Technical Data

Defining How SILgrow is Working for the World of Tomorrow

The following technical information is based on research conducted and promulgated by a variety of academic and research organizations and agencies; data obtained from the SILgrow application on a variety of crops, in a variety of regions and environmental conditions; and testimonials received from SILgrow customers.

SILgrow is a soluble Silicon (Si) product belonging to the ionized sodium silicate family.

SILgrow helps to:

Increase Crop Growth and Productivity

Scientific research has long established that Si nutrition is directly correlated to better crop yields by increasing the growth, mechanical strength, and stress-resistant capabilities of plants (improves resistance to abiotic and biotic stress). SILgrow has proven to significantly augment the overall quality of crops as well as realize impressive growth acceleration rates. SILgrow allows plants to more effectively consume CO2, thereby enhancing metabolic processes which result in increased crop productivity.
SILgrow improves the storage and distribution of carbohydrates and increases chlorophyll production. This leads to a darker green, creating a perfect environment for better leaf orientation for light receival which, in turn, augments photosynthesis and growth rates.

SILgrow is a great maintenance aid and also retards wilting in plants and flowers.

Improve Soil Fertility Levels and Fight Soil Degradation

Soil Fertility refers to the innate ability of soil to provide necessary amounts of nutrients in appropriate portions. Traditionally, plant growth was attributed to soil fertility, or as was often the case, calculating how much material (such as fertilizers) needed to be added to improve the mineral elements in soil. There are numerous mineral elements which are considered Essential for plant growth, while there are others considered Beneficial. Silicon has recently been described by several agriculturalists and scientists as an Essential mineral, given its effect on the mineral nutrition of plants and its effect on the structure of the

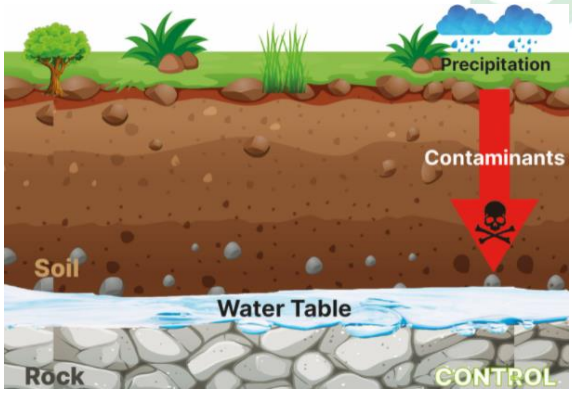
soil adjusting and restoring it. Specifically, new approaches in today's industry call for the use of products such as SILgrow, which not only plays an important role in the transport of mineral nutrients, but which greatly facilitates the achievement of optimal plant growth. Silicon has proven to increase plant tolerance related to the presence of excessive aluminium concentrations, and to fight zinc deficiencies.

Reduce Water Irrigation Rates

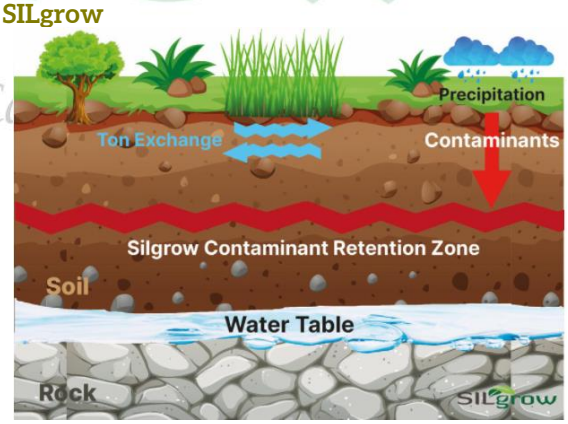
With approximately 70% of the world's potable water being consumed by the agricultural industry, and significant water loss rates pervading traditional irrigation systems, the development of innovative products that reduce water application rates is long overdue. SILgrow is responding to the need to address water management issues by increasing the water retention capacity of soil, optimizing soil structure and significantly improving drought resistance. SILgrow facilitates this process because Si deposits in the cell walls of plant xylem vessels (tissue that moves water and minerals through the plant) help impede vessel compression during conditions of excessive heat or drought. Additionally, the presence of Si increases the absorption rate which, in turn, helps to reduce the evaporation rate. By supplying soluble Si to cell walls, SILgrow helps to improve plant resistance to water stress and wilting, and facilitates protection against extreme heat or cold. SILgrow® also helps to augment root volume and weight.

Reduce Water Table Contamination

CONTROL



SILgrow



Protecting the world's limited supply of freshwater should be of paramount importance to all in the agricultural industry – especially giving consideration to the growing demand for water coupled with today's water management challenges. Soil properties have a significant effect on groundwater vulnerability to water table contamination caused by the introduction of metals and other contaminants. As shown in the above illustration, contamination is facilitated by leaching (removal of soluble materials by water passing through soil). In essence, contaminants such as pesticides and chemical fertilizers can

move through the soil – based on the volume and rate of water movement – via leaching, ultimately contaminating the water table. Due to the increase in the ion exchange capacity generated by the application of SILgrow, the rate of movement of contaminants to the water table is diminished – giving consideration to the permeability (the ease of movement of water) of the soil. SILgrow facilitates the binding of chemicals to particles of organic matter, creating a zone of contaminant retention – as illustrated above. The more chemicals maintained in the contamination retention zone, the less the contamination rate of the water table.

Through the reduction of the leaching (potting effect), SILgrow also allows a better use of the beneficial nutrients such as P, N, K, etc., helping to avoid the leaching of these nutrients into the water table.

SILgrow fights toxicity better than lime, diminishes heavy metals and hydrocarbons contamination, and improves results when using manure or natural compounds since it helps to transform active and toxic contaminants in inert materials (non-reactive ones).

Strengthen the Plant; Allowing it to build barriers to promote plant's health

Research has demonstrated that Si deposits in plant's epidermal zone (outmost layer of cells) helps to create a stronger and healthier plant, allowing the plant to generate a protective barrier. The accumulation of Si essentially forms a double cuticle (non-cellular protective layer covering the epidermis layer), helping to create a mechanical barrier to prevent penetration. SILgrow® is a superior surfactant which facilitates foliar applications (surfactants are surface tension-reducing agents which increase the emulsifying, dispersing, spreading, and wetting properties of a product). Foliar applications have proven to help protect new plant growth and crops. More and more people in the industry are turning to SILgrow®, giving the product's protective capabilities and innocuousness to the environment.

SILgrow has been successfully tested in the agriculture, horticulture and forestry industries.

The following are just some of the many crops (Extensive, Intensive, Ornamentals, and plants used in the Pharmaceutical and Chemical industries) on which SILgrow has been successfully tested:

Achiote
Alfalfa
Almond
Aloe Vera
Apple
Apricots
Artichokes
Asparagus
Avocados
Bananas
Barley
Basil
Beans
Beets
Blackberry
Broad Beans
Broccoli
Cabbage
Cantaloupe Melons
Carnations
Carrots
Cassavas
Cauliflower
Celery
Chamomile
Chard
Cherries
Chickpeas
Cilantro
Cocoa
Coffee
Corn
Cotton
Cranberry
Crotons
Cucumber
Eggplant
Eucalyptus
Ferns
Figs
Garlic
Ginger
Grapefruit
Grapes
Hot Peppers
Kidney Beans
Lemon Balms
Lettuce
Limes
Mango
Maralfalfa
Marigolds
Mint
Nuts
Olives
Onions
Oranges
Oregano
Orchids
Ornamentals
Palms
Paprika
Parsley
Passion Fruit
Pastures
Peaches
Peach Nectarine
Peanut
Pears
Peas
Peppers
Peppermint
Pineapples
Piquillo Pepper
Plantains
Plum
Potatoes
Pumpkins
Radishes
Rapeseed Oil
Raspberries
Reforestation Projects
Rice
Rosemary
Roses
Rutas
Seedbeds
Seedlings
Sorghums
Soy
Spinach
Squash
Strawberries
Sugar Beet
Sugar Cane
Sun Flowers
Sweet Potatoes
Tangerines
Teak
Thyme
Tobacco
Tomatoes
Tree ornamentals
Turf
Turnip
Turnip Green
Valerians
Watercress
Watermelons
Wheat

"SILgrow is a true soil amendment. It works at the soil level and in basically the same way, regardless of what crop is planted."