



GUANO GOLD – KWIK START® ***100% Available Silica*** ***Guano Australia Pty. Ltd.***

This has the effect of strengthening the cell walls, which is one reason why plants deprived of adequate silicon will be more susceptible to fungal diseases. Silica also enables grass leaves to stand more erect, thus enabling them to catch more light, hence enhancing the process of photosynthesis.

Silicon is a mineral with similar chemical properties to carbon, and just as basic in the earth's composition.

Silicon dioxide or Silica is a naturally occurring mineral that comprises 5% of limestone, 44% of basalt and 68% of granite.

Sandy soils may contain over 90% Silica, loams may be 60 – 70 %, but in Laterite soils it can be as low as 2%. The low levels of Silicon in leached soils also contributes to the lock up of Phosphorous, because research has demonstrated that silicates cause an increase in absorption of Phosphorous by plants.

Generally, clay soils rich in Silicon will have higher cation exchange capacities, will be younger, and less leached than those soils with lower Silicon levels.

The fact that Guano Gold – Kwik Start has available silica, in combination with phosphorous, actually improves the uptake of phosphorous by plants. There are indications that enhanced flavour and keeping qualities of fruit and vegetables may be attributed to adequate supplies of Silicon in the growing medium.

Watermelon in particular uses and concentrates silicon, and will not thrive where a deficiency exists.

Other plants are known to produce better fruits with adequate silicon, and the flavour and keeping quality of fruit and vegetables is improved in its presence.

Grapes may particularly benefit from the presence of silicon actually thickening and strengthening the skin cells of the berries. A number of positive responses are likely to flow from this happening.

Flavour is known to be borne in the skins, and the stronger skins will be less permeable to moulds and fungi directly, and less likely to split in wet weather.

Where leaching of native soils has occurred, where rainfall is high, where irrigation has been practised for a long time, or where soil organic levels are low, available silicon may be in short supply. Little attention has been paid in the past to silicon as a fertiliser, but there is a growing awareness of its importance. – **(Thankyou – JKJ)**

Where does the silicon in Guano Gold – Kwik Start come from? Unlike other sources, which are usually of mineral origin, the silicon in Guano Gold – Kwik Start is derived from living organisms.

An analysis of the derivation of the deposits from which Guano Gold – Kwik Start is sourced reveals that it is basically seabird droppings on coral reefs that have been uplifted and become part of an island. Seabirds feed on fish which have as their original food source chlorophyll rich diatoms.

These one-celled organisms are pastures for nine tenths of the food of everything that lives in the sea. So this is the prime source of the Guano Gold – Kwik Start deposits.

The importance of this lies not so much in the chlorophyll itself, but the containers, the skeletons that these microscopic creatures create. Incredibly, these one-celled organisms take silicon and oxygen from seawater and construct tiny chlorophyll-containing baskets out of spun glass.

The intricacy of the designs is one of those inexplicably creative features of the world around us that we rarely contemplate, and which evolution will never explain, but it is the substance of the material used that is of interest to us as farmers.

The skeletal material is Silica or Silicon Dioxide, and its filigee nature makes it accessible to other creatures, also microscopic, when the original builders have been digested. It is possible that a succession of inhabitants utilise these homes as the various forms of digestive organisms operate on the material in the guts of the consumers, and then on the droppings of the birds themselves.

When we get our Guano Gold – Kwik Start in bags or bulk, we are the recipients of not only a phosphorous source, but also about 10% in weight of diatomic skeletons. These are almost certainly the homes of the bacteria that begin the process of breakdown and of making available the fertility that we buy.

It is known that the bacterial animals that create humus thrive in a silicon rich environment, as the Bio-Dynamic practitioners know when they bury the cow horns to incubate their bacterial cultures.

In a similar way, when Guano Gold – Kwik Start is incorporated into the soil, and moisture is involved, the **diatomic** skeletons will provide an ideal

incubator for the **dormant bacteria in the Guano Gold – Kwik Start.**

The question of the availability of the Silica in Guano Gold – Kwik Start is often raised. It is best answered by considering that it is of microscopic animal origin, and that it provides part of the living environment of bacteria that are primarily involved in the decomposition of material. As with the other primary components of Guano Gold – Kwik Start, Calcium and Phosphorous, the derivation of the Silica from living organisms renders it far more accessible to both bacterial decomposition and root acid etching.

Bacterial activity, directly leading to the death of bacteria, whose bodies are plant food themselves, will provide an attractant for plant roots. Once attracted these have the capacity to dissolve nutrients directly or to absorb them from the soil solution according to need.

It is worth noting that the Calcium component, being coral derived, will furnish a similarly favourable environment for microbial activity as well, and for the same reasons availability is enhanced by its origin. In fact there is almost certainly a complementary interaction involved so that plants can access either Calcium or Silica or both according to need.

Phosphorous uptake is enhanced by adequate Silica as noted already, and the favourable microbial environment can only serve to strengthen the availability of nutrients generally.

As I indicated to you nearly two years ago, the Silica in your product is almost as valuable for organic farmers as the Phosphorous, particularly to enhance photosynthesis and for disease resistance. I hope that this explanation of its derivation and activity will help you to convey this information to others.

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