6. **Lime your lawn:** Test your soil at a local agricultural facility to determine whether or not your soil needs liming. If your soil is too acidic, liming helps bring it closer to a neutral pH level. It's best to apply lime in the fall. That's not a problem with cool-season grasses, as autumn is a good season for aeration, too. For warm-season grasses, aerate in late spring or early summer and delay liming until fall.
7. **Water your lawn again:** If you've applied fertilizer and lime to the soil, it's essential to water your lawn again to keep the chemicals from burning the turf. Daily watering is just as important after aeration and overseeding to allow for quick seed germination. Here's a helpful guide on [How Often to Water Grass Seed](#).
8. **Limit foot traffic:** After aeration and all the beneficial treatments, it's best to keep guests, kids, and pets off the lawn to allow it to recover.
9. **Manually remove weeds:** After overseeding, it's best to get rid of weeds manually by pulling them out using gardening gloves. The use of herbicides will hinder any progress to be made from overseeding or fertilization. For more on this, here's a [Guide to Weed Control in Your Yard](#).
10. **Wait to mow the lawn:** This is the last step that comes after aeration, overseeding, and topseeding. Wait until the new grass reaches the same height as the established grass to resume your regular mowing schedule. Here are some [lawn mowing tips](#) to improve your grass-cutting efficiency.

FAQ About Core and Spike Aerators

How much does renting a core or spike aerator cost?

Rather than spending a couple of hundred dollars on a spike or tow plug aerator, you can simply rent one from your local hardware store such as Lowe's and Home Depot. On average, renting a core aerator costs **\$98 per day**, though you may need to pay a deposit of up to **\$150**.

If you own a large lawn, then renting an aerator and taking the DIY route may be cheaper than hiring a professional. But for small lawns, the cost of hiring a lawn care pro is typically cheaper than renting an aerator.

For more information, here's a pricing guide on [how much aeration costs](#).

Are spiked shoe aerators recommended by lawn care pros?

Generally speaking, no they are not. Spike aeration is already considered a short-term fix, and spiked shoes do very little in countering soil compaction.

Can you rent aerators from tool lending libraries?

Yes, you can rent some types of aerators, such as pitchforks, push-behind core aerators, and rolling (spiked) aerators, if your city contains a [tool lending library](#). This program developed by the Urban Sustainability Directors Network (USDN) gives homeowners low-cost access to plenty of home and gardening tools.

Your local hardware store may also provide rentals, such as Lowe's and Home Depot.

When to Hire a Lawn Care Pro

Core aeration is far more effective than spike aeration in breathing new life into your soil. Core aeration is a long-term fix, allowing the roots to grow and provide you with a beautiful green turf.

Aeration can be an easy process if your lawn is regularly maintained and only small patches need aerating. The process may get complicated if your lawn is massive and prone to heavy soil compaction. You may also struggle to keep up with your lawn's post-aeration treatments, especially if you work long hours.

To have a good weekend's rest, [hire a local lawn care professional](#) to take over the job and help you obtain the greenest lawn in the neighborhood.

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