MAWARID DESERT CONTROL

COMPANY PROFILE

2024

009-P-EYE-PRE-MDC_VISION-A

OUR HOMELAND EXPECTS A LOT FROM US. THE PEOPLE ARE LOOKING FORWARD TO OUR WORKS, AND WE ARE ALL PARTNERS IN THIS RESPONSIBILITY.

H.H. SHEIKH ZAYED BIN SULTAN AL NAHYAN,
FOUNDING FATHER OF UNITED ARAB EMIRATES
(MAY GOD HAVE MERCY UPON HIM)

WHO WE ARE

Established to be a leading provider of climate-smart agriculture solutions to combat desertification and soil degradation as the driving force for sales and distribution of Desert Control's Liquid Natural Clay (LNC) across the Middle East. Mawarid Desert Control focus on sustainable ecosystem management for agriculture, forestry, afforestation, and landscaping, to preserve water resources, strengthen food security, restore biodiversity, and safeguard our environment by contributing to efficient use of our natural resources.

Liquid Natural Clay (LNC) is a patented process that enables sand and degraded soil to retain water and nutrients, thus increasing crop yields and ecosystem resilience while preserving water resources by up to 50%.

VISION

+ Our vision is to make the **desert green** again.

MISSION

+ Our mission is to make the **desert green** again, by stopping and reversing **desertification** and soil **degradation**.

WHAT IS LIQUID NATURAL CLAY ?

Liquid Natural Clay (LNC) is a 100% natural product with no added chemicals that can provide up to 50% water savings. Since the compound is liquid it can be applied using existing water systems without making further investment in new equipment.

UP TO 50% WATER SAVING

REDUCED LABOUR COST

IMPROVED SOIL HEALTH & YIELD

CERTIFIED PRODUCT

USDA ORGANIC

وزارة التغير المناخي والبيئة
MINISTRY OF CLIMATE CHANGE & ENVIRONMENT

RESTORED BIODIVERSITY

TESTED PRODUCT

ARIZONA

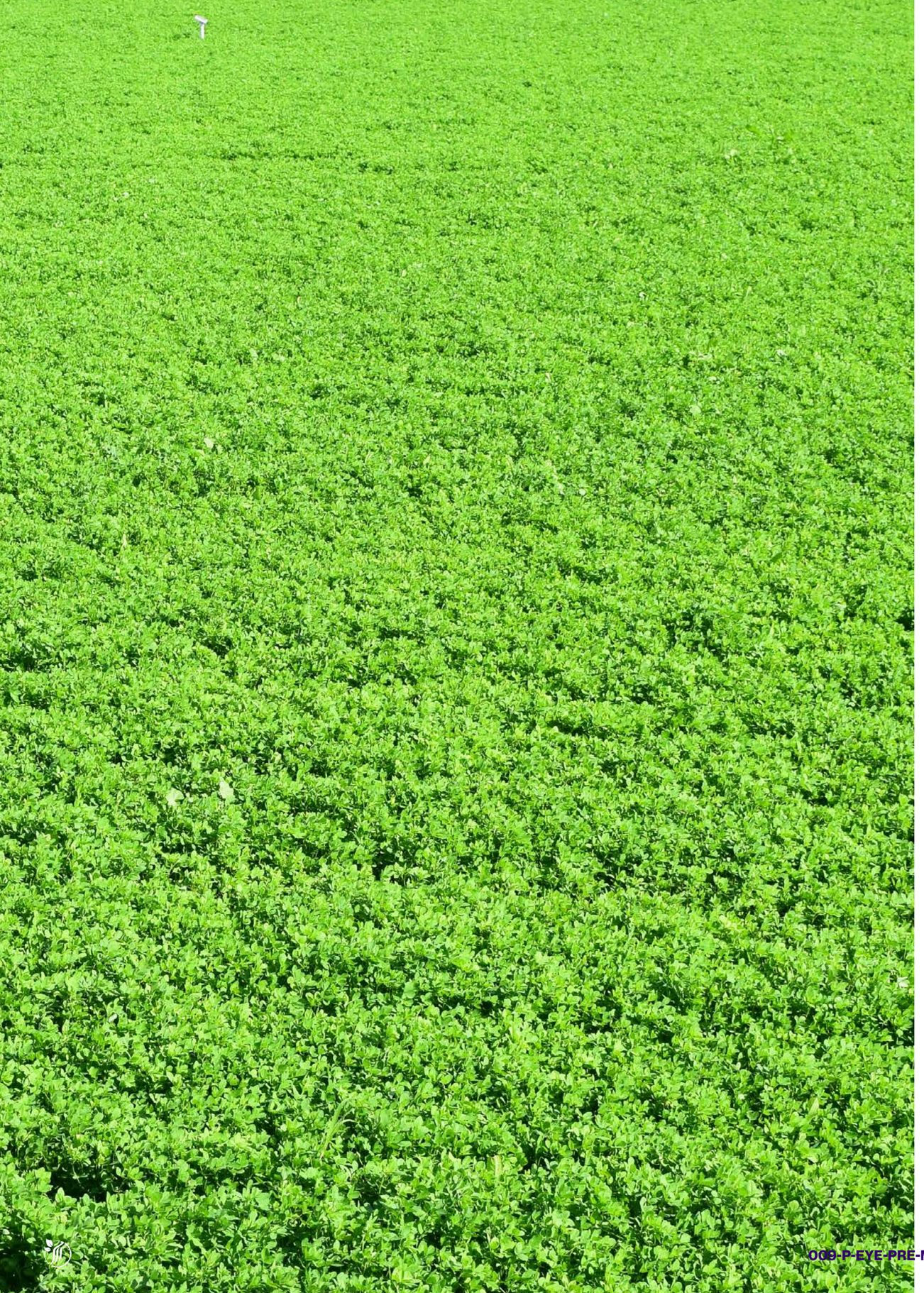
جامعة العين
AL AIN UNIVERSITY

LOWER CARBON FOOTPRINT

ENDORSED PRODUCT

BILL & MELINDA GATES foundation

WORLD ECONOMIC FORUM



HOW IT WORKS

Liquid Natural Clay (LNC) is a 100 % natural product with no added chemicals that can provide up to 50% water savings. Since the compound is liquid it can be applied using existing water systems without making further investment in new equipment.

APPLY
Applied directly to sand or arid soil and forms a structure like a sponge.

SAVE
It's a non-intrusive method which saves up to 50% water and fertilizer.

GROW
The enriched fertile soil will increase crop yields up to 62% and combat desertification.

WHAT IT DOES FOR YOU

Reduced pressure on natural resources: Up to **50% water and fertilizer savings.**

Improved plant health and yield: Yield and better crop **quality.**

Reduced operational **costs:** Lower **labor** and **maintenance costs.**

Lower pressure on infrastructure: Lower **energy costs** and **carbon footprint.**

Restored biodiversity and captured carbon: Triple bottom line opportunity.

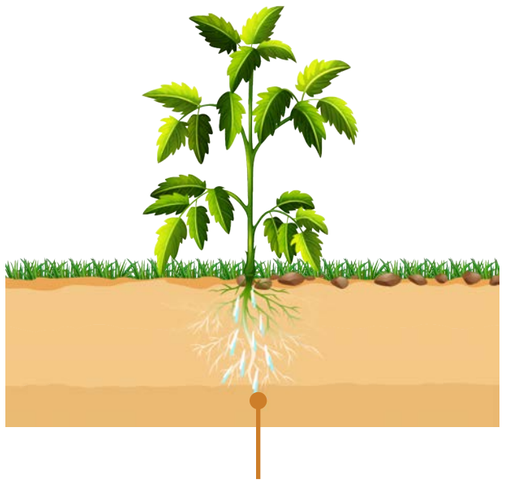
LNC application lasts for **3-5 years.**

THE SCIENCE

LNC works by reducing water consumption, improving soil health, restoring biodiversity & reducing CO^2 footprint.

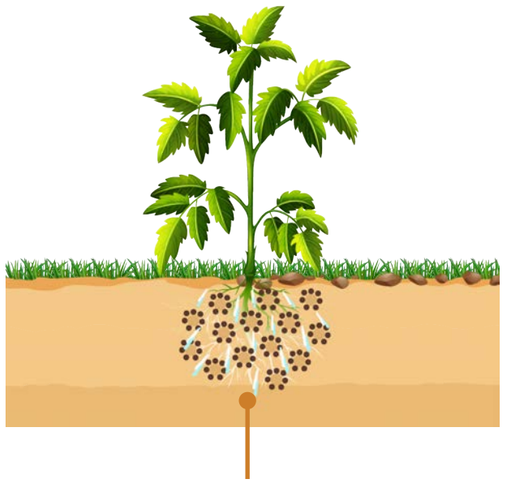
+ Improving soil surface area and charge.
+ Creating clay bridges that form soil aggregates by binding sand particles together and creating micro-pores and micro-pores for air and water storage.
+ The soil geology is upgraded by changing these properties, creating a more stable soil ecosystem that retains water and nutrients in the root zone.

BEFORE



In **sand soil,** the **water** and **nutrients** do not to stick to the clay.

AFTER



LNC attached to sand particle allows **water** and **nutrients** to stick to the clay.

THE APPLICATION PROCESS

CURRENT STATE
Collect info (health check)
Soil properties and soil ecosystem, water, plants and other key parameters

FORMULATE SOLUTION
Create specific formulation to achieve objectives
Develop implementation and land use guidelines

IMPLEMENT AND MONITOR
Apply LNC by selected methodology and protocol
Implement new land management practice
Monitor and measure result

PORTFOLIO

Project Spotlight 1:

PUMP PARK

This project is an urban park that is in a sustainably focused zone in Abu Dhabi, United Arab Emirates. Ground cover, shrubs and trees are the type of plants that were planted, with monitors installed, flowmeter and sensors. The application method used was an existing sub-surface drip irrigation system and the reduction of water by 69% (trees) and 56% (GC & Shrubs) while increasing soil moisture content.

LOCATION
Abu Dhabi, United Arab Emirates

CLASSIFICATION
Urban Park

STATUS
Completed

ROLE
Site Validation & Assessment
LNC Application & Monitoring

PARTNER
Confidential

BUDGET
Confidential

Project Spotlight 2:

KHALIFA PARK

This project is a large public park located in Abu Dhabi, United Arab Emirates. Lawn area is the type of plant that was planted, with a sensor monitor installed. The application method used was manual and the reduction of water by 52% while increasing soil moisture content.

LOCATION
Abu Dhabi, United Arab Emirates

CLASSIFICATION
Landscaping

STATUS
Ongoing

ROLE
Site Validation & Assessment
LNC Application & Monitoring

PARTNER
Confidential

BUDGET
Confidential

Project Spotlight 3:

BALINESE GARDENS

This project is an high-end and region's first eco-conscious residental development in Dubai, United Arab Emirates. Ground cover, shrubs, lawn and trees are the type of plants that were planted. The application method used was a manual spray and the size of the treatment area is approximately 10,000m2 lawns, shrubs and ground cover, and 160 trees at each site.

LOCATION
United Arab Emirates

CLASSIFICATION
Landscaping

STATUS
Completed

ROLE
Site Validation & Assessment
LNC Application & Monitoring

PARTNER
Confidential

BUDGET
Confidential

Thank you.

موارد القابضة للإستثمار
MAWARID HOLDING INVESTMENT

Mawarid Desert Control

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موارد ديزرت كنترول
Mawarid Desert Control

براري للموارد الطبيعية
BARARI NATURAL RESOURCES

APPENDIX

Project Spotlight 4:

U.S. AGRICULTURE VALIDATION STUDY

Liquid Nano Clay (LNC) treated plot had shown a considerable decline in mortality rates, which has increased lateral water circulation in the soil and improved crop hydration. A reduction in the watering schedule of up to 50% and it has proven to be successful in reducing waste, with applied fertilizer savings of up to 40%. LNC has an effect even under difficult circumstances, as shown by higher yields in scenarios of moderate drought (80% irrigation) and severe drought (50% irrigation). For instance, watermelon fruit has a 13% thicker rind and a 7.5% increase in sugar content. Furthermore, the LNC intervention had reduced the transplantation shock for bell peppers, resulting in a less stressful transition and encouraging healthy growth.

LOCATION
Yuma, Arizona

CLASSIFICATION
Agriculture

STATUS
Ongoing

ROLE
Site Validation & Assessment
LNC Application & Monitoring

PARTNER
University of Arizona

BUDGET
Confidential

Project Spotlight 5:

UAE ADAPTIVE AGRICULTURE VALIDATION

Liquid Nano Clay (LNC) was successfully applied to a cultivation area that included Zucchini, Pearl Millet, and Watermelons. Following the application of LNC, notable outcomes emerged, including a reduction in mineral usage to less than 1kg per m2 within the treated plots. Additionally, substantial water and fertilizer conservation of up to 20-50% was achieved, accompanied by a remarkable boost of 17-62% in crop yields. The intervention led to heightened levels of organic matter, decreased salinity, and an overall enhancement of soil health.

LOCATION
United Arab Emirates

CLASSIFICATION
Agriculture

STATUS
Completed

ROLE
Site Validation & Assessment
LNC Application & Monitoring

PARTNER
ICBA

BUDGET
Confidential

Project Spotlight 6:

UAE CLIMATE RESILIENT LANDSCAPING VALIDATION (BERMUDA GRASS)

The mineral usage has been optimized to less than 1kg per square meter and this has resulted in a significant 47% reduction in water consumption. With an astonishing 52% increase in biomass and grass growth, this shift has resulted in tangible growth. Additionally, the soil quality has improved due to an increase in organic matter and a decrease in topsoil salinity. Furthermore, there is now an increase in accessible phosphorus (P) and potassium (K) within the soil structure. This intricate process has even aided the growth of mycorrhizal filaments, creating a balanced and healthy environment below the surface.

LOCATION
United Arab Emirates

CLASSIFICATION
Landscaping

STATUS
Completed

ROLE
Site Validation & Assessment
LNC Application & Monitoring

PARTNER
ICBA

BUDGET
Confidential

MDC CERTIFICATIONS

CERTIFICATIONS

UNITED ARAB EMIRATES
MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

الإمارات العربية المتحدة
وزارة التغير المناخي
والبيئة

شهادة تسجيل سماد أو مصلح زراعي

Registration certificate of fertilizers and agricultural conditioners

This is to certify that the product is registered at the Ministry of Climate Change & Enivronment according to the following information

تشهد وزارة التغير المناخي والبيئة أن المنتج مسجل لدى الوزارة وفقًا للبيانات التالية:

Certificate No.	DXB-APH-34-2318938	**رقم الشهادة**
Verification Code	229-5254	**رمز التحقق**
Issue date	13-07-2023	**تاريخ الاصدار**
Expiry date	12-07-2028	**تاريخ الانتهاء**
Operation Name	Desert Control Liquid Natural Clay Manufacturing - Sole Proprietorship L.L.C. / ديزرت كونترول لصناعة الطين الطبيعي السائل - شركة الشخص الواحد ذ م م	**اسم المنشأة**
Operation Address	21 Al Jaza-Ir St - Abu Dhabi Industrial City - ICAD I - Abu Dhabi - United Arab Emirates	**عنوان المنشأة**

Commercial Name	Liquid Natural Clay		**الاسم التجاري للمنتج**
Product Category	Certified Organic Fertilisers	أسمدة مرخصة للزراعة العضوية	**فئة المنتج**
Producing Company	Desert Control Liquid Natural Clay Manufacturing - Sole Proprietorship L.L.C.		**اسم الشركة المنتجة**
Country of Origin	الامارات العربية المتحدة		**بلد المنشأ**

للتحقق من صحة بيانات هذا المستند يرجى مسح الشيفرة أو زيارة موقع الوزارة

To verify this document please scan the QR code or visit the ministry's website

هذا المستند معتمد إلكترونيا ولا يحتاج إلي توقيع أو ختم

This document is electronically approved and does not require signature or stamp

UNITED ARAB EMIRATES
MINISTRY OF INDUSTRY
& ADVANCED TECHNOLOGY

الإمارات العربية المتحدة
وزارة الصناعة
والتكنولوجيا المتقدمة

شهادة مطابقة
CERTIFICATE OF CONFORMITY

Certificate Number:	23-03-65853/E23-03-067492/NB0002		**رقم الشهادة:**
Registration Date:	16/03/2023		**تاريخ التسجيل:**
Valid Until:	15/03/2024		**صالحة لغاية:**
Issued To:	Desert Control Liquid Natural Clay Manufacturing - Sole Proprietorship L.L.C. P.O. Box 114043 ,Mussaffah ICAD I - 24J5-WH-B2-26 Abu Dhabi ,United Arab Emirates		**أصدرت إلى :**
Sector:	Food	أغذية	**قطاع:**
Product Category:	Organic	منتجات الأغذية العضوية	**تصنيف المنتج:**
Product Sub-Category:	Organic fertilizers/inputs	الأسمدة العضوية	**التصنيف الفرعي للمنتج:**

Please check Schedule of certification for all product details **يرجى التحقق من بيان التسجيل المرفق لجميع تفاصيل المنتجات**

Please check Schedule of certification for all product details **يرجى التحقق من بيان التسجيل المرفق لجميع تفاصيل المنتجات**

SGS

جهة معينة من قبل وزارة الصناعة والتكنولوجيا المتقدمة
Notified body by Ministry of Industry and Advanced Technology

عضوي

Products are registered under the Emirates Conformity Assessment Scheme (ECAS) based on compliance to the Approved Standards

المنتجات مسجلة في نظام تقويم المطابقة الإماراتي (إيكاس) بناء على مطابقتها للمواصفات المعتمدة

This is an electronic certificate and does not require stamp and signature. Certificate will be invalid in case of any modification

هذه الشهادة صدرت إلكترونياً ولاتحتاج لختم أو توقيع، أي كشط أو تغيير في هذه الشهادة يلغيها.

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OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

Product
Desert Control LNC

Company
Desert Control
Marty Weems
1219 E 21st Street
YUMA Arizona 85365 United States

Status	Category	Issue date
Allowed	NOP: Bentonite	13-Jun-2023
Product number	**Class**	**Expiration date**
dcd-18739	Crop Fertilizers and Soil Amendments	1-Sep-2024

Restrictions

Not applicable.

Executive Director/CEO

Product review is conducted according to the policies in the current *OMRI Policy Manual*© and based on the standards in the current *OMRI Standards Manual*©. To verify the current status of this or any OMRI Listed product, view the most current version of the *OMRI Products List*© at OMRI.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.

OMRI LISTED

Organic Materials Review Institute
P.O. Box 11558, Eugene, OR 97440-3758, USA
541.343.7600 · info@omri.org · OMRI.org

CERTIFICATIONS

جامعة العين
AL AIN UNIVERSITY

Final Report on

Soil Infiltration Tests

Prepared by

Prof. Mohammad Alhassan & Engineer Ahmed Maher
Civil Engineering Program, CoE, AAU

Prepared for the

Desert Control Middle East LLC

Administered by

Deanship of Scientific Research, AAU

August 24, 2022

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ICBA
تزرع للغد
AGRICULTURE FOR TOMORROW

September 16, 2019

Key findings for the Liquid Nano Clay (LNC) product being tested in turf and Bermuda grass pilot field trials in a desert environment

It is very important to identify soil amendments that can enhance the soil properties in hot and dry conditions. Liquid Nano Clay (LNC) is one of the most promising solutions to improve the soil productivity and plant growth. Desert Control Company in collaboration with International Center for Biosaline Agriculture (ICBA) evaluated for the effectiveness of LNC product on turf and bermuda grasses used for landscape purposes compared to the "business as usual" cultivation model of golf course companies. The experiment was conducted at ICBA's research station, looking into the water and nutrients retention and biomass production in desert conditions after LNC treatments application for one year. The key findings after evaluation of the 10 Liquid Nano Clay (LNC) treatments, untreated plots included, on turf and Bermuda grass plots were the following:

1) Bermudagrass constituted a good grass candidate for the UAE summer climate compared to turf grass since the latter grass species could not survive the high temperatures during the hot summer season and finally died.
2) Bermuda grass treated with LNC could have water savings as high as 47% and still higher biomass production for certain mixtures.
3) Topsoil salinity significantly decreased in the LNC treated plots. This outcome was observed and verified by two soil samplings one month and four months after the LNC applications (25th of February & 29th of May 2019).
4) LNC treatment significantly increased soil available P content of the surface soils compared to the available N which was highly consumed by the grasses for their development.
5) Soil analysis for the second sampling (late May) showed that treatments 1.2 kg LNC injected, 1.2 kg LNC injected & combined with fungi, 0.7 kg LNC sprayed with aeration – 2 applications, 1.2 kg LNC sprayed with aeration – 20 L/m^2 and 1.2 kg LNC injected with sodium bentonite significantly increased soil Potassium available content compared to the control especially in the upper soil layers (up to 10 cm).
6) Treatments 1.2 kg LNC injected and 0.7 kg LNC sprayed with aeration were the ones that improved soil organic matter content especially at the second soil sampling.
7) F treatment (1.2 kg LNC injected combined with fungi) was very effective in boosting the growth of Bermuda grass species and demonstrated double fresh biomass production (2259.3 g/4m^2) compared to the one observed for ET-based untreated plots (1081.7 g/4m^2) with a total of water savings of 47%.
8) ET based irrigation schedules on LNC treated plots with reduced flow rates of water showed good results and could lead to confirmed water savings of over 30%.
9) During ET based irrigation of all plots the 1.2kg LNC sprayed application seemed to have the highest soil moisture levels (almost twice as high as reference field) with over 30% less water consumption without any compromise on grass growth by using LNC.
10) Different LNC treatments showed better results at specific growth stages and time periods.

It is vital for agriculture implemented in desert areas to adopt management practices, methodologies and apply products that contribute in fresh-water savings and retain the soil moisture and nutrients in satisfying levels that will enhance crops growth and continuous development. LNC is such a product that its efficiency is evaluated for the first time in field trials following a systematic research study in desert climatic conditions.

Seta Tutundjian
Director of Programs

ICBA
تزرع للغد
AGRICULTURE FOR TOMORROW
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هاتف: ١١٠٠ ٣٣٦ ٤ ٩٧١+ فاكس: ١١٥٥ ٣٣٦ ٤ ٩٧١+