



Eggshell: Natural Remedy for Soil

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Egg is the most nutrient-dense food on the planet, as it contains all of the necessary and trace elements required for normal growth and development. Eggshell is high in calcium and contains 93-96 percent calcium carbonate as well as other trace components. This qualifies this "waste" as a calcium supplement or source when needed.

Plants require a variety of metals and minerals to thrive and reach their genetic potential. Nitrogen, phosphorus, and potassium are macronutrients, which are the most important components that plants require in considerable amounts. Calcium is a micronutrient, along with iron, zinc, manganese, magnesium, sulphur, and others. Most plants require plenty of nitrogen, phosphorus, and potassium; however, some plants, such as tomatoes, peppers, and other vegetables, require even more calcium.

Calcium is needed by plants in reasonably large amounts, although not as much as nitrogen, phosphorus, or potassium. Calcium's importance in plant growth cannot be overstated. Calcium primarily aids in the strengthening of plant cell walls, making them more vigorous and resistant to injury. Calcium also aids in the maintenance of soil chemical equilibrium by reducing soil salinity and enhancing water penetration for improved plant utilization.

Eggshell provides numerous advantages for plants, soil, and the ecosystem as a whole, so it should not be considered trash.

Advantages of Eggshells to Plants

Eggshell provides calcium to plants, which can assist to build their cell walls and prevent the spread of illnesses and infections. Tomato, Cabbage, Lettuce, Carrot, Celery, Pepper, and other vegetable crops benefit from eggshell in addition to the macronutrients.

Calcium shortage in the soil can cause a variety of growth problems in these veggies. Cabbage and lettuce tip burns, tomato and pepper blossom end rot, cavity spot in carrots, celery stunted growth, and all plants in general. Plants with weak cell walls become weak and fragile, slowing their growth rate and making them more susceptible to plant diseases.

Calcium, which is present in eggshells, can be utilised to treat tomato blossom end rot and other associated problems in vegetable crops. It is inexpensive, especially if you run an integrated farm with laying birds. Eggshells can be broken and used to enhance the calcium content of the soil to help this and other plants grow better.

Several studies on the usage of eggshells for growing plants have been conducted. The significant impact of eggshell on the growing of tomato plants at various levels of inclusion was demonstrated by Anna D. de la Rosa's research at the California State Science Fair.

The tomato plants were grown in groups of five pots, each with the same amount of soil. As per research in each pot, three tomato seeds were planted, and varied amounts of

eggshell were placed in with the soil: no eggshell (control), 1 g, 5 g, 10 g, and 15 g. All management operations, such as watering, were performed equally on all treatments as they matured and data on morphological features and were noted down every two days for two weeks.

The plants with 1 g and 5 g of eggshells looked bigger than those without, with the plant with 5 g growing the tallest at the end of two weeks. The tomato plants with inclusion levels of 10 and 15 g, on the other hand, did not reach the 5 g plant. This concluded that using too much eggshell (10 and 15 g) does not speed up the growth of the plant. Plant development can be aided by a small bit of eggshell. This study simply confirmed that calcium is a trace element that is critical for plant growth.

Benefits of Eggshell to the Soil

The soil is a habitat made up of many different entities that make it suitable for planting. Many biochemical reactions occur in the soil, and these activities usually influence the status and qualities of the soil.

In agriculture, the pH of the soil is critical; most plants prefer a soil with a neutral pH, that is, one that is neither acidic nor alkaline. Only soil pH testing can detect the pH condition of the soil; the results of this test decide which plants to cultivate or which soil amendment procedure (liming) to use.

Eggshell could be used as a liming amendment; the calcium in eggshells can be utilised in garden soil to reduce soil acidity while also supplying nutrients to plants. Eggshells contain a good amount of calcium carbonate, which can be used to change the pH of acidic soil, which is suitable for most plant growth.

1. Eggshells for Raising Seedlings

Eggshells can also be used as germination starter pots before being transplanted to the main field to continue their growth. Gardeners have been creatively using eggshells to raise seedlings due to the need to raise healthy seedlings in a demanding atmosphere.

To begin, you'll need eggshells that have been gently broken so that just the top portion is exposed. To strengthen the growing medium, fill the eggshell with moist soil or compost. Place one or two seeds inside the eggshell and water them daily if necessary to ensure that they germinate. This is a low-cost, long-term method of raising healthy seedlings for transplant to increase production.

2. Eggshells as Mulch

Another major application of powdered eggshell in the garden is as mulch. Mulch's principal role is to cover the soil surface, thereby moderating soil temperature, retaining soil moisture, and, when decomposed, delivering nutrients to the soil.

Because eggshell is biodegradable, it can be used for all of these applications. However, the amount of smashed eggshells required to reach this goal makes it unattainable. Other mulches you can use in the garden include sawdust, wood shavings, and other materials that will effectively mulch.

3. Powdered Eggshells as Organic Fertilizer

Garden crops require a lot of calcium for good growth and yield, and eggshell is a rich and inexpensive supply of calcium. Crushed eggshells added to the soil where tomatoes, cabbage, carrots, and/or lettuce are cultivated considerably aids in providing enough calcium to correct growth problems or diseases such as Blossom end rot in tomato plants and other vegetable crops.

Additionally, eggshell extract can also be used as foliar spray for tomato plants. Simply fill a sprayer halfway with finely crushed eggshell powder. Allow the liquid to settle for a few days before using it to irrigate plants like vegetables and bushes. Eggshells are used to make this natural fertiliser.

The necessity to creatively use waste in an industry (poultry) in crop production has sparked the ambition to farm sustainability. Eggshells are inexpensive and can provide a necessary nutrient for plant growth as well as amend the soil by lowering the pH and making it a healthier environment for plant growth.

In agriculture, nothing goes to waste. We need to figure out how to put trash from other agricultural industries to good use in the food production process.

Reference

1. <https://www.agrifarming.in/category/agriculture-farming>