LAWN LOVE

Fertilizer Basics: What to Look for in Your Fertilizer

By Jane Purnell | Updated: November 21, 2023

Lawn Care Tips

If you're a new homeowner or a novice to landscaping, visiting the local garden center and seeing the jungle of fertilizer options on the shelf probably left you greener than your grass. What do those three numbers on the bags mean again? Can your grass tell the difference between liquid and granular fertilizer?

Finding the best fertilizer for your lawn shouldn't be a headache. That's why we're covering all the fertilizer basics, so you know just what to look for in your fertilizer. By the

end of this guide, your next trip to the garden store will be a picnic.

We will cover all you need to know:

What is fertilizer?

Fertilizer is any chemical or natural substance added to the soil to increase soil fertility and supply plants with food.

Why do you need to fertilize?

Just like you need balanced meals to stay healthy, so does your grass. The soil provides your grass with nutrients, but when the soil's nutrients levels are low, your grass isn't getting everything it needs. Similar to taking your morning vitamins, your turf needs supplements in the form of fertilizer.

Not only does fertilizing your lawn enhance its health and beauty, but it also increases its pest, weed, and disease resistance.

What is N-P-K?

When shopping for fertilizers, you've likely noticed the three numbers printed on the product label. But what do they mean? The numbers are the amount of nitrogen (N), phosphorus (P), and potassium (K) in the fertilizer.

Nitrogen, phosphorus, and potassium (also known as potash in the context of fertilizer) are the three essential nutrients your grass needs to grow big and strong. Nitrogen is the most important of the three. Fertilizers list these three ingredients in the order N-P-K.

For example, a fertilizer label that reads 30-0-10 has 30% nitrogen, 0% phosphorus, and 10% potassium. Some fertilizers also may contain other nutrients or micronutrients, such as iron, zinc, calcium, and sulfur. If you're looking for a specific nutrient, remember to check the product label.

How do I know what nutrients my lawn needs?

Conducting a soil test is the best way to determine what nutrients are missing from your turf's soil. You can perform an at-home soil test yourself, or you can send a soil sample to your local cooperative extension office.

At-home soil testing

At-home soil testing allows you to gather quick results from the convenience of your backyard. An at-home soil test will reveal:

- Whether your soil is acidic, neutral, or alkaline
- Whether your soil has a “deficient,” “adequate,” or “surplus” level of nitrogen (N), phosphorus (P), and potassium (K)

There are many different types of soil test kits. Three common types include chemical color dyes, pH test strips, and an electronic pH meter. Remember to read the kit’s instructions, as some kits may differ from the descriptions below.

- **Chemical color dyes:** With this test type, you’ll create multiple mixtures of soil and water. The chemical dyes will correspond with the three primary nutrients (nitrogen, phosphorus, and potassium). Once you pour the chemical dyes into each mixture, the water will change color. You’ll then match each mixture’s color to the nutrient level color guide.
- **pH test strips:** This test involves dipping a strip into a mixture of soil and water. The strip will change color according to the pH level. Match the strip’s color to the available color guide to determine the pH level.
- **Electronic pH meter:** For this test, you stick the electronic meter’s probe into the soil water mixture to determine pH.

Laboratory soil test

At-home soil test kits may be convenient and provide fast results, but they’re not as accurate as performing a soil test in a laboratory.

- A soil test performed at a local cooperative extension reveals numerical nutritional values, such as parts per million (ppm), instead of generic word-based answers that come with an at-home soil test.
- An at-home soil test only measures N, P, and K, while a lab test can reveal many other nutrients.
- A lab test will determine the best N-P-K fertilizer ratio for your lawn.

Contact your local cooperative extension office to learn how to collect your soil sample. The office will likely ask you to gather multiple soil samples from the yard using clean tools.

What are the different types of fertilizer?

The two most common types of fertilizer are granular fertilizers and liquid fertilizers. Each fertilizer works differently on your lawn, but your grass will absorb the same amount of nutrients whether you apply a granular or liquid fertilizer. In other words, your turf can't tell the difference between the two.

Granular fertilizer

Granular fertilizer is a dry fertilizer that often comes in the form of pellets. Most granular lawn fertilizer is slow-release, which means it slowly releases nutrients to the grass over a long period.

Pros:

✓ Slow-release fertilizer promotes long-term grass health.
✓ Slow-release fertilizer can support your grass for several weeks or months.
✓ Granular fertilizers typically have a longer shelf life than liquid fertilizers.
✓ Granular fertilizers are often less expensive than liquid fertilizers, especially when you buy in bulk.

Cons:

✗ Granular fertilizers require more physical labor to spread than liquid fertilizers.
✗ Granular fertilizers usually won't deliver nutrients fast enough to a dying lawn.
✗ Not an ideal starter fertilizer for grass seed.
✗ Spreading granular fertilizer uniformly throughout the yard can sometimes prove difficult. According to the PennState Extension, granular fertilizers containing significant amounts of dust, broken particles, and different-sized pellets may lead to poor distribution of nutrients. The extension recommends using products that have uniform pellet sizes and minimal amounts of dust and broken granules.

Liquid fertilizer

Liquid fertilizer typically begins as a concentrated fluid that you dilute in water or as a dry, water-soluble substance you dissolve in water. Most liquid fertilizers are quick-release, which means they'll immediately supply nutrients to the grass.

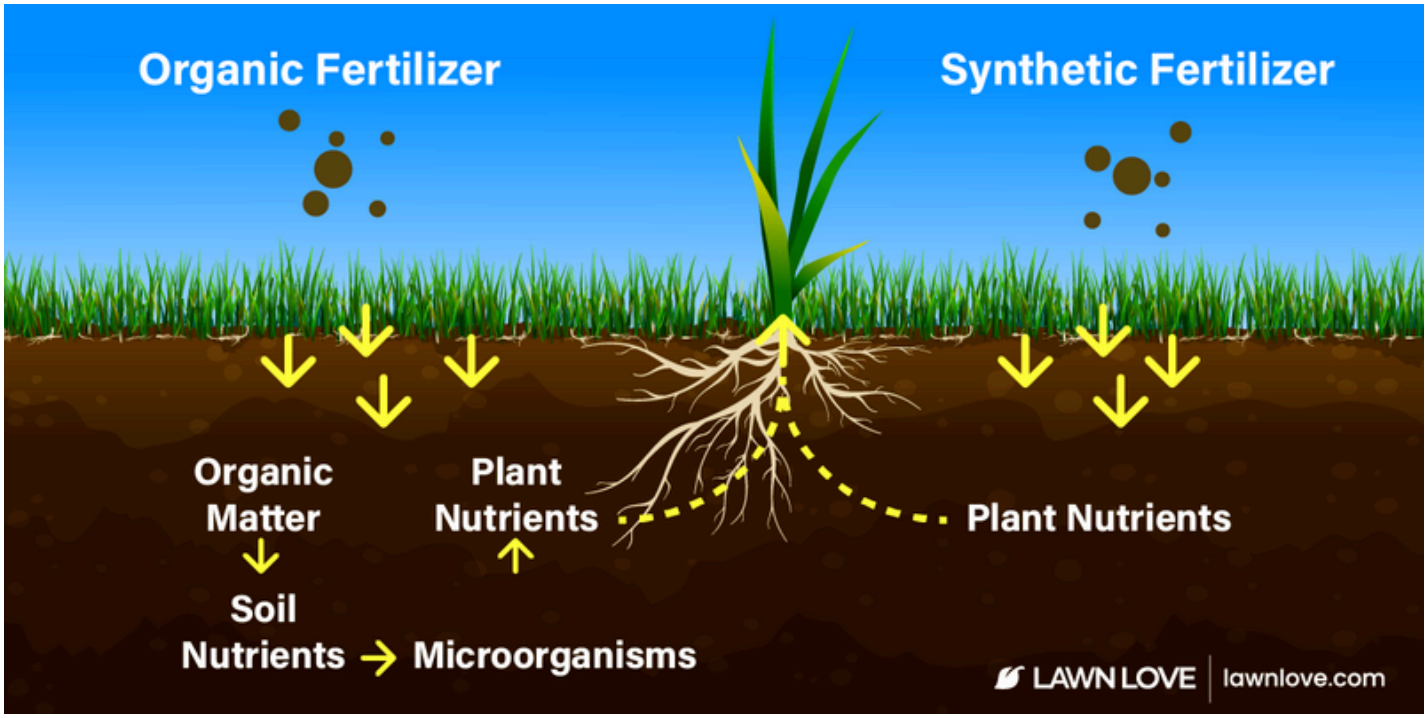
Pros:

✓ Unlike granular fertilizer, which comprises of dust and broken granules, every drop of liquid fertilizer has an identical ratio of nutrients.
✓ Turf can absorb the nutrients immediately after fertilization.
✓ Liquid fertilizer application is not as physically demanding as applying granular fertilizer.
✓ Liquid fertilizer provides an immediate nutrient boost for dying lawns.
✓ Quick-release liquid fertilizer shows results sooner than slow-release granular fertilizer.
✓ Because liquid fertilizer provides nutrients right away, it's an ideal starter fertilizer for new lawns.

Cons:

✗ Since all the nutrient content is available after fertilization, grass will absorb the nutrients faster than slow-release fertilizer. As a result, liquid fertilizer typically needs to be reapplied after a few weeks.
✗ Liquid fertilizer typically has a shorter shelf-life than granular fertilizer.
✗ Liquid fertilizer will sometimes trigger a growth surge, especially if you fertilize cool-season grass in early spring. Too much growth too fast can stimulate rapid shoot growth and hinder root growth, making the grass more vulnerable to stress, pests, and disease.
✗ Liquid fertilizer usually is more expensive than granular fertilizer.

Organic vs. inorganic fertilizer



As you scan the store shelves for your plant food, you'll quickly notice that some fertilizers are organic while others are inorganic. Aside from a clear difference in pricing, what sets these two products apart?

Organic fertilizer

Organic fertilizers are derived from a plant or animal source. Examples of organic fertilizers include compost, fish emulsion, and blood meal.

Pros:

✓ Most organic fertilizers release nutrients slowly, which is ideal for optimal lawn health.
✓ Organic fertilizers increase the soil's organic matter and improve its structure.
✓ You can make some organic fertilizers at home, such as compost tea.
✓ Organic fertilizers are less likely to burn your grass than inorganic fertilizers.
✓ According to the University of Minnesota Cooperative Extension, organic fertilizers are less likely to be lost through runoff or leaching to the environment.

Cons:

✗ Organic fertilizers depend on soil organisms to break them down. Most organic fertilizers are less effective when the soil temperatures are too cold, and soil organisms are inactive.
✗ The content of available nutrients is often unknown.
✗ Essential plant nutrients are often in low concentrations.
✗ It has the potential to contain weed seeds.
✗ It has the potential to contain pathogens like *E. coli* or *Salmonella*, especially in improperly composted manure.
✗ According to the College of Agriculture & Natural Resources at the University of Delaware, over-application of organic fertilizers can be just as detrimental to groundwater as over-application of inorganic fertilizers.

Inorganic fertilizer

Inorganic fertilizers (also called synthetic or chemical fertilizers) are manufactured to have a high concentration of primary nutrients, mainly consisting of nitrogen, phosphorus, and potassium.

Pros:

✓ Can deliver nutrients in the form of quick-release and slow-release fertilizers.
✓ They are often cheaper than organic fertilizers.
✓ According to the Utah State University Yard and Garden Extension, inorganic fertilizers are safe for plants and the environment when you use them properly.
✓ Inorganic fertilizers provide the three essential nutrients: Nitrogen, phosphorus, and potassium.
✓ Application rates are more straightforward to calculate than organic fertilizers.

Cons:

✗ According to the Clemson Cooperative Extension, inorganic fertilizers can be a significant source of groundwater pollution.
✗ Since inorganic fertilizers have a high concentration of nutrients, it's easier to over-

apply and damage your plants.

✗ Inorganic fertilizer has a greater potential for loss to the environment through leaching or runoff.

How much fertilizer do I need?

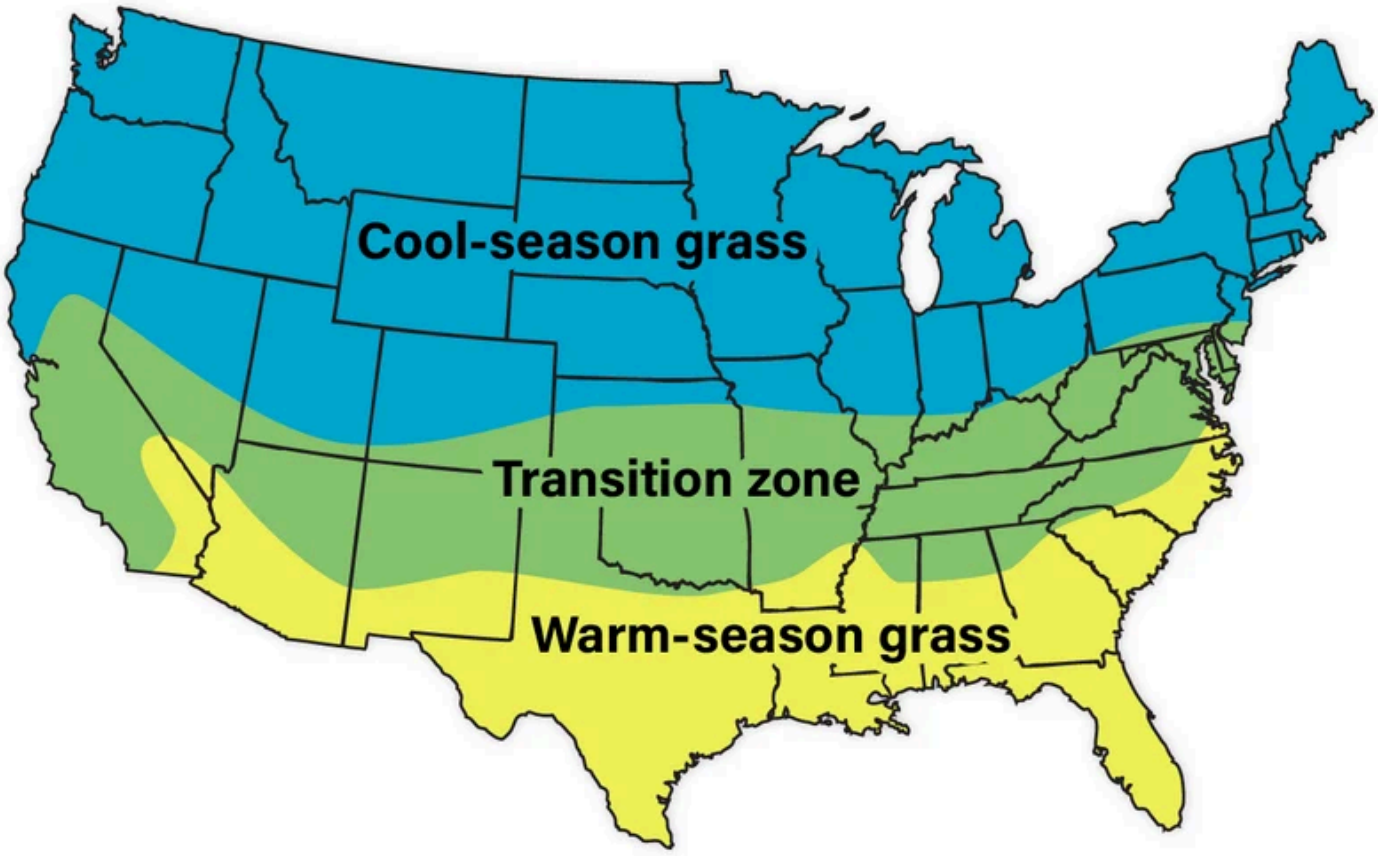
Before you open your wallet for a bag of fertilizer, let's calculate how much fertilizer you'll need.

Most lawns need 1 pound of nitrogen per 1,000 square feet. Let's say your soil test calls for a 30-0-10 fertilizer product that's 30% nitrogen, 0% phosphorus, and 10% potassium.

- First convert 30% to a decimal (30% = 0.30).
- Next, divide 1 pound of nitrogen by 0.30. The result is how many pounds of 30-0-10 fertilizer you'll need to cover 1,000 square feet.

1 pound of nitrogen / 0.30 = 3.33 pounds of 30-0-10 product are needed to cover 1,000 square feet.

When should I apply fertilizer?



If you have a healthy lawn, you'll likely only need to fertilize it once or twice a year.

The best time of year to fertilize will depend on your lawn's grass type. If you live up north, where winters are very cold and summers are mild, you likely grow cool-season grass. You likely grow warm-season grass if you live in the south, where summers are scorching and winters are short.

If you live in the Transition Zone, where both summers and winters are extreme, then your lawn might be either cool- or warm-season turf.

Fertilize your turf during its most active growing season. Fertilize your warm-season turf in **summer** and your cool-season turf in **early fall**.

Warm-season grasses:

- Zoysiagrass

- Bermudagrass
- St. Augustine grass
- Centipedegrass
- Buffalograss
- Bahiagrass

Cool-season grasses:

- Kentucky bluegrass
- Perennial ryegrass
- Tall fescue

How do I apply fertilizer?

You've mastered your trip to the garden store –– but what about actually fertilizing the lawn? Let's make this part easy for you, too.

Applying granular fertilizer

There are three tools you can use to spread granular fertilizer:

- Rotary spreader (also known as a broadcast spreader)
- Drop spreader
- Hand-held spreader

The best tool for the job will depend on your lawn's size. The University of Arkansas Division of Agriculture recommends spreaders for the following lawn sizes:

- Rotary spreader: Medium to large yards (greater than 2,000 square feet)
- Drop spreader: Small lawns (less than 2,000 square feet)
- Hand-held spreader: Best for tiny areas

A **rotary spreader** is a push-powered tool. You pour the dry granules into the spreader's hopper, which later discharges the granules through small holes near the bottom.

Don't worry –– the granules won't spill out as soon as you pour them into the hopper. Most rotary spreaders allow you to open and close the holes using a lever. When you open the holes, the granules flow out and strike a spinning plate which distributes the granules 3 to 5 feet away from the spreader.

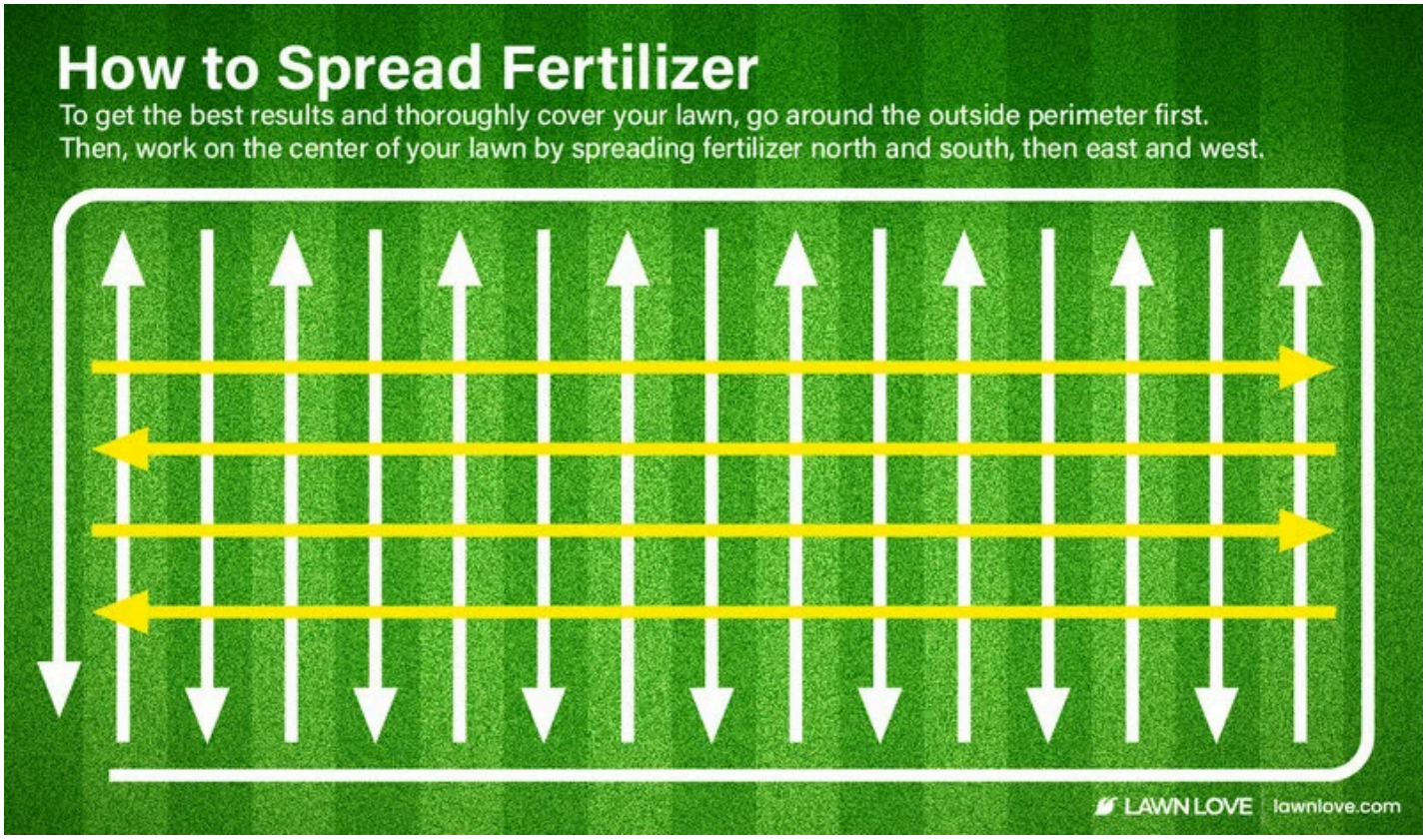
A **drop spreader** is also a push-powered tool. Its hopper is rectangular and has evenly spaced holes arranged in a row. Unlike the rotary spreader, the drop spreader doesn't have a spinning plate that distributes the granules. Instead, the granules drop straight down onto the ground between the drop spreader's wheels.

Use a **hand-held spreader** for fertilizing small areas or tight spaces in the yard. The device is equipped with a handle that you crank to expel the granules.

Once you're ready to spread the fertilizer, **follow these steps**:

1. Read the instructions. Misusing a fertilizer can cause harmful effects on your and the environment.
2. Wear the proper protective gear. Nitrogen can cause chemical burns to the skin. Wear safety goggles, work gloves, long sleeves and pants, and a dust mask.
3. Calibrate your spreader to release a certain amount of fertilizer. Many fertilizer products have instructions on how to set the spreader. It's a good idea to make two passes over your lawn instead of one, so you'll want to calibrate the spreader to deliver **half the desired application rate**.
4. Pour the granules into the hopper while standing on a hard surface, such as a driveway, patio, or sidewalk. Why? Because an accidental spill could harm your grass where excess fertilizer lands.
5. Time to begin fertilizing. Starting from one corner of your yard, push your spreader at a consistent pace around the lawn's perimeter. Remember, rotary spreaders send the granules 3 to 5 feet away from the spreader. Position your spreader so that the granules don't land outside the yard. You want them to land right up to the lawn's edge instead.

6. Once you've fertilized the perimeter, begin fertilizing within its borders. Starting from one corner of the yard, walk forward at a steady pace.
7. Once you reach the perimeter's edge, turn the spreader 180-degrees and begin your next pass. If you're using a rotary spreader, position your spreader a few feet away from the previous pass so that the granules land where the previous granules landed. If you're using a drop spreader, you don't need to leave space between each row.
8. After spreading fertilizer throughout the lawn, you'll follow the same pattern again, only in the opposite direction, creating a grid shape.
9. When done, grab a leaf blower (or broom) and blow any excess fertilizer that landed outside the lawn into the grass.



Applying liquid fertilizer

Liquid fertilizer application is a straightforward process. Follow the instructions on the product on how to prepare the liquid. You may need to dilute it in water or dissolve a dry substance in water.

Most liquid fertilizers come in a spray bottle that you attach to a garden hose. Attach the bottle to the garden hose and spray the liquid uniformly across the lawn. Avoid applying liquid fertilizer on windy days, as the wind can make the application uneven.

Shop smart for your lawn

It's easy to get overwhelmed at the garden center — but now that you know just what you're looking for, your grass can get the TLC it deserves.

Interested in long-term grass health? Head straight to the granular fertilizer section.

Your soil test says your turf needs 30% nitrogen, 0% phosphorus, and 10% potassium. Look for the numbers 30-0-10 on the fertilizer label, and you'll be golden.

Is a trip to the store one too many chores on your calendar? Can't manage to mow the lawn on time? Hire a local lawn care professional to green up your grass for you. Owning a yard can be hard work, but there's no need to let it overwhelm you. So hire a pro, enjoy your lawn, and don't lift a finger!

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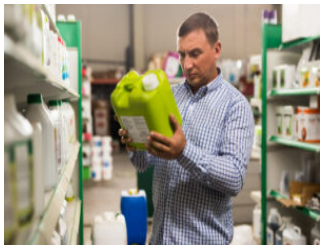

What is Liquid

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Jane Purnell is an artist, writer, and nature lover. She enjoys teaching readers about the importance of eco-friendly lawn care, integrated pest management, biodiversity, and sustainable landscaping.

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