APPLICATION OF A SOIL BIO-INOCULATOR
"GENESIS WITH SUMAGROW"
IN CORN CULTIVATION TO SMELT

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Ecuador basin

INDEX.

1. INTRODUCTION.

Soil bio-inoculators are organic mineral or biological compounds produced from a fermentation extract prepared in multiple stages or by isolation and multiplication of microorganisms. The extract includes different species of bacteria and fungi belonging to different genera which are

natural inhabitants of water and soil.

Bio-inoculators are very useful in bio-fertilization programs because they are the best tool to acclimatize new alternatives to chemical fertilization and reduce the emission of greenhouse gases generated by these activities. They are also becoming essential products for organic production since their use favors the environment of the soil, plant, microflora and edaphic fauna, which translates into a marked strengthening of the nutritional status of the plant allowing it to activate the systems of self-defense of the same, considerably reducing the harmful effect caused by pests.

2. OBJECTIVES.

Determine the increase of production in the crops treated with (Genesis with SumaGrow), said increase would be the result of the restitution of the natural mechanisms that the soil has to fix and solubilize nutrients through microorganisms, which will be used by the plant for its nutrition, besides benefiting the physical, chemical and biological condition of it.

3. THEORETICAL FRAMEWORK

Any agronomist will tell you that truly healthy soil will produce healthy and abundant plant life, without dependence on chemical fertilizers. The problem in most communities today is that continuous applications of fertilizers have destroyed the natural microbial activity in the soil, so it requires the use of additional fertilizers to provide nutrients to the life of the plants.

Fertilizers in the soil are like steroids in humans: they have near-immediate and desirable results in the short term, but in the long term they can be very dangerous to your health. In the case of fertilizers, chemicals seep into groundwater and can leak into rivers, lakes, streams and oceans, much to the detriment of the bodies of water and wildlife they support. Chemical fertilizers are very polluting. Due to this polluting effect, environmental regulations are increasingly oppressive related to the use of fertilizers and very punitive when a negative environmental impact is found.

The solution is to improve the health of the soil by adding a dose of microbial activity, therefore remediating the soil even healthy state that supports the growth of plants without reliance on chemical fertilizers. Our Genesis product with SumaGrow provides a highly concentrated, patented blend of multiple naturally occurring soil microorganisms selected specifically for their ability to improve and rehabilitate the soil. No matter what the state of your soil, "Genesis with SumaGrow" will improve it.

How does it work? Microbes are a part of everything that lives. The microbes help to digest

food, help the assimilation of nutrients in animals, in fact, each living being maintains a relationship with microbes at a very fundamental level. Microbes in the soil increase nitrogen, phosphorus and the availability of micro - minerals in plants, and they play a key role both in the production of vitamins and plant hormones and in the inhibition of plant pathogens. Without microbes, there would be no life. However, there are billions, perhaps billions of million species of microbes. There is nothing that happens on the planet with any living being that does not involve microbial activity. However, not all microbes work in harmony, so it is key to find microbes that are not only compatible, but perform different functions in the soil. Researchers at Michigan State University were able to identify multiple of these

5000/5000

soil microbes, and tested over a period of three years in more than 200 plots, it was shown that this unique combination of microbes is able to improve the health and performance of any plant, from 25% to 400% - without fertilizer . It does not matter if you are growing fruits, vegetables, grass, flowers, cereals or legumes, high microbial activity is the key to plant health and productivity.4. EXPERIMENTAL DEVELOPMENT.4.1. Data of the trial. The trial was carried out on the property of Mr. Rodrigo Valdivieso located at Km. 10 via Santo Domingo - Chone in the province of Santo Domingo de los Tsachilas. The farm is dedicated to agricultural production and corn silage production to feed the animals. The variety of corn they sow is DK7088. The trial lasted 68 days from July 10 to September 17. The following schedule was made: • July 10, 2014 First application 25 ml. at 33 m2 = 2 gallons / hectare • August 13, 2014 Second application 25 ml. at 33 m2 = 2 gallons / hectare • September 17, 2014 Harvest 4.2. Experimental design. Completely Random Design: This design consists in assigning the treatments in a completely random way to the experimental units (individuals, groups, plots, cages, animals, insects, etc.). Due to its unrestricted randomization, it is convenient to use experimental units of the most homogeneous possible: animals of the same age, of the same weight, similar physiological state; plots of equal size, etc., in order to reduce the magnitude of the experimental error, caused by the intrinsic variation of the experimental units. This design is appropriate for laboratory experiments, greenhouse, field crops, etc., that is, experimental situations as well as the environmental conditions surrounding the experiment. The variables under study are: V1 Green matter production V2 Edaphic profile The treatments under study are: CHEMICAL FERTILIZER GENESIS WITH SUMAGROWT1 R1 - R2 - R3 100% NOT2 R1 - R2 - R3 50% applicationT3 R1 - R2 - R3 0% applicationChances of distribution of treatments and repetitions (PLOTS) CROPPING PATH T1R1 T2R2 T2R3 CULTIVATION T2R1 T1R2 T3R3 T3R1 T3R2 T1R3 FOREST 4.3. Record of measurements. Table 1. Information collection sheet in kg. 100% CHEMICAL 50% CHEMICAL + SUMAGROW ONLY SUMAGROWT1R1 T1R2 T1R3 T2 R1 T2R2 T2R3 T3R1 T3R2 T3R318.50 19.50 20.00 19.00 15.50 12.50 20.00 14.50 16,5018.50 17.00 16,50 19,50 13,50 15,00 16,00 19,00 18,5018,00 13,00 15,50 18,00 18,00 16,50 13,50 17,50 18,5010,00 22 , 00 14.00 18.00 13.00 13.25 18.25 17.50 6.00 18.00 14.50

65.00 49.50 74.00 76.50 65.00 75.00 62.75 69.25 85.504.4. Results.Treatment Weight Total Kg. Production increase in% T1 (100% Chemical) 200.75 0T2 (50% chemical + GSG) 231.00 15,06T3 (100% GSG) 227.50 13.334.5. Graphs Graph 1. Graph 2. 5. ANALYSIS AND DISCUTION. It is evident that the results obtained (Table 1 and Graph 1 and 2), that the application of soil bio-inoculator (Genesis with SumaGrow) considerably increases the production of green forage and therefore the amount of dry matter in the crop, this being a product that is going to be conserved by means of the technique called silage is of great importance this increase since it will allow us to obtain more production of silo covers that will be reflected in a greater milk production, better nutritional and reproductive status of the animals that consume it. CONCLUSIONS AND RECOMMENDATIONS From the analysis carried out and the results obtained, it can be concluded that: • The objectives set for this practice are satisfactorily met, since the increase in production meets expectations and coincides with the production increases obtained in other similar tests carried out in other latitudes • It is important to note that the increase in crop production was a reflection of an improvement first of the condition of the soil and then of the plant. • Genesis with SumaGrow is a bio-inoculator of soil based on microorganisms and humic acids, so that their contribution of nutrients to the plant is very limited. However, the results obtained are very encouraging both in forage production and in the reaction time of the soil to the product. • The best result in production was seen in the T2 which shows a double saving. First, by increasing production by 15% and second by reducing the use of chemical fertilizer by 50% • T3 (100% Genesis SumaGrow) versus T1 (100% Chemical) shows an increase in production of 13, 33% clearly showing the benefit of applying only (Genesis with SumaGrow) against traditional chemical fertilization. • Based on what was written in the previous point, a very important additional benefit that would be the production of organic crops using exclusively (Genesis with SumaGrow) that cue
t with an international certification (OMRI) that accredits it as an organic product and therefore can be used without any risk in your crops. Among the suggestions we can mention that: • Make the Genesis application with SumaGrow in larger extensions for a additional evaluation both in combination with chemical fertilizers and also in Genesis exclusive applications with SumaGrow
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