How to test the ph level in soil

Soil pH is a crucial component to track when measuring the well-being of your lawn. Like fertilizer levels and water drainage, pH significantly affects how well your grass grows and flourishes. If your soil’s pH is off balance, your lawn could struggle to thrive, no matter how much fertilizer or water you give it. Soil pH determines whether your soil is acidic, neutral, or alkaline. Each of these conditions can impact your lawn differently. For instance, soil that is too acidic can prevent grass from obtaining vital nutrients, while soil that is too alkaline can lead to poor plant growth. You’ve also probably heard that you should regularly test your lawn’s pH level to check for imbalances. Knowing your soil’s pH will help you make the right decisions about the best lawn treatment, keeping it green and lush all year round. In this article, I’ll explain why maintaining the right soil pH is important, how to test your lawn’s soil pH accurately, and what steps to take if you need to adjust it. You’ll gain the knowledge you need to keep your lawn looking its best, no matter the season. According to the Pennsylvania State University College of Agricultural Sciences, the pH measurement shows the soil’s acidity or alkalinity. In scientific terms, soil pH — short for potential hydrogen — measures the grounds hydrogen ion concentration. As hydrogen ions in the soil increase, soil pH decreases, leading to higher acidity. The pH scale runs from zero to 14, with seven representing a neutral point. The U.S. Geological Survey’s Water Science School provides this pH scale for reference: pH LevelDescriptionExamples of this pH level0Battery Acid1Sulfuric Acid2VinegarLemon juice3AcidicSodaOrange Juice4Acid rain5BananasClean rain6Milk7NeutralPure waterSalivaBlood8SeawaterEggs9Baking soda10Milk of Magnesia11AlkalineAmmonia12Soapy water13Bleach14Liquid drain cleaner You’ll see the terms low pH and high pH when testing your soil’s acidity and alkalinity levels. Low pH = Acidic High pH = Alkaline or basic Soil consists of minerals, micronutrients, and bacteria, which work together to decompose organic matter and support plant growth. Maintaining a well-balanced soil pH is crucial for a healthy lawn and garden. Plants need nutrients from the soil to break down before their roots can absorb and use them. Soil pH influences how effectively these nutrients dissolve, making accurate measurement essential for successful plant growth. Healthy soil includes the top three plant nutrients — nitrogen, phosphorus, and potassium (NPK). High pH soil reduces nutrient availability, creating poor growing conditions for grass. Before testing your lawn’s soil pH, understand the pH levels that benefit grass. A pH range of about six to seven promotes optimal nutrient availability. Soils with a pH below four often contain high levels of metallic compounds, which can hinder plant growth. If you want to grow a variety of shrubs or flowering plants, consider their pH preferences. Some thrive in highly acidic or alkaline conditions. Examples of plants that like high pH soil:Examples of plants that like low pH soil:LavenderHoneysucklesLilacForsythiaKaleRhododendronsBlueberriesAzaleasPotatoesConifers Unlike the plants above, grass thrives in neutral soil with a pH level between 6.5 and seven. If your lawns acidity level is too high, the bacteria in the soil won’t be able to properly process the organic matter that feeds the grass. The organic materials will be left to sit in the soil, creating a buildup of nitrogen. Excess nitrogen in your soil can cause fertilizer burns, leaving your lawn with dark green patches. Testing your soil’s pH is a smart move to keep your garden thriving, and timing is key. Aim to test your soil in the fall, before the next planting season kicks off. This gives you a head start on any adjustments you might need to make. If you find that your soil’s pH is off, you have a couple of options for correction. For example, in mild winter climates, you might consider planting a nitrogen-fixing cover crop. Alternatively, you can use soil amendments to either make your soil more acidic or more alkaline, depending on what your plants need. The right amendments and quantities will depend on how much adjustment your soil requires. Don’t forget to test your soil’s pH when starting a new garden bed, moving to a new home, or introducing a new plant variety. It’s also a good idea to check your soil every few years, especially if you’ve made amendments. Soil additives can break down over time, so keeping an eye on the pH keeps your soil in top shape for prime plant growth. There are various ways to test your soil’s pH value. Here’s what you need to know. The simplest way to test your soil’s pH level is with a test kit. According to our research, Home improvement stores and garden centers sell soil tests for as little as $15. Any kit you buy will provide detailed instructions to perform the most effective test possible. Most soil pH tests include a variation of the following steps: Dig a hole in the area you’d like to test, removing about 3 inches of soil. Clear any thatch or debris from the hole and fill it with distilled water. Distilled water is neutral and will provide the best results. Once the loose dirt in the hole has mixed with the water and become muddy, insert the pH test strip. Wait for a few minutes and then assess the test results. I recommend testing your soil in a few different areas around your lawn. This method will give you a better understanding of which spots are neutral and which need soil amendments. Digital meters work well for gardeners who want a quick pH reading. You can find these tools in most garden centers, where they offer an easy, accurate way to check your lawn’s pH. If you want to test more than just your soil’s pH, choose a multifunction meter that also measures soil moisture, temperature, sunlight intensity, and more. Since digital pH meters are reusable, simply recalibrate them between uses to provide accurate results Send a soil sample to a local testing facility if you’d rather let the pros test your lawn’s pH value. Many university extension offices provide soil testing services to the public. The University of Florida Institute of Food and Agricultural Sciences offers the following tips for sending in soil samples: If you’ve applied different fertilizers or treatments to other parts of your lawn, collect samples from each area. Don’t take samples from problem areas like burn spots or puddles. If you don’t have a sampling tube or auger (soil drill), use a shovel to remove a 6-inch-deep wedge from the ground. Remove the center section of the wedge to send as your sample. Make sure you fill out all the appropriate paperwork, labeling sample containers/bags as necessary. You can also test the pH of your soil without a kit. A do-it-yourself method might not provide an exact pH scale measurement, but it can provide some helpful insight into the overall health of your lawn. Use vinegar and baking soda to measure the baseline pH of soil, as they represent the separate ends of the pH scale. For this DIY soil test, you’ll need: 2 cups of soil from your yard 2 empty containers ½ cup of white vinegar ½ cup of baking soda ½ cup of water Follow these steps to test your soil’s pH value: Divide two cups of soil from your lawn into two separate containers. Pour half a cup of vinegar over one of the soil samples. If the soil begins fizzing, the sample has a high pH level. Test the other sample with baking soda if the soil doesn’t react to the vinegar. Mix half a cup of water into the soil sample. Combine the soil and water by stirring, and then pour in the half cup of baking soda. If the soil fizzes, it has a low pH value. Red cabbage contains anthocyanin, a compound that reacts differently in acidic and basic environments. For this reason, the veggie provides a quick home remedy for testing pH value. For this DIY soil test, you’ll need: A medium saucepan 5 red cabbage leaves 2 cups of distilled water Empty jar or clear container One tablespoon of garden soil Follow these steps: Pour two cups of distilled water into a saucepan. Make sure to use distilled water, which has a neutral pH level. Chop up five red cabbage leaves. Add them to the saucepan. Bring the saucepan contents to a boil and then reduce heat to simmer for 10 minutes. Remove the cabbage water from the stove and let the mixture sit for 30 minutes. Strain off the liquid into a clear container. The water should be a purplish-blue color. Add a tablespoon of your soil into the water. Give it a good stir and wait 30 minutes. If the water turns pink or red, your soil is acidic. If the water changes to teal or green, the soil is alkaline. If the water stays purple or blue, your soil is neutral. After you complete a soil test, you’ll have a clearer understanding of your lawn’s pH level. If the pH is too high or too low, don’t worry. You can take several steps to balance your soil. In these sections, I’ll guide you through soil amendment and pH maintenance techniques. Keeping your soil balanced is key to a healthy garden or lawn because it impacts how well your plants grow. When your soil is in balance, it delivers just the right mix of nutrients, water, and air to your plants, which helps them thrive. If your soil isn’t balanced — too acidic, or too alkaline — it can mess with nutrient availability, leading to growth issues and making plants more prone to diseases. Plus, balanced soil encourages strong root development and better water retention, which helps prevent erosion and runoff. In short, maintaining soil balance creates the perfect environment for your plants to flourish. Grass does well in a neutral pH environment, so keeping your soil balanced is key. If you test your lawn and its value is too high or low, try a couple of tried-and-true methods to change your soil’s pH. Use the following products to lower high-pH soil and improve low acidity levels. Fertilizers lower your soil’s pH value while supplying essential nutrients to your grass and garden. Consider using organic fertilizer in your garden to neutralize pH, improve soil structure, and feed beneficial microbes. Select an ammonium fertilizer, which soil bacteria will process into acidic compounds. If you decide to amend your soil’s acidity with fertilizer, monitor the amount you use per square foot. Fertilizers are primarily beneficial but can cause pollution and lawn damage when misused. When selecting fertilizers, make sure to properly determine whether you need organic or chemical fertilizers. If your soil has a high pH and needs amendment, spread some peat moss around to aid in neutralization. Peat moss is an earthy material made of partially decomposed plants. This material is naturally acidic and neutralizes alkaline soils. Peat moss is beneficial to a variety of soil types. It improves air circulation in dense clay and water circulation in dry, sandy loam. For this reason, peat moss is useful in many regions. Sulfur is a naturally occurring element often used to make pesticides. It’s essential to nearly all bioprocesses, including healthy plant growth. Elemental sulfur is an inexpensive and non-toxic way to lower your lawn’s pH value. Once mixed into the soil, sulfur is relatively slow to react, making it a good choice for pH maintenance. Sulfur breaks down slowly in the dirt as bacteria decompose the element into sulfate. The element’s gradual discomposure makes it less likely to leach into groundwater supplies and harm wildlife. If your lawn is too acidic, add the following products to neutralize the soil’s pH. Use a granular lime product on your lawn to balance acidic soil and increase soil pH. Apply lime during fall or winter to neutralize the ground by the growing season. Limestone is high in calcium carbonate, which has low water solubility. So, even if you water the soil after applying lime, it won’t absorb fully. After liming, work the top few inches of the earth with a rake or hoe to get the best results, mixing the product down into the dirt. Apply slow-release lime pellets to maintain pH in a naturally acidic lawn. Wood ash is the powdery dust left behind after wood combusts. Wood ash is high in calcium carbonate, a common liming material that increases soil alkalinity. Spread wood ash around your lawn and garden to neutralize acidic soil. Wood ash generally takes longer to produce results than limestone, so it’s not a quick fix. However, you can regularly apply wood ash to acid-prone soil to maintain a balanced pH level. Keeping your soil’s pH in balance is key to a thriving lawn. When your soil’s pH is right, it means your grass gets the perfect mix of nutrients, water, and air to grow strong and healthy. If your soil’s pH is off, whether it’s too acidic or too alkaline, it can mess with nutrient availability and even make your lawn more prone to diseases. By keeping an eye on your soil’s pH you’ll help your plants get the nutrients they need, improve root development, help with water retention, and reduce erosion. If you find that your soil’s pH isn’t where it should be, don’t worry — there are plenty of ways to fix it. Regular testing and using treatments like fertilizers, lime, or organic amendments can help bring your soil back into balance. Make keeping your soil’s pH right a part of your regular lawn care routine and you will keep your lawn looking lush and green all year long. What is the ideal pH level for lawns? The ideal pH level for lawns is between 6.0 and 7.0, which is slightly acidic to neutral. If your lawn’s pH is outside this range, it can affect nutrient absorption and plant health, causing issues like nutrient deficiencies or poor growth. How do I know if my lawn has low pH? If your lawn has low pH, you might see yellowing or pale grass, slow growth, bare patches, and increased weeds or moss. Fertilizer treatments may also seem less effective. How can I test my soil’s pH without using a kit? You can test the pH of your soil without a kit. A do-it-yourself method might not provide an exact pH scale measurement, but it can provide some helpful insight into the overall health of your lawn. The availability of nutrients, such as calcium, potassium, iron and magnesium, is influenced by pH. In addition, at a pH of 6 to 7.5 the soil organisms that break down organic matter and release nutrients are at their most active. The soil’s pH can also affect the incidence of certain diseases and cultural problems. Clubroot, which attacks brassicas, prefers acid soil, for example, while alkaline soil encourages scab on potatoes.For a rough indication of your local soil pH, look at what grows well in nearby gardens. If camellias and rhododendrons thrive, the soil is acidic, while flowering cherries, yew and clematis prefer alkaline soils, such as those on chalk.In this No Fuss Guide, David Hurrion shows how to test the soil in your garden to check whether it is acid, alkaline or neutral. He describes the different kits on the market and shows how to collect the soil from your garden:Testing your soil is quick and easy - simple pH testing kits are available in most garden centres. Here's how to do it.Soil testing kitSamples of soil from around your gardenAdding soil to test tubesIt’s important to choose a representative soil sample for testing. Avoid areas that have recently been treated with fertiliser, compost or other materials, as these can affect the reading. Soil pH can vary widely across a garden, so it’s best to test samples from several areas to get an accurate picture.Shaking the soil and chemical solutionRemove any stones and twigs from your sample and place the required amount in the tube. Add the chemical solution, shake the contents, and wait until the soil particles settle. Once the liquid clears, compare it against the chart - its colour indicates the pH.Soil pH test resultUse the results of this test when choosing which plants to grow in your garden. It will save you the disappointment and wasted effort - not to mention wasted money - of trying to grow plants that will never thrive in your soil.You can find out which plants thrive in acid or alkaline soil by going to our plant database. In the 'plant search' facility you can select your soil type and find detailed profiles on a wide range of plants that will enjoy your conditions. The availability of nutrients, such as calcium, potassium, iron and magnesium, is influenced by pH. In addition, at a pH of 6 to 7.5 the soil organisms that break down organic matter and release nutrients are at their most active. The soil’s pH can also affect the incidence of certain diseases and cultural problems. Clubroot, which attacks brassicas, prefers acid soil, for example, while alkaline soil encourages scab on potatoes.For a rough indication of your local soil pH, look at what grows well in nearby gardens. If camellias and rhododendrons thrive, the soil is acidic, while flowering cherries, yew and clematis prefer alkaline soils, such as those on chalk.In this No Fuss Guide, David Hurrion shows how to test the soil in your garden to check whether it is acid, alkaline or neutral. He describes the different kits on the market and shows how to collect the soil from your garden:Testing your soil is quick and easy - simple pH testing kits are available in most garden centres. Here's how to do it.Soil testing kitSamples of soil from around your gardenAdding soil to test tubesIt’s important to choose a representative soil sample for testing. Avoid areas that have recently been treated with fertiliser, compost or other materials, as these can affect the reading. Soil pH can vary widely across a garden, so it’s best to test samples from several areas to get an accurate picture.Shaking the soil and chemical solutionRemove any stones and twigs from your sample and place the required amount in the tube. Add the chemical solution, shake the contents, and wait until the soil particles settle. Once the liquid clears, compare it against the chart - its colour indicates the pH.Soil pH test resultUse the results of this test when choosing which plants to grow in your garden. It will save you the disappointment and wasted effort - not to mention wasted money - of trying to grow plants that will never thrive in your soil.You can find out which plants thrive in acid or alkaline soil by going to our plant database. In the 'plant search' facility you can select your soil type and find detailed profiles on a wide range of plants that will enjoy your conditions. The availability of nutrients, such as calcium, potassium, iron and magnesium, is influenced by pH. In addition, at a pH of 6 to 7.5 the soil organisms that break down organic matter and release nutrients are at their most active. The soil’s pH can also affect the incidence of certain diseases and cultural problems. Clubroot, which attacks brassicas, prefers acid soil, for example, while alkaline soil encourages scab on potatoes.For a rough indication of your local soil pH, look at what grows well in nearby gardens. If camellias and rhododendrons thrive, the soil is acidic, while flowering cherries, yew and clematis prefer alkaline soils, such as those on chalk.In this No Fuss Guide, David Hurrion shows how to test the soil in your garden to check whether it is acid, alkaline or neutral. He describes the different kits on the market and shows how to collect the soil from your garden:Testing your soil is quick and easy - simple pH testing kits are available in most garden centres. Here's how to do it.Soil testing kitSamples of soil from around your gardenAdding soil to test tubesIt’s important to choose a representative soil sample for testing. Avoid areas that have recently been treated with fertiliser, compost or other materials, as these can affect the reading. Soil pH can vary widely across a garden, so it’s best to test samples from several areas to get an accurate picture.Shaking the soil and chemical solutionRemove any stones and twigs from your sample and place the required amount in the tube. Add the chemical solution, shake the contents, and wait until the soil particles settle. Once the liquid clears, compare it against the chart - its colour indicates the pH.Soil pH test resultUse the results of this test when choosing which plants to grow in your garden. It will save you the disappointment and wasted effort - not to mention wasted money - of trying to grow plants that will never thrive in your soil.You can find out which plants thrive in acid or alkaline soil by going to our plant database. In the 'plant search' facility you can select your soil type and find detailed profiles on a wide range of plants that will enjoy your conditions.