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SATEJ GLOBAL SCIENCE
Think Globally Act Locally

GSTNO: 24ARZPP5827C1ZD

Brief description of SatejMine

(1) Increase crop production 60 to 80 %

Adoption of high production technology and cultivation of high yielding varieties have put tremendous pressure on soil nutrient reserve in the country leading to a great imbalance in nutrient status in the soil.

A large chunk of soil in the country has been rendered deficient in micronutrients, which is one of the major reasons that crops have stopped responding to fertilizers.

Studies show that 40-55 per cent of soils are moderately deficient in micronutrients like Zn (Zinc), while 25-30 per cent is deficient in B (Boron). Deficiency of other micronutrients occurs in 15 per cent of soils. These deficiencies/limitations reduce yield significantly.

"Micronutrients are those essential elements which are required by plants in very small amounts. Besides promoting plant metabolic activities and growth of the plants, they play a major role in improving quality, size, colour, taste, input use efficiency of fertilizers, water use, disease resistance etc.
A lesser-understood phenomenon is their role in determining quality and post-harvest life of the harvested produce. As these nutrients are costly and required in very small amounts normally a fertilizer dealer does not stock them like other bulk fertilizers and hence farmers find it very difficult to correct micronutrient deficiencies. "**In order to find a solution to this serious problem, our scientists have developed Unique micronutrient mixtures for foliar application in black pepper, cardamom, ginger, turmeric, all vegetable, fruits, pulse etc. crops which guarantees 15 to 30 per cent increase in yield and quality,"**

Advantage of SatejMine is Unique micronutrient mixtures for foliar application as per below listed.

1) An innate advantage of these mixtures is that they can also be used in organic agriculture and therefore are environment friendly. They are guaranteed to enhance both yield and quality of the crop produce.

2) **The technology is a low cost one and also farmer friendly. Every acre crop needs about 675 ML micronutrient mixture sprays, costing about Rs. 2000 per month.**

3) For each crop three sprays per month (every ten days interval) After 6 inch or ½ feet growth of plant and during specific growth stages are recommended.

4) While increased yield and growth is possible due to these mixtures, it is important to note that these should not be mixed with any other chemicals to save labor and time.

5) Though these mixtures are essentially for spice crops, these can be used for increasing yield in fruit and vegetable crops as well.

6) The mixtures were tested in six farmers' fields in various parts of the country. Field trials in ginger were carried out in Kerala and Karnataka while turmeric was done in Kerala, Andhra Pradesh and Tamil

Nadu. The micro nutrient mixture for black pepper was tested in Kerala and Karnataka states and for cardamom in Karnataka.

7) The products are in the process of patent protection and commercialization.

(2) Improve Plant Vigor

Currently, achieving food supply security with limited arable land is a major global challenge due to the changing climate and increasing global population. The approach of SatejMine means of creating high-vigor for crop production. Its application to important cereals such as wheat, rice, and maize etc., pules like Green Gram, Red Lentil, Pigeon pea, Black gram, Chickpeas, Kidney Beans, Moth dal, vegetable & fruits etc., may have a dramatic impact on global food security. Vigor starts at the seed. Maximize its potential.

Treating seeds with SATEJMINE prior to planting invigorates seeds from the beginning of the growth cycle and stimulates plant growth. Improve seed germination and accelerate germination rates, promote better root structure, increase uniformity, and maximize every plant's potential. In conjunction with treating seeds, SatejMine treatment and balanced pH soils promoting healthier root structures for improved nutrient uptake and stronger disease resistance. Impact your bottom line with increased disease resistance.

Strong plant vigor reduces the need for insecticides by up to 50%. Cut fertilizers, herbicides, pesticides and fungicides 10%-30% while improving the health, vigor and quality of your crops and turf grass. Better disease resistance against spider mites and 22% better yield

(3) Reduce Water usage by 10 to 25 %

Innovative SatejMine practices can enhance water efficiency, gaining an economic advantage for farmers while also reducing environmental burdens. Most of the micro and macro mineral are in our foliar mixer have present so crop root water pulling from land is less required comparing other practice.
SATEJMINE reduces salt adsorption ratios (SAR's) up to 50%, reduces salt buildup in soils, and promotes uniform soil infiltration and moisture retention for a healthy soil foundation and 10-25% water savings.

(4) Increase fine root growth

There is evidence to use SatejMine through leaf foliar spray modifying root growth and root exudation. We found that root morphological development was greatly when SATEJMINE was supplied during intensive crop production. When apply SATEJMINE for crop increases root growth, resulting in longer axial roots (primary roots, seminal roots, and nodal roots) and this helps all crop roots to explore a overall plant growth.

(5) Improve soil pH

Wash salts by 300-400%, balance pH and eliminate wetting agents for soil health.
SATEJMINE stimulates a healthy and nutrient-rich environment by encouraging mellower soils improved permeability and water-holding capacity, washes out salts by 300-400%, balances calcium to magnesium ratios, and eliminates surface run-off, pudding and evapotranspiration.
Improved Soil Permeability and Moisture Retention
Soil improvement begins with permeability. Water becomes degassed in the process of Apply SATEJMINE and this degassing increases soil permeability, which creates an increase in irrigation efficiency. In addition to soil permeability and improved soil health, SATEJMINE interacts with the structural calcium in cell membranes, making the cells more permeable. The reduced surface tension observed in SATEJMINE

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results in better infiltration of water and a reduction in water and chemical use.

Soil Desalinization

SATEJMINE treatment can be used as an effective method for soil desalinization. The application of a SATEJMINE decreases the hydration of salt ions and colloids, having a positive effect on salt solubility, accelerated coagulation and salt crystallization. The study showed that SATEJMINE increased leaching of excess soluble salts, lowered soil alkalinity and dissolved slightly soluble salts.

(6) Increase seed germination

A study with SATEJMINE initiated to investigate this. Seed coat scarification improved the percentage of germination by almost 60%. A high temperature range (15–30°C) increased germination relative to a low temperature range (10–20°C). A factorial experiment consisting of SATEJMINE treated seeds and traditional practices were conducted. Productivity improved with SATEJMINE treated seeds. Mean relative growth rates or root: shoot ratios.

(7) Reduce fertilizer, pesticide and herbicide usage application

SATEJMINE breaks down minerals into smaller particles making them more bio-available to the plant cells resulting in maximum hydration of healthy water with greater uptake of minerals results in greater yields, larger and better end product, earlier maturation, longer shelf life, and healthier plants. It allows a reduction of amount of water needed, fertilizer and pesticides.

(8) Increase nutrient content & shelf life of produce in

When SATEJMINE used in your agriculture practice produce have rich contain in macro & micro nutrient like protein, carbohydrate, fiber, novel lipid, vitamins, mineral functional metabolite etc. because of pant mineral metabolism and physiology have optimum level due to SATEJMINE Supplements. Therefore Increase productivity, reduce disease in livestock and shelf life of produce also increases. SATEJMINE gives the proper nourishment so Decreased plant stress from environmental conditions and increased disease resistance and suppression.

Agriculture Benefits of SATEJMINE (NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER)

(Liquid Ionic Concentrated Mineral Fertilizing Water)

- Increase crop production with Quality by 60%- 80%
- Improve plant vigor
- Reduce water usage by 10%- 25%
- Increase fine root growth
- Improve soil pH
- Increase seed germination
- Reduce fertilizer usage
- Reduce pesticide and herbicide usage
- Reduce heat stress
- Increase nutrient content in produce
- Increase shelf life of produce
- Increase productivity & reduce disease in livestock & general animal breeding
- Increase weight of product and reduce disease in aquaculture industry
- Easy to use / No more exercise for distribute it.

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(Liquid Ionic Concentrated Mineral Fertilizing Water)

INCREASE THE EFFICIENCY FOR LAND OF AGRICULTURE PROPERTIES & PRODUCTION OF CROP WITH REDUCE HARDNESS OF LANDFILL & REDUCE FORTIFICATION OF FERTILIZER

Introduction:- The NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER (Liquid Ionic Concentrated Mineral Fertilizing Water) is an ecofriendly production from sea water for increasing land field fertilizing properties and reducing landfill hardness. It is working on simple principle of providing concentrated plant mineral in ionic form for better grow & yield of crop, induced field generation and IN WATER ionization. This results in higher quality plant nutrient from land to root of crop, which helps take higher yield of farming commodities.

Dissolved salts are not deposited in the surface layers of the soil, so preventing "salting" & increases in yields of up to 40% when crops were irrigated with " NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER " also increased micro biological activity in the soil, in turn increasing the release of unavailable nutrients, the " NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" also made it easier for plants to take up the nutrients from the soil.

Our research have observed increased yields of higher quality, healthier stronger plants, cereal crops in particular, were noted to have stronger stems when " NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" with "treated

"NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" has a positive effect on plant growth. "NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" is more solvent and has a lower surface tension, so nutrients in the water are absorbed more readily. Use on agricultural crops results in higher production and improved quality of the plants with a reduction in the use of fertilizer.

"The principle of "NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER " lowers surface tension of water, creating greater solubility and penetration, which stimulates root systems. Over time, soil compacts, which restricts the root growth?

Solutions to Farmers' Challenges

Agricultural operations represent our economy's most dominant consumers of water resources. That's why this sector also offers the largest opportunities for cost and energy savings through a more efficient use of water like given supplement by foliar application.

"NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" delivers significant benefits to produce-farming operations, with valuable advantages to small-scale farmers as well as large agribusiness.

Today's farmers face increasing challenges, including ever-rising water costs and a powerful need to increase overall productivity. In addition, environmental concerns add pressure to find ways to control water usage and create solutions that are more sustainable.

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Causes of saline and/or sodic soils

Saline and/or sodic soil is caused by four separate conditions:

1. High salt in the parent material and low rainfall (low leaching),
2. High rainfall with poor internal drainage,
3. High water table that carries salt to the soil surface, and
4. High amount of salt being applied through chemicals, manure and poor quality irrigation water.

Before a reclamation system can be established, the factors causing salt accumulation must be eliminated. Ions most commonly associated with soil salinity include the anions: chloride (Cl-), sulphate (SO4=), carbonate (HCO3-), and sometimes nitrate (NO3-) and the cations: sodium (Na+), calcium (Ca++), magnesium (Mg++), and sometimes potassium (K+). Salts of these ions occur in highly variable concentrations and proportions.

Effect of salinity on crop production

Plant growth and yield are limited mainly by the soil environment factors. Soil, water, nutrients, salinity, sodicity, structure, temperature, pH, and mineral toxicities can all interact to limit plant growth. In Saline soils although pH (<8.5) and ESP (exchangeable sodium percentage) (<15%) are not high, CEC (Cation exchange capacity) is >4 mmhos/cm and an excess of soluble salt in the subsoil restricts water uptake by crops; in the case of alkalinity there are Nutrient deficiencies (either because of a lack of nutrients, or because roots are unable to access them). The best way of understanding these limitations is to consider them in terms of the interacting factors that directly influence crop growth. Therefore forever solution is SATEJMINE.

Traditional methods of reclamation of saline and sodic soils

Drainage carries the salts down through the soil profile and out of the rooting zone. Without drainage, salts will accumulate regardless of any applied soil amendments. However, implementing proper drainage systems is limited by expense and complex technical details. **Therefore forever solution is SATEJMINE.**

Leaching and reclaiming saline soils

Saline soils cannot be reclaimed by any chemicals, conditioner, or fertilizer. Reclamation of these soils consists of simply applying enough high-quality water to leach the soil thoroughly. The water applied should be low in sodium but can be fairly saline (1,500 to 2,000 ppm total salt), as this helps to keep the soil permeable during the leaching process. Generally, about 12 inches of water are required to remove 70 to 80 % of the salt for each foot of soil. This is also a limited technique in that application of excess water can create extra management problems due to the threat of high water tables, increased expense of irrigation water and difficulty in maintaining adequate levels of soil nitrate for crop growth. **Therefore forever solution is SATEJMINE.**

Reclaiming saline and sodic soils

In sodic soils, the exchangeable sodium is sometimes so great that the resulting dispersed soil is almost impervious to water. Sodic soil can be treated by replacing the absorbed sodium with a soluble source of cation i.e. calcium. Calcium may be made available through manipulation with native gypsum already in the soil, calcium in irrigation water (Calcium chloride), or commercial amendments. They may be useful where soil permeability is low due to low salinity, excess sodium, or high carbonate/bicarbonate in the water.

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In order to reclaim soil to a depth of one foot, gypsum recommendations are as follows: tons of gypsum per acre = 1.7 X (meq Na/100 g - (CEC X 5%). Reclamation of a foot depth of sodic soil on one acre requires approximately 1.7 tons of pure gypsum for each milliequivalent of exchangeable sodium present per 100 grams of soil. For example, if soil has a CEC of 20 milliequivalents per 100 grams and 30 percent exchangeable sodium, there would be 6 milliequivalents of sodium per 100 grams of soil. Thus, 10.2 tons of gypsum (6 x 1.7) per acre would be required to reclaim this soil.

If sodic soils contain no source of calcium (gypsum or free carbonates), then gypsum or a soluble calcium source needs to be applied. However, the reclamation process is not complete until most of the sodium is removed from the soil to at least a depth of three to five feet. Even then, more time is required for restoration of good soil productivity. This process is limited in that once the soil structure is completely destroyed; it is slow to return to a desirable condition. Correcting saline and sodic soils requires salt to be leached out of the soil profile. This requires good quality water, good soil permeability and good drainage. Amendments that supply soluble IONIC MINERAL are needed in huge quantity to correct sodic soils.

Reduce Soil Salinity with (Liquid Ionic Concentrated Mineral Fertilizing Water) Water Technology

Our scientists researched the effects of "NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" on plants and a method of dynamical activation of irrigation waters. From this research exciting new applications have been developed and tested in farm, poor nutritive landfill, light dessert & control environment farming like greenhouse farming etc. The applications include physical- chemical changes of irrigation water parameters, resulting in improvement of filtration properties and in an increase in the dissolving properties of water.

Research shows that these changes result in an increased ability of soil to get rid of salts and results in a better assimilation of nutrients and fertilizer in plants during the vegetation period. Plants irrigated with "NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" easily take up mineral salts from the soil & leaf and no sediment is formed on the soil surface.

The advantages of using "NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" for irrigating crops are as follows:

- **Vegetation period decreases by 15-20 days, therefore the crops ripe 15-20 days earlier than normal**
- **Crop production increases from 15% to 100%**
- **Plant disease rates dramatically decrease**
- **The taste of agricultural products improves**
- **Increase nutrient content in produce**

Benefits to Agriculture

"NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" that nourishment of crop and our agricultural fields has proven to increase productivity.

The "NATURAL LIQUID IONIC CONCENTRATED MINERAL FERTILIZING WATER" is more permeable, with less salinity, which leads to better plant leaf & soil penetration and absorption, and less runoff.

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Application of SatejMine formulation

Our SatejMine product source from sea water so our mineral product is purely organic. When its use in agriculture farming than resulting is more product with higher quality means mineral utilized agro commodity product have higher nutritional & medicinal properties other than regular farming.

When SatejMine formulation used in farming this time see the result at least two to three (2 to 3) time growth in Leaves / Stem / Root /Fruit / Flower / Pollen etc. in a four (4) month crop Cycle.
Its use 40% reduce maturity time in some trees like Sag / Nilgiri / chandan / teakwood etc.
When you are do farming for seedling this time use SatejMine water 2% solution for soaking overnight seed before use it and get benefit in germination time period. Our mineral product used in hydroponic also.
SatejMine delivery to foliar on leaves or give at root place with water draining
When you delivery at root part place this time 0.5 (1/2) ML with 500 ml water per 12-15 days interval. This type of method is suitable for long time taking trees plantation like Nilgiri / Chandan / Sag / Teakwood etc.

Second and most suitable for all crop & commodity as a foliar on leaves.
First make solution of 0.5% SatejMine as given below

1). 5 ml SatejMine put in 1(one) liter of water
2). 75 ml SatejMine put in 15(fifteen) liter of water
3). 500 ml SatejMine put in 100(hundred) liter of water
4). 1000 ml / 1 liter SatejMine put in 200(Two hundred) liter of water

This solution foliar on leaves every ten days interval for your best quality production which your social responsibility also.