

**OMRI™**  
L i s t e d

# JERSEY GREENSAND

**Greensand** - This naturally occurring iron-potassium silicate (also called glauconite) has the consistency of sand but is able to absorb 10 times more moisture, making it an exceptional soil conditioner for pastures, forage fields, lawns, orchards, small fruits, vegetables and greenhouse potting mixes. Greensand contains potassium, iron, magnesium, calcium and phosphorus plus as many as 30 other trace minerals.

Jersey Greensand, so-called from its only known place of origin, New Jersey, was deposited millions of years ago when the Garden State was still under water. It is mined primarily for water purification purposes but increasingly more and more people in agriculture and horticulture are requesting it for the soil.

Benefits from Greensand are for the most part unexplainable. If you brought some into an ag science lab and asked for an analysis, they would most likely tell you the product is worthless. However, numerous greenhouse trials show that there is a lot more to it than what you would read on a lab report. Organic growers have, for years, extolled the virtues of Greensand without really knowing how or why it has improved their crops.

One possible explanation is mineralization. Studies have shown that mineralizing soil can improve the taste, color, nutritional value and health of various plants as well as the overall health of the soil. Mineralization also improves soil life by increasing populations of certain bacteria that can slowly dissolve insoluble mineral nutrients. Those bacteria eventually cycle themselves into organic matter that further increases populations of many other varieties of beneficial microorganisms.

Greensand has the consistency of sand with a density of approximately 90# per cubic foot (very heavy). It flows like sand and can be applied through any type of spreader, seeder or drill. It can hold one third its weight in water and has the ability to open tight soils and bind loose soils.

Application rates vary depending on soil conditions and intended use. As a soil conditioner, applications of 25#/1000 ft<sup>2</sup> (or 1000#/acre) are recommended. To correct potash deficient soils, anywhere from 20# to 100#/1000 ft<sup>2</sup> (or 800# to 4000#/acre) would be applied, depending on the extent of the deficiency.

NOTE: Greensand is a slow release insoluble source of potash and trace elements. If there is an immediate need for available potash, it is suggested that Greensand Plus (a combination of Greensand and Natural Sulfate of Potash with 17 percent soluble potash) or Natural Sulfate of Potash (contains 52 percent soluble potash) be used.

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# PHOSPHATE ROCK

**Phosphate Rock** is an excellent natural source of phosphorus, calcium and many essential trace elements. It contains over 30 percent total phosphate (3-8 percent available) and 48 percent calcium (as CaO). Phosphate rock has approximately one fifth the neutralizing power of lime.

Natural rock phosphates are from deposits of apatite rock formed eons ago by sea life that left behind fossils and shells composed primarily of calcium phosphates. Over millions of years, the remains accumulated and were subjected to millions of tons of pressure; creating sedimentary rock deposits. One of the richest deposits of apatite rock in the world was discovered in the Southern United States. Most of the phosphates used in modern agriculture, science, and industry are refined from apatite rock.

Phosphate Rock's consistency is a semi-fine, dustless, very dense sand-like texture that flows well and can be used through any type of spreading equipment, including rotary type spreaders. Its density is approximately 90# per cubic foot.

Total phosphate content exceeds 30 percent. The companies that register rock phosphate with the various state departments of agriculture will only guarantee 3 percent as available phosphate (P<sub>2</sub>O<sub>5</sub>). However, some tests have indicated that more than 8 percent is actually available.

Rock phosphate, like greensand, can mineralize the soil and improve the quality of crops and soil structure. However, its principal uses are to build phosphate fertility where levels are low and/or to increase rooting activity in transplants and sprouting seeds. Unlike acidulated phosphates, such as triple super phosphate, Phosphate Rock offers a small percentage of its total phosphate content as immediately available. Large quantities of available phosphate from acidulated phosphates tend to fix or bond to cation (positively charged ion) nutrients in the soil, rendering the phosphate itself unusable, and also locking up the cations. All this occurs before plants have a chance to use much of this very important phosphate. The slow release nature of Phosphate Rock allows plants good opportunity for access before fixation can occur. Additionally, fewer cation nutrients (such as calcium, magnesium, and potassium) can be bound up by free phosphate ions. Applications of Phosphate Rock can last 5 years or longer, depending on soil conditions.

Phosphate Rock is also often used in landscape and nursery applications to help plants adjust to the stress associated with transplanting. Phosphate Rock cannot burn roots like acidulated phosphate can, and liberal amounts can be applied directly to bare root stock. Phosphates trigger root branching which gives the plant greater access to more of the nutrients it needs.

Phosphate Rock is applied 1-2# (per plant) for tree or shrub transplants and from 500 to 4000# per acre for deficiencies depending on their severity. An accurate soil test is recommended to determine the most appropriate application rate.

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